Pamantasan ng Lungsod ng Maynila

Web-based Faculty Load and Class Scheduling System for PLM - Computer Science Department

A Project Presented to the Faculty of
College of Engineering and Technology
Pamantasan ng Lungsod ng Maynila

In Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Computer Science

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ABSTRACT

Class schedule and faculty load is one of the struggles of the person-in-change in the university. Especially when collecting the data of faculty preference for scheduling does not have a systematic approach or because the creation of schedules is time-consuming. These may result in delay or confusion to the schedules. Additionally, creating schedules manually may cause conflict between schedules. In this paper, the researchers proposed a software solution that aimed to assist the chairperson of the department to make an efficient distribution to faculty load and schedule. It also has a better way to collect preference of the faculties. The implementation of the system has effectively increased the efficiency by having a button that will automatically generate the faculty loads and schedules. It also helps to avoid overlapping schedules by detecting conflicts that will notify the chairperson when in edit mode. Moreover, the system achieved to provide the client expected performance because of its functionalities and features like export schedule reports into an excel file, being able to edit faculty schedules, the system provides security because of its OTP design, etc. Overall, the system solves the presented problems and ensures to achieve the researchers' objectives that will greatly help the person-in-charge in distributing faculty load and schedules.

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The researchers are using this opportunity to express their deepest gratitude to everyone who supported them throughout the whole endeavor of developing a software solution that the researchers hope would lessen the burden of creating a timetable schedule for the convenience of chairpersons of various departments of the Pamantasan ng Lungsod ng Maynila.

First and foremost, to Almighty God, for giving the researches the needed willpower, and determination to see this project come into fruition.

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The Javawockeez Team

CERTIFICATE OF ORIGINALITY

We hereby declare that this submission is our own work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material to which to a substantial extent has been accepted for award of any other degree or diploma of a university or other institute of higher learning, except where due acknowledgement is made in the text.

We correspondingly make known that the intellectual content of this capstone project is the product of our work, even though we may have received assistance from others on style, presentation, and language expression.

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CHAPTER 1

THE PROBLEM AND ITS SETTING

1.1 Introduction

For several decades, educational institutions have relied on computer-based systems to support a wide variety of administrative functions. These functions include course registration, management and storage of student records, personnel management, and more. Implementing such systems has resulted in a considerable increase in the organizational agility of these institutions, making it possible for them to attain and continue to sustain a significant degree of administrative and operational efficiency.

Multiple factors affect a person's performance in their profession. One of which is the management of a person's most valuable resource, their time. A professional may perform their job more effectively by using time management and planning abilities. On the other hand, there are times when someone controls their time well, yet their schedule is still problematic. This issue is comparable to the scheduling issue for university courses at a Mexican institution; the study led to time savings and demonstrated how it made it possible to meet all requirements, at the very least for the study program and the time slots set aside for it. The aforementioned study made a relevant impact on how the problem in creating timetables and schedules affect the performance of the academic institution’s specific department (Arratia-Martinez et al., 2021).

Creating timetables for the delivery of classroom schedules is a fundamental and ongoing process in the administrative work of educational institutions like colleges and universities. During this process of class scheduling, each class will be allotted a time slot and a classroom based on a set of prerequisites and limitations that will apply. These requirements often include the size and type of the needed classroom, the availability of professor time, and the avoidance of scheduling conflicts for courses that students must complete in the same semester, among other considerations.

However, class schedules would not be possible if there are no generated schedules and loading of units for the faculty members. In the current system that we have, the chairperson is the one that handles scheduling and faculty loading. They fully make use of Microsoft Excel in inputting the data they gathered from contacting different faculty members that they handle in their course. With this type of strategy, there is time being consumed because of the way the chairpersons gather data from each faculty member for their preferred schedule.

There are a lot of systems that have been produced and being available on the internet regarding class scheduling and faculty loading. A variety of web-based applications are used by a lot of university colleges in the western countries (e.g. Coursedog) wherein these systems are both available for the use of administrators, faculties and students. In spite of that, there are only a few state university colleges here in our country which use such a class scheduling system but do not wholly utilize the advantage of modern technologies.

Due to this, the researchers came up with developing a web-based application system, specifically for the use of the Pamantasan ng Lungsod ng Maynila, that could effectively reduce the burden of work for the chairperson. In addition, the researchers want to reduce the time the chairpersons consume in creating and distributing the faculty loading and scheduling. This study also aims to provide a system that can resolve the problem of preference between what subject the professors want to teach and also the time he/she is available to teach. Moreover, with all of this being done, faculty loading and class scheduling would be more expedient in both ends. The web-based system that the researchers are developing would be the first functionable and flexible class scheduling system app that is particularly for the Pamantasan ng Lungsod ng Maynila

1.2 Background of the Study

Before the chairperson can generate schedules, he must first contact his faculty members through Facebook Messenger to obtain their preferred schedule and subject. Full-time faculty members are expected to be available all through-out the week. They are required to complete the standard faculty load of 15 units with an additional 6 units called extra load. On the other hand, part-time faculty members communicate their schedule and subject preference to the chairperson. This mode of communication for their data can be problematic as the data is not saved in any database. Retrieval and modification of data is recurring and when accomplished manually by the chairperson alone, it is considered a demanding task.

The current strategy of distributing faculty load and creation of class schedules are large, complex, and time-consuming tasks. Multiple factors must be taken into account before the creation of a schedule such as faculty, course, time slot, block, room, and etc (Evale, 2015). Creating a course schedule connotes an assignment of time intervals for each course and optimization of available resources such as classrooms and computer laboratories. Furthermore, it maximizes the department faculty inventory and preferences (Ortega, 2015). The creation of schedules is accomplished by the chairperson using Microsoft Excel with several sheets for each faculty member. Data entry is accomplished manually which is prone to human error. As data expands, the manual approach will result in schedule conflicts and inaccuracies. As a consequence, classes started late and some topics were not covered thoroughly (Kassa, 2015).

With the interview, the researchers found out that the current system is capable of detecting scheduling conflicts, however, it is inaccurate which makes this feature unreliable. The Computerized Registration System (CRS) of Pamantasan ng Lungsod ng Maynila (PLM) is not consistent in detecting scheduling conflicts. Therefore, errors in plotting must be manually checked which means every schedule that has been created is reviewed again.

1.3 Project Context

The faculty load and class scheduling system at Pamantasan ng Lungsod ng Maynila requires numerous manual input, which is considered time-consuming and can lead to human error. With these aforementioned issues, the researchers conducted this research that will benefit faculty, administration, and most importantly, the chairpersons who manually create schedules for each faculty member in their respective departments.

The following features and functionalities are integrated into the system to achieve maximum performance:

1. Admin can update the chairperson of the department.
2. Admin can create the College and add its department.
3. Admin can create accounts of faculty members and chairperson of the department.
4. Admin can choose the chairperson of the department using a checkbox.
5. The system has the capability to create an admin account and will be verified using OTP sent in the email.
6. Admin can edit the subjects offered by the College.
7. Admin can edit the buildings and rooms that are used in the College.
8. Faculty members and Chairpersons will receive a temporary password from their emails to verify their accounts that can be changed in their first log in.
9. The system has the capability to recover the account when the password is forgotten.

10. Faculty members and Chairpersons can log in to the system and select their expertise and time preferences.

11. Faculty members and Chairpersons can input their preferred consultation hours where this schedule cannot be loaded.

12. Chairpersons can create a semester and add year and block if necessary.

13. Chairpersons can create a course and add an academic year.

14. Chairpersons can update the curriculum of the semester.

15. Chairpersons can add a faculty member to the department.

16. The system has the capability to automatically load the faculty members and block schedules at once or individually**.**

17. Chairpersons can individually plot the unassigned class of the faculty or block.

18. Chairpersons can assign the classes to faculty members or assign faculty members to a block.

19. Chairpersons can reset all the faculty loads and block schedules or individually.

20. Chairpersons can delete, change, and reset the assigned class of the faculty or block. It will go back to the unassigned class tab if deleted.

21. The system has the capability to show the chairperson which time slots are unavailable while editing.

22. The system has the capability to notify chairpersons where the conflict happens.

23. The system can notify the chairpersons when overloading to the faculty happens when in edit mode.

24. Chairpersons can save the faculty schedule easily when all classes are assigned by having a checkbox beside the list of the faculties. The system can also save all the faculty schedules at once and the faculties that still have unassigned classes will be open.

25. Chairpersons can post the schedules of the faculty members after assigning all their classes.

26. Chairpersons can update the deadline of the preference form.

27. The system has the capability to automatically close the faculty preference form when the deadline date is met.

28. Faculty members have the capability to log in to the system and view their respective schedule after the chairperson posts it.

29. Chairpersons can export specific schedule of the faculty or block into .xlxs file. The system can also export all schedules of the faculty members into a .xlxs file. The owner of the schedule is indicated in the sheet.

1.4 Statement of the Problem

The researchers have distinguished these following problems:

1. Data collection of faculty preference for scheduling does not have a systematic approach which may cause confusion in schedule because of difficulty in communication.
2. Individual plotting of faculty schedule is time consuming as it takes 2 months to complete which exceeds the allotted 1-month duration.
3. Overlapping schedules cannot be detected in the current system since it does not have that functionality which means changes in schedule cannot be avoided; CRS suggests conflicts but is not consistent in detecting them.

1.5 Objectives of the Study

The main objective of the study is to develop a Web-based Faculty Load and Class Scheduling System for Pamantasan ng Lungsod ng Maynila - Computer Science Department that will improve the current faculty load and class scheduling system. Specifically, the study aims to:

1. Create a system that utilizes preference forms to collect faculty data for schedule generation;
2. Design a system that will optimize efficiency by automatically generating schedules; and
3. Develop a system that will notify the chairperson regarding overlapping schedules when in edit mode.

1.6 Significance of the Study

The system aims to help the chairperson to manage the schedules of both educators and students. It serves as an automated system in giving the class time to be spent by students and lecturers daily which proves the necessity to solve the problems of ineffective scheduling. By using an automated scheduling system, assigning time slots for classes can be useful for the following entities in which the researchers further elaborate their applicable benefits:

PLM University. Schedule decisions are made by chairpersons that are tasked to take into account the student and faculty population in assigning the time allotment for a subject meeting. Since schedules must be given immediately after registration which would ideally be a fast process since oftentimes, the semester will start days after. The software helps chairpersons in managing class schedules for the semester which would save time by suggesting time allotments compatible with the faculty's workload, informing conflicts with room reservations, and proposing the appropriate subject per the teacher's expertise. A systemised class schedule assignment keeps an organized environment for education that could also help in monitoring availability of rooms and resources within the school.

PLM Professional Educators. One of the challenges for the education system is the shortage of teachers and schools can choose to hire part-time instructors which would often need a more flexible schedule. The software solution would take into account the time and day when a teacher is most available to assign a convenient class schedule. New teachers could also face problems with getting subjects out of their expertise and to avoid this, the system summarizes the relevant subjects for a teacher. There are also constraints that the system must adhere to so that meetings are distributed in an appropriate span of time with consideration of breaks and the transition of online to face-to-face modes of learning.

PLM Students. Time management is an important concept everyone must learn to be

responsible in their chosen careers and that includes creating a consistent schedule for achieving their goals. Effective scheduling also means distributing work with consideration to rests or breaks in between classes for the day. A scheduling system can help students avoid condensed day schedules.

Future Researchers. This paper can be a reference for future research or application of a scheduling system that would provide some background and recommendations about creating or using the software solution.

1.7 Scope and Limitations

The primary goal of the system is to improve the current faculty load and class scheduling system. The web-based system offers automation, faculty interaction, and data to a flat file. Web-based platform: The system can be accessed through various platforms that have a web browser. Automation: where it instantly generates the faculty schedules by plotting the faculty members' preferences. Faculty interaction: the faculty member can input or edit the data needed for the creation of the schedule. Data to a flat file: Data can be exported to a .xlsx file for access and use in other applications like a MS Excel spreadsheet application. With what the system can offer, it also includes room assignment in the creation of the schedules to anticipate the back to normal or face-to-face schedules. The system only focuses on the Computer Science department but later can be adapted by other departments or colleges inside the PLM University.

1.8 Definition of Terms

Agile: A term used to describe approaches to software development emphasizing incremental delivery, team collaboration, continual planning, and continual learning; instead of trying to deliver it all at once near the end.

Algorithm: An algorithm is a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.

CRS: The Computerized Registration System or CRS is used by Pamantasan ng Lungsod ng Maynila to register online and access the records of both students and faculties.

Database: Database is an organized storehouse of data, information, and records.

End-user: a person or other entity that consumes or makes use of the goods or services produced by businesses.

IDE: Integrated Development Environment is a software application that helps programmers develop software code efficiently.

LAN: The Local Area Network or LAN is a computer network that interconnects computers within a local area.

OTP: One-time password (OTP) or also known as a one-time PIN is a password that is valid for only one login session or transaction, on a computer system or other digital device.

School Timetable: A schedule or calendar that coordinates students and teachers within the classrooms and time periods of the school day.

Software: is a set of instructions, data or programs used to operate computers and execute specific tasks.

Web Framework: Is a set of resources and tools for software developers to build and manage web applications, web services and websites.

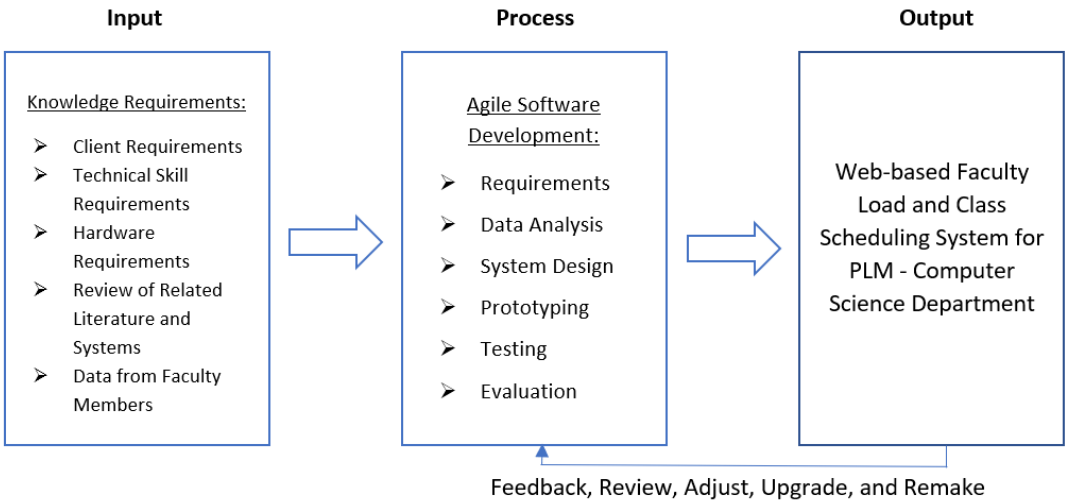
CHAPTER 2

REVIEW OF RELATED LITERATURE AND STUDIES

2.1 Conceptual Framework

Figure 2.1

Conceptual Framework



Note. Figure 2.1 was based on the Input, Process, Output model or the IPO model. **Input** contains Client Requirements, Technical Skill Requirements, Hardware Requirements, Review of Related Literature and Systems, and Data from Faculty Members. These are necessary knowledge requirements on Input to develop the proposed system. **Process** contains Requirements, Data Analysis, System Design, Prototyping, Testing, and Evaluation. These processes are fundamental in developing the system using Agile Development Methodology. **Output** will be the Web-based Faculty Load and Class Scheduling System for PLM - Computer Science Department, where Feedback, Review, Adjust, Upgrade, and Remake of the system will be done by the developers upon checking.

2.2 Related Literature

Class Schedule

One of the complex operational planning problems when universities grow is class scheduling (Kassa, 2015). Manually scheduling the faculty loads and class may give the person-in-charge a difficulty handling it all. Especially when the data and variables expanded, it will be inaccurate and may result in conflict between schedules. It may need several revisions of the schedule to come up with a best schedule. This may result in late start of subjects and some course topics were not taught immediately.

Moreover, according to Zaeniah & Salman (2020), creating class schedules manually becomes a problem because of the faculty members and students schedule issue. As concluded in the study, manual scheduling consumes time and requires a lot of attention.

In addition, Humphrey & Singh (2017) propose that the class schedule of the students is necessary for their improvement as an individual. Universities tend to face conflicts between schedules because it is manually created. This may lead to serious development problems like delayed learning of the students.

That being the case, Abdullah (2019) stated that developing a class schedule system is very helpful for the person-in-charge creating the schedule to search the subjects and students that have this school timetable. As indicated in this study, this system helps to modify the variables like students and faculty members and data like subjects and department. This may result in a better class scheduling system than creating it manually because it generates reports like class list and faculty schedule. Variables and data inside the schedule can be easily managed and manipulated since the end-user can control the database. The person-in-charge can maximize this system in creating class schedules and faculty loading.

Branch and Bound Algorithm

The branch and bound approach is neither a solution or a strategy that is just applicable to issues with integer programming. It is a method of finding solutions that may be used for many various kinds of issues. The branch and bound method is founded on the idea that the entire set of workable solutions may be divided into more manageable subsets. Then, until the ideal answer is discovered, these smaller subsets can be methodically analyzed (Taylor, 2017). The branch and bound method is used in combination with the conventional noninteger solution method when solving an integer programming issue. This enumerative method may be used to solve a variety of combinatorial optimization issues. The algorithm locates the first full schedule and then makes an effort to make it better. Growing "promising" branches can frequently result in a large number of progeny that ultimately might not represent an improvement. As a result, the tree's size might increase exponentially without improving the optimum outcome (Pineldo, 2001).

Decision Support System (DSS)

A decision support system (DSS), which was first used in 2022, aids businesses in making decisions that require deliberation, determination, and a series of actions. A DSS can be run manually, automatically, or both ways. There are three essential parts to all decision support systems: a model management system, a user interface, and a knowledge base. There are five different types of decision support systems: communication-driven, model-driven, knowledge-driven, document-driven, and data-driven. A DSS might have downsides, yet it nevertheless accomplishes its goal of data collection and analysis to produce complete information. DSSs are crucial for organizing and controlling activities, and they also greatly aid in decision-making when dealing with issues that are hard to predict in advance and are constantly changing. DSSs are business software tools that significantly aid organizations in enhancing the caliber of their output, their dependability, and the way that it manages and expedites their decision-making processes.(Corporate Finance Institute Team, 2022).

Architecture of Decision Support Systems (DSS)

According to the Management Study Guide (2015), there are four (4) fundamental components that comprise DSS' architecture: (1) User Interface (UI), (2) Database, (3) Model (context or situation representation), (4) Knowledge.

To design and build an effective UI design, developers must ensure that: (1) The screen design is aesthetically pleasing, (2) The layouts are symmetrical, (3) The arrangement of options/menus are appropriate, (4) The screen layout is easy to understand and use, (5) The design doesn't need to be artistic but it should certainly be visual pleasing, and (6) Working on it is easy and enjoyable.

Next, comes the database. It serves as the storehouse of information. It contains: (1) Personal/Internal information, the details that are collected within the organization, employees, and customers. (2) External information, information collected from outside sources i.e., research articles. A DSS access information directly from the database, depending on needs and types of decision, DSS must focus on: (1) Type of database required for a particular decision making system model, (2) Who's responsible for different type of databases, and (3) How to maintain accuracy and security of database.

The model component of DSS architecture takes care of the DSS model, and the DSS model management system. While a model is a representation of context, a situation or an event, a DSS model management system stores and maintains DSS models.

And finally, knowledge. This element of DSS architecture provides information about the relationship among data, which is too complex. It manages the knowledge and provides decision makers with alternative solutions to a problem. It also sends signals to decision makers when there is any mismatch between forecasted and actual results.

Academic Scheduling Software

The process of school scheduling plays a significant role in the operation of the highly significant sector that is higher education. It might be challenging to appropriately fill the student calendar due to several challenges that make creating a schedule a logistical headache. Because of this, higher education institutions may benefit from having a system for scheduling classes. It facilitates better communication, lessens stress, and makes academic offices more accessible and efficient. It also makes it simpler for staff and students to create timetables that fit within the practical constraints. Students may easily plan and manage their academic experience with the help of the school scheduling system. (QLess, 2022).

Impact of Class Scheduling on Learning Achievement of Computer Engineering Students

The scheduling of classes in engineering education is an important factor in the success of students and the efficiency of instructors and educational institutions. There are various methods of class scheduling, including block scheduling, which consists of one block of classes per week, and spaced scheduling, which involves multiple sessions of classes per week. While previous research has examined the educational benefits of block and spaced scheduling, there have been few studies that have examined the effect of changing the number of classes per week on learning outcomes. In this comparative quantitative study, the researchers sought to compare the impact of block and spaced scheduling methods on undergraduate students' understanding and application of engineering knowledge. The results of the study showed that the main effect of the class scheduling methods was not statistically significant for learning achievement, learning engagement, perceived learning outcomes, and course scheduling satisfaction between the two groups (Jin et al., 2021).

2.3 Related Studies and/or Systems

Integrated Class Scheduling System for Selected State Universities and Colleges with Satellite Campuses in the Philippines

In a study conducted by Evale (2015), the goal was to create a new system that will give colleges and universities with satellite campuses a new, simple, and quick way to generate timetables for rooms, classes, and individual faculty members while also enabling users to automatically identify and avoid conflicts when creating schedules. University class scheduling is a significant, difficult, and time-consuming task. Classroom slots must be able to be distributed along each timeline to teachers and their classes from various departments without breaking any predetermined rules or restrictions. The Class Scheduling System is a piece of software that enhances and expedites the room utilization and class scheduling procedures by making them more precise, effective, and suitable for all parties involved. The system is equipped with capabilities that can create a database for archiving documents and data. In case of changes, it enables the end-user to add, edit, delete, save, and update records or information. Reports including class schedules, faculty schedules, room schedules, instructor lists, room lists, and section lists can be generated using it.

Web-Based Class Scheduling for a Collaborative Preparation of Block-Based Schedules

Universities frequently struggle with class scheduling since it takes a significant amount of time, people, and material resources to complete this challenging undertaking (Botangen, 2014). The work takes into account a number of variables, including varied student groupings, time allotments, courses, rooms, professors, and scheduling discretions. A decentralized preparation of the timetable increases complexity for universities with multiple academic units. Several uncontrolled scheduling factors, such as the schedules of subjects to be offered by other units, the use of resources like rooms or facilities located in other units, schedule preferences and constraints implemented by other units, all of which are affecting the process of creating schedules, should be taken into consideration in this approach.

The goal of this study was to create, put into use, and assess a web-based scheduling application for Central Luzon State University's collaborative creation of class schedules. An algorithm for automated plotting and conflict-checking of the various scheduling entities based on their availability while taking into account various limitations and preferences was implemented into the development (Botangen, 2014).

Web based Course Scheduling System using Greedy Algorithm

Using a research and development approach (R&D), the objective of the study by Legaspi et al. (2019) was to create an online course scheduling tool for the College of Computer Studies at the FEU Institute of Technology in Manila, Philippines. For organizing course scheduling and allocating to teachers, the created system uses the Greedy Algorithm. The Scheduling Module of the system, which employs the Greedy Algorithm, is credited with the scheduling process. Functionality, usability, reliability, portability, and supportability (FURPS) are among the criteria that have been used to test and evaluate the system .

Academic Course Scheduling Decision Support System

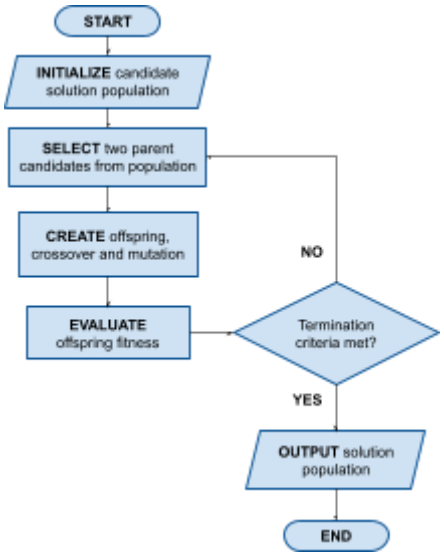
According to Olajide (2015), Data modeling and sound decision-making are done via web-based decision support systems. They cater to managers' needs in structuring and semi-structuring challenges. They have helped human discrimination by putting the appropriate individuals in the appropriate positions. The Academic Course Scheduling Decision Support System, which offers a trustworthy tool that can be utilized to enhance decision-making in academic course scheduling, is the subject of this research article. It gets difficult for school administration to combat the issue because there are inadequate classrooms in most academic institutions and demand is high for the ones that are available. This study provides a framework for prioritizing courses and scheduling them appropriately for classrooms.

Course Scheduling Algorithm: Genetic Algorithm with Preference Optimization

Class scheduling algorithms tend to take a heuristic approach such as the Genetic algorithm that emphasizes on the iteration of finding the fitter or more suitable meeting time per lecture depending on the soft and hard constraints identified (e.g. an instructor cannot have more than 5 classes in a day). The Genetic algorithm for automating schedule assignments would begin by initializing the solution population, that is the variables or factors that would affect the schedule decisions are given random values. Then a pair of those random values are selected as the "parents" which will undergo crossover and produce an offspring. The offspring will then go through mutation, a process that will further diversify the output. With the predefined constraints, it can be determined whether the offspring is fit to be in the solution population and if not, the mutation process is repeated until an adequate result is reached.

Figure 2.2

Simple Genetic Algorithm Flowchart



Note. Figure 2.2 is a sample flowchart of how a simple genetic algorithm works. This example of a genetic algorithm is called a steady state genetic algorithm.

In addition to this algorithm, the preferences of instructors are taken into account when assigning the schedule. Optimizing the schedule solution according to the instructors' preference would diminish the probability of moving meetings or not following the schedule, since the availability of the teacher is a factor (Dahiya, 2015).

Web-based platform: Coursedog

Organizing and constructing class schedules is one of the essential parts of establishing a successful timetable for both professors and students. In these modern times, it is acceptable to adapt to the vast advancement of technology, in being able for humans to lessen their burden and also to produce significant outputs. One built system that is being used at different universities in the western regions, like Illinois Central College and University of California, is the web-based platform from Coursedog. It is a web-based platform wherein it is used by different universities to handle operations such as allocating rooms, assigning faculty loads, etc. In this system, it offers ease to the different sectors of the different universities that are utilizing it, specifically the: (1) department schedulers, (2) professors, and (3) students.

As stated by Coursedog (2020), their web-based system is composed of different functionalities from Registrar Solutions up to Classroom Allocations. The functionality that can be seen similar to what the researchers are producing is the Academic and Event Scheduler. In this platform, it functions as a schedule arranger and schedule validatory for the department scheduler. It is shown in their platform that the professors are required to input their data, The following data are: (1) type of employment (whether full-time or part-time), (2) preferred subjects/courses, (3) preferred times, and (4) preferred room type (e.g. computer labs, science labs, etc.). With these data, the system could determine the preference fit percentage of an instructor to a subject with a specific time and specific course. Also, the system also shows the conflict times of the instructor's schedule on a specific course and time offered by the system. With this system, the department scheduler is given the ease in choosing the schedule of instructors with their preferred time, subjects and room types.

University Course Timetabling Problem with Professor Assignment

One of the most crucial administrative tasks, especially in higher education institutions, is the scheduling of university courses. The university course scheduling issue (UCTP), which arises at the start of each academic year for universities, entails the assignment of activities (courses, professors, and students) to a number of predetermined time slots and rooms. This study conducted by Arratia-Martinez et al. (2021) focuses on the scheduling issue for university courses in a Mexican institution with the professor-course-time assignment.

The main features are as follows: (1) there are full-time and part-time professors; (2) each full-time professor must be assigned a fixed number of courses based on their academic profile; (3) there is a maximum number of courses assigned to part-time professors; (4) a professor-course matrix that specifies the valid assignation is defined; (5) mandatory time periods for courses in different semesters are established; and (6) other traditional co-curricular activities must be completed. For the scenario at hand, the paper suggests using an integer linear programming approach. The traditional branch-and-bound approach produced the best result with little processing cost.

Online Class Scheduling and Faculty Loading System within a Decision Support Framework

For department heads, creating course schedules to meet student enrollment requirements has been a recurrent and challenging responsibility each school term. Making a course schedule entails assigning time slots for each course being offered and making the best use of the resources that are already available, including classrooms and computer labs. It maximizes the preferences and inventories of the departmental teachers as a result. The goal of the project by Ortega et al. (2015) was to develop a method for class loading and scheduling that addresses the duty of academic department chairs to establish clearly specified faculty teaching loads. A questionnaire and interview created by the researcher were used in conjunction with a descriptive developmental design.

The scheduling and loading system is designed to make it possible to define teaching assignments to the time slot system by using a knowledge-based approach, suitable heuristic functions, and rule sets to load the right courses to faculty. It also makes it possible to search for the best slot among several available slots within the decision support framework. Administrative priorities are made easier to settle by the decision support framework when conflicts arise over slots that deviate from the assignment criteria. The study's findings showed a decrease in the amount of time needed for course scheduling, and the outcomes are better for teachers' workloads.

Application of Representation and Fitness Method of Genetic Algorithm for Class Scheduling System

This study by Labuanan et al. (2019) solved one of the most significant issues at Isabela State University-Main Campus: poor time management. Scheduling is a process performed prior to the execution of a particular event. The research utilized and adopted the Representation and Fitness Methods of the Genetic Algorithm to develop a solution. The investigation revealed that the two methodologies' adaption is well-suited for addressing the specified issue. The representation technique creates and generates the pre-scheduling template for plotting schedules, whereas the fitness method generates and creates the pre-scheduling template. The researchers employed a criterion from the ISO 9126 Standard to determine the product's functionality and usefulness. The results demonstrated that the representation and fitness methods of the genetic algorithm result in more accurate and dependable schedules, less time required, and fewer time conflicts in the plotted schedules. For future research, it is strongly suggested that the fitness function be reformulated to include the other components and variables of scheduling, such as individual schedules for both regular and irregular students and campus extension integration, as well as the other indicator of the instrument used.

Application of genetic algorithm for class scheduling (Case study: Faculty of science and technology UIN Jakarta)

This study aims to develop a genetic algorithm-based app for scheduling classes. Iteration, Probability of Mutation (PM), and Population Size (PC) are examples of genetic algorithm parameters (Probability crossover). UIN Jakarta's Faculty of Science and Technology staff create the course schedule. The constraints of the classroom and lecture schedule, as well as the enormous number of students, are just two of the many challenges the staff has while constructing the program. The downside is that it takes a long time to construct but is ultimately successful despite the difficulties. An application based on a genetic algorithm is proposed to optimize the tasks. This study employs a mixed technique, using interviews and literature reviews for data collection, Waterfall for application development, and genetic algorithms for scheduling. HTML, PHP, and MySQL are used to create this application. Iteration (ns), PC, and PM parameters were varied to find the sweet spot. The findings indicate that a maximum of 20 iterations, a PC of 0.8, and a PM of 0.01% produce the optimum schedules. Class scheduling software using these settings can develop a workable class schedule with minimal effort, as it will produce 1,201 possible combinations of classes and times without any conflicts (Parera et al., 2016).

2.4 Synthesis

A web-based faculty load and class scheduling system, addresses two major tasks learning institutions encounter upon enrollment period. It is a crucial process that gives both the faculty and students allotted time for the school week. The significance of faculty loading and class scheduling is clear and for these tasks to be done through manual trial and error inevitably causes efficiency and time constraints especially with increase of faculty and/or student population.

The system is web-based for the purpose of convenience and scalability, so when a school applies the system for multiple departments, the chairpersons or heads will require a collaborative environment where they can be informed of conflicts with other departments to address accordingly. In the smaller scale, a chairperson can access the system online regardless of local storage capacity that would also entail internet connection is necessary which is part making the system closely updated to the administrator of the school account.

Apart from the platform, various algorithms were mentioned to solve the faculty loading and class scheduling problem which requires taking into account hard and soft constraints. Hard constraints pertain to conditions that cannot be surpassed to create a valid output, for example, an instructor cannot take more subjects exceeding their teaching load or only one instructor can teach one section per subject at a time. Soft constraints are the conditions that can be unattended such as the day and time preferences of the instructor which only factors as optimization for the algorithm but not the functionality as a whole. All of these algorithms take a heuristic approach which cannot be avoided due to the complex data and multiple constraints, the system would have to traverse data until an optimal output is reached. The auto-generation of schedule uses the genetic algorithm that follows the flow of repeated mutation of schedule options until the termination criteria is met which means majority of the hard and soft constraints are met. The generated faculty load and class schedule are not final though, the chairperson still has the ability to edit and modify the results and be guided

through the integrated decision-support system which informs the chairperson of any conflicts or missing inputs in the schedule before saving the changes in the database. Oftentimes, the person in charge of faculty loading and class scheduling would use spreadsheet applications that enable them to perform macro scripting and arithmetic operations and it is this versatility that we can apply with the system.

CHAPTER 3

TECHNICAL BACKGROUND

3.1 Procedures of Business Activities

The web-based system that was developed is intended for the use of the chairpersons and faculty members of the Computer Science Department. The system developed would greatly impact how the chairperson would disseminate the different class schedules and units to their handled faculty, whether full-time or part-time. The chairperson would have their pre-made account wherein they could access the site to create the schedules.

Faculty members are given access to enter the system. Once login is successful, faculty members are presented with a preference form and are requested to input their data (e.g. field of expertise and availability) which would then be used for the chairperson's schedule generation.

Once all data of the faculty is obtained, the chairperson could automatically generate the schedules given the number of blocks per year, the units per faculty, room availability, and faculty preference. Another aspect that is considered in distributing the load of faculty members in generating the schedule is the employment status, wherein the part-time professors are prioritized in the queue of distributing them to their field of expertise.

The chairperson can generate a schedule based on the academic year and semester he/she wants to work on; and also, he/she can add or delete the number of blocks per year level. Then, after selecting the number of blocks and year level for the year and semester that he/she is working, the “Generate Schedule” button should be clicked. After clicking, the system will automatically create the schedule for all professors whether he/she is part-time or full-time.

The chairperson can view all the schedules per professor on the Schedules tab wherein it will display the faculty's information. Upon clicking on a professor's name, it will show the professor's time table with the subject, time, mode of class, room number, and year and block that the professor will handle.

When all processes are done, the faculty members can view their schedule on the system with the information they need like their subjects to take, day and time of schedule, room that they are assigned, and the student's block that they will handle.

3.2 Current Context Diagram

Figure 3.2

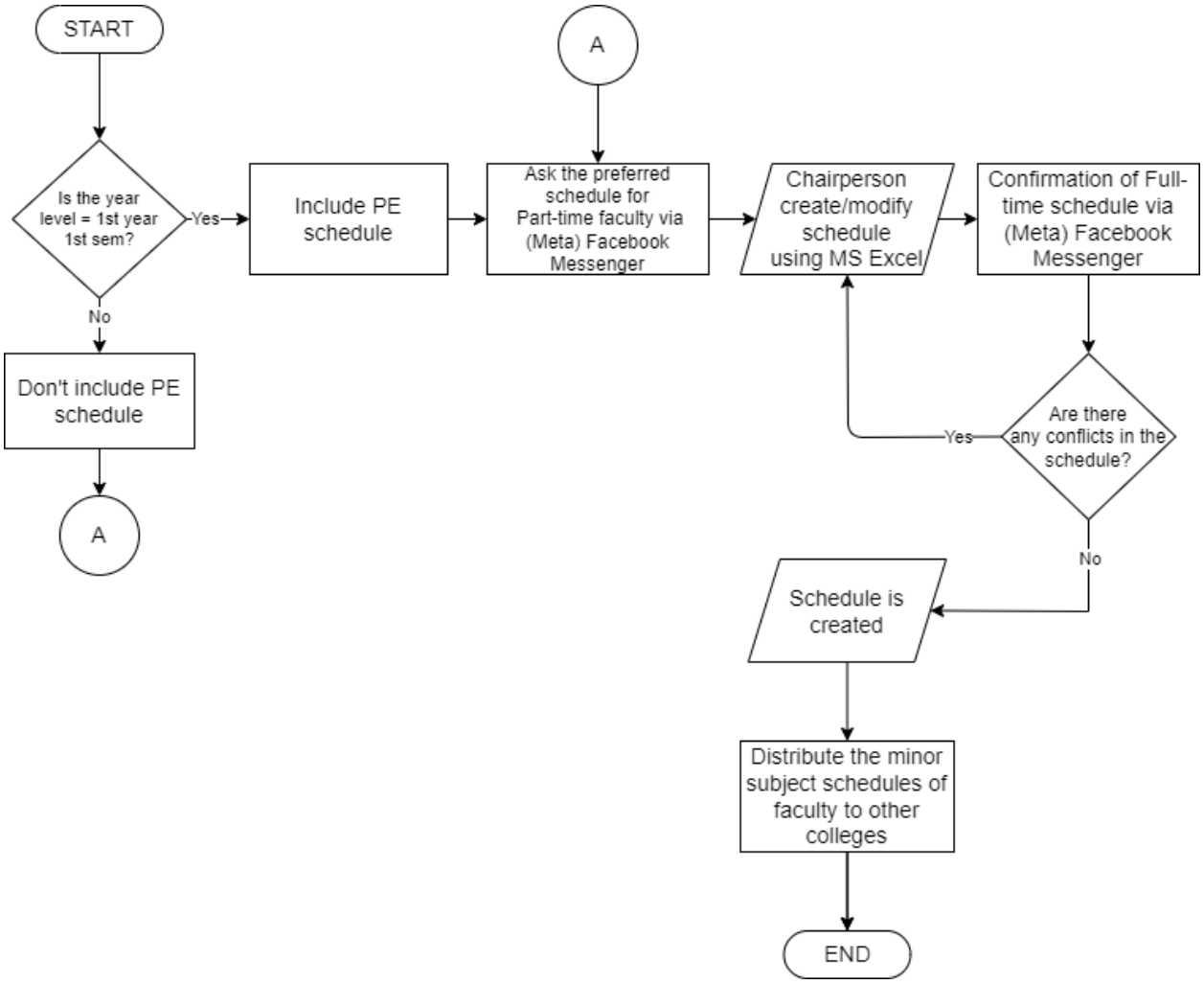
Current Context Diagram

Note. Figure 3.2 shows how the current system works in creating the schedule. It explains how all the factors, in creating the schedule and viewing the schedule, are related to the computerized registration system (CRS).

3.3 Current System Flowchart

Figure 3.3

Current System Flowchart

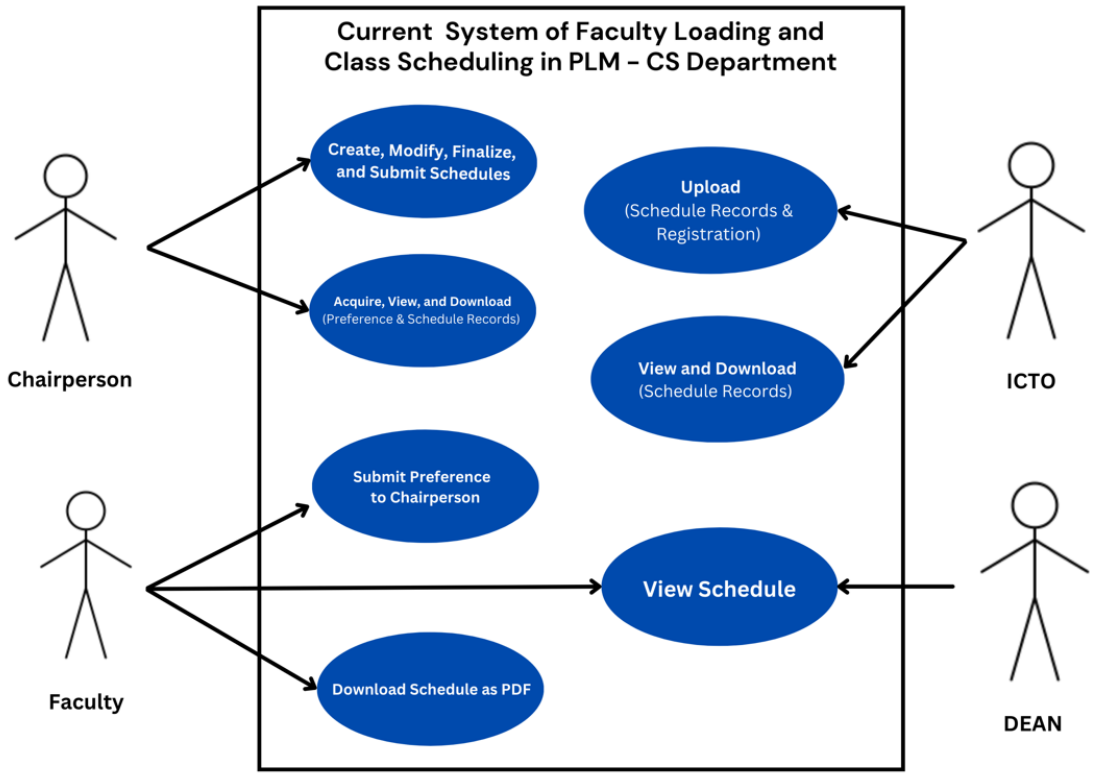


Note. Figure 3.3 shows the flowchart on how the current system works in creating the schedule in the Pamantasan ng Lungsod ng Maynila. It describes how the workflow is being distributed and the process of creating a schedule from the dissemination of PE schedules up to the dissemination of minor subjects to other colleges.

3.4 Current Use Case Diagram

Figure 3.4

Current Use Case Diagram

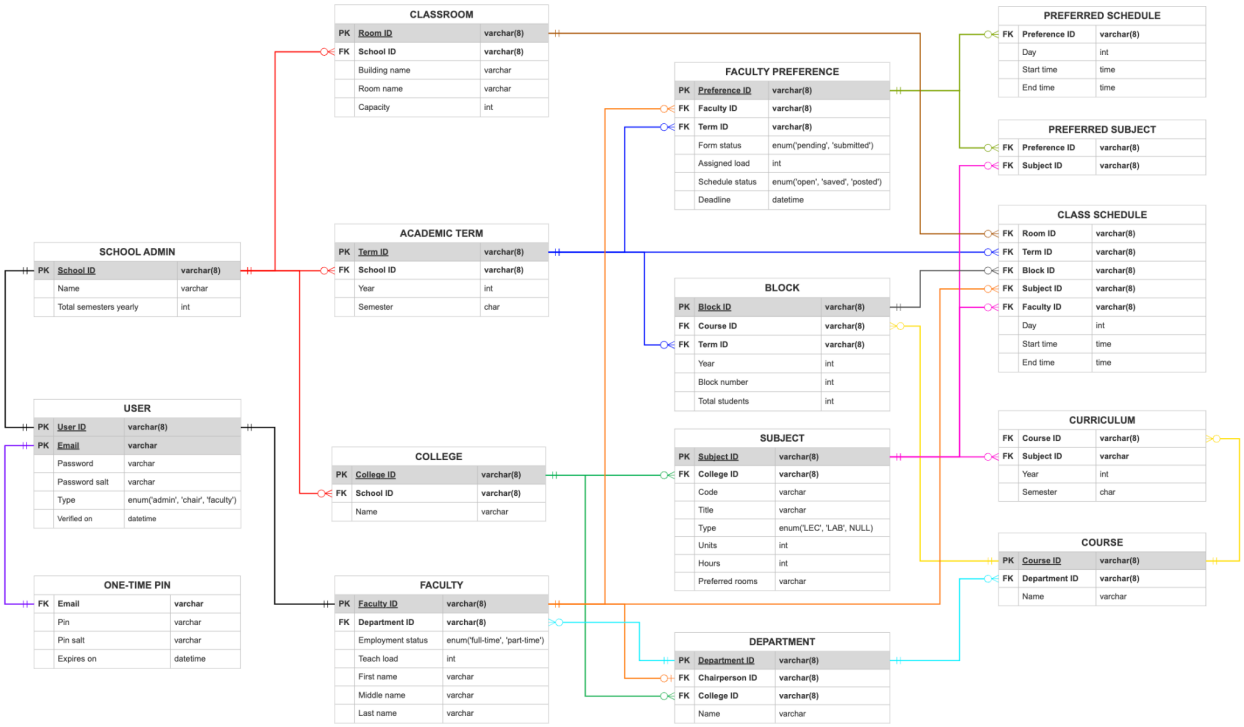


Note. Figure 3.4 shows the graphical representation of the interactions between the users and the system, and it includes the specific roles of each actor.

3.5 Entity Relationship Diagram

Figure 3.5

Entity Relationship Diagram



Note. Figure 3.5 shows the relationship of elements within an entity. Each element and entity in this diagram is used in the system built by the researchers.

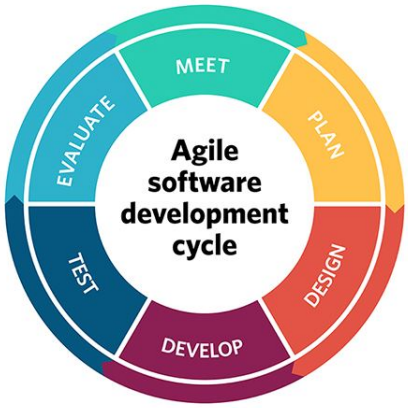
CHAPTER 4

METHODOLOGY OF THE STUDY

4.1 Software Development Methodology

Figure 4.1

Agile Software Development Cycle



Note. Figure 4.1 shows the agile software development cycle wherein it is composed of meeting, planning, designing, developing, testing, and evaluating. It served as a basis by the researchers on how they will conduct their research using this methodology.

The team used the Agile Method in developing the proposed Web-based Faculty Load and Class Scheduling System which includes the incremental development of the system that emphasizes fast and frequent release of program solutions. This approach is advantageous for systems developed with constant feedback from the client to immediately reform the code as per the added comment on the functions, design, or performance.

Agile Software Development consists of sprints which are basically cycles that go through the fundamental development phases: Planning, Analysis, Design, Development, Testing, and Review. During reviews with the Chairperson of the

Computer Science Department, Dr. Dan Cortez, the developers evaluate the necessary adjustments and optimizations for the software as a basis to go through the process again and produce the improved software.

The initial process involved meeting with Dr. Cortez to get insights and background on the process of faculty loading and class scheduling which highlighted the problems and possible software solution for the Department. The first meeting led to the planning of the system architecture and design, beginning with a log in user interface for the Chairperson. After that the database architecture and data structures are defined to lay out the necessary information the system needs to generate, edit, and support the Chairperson's faculty loading and class scheduling decisions. The database must be populated with the Faculty, Student Blocks, Subjects, and Rooms in order to plot the faculty load and schedules and save the output in a centralized database. Then from here on, meetings with Dr. Cortez are for clarifying the faculty loading process and the expected output of the algorithm. Starting with the proposed user interface and dashboard design, the development process undergoes another sprint. With the dashboard concept in mind, the developers planned on the algorithm and database management for the main part of the software which is the auto-generation of faculty load and class schedules. Aside from that, the editable calendar for the flexible faculty loading is integrated with the dashboard and is in development along with the application of the algorithm to be tested.

4.2 Technical Feasibility

The software and hardware used in developing the class schedule and faculty load system are still used and available today. Technical risk was based on the Express.js framework and the researcher still has not encountered any of it.

The following tools are used by the Development team on building the system:

1. **Node.js -** Is an open-source, cross-platform JavaScript runtime environment that executes JavaScript code outside of a web browser, where it allows developers to build server-side applications with JavaScript.

2. **Express.js** – Express is a minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications.

3. **MySQL** - is a widely used relational database management system where it is free and open-source.

4. **Google Services** - is used to send OTP to email addresses.

5. **Virtual Studio Code** – an IDE used by the researcher to develop the system that supports the programming languages that will be used to build and design. It is compatible with different operating systems that the researcher used.

6. **Git & Github -** used as a distributed version control system by the researchers to track changes in any set of files, also used for coordinating work among backend programmers by collaboratively developing source code during software development.

7. **Google Drive** – is used for the front-end of the system. It is a file storage which enables the researchers to store, share, and collaborate files.

8. **Operating System** – the researchers used different operating systems which includes Microsoft Windows, Linux, and MacOS.

The following tools are used by Documentation team for the development of the system:

1. **Google Docs** – is used to create and collaborate on online documents. It is also used for online graphic design tools such as flowchart.
2. **Canva** – is used for online graphic design tools such as diagrams.
3. **DBDiagram** – is used to help draw database relationship diagrams.
4. **MS Excel** – is used for test case plotting. It has a design of calculation or computational capabilities.

4.3 Operational Feasibility

The primary goal of the Web-based Faculty Load and Class Scheduling System for PLM - Computer Science Department is to improve the current faculty load and class scheduling system. The system offers an automated schedule generation, faculty interaction, and data to a flat file.

The following entities will maximize and utilize the system:

1. **Administrator** – has the access to university data and manage the system;
2. **Chairperson** – has the authority to create and modify class schedules and faculty loads;
3. **Faculty Members** – have access to the website to input their information and view their schedules.

4.4 Schedule Feasibility

Figure 4.4

Schedule Feasibility Gantt Chart

Web-based Faculty Load and Class Scheduling System for PLM - Computer Science Department

Task	October				November				December				January				February				March				April				May				June			
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Role Assignment																																				
Title Proposal																																				
Requirement and Data Analysis																																				
Meet with Client																																				
Documentation																																				
UI/UX Design																																				
System Development																																				
Testing																																				
Defense/Evaluation																																				
Deployment																																				

Note. Figure 4.4 served as a basis of how the researchers will manage their research and development tasks of their project

4.5 Economic Feasibility

Table 4.5.1

Cost Benefit Analysis

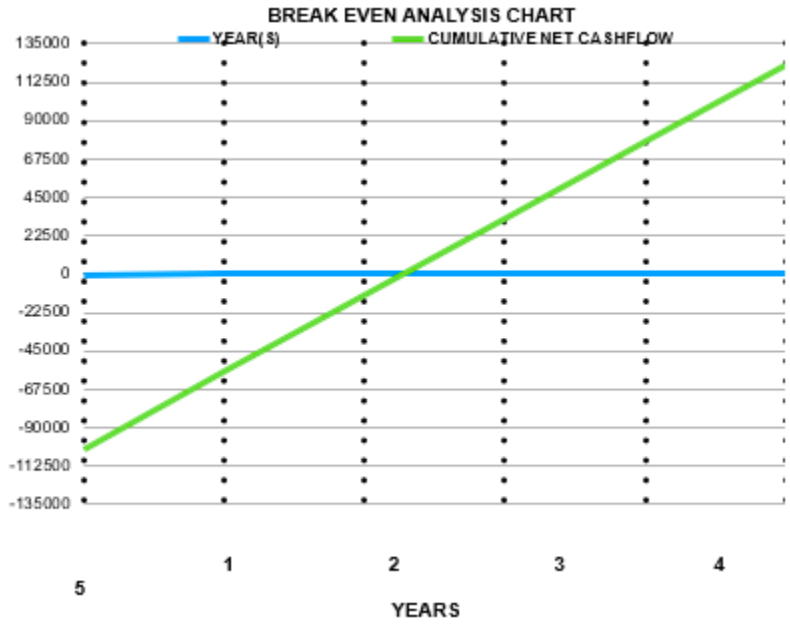
Table 1

BENEFITS							
TOTAL BENEFITS	0	60,000	60,000	60,000	60,000	60,000	300,000
DISCOUNT RATE (IN %)		.8929	.7972	.7118	.6355	.5674	
0.12							
PRESENT VALUE (PV) OF BENEFITS		53,571	47,832	42,707	38,131	34,046	216,287
CUMULATIVE PV OF BENEFITS	0	53,571	101,403	144,110	182,241	216,287	
COST							
ONE TIME COST	102,500	0	0	0	0	0	
RECURRING COST		15,000	15,000	15,000	15,000	15,000	
TOTAL COST	102,500	15,000.	15,000.	15,000.	15,000.	15,000.	177,500.
DISCOUNT RATE (IN %)		.8929	.7972	.7118	.6355	.5674	
0.12							
PRESENT VALUE (PV) OF COSTS	102,500	13,393	11,958	10,677	9,533	8,511	156,572
CUMULATIVE PV OF COSTS	102,500	115,893	127,851	138,527	148,060	156,572	
NET BENEFIT							
NET BENEFIT (TB - TC)	-102,500.	45,000.	45,000.	45,000.	45,000.	45,000.	122,500.
CUMULATIVE NET CASHFLOW	-102,500	-57,500.	-12,500.	32,500.	77,500.	122,500.	
DISCOUNT RATE (IN %)		.8929	.7972	.7118	.6355	.5674	
0.12							
PRESENT VALUE (PV) OF NET BENEFITS		40,178.57	35,873.72	32,030.11	28,598.31	63,509.79	
EVALUATION METRICS							
ROI							**69%**
NET PRESENT VALUE (NPV)							**59,714.93**
BREAK EVEN POINT							**2.28**

Note. Table 4.5.1 illustrates all the computed costs and benefits for the said project.

Figure 4.5.2

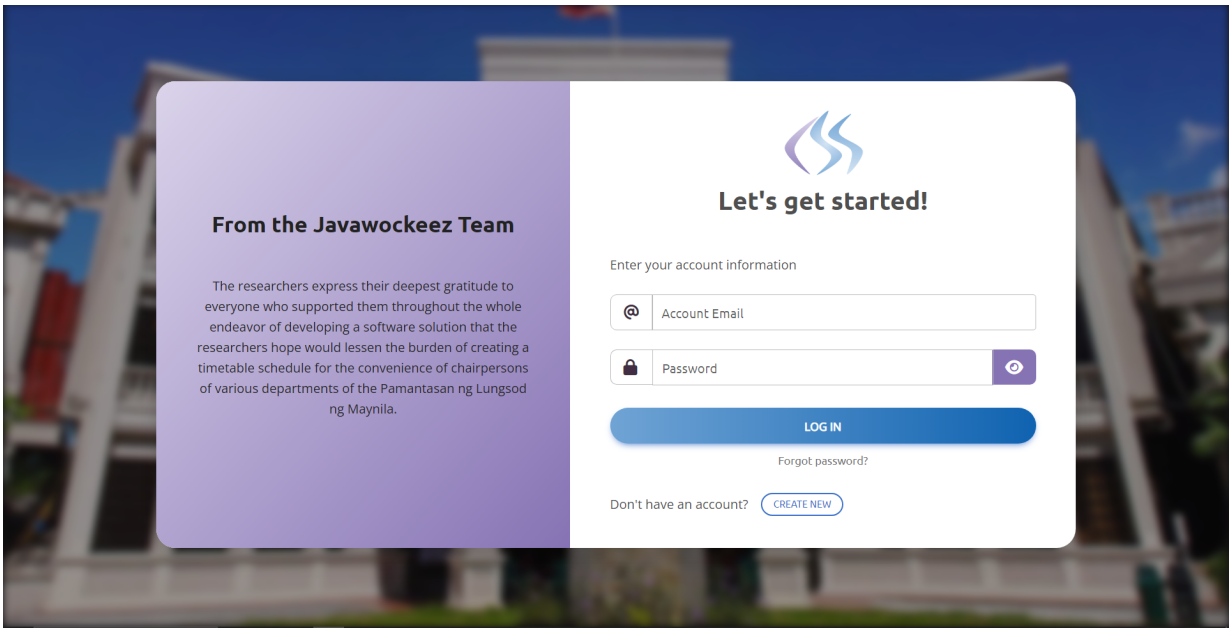
Break Even Analysis



4.6 User Interface Design

Figure 4.6.1

Login Page

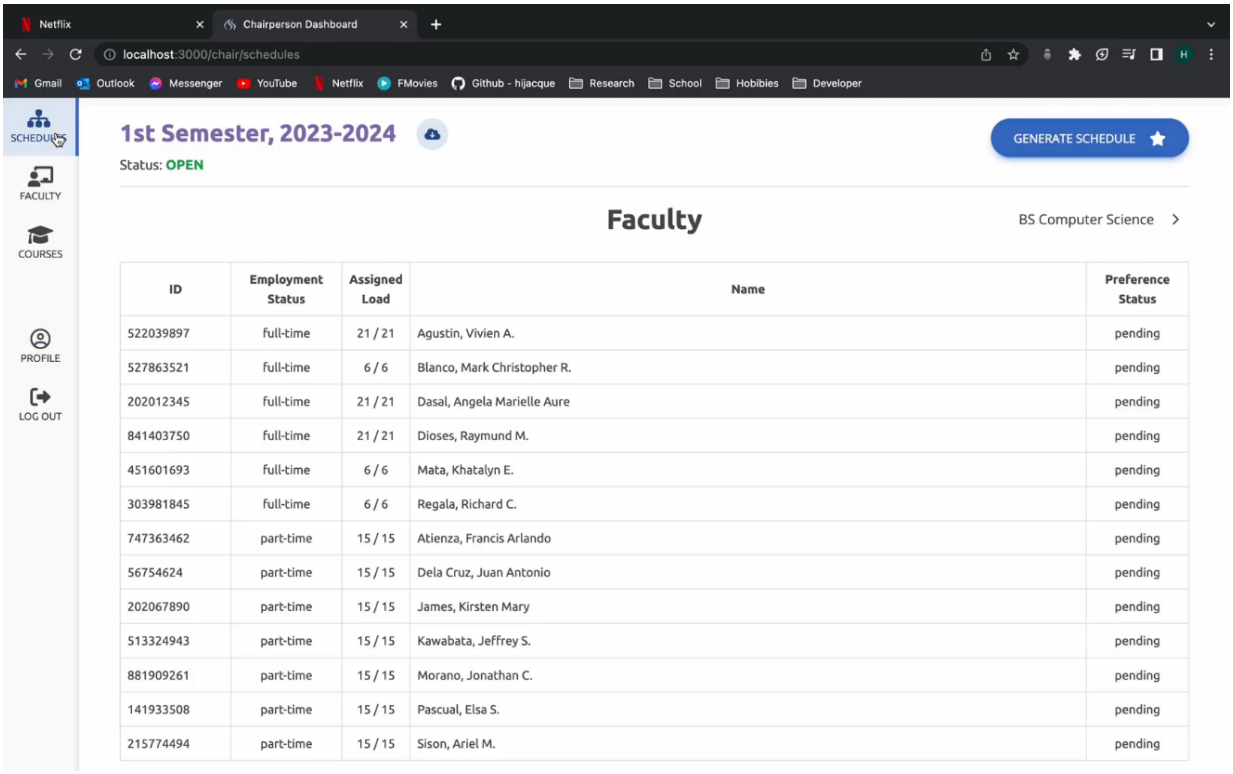


Note. Figure 4.6.1 demonstrates the proposed UI for the Login page of the project.

Chairperson Perspective

Figure 4.6.2.1

Schedule Page

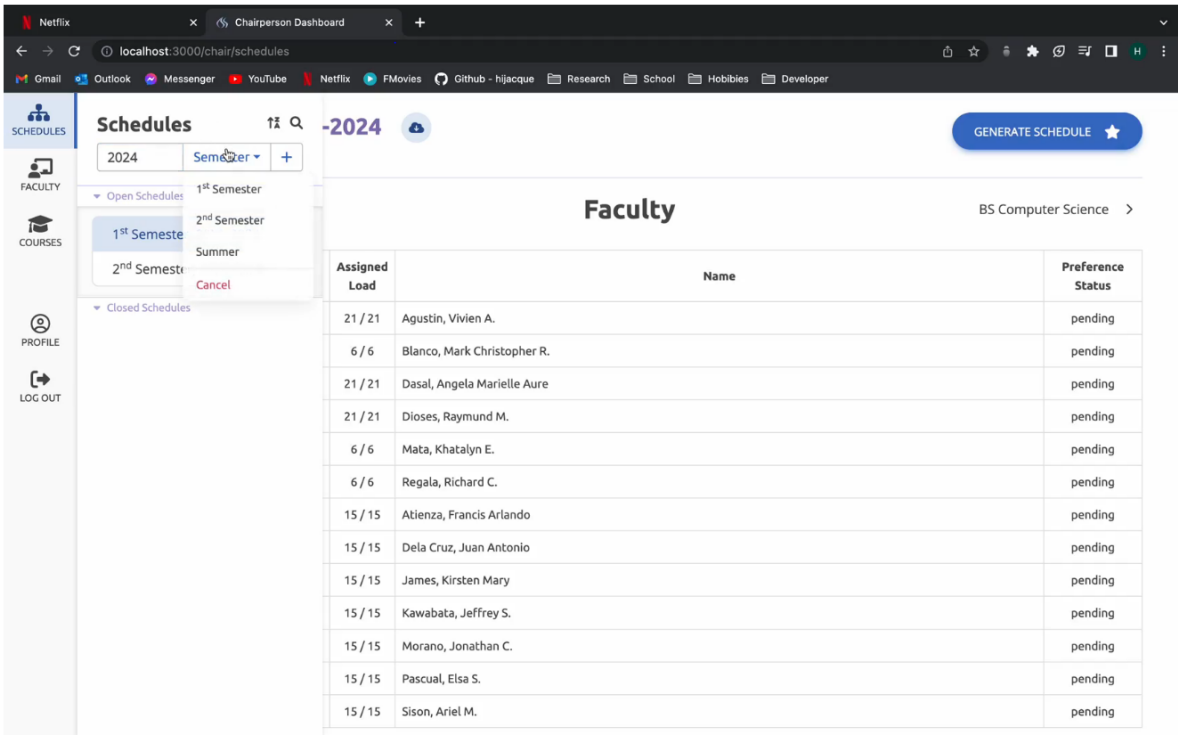


ID	Employment Status	Assigned Load	Name	Preference Status
522039897	full-time	21 / 21	Agustin, Vivien A.	pending
527863521	full-time	6 / 6	Blanco, Mark Christopher R.	pending
202012345	full-time	21 / 21	Dasal, Angela Marielle Aure	pending
841403750	full-time	21 / 21	Dioses, Raymund M.	pending
451601693	full-time	6 / 6	Mata, Khatalyn E.	pending
303981845	full-time	6 / 6	Regala, Richard C.	pending
747363462	part-time	15 / 15	Atienza, Francis Arlando	pending
56754624	part-time	15 / 15	Dela Cruz, Juan Antonio	pending
202067890	part-time	15 / 15	James, Kirsten Mary	pending
513324943	part-time	15 / 15	Kawabata, Jeffrey S.	pending
881909261	part-time	15 / 15	Morano, Jonathan C.	pending
141933508	part-time	15 / 15	Pascual, Elsa S.	pending
215774494	part-time	15 / 15	Sison, Ariel M.	pending

Note. Figure 4.6.2.1 demonstrates the proposed UI overview of the Schedules page of the project.

Figure 4.6.2.2

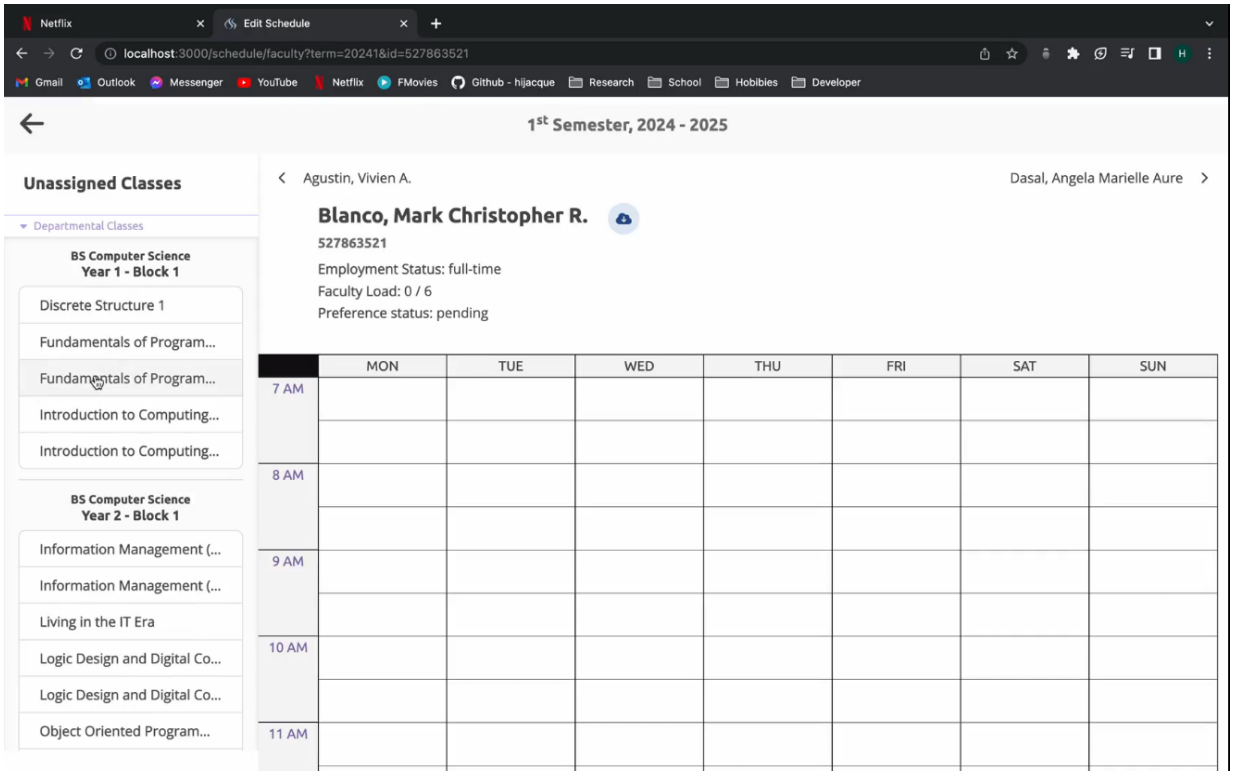
Schedule Page - Semesters



Note. Figure 4.6.2.2 demonstrates the same UI for Schedules page but with the drop-down list for selecting which semester to choose from.

Figure 4.6.2.3

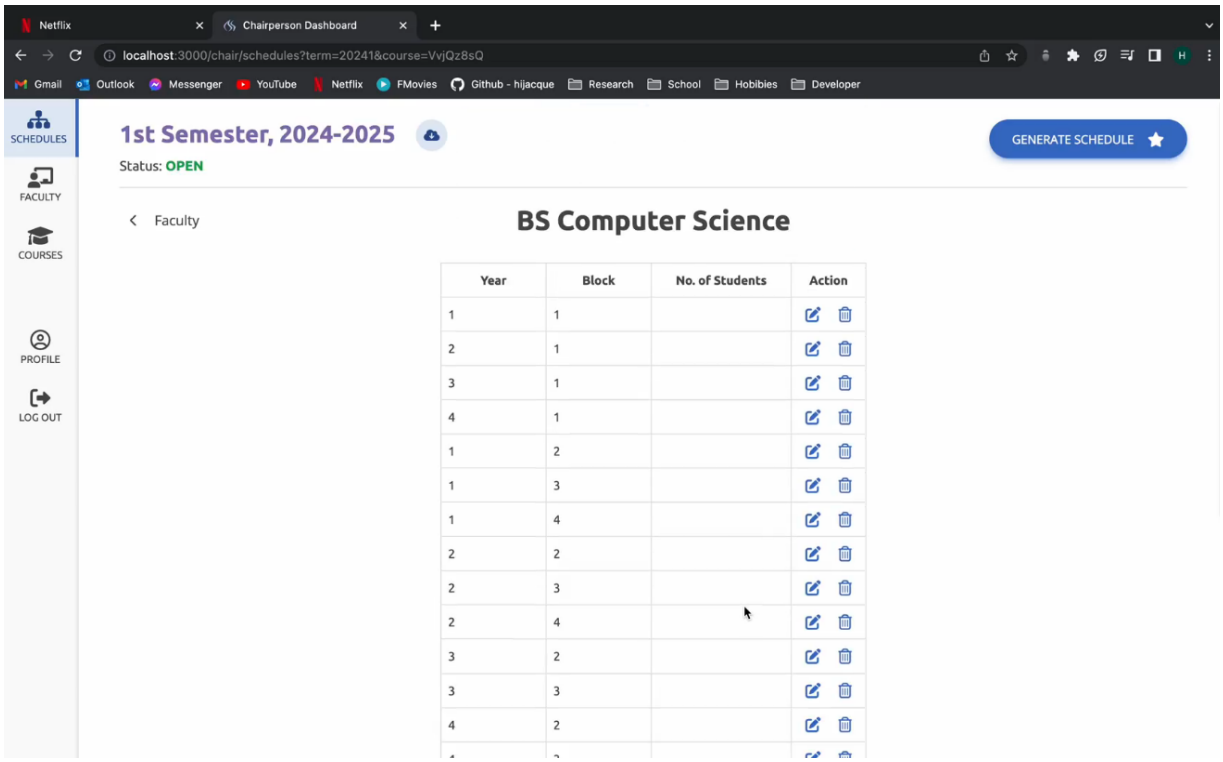
Schedule Page - Schedule per Faculty



Note. Figure 4.6.2.3 demonstrates the UI for Schedules page for each professor showing their timetable, classes to attend, room assigned and faculty load.

Figure 4.6.2.4

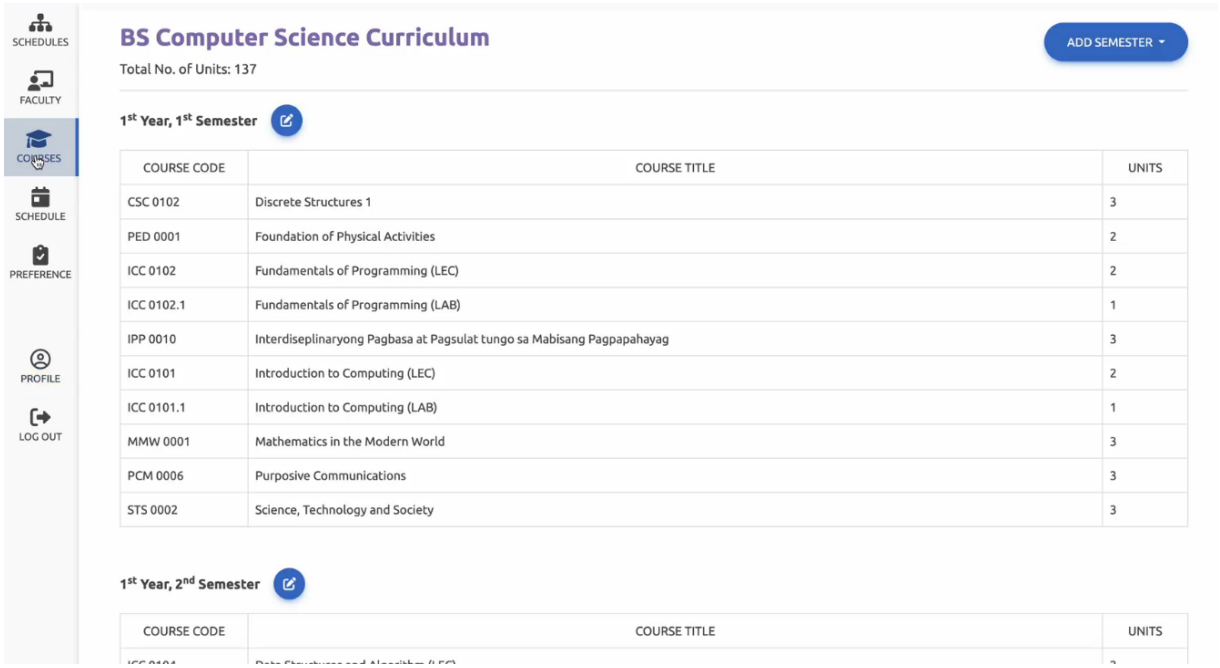
Schedule Page - Block List



Note. Figure 4.6.2.4 demonstrates the UI for Schedules page when the user is modifying the number of blocks per year level and number of students per block.

Figure 4.6.3

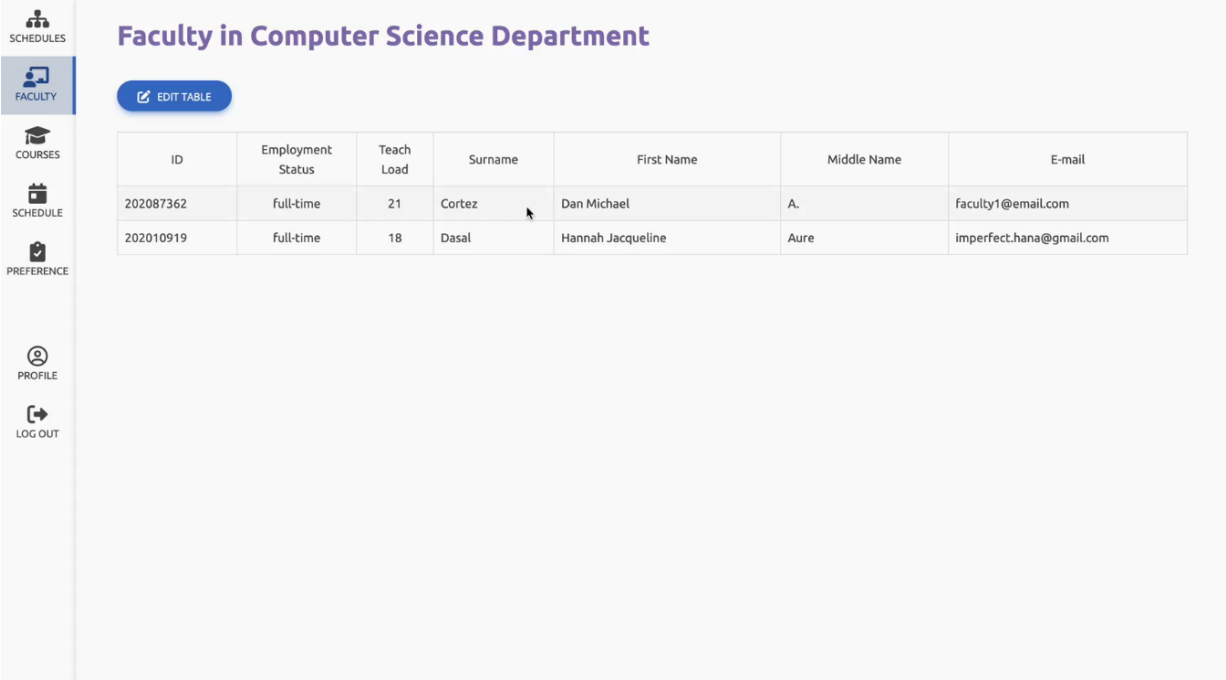
Courses List



Note. Figure 4.6.3 demonstrates the UI for Courses List wherein the user can modify the course code, course title and number of units per year level and semester.

Figure 4.6.4

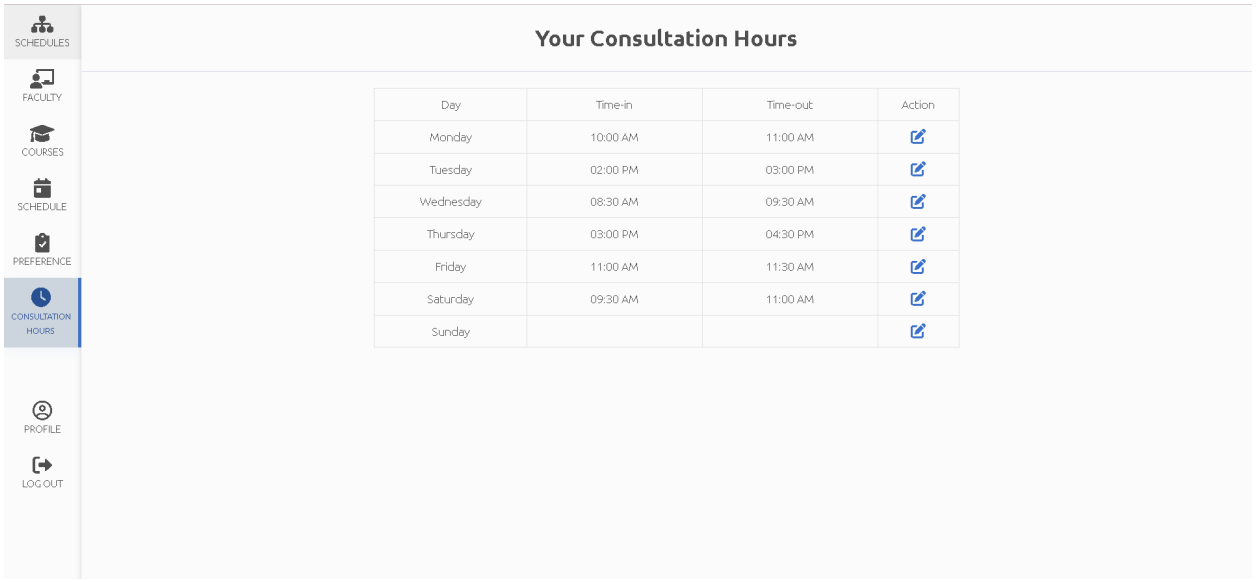
Faculty List



Note. Figure 4.6.4 demonstrates the UI for the Faculty List wherein there are inputs for their required information as a faculty.

Figure 4.6.5

Chairperson Consultation Hours Page

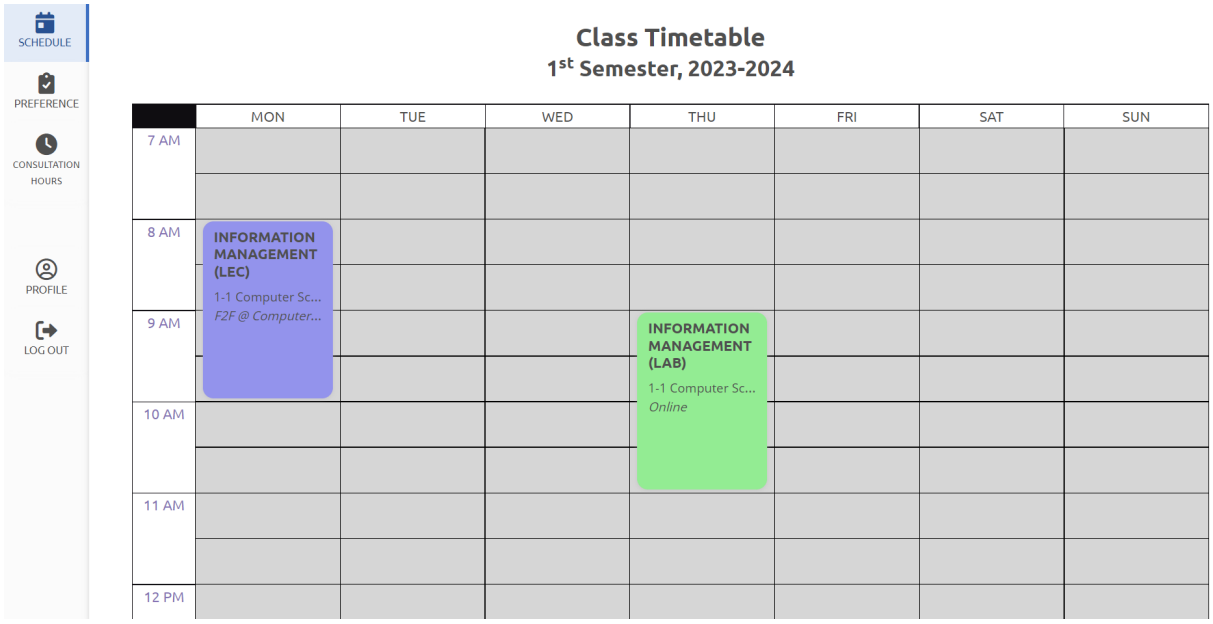


Note. Figure 4.6.5 demonstrates the UI for the Chairperson's Consultation Hours Page where they can select their preferred hours for consultation.

Faculty Perspective

Figure 4.6.6

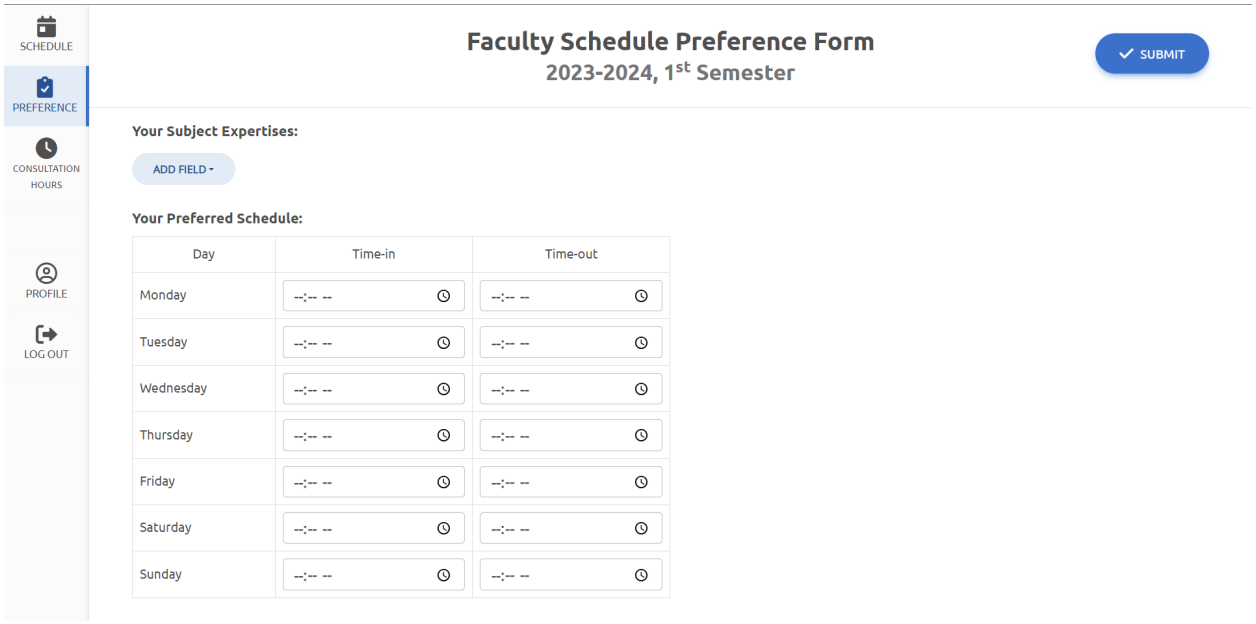
Faculty Schedule Page



Note. Figure 4.6.6 demonstrates the UI for the Faculty's Schedule Page where they can view their timetable.

Figure 4.6.7.1

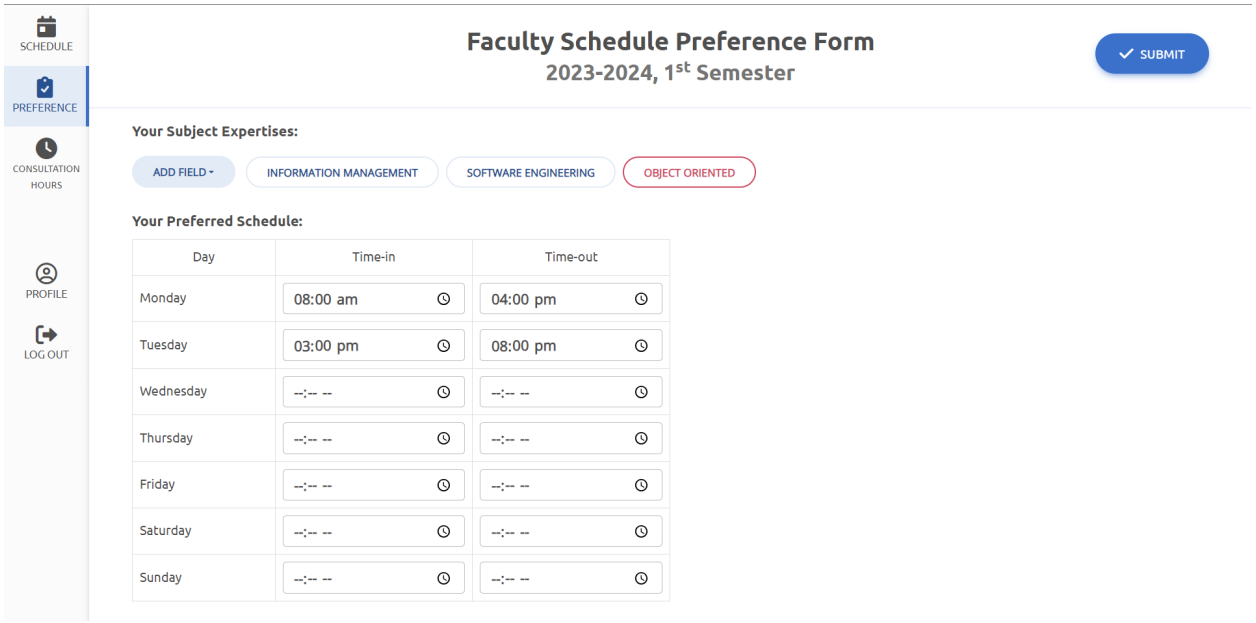
Schedule Preference Form



Note. Figure 4.6.7.1 demonstrates the UI for the Faculty User Schedule Preference Form where they can input their preferred subject, day and time.

Figure 4.6.7.2

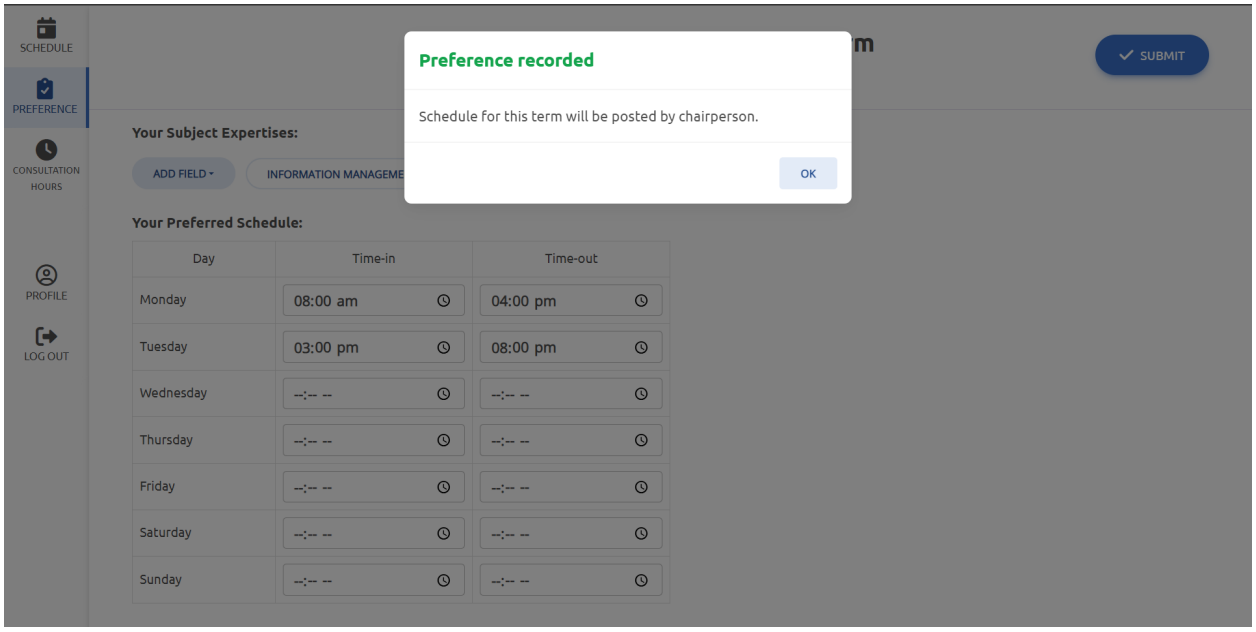
Schedule Preference Form with data



Note. Figure 4.6.7.2 demonstrates the UI for the Faculty User Schedule Preference Form with sample input data.

Figure 4.6.7.3

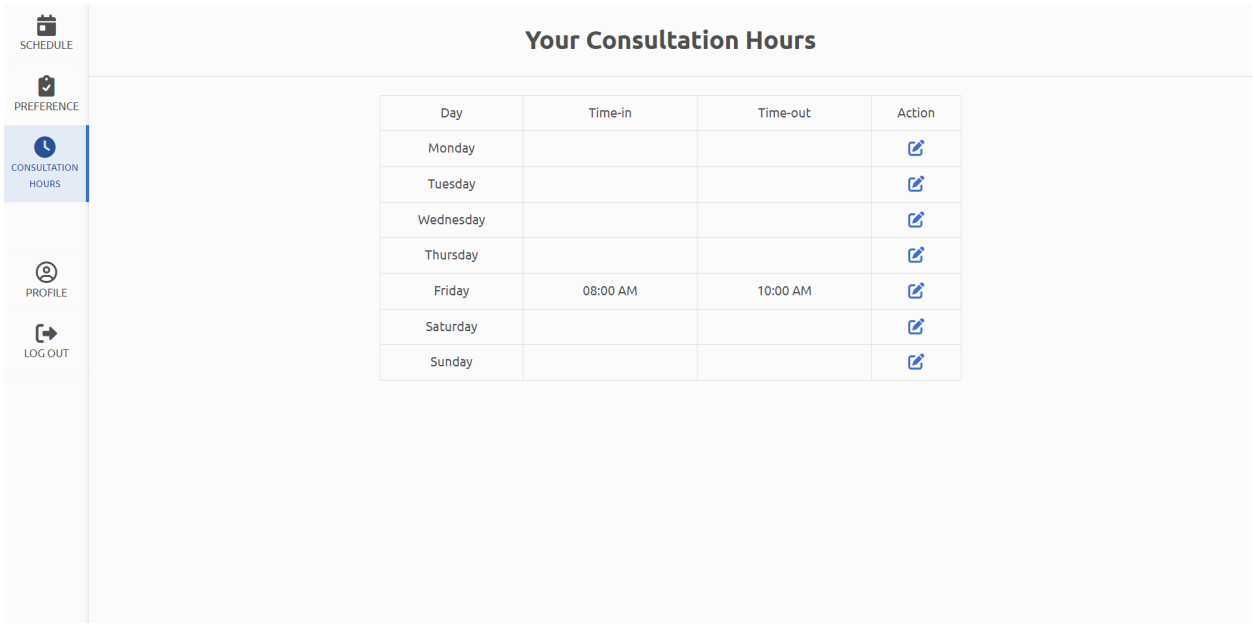
Schedule Preference Recorded



Note. Figure 4.6.7.3 demonstrates the UI for Faculty User Schedule Preference when it is recorded.

Figure 4.6.8

Faculty Consultation Hours Page

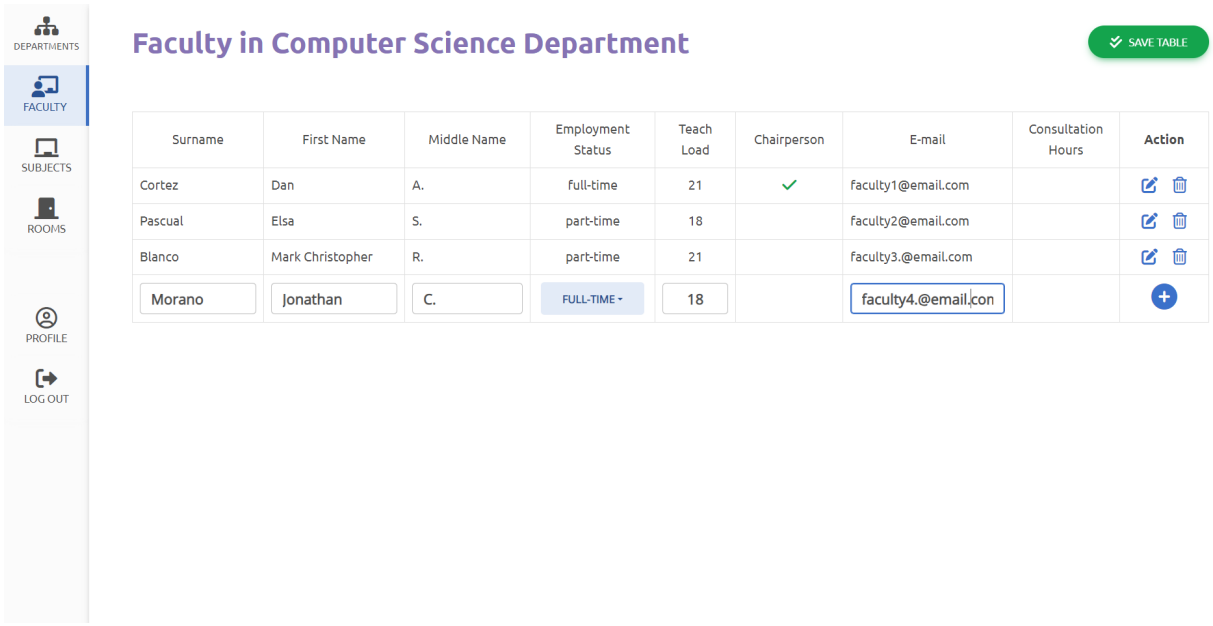


Note. Figure 4.6.8 demonstrates the UI for the Faculty's Consultation Hours Page where they can select their preferred hours for consultation.

Admin Perspective

Figure 4.6.9.1

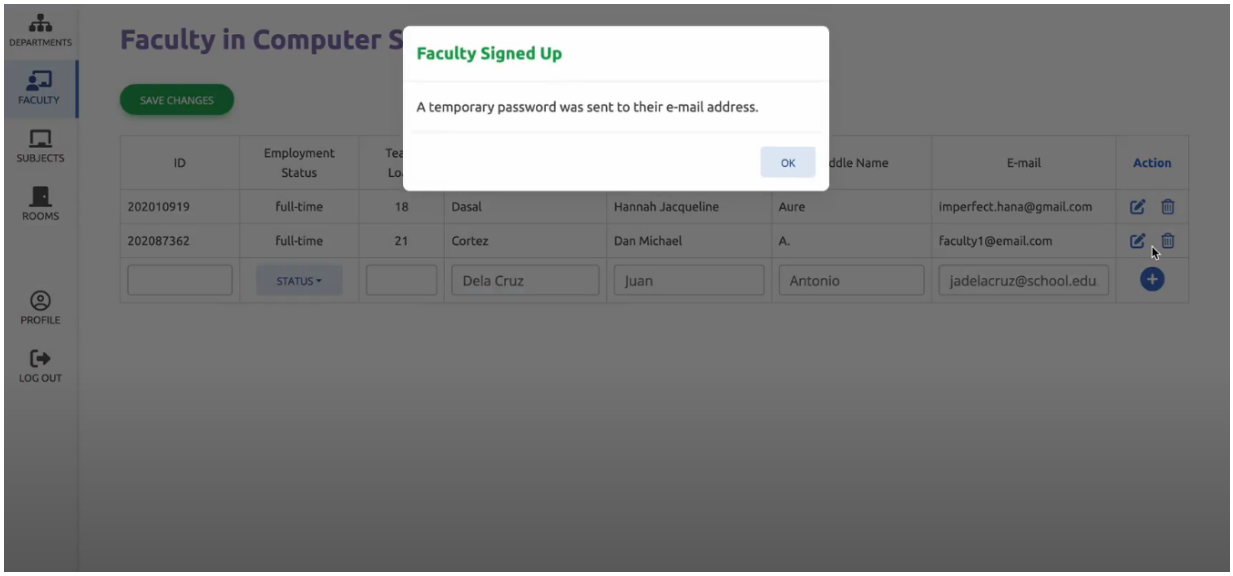
Faculty Page



Note. Figure 4.6.9.1 demonstrates the UI of the Admin's perspective for Faculty accounts. In this page, the admin can create accounts for the Chairperson and Faculty members.

Figure 4.6.9.2

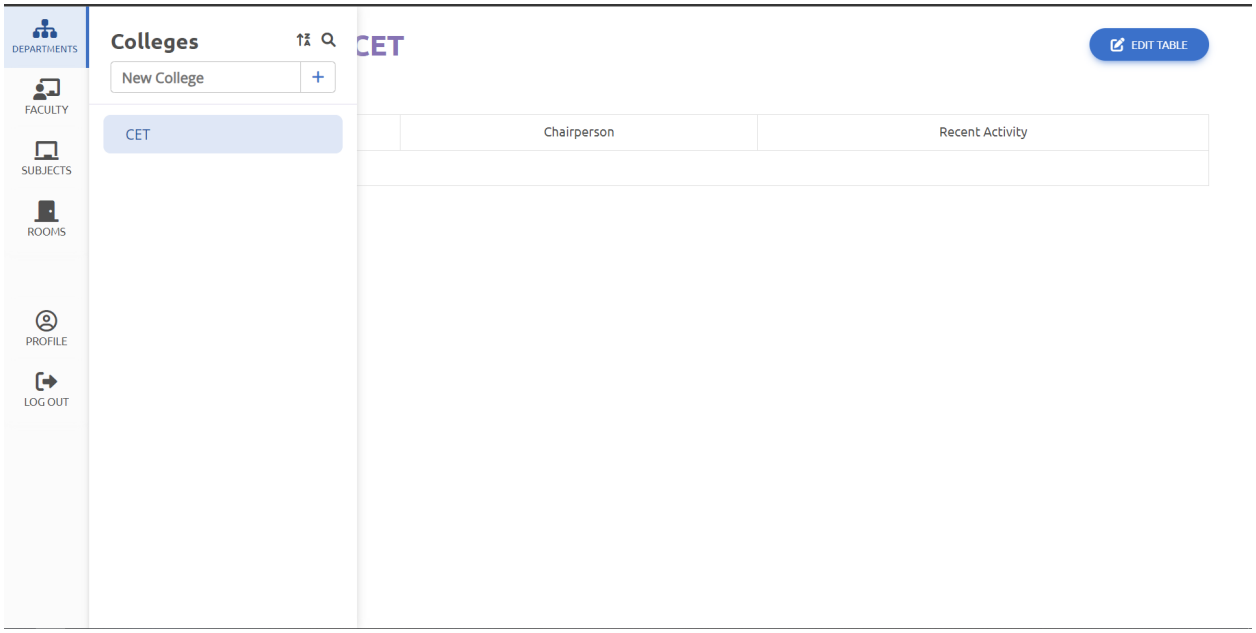
Faculty Page - New Account Verification



Note. Figure 4.6.9.2 demonstrates the UI of the Admin's perspective for accounts that are newly created.

Figure 4.6.10.1

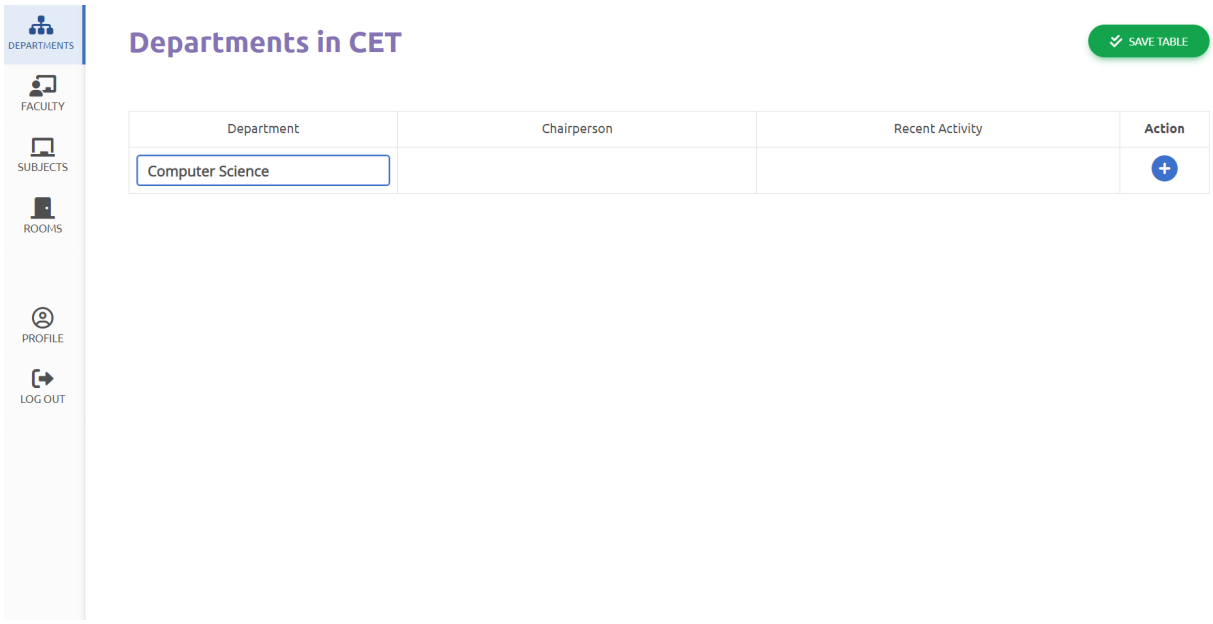
Departments Page - College List



Note. Figure 4.6.10.1 demonstrates the UI for Departments page wherein the admin can create a new college.

Figure 4.6.10.2

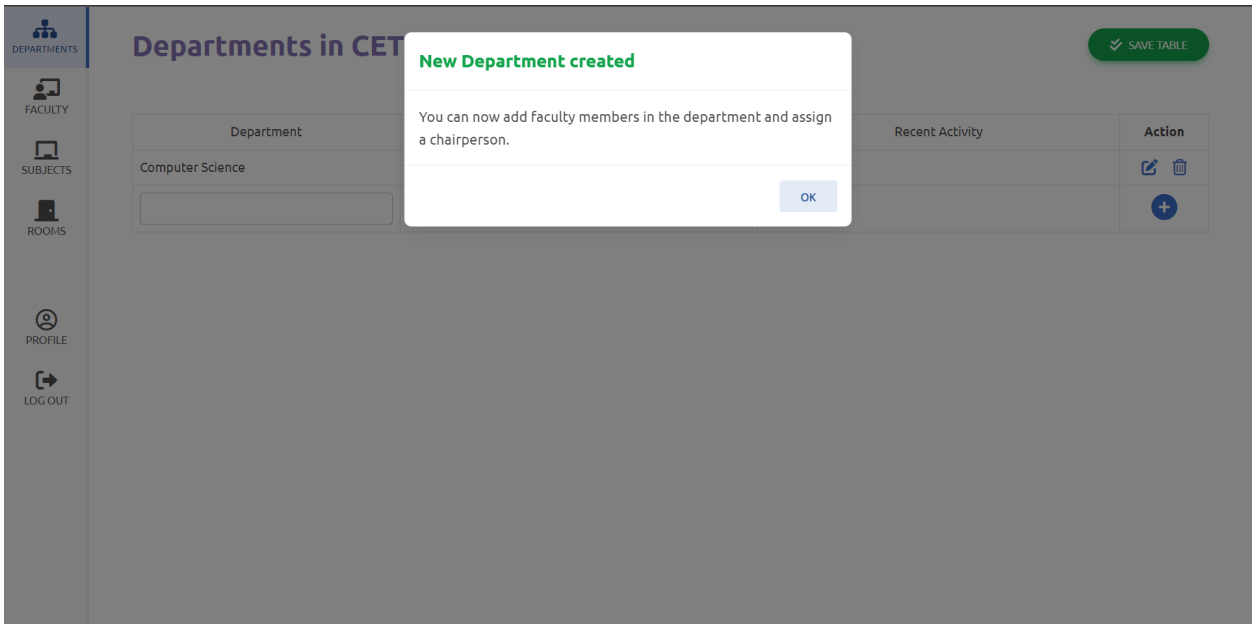
Departments Page - Department List



Note. Figure 4.6.10.2 demonstrates the UI for Departments page wherein the admin can create the respective departments of the selected college.

Figure 4.6.10.3

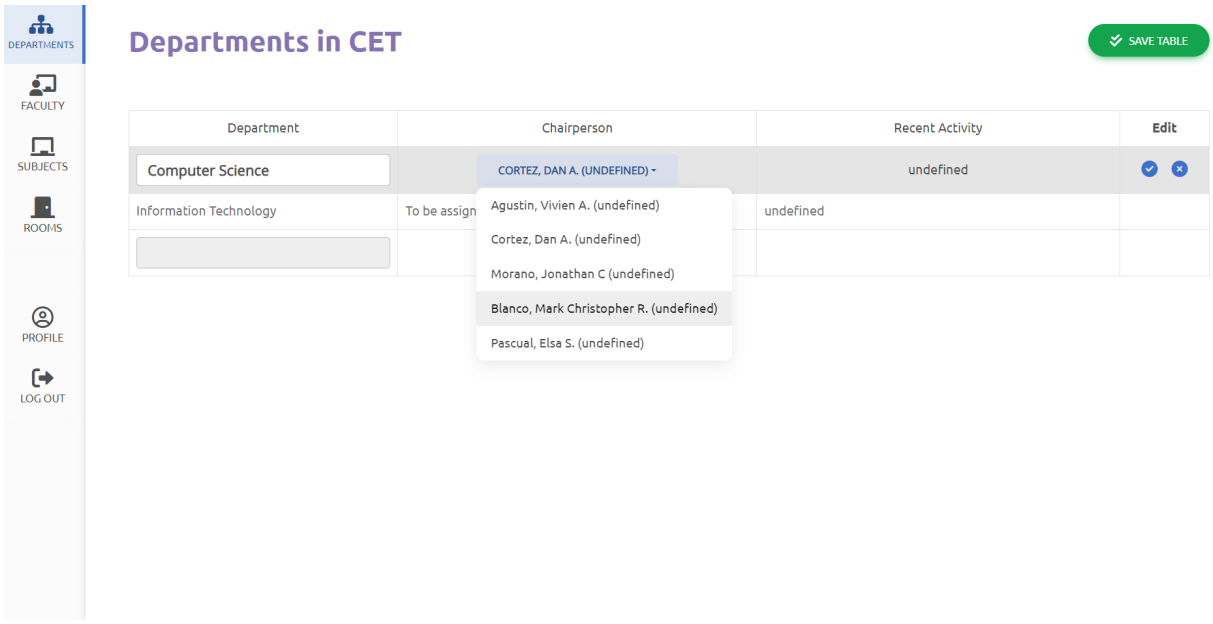
Departments Page - Department Confirmation



Note. Figure 4.6.10.3 demonstrates the UI for Departments page wherein the admin is notified about the department creation and instructed to assign a chairperson.

Figure 4.6.10.4

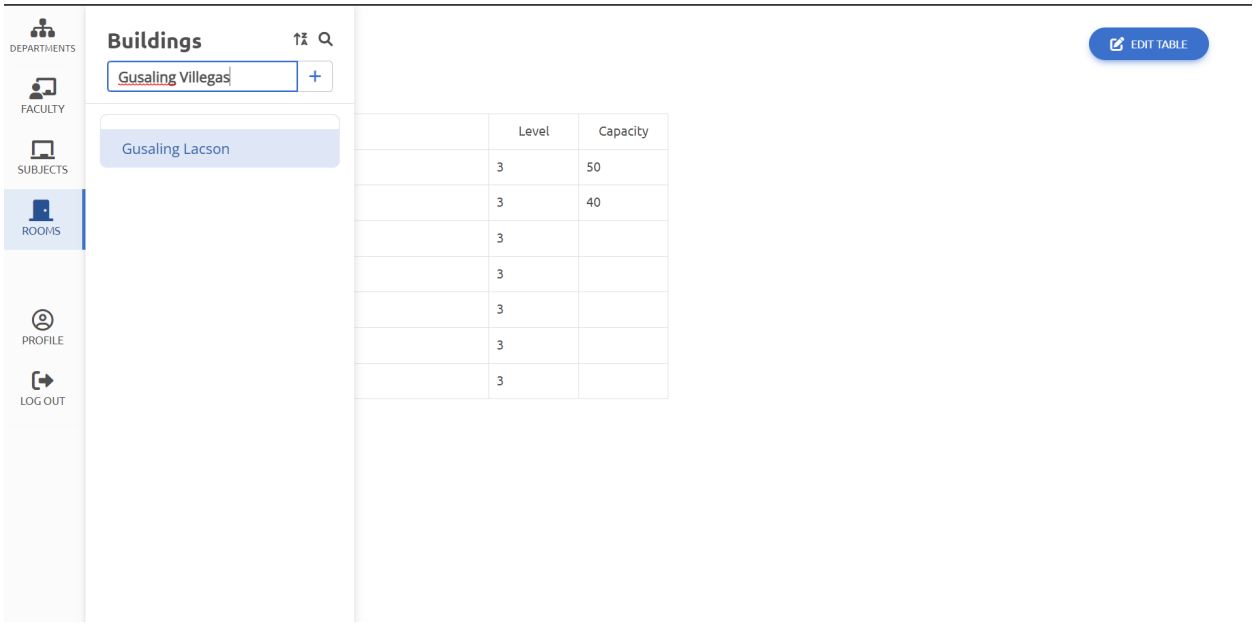
Departments Page - Chairperson Assignment



Note. Figure 4.6.10.2 demonstrates the UI for Departments page wherein the admin can assign or update the chairperson of the selected department.

Figure 4.6.11.1

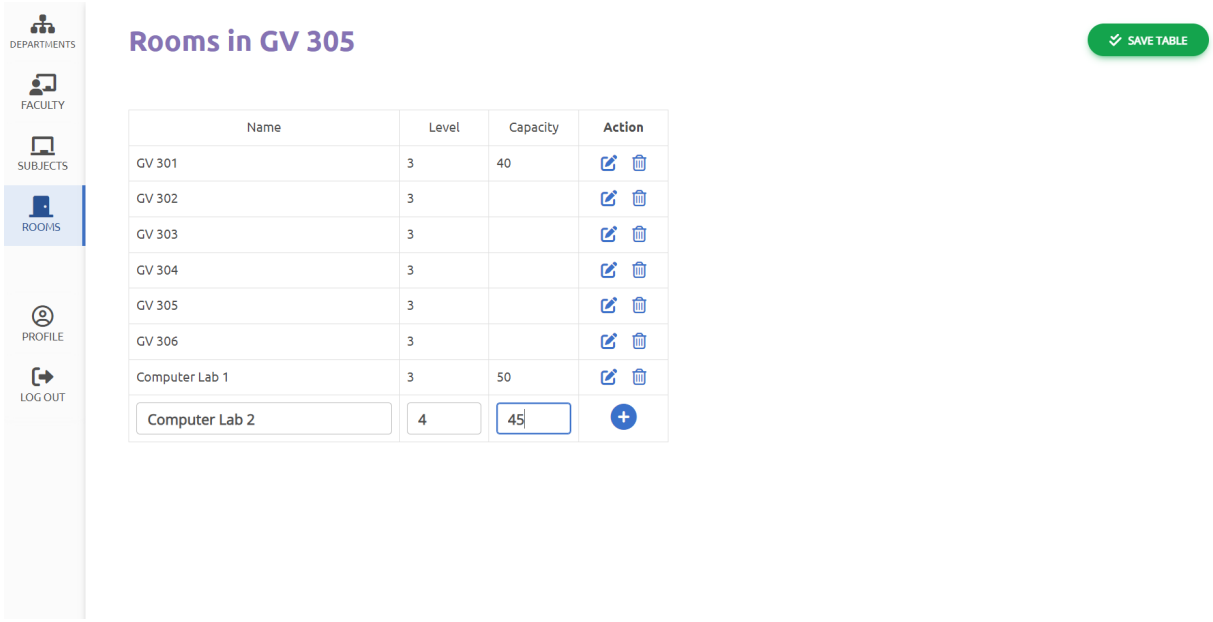
Rooms Page - Building List



Note. Figure 4.6.11.1 demonstrates the UI for Room page wherein the admin can add a new building

Figure 4.6.11.2

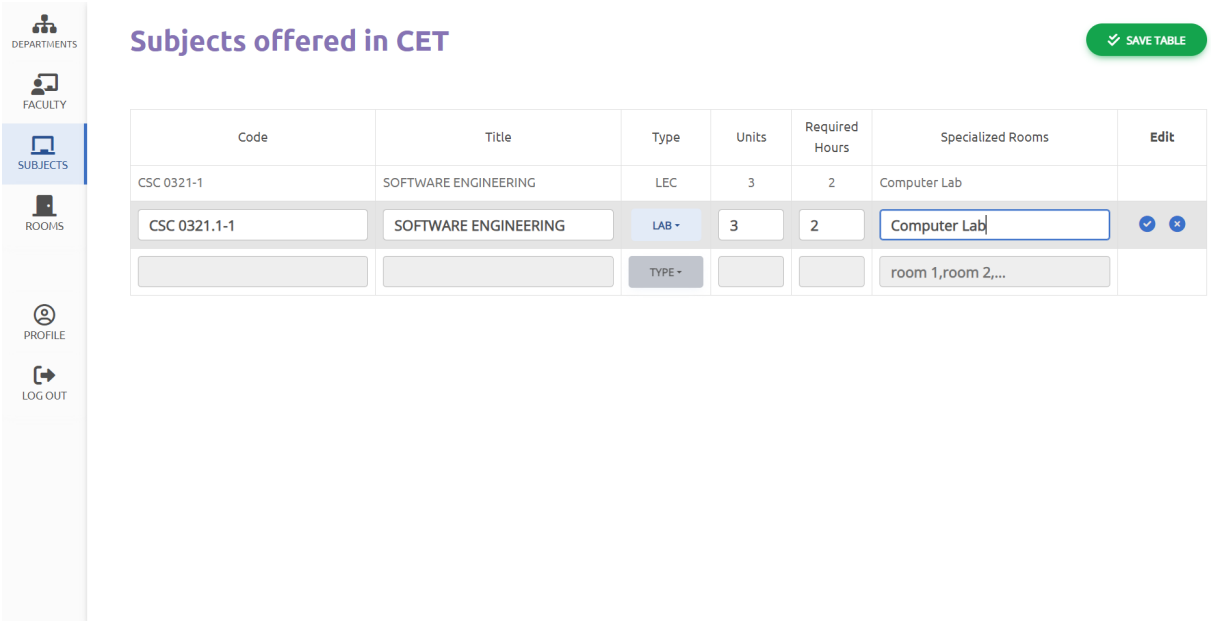
Rooms Page - Room List



Note. Figure 4.6.11.2 demonstrates the UI for Room page wherein the admin can add the respective rooms of the selected building

Figure 4.6.12

Subjects Page

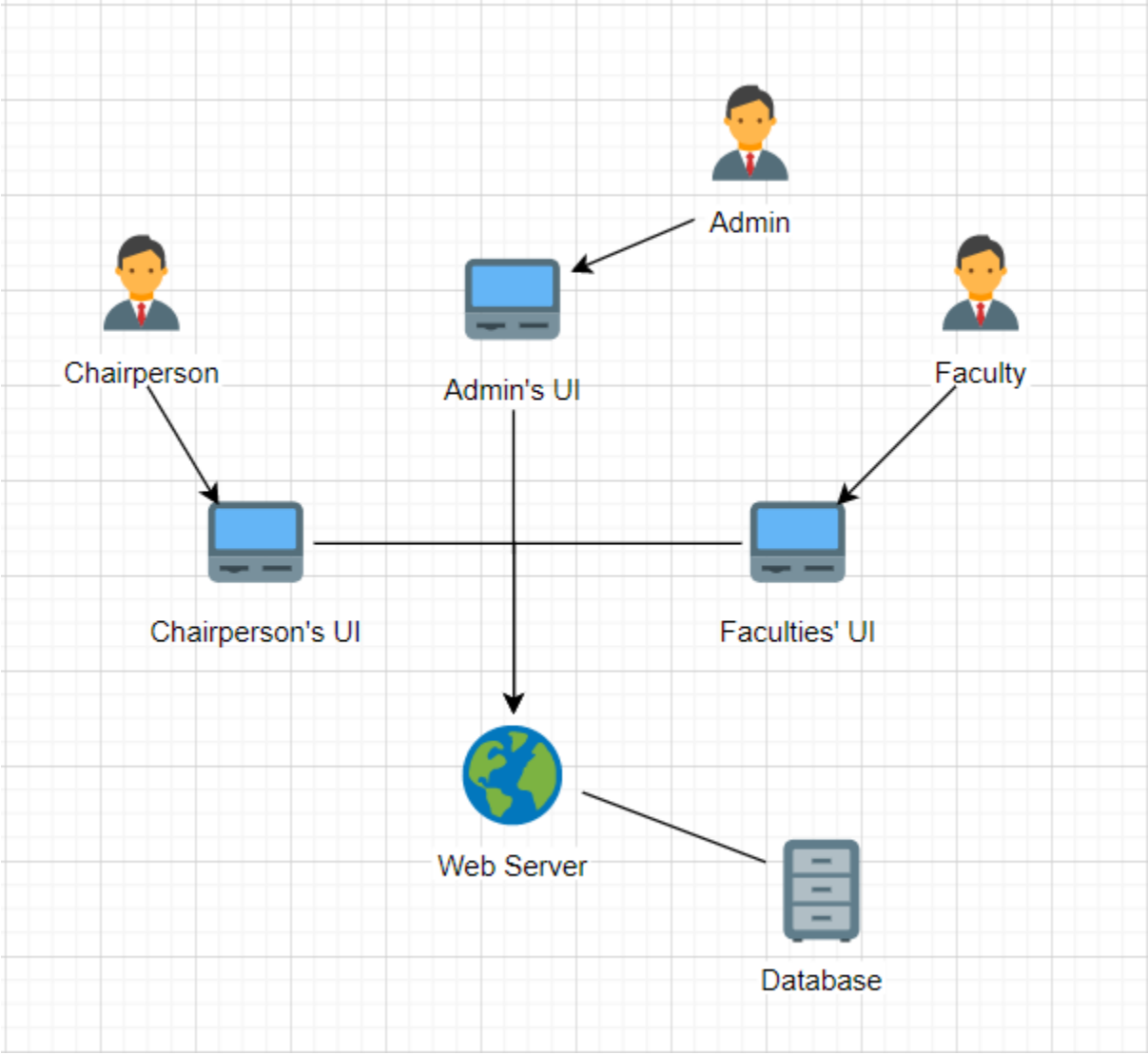


Note. Figure 4.6.12 demonstrates the UI for Subjects page wherein the admin can add the subjects offered of the selected college.

4.7 System Architecture

Figure 4.7

System Architecture

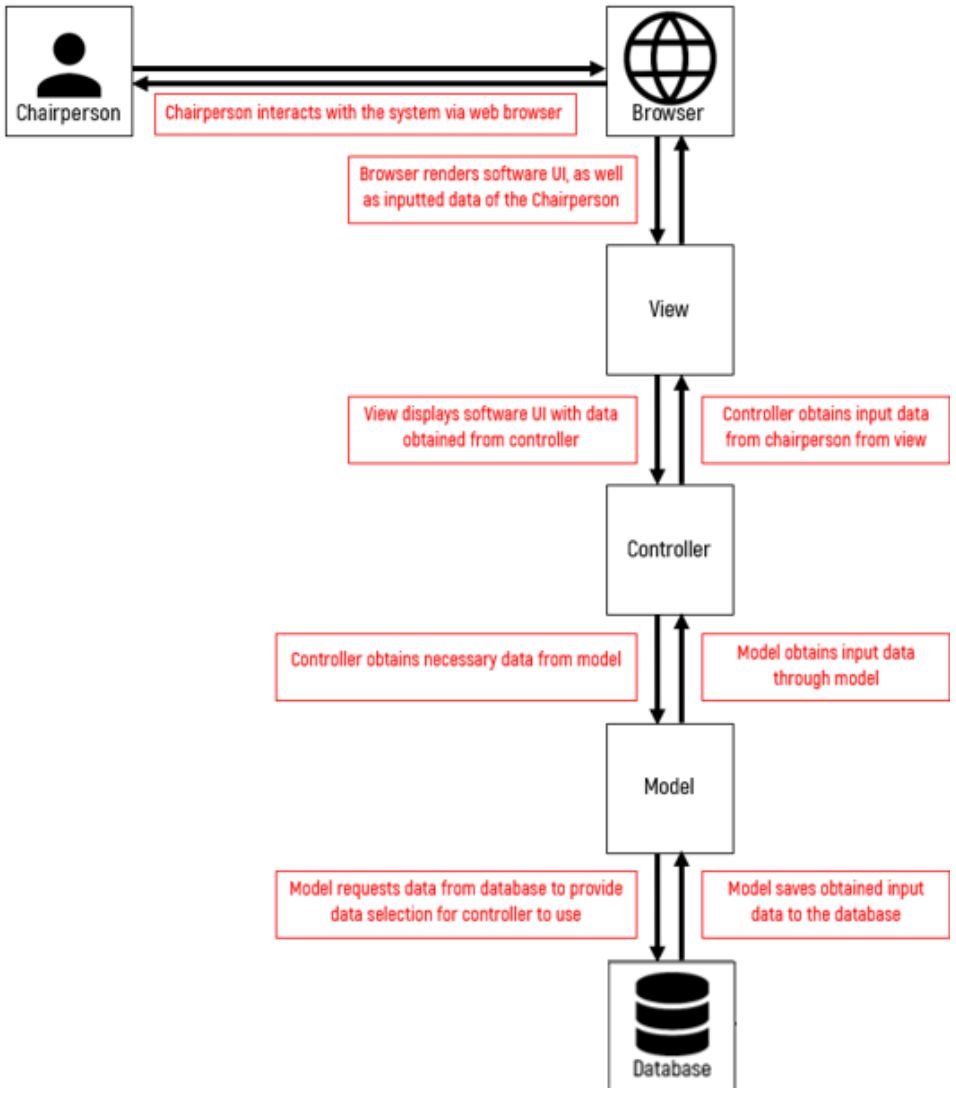


Note. Figure 4.7 shows the System Architecture where each personnel has their different UI and they are connected through the same web server and database.

4.8 Software Architecture

Figure 4.8

Model-View Controller (MVC) Architecture



Note. Figure 4.8 shows the Model-View Controller Software Architecture for the said project.

4.9 Test Plan

Table 4.9.1

Test Plan

Introduction	In Scope	Out of Scope
• Faculty loading application • Efficient faculty scheduling generation • To provide an application that would ease the chairperson's way of creating faculty schedules	• Chairperson log-in • Faculty log-in and inputs • Room assignment • Schedule generation with accurate Decision Support System • Detection of conflicts on the schedule that was generated • Generation of scheduling report	• Class pairing (classes taken by one section can be divided to take place in different days following the pairing: M-W, T-Th, W-F, etc. else plot the whole class in one day) • Consultation hours are not considered in auto-generation and would be up to the chairperson's discretion to avoid plotting classes during a professor's consultation hours.
Risks	**People**	**Environment & Tools**
• Incorrect faculty inputs • Incorrect use of DDS might cause conflicts	• Testing team • Development team • Target users	• Computer • Web browser • Command prompt
Assumption	**Timescales**	**Resources**
• Faculty inputs as data for schedule generation • Accuracy for DDS for chairperson's schedule generation	• 4 to 6 weeks	• Faculty inputs • Pre-made accounts

Note. Table 4.9.1 shows the projected Test Plan for testing the project that is being developed.

Table 4.9.2

Functional Test Plan

Testing Type	Participants	Functional Test Plan Methodology	Planned Date(s)	Status
Unit Testing	Development Team	The development team will test the different units to determine any malfunctions and misdirections. It will be done on their own devices with the help of the internet that will connect the device to the host.	From 9 DECEMBER 2022 up to 9 MAY 2023	**P**
Integration Testing	Testing Team	The testing team will plot the test cases and will test the combined units to determine any malfunctions and misdirections. It will be done on their own devices with the help of the internet that will connect the device to the host.	From 9 DECEMBER 2022 up to 9 MAY 2023	**IP**
System Testing	Testing Team	After the integration testing, the testing team will plot the test cases and will test the whole system to determine errors and misdirections through the whole process. It will be done on their own devices with the help of the internet that will connect the device to the host.	From 9 DECEMBER 2022 up to 9 MAY 2023	**IP**
User Acceptance Testing	Testing Team, Development Team, Chairperson	When all tests are done, the Chairperson would then test the application whether if it is accepted or it needs to have improvement. Other functionalities that the chairperson would like to add would be considered also.	From 9 JANUARY 2022 up to 15 MAY 2023	**IP**

Table 4.9.3

Non - Functional Test Plan

Testing Type	Participants	Non - Functional Test Plan Methodology	Planned Date(s)	Status
Performance Testing	Testing Team	The testing team will plot the test cases and will test, with the help of the users, how responsive the application works with multiple users using the system..	From 9 DECEMBER 2022 up to 9 MAY 2023	**F**
Security Testing	Testing Team, Development Team	The testing team will determine how secured the application is especially when it comes to the Chairperson's validation and the Faculty's inputted data. The development team will ensure that the database that is being used would not be leaked and kept in a safe space.	From 9 DECEMBER 2022 up to 9 MAY 2023	**P**
Compatibility Testing	Testing Team, Development Team	The testing team will plot the test cases for using the application on different devices and will determine whether it is functional or not in those different devices. The result of the tests would be handed to the development team for their further analysis.	From 9 DECEMBER 2022 up to 9 MAY 2023	**P**

Note. Figure 4.9.2 and Figure 4.9.3 shows the testing types that the researchers will use in order to provide a useful system.

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Software Test Cases Results

Table 5.1.1

Software Test Cases Results for Account Registration

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_RGSTR_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Empty Form then click continue	1. Need a valid email account	1. Leave School Name empty	<Empty School Name>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
					2. Leave No. of Terms empty	<Empty No. of Terms>				
					3. Leave Email address empty	<Empty Email address>				
					4. Leave Password empty	<Empty Password>				
					5. Leave Confirm Password empty	<Empty Confirm Password>				
					6. Click "Continue" button					
TC_RGSTR_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Incomplete Form then click continue	1. Need a valid email account	1. Leave School Name empty	<Empty School Name>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that to fill out the missing information.	PASS
					2. Enter No. of Terms	<Inputted No. of Terms>				
					3. Enter a valid Email address	<Valid Email address>				
					4. Enter correct and strong Password	<Valid Password>				
					5. Enter the same Password	<Matched Password>				
					6. Click "Continue" button					
TC_RGSTR_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Incomplete Form then click continue	1. Need a valid email account	1. Enter a School Name	<Entered a School Name>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that to fill out the missing information.	PASS
					2. Leave No. of Terms empty	<Empty No. of Terms>				
					3. Enter a valid Email address	<Valid Email address>				
					4. Enter correct and strong Password	<Valid Password>				
					5. Enter the same Password	<Matched Password>				
					6. Click "Continue" button					
TC_RGSTR_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Incomplete Form then click continue	1. Need a valid email account	1. Enter a School Name	<Entered a School Name>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that to fill out the missing information.	PASS
					2. Enter No. of Terms	<Inputted No. of Terms>				
					3. Leave Email address empty	<Empty Email address>				
					4. Enter correct and strong Password	<Valid Password>				
					5. Enter the same Password	<Matched Password>				
					6. Click "Continue" button					
TC_RGSTR_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Incomplete Form then click continue	1. Need a valid email account	1. Enter a School Name	<Entered a School Name>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that to fill out the missing information.	PASS
					2. Enter No. of Terms	<Inputted No. of Terms>				
					3. Enter a valid Email address	<Valid Email address>				
					4. Leave Password empty	<Empty Password>				
					5. Leave Confirm Password empty	<Empty Confirm Password>				
					6. Click "Continue" button					
TC_RGSTR_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Incomplete Form then click continue	1. Need a valid email account	1. Enter a School Name	<Entered a School Name>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that to fill out the missing information.	PASS
					2. Enter No. of Terms	<Inputted No. of Terms>				
					3. Enter a valid Email address	<Valid Email address>				
					4. Enter correct and strong Password	<Valid Password>				
					5. Leave Confirm Password empty	<Empty Confirm Password>				
					6. Click "Continue" button					

TC_RGSTR_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Enter Incorrect Email Address then click continue	1. Need a valid email account	1. Enter a School Name 2. Enter No. of Terms 3. Enter an invalid Email address 4. Enter correct and strong Passwo 5. Enter the same Password 6. Click "Continue" button	<Entered a School Name> <Inputted No. of Terms> <Invalid Email Address> <Valid Password> <Matched Password>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that email address is not valid.	PASS
TC_RGSTR_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Enter a Weak Password then click continue	1. Need a valid email account	1. Enter a School Name 2. Enter No. of Terms 3. Enter a valid Email address 4. Enter a Weak Password 5. Enter the same Password 6. Click "Continue" button	<Entered a School Name> <Inputted No. of Terms> <Valid Email address> <Enter a Weak Password> <Matched Password>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that the password created is too weak.	PASS
TC_RGSTR_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Enter a Different Password on Confirm Password then click continue	1. Need a valid email account	1. Enter a School Name 2. Enter No. of Terms 3. Enter a valid Email address 4. Enter correct and strong Passwo 5. Enter a different Password 6. Click "Continue" button	<Entered a School Name> <Inputted No. of Terms> <Valid Email address> <Valid Password> <Enter a Different Password>	Unsuccessful registration with error message	An error message would be displayed	An error message is shown saying that the confirm password does not match the password.	PASS
TC_RGSTR_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the creation of account by the admin	Fill-up form correctly then click continue	1. Need a valid email account	1. Enter a School Name 2. Enter No. of Terms 3. Enter a valid Email address 4. Enter correct and strong Passwo 5. Enter the same Password 6. Click "Continue" button	<Entered a School Name> <Inputted No. of Terms> <Valid Email address> <Valid Password> <Matched Password>	Successful registration with message of validation	A message will pop-up saying that the account was created	Successful account creation and a message regarding OTP validation will appear.	PASS
TC_RGSTR_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the account by the admin through OTP validation	Enter Incorrect OTP then click continue	1. Need a valid email account 2. Access the link sent on	1. Enter Incorrect OTP from email 2. Click "Confirm" button	<Invalid OTP>	Unsuccessful validation with error message	An error message would be displayed	An error message saying that the OTP is incorrect and will display how many attempts to input correct	PASS
TC_RGSTR_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the account by the admin through OTP validation	Enter Incorrect OTP until attempt is finish	1. Need a valid email account 2. Access the link sent on	1. Enter Incorrect OTP from email 2. Click "Confirm" button	<Invalid OTP>	Unsuccessful validation with error message	An error message would be displayed	An error message saying that the OTP is incorrect and will display if the user wants a new OTP.	PASS
TC_RGSTR_006_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify sending of another OTP to the user	Click "No" when asked for resending of OTP	1. Need a valid email account 2. Access the link sent on	1. Click "No" button		Unsuccessful resending of OTP and account validation	Account is not validated	Unsuccessful validation of account and will be redirected to login page.	PASS
TC_RGSTR_006_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify sending of another OTP to the user	Click "Yes" when asked for resending of OTP	1. Need a valid email account 2. Access the link sent on	1. Click "Yes" button		Successful resending of OTP	OTP and validation link will be sent to the user	Unsuccessful validation of account and will be redirected to login page.	PASS
TC_RGSTR_007	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the account by the admin through OTP validation	Enter Correct OTP then click continue	1. Need a valid email account 2. Access the link sent on	1. Enter Correct OTP from email 2. Click "Confirm" button	<Valid OTP>	Successful validation and will be redirected to login page	A message will pop-up saying that OTP verification is	Successful OTP validation and will be redirected to the login page.	PASS

Note. Table 5.1.1 shows the software test cases results for Account Registration only.

Table 5.1.2
Software Test Cases Results for Account Login

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_LOGIN_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system	Empty Email Address and Password then login	1. Need an authorized account to login.	1. Leave Email Address empty 2. Leave Password empty 3. Click "Login" button	<Empty Email Address> <Empty Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_LOGIN_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system	Enter invalid User Name and invalid Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Password 3. Click "Login" button	<Invalid Email Address> <Invalid Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that user name and password are incorrect.	PASS
TC_LOGIN_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (Admin)	Empty Email Address and Password then login	1. Need an authorized account to login.	1. Leave Email Address empty 2. Leave Password empty 3. Click "Login" button	<Empty Email Address> <Empty Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_LOGIN_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (Admin)	Enter valid Email Address and valid Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Password 3. Click "Login" button	<Valid Email Address> <Valid Password>	Successful login and will be redirected to the homepage.	The Admin is successfully logged in to the system	The Admin is redirected to the home page of the system.	PASS
TC_LOGIN_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (Admin)	Enter valid Email Address and invalid Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Password 3. Click "Login" button	<Valid Email Address> <Invalid Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that user name and password are incorrect.	PASS
TC_LOGIN_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (Admin)	Enter invalid Email Address and valid Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Password 3. Click "Login" button	<Invalid Email Address> <Valid Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that user name and password are incorrect.	PASS
TC_LOGIN_003_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Chairperson)	Empty Email Address and Password then login	1. Need an authorized account to login.	1. Leave Email Address empty 2. Leave Password empty 3. Click "Login" button	<Empty Email Address> <Empty Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_LOGIN_003_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Chairperson)	Enter valid Email Address and valid Temporary Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Temporary Password 3. Click "Login" button	<Valid Email Address> <Valid Temp Password>	Successful login and will be redirected to the change password page.	The Faculty member will be asked to change his/her	The Faculty member is redirected to the change password page.	PASS
TC_LOGIN_003_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Chairperson)	Enter valid Email Address and invalid Temporary Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Temporary Password 3. Click "Login" button	<Valid Email Address> <Invalid Temp Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that user name and temporary password are incorrect.	PASS
TC_LOGIN_003_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Chairperson)	Enter Email Address Name and valid Temporary Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Temporary Password 3. Click "Login" button	<Invalid Email Address> <Valid Temp Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that user name and temporary password are incorrect.	PASS

TC_LOGIN_003_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Chairperson)	Enter new Password and confirm Password	1. Correct and strong password.	1. Enter New Password 2. Enter Confirm Password 3. Click "Login" button	<Valid New Password> <Same Password>	Successful changing of password.	A message will show and redirect to login page	A message is shown saying that changing password is complete and will redirect user to login.	PASS
TC_LOGIN_003_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Chairperson)	Enter new Password and different confirm Password	1. Correct and strong password.	1. Enter New Password 2. Enter Confirm Password 3. Click "Login" button	<Valid New Password> <Different Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that passwords inputted are different.	PASS
TC_LOGIN_003_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Chairperson)	Enter weak Password and confirm Password	1. Correct and strong password.	1. Enter New Password 2. Enter Confirm Password 3. Click "Login" button	<Invalid New Password> <Same Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that password created is too weak.	PASS
TC_LOGIN_003_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Chairperson)	Empty new Password and confirm Password	1. Correct and strong password.	1. Leave New Password empty 2. Leave Confirm Password empty 3. Click "Login" button	<Empty New Password> <Empty Confirm Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that password inputs are empty.	PASS
TC_LOGIN_004_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Faculty)	Empty Email Address and Password then login	1. Need an authorized account to login.	1. Leave Email Address empty 2. Leave Password empty 3. Click "Login" button	<Empty Email Address> <Empty Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_LOGIN_004_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Faculty)	Enter valid Email Address and valid Temporary Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Temporary Password 3. Click "Login" button	<Valid Email Address> <Valid Temp Password>	Successful login and will be redirected to the change password page.	The Faculty member will be asked to change his/her	The Faculty member is redirected to the change password page.	PASS
TC_LOGIN_004_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Faculty)	Enter valid Email Address and invalid Temporary Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Temporary Password 3. Click "Login" button	<Valid Email Address> <Invalid Temp Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that user name and temporary password are incorrect.	PASS
TC_LOGIN_004_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the first time login of the system (PLM Faculty)	Enter Email Address Name and valid Temporary Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Temporary Password 3. Click "Login" button	<Invalid Email Address> <Valid Temp Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that user name and temporary password are incorrect.	PASS
TC_LOGIN_004_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Faculty)	Enter new Password and confirm Password	1. Correct and strong password.	1. Enter New Password 2. Enter Confirm Password 3. Click "Login" button	<Valid New Password> <Same Password>	Successful changing of password.	A message will show and redirect to login page	A message is shown saying that changing password is complete and will redirect user to login.	PASS
TC_LOGIN_004_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Faculty)	Enter new Password and different confirm Password	1. Correct and strong password.	1. Enter New Password 2. Enter Confirm Password 3. Click "Login" button	<Valid New Password> <Different Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that passwords inputted are different.	PASS
TC_LOGIN_004_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Faculty)	Enter weak Password and confirm Password	1. Correct and strong password.	1. Enter New Password 2. Enter Confirm Password 3. Click "Login" button	<Invalid New Password> <Same Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that password created is too weak.	PASS

TC_LOGIN_004_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Changing the password (PLM Faculty)	Empty new Password and confirm Password	1. Correct and strong password.	1. Leave New Password empty 2. Leave Confirm Password empty 3. Click "Login" button	<Empty New Password> <Empty Confirm Password>	Unsuccessful first time login with error message.	An error message would be displayed	An error message is shown saying that password inputs are empty.	PASS
TC_LOGIN_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (PLM Faculty)	Empty Email Address and Password then login	1. Need an authorized account to login.	1. Leave Email Address empty 2. Leave Password empty 3. Click "Login" button	<Empty Email Address> <Empty Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_LOGIN_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (PLM Faculty)	Enter valid Email Address and valid Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Password 3. Click "Login" button	<Valid Email Address> <Valid Password>	Successful login and will be redirected to the homepage.	The Faculty member is successfully logged in to the system	The Faculty member is redirected to the home page of the system.	PASS
TC_LOGIN_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (PLM Faculty)	Enter valid Email Address and invalid Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Password 3. Click "Login" button	<Valid Email Address> <Invalid Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that user name and password are incorrect.	PASS
TC_LOGIN_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the login of the system (PLM Faculty)	Enter Email Address Name and valid Password	1. Need an authorized account to login.	1. Enter Email Address 2. Enter Password 3. Click "Login" button	<Invalid Email Address> <Valid Password>	Unsuccessful login with error message.	An error message would be displayed	An error message is shown saying that user name and password are incorrect.	PASS

Note. Table 5.1.2 shows the software test cases results for Account Login only.

Table 5.1.3

Software Test Cases Results for Admin Department Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_A_DEPT_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a college	Empty field for name of College and click add button	1. Need information of college	1. Leave College name empty 2. Click add button	<Empty College Name>	Unsuccessful adding of college with error message.	An error message would be displayed	An error message is shown saying that to fill out the name of college field.	PASS
TC_A_DEPT_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a college	Input correct name of College and click add button	1. Need information of college	1. Enter College name 2. Click add button	<Correct College Name>	Successful adding of college.	App will redirect admin to editing Department Table	College created will appear with the Department Table and "Edit Table" button.	PASS
TC_A_DEPT_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit Table" button	Clicking "Edit Table" button will enable editting the Department table	None	1. Click the "Edit Table" button		Redirect to editing the Department table	Admin can edit the Department table	A "Save Changes" button will appear while the admin can edit the Department table.	PASS
TC_A_DEPT_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a department	Empty field for name of Department and click add button	1. Need information of department	1. Leave Department name empty 2. Click add button	<Empty Department Name>	Unsuccessful adding of department with error message.	An error message would be displayed	An error message is shown saying that to fill out the name of department field.	PASS
TC_A_DEPT_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a department	Input correct name of Department and click add button	1. Need information of department	1. Enter Department name 2. Click add button	<Correct Department Name>	Successful adding of department.	App will redirect admin to editing Department Table	Department created and a message will show that admin can add a chairperson.	PASS
TC_A_DEPT_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Save Changes" button	Clicking "Save Changes" button will save the department table	None	1. Click the "Save Changes" button		Redirect to viewing the Department table	Admin can view the Department table	An "Edit Table" button will appear again while the admin can view or edit again the Department table.	PASS
TC_A_DEPT_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Selecting the chairperson for a department	Clicking a name on the dropdown list will grant him/her the chairperson access	1. Need faculty member names	1. Click the Dropdown list 2. Click a name of the faculty 3. Click the check button to save		Successful selection of chairperson of the department	Admin can view the Department table	Upon successful selection, an "Edit Table" button will appear again so that the admin can view or edit again the Department table.	PASS

Note. Table 5.1.3 shows the software test cases results for the Admin perspective of Department tab only.

Table 5.1.4

Software Test Cases Results for Admin Faculty Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_A_FCLTY_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit Table" button	Clicking "Edit Table" button will enable the admin to edit the faculty information table	None	1. Click the "Edit Table" button		Redirect to editing the faculty information table	Admin can edit the faculty information table	A "Save Changes" button will appear while the Admin can edit the faculty information table	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Empty Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Leave Employment Status empty 3. Leave Teach Load empty 4. Leave Surname empty 5. Leave First Name empty 6. Leave Middle Name empty 7. Leave Email empty 8. Click the action "Add" button	<Empty ID> <Empty Employment Status> <Empty Teach Load> <Empty Surname> <Empty First Name> <Empty Middle Name> <Empty Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Empty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the ID field.	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Empty Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Employment Status field.	PASS

TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Empty Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Teach Load field.	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Empty Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Surname field.	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Empty First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the First Name field.	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Empty Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Middle Name field.	PASS

TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Empty Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Email field.	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Invalid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that the inputted email address is invalid.	PASS
TC_A_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Complete and Correct Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Successful input of information and option to add more information or save the changes	App will proceed to editing and can click the "Save Changes" button if no necessary editing will be done	Faculty information is added and a message will appear saying that a temporary password was sent to their email.	PASS
TC_A_FCLTY_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit" button	Clicking "Edit" button will enable the admin to edit the specified row	None	1. Click the "Edit" button		Button working and will enable admin to edit the row	Admin can modify the row of faculty information	An "Add" button will appear again for the admin to save the faculty information for that specific row.	PASS
TC_A_FCLTY_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Save Changes" button	Clicking "Save Changes" button will enable the admin to save the faculty information table	None	1. Click the "Save Changes" button		Redirect to viewing the faculty information table	Admin can view the faculty information table	An "Edit Table" button will appear again for the admin to edit the table again and the admin can view the table.	PASS
TC_A_FCLTY_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify if the Chairperson can view and edit the Faculty Information Table	Clicking "Faculty" tab will display the Faculty Information Table	None	1. Click the "Faculty" tab		Redirect to viewing the faculty information table	Chairperson can view the faculty information table	An "Edit Table" button will appear for the chairperson to edit the table and view the table.	PASS

Note. Table 5.1.4 shows the software test cases results for the Admin perspective of Faculty tab only.

Table 5.1.5

Software Test Cases Results for Admin Subjects Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_A_SUBJ_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit Table" button	Clicking "Edit Table" button will enable the admin to edit the Subject table	None	1. Click the "Edit Table" button		Redirect to editing the Subjects table	Admin can edit the Subjects table	A "Save Changes" button will appear while the admin can edit the Subjects table	PASS
TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a Subject information by the admin	Empty Form then click "Add" action button	1. Need a Subject information	1. Leave Code empty 2. Leave Title empty 3. Leave Type empty 4. Leave Units empty 5. Leave Required Hours empty 6. Leave Specialized Rooms empty 7. Click the action "Add" button	<Empty Code> <Empty Title> <Empty Type> <Empty Units> <Empty Required Hours> <Empty Specialized Rooms>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information by the admin	Incomplete Form then click "Add" action button	1. Need a Subject information	1. Leave Code empty 2. Enter Title 3. Select Type 4. Enter Units 5. Enter Required Hours 6. Enter Specialized Rooms 7. Click the action "Add" button	<Empty Code> <Correct Title> <Correct Type> <Correct Units> <Correct Required Hours> <Correct Specialized Rooms>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Code field.	PASS
TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information by the admin	Incomplete Form then click "Add" action button	1. Need a Subject information	1. Enter Code 2. Enter Title 3. Select Type 4. Enter Units 5. Enter Required Hours 6. Enter Specialized Rooms 7. Click the action "Add" button	<Correct Code> <Empty Title> <Correct Type> <Correct Units> <Correct Required Hours> <Correct Specialized Rooms>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Title field.	PASS

TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information by the admin	Incomplete Form then click "Add" action button	1. Need a Subject information	1. Enter Code 2. Enter Title 3. Select Type 4. Enter Units 5. Enter Required Hours 6. Enter Specialized Rooms 7. Click the action "Add" button	<Correct Code> <Correct Title> <Empty Type> <Correct Units> <Correct Required Hours> <Correct Specialized Rooms>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Type field.	PASS
TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information by the admin	Incomplete Form then click "Add" action button	1. Need a Subject information	1. Enter Code 2. Enter Title 3. Select Type 4. Enter Units 5. Enter Required Hours 6. Enter Specialized Rooms 7. Click the action "Add" button	<Correct Code> <Correct Title> <Correct Type> <Empty Units> <Correct Required Hours> <Correct Specialized Rooms>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Units field.	PASS
TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information by the admin	Incomplete Form then click "Add" action button	1. Need a Subject information	1. Enter Code 2. Enter Title 3. Select Type 4. Enter Units 5. Enter Required Hours 6. Enter Specialized Rooms 7. Click the action "Add" button	<Correct Code> <Correct Title> <Correct Type> <Correct Units> <Empty Required Hours> <Correct Specialized Rooms>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Required Hours field.	PASS
TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information by the admin	Incomplete Form then click "Add" action button	1. Need a Subject information	1. Enter Code 2. Enter Title 3. Select Type 4. Enter Units 5. Enter Required Hours 6. Enter Specialized Rooms 7. Click the action "Add" button	<Correct Code> <Correct Title> <Correct Type> <Correct Units> <Correct Required Hours> <Empty Specialized Rooms>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Specialized Rooms field.	PASS
TC_A_SUBJ_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information by the admin	Complete and Correct Form then click "Add" action button	1. Need a Subject information	1. Enter Code 2. Enter Title 3. Select Type 4. Enter Units 5. Enter Required Hours 6. Enter Specialized Rooms 7. Click the action "Add" button	<Correct Code> <Correct Title> <Correct Type> <Correct Units> <Correct Required Hours> <Correct Specialized Rooms>	Successful adding of subject	App will redirect admin to editing Subjects Table	Subjects created will appear on the Subjects Table and "Save Changes" button will also appear.	PASS
TC_A_SUBJ_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit" button	Clicking "Edit" button will enable the admin to edit the specified row	None	1. Click the "Edit" button		Button working and will enable admin to edit the row	Admin can modify the row of subject information	An "Add" button will appear again for the admin to save the subject information for that specific row.	PASS
TC_A_SUBJ_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Save Changes" button	Clicking "Save Changes" button will enable the admin to save the faculty	None	1. Click the "Save Changes" button		Redirect to viewing the Subjects table	Admin can view the Subjects table	An "Edit Table" button will appear again for the admin to edit the table again and the admin can view the	PASS

Note. Table 5.1.5 shows the software test cases results for the Admin perspective of Subjects tab only.

Table 5.1.6

Software Test Cases Results for Admin Rooms Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_A_ROOMS_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a building	Empty field for name of Building and click add button	1. Need information of building	1. Leave Building name empty 2. Click add button	<Empty Building Name>	Unsuccessful adding of building with error message.	An error message would be displayed	An error message is shown saying that to fill out the name of building field.	PASS
TC_A_ROOMS_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a college	Input correct name of Building and click add button	1. Need information of building	1. Enter Building name 2. Click add button	<Correct Building Name>	Successful adding of building.	App will redirect admin to editing Rooms Table	Building name created will appear with the Rooms Table and "Edit Table" button.	PASS
TC_A_ROOMS_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit Table" button	Clicking "Edit Table" button will enable the admin to edit the Rooms table	None	1. Click the "Edit Table" button		Redirect to editing the Department table	Admin can edit the Department table	A "Save Changes" button will appear while the admin can edit the Rooms table.	PASS
TC_A_ROOMS_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a department	Empty field for Rooms table and click add button	1. Need information of room	1. Leave Room name empty 2. Leave Level empty 3. Leave Capacity empty 4. Click add button	<Empty Room Name> <Empty Level> <Empty Capacity>	Unsuccessful adding of room with error message.	An error message would be displayed	An error message is shown saying that to fill out all the field.	PASS
TC_A_ROOMS_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a department	Incomplete information for Rooms table and click add button	1. Need information of room	1. Leave Room name empty 2. Enter Level 3. Enter Capacity 4. Click add button	<Empty Room Name> <Enter Level> <Enter Capacity>	Unsuccessful adding of room with error message.	An error message would be displayed	An error message is shown saying that to fill out the room name field.	PASS
TC_A_ROOMS_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a department	Incomplete information for Rooms table and click add button	1. Need information of room	1. Enter Room name 2. Leave Level empty 3. Enter Capacity 4. Click add button	<Enter Room Name> <Empty Level> <Enter Capacity>	Unsuccessful adding of room with error message.	An error message would be displayed	An error message is shown saying that to fill out the room name field.	PASS
TC_A_ROOMS_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a department	Incomplete information for Rooms table and click add button	1. Need information of room	1. Enter Room name 2. Enter Level 3. Leave Capacity empty 4. Click add button	<Enter Room Name> <Enter Level> <Empty Capacity>	Successful adding of room even though there is no capacity entered.	App will redirect admin to editing Subjects Table	Rooms created will appear on the Rooms Table and "Save Changes" button will also appear.	PASS
TC_A_ROOMS_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a department	Complete and Correct information for Rooms table and click add button	1. Need information of room	1. Enter Room name 2. Enter Level 3. Enter Capacity 4. Click add button	<Enter Room Name> <Enter Level> <Enter Capacity>	Successful adding of room.	App will redirect admin to editing Subjects Table	Rooms created will appear on the Rooms Table and "Save Changes" button will also appear.	PASS
TC_A_ROOMS_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit" button	Clicking "Edit" button will enable the admin to edit the specified row	None	1. Click the "Edit" button		Button working and will enable admin to edit the row	Admin can modify the row of room information	An "Add" button will appear again for the admin to save the room information for that specific row.	PASS
TC_A_ROOMS_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Save Changes" button	Clicking "Save Changes" button will save the Rooms table	None	1. Click the "Save Changes" button		Redirect to viewing the Rooms table	Admin can view the Rooms table	An "Edit Table" button will appear again while the admin can view or edit again the Rooms table.	PASS

Note. Table 5.1.6 shows the software test cases results for the Admin perspective of Rooms tab only.

Table 5.1.7

Software Test Cases Results for Chairperson Schedules Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_C_SCHED_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Adding academic year and semester	Enter academic year and select 1st semester then click "Add" button	1. Chairperson has not yet created a schedule for the upcoming sem	1. Enter Academic Year 2. Select 1st Semester 3. Click "Add" button	<Valid Academic Year> <Valid Upcoming Semester>	Semester schedule will be added including 2nd semester	Faculty information table will appear	Displays the timetable of the faculty information and can click the course information.	PASS
TC_C_SCHED_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Adding academic year and semester	Enter academic year and select 2nd semester then click "Add" button	1. Chairperson has not yet created a schedule for the upcoming sem	1. Enter Academic Year 2. Select 2nd Semester 3. Click "Add" button	<Valid Academic Year> <Valid Upcoming Semester>	Successful addition of semester schedule	Faculty information table will appear	Displays the timetable of the faculty information and can click the course information.	PASS
TC_C_SCHED_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Adding academic year and semester	Enter unrealistic academic year and select 1st semester then click "Add" button	1. Chairperson has not yet created a schedule for the upcoming sem	1. Enter Academic Year 2. Select 1st Semester 3. Click "Add" button	<Invalid Academic Year> <Valid Upcoming Semester>	Unsuccessful attempt to create schedule	An error message will be displayed	Schedule creation will not push further because academic year is too far from current.	PASS
TC_C_SCHED_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Modifying the number of year level and blocks	Add a year level, block and number of students then click "Add" button	1. Chairperson has not yet created a schedule for the upcoming sem	1. Enter Year Level 2. Enter Block number 3. Enter Number of Students 4. Click "Add" button	<Valid Year Level> <Valid Block number> <Valid Number of Students>	Successful addition of year level, block and number of students	Proceed to adding another information	Displays the course information with year levels, blocks and number of students.	PASS
TC_C_SCHED_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Modifying the number of year level and blocks	Add a block and number of students but empty year level then click "Add" button	1. Chairperson has not yet created a schedule for the upcoming sem	1. Leave Year Level empty 2. Enter Block number 3. Enter Number of Students 4. Click "Add" button	<Empty Year Level> <Valid Block number> <Valid Number of Students>	Unuccessful addition of year level, block and number of students	An error message will be displayed	An error message is shown saying to fill out the empty fields.	PASS
TC_C_SCHED_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Modifying the number of year level and blocks	Add a year level and number of students but empty block number then click "Add" button	1. Chairperson has not yet created a schedule for the upcoming sem	1. Enter Year Level 2. Leave Block number empty 3. Enter Number of Students 4. Click "Add" button	<Valid Year Level> <Empty Block number> <Valid Number of Students>	Unuccessful addition of year level, block and number of students	An error message will be displayed	An error message is shown saying to fill out the empty fields.	PASS
TC_C_SCHED_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Modifying the number of year level and blocks	Add a year level and block but empty number of students then click "Add" button	1. Chairperson has not yet created a schedule for the upcoming sem	1. Enter Year Level 2. Enter Block number 3. Leave Number of Students empty 4. Click "Add" button	<Valid Year Level> <Valid Block number> <Empty Number of Students>	Successful addition of year level and block even if there is no number of students input	Proceed to adding another information	Displays the course information with year levels, blocks and number of students.	PASS
TC_C_SCHED_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit" button	Clicking "Edit" button will enable the chairperson to edit the specified row	None	1. Click the "Edit" button		Button working and will enable chairperson to edit the row	Chairperson can modify the row of course information	An "Add" button will appear again for the chairperson to save the course information for that specific	PASS
TC_C_SCHED_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Generate Schedule" button	Clicking "Generate Schedule" button will enable the chairperson to initially generate schedule	1. All information from faculty, courses and rooms are available	1. Click the "Generate Schedule" button		Button working and will enable chairperson to view the initial schedule	Chairperson can modify the initial schedule created by the system	Generated schedule will be displayed and the chairperson can modify for him/her to plot other schedules.	PASS

TC_C_SCHED_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a faculty member	Select day, time, mode of learning, and room number then click "Assign"	1. Clicked the name of a faculty member 2. No conflicting schedule	1. Select Day 2. Select Time 3. Select Mode of learning 4. Type Room number 5. Click "Assign" button	<Valid Day of the Week> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Valid Room number>	Successful assigning of class to faculty member	A message will display about successful assignment	Class will be assigned to the faculty member and a message will display saying that assignment is successful with no conflicting schedule.	PASS
TC_C_SCHED_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a faculty member	Select day, time, mode of learning, and room number then click "Assign"	1. Clicked the name of a faculty member 2. With conflicting schedule	1. Select Day 2. Select Time 3. Select Mode of learning 4. Type Room number 5. Click "Assign" button	<Valid Day of the Week> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to faculty member	An error message will display about conflicting schedule	Class will not be assigned to the faculty member and a message will display saying that assignment is unsuccessful due to conflicting schedule.	PASS
TC_C_SCHED_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a faculty member	Select time, mode of learning, and room number but no selected day then click "Assign"	1. Clicked the name of a faculty member 2. No conflicting schedule	1. Leave Day empty 2. Select Time 3. Select Mode of learning 4. Type Room number 5. Click "Assign" button	<No selected Day> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to faculty member	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a faculty member	Select day, mode of learning, and room number but invalid input of time then click "Assign"	1. Clicked the name of a faculty member 2. No conflicting schedule	1. Select Day 2. Leave Time empty/Leave one field empty 3. Select Mode of learning 4. Type Room number 5. Click "Assign" button	<Valid Day of the Week> <Invalid Time/Time field empty> <Selected a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to faculty member	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a faculty member	Select day, time, and room number but no mode of learning then click "Assign"	1. Clicked the name of a faculty member 2. No conflicting schedule	1. Select Day 2. Select Time 3. Leave Mode of learning empty 4. Type Room number 5. Click "Assign" button	<Valid Day of the Week> <Valid Time covering assigned hrs> <Did not select a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to faculty member	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a faculty member	Select day, time, and mode of learning but no room number then click "Assign"	1. Clicked the name of a faculty member 2. No conflicting schedule	1. Select Day 2. Select Time 3. Select Mode of learning 4. Leave Room number empty 5. Click "Assign" button	<Valid Day of the Week> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Empty Room number>	Unsuccessful assigning of class to faculty member	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a block	Select professor, day, time, mode of learning, and room number then click "Assign"	1. Clicked a year level and block row 2. No conflicting schedule	1. Select Professor 2. Select Day 3. Select Time 4. Select Mode of learning 5. Type Room number 6. Click "Assign" button	<Selected a Professor> <Valid Day of the Week> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Valid Room number>	Successful assigning of class to faculty member	A message will display about successful assignment	Class will be assigned to the block and a message will display saying that assignment is successful with no conflicting schedule.	PASS

TC_C_SCHED_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a block	Select professor, day, time, mode of learning, and room number then click "Assign"	1. Clicked a year level and block row 2. With conflicting schedule	1. Select Professor 2. Select Day 3. Select Time 4. Select Mode of learning 5. Type Room number 6. Click "Assign" button	<Selected a Professor> <Valid Day of the Week> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to a block	An error message will display about conflicting schedule	Class will not be assigned to the block and a message will display saying that assignment is unsuccessful due to conflicting schedule..	PASS
TC_C_SCHED_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a block	Select day, time, mode of learning, and room number but no professor then click "Assign"	1. Clicked a year level and block row 2. No conflicting schedule	1. Did not select a Professor 2. Select Day 3. Select Time 4. Select Mode of learning 5. Type Room number 6. Click "Assign" button	<Did not selected a Professor> <Valid Day of the Week> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to a block	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a block	Select professor, time, mode of learning, and room number but no selected day then click "Assign"	1. Clicked a year level and block row 2. No conflicting schedule	1. Select Professor 2. Leave Day empty 3. Select Time 4. Select Mode of learning 5. Type Room number 6. Click "Assign" button	<Selected a Professor> <No selected Day> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to a block	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a block	Select professor, day, mode of learning, and room number but invalid input of time then click "Assign"	1. Clicked a year level and block row 2. No conflicting schedule	1. Select Professor 2. Select Day 3. Leave Time empty/Leave one field empty 4. Select Mode of learning 5. Type Room number 6. Click "Assign" button	<Selected a Professor> <Valid Day of the Week> <Invalid Time/Time field empty> <Selected a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to a block	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a block	Select professor, day, time, and room number but no mode of learning then click "Assign"	1. Clicked a year level and block row 2. No conflicting schedule	1. Select Professor 2. Select Day 3. Select Time 4. Leave Mode of learning empty 5. Type Room number 6. Click "Assign" button	<Selected a Professor> <Valid Day of the Week> <Valid Time covering assigned hrs> <Did not select a Mode of Learning> <Valid Room number>	Unsuccessful assigning of class to a block	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS
TC_C_SCHED_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Assigning new class to a block	Select professor, day, time, and mode of learning but no room number then click "Assign"	1. Clicked a year level and block row 2. No conflicting schedule	1. Select Professor 2. Select Day 3. Select Time 4. Select Mode of learning 5. Leave Room number empty 6. Click "Assign" button	<Selected a Professor> <Valid Day of the Week> <Valid Time covering assigned hrs> <Selected a Mode of Learning> <Empty Room number>	Unsuccessful assigning of class to a block	An error message will display about empty field	Error message will be displayed showing that there is an empty field.	PASS

TC_C_SCHED_007_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Editing a faculty schedule (Modifying information)	Clicking the specific schedule of a faculty will enable the chairperson to edit the information	1. Schedule is created 2. No conflicting schedule	1. Click the specific schedule 2. Modification by the chairperson 3. Click "Change" button		Successful modification of block schedule	Chairperson can modify schedule information	A message will display saying that modification is successful with no conflicting schedule.	PASS
TC_C_SCHED_007_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Editing a faculty schedule (Modifying information)	Clicking the specific schedule of a faculty will enable the chairperson to edit the information	1. Schedule is created 2. With conflicting schedule	1. Click the specific schedule 2. Modification by the chairperson 3. Click "Change" button		Unsuccessful modification of block schedule	Chairperson can modify schedule information	A message will display saying that modification is unsuccessful due to conflicting schedule.	PASS
TC_C_SCHED_007_3	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Editing a faculty schedule (Removing a schedule)	Clicking the specific schedule will enable the chairperson to edit the information	1. Schedule is created	1. Click the specific schedule 2. Click "Delete" button		Successful deletion of block schedule	Block schedule will be deleted	The block schedule will not appear when viewing the block schedule.	PASS
TC_C_SCHED_008_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Editing a block schedule (Modifying information)	Clicking the specific schedule will enable the chairperson to edit the information	1. Schedule is created 2. No conflicting schedule	1. Click the specific schedule 2. Modification by the chairperson 3. Click "Change" button		Successful modification of block schedule	Chairperson can modify schedule information	A message will display saying that modification is successful with no conflicting schedule.	PASS
TC_C_SCHED_008_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Editing a block schedule (Modifying information)	Clicking the specific schedule will enable the chairperson to edit the information	1. Schedule is created 2. With conflicting schedule	1. Click the specific schedule 2. Modification by the chairperson 3. Click "Change" button		Unsuccessful modification of block schedule	Chairperson can modify schedule information	A message will display saying that modification is unsuccessful due to conflicting schedule.	PASS
TC_C_SCHED_008_3	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Editing a block schedule (Removing a schedule)	Clicking the specific schedule will enable the chairperson to edit the information	1. Schedule is created	1. Click the specific schedule 2. Click "Delete" button		Successful deletion of block schedule	Block schedule will be deleted	The block schedule will not appear when viewing the block schedule.	PASS
TC_C_SCHED_009_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Saving a faculty schedule	Clicking the "Lock" button will save the faculty schedule	1. Schedule is created 2. No unassigned loads	1. Click the "Lock" button		Successful saving of faculty schedule	A message will display about successful saving of schedule	A message will display saying that the schedule was saved and cannot modify schedule again.	PASS
TC_C_SCHED_009_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Saving a faculty schedule	Clicking the "Lock" button will save the faculty schedule	1. Schedule is created 2. With unassigned loads	1. Click the "Lock" button		Unsuccessful saving of faculty schedule	A message will display about assigning other faculty load	A message will display saying that the schedule was not saved and to assign all faculty load.	PASS
TC_C_SCHED_010_1	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Saving all faculty schedule	Clicking the "Lock" button will save all faculty schedule	1. Schedule is created 2. No unassigned loads	1. Click the "Lock" button		Successful saving of all faculty schedule	A message will display about successful saving of schedule	A message will display saying that all the schedule was saved.	PASS

TC_C_SCHED_010_2	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Saving all faculty schedule	Clicking the "Lock" button will save all faculty schedule	1. Schedule is created 2. With unassigned loads	1. Click the "Lock" button		Unsuccessful saving of all faculty schedule	A message will display about assigning other faculty load	A message will display saying that all the schedule was not saved due to some unassigned faculty load.	PASS
TC_C_SCHED_011	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Export" button for the whole department	Clicking "Export" button will enable chairperson to download a Spreadsheet file of departmental schedule	1. Schedule generation and manual plotting is done by the chairperson	1. Click the "Export" button		Button working and will enable chairperson to download a spreadsheet file	Chairperson will be redirected to a page and message will be display	Generated departmental schedule will be exported and a message saying that the file will be downloaded.	PASS
TC_C_SCHED_012	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Export" button for individual faculty member	Clicking "Export" button will enable chairperson to download a Spreadsheet file of faculty member schedule	1. Schedule generation and manual plotting is done by the chairperson	1. Click the "Export" button		Button working and will enable chairperson to download a spreadsheet file	Chairperson will be redirected to a page and message will be display	Generated faculty schedule will be exported and a message saying that the file will be downloaded.	PASS
TC_C_SCHED_013	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Export" button for different blocks	Clicking "Export" button will enable chairperson to download a Spreadsheet file of a block schedule	1. Schedule generation and manual plotting is done by the chairperson	1. Click the "Export" button		Button working and will enable chairperson to download a spreadsheet file	Chairperson will be redirected to a page and message will be display	Generated block schedule will be exported and a message saying that the file will be downloaded.	PASS

Note. Table 5.1.7 shows the software test cases results for the Chairperson perspective of Schedules tab only.

Table 5.1.8

Software Test Cases Results for Chairperson Faculty Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_C_FCLTY_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit Table" button	Clicking "Edit Table" button will enable chairperson to edit faculty information	None	1. Click the "Edit Table" button		Redirect to editing the faculty information table	Chairperson can edit the faculty information table	A "Save Changes" button will appear while the Chairperson can edit the faculty information table	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Empty Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Leave Employment Status empty 3. Leave Teach Load empty 4. Leave Surname empty 5. Leave First Name empty 6. Leave Middle Name empty 7. Leave Email empty 8. Click the action "Add" button	<Empty ID> <Empty Employment Status> <Empty Teach Load> <Empty Surname> <Empty First Name> <Empty Middle Name> <Empty Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the form.	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Empty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the ID field.	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Empty Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Employment Status field.	PASS

TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Empty Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Teach Load field.	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Empty Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Surname field.	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Empty First Name> <Correct Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the First Name field.	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Empty Middle Name> <Valid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Middle Name field.	PASS

TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Empty Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that to fill out the Email field.	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Incomplete Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Invalid Email address>	Unsuccessful input of information with error message	An error message would be displayed	An error message is shown saying that the inputted email address is invalid.	PASS
TC_C_FCLTY_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a faculty member information	Complete and Correct Form then click "Add" action button	1. Need a faculty member information	1. Leave ID empty 2. Enter Employment Status 3. Enter Teach Load 4. Enter Surname 5. Enter Name 6. Enter Middle Name 7. Enter Email 8. Click the action "Add" button	<Correct Faculty ID> <Correct Employment Status> <Correct Teach Load> <Correct Surname> <Correct First Name> <Correct Middle Name> <Valid Email address>	Successful input of information and option to add more information or save the changes	App will proceed to editing and can click the "Save Changes" button if no necessary editing will be done	Faculty information is added and a message will appear saying that a temporary password was sent to their email.	PASS
TC_C_FCLTY_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit" button	Clicking "Edit" button will enable the chairperson to edit the specified row	None	1. Click the "Edit" button		Button working and will enable chairperson to edit the row	Chairperson can modify the row of faculty information	An "Add" button will appear again for the chairperson to save the faculty information for that specific row.	PASS
TC_C_FCLTY_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Save Changes" button	Clicking "Save Changes" button will enable the chairperson to save the faculty information table	None	1. Click the "Save Changes" button		Redirect to viewing the faculty information table	Chairperson can view the faculty information table	An "Edit Table" button will appear again for the chairperson to edit the table again and the chairperson can view the table.	PASS
TC_C_FCLTY_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify if the Chairperson can view and edit the Faculty Information Table	Clicking "Faculty" tab will display the Faculty Information Table	None	1. Click the "Faculty" tab		Redirect to viewing the faculty information table	Chairperson can view the faculty information table	An "Edit Table" button will appear for the chairperson to edit the table and view the table.	PASS

Note. Table 5.1.8 shows the software test cases results for the Chairperson perspective of Faculty tab only.

Table 5.1.9

Software Test Cases Results for Chairperson Schedule Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_C_VWSCHD_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the viewing of schedule by a faculty	Chairperson timetable will appear	1. Chairperson has not yet distributed faculty load	1. Click "Schedule" tab on sidebar		Empty timetable of the chairperson will appear	A timetable with empty information will appear	Displays the timetable of the chairperson without information.	PASS
TC_C_VWSCHD_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the viewing of schedule by a faculty	Chairperson timetable will appear	1. Chairperson already distributed faculty load	1. Click "Schedule" tab on sidebar		Complete timetable with subject code, blocks, room and type of class	When hovering a schedule, it will display all information	Displays full information through a timetable with subject code, block to handle, room assigned and type of class.	PASS

Note. Table 5.1.9 shows the software test cases results for the Chairperson perspective of the Schedule tab only and it is different from the Schedules tab..

Table 5.1.10

Software Test Cases Results for Chairperson Courses Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_C_COURSE_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a course	Empty field for name of Course and click add button	1. Need information of course	1. Leave Course name empty 2. Click add button	<Empty Course Name>	Unsuccessful adding of course with error message.	An error message would be displayed	An error message is shown saying that to fill out the name of course field.	PASS
TC_C_COURSE_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a course	Input correct name of Course and click add button	1. Need information of course	1. Enter Course name 2. Click add button	<Correct Course Name>	Successful adding of course.	App will redirect admin to editing Course page	Course created will appear with the "Add Semester" button.	PASS
TC_C_COURSE_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Add Semester" button	Clicking "Add Semester" button will enable the user to add select on two	None	1. Click the "Add Semester" button 2. Select "New Academic Year"		Redirect to editing the Semester page	User can edit the Semester page	An "Edit" button will appear so that the user can edit the Semester information.	PASS
TC_C_COURSE_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Add Semester" button	Clicking "Add Semester" button will enable the user to add select on two	None	1. Click the "Add Semester" button 2. Select "Summer Term"		Redirect to editing the Semester page	User can edit the Semester page	An "Edit" button will appear so that the user can edit the Semester information.	PASS
TC_C_COURSE_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a course in a semester	Empty field for Course information and click add button	1. Need information of course	1. Leave Course Code empty 2. Leave Course Title empty 3. Leave Units empty 4. Click add button	<Empty Course Code> <Empty Course Title> <Empty Units>	Unsuccessful adding of course with error message.	An error message would be displayed	An error message is shown saying that to fill out all the field.	PASS
TC_C_COURSE_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a course in a semester	Incomplete information for Course information form and click add button	1. Need information of course	1. Leave Course Code empty 2. Enter Course Title 3. Enter Units 4. Click add button	<Empty Course Name> <Correct Course Title> <Correct Units>	Unsuccessful adding of course with error message.	An error message would be displayed	An error message is shown saying that to fill out the Course Name field.	PASS
TC_C_COURSE_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a course in a semester	Incomplete information for Course information form and click add button	1. Need information of course	1. Enter Course Code 2. Leave Course Title empty 3. Enter Units 4. Click add button	<Correct Course Name> <Empty Course Title> <Correct Units>	Unsuccessful adding of course with error message.	An error message would be displayed	An error message is shown saying that to fill out the Course Title field.	PASS
TC_C_COURSE_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a course in a semester	Incomplete information for Course information form and click add button	1. Need information of course	1. Enter Course Code 2. Enter Course Title 3. Leave Units empty 4. Click add button	<Correct Course Name> <Correct Course Title> <Empty Units>	Unsuccessful adding of course with error message.	An error message would be displayed	An error message is shown saying that to fill out the Units field.	PASS
TC_C_COURSE_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the adding of a course in a semester	Correct and Complete Course information form and click add button	1. Need information of course	1. Enter Course Code 2. Enter Course Title 3. Enter Units 4. Click add button	<Correct Course Name> <Correct Course Title> <Correct Units>	Successful adding of course.	App will redirect user to editing Courses page	Courses created will appear on the Courses page and "Save Changes" button will also appear.	PASS
TC_C_COURSE_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Edit" button	Clicking "Edit" button will enable the chairperson to edit the specified row	None	1. Click the "Edit" button		Button working and will enable chairperson to edit the row	Chairperson can modify the row of course information	An "Add" button will appear again for the chairperson to save the course info for that specific row.	PASS
TC_C_COURSE_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the functionality of "Save Changes" button	Clicking "Save Changes" button will save the courses information page	None	1. Click the "Save Changes" button		Redirect to viewing the Courses information page	User can view the Courses information page	An "Add Semester" button will appear again while the User can view or edit again the Courses information page.	PASS

Note. Table 5.1.10 shows the software test cases results for the Chairperson perspective of Courses tab only.

Table 5.1.11

Software Test Cases Results for Chairperson Preference Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_C_PREF_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Empty field for all inputs then click Submit	1. Faculty member has not submitted any preference form for the upcoming sem	1. No Subject Expertise added 2. No Time-in added 3. No Time-out added 4. Click "Submit" button	<Empty Subject Expertise> <Empty Time-in column> <Empty Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Atleast one input for Subject Expertise, Time-in and Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. One Subject Expertise added 2. One Time-in added 3. One Time-out added 4. Click "Submit" button	<One Subject Expertise> <One input in Time-in column> <One input in Time-out column>	Successful submission of preference form	A completion message would be displayed	A message will appear saying that the preference form was submitted and the faculty preference is recorded.	PASS
TC_C_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Atleast one input for Subject Expertise and Time-in but no Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. One Subject Expertise added 2. One Time-in added 3. No Time-out added 4. Click "Submit" button	<One Subject Expertise> <One input in Time-in column> <Empty Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Atleast one input for Subject Expertise and Time-out but no Time-in	1. Faculty member has not submitted any preference form for the upcoming sem	1. One Subject Expertise added 2. No Time-in added 3. One Time-out added 4. Click "Submit" button	<One Subject Expertise> <Empty Time-in column> <One input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Atleast one input for Time-in and Time-out but no Subject Expertise	1. Faculty member has not submitted any preference form for the upcoming sem	1. No Subject Expertise added 2. One Time-in added 3. One Time-out added 4. Click "Submit" button	<Empty Subject Expertise> <One input in Time-in column> <One input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Multiple input for Subject Expertise, Time-in and Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. Multiple Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Multiple input in Time-in column> <Multiple input in Time-out column>	Successful submission of preference form	A completion message would be displayed	A message will appear saying that the preference form was submitted and the faculty preference is recorded.	PASS
TC_C_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Multiple input for Subject Expertise and Time-in but no Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. Multiple Time-in added 3. No Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Multiple input in Time-in column> <Empty Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Multiple input for Subject Expertise and Time-out but no Time-in	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. No Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Empty Time-in column> <Multiple input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Multiple input for Time-in and Time-out but no Subject Expertise	1. Faculty member has not submitted any preference form for the upcoming sem	1. No Subject Expertise added 2. Multiple Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Empty Subject Expertise> <Multiple input in Time-in column> <Multiple input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Multiple input for Subject Expertise and Time-in but one Time-out input only	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. Multiple Time-in added 3. One Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Multiple input in Time-in column> <One input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_C_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for chairperson	Multiple input for Subject Expertise and Time-out but one Time-in input only	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. One Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <One input in Time-in column> <Multiple input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS

Note. Table 5.1.11 shows the software test cases results for the Chairperson perspective of Preference tab only.

Table 5.1.12

Software Test Cases Results for Chairperson Consultation Hours Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_C_CNSLT_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Form will show no information since input has been cancelled	After cancellation, inputs would be cleared and it will not be recorded.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Cancel" button					
TC_C_CNSLT_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would be recorded	Form will show the added information	After submission, inputs would be shown and recorded.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Submit" button					
TC_C_CNSLT_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying to fill both inputs	Input will not be recorded and a message saying to fill up both the time inputs.	PASS
					2. Leave preferred "Time-in" empty	<Empty Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Submit" button					
TC_C_CNSLT_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying to fill both inputs	Input will not be recorded and a message saying to fill up both the time inputs.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Leave preferred "Time-out" empty	<Empty Preferred Time-out>				
					4. Click "Submit" button					
TC_C_CNSLT_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying that inputted times are invalid	Input will not be recorded and a message saying that the end time is earlier than start time.	PASS
					2. Input preferred "Time-in"	<Invalid Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Submit" button					
TC_C_CNSLT_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying that inputted times are invalid	Input will not be recorded and a message saying that the end time is earlier than start time.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Input preferred "Time-out"	<Invalid Preferred Time-out>				
					4. Click "Submit" button					
TC_C_CNSLT_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Adding more than 2 hours of consultation hours	Consultation hours form will appear	1. The consultation hours inputted exceeds 2 hours	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message saying that inputted times are exceeded 2 hours limit	Input will not be recorded and a message saying that the consultation hours exceeds the 2 hours limit per day.	PASS
					2. Input preferred "Time-in"	<Invalid Preferred Time-in>				
					3. Input preferred "Time-out"	<Invalid Preferred Time-out>				
					4. Click "Submit" button					
TC_C_CNSLT_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button		Preferred Consultation hours would not be edited	Form will show the original input since editing has been cancelled	After cancellation, inputs would retain from original input.	PASS
					2. Input preferred "Time-in"	<Valid New Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid New Preferred Time-out>				
					4. Click "Cancel" button					
TC_C_CNSLT_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button		Preferred Consultation hours would be edited	Form will show the new inputted information	After submission, inputs would be shown and edited.	PASS
					2. Input preferred "Time-in"	<Valid New Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid New Preferred Time-out>				
					4. Click "Submit" button					

TC_C_CNSLT_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Leave preferred "Time-in" empty 3. Input preferred "Time-out" 4. Click "Submit" button	<Empty Preferred Time-in> <Valid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying to fill both inputs	Input will not be edited and a message saying to fill up both the time inputs.	PASS
TC_C_CNSLT_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Leave preferred "Time-out" empty 4. Click "Submit" button	<Valid New Preferred Time-in> <Empty Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying to fill both inputs	Input will not be edited and a message saying to fill up both the time inputs.	PASS
TC_C_CNSLT_007	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	<Invalid New Preferred Time-in> <Valid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying that inputted times are invalid	Input will not be edited and a message saying that the end time is earlier than start time.	PASS
TC_C_CNSLT_007	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	<Valid New Preferred Time-in> <Invalid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying that inputted times are invalid	Input will not be edited and a message saying that the end time is earlier than start time.	PASS
TC_C_CNSLT_008	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. The consultation hours inputted exceeds 2 hours	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	<Invalid New Preferred Time-in> <Invalid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message saying that inputted times are exceeded 2 hours limit	Input will not be edited and a message saying that the consultation hours exceeds the 2 hours limit per day.	PASS
TC_C_CNSLT_009	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the deletion of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Cancel" button	<Empty Preferred Time-in> <Empty Preferred Time-in>	Preferred Consultation hours would not be deleted	Form will show the original input since deletion has been cancelled	After cancellation of deletion, inputs would retain from original input.	PASS
TC_C_CNSLT_009	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the deletion of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	<Empty Preferred Time-in> <Empty Preferred Time-in>	Preferred Consultation hours would be deleted	Form will show no information since input has been deleted	After submission of deletion, inputs would disappear and be deleted.	PASS

Note. Table 5.1.12 shows the software test cases results for the Chairperson perspective of Consultation Hours tab only.

Table 5.1.13

Software Test Cases Results for Faculty Preference Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_F_PREF_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Empty field for all inputs then click Submit	1. Faculty member has not submitted any preference form for the upcoming sem	1. No Subject Expertise added 2. No Time-in added 3. No Time-out added 4. Click "Submit" button	<Empty Subject Expertise> <Empty Time-in column> <Empty Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_F_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Atleast one input for Subject Expertise, Time-in and Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. One Subject Expertise added 2. One Time-in added 3. One Time-out added 4. Click "Submit" button	<One Subject Expertise> <One input in Time-in column> <One input in Time-out column>	Successful submission of preference form	A completion message would be displayed	A message will appear saying that the preference form was submitted and the faculty preference is recorded.	PASS
TC_F_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Atleast one input for Subject Expertise and Time-in but no Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. One Subject Expertise added 2. One Time-in added 3. No Time-out added 4. Click "Submit" button	<One Subject Expertise> <One input in Time-in column> <Empty Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_F_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Atleast one input for Subject Expertise and Time-out but no Time-in	1. Faculty member has not submitted any preference form for the upcoming sem	1. One Subject Expertise added 2. No Time-in added 3. One Time-out added 4. Click "Submit" button	<One Subject Expertise> <Empty Time-in column> <One input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_F_PREF_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Atleast one input for Time-in and Time-out but no Subject Expertise	1. Faculty member has not submitted any preference form for the upcoming sem	1. No Subject Expertise added 2. One Time-in added 3. One Time-out added 4. Click "Submit" button	<Empty Subject Expertise> <One input in Time-in column> <One input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_F_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Multiple input for Subject Expertise, Time-in and Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. Multiple Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Multiple input in Time-in column> <Multiple input in Time-out column>	Successful submission of preference form	A completion message would be displayed	A message will appear saying that the preference form was submitted and the faculty preference is recorded.	PASS
TC_F_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Multiple input for Subject Expertise and Time-in but no Time-out	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. Multiple Time-in added 3. No Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Multiple input in Time-in column> <Empty Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_F_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Multiple input for Subject Expertise and Time-out but no Time-in	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. No Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Empty Time-in column> <Multiple input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS

TC_F_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Multiple input for Time-in and Time-out but no Subject Expertise	1. Faculty member has not submitted any preference form for the upcoming sem	1. No Subject Expertise added 2. Multiple Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Empty Subject Expertise> <Multiple input in Time-in column> <Multiple input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_F_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Multiple input for Subject Expertise and Time-in but one Time-out input only	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. Multiple Time-in added 3. One Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <Multiple input in Time-in column> <One input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS
TC_F_PREF_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Answering the preference form for faculty members	Multiple input for Subject Expertise and Time-out but one Time-in input only	1. Faculty member has not submitted any preference form for the upcoming sem	1. Multiple Subject Expertise added 2. One Time-in added 3. Multiple Time-out added 4. Click "Submit" button	<Multiple Subject Expertise> <One input in Time-in column> <Multiple input in Time-out column>	Unsuccessful submission of preference form	An error message would be displayed	An error message is shown saying that to fill out the preference form.	PASS

Note. Table 5.1.13 shows the software test cases results for the Faculty perspective of Preference tab only.

Table 5.1.14

Software Test Cases Results for Faculty Schedule Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_F_SCHED_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the viewing of schedule by a faculty	Faculty timetable will appear	1. Chairperson has not yet distributed faculty load	1. Click "Schedule" tab on sidebar		Empty timetable of the faculty member will appear	A timetable with empty information will appear	Displays the timetable of the faculty without information.	PASS
TC_F_SCHED_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the viewing of schedule by a faculty	Faculty timetable will appear	1. Chairperson already distributed faculty load	1. Click "Schedule" tab on sidebar		Complete timetable with subject code, blocks, room and type of class	When hovering a schedule, it will display all information	Displays full information on faculty schedule through a timetable with subject code, block to handle, room assigned and type of class.	PASS

Note. Table 5.1.14 shows the software test cases results for the Faculty perspective of Schedule tab only.

Table 5.1.15

Software Test Cases Results for Faculty Consultation Hours Tab

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_F_CNSLT_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Form will show no information since input has been cancelled	After cancellation, inputs would be cleared and it will not be recorded.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Cancel" button					
TC_F_CNSLT_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would be recorded	Form will show the added information	After submission, inputs would be shown and recorded.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Submit" button					
TC_F_CNSLT_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying to fill both inputs	Input will not be recorded and a message saying to fill up both the time inputs.	PASS
					2. Leave preferred "Time-in" empty	<Empty Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Submit" button					
TC_F_CNSLT_002	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying to fill both inputs	Input will not be recorded and a message saying to fill up both the time inputs.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Leave preferred "Time-out" empty	<Empty Preferred Time-out>				
					4. Click "Submit" button					
TC_F_CNSLT_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying that inputted times are invalid	Input will not be recorded and a message saying that the end time is earlier than start time.	PASS
					2. Input preferred "Time-in"	<Invalid Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid Preferred Time-out>				
					4. Click "Submit" button					
TC_F_CNSLT_003	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the submission of a consultation hour row	Consultation hours form will appear	1. No inputs from faculty yet	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message will display saying that inputted times are invalid	Input will not be recorded and a message saying that the end time is earlier than start time.	PASS
					2. Input preferred "Time-in"	<Valid Preferred Time-in>				
					3. Input preferred "Time-out"	<Invalid Preferred Time-out>				
					4. Click "Submit" button					
TC_F_CNSLT_004	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Adding more than 2 hours of consultation hours	Consultation hours form will appear	1. The consultation hours inputted exceeds 2 hours	1. Click "Edit" button		Preferred Consultation hours would not be recorded	Error message saying that inputted times are exceeded 2 hours limit	Input will not be recorded and a message saying that the consultation hours exceeds the 2 hours limit per day.	PASS
					2. Input preferred "Time-in"	<Invalid Preferred Time-in>				
					3. Input preferred "Time-out"	<Invalid Preferred Time-out>				
					4. Click "Submit" button					
TC_F_CNSLT_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button		Preferred Consultation hours would not be edited	Form will show the original input since editing has been cancelled	After cancellation, inputs would retain from original input.	PASS
					2. Input preferred "Time-in"	<Valid New Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid New Preferred Time-out>				
					4. Click "Cancel" button					
TC_F_CNSLT_005	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button		Preferred Consultation hours would be edited	Form will show the new inputted information	After submission, inputs would be shown and edited.	PASS
					2. Input preferred "Time-in"	<Valid New Preferred Time-in>				
					3. Input preferred "Time-out"	<Valid New Preferred Time-out>				
					4. Click "Submit" button					

TC_F_CNSLT_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Leave preferred "Time-in" empty 3. Input preferred "Time-out" 4. Click "Submit" button	 <Empty Preferred Time-in> <Valid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying to fill both inputs	Input will not be edited and a message saying to fill up both the time inputs.	PASS
TC_F_CNSLT_006	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Leave preferred "Time-out" empty 4. Click "Submit" button	 <Valid New Preferred Time-in> <Empty Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying to fill both inputs	Input will not be edited and a message saying to fill up both the time inputs.	PASS
TC_F_CNSLT_007	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	 <Invalid New Preferred Time-in> <Valid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying that inputted times are invalid	Input will not be edited and a message saying that the end time is earlier than start time.	PASS
TC_F_CNSLT_007	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	 <Valid New Preferred Time-in> <Invalid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message will display saying that inputted times are invalid	Input will not be edited and a message saying that the end time is earlier than start time.	PASS
TC_F_CNSLT_008	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the editing of a consultation hour row	Consultation hours form with data will appear	1. The consultation hours inputted exceeds 2 hours	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	 <Invalid New Preferred Time-in> <Invalid New Preferred Time-out>	Preferred Consultation hours would not be edited	Error message saying that inputted times are exceeded 2 hours limit	Input will not be edited and a message saying that the consultation hours exceeds the 2 hours limit per day.	PASS
TC_F_CNSLT_009	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the deletion of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Cancel" button	 <Empty Preferred Time-in> <Empty Preferred Time-in>	Preferred Consultation hours would not be deleted	Form will show the original input since deletion has been cancelled	After cancellation of deletion, inputs would retain from original input.	PASS
TC_F_CNSLT_009	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Verify the deletion of a consultation hour row	Consultation hours form with data will appear	1. There is a valid input of consultation hours from the faculty	1. Click "Edit" button 2. Input preferred "Time-in" 3. Input preferred "Time-out" 4. Click "Submit" button	 <Empty Preferred Time-in> <Empty Preferred Time-in>	Preferred Consultation hours would be deleted	Form will show no information since input has been deleted	After submission of deletion, inputs would disappear and be deleted.	PASS

Note. Table 5.1.15 shows the software test cases results for the Faculty perspective of Consultation Hours tab only.

Table 5.1.16

Software Test Cases Results for Compatibility Testing

TEST CASE ID	TEST ENVIRONMENT	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_COMP_001	Windows 10 Pro Intel i7 4-core CPU Google Chrome Browser	Check the compatibility of system	Correct information and Complete runthrough of the system	1. Need an account to access the system	1. Login through the system 2. Check all functionalities 3. Logout the account	<Correct Login Information>	Successful runthrough the system without error	No problem or bugs while accessing the whole system	System runs as expected and can be accessed with the use of this browser.	PASS
TC_COMP_001	Windows 10 Pro Intel i7 4-core CPU Windows Internet Explorer	Check the compatibility of system	Correct information and Complete runthrough of the system	1. Need an account to access the system	1. Login through the system 2. Check all functionalities 3. Logout the account	<Correct Login Information>	Successful runthrough the system without error	No problem or bugs while accessing the whole system	System did not run as expected as the browser cannot handle .json files	FAIL
TC_COMP_001	Windows 10 Pro Intel i7 4-core CPU Opera Web Browser	Check the compatibility of system	Correct information and Complete runthrough of the system	1. Need an account to access the system	1. Login through the system 2. Check all functionalities 3. Logout the account	<Correct Login Information>	Successful runthrough the system without error	No problem or bugs while accessing the whole system	System runs as expected and can be accessed with the use of this browser.	PASS
TC_COMP_001	Windows 10 Pro Intel i7 4-core CPU Moxilla Firefox Browser	Check the compatibility of system	Correct information and Complete runthrough of the system	1. Need an account to access the system	1. Login through the system 2. Check all functionalities 3. Logout the account	<Correct Login Information>	Successful runthrough the system without error	No problem or bugs while accessing the whole system	System runs as expected and can be accessed with the use of this browser.	PASS
TC_COMP_002	Android device Google Chrome Browser	Check the compatibility of system	Correct information and Complete runthrough of the system	1. Need an account to access the system	1. Login through the system 2. Check all functionalities 3. Logout the account	<Correct Login Information>	Successful runthrough the system without error	No problem or bugs while accessing the whole system	System runs but not as expected but still can be accessed with this kind of device.	PASS
TC_COMP_002	iOS device Safari Browser	Check the compatibility of system	Correct information and Complete runthrough of the system	1. Need an account to access the system	1. Login through the system 2. Check all functionalities 3. Logout the account	<Correct Login Information>	Successful runthrough the system without error	No problem or bugs while accessing the whole system	System runs but not as expected but still can be accessed with this kind of device.	PASS

Note. Table 5.1.16 shows the software test cases results for the Compatibility testing only.

CHAPTER 6

IMPLEMENTATION PLAN

6.1 Hardware Requirements

Table 6.1

Minimum Hardware Requirements

Operating System	Windows 10/11 22H2 (latest security update needed) Linux OS Distros (Linux Mint, PopOs, Ubuntu, etc.) MacOS
CPU	Intel i5-4570s Dual-core CPU
RAM	8 Gigabytes (GB) DDR3 1600 MHz (Megahertz) RAM
GPU	Nvidia, AMD, and Intel HD Graphics (Integrated GPUs are supported)
Storage	10 Gigabytes (GB) HDD/SSD storage size
Additional	Network connection is required

Note. Outdated windows OS (i.e Windows 7) are not supported.

6.2 Software Requirements

Table 6.2

Software Requirements

Main	Node.js MySQL Python (Prerequisite of MySQL) Google App Password (for Email & OTP purposes)
Other	Git GitHub Account

Note. Latest version of software requirements are required.

6.3 Manpower Requirements

Table 6.3

Manpower Requirements

Administrators (Admin)	Admins are in charge of running the system, as well as managing databases for Chairpersons and Faculty Members to use.
Chairperson	Chairpersons are in charge of the creation of schedules. With the help of the system, Chairpersons will be able to automatically generate a timetable/ schedule based on the Faculty Member's preferred schedule and subject to teach. If there are conflicts found, manual intervention is to be done by the Chairperson. The automated schedule generation is done locally on the Chairperson's computer device, and not the Admin.
Faculty Members	Faculty Members are able to input their preferred schedule and subject to teach in the system, once the web address has been given to them by the Chairperson via email. Faculty Members are also notified via email to update their inputs when the current semester is ending, as anticipation for the upcoming semester.

6.4 Implementation and Evaluation

The Javawockeez team was able to successfully deploy the Web-based Faculty Load and Class Scheduling System for PLM - Computer Science Department. Our client - Dr. Dan Cortez, chairperson of the PLM Computer Science Department, was pleased with the work done on the project and expressed enthusiasm in finally using our system.

While our system was not perfect, it successfully accomplished its intended functionalities, however, it still has ample room for growth. With additional time, the system has the potential to achieve much more, and it can even be utilized by chairpersons from other colleges within the Pamantasan ng Lungsod ng Maynila.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

The development of a web-based faculty load and class scheduling system for the PLM - Computer Science Department constitutes an important step toward optimizing academic operations and increasing efficiency. Our system provides an automated platform for managing faculty workload and class scheduling, removing the need for manual processes and lowering the likelihood of errors. Benefits of the system include time savings, accurate data management, ease of access, and improved communication between faculty and administration.

7.2 Recommendations

A scheduling system can provide a reliable solution for academic institutions that need to manage faculty load and class scheduling. Such a system can automate the process, reducing errors and improving efficiency. The PLM - Computer Science Department has already implemented a web-based system and experienced benefits, but there is still room for improvement. This section aims to provide recommendations for enhancing the system to further optimize its functionality.

1. Break Feature - This feature allows for the inclusion of scheduled breaks between classes, offering faculty members much-needed respite and a chance to recharge. By incorporating breaks, the system ensures a more balanced and manageable workload, reducing stress and burnout. Faculty members can utilize the allocated break time for rest, preparation, or engaging in other non-teaching activities. This improvement promotes a healthier work-life balance, enhances overall well-being, and ultimately contributes to increased productivity and job satisfaction

2. Data Archive Feature- To optimize the effectiveness and efficiency of the web-based Faculty Load and Class Scheduling System for the PLM - Computer Science Department, it is strongly recommended to integrate a robust data archive feature. This feature plays a vital role in preserving historical records, ensuring compliance, facilitating planning and forecasting, safeguarding data integrity, and supporting research and analysis. By incorporating this feature, the system will enable easy reference, enhance accountability, and empower data-driven decision-making while ensuring system continuity and enabling future analysis.

3. Emergency Leave Feature - Incorporate an emergency leave feature in the system for faculty members to request and manage leaves efficiently. This streamlines communication, minimizes scheduling conflicts, and ensures class continuity. Automated notifications and approval workflows can enhance its effectiveness.

4. Labeling Feature - Add labels indicating if schedules are manually or auto-generated. This promotes transparency, allows stakeholders to understand schedule origin, assess accuracy, and make informed decisions. Differentiating between the two types of schedules helps identify issues, evaluate efficiency, and build trust in the system.

5. Optimize Scheduling Algorithm - By fine-tuning the algorithm, the system can intelligently distribute classes, reducing idle time between sessions. This optimization will result in a more productive schedule for faculty members, allowing them to make better use of their time. Ultimately, optimizing the algorithm enhances efficiency and maximizes the utilization of faculty resources

6. Quick tutorials - These tutorials provide a visual and engaging way to educate users on system functionality. As users often overlook lengthy user manuals, animated GIF tutorials offer a more accessible and intuitive learning experience. By incorporating this feature, users can quickly grasp key system features and functionalities, reducing the learning curve and enhancing overall user experience.

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APPENDICES

APPENDIX A

Transcript of Interview

First Interview

1. Can you describe the process of assigning workload to faculty members?
    - The assignment of faculty load is case to case basis.
    - It depends whether they are full-time or part-time.
    - When they are full time, supposedly their time should be flexible. When the case is full time, Mr. Dan checks their preferred time, day, and field of expertise first.
    - But usually, he prioritizes part-time and checks their availability and subject. Then the rest will be distributed full-time.
    - Full-time requires 15 units of faculty plus 6 units in what they called extra load.

2. What are the factors taken into consideration before assigning a particular subject & class to a faculty?
    - Field of expertise.
    - But most of the time Mr. Dan prioritizes part-time.
    - In terms of room assignment, before, blocks have their own designated room assignment.
    - But as of now the assigned room assignment for Computer Science is ComLab 3. Anytime of the day supposedly it is assigned to Computer Science.
    - When assigning schedule to part-time, Mr. Dan used Messenger. He assigned subjects depending on expertise and experience in that field. Especially on what they do in the industry.

3. How are the class schedules per block created? What about irregular students?
    - When the student is in the first year, Mr. Dan prioritized minor before major.
    - There is no specific process. Example is 8am to 5pm.
    - But since the pandemic, the lecture is online. So, there should be an interval , especially if there is a laboratory. It should be the standard because it changes every sem.
    - Mr. Dan is using an excel application on scheduling.
    - Irregular students are the ones who fit their extra class on their schedule.

4. Who oversees creating the schedules and assigning faculty load?
    - The chairperson (Mr. Dan) is the one who is responsible for creating schedules and assigning faculty members.

5. Are professors allowed to change the schedule given to them by the admin? If not, what sanctions are given? (Especially the professors that use a physical classroom or laboratory)
    - As a chairperson, is it hard for Mr. Dan to find faculty because of the pandemic.
    - If the scheduled time will not be followed, usually he advises professors and block presidents to ask the block first.
    - If both parties agree, the rescheduled time can be permitted. If not, they must meet halfway or give options and alternatives.
    - There is no sanction but the important thing is all the students in the block should agree.

6. Once face-to-face classes are fully implemented, how would professors schedule make up classes? (Since room availability must be considered)
    - It is requested by the chairperson.
    - If it is not a conflict between students or they agree about it, and SDPAA approves it, there is no problem.
    - The scheduling is 2 weeks or 15 days ahead of time.
    - He handles everything including class, faculty, and room scheduling using Excel.

7. Is Mr. Dan satisfied/okay with the system that we are proposing?
    - Before, there was someone who made scheduling that detects the conflict including on CRS, but not 100%. It is not really used because it is not flexible at all.
    - The challenge will be to have a generic scheduling system that is designed to fix the schedule.
    - It is trial and error but it is fine as long as it is flexible.

8. Recommendations of Mr. Dan
    - As long as there are designed functionality that will make it flexible like allowable 15 units/ number of number of units.
    - It will automatically recommend subjects for a specific professor.
    - Everybody wants a scheduling system that will recommend or there is a decision support system type.
    - Since our group was assigned to do that, initially, our group wants to implement it for the CS department as a trial but later can be adopted by the college or the whole university.

- Mr. Dan wants a flexible and user-friendly way to change the number of units for the full-time and automatically it can generate reports.
- The challenge is there are many constraints that our group wants to consider at the end of the day, especially every sem, schedule change. Like in our year, next year there will be limited online but roughly lectures will be blended but the laboratory will be full blast and there will be no more asynchronous session.
- Every sem change depends on the current situation/set-up.
- Usually, prior to the pandemic the only problem is more on the rooms. But it is not solvable using the system.
- Basically, this system is just to really help the chairperson to create a schedule recommendation. Like there is a DSS (Decision Support System) type on it.
- Mr. Dan thinks that our system can be a decision system enabled.
- But since this is our SE, so just a 1 year in the making so supposedly we make it already.

Second Interview:

1. How long does it take to distribute faculty load and create the schedules of each block?
    - Normally, PLM gives the chairperson a timeframe of 1 month to create a schedule. However, sometimes even during class, schedules are still being changed but it is a case-to-case basis. The time it takes for encoding is 1 month and for the whole schedule to be created totally takes roughly 2 months all-in-all.

2. Is there a possibility for the creation of class schedules to be delayed?
    - Yes, there is a possibility but normally it is due to the faculty member which is a human error that's why it is not possible to be resolved by the system.
    - The system would be able to help Sir Dan and he hopes that the system to be made would be more like a Decision Support System where it can recommend an accurate decision in creating class schedules.

3. In our proposed system, we plan to give access to faculty members so they may input their preferred time, day, and subject to teach. Do you think that this would be a viable system?
    - Yes, but there should be a subject of approval from the chairperson that would use the system.

4. With that we would like to ask if in the current system, are professors free in choosing their desired subject that they want to teach or does the chairperson choose the subject

(based on their field of expertise only) for them to teach?

- Part-time professors are free in choosing their preferred subject that they want to teach, however sometimes it is not being followed and the chairperson has the last decision because it depends sometimes on a case-to-case basis, except for those professors who teach a subject from a very long period. Sir Dan also restricts a subject from a professor if that subject is already taken, therefore they can only choose those subjects that have no professors assigned. If the subject is already taken, it cannot be changed.

5. Regarding data entry, is the mode of communication with faculty problematic for you? As you mentioned in the last interview, they communicate their availability via FB Messenger. Are there any constraints?
    - Yes there is, especially their availability. The time and field of expertise or the subject are some of the constraints.

6. How do you get the schedule of faculty members who are not from the CS department?
    - The chairperson gives schedules of the minor subjects to other colleges. The only minor subject that the chairperson receives a schedule from is P.E. subject.

7. In giving schedules for minor subjects to other colleges, can the faculty members choose their desired subject that they want to teach?
    - No they cannot choose, unless there is a concern, the chairpersons would handle and talk about it one on one because they are the ones that would adjust the schedules for other colleges.

8. Are minor subjects usually full-time professors?
    - Sir Dan did not know but he thinks that almost all of the minor subjects are assigned to part-time professors and the rest are for full-time professors.

9. Do you have any recommendations with regards to how faculty members will input their data?
    - Yes, the use of restrictions like if there is already a faculty member assigned on a schedule of a subject, then they could not choose this subject as their preferred subject to teach.

10. Our proposed system is designated to be used for the new normal, how does the chairperson assign the rooms to be used in each subject? Will there still be online classes

in the future?

- The current problem that the CS department is having recently is the assignment of rooms because there are not enough rooms assigned for the department to use. Before, there were rooms assigned for CS in Gusaling Corazon Aquino (GCA) but in what we have today, specifically only the Computer Laboratory 3 is assigned for CS. Then, the timeslot 7am to 9pm is being maximized the whole day for the department.

11. Will there still be online classes in the future?
    - Yes there is, the proposed system must be capable of determining the status of when to have online class, asynchronous classes, synchronous classes, full face-to-face classes, blended classes, etc. Also, the proposed system must be capable of adjusting in restricting assignment of rooms for CS including time and date.

12. With your suggestion, we are planning to implement a decision support system. Would you like our system to automatically generate a schedule or would you like to create the schedule yourself and the system will only make suggestions?
    - Yes definitely, Sir Dan wants the system to recommend for him whenever he will generate a schedule. It is okay for the system to suggest schedules but the suggested schedules can be modified and that the final decision in creating class schedules would only come from him.

13. How does the whole process of class scheduling creation work? Is it asking the faculty members through Messenger first before inputting in excel or vice versa?
    - Yes it is vice versa, however it is a case-to-case basis. For example, Sir Dan knew that a faculty member is a newly hired or a part-timer for the department, then he would ask the professor's preferred subject and time availability. However, if Sir Dan knew that the faculty member is teaching in the department for a long time, he would just ask the professor if there is any change to his/her preferred subject and time availability. If the professor answered that there is no change to his preferences, then he would assign the subject to them as is. Another instance is that if the assigned subject for a long time professor is not available for their desired time, then Sir Dan would talk to them regarding the matter. Therefore, for long time professors that stayed in the department, usually he just asks for confirmations but for newly hired or part-timers, he asks his/her preferences. For part-timers, Sir Dan asks also for their existing time schedule but Sir Dan does not

change the subjects that are assigned for part-timers.

14. Does the current method in creating class schedules only uses MS Excel and FB Messenger?
    - For creation of schedules, Sir Dan only uses MS Excel but for communicating to faculty members, he sometimes uses MS Teams but most of the time he uses FB Messenger because they have their own group chat of the CS department faculty members.

15. How does the chairperson utilize MS Excel and what is the process in creating schedules using Excel?
    - There is already a template in creating class schedules so most of the time, he uses this template and then plots the schedules.

16. What are the external entities considered in creating class schedules?
    - Sir Dan thinks that there are none external entities except for P.E. subject because the schedule given to them is not changeable anymore. Only the availability of faculty and subject matter or field of expertise is being considered in creating class schedules. Unless there is a change in the policy of PLM regarding class scheduling, number of units, faculty scheduling and subject expertise.

17. How do you consider the students in creating class schedules?
    - Prioritizes 1st year students wherein the dismissal time for them is early unlike those who are in 2nd to 4th year wherein their dismissal time is being outstretched until evening. Room availability is also considered because only Comp Lab 3 is being utilized. For now, Sir Dan thinks that there is no conflict or problem in the created schedules.

18. After creating schedules for faculty members, how does the chairperson disseminate the information? How will the faculty members view their schedule? Thru CRS only or FB Messenger?
    - Most of the time, Sir Dan sends a copy of the professor's separate scheduling sheet through FB Messenger and does not send this copy through email. Sometimes, he also disseminates the information of the generated schedule that it is available for download in the CRS. He also asks the faculty members if they are fine with the schedule or if there is a conflict regarding the generated schedule, if so, he would ask if what time does the faculty member wants his/her schedule to

be adjusted.

19. Do different chairpersons have the same system of scheduling faculty loads?
    - None, they have different approaches and techniques in creating class schedules for their respective departments. There is no certain formula in generating class schedules, they just follow the pairing of time availability of both the professor and the generated class schedule. They also consider the population, number of students, room availability, faculty subject expertise and faculty availability.

20. Can you provide samples of (csv file): (a) Schedule of block and (b)Schedule of faculty
    - He said yes, he would send by tomorrow a copy of samples of schedules.

21. Are there any other features and functionalities that you would like to be included in the system?
    - Sir Dan wants the proposed system to have a Decision Support when he is generating the schedule. Also, he wants the system to be connected on the CRS and that it could print the scheduling sheets. Important features are the report, scheduling sheets, recommendation feature, being able to toggle settings (to make sure that recommendations are correct), and detects schedule conflicts (includes rooms and subjects). He also stated that the CRS is not consistent in detecting schedule conflicts.

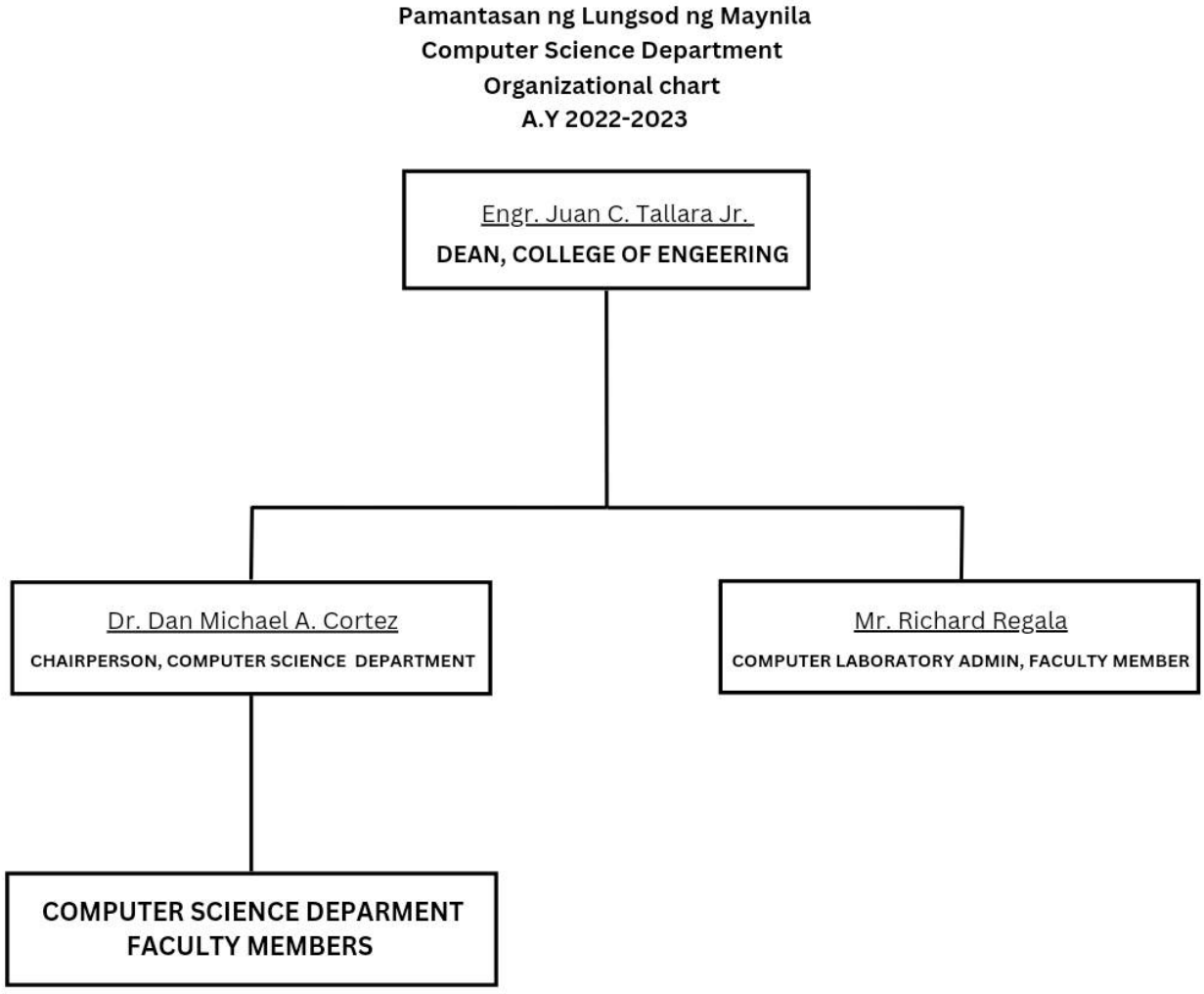
22. Is it viable for the chairperson to have the generated scheduling sheets on a csv file or a pdf file?
    - Sir Dan expects the system to generate not just a scheduling sheet but a report. The report should be generated on a pdf file for easy viewing.

23. What is the format of the report that is being asked by Sir Dan?
    - Sir Dan said that the expected report is just like the scheduling sheet only. It is just like a plotting sheet of all the results of generated schedules.

24. Is there any checking before submitting the generated schedules to the CRS?
    - There is no other checking because what the chairperson made is final. And then the chairperson would encode the schedule onto the CRS. There would only be problems if the faculty checks the schedule on the CRS and the CRS suggests that there is a conflict on that schedule, then that is the time that they would fix the conflict and the chairperson would immediately change the schedule.

APPENDIX B

Organizational Chart



APPENDIX C

Company's Acceptance Letter

PAMANTASAN NG LUNGSOD NG MAYNILA
(University of the City of Manila)
Intramuros, Manila

College of Engineering and Technology
Computer Science Department

October 27, 2022

Dr. Dan Michael A. Cortez
Chairperson, Computer Science Department
PLM

Dear Sir:

Mabuhay!

We, the 3rd year Bachelor of Science in Computer Studies Major in Computer Science students of Pamantasan ng Lungsod ng Maynila, would like to ask your permission to allow us to conduct a study about the current system of your company, as a partial fulfillment of the requirements in the subject **SOFTWARE ENGINEERING** (CSC 0313).

The purpose of the study is to analyze the problems and needs that we may encounter in terms of growth, productivity and technology. This will determine how people, methods and information advancement can be combined for the development of your company.

This would serve as the stepping-stone for us to enhance, through practice and implementation, what we have acquired in our university. We also believe that this project would be of great help through analyzing and creating solutions that will satisfy the needs of the present time in terms of data communication and data processing within your establishments.

In line with this, we would like to request for the following as an initial requirements:

1. Company Profile
2. Organizational Chart
3. Flow of Transactions
4. Existing System Design
5. Sample Data

We hope for your favorable response regarding this matter. Thank you very much!

Respectfully yours,

Micah Therese T. Fabon
Group Representative

Noted by:

Mr. Jonathan C. Morano
Adviser

APPENDIX D

Relevant Source Code

```
        assignClasses.push(...optimalLoad.classes.map(c => ({ ...c, prof: id })));
        classes = classes.filter(c => !optimalLoad.classes.some(oc => oc.block == c.block && oc.subj == c.subj));
    }
    console.timeEnd("Genetic Faculty Loading execution time");

    console.log("\nFaculty loaded classes:");
    // assignClasses.sort((a, b) => a.course.localeCompare(b.course) || a.year - b.year || a.block_no - b.block_no)
    console.table(assignClasses);
    console.log("\nUnassigned classes:");
    console.table(classes);

    console.log("\nDepartmental Faculty Information:");
    console.table(faculty);

    classes = undefined;
    const rooms = initRooms(await DB.executeQuery(
        `SELECT r.id, r.name, sc.block_id AS block, sc.subj_id AS subj, s.units, sc.faculty_id AS prof, sc.day, ` +
        `sc.start, sc.end FROM Terms t LEFT JOIN Buildings bu ON t.school_id = bu.school_id INNER JOIN Rooms r ON ` +
        `bu.id = r.bldg_id LEFT JOIN Schedules sc ON t.id = sc.term_id AND r.id = sc.room_id LEFT JOIN ` +
        `Subjects s ON sc.subj_id = s.id WHERE t.id = '${term.id}' ORDER BY r.name, sc.block_id, sc.day, sc.start`
    ));

    console.log("\nList of rooms and availability:");
    console.table(rooms);

    console.time("\nIterative classroom scheduling exec. time");
    let classSchedule = scheduleClasses(assignClasses, rooms, 7, 15, 7, 2);
    console.timeEnd("\nIterative classroom scheduling exec. time");

    for (const classroom of classSchedule) {
        let { id, name, slots } = classroom;

        // separate old and new classroom schedules
        slots = slots.filter(c => c.partial != undefined);
        if (slots.length <= 0) {
            continue;
        }
```

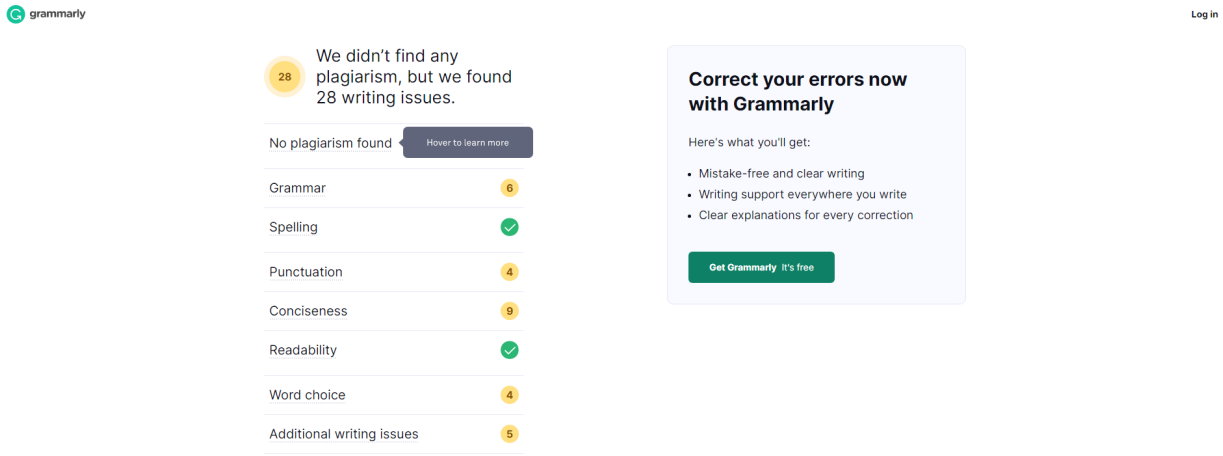
```
const generateSchedule = async (req, res, next) => {
    const user = req.account;
    if (!user || user.type != 'chair') {
        return res.status(401).redirect('/logout');
    }

    const DB = req.app.locals.database;
    const termCode = req.query.term || req.body.term;
    const [term] = await DB.executeQuery(
        `SELECT t.id AS id, t.term AS semester FROM Terms t INNER JOIN Colleges col ON t.school_id = col.school_id ` +
        `INNER JOIN Departments d ON col.id = d.college_id WHERE d.chair_id = '${user.id}' AND ` +
        `CONCAT(t.year, t.term) = '${termCode}' LIMIT 1`
    );

    if (!term) {
        return res.status(409).redirect("/chair/schedules");
    }

    req.termID = term.id;

    let deptSubjects = await DB.executeQuery(
        `SELECT cu.subj_id, s.title FROM Curricula cu INNER JOIN Courses co ON cu.course_id = co.id INNER JOIN Departments d ` +
        `ON co.dept_id = d.id INNER JOIN Subjects s ON cu.subj_id = s.id INNER JOIN Colleges col ON ` +
        `d.college_id = col.id AND s.college_id = col.id WHERE d.chair_id = '${user.id}' AND cu.term = '${term.semester}'`
    );
    deptSubjects = deptSubjects.map(sub => sub.subj_id);

    let classes = await DB.executeQuery(
        `SELECT sc.block_id AS block, sc.subj_id AS subj, s.units, s.req_hours AS hours, s.pref_rooms AS ` +
        `prefRooms FROM Schedules sc INNER JOIN Blocks b on sc.block_id = b.id INNER JOIN Courses co ON ` +
        `b.course_id = co.id INNER JOIN Subjects s ON sc.subj_id = s.id INNER JOIN Curricula cu ON ` +
        `sc.subj_id = cu.subj_id AND s.id = cu.subj_id AND co.id = cu.course_id INNER JOIN Departments d ON ` +
        `co.dept_id = d.id WHERE sc.term_id = '${term.id}' AND sc.faculty_id IS NULL AND ` +
        `d.chair_id = '${user.id}' AND sc.subj_id IN ('${deptSubjects.join("', '")}')`
    );
    classes = classes.map(c => ({ ...c, prefRooms: c.prefRooms.split(",") }));
    console.table(classes);
```

```
        // output room schedules in console
        console.log("\n" + name);
        console.log("New assigned classes:");
        console.table(slots.sort((a) => a.partial));

        // separate classes that were assigned first from partial classes that were preempted
        let { firstClass, partialClass } = slots.reduce((arr, c) => {
            arr[(c.partial) ? "partialClass" : "firstClass"].push(c);
            return arr;
        }, { firstClass: [], partialClass: [] });

        let query = "";
        if (firstClass.length > 0) {
            query += firstClass.reduce((q, { block, subj, units, prof, day, start, end }) => {
                return q += `UPDATE Schedules SET faculty_id = '${prof}', day = ${day}, start = ${start}, ` +
                    `end = ${end}, room_id = '${id}', mode = 1 WHERE term_id = '${term.id}' AND ` +
                    `block_id = '${block}' AND subj_id = '${subj}' AND faculty_id IS NULL LIMIT 1;` +
                    `UPDATE Preferences pr LEFT JOIN Schedules sc ON pr.faculty_id = sc.faculty_id ` +
                    `SET pr.assigned_load = pr.assigned_load + ${units || 0} WHERE pr.term_id = '${term.id}' ` +
                    `AND pr.faculty_id = sc.faculty_id AND sc.block_id = '${block}' AND sc.subj_id = '${subj}' LIMIT 1;`;
            }, "");
        }

        // for preempted class times
        if (partialClass.length > 0) {
            query += `INSERT INTO Schedules VALUES (${partialClass.map(({ block, subj, prof, day, start, end }) => {
                return `'${term.id}', '${subj}', '${block}', '${prof}', '${id}', ${day}, ${start}, ${end}, 1`
            }).join("), (")});`;
        }

        try {
            await DB.executeQuery(query);
        } catch (error) {
            console.log(error);
            return res.status(501).redirect("/schedule/failed/" + termCode);
        }
    }
```

```

    let faculty = await DB.executeQuery(
        `SELECT p.faculty_id as id, p.id AS pref_id, (f.teach_load - p.assigned_load) AS teach_load FROM Preferences p ` +
        `INNER JOIN Faculty f ON p.faculty_id = f.id INNER JOIN Departments d ON f.dept_id = d.id WHERE ` +
        `(f.teach_load - p.assigned_load) > 0 AND p.term_id = '${term.id}' AND p.sched_status = 'open' AND ` +
        `d.chair_id = '${user.id}' ORDER BY f.status DESC`
    );

    console.log("Initial total classes: " + classes.length, "Total faculty in department: " + faculty.length);
    if (classes.length <= 0 || faculty.length <= 0) {
        return res.status(200).send(
            `There are no more blank classes to assign or all faculty are fully loaded.<br>` +
            `Go back to <a href="/chair/schedules?term=${termCode}">Schedules Tab</a>`
        );
    }

    console.log("Generating department schedule for term, " + termCode + "...\n");
    console.time("Genetic Faculty Loading execution time");
    const assignClasses = [];
    for (const prof of faculty) {
        let { id, teach_load, pref_id } = prof;
        if (classes.length <= 0) {
            break;
        }

        let subjects = await DB.executeQuery(
            `SELECT DISTINCT ps.subj_id FROM PrefSubjects ps INNER JOIN Preferences p ON ps.pref_id = p.id ` +
            `WHERE p.id = '${pref_id}' OR p.faculty_id = '${id}'`
        );
        subjects = subjects.map(({ subj_id }) => subj_id);

        const facultyLoader = new FacultyLoading(teach_load, 50, subjects, classes, 100);
        const optimalLoad = facultyLoader.evolve(50);

        prof.assign_load = optimalLoad.totalUnits;
        prof.pref_subjs = subjects;

```

APPENDIX E

Turnitin Result



APPENDIX F

Company Profile

COLLEGE OF ENGINEERING AND TECHNOLOGY

HISTORY

The College of Engineering and Technology (CET) of Pamantasan ng Lungsod ng Maynila was established in 1969 to provide quality education and technical skills in technology. Originally part of the College of Arts and Letters, it aimed to offer technical, industrial, and vocational education alongside humanistic courses.

The CET had two divisions: Engineering and Technology, covering various engineering disciplines, and Technical and Vocational Education, offering subjects like electronics, woodworking, metal works, automotive works, ceramics, graphics arts, and teacher education. The college initially required a six-year ladderized program for degree completion, later reduced to a five-year scheme. Today, CET remains dedicated to delivering responsive education to engineering students, upholding the legacy envisioned by its founders.

Mission

Guided by this vision, we commit ourselves:

1. To uphold excellence through curriculum development and teaching, significant advances in knowledge, and services to the community of which we are a part;
2. To nurture students with a technological education of the highest quality that will enable them to be professionally competent, community directed and God centered individuals; and
3. To develop faculty members and staff to be excellent examples in leadership and management.

Vision

The College of Engineering and Technology will be the premier college in technological education, research and extension services.

About Us:

Believing in our mission, we are dedicated to facilitating academic achievement by enhancing curricular programs to exceed standards, fostering a productive environment for research and socially responsive extension services. We prioritize developing dynamism within our community, embracing diversity to foster growth. Additionally, we actively strengthen connections with alumni and industry partners, establishing a distinct position in the industry.

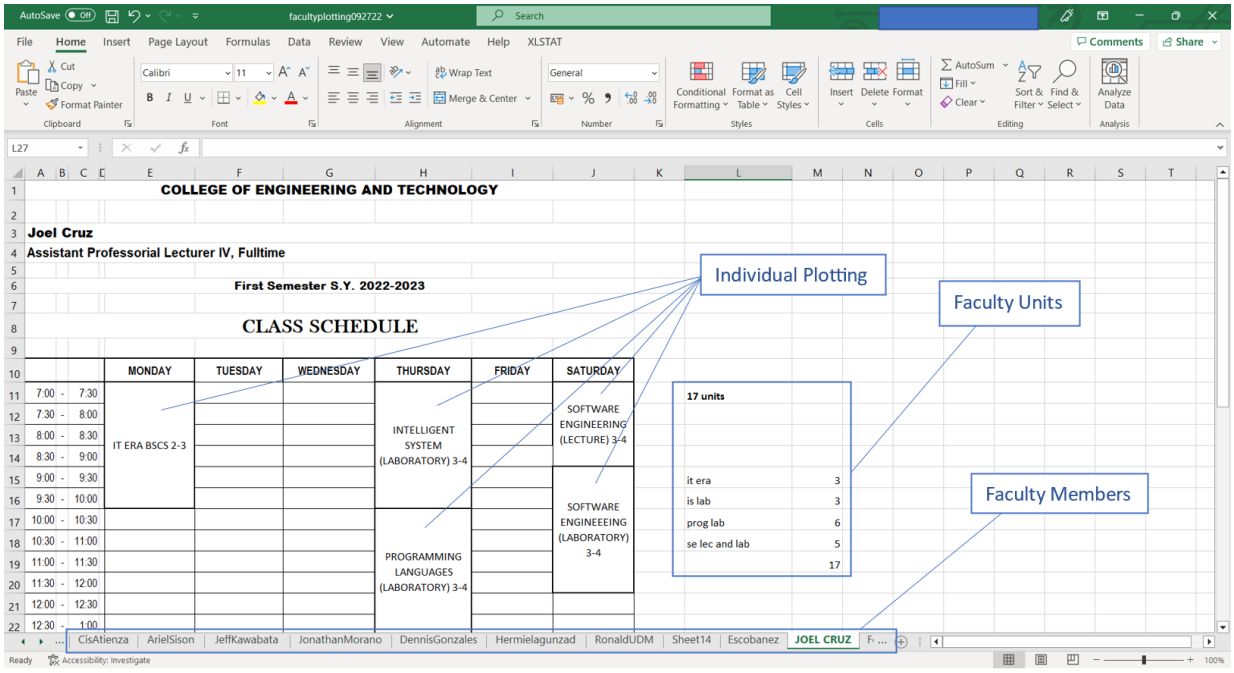
(+63 2) 8 643-2500

cetknights@gmail.com

Gen. Luna corner Muralla St., Intramuros
Manila, Philippines 1002

APPENDIX G

Sample Forms, Documents and Data



Pamantasan ng Lungsod ng Maynila

APPENDIX H

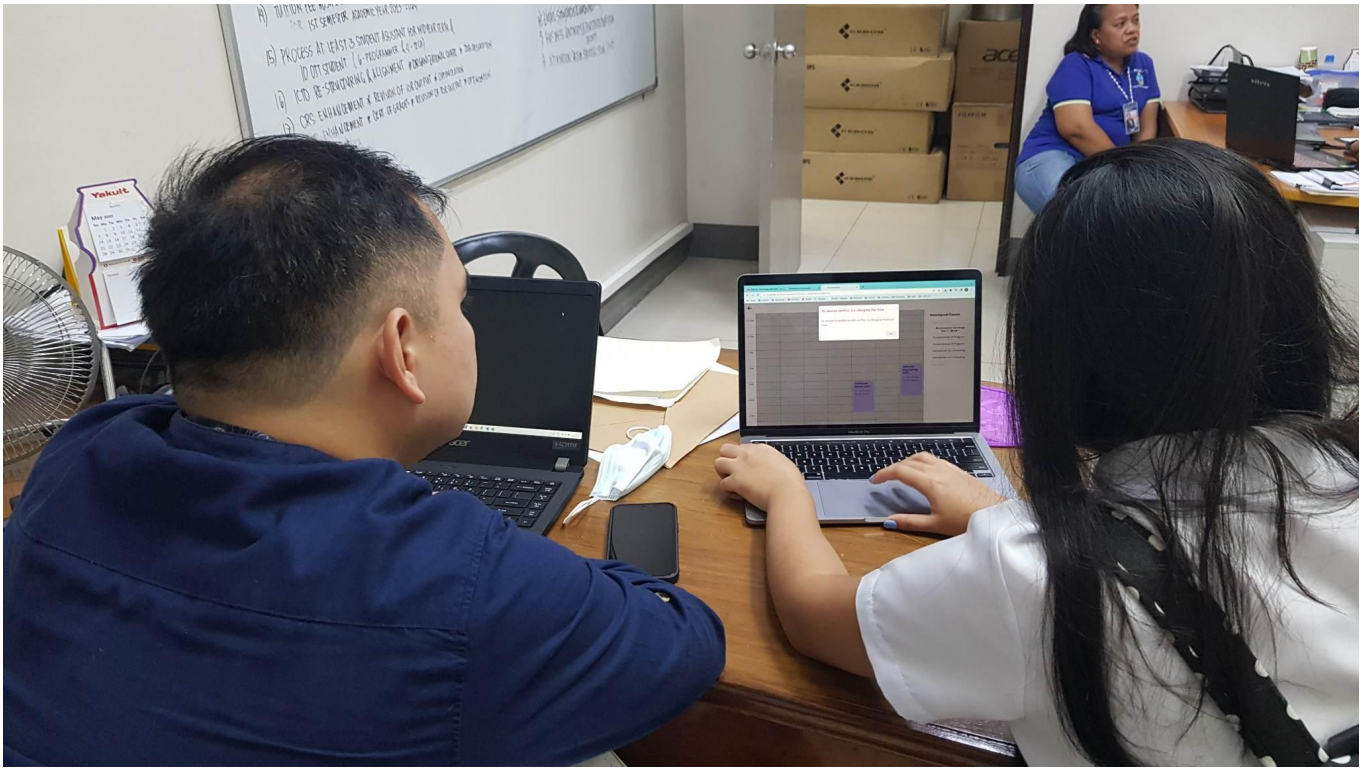
Acceptance Checklist

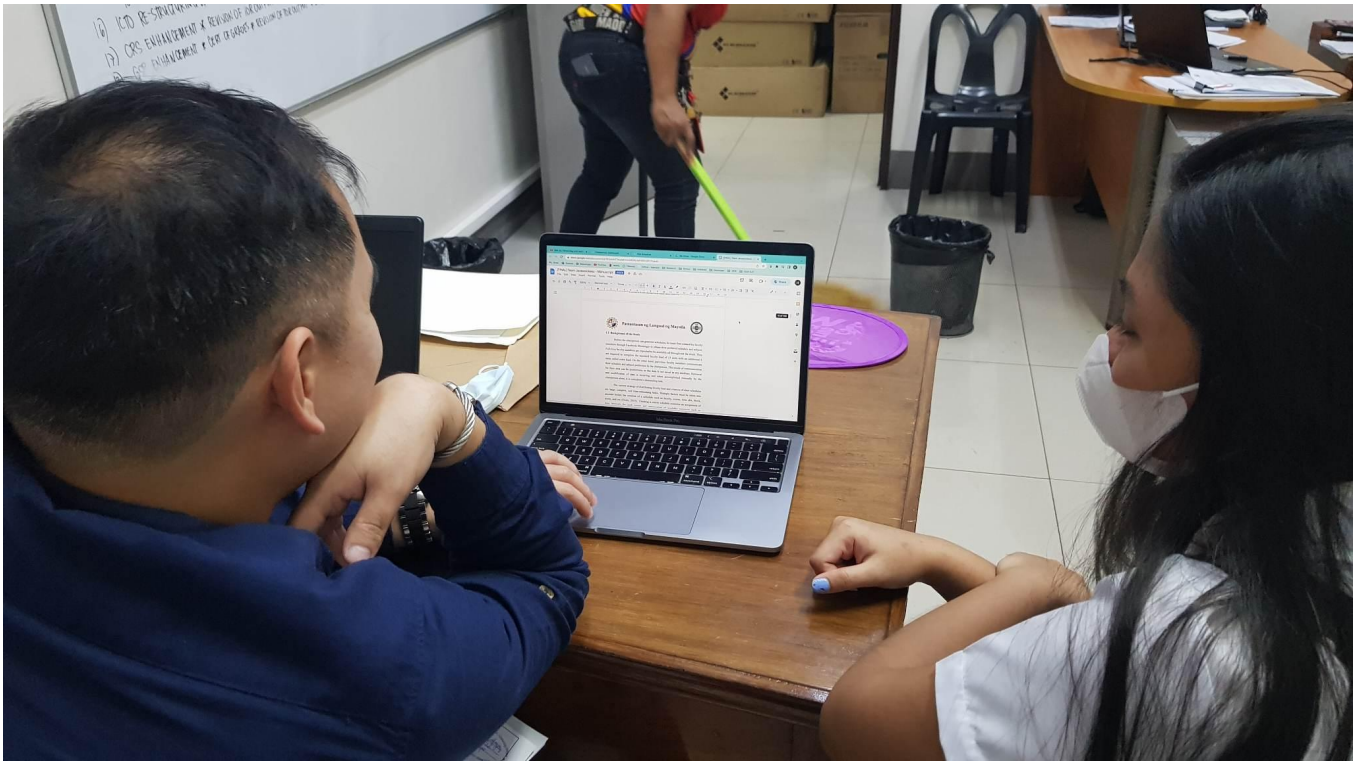
SOFTWARE ACCEPTANCE CHECKLIST

TASK	DATE CONDUCTED	STATUS *(Completed or*	REMARKS	CLIENT SIGN
Software demonstration has been conducted	May 29		- Quantify SOP - conflict specification, not just notify - Add consultation hours - plot minor subjects	
User Training has been conducted *(along with the User's Manual Presentation)*				
Problem(s) and corrective action(s) are documented	May 29		SOP1: not a problem SOP 2: Quantify, measurable, data SOP 3: Restate why there is conflict, give proof	
Software has been installed and tested				
Client feedback/recommendation are carefully evaluated	May 29		[illegible]	

JUNE-21-23

1





APPENDIX I

User Acceptance Testing

User Acceptance Testing

Javawockeez
PLM - Faculty Load And Class Scheduling System [Web-based]
May 2023

USER ACCEPTANCE TESTING

PLM - FACULTY LOAD AND CLASS SCHEDULING SYSTEM [WEB-BASED]
PREPARED BY: JAVAWOCKEEZ
DATE: MAY 2023

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USER ACCEPTANCE TESTING
PLM - FACULTY LOAD AND CLASS SCHEDULING SYSTEM [WEB-BASED]
JAVAWOCKEEZ// BSCS 3-1 A.Y. 2022-2023

JAVAWOCKEEZ

Instructions:

To access PLM - Faculty Load And Class Scheduling System [Web-based], visit http://31.220.6.109/login on a desktop or mobile device's web browser. Check 'Expected Image is the same as the Actual Image result' if the output is accurate, otherwise, check 'Expected image is not the same as the Actual Image result. If there is an error encountered, check 'Error' and describe what went wrong. Lastly, please provide your comments and suggestions for the system. The development team will greatly appreciate the feedback.

Please check the appropriate box for the perspective you are going to evaluate:

☐ Faculty ☐ Chairperson ☐ Admin

NAME OF USER AND SIGNATURE:

DATE AND TIME:

DEVICE USED:

OPERATING SYSTEM:

BROWSER USED:

Credentials for each perspective:

PERSPECTIVE	ID	PASSWORD
Admin		
Chairperson		
Faculty		

LANDING PAGE

LOGIN PAGE

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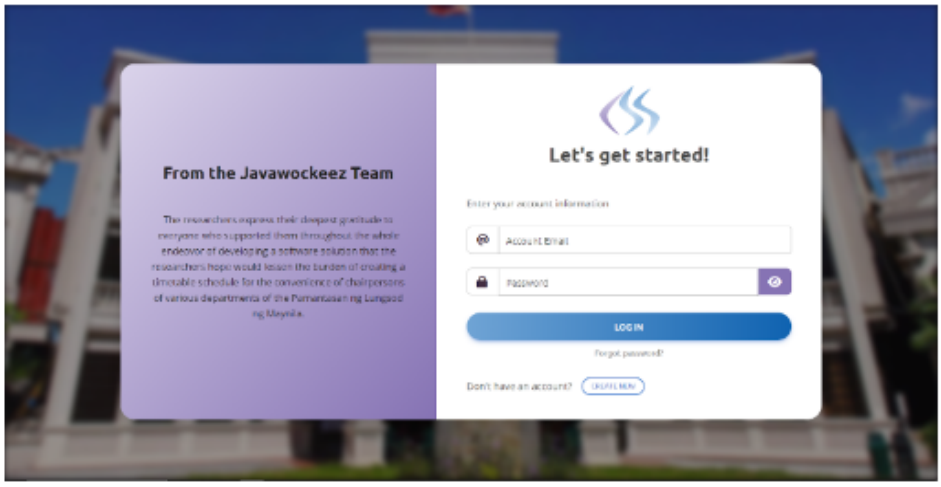

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Admin Comments and Suggestions:

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PLM - FACULTY LOAD AND CLASS SCHEDULING SYSTEM [WEB-BASED]
JAVAWOCKEEZ// BSCS 3-1 A.Y. 2022-2023

JAVAWOCKEEZ

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To access PLM - Faculty Load And Class Scheduling System [Web-based], visit http://31.220.6.109/faculty/schedule on a desktop or mobile device's web browser. Check 'Expected Image is the same as the Actual Image result' if the output is accurate, otherwise, check 'Expected image is not the same as the Actual Image result. If there is an error encountered, check 'Error' and describe what went wrong. Lastly, please provide your comments and suggestions for the system. The development team will greatly appreciate the feedback.

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☐ Faculty ☐ Chairperson ☐ Admin

NAME OF USER AND SIGNATURE:

DATE AND TIME:

DEVICE USED:

OPERATING SYSTEM:

BROWSER USED:

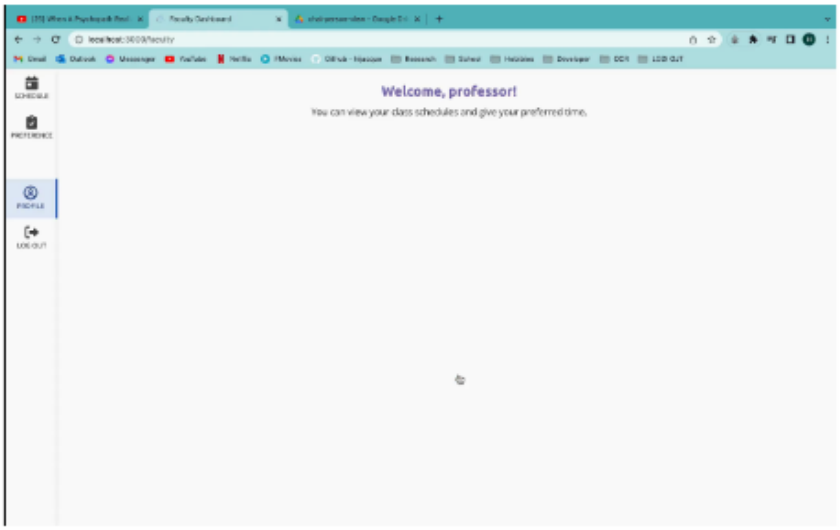
Credentials for each perspective:

PERSPECTIVE	ID	PASSWORD
Admin		
Chairperson		
Faculty		

FACULTY PERSPECTIVE

LANDING PAGE

To access PLM - Faculty Load And Class Scheduling System, visit http://31.220.6.109/faculty/schedule on a desktop or mobile device's web browser.



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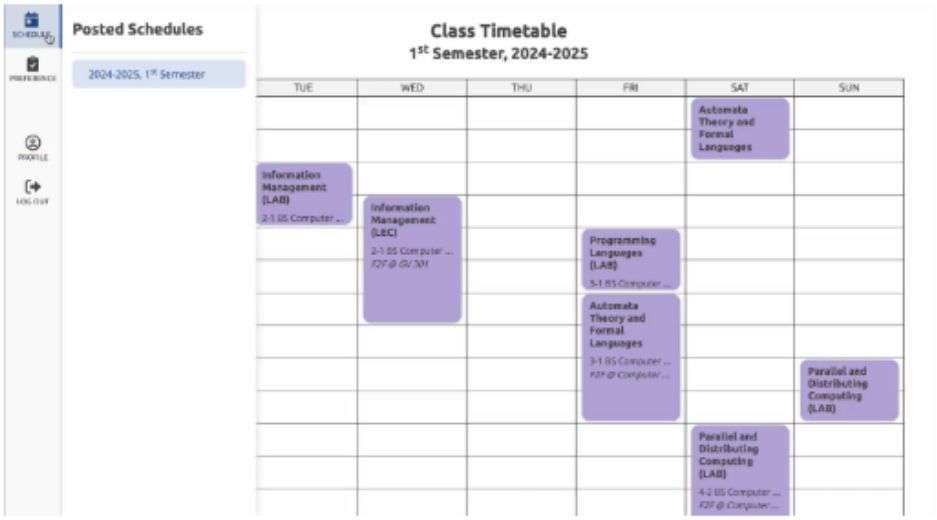
Admin Comments and Suggestions:

FACULTY PERSPECTIVE

SCHEDULE PAGE

Displays the faculty schedule upon clicking on the Schedule tab on the sidebar.



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☐ Error (please comment in detail what is wrong here):

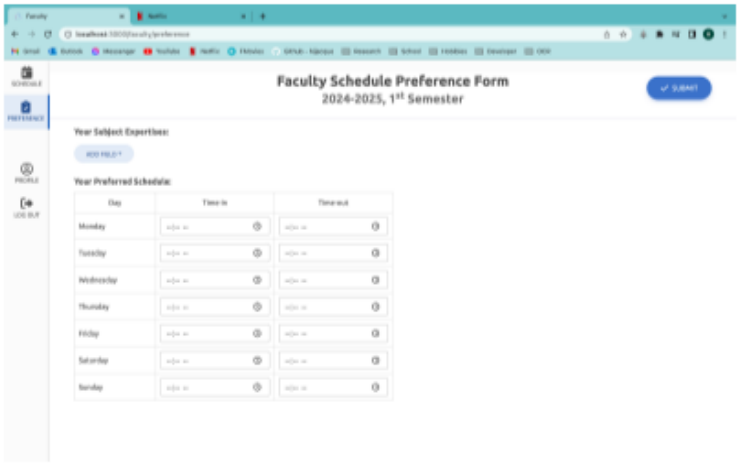
End User Comments and Suggestions:

Admin Comments and Suggestions:

FACULTY PERSPECTIVE

PREFERENCE PAGE

To access the page, click on the "Preference" panel on the sidebar and it will demonstrate this UI on how the faculty can input their schedule preference.



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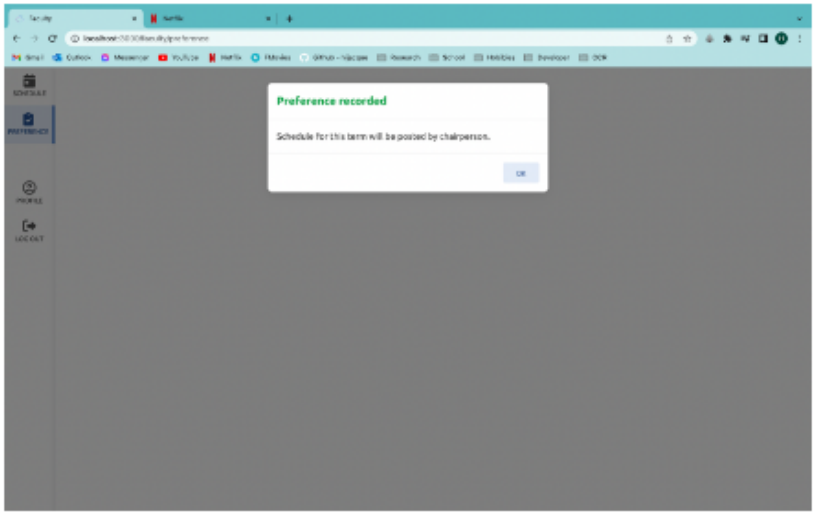
Admin Comments and Suggestions:

FACULTY PERSPECTIVE

PREFERENCE PAGE

A notification will pop-up once the faculty submitted his/her preference form showing this message.



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Admin Comments and Suggestions:

USER ACCEPTANCE TESTING
PLM - FACULTY LOAD AND CLASS SCHEDULING SYSTEM [WEB-BASED]
JAVAWOCKEEZ// BSCS 3-1 A.Y. 2022-2023

JAVAWOCKEEZ

Instructions:

To access PLM - Faculty Load And Class Scheduling System [Web-based], visit http://31.220.6.109/chair/ on a desktop or mobile device's web browser. Check 'Expected Image is the same as the Actual Image result' if the output is accurate, otherwise, check 'Expected image is not the same as the Actual Image result. If there is an error encountered, check 'Error' and describe what went wrong. Lastly, please provide your comments and suggestions for the system. The development team will greatly appreciate the feedback.

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NAME OF USER AND SIGNATURE:

DATE AND TIME:

DEVICE USED:

OPERATING SYSTEM:

BROWSER USED:

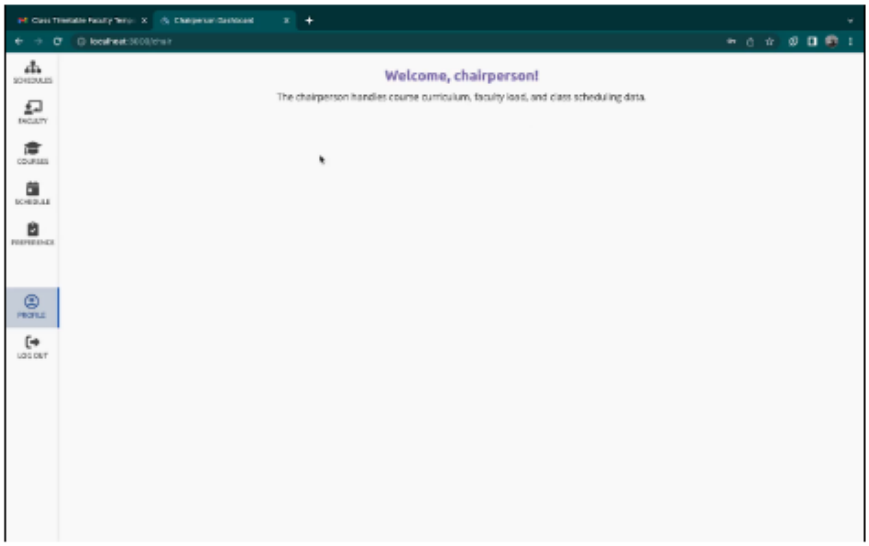
Credentials for each perspective:

PERSPECTIVE	ID	PASSWORD
Admin		
Chairperson		
Faculty		

CHAIRPERSON PERSPECTIVE

LANDING PAGE

To access PLM - Faculty Load And Class Scheduling System, visit http://31.220.6.109/chair/ on a desktop or mobile device's web browser.



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Admin Comments and Suggestions:

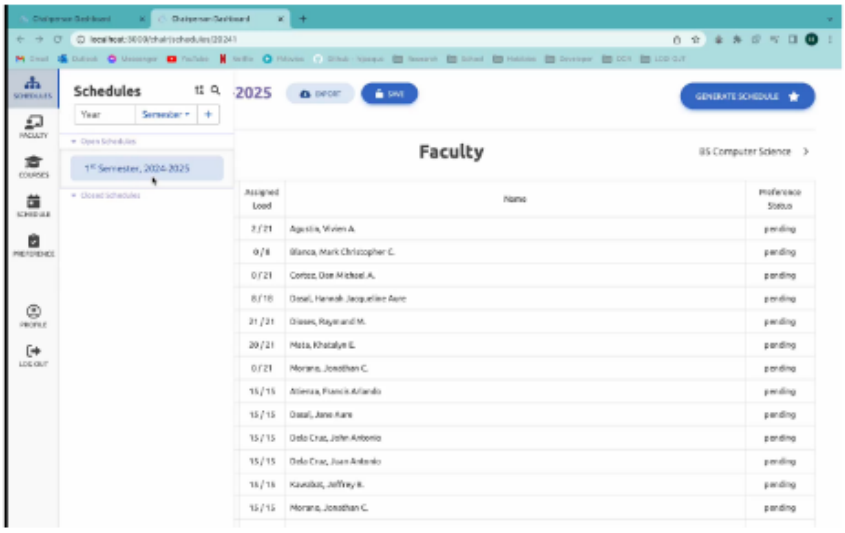
USER ACCEPTANCE TESTING
PLM - FACULTY LOAD AND CLASS SCHEDULING SYSTEM [WEB-BASED]
JAVAWOCKEEZ// BSCS 3-1 A.Y. 2022-2023

JAVAWOCKEEZ

CHAIRPERSON PERSPECTIVE

SCHEDULES PAGE

Selecting the academic year and semester through a dropdown list.



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☐ Error (please comment in detail what is wrong here):

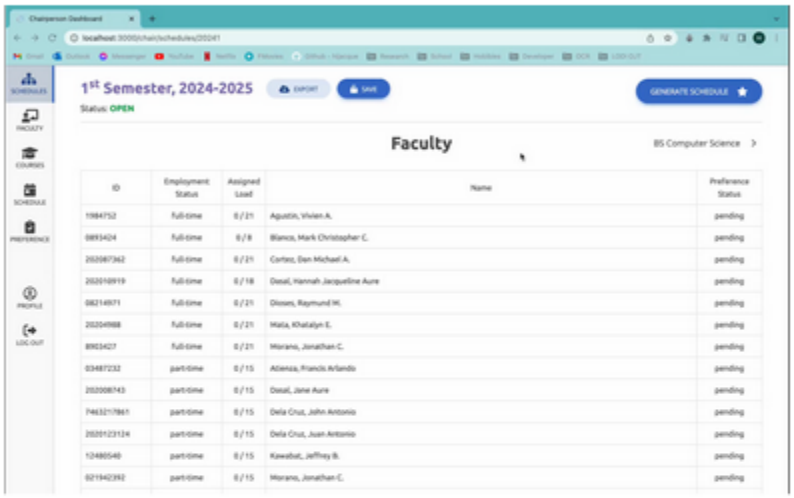
End User Comments and Suggestions:

Admin Comments and Suggestions:

CHAIRPERSON PERSPECTIVE

SCHEDULES PAGE

This page displays all names of faculty members in a department.



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☐ Error (please comment in detail what is wrong here):

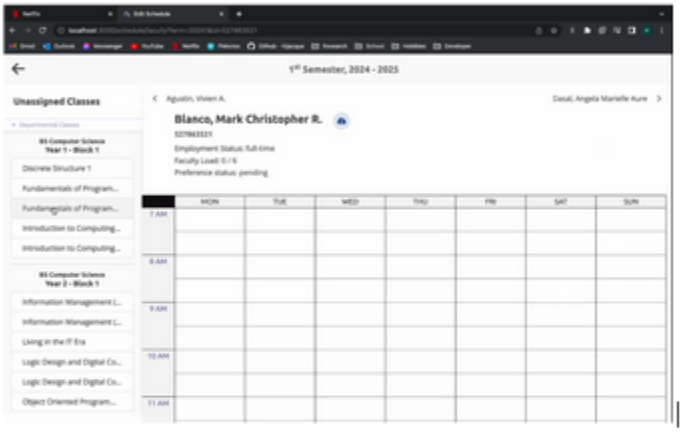
End User Comments and Suggestions:

Admin Comments and Suggestions:

CHAIRPERSON PERSPECTIVE

SCHEDULES PAGE

Clicking a faculty name will demonstrate a professor's timetable, classes to attend, room assigned and faculty load.



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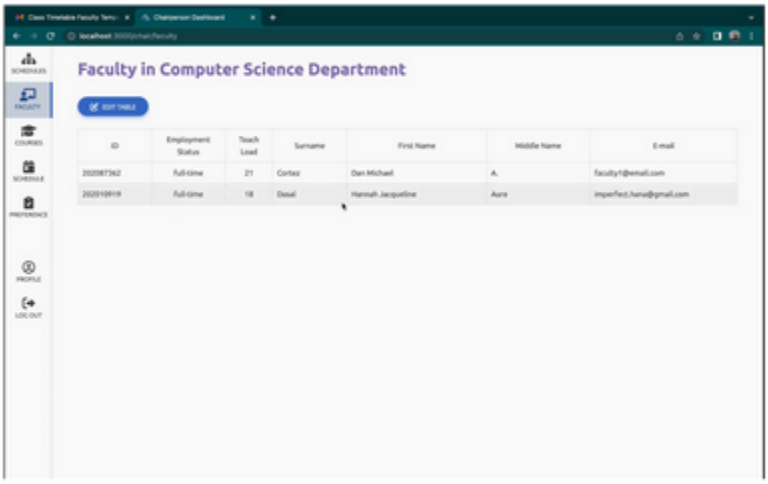
End User Comments and Suggestions:

Admin Comments and Suggestions:

CHAIRPERSON PERSPECTIVE

FACULTY PAGE

This page displays when adding a faculty member or even editing the faculty information.



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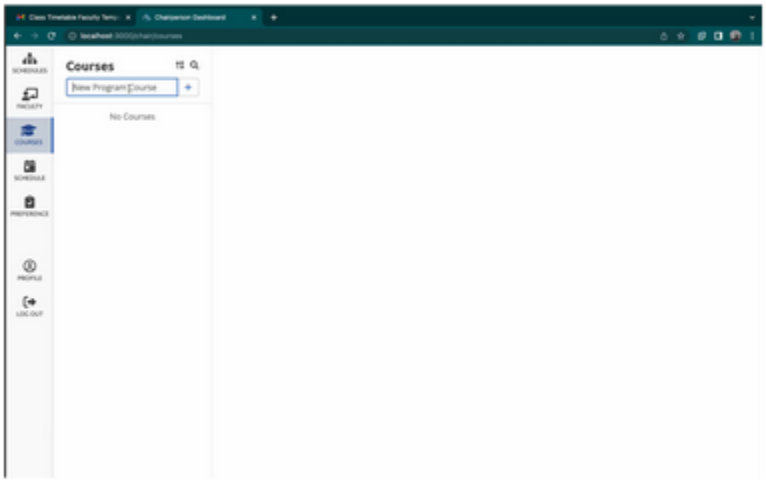
CHAIRPERSON PERSPECTIVE

COURSES PAGE

This page displays when the chairperson will add a course and subjects.



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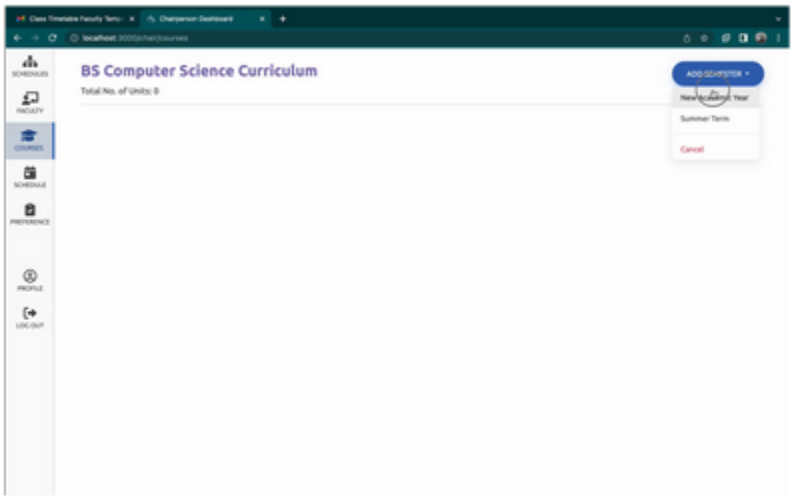
CHAIRPERSON PERSPECTIVE

COURSES PAGE

This page displays when the chairperson will select which semester to add.



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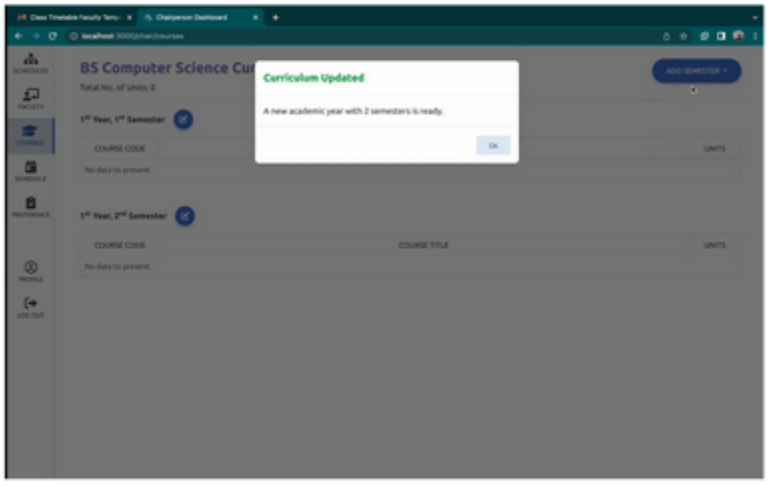
CHAIRPERSON PERSPECTIVE

COURSES PAGE

This page displays when the chairperson added a semester for schedule generation.



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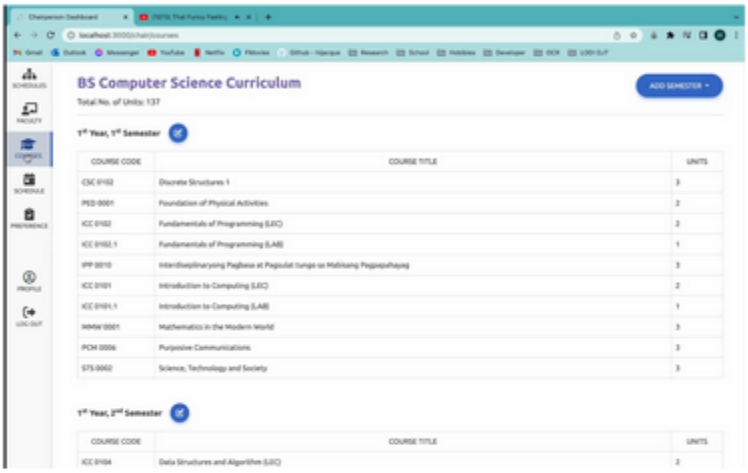
CHAIRPERSON PERSPECTIVE

COURSES PAGE

This page displays when the chairperson added subjects on a year level and a semester.



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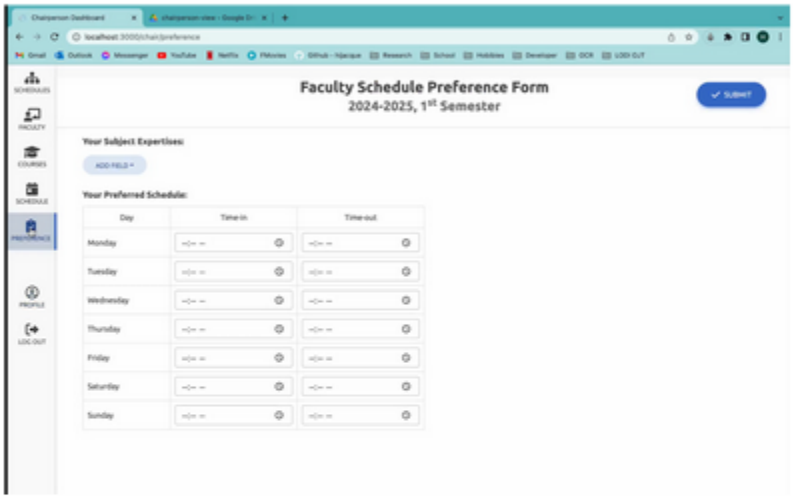
CHAIRPERSON PERSPECTIVE

PREFERENCE PAGE

This page displays when the chairperson will add his preferred schedule.



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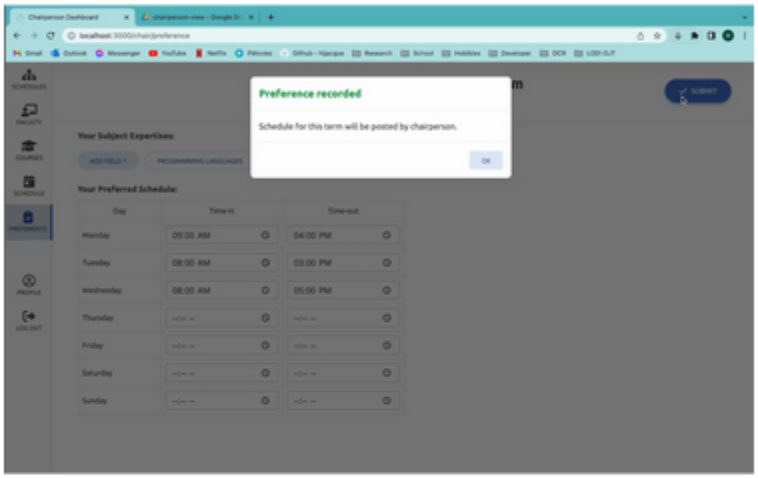
CHAIRPERSON PERSPECTIVE

PREFERENCE PAGE

This page displays when the chairperson will add his preferred schedule.



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USER ACCEPTANCE TESTING
PLM - FACULTY LOAD AND CLASS SCHEDULING SYSTEM [WEB-BASED]
JAVAWOCKEEZ// BSCS 3-1 A.Y. 2022-2023

JAVAWOCKEEZ

Instructions:

To access PLM - Faculty Load And Class Scheduling System [Web-based], visit http://31.220.6.109/admin/ on a desktop or mobile device's web browser. Check 'Expected Image is the same as the Actual Image result' if the output is accurate, otherwise, check 'Expected image is not the same as the Actual Image result. If there is an error encountered, check 'Error' and describe what went wrong. Lastly, please provide your comments and suggestions for the system. The development team will greatly appreciate the feedback.

Please check the appropriate box for the perspective you are going to evaluate:

☐ Faculty ☐ Chairperson ☐ Admin

NAME OF USER AND SIGNATURE:

DATE AND TIME:

DEVICE USED:

OPERATING SYSTEM:

BROWSER USED:

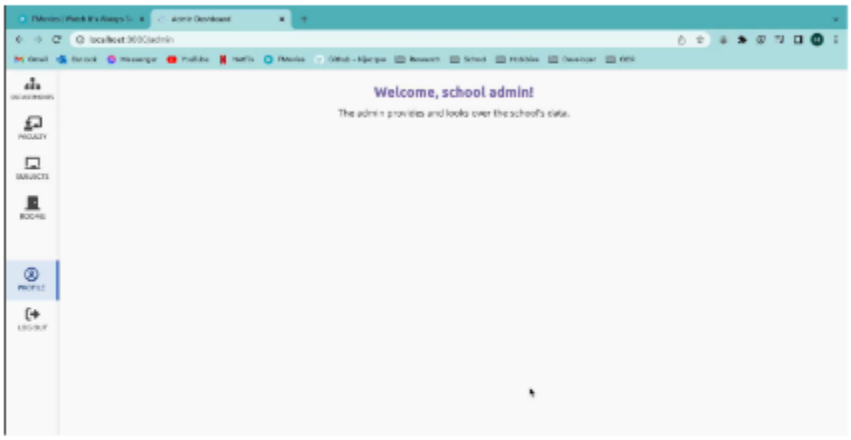
Credentials for each perspective:

PERSPECTIVE	ID	PASSWORD
Admin		
Chairperson		
Faculty		

ADMIN PERSPECTIVE

LANDING PAGE

To access PLM - Faculty Load And Class Scheduling System, visit http://31.220.6.109/admin/ on a desktop or mobile device's web browser.



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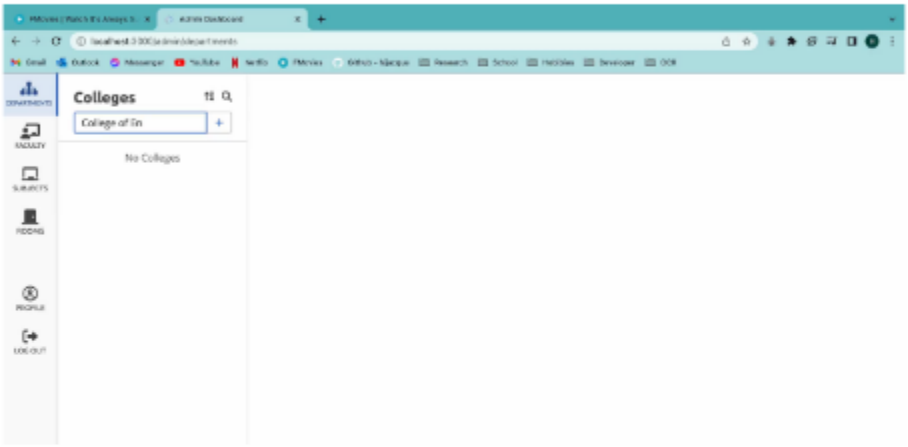
End User Comments and Suggestions:

Admin Comments and Suggestions:

ADMIN PERSPECTIVE

DEPARTMENT PAGE

Click on the "Department" panel on the sidebar and it will display how the admin can add different colleges and departments for the system.



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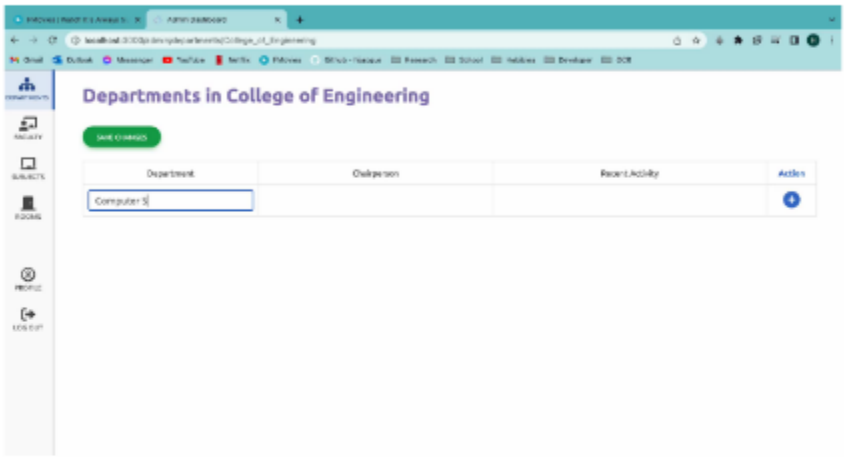
ADMIN PERSPECTIVE

DEPARTMENT PAGE

Displays how the admin can add departments and select chairperson for the system.



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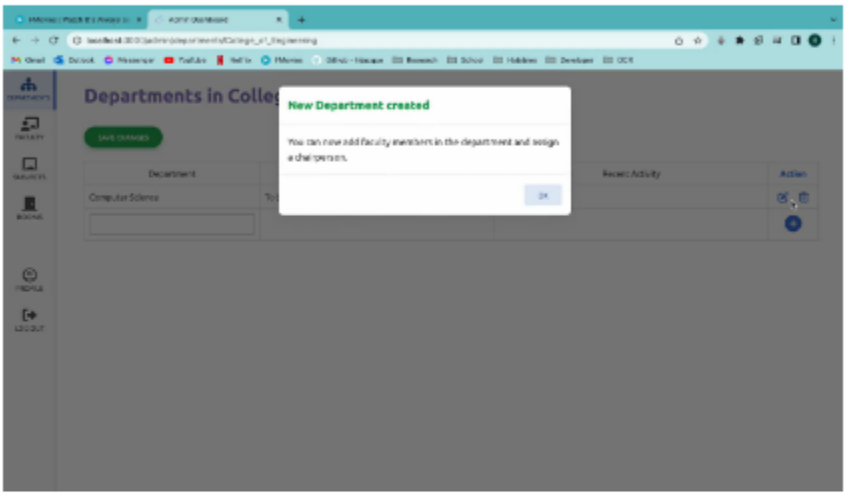
ADMIN PERSPECTIVE

DEPARTMENT PAGE

Shows the successful creation of a department in a college.



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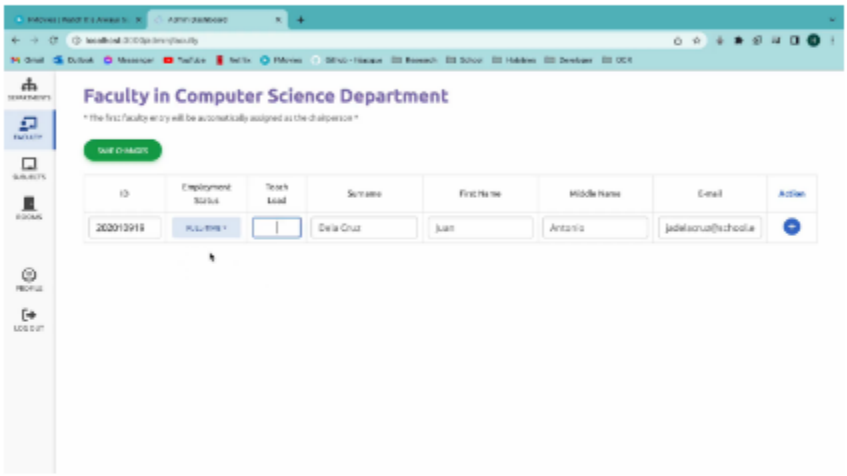
ADMIN PERSPECTIVE

FACULTY PAGE

Displays the UI on how the admin can add a faculty member and input his/her credentials.



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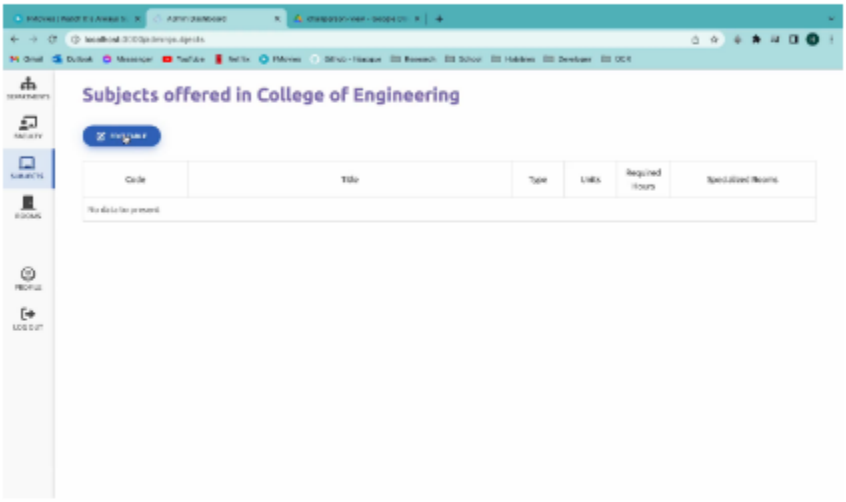
ADMIN PERSPECTIVE

SUBJECTS PAGE

Demonstrating page when the admin is editing the table and adding subjects.



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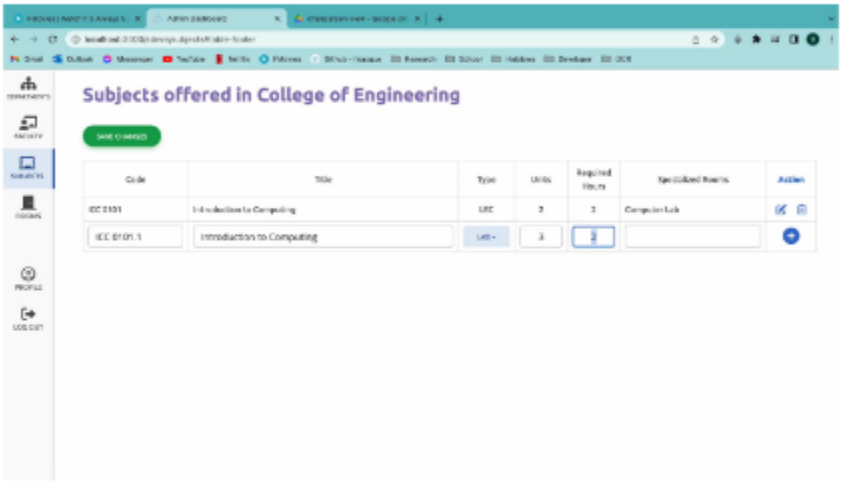
ADMIN PERSPECTIVE

SUBJECTS PAGE

View when the admin is adding subjects, a save changes button will appear.



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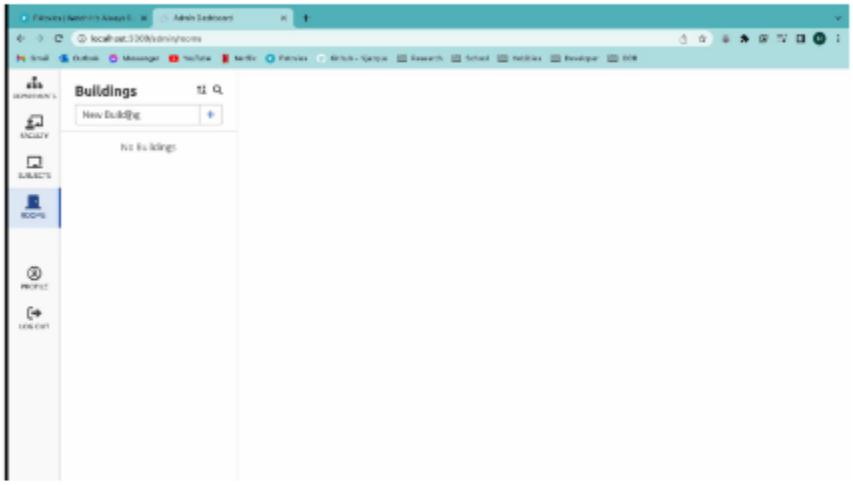
ADMIN PERSPECTIVE

ROOMS PAGE

To access the page, click on the "Rooms" panel on the sidebar and it will demonstrate this UI on how the admin can add building information and room information.



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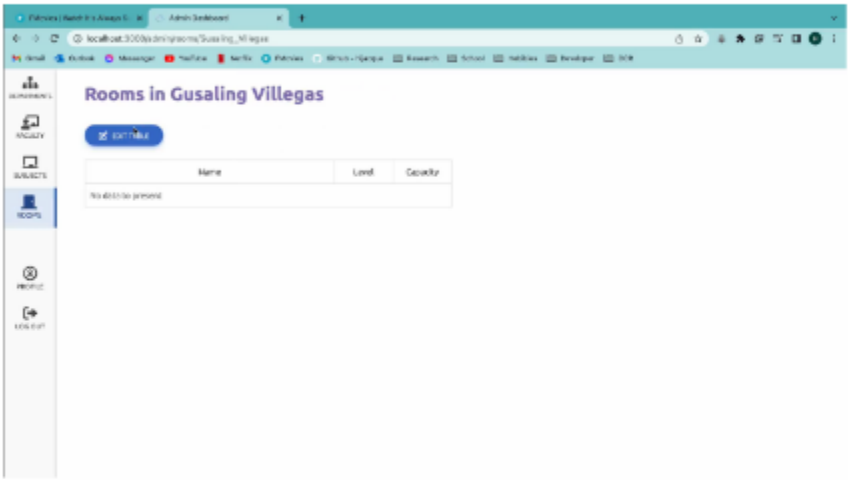
ADMIN PERSPECTIVE

ROOMS PAGE

This UI demonstrates the added building information and editing of tables for adding room information.



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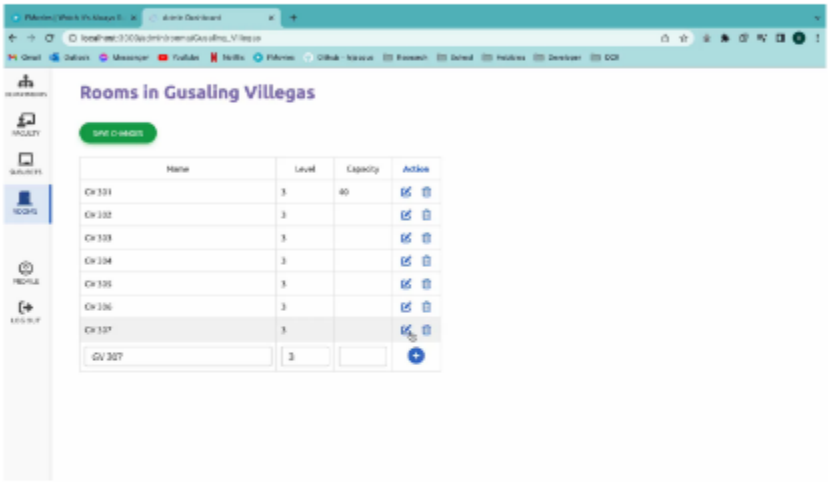
Admin Comments and Suggestions:

ADMIN PERSPECTIVE

ROOMS PAGE

This UI demonstrates the adding of room information, an add button will appear then click save changes button to save information.



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Admin Comments and Suggestions:

User Manual

Javawockeez
PLM - Faculty Load And Class Scheduling System [Web-based]
May 2023

Introduction

Welcome to the user manual guide for our system software. This guide is designed to help familiarize the users with the system's functionality and provide a detailed, step-by-step process for various tasks performed by different users of the software.

To ensure clarity and ease of understanding, this guide avoids the use of technical jargon, complex terminology, and difficult words. Additionally, screenshots are included to assist you further. If you have any questions or need further assistance, please don't hesitate to contact us. We will be happy to help you promptly.

We sincerely hope that you find our system software to be both useful and beneficial to your endeavors.

Best regards,

The Javawockeez Team

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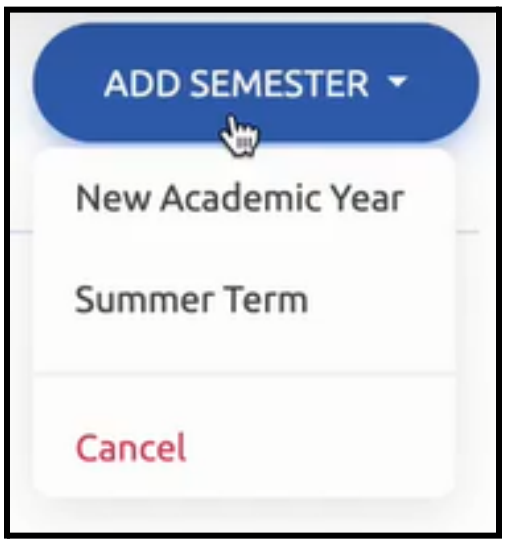
Chairperson:

Creating a course:

1. Sign in.
2. Click the “Courses” tab in the left side of the menu.

3. Type the course you want to create in the text field then click the “+” button beside the text field to create the course.

4. In the upper-right corner, click “Add Semester” then choose which option you want to do: “New Academic Year”, “Summer Term” or “Cancel”.



5. If adding additional semesters, repeat step 5.

Adding/modifying/removing faculty members:

1. Sign in.
2. Click the “Faculty” tab in the left side of the menu.

3. Click the “Edit Table” button to add/edit/remove chairperson/s.

4. Fill all necessary information needed. Once done, press the “+” button in the action column of the table to add faculty member/s.

5. Before the faculty member/s is added, a temporary password will be sent to their email. To finalize the creation of the faculty member/s’ account, they must sign in using their email address, as well as the temporary password sent to them. Once signed in, the account will be finalized.
6. If editing inputted data on faculty member/s, press the edit button (notepad/pencil icon) to change.

7. If removing faculty member/s, press the delete button (trashcan icon) to remove.

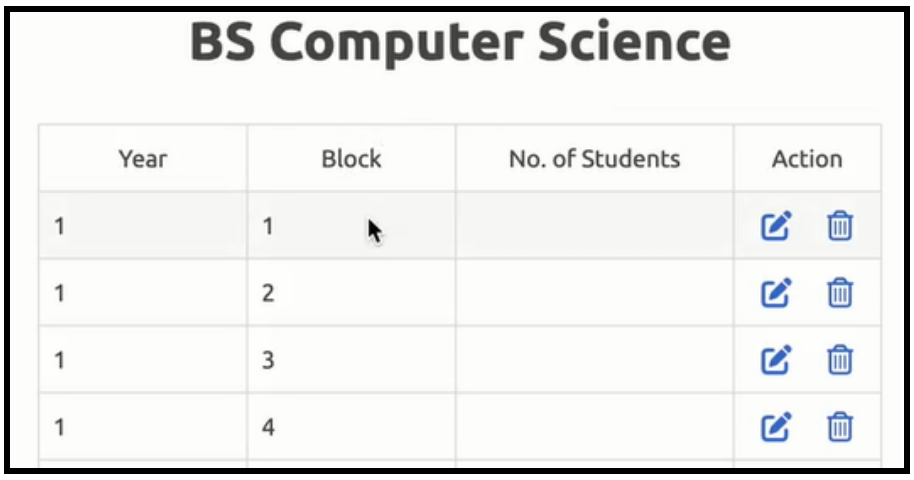
8. To save changes, press the “Save Changes” button where the “Edit Table” button used to be.

Assigning class to blocks:

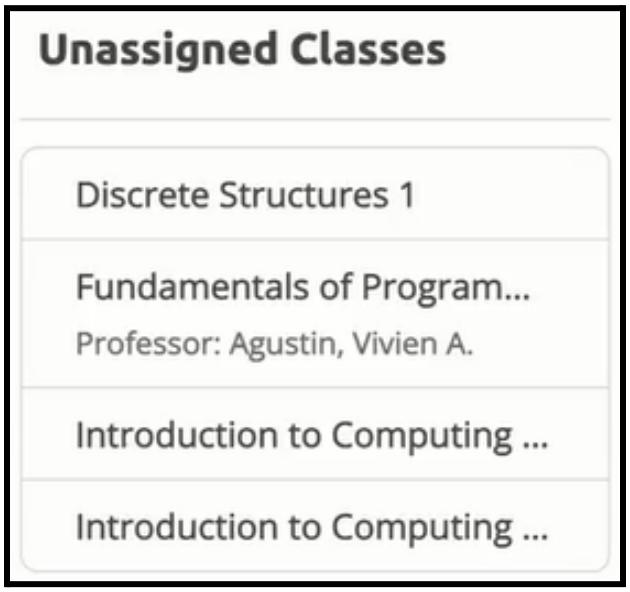
1. Sign in.
2. Click the “Plot Schedule” tab in the left side of the menu.

3. Click the arrow button right beside the college department you want to edit.

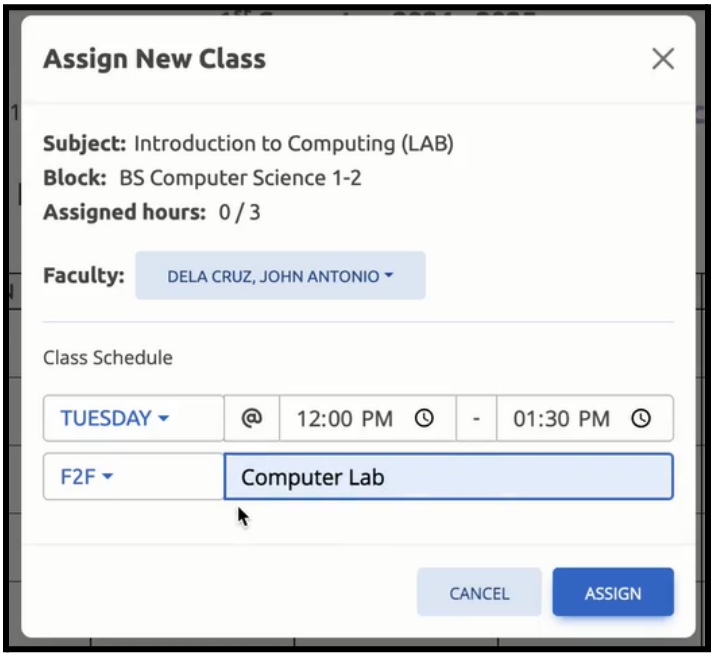
4. Click which row you want to edit/remove.



5. In the left side of the menu, there will be a tab called the “Unassigned Classes”. Select which one you want to assign new classes to.

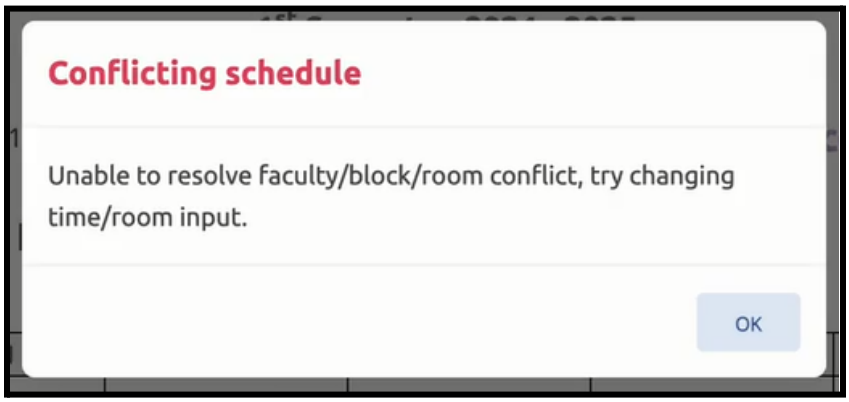


6. Fill up necessary info e.g., which professor, mode, schedule, room number, etc.



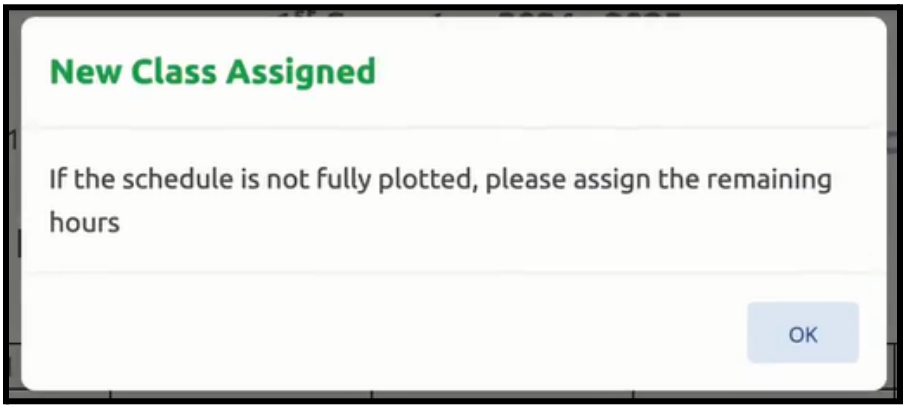
7. Afterwards, click the “Assign” button to save changes or click “Cancel” to cancel it.

8. If the system detects a conflict in schedule, you will be notified of the error, as well as the actions you can do to fix it. Press “Ok” to dismiss it.



9. Re-adjust inputs until there are no conflicts found and click the “Assign” button again to save changes, or click “Cancel” to cancel it.

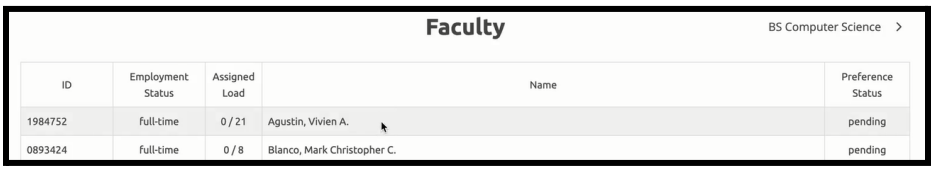
10. If there are no conflicts found at this point, the system will notify you that the new class is assigned. Press the “Ok” button to dismiss the notification.



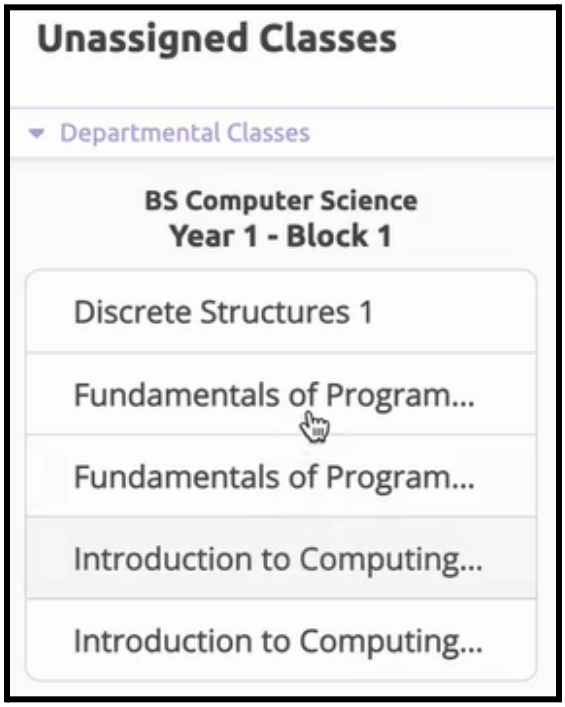
Assigning class to faculty:

1. Sign in.
2. Click the “Plot Schedule” tab in the left side of the menu.

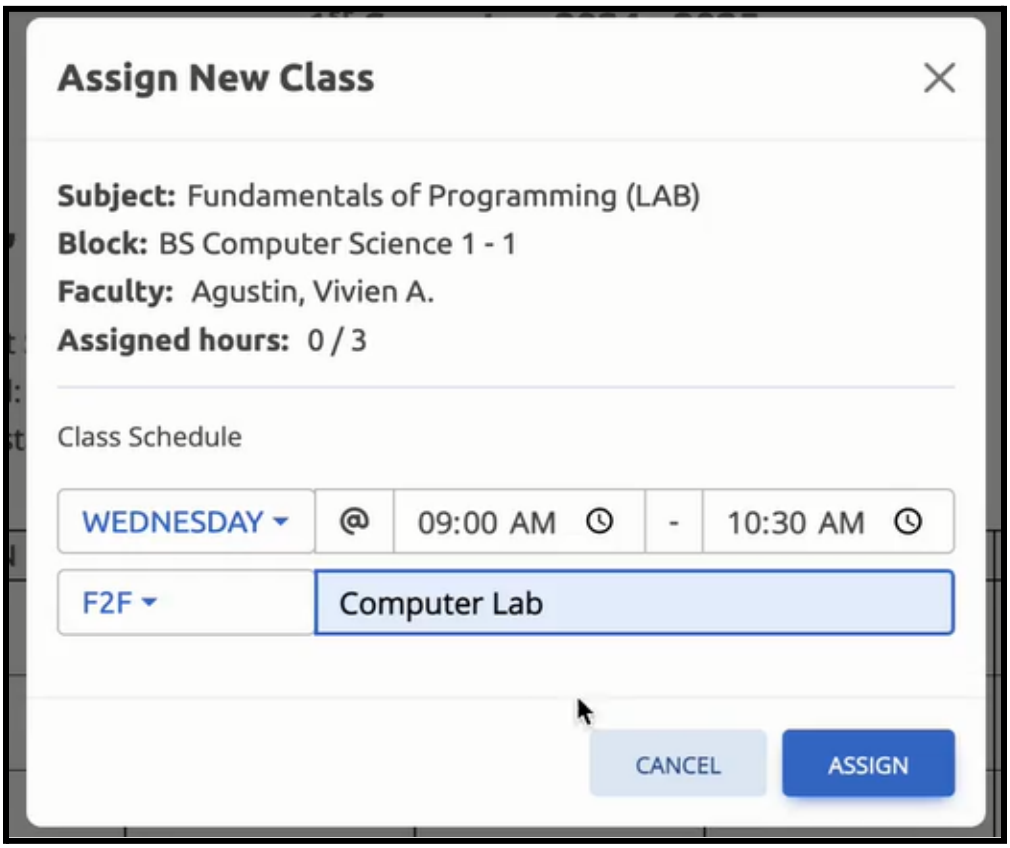
3. Click which row you want to edit.



4. In the left side of the menu, there will be a tab called the “Unassigned Classes”. Select which one you want to assign new classes to.

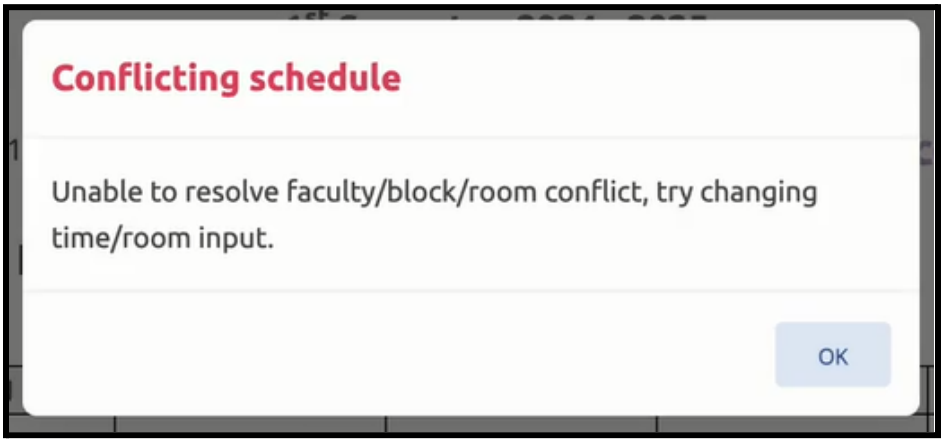


5. Fill up necessary info e.g., which professor, mode, schedule, room number, etc.



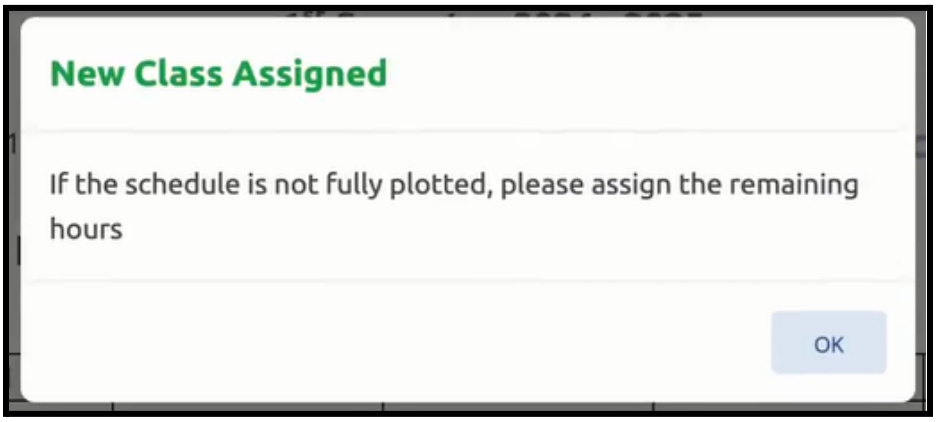
6. Afterwards, click the “Assign” button to save changes or click “Cancel” to cancel it.

7. If the system detects a conflict in schedule, you will be notified of the error, as well as the actions you can do to fix it. Press “Ok” to dismiss it.



8. Re-adjust inputs until there are no conflicts found and click the “Assign” button again to save changes, or click “Cancel” to cancel it.

9. If there are no conflicts found at this point, the system will notify you that the new class is assigned. Press the “Ok” button to dismiss the notification.

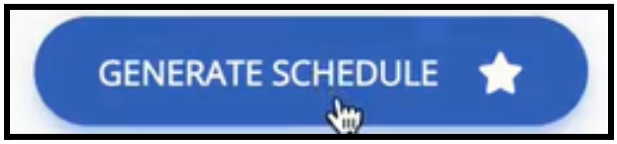


10. Repeat steps 4 to 6 if you are assigning another class to a faculty.

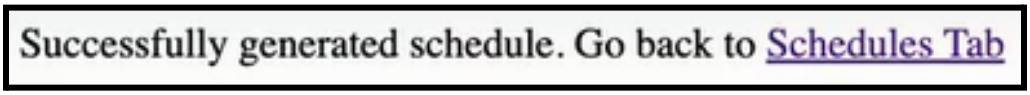
Generating schedule:

1. Sign in.
2. Click the “Plot Schedule” tab in the left side of the menu.

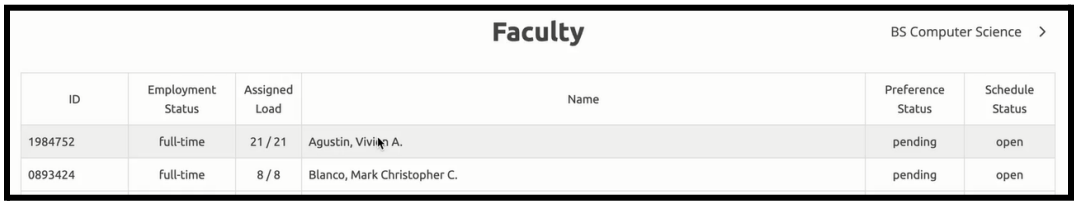
3. Click the “Generate Schedule” button in the upper-right side of the menu.



4. Schedule generation is processed, and you will be notified afterwards if done, in which then you can go back to the schedules tab to edit it. Note that schedule generation can last for a few minutes depending on computer hardware specs.



5. Click which row you want to edit.

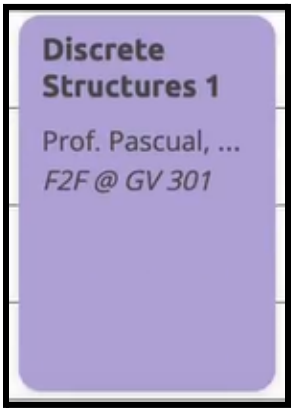


6. Click the right arrow button, right beside the next faculty member’s name to quickly cycle between faculty members.

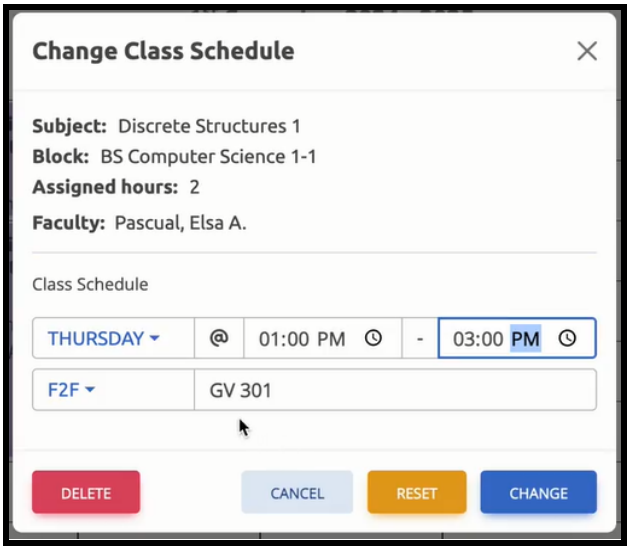
Changing block/faculty schedule:

1. Sign in.
2. Click the “Plot Schedule” tab in the left side of the menu.

3. Click which you want to edit.

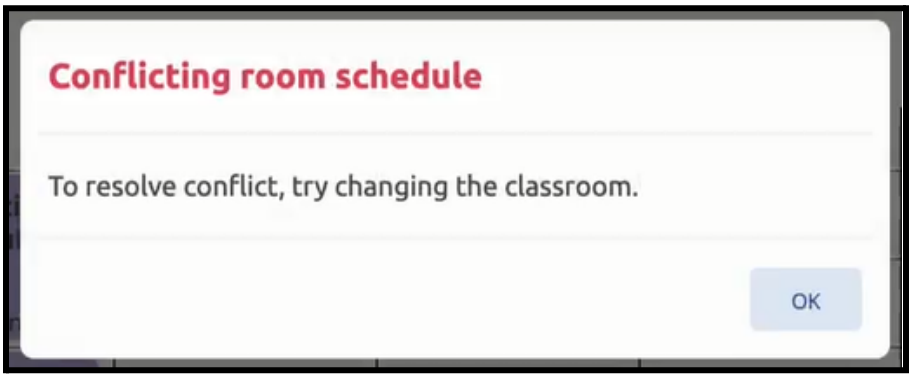


4. Fill up necessary inputs.



5. Click the “Change” button to save changes or “Cancel” if not.

6. If conflicts are found, you will be notified as well as providing actions you can do to resolve it. Press “Ok” to dismiss it.



7. If no conflicts are found, the schedule will be updated.

8. If you want to delete the schedule or reset it, press the “Delete” or “Reset” button.

Create semester schedule:

1. Sign in.
2. Click the “Plot Schedule” tab in the left side of the menu.

3. Right beside it, a tab will appear. Fill up necessary inputs e.g., year and semester to create a schedule then press the “+” button if done.

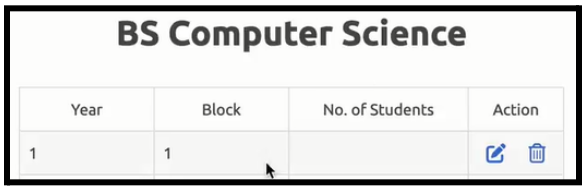
4. At this point, you can generate a schedule, or press the right arrow button right beside the department to add/edit/remove year, block, as well as the number of students.

Export block schedule to excel file:

1. Sign in.
2. Click the “View Schedule” tab in the left side of the menu.

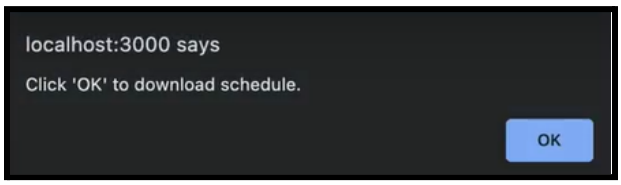
3. Click the right arrow button right beside the department to view a list of years, blocks, and the number of students.

4. Click the row you want to view the schedule and export.



5. Click the “Export” button (denoted by a cloud icon) in the upper-middle of the screen to export the schedule to an excel file.

6. You will be prompted to save an excel file to your computer. Press “Ok” to download it.



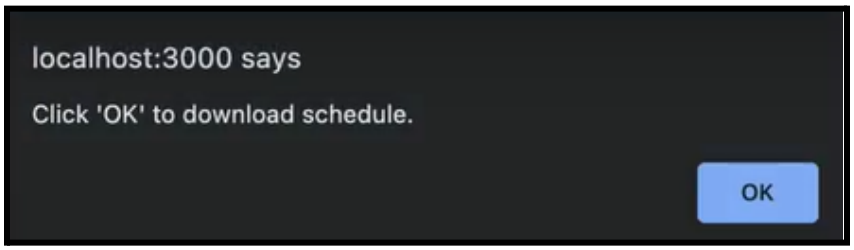
7. You can now open it with the spreadsheet software of your choice (preferably Microsoft Excel).

Export department schedule to excel file:

1. Sign in.
2. Click the “View Schedule” tab in the left side of the menu.

3. Click the “Export” button (denoted by a cloud icon) in the upper-middle of the screen to export the schedule to an excel file.

4. You will be prompted to save an excel file to your computer. Press “Ok” to download it.



5. You can now open it with the spreadsheet software of your choice (preferably Microsoft Excel).

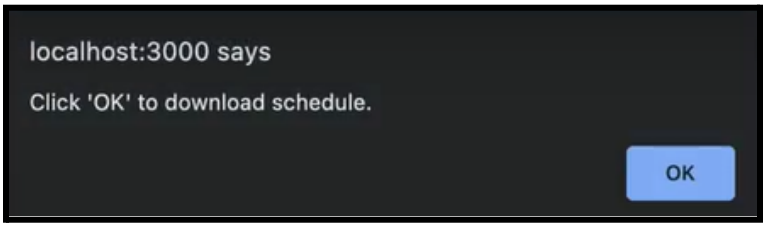
Export faculty schedule to excel file:

1. Sign in.
2. Click the “View Schedule” tab in the left side of the menu.

3. Click the row of the faculty member you want to view its schedule.

4. Click the “Export” button (denoted by a cloud icon) in the upper-middle of the screen to export the schedule to an excel file.

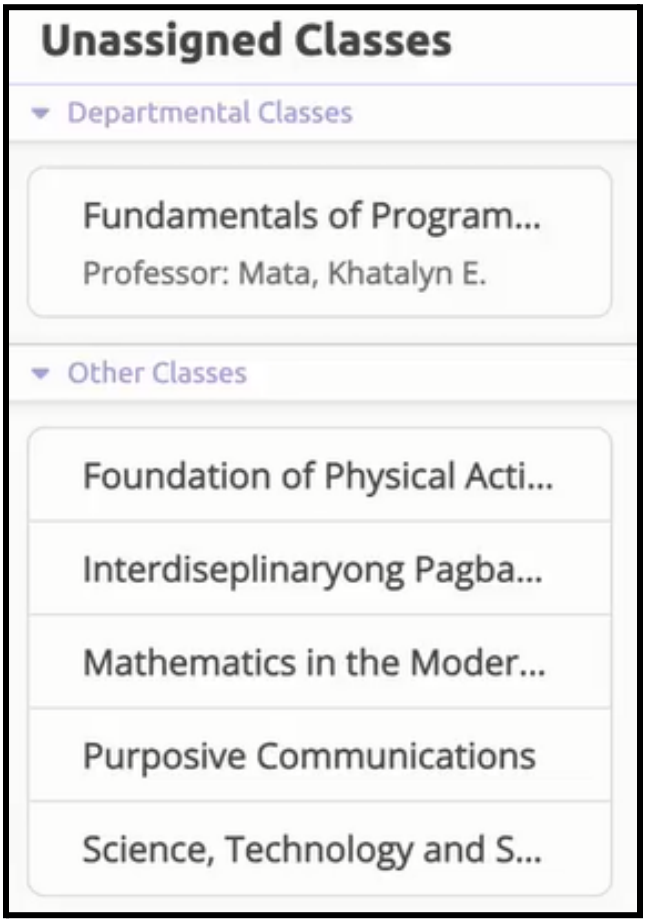
5. An excel file will then be saved to your computer. You can open it with the spreadsheet software of your choice (preferably Microsoft Excel).



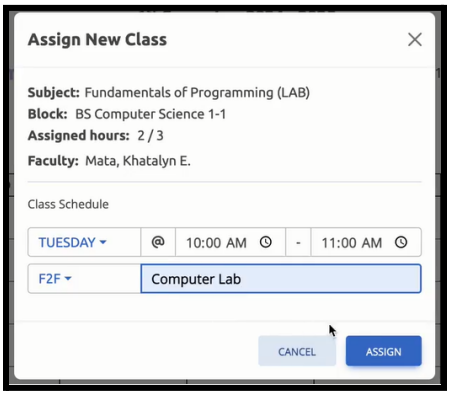
Plot partial block schedule:

1. Sign in.
2. Click the “Plot Schedule” tab in the left side of the menu.

3. Click which block you want to edit.
4. In the right side of the menu, there will be a tab called the “Unassigned Classes”. Click which one you want to assign new classes to.

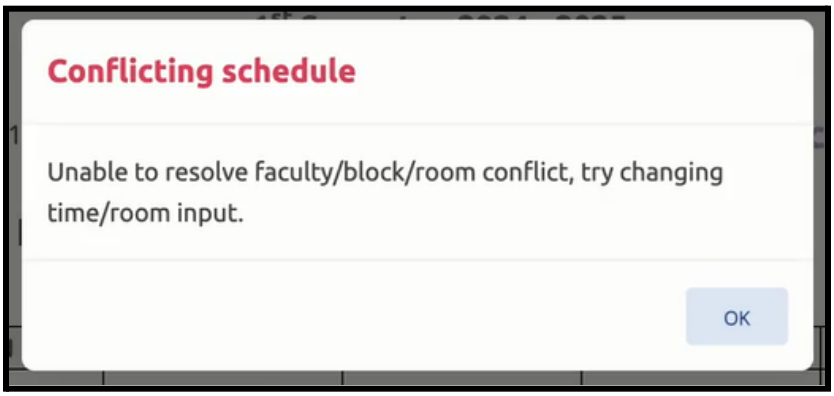


5. Fill up necessary info e.g., which professor, mode, schedule, room number, etc.



6. Afterwards, click the "Assign" button to save changes or click "Cancel" to cancel it.

7. If conflicts are found, you will be notified as well as providing actions you can do to resolve it.

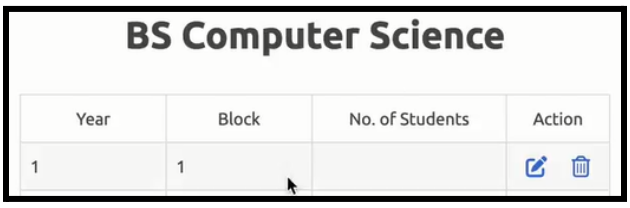


8. If no conflicts are found, the schedule will be updated.

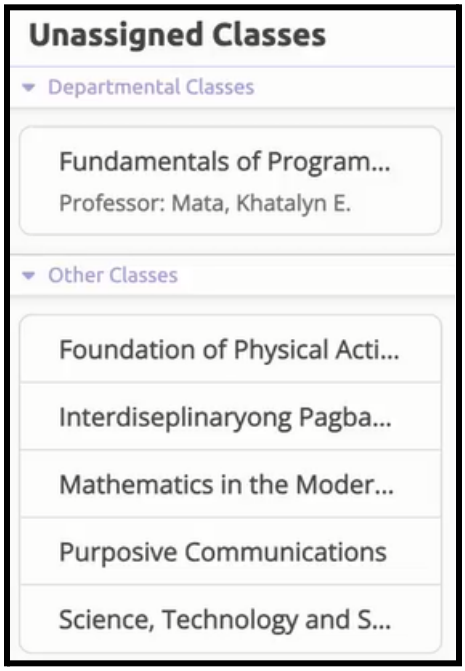
Plot partial faculty schedule:

1. Sign in.
2. Click the “Plot Schedule” tab in the left side of the menu.

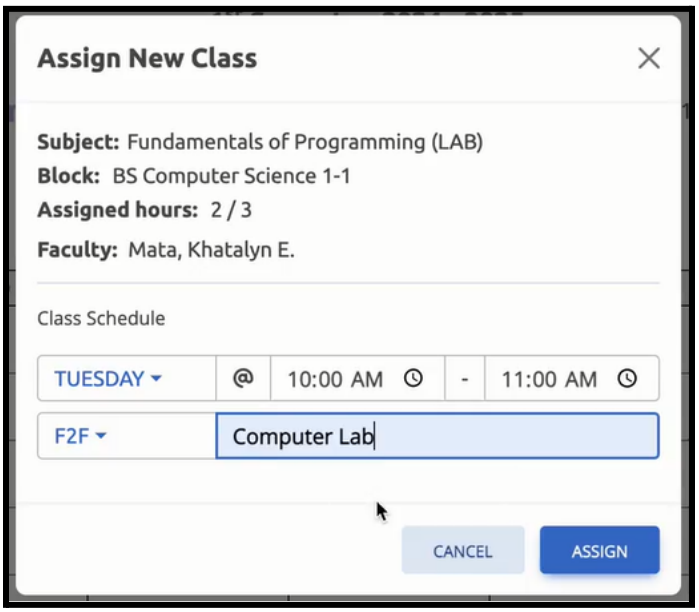
3. Click which schedule you want to edit.



4. In the right side of the menu, there will be a tab called the “Unassigned Classes”. Click which one you want to assign new classes to.

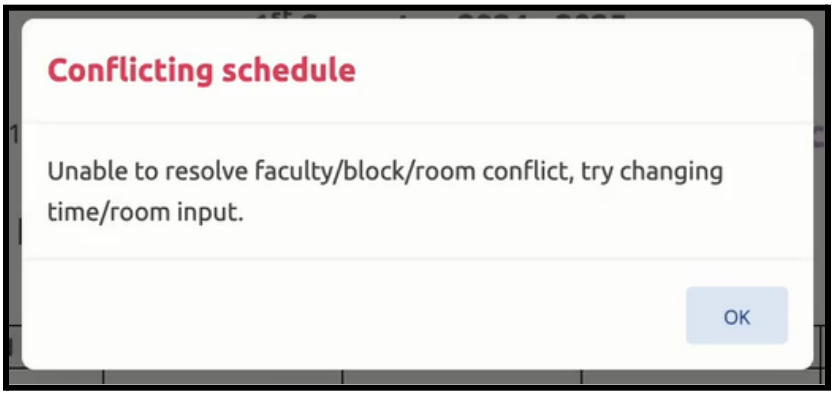


5. Fill up necessary info e.g., which professor, mode, schedule, room number, etc.



6. Afterwards, click the "Assign" button to save changes or click "Cancel" to cancel it.

7. If conflicts are found, you will be notified as well as providing actions you can do to resolve it.



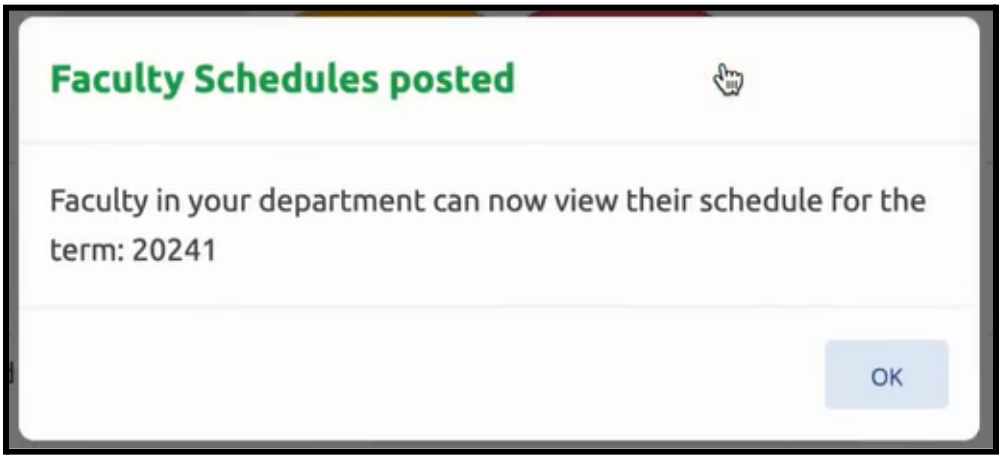
8. If no conflicts are found, the schedule will be updated.

Post schedules:

1. Sign in.
2. Click the “View Schedule” tab in the left side of the menu.

3. Click the “Post All” button (denoted by a right arrow icon) to post it, so that faculty members in your faculty can view their schedule for a given term.

4. You will be notified if faculty schedules are successfully posted. Press “Ok” to dismiss it.

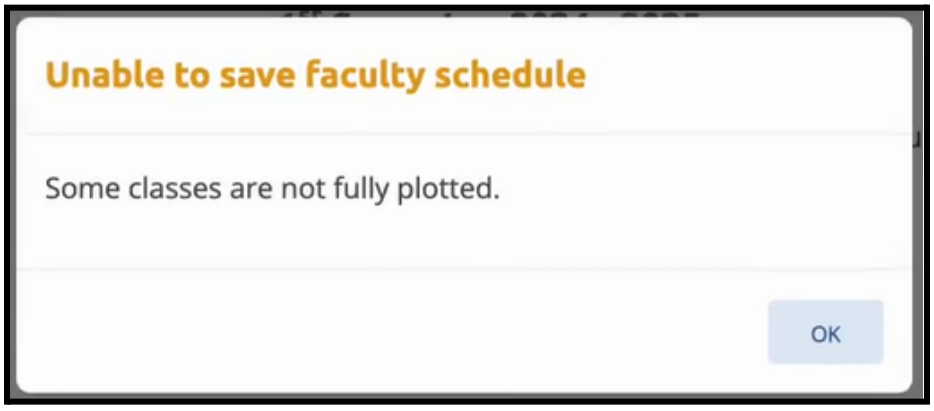


Save faculty schedules:

1. Sign in.
2. Click the “View Schedule” tab in the left side of the menu.

3. Click which faculty member you want to view the schedule from.
4. Click the “Save” button (denoted by a lock icon) to save it. This will prevent you from further adding/removing/modifying classes from this faculty member only. Only press this button if the schedule is finalized.

5. If there are errors, you will be notified immediately, such as:

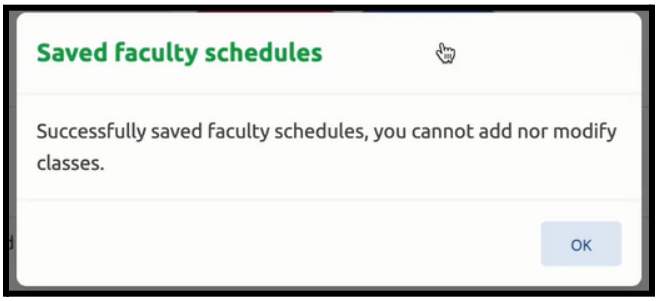


6. Press “Ok” to dismiss it. Then do the required actions first e.g., assigning new classes, etc, then try again.

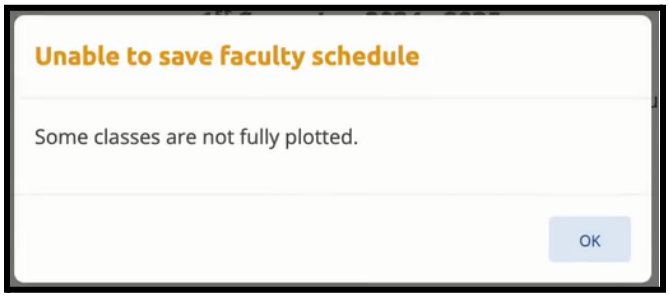
Save all faculty schedules

1. Sign in.
2. Click the “View Schedule” tab in the left side of the menu.

3. Click the “Save All” button (denoted by a lock icon) to save it. This will prevent you from further adding/removing/modifying classes. Only press this button if the schedule is finalized.



4. If there are errors, you will be notified immediately, such as:



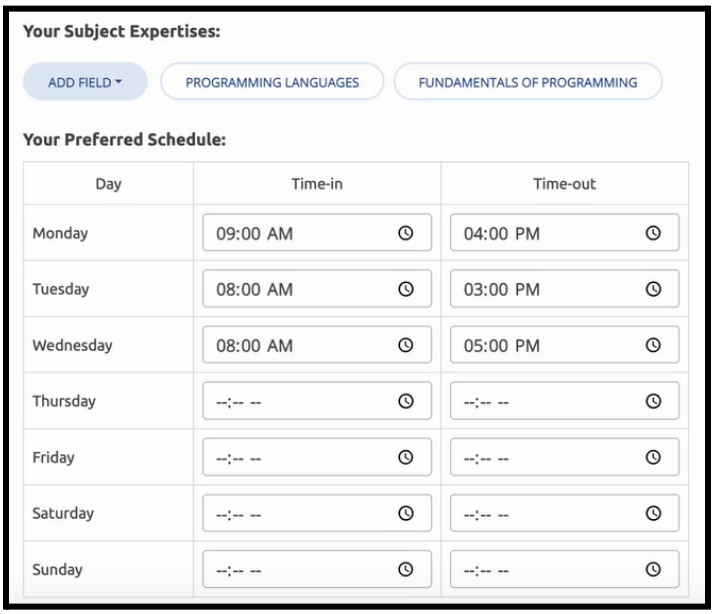
5. Press “Ok” to dismiss it. Then do the required actions first e.g., assigning new classes, etc, then try again.

Submit chair preference form:

1. Sign in.
2. Click the “Preference” tab in the left side of the menu.

3. A menu will appear right beside the previous menu you’ve clicked. Click which one you want to edit.

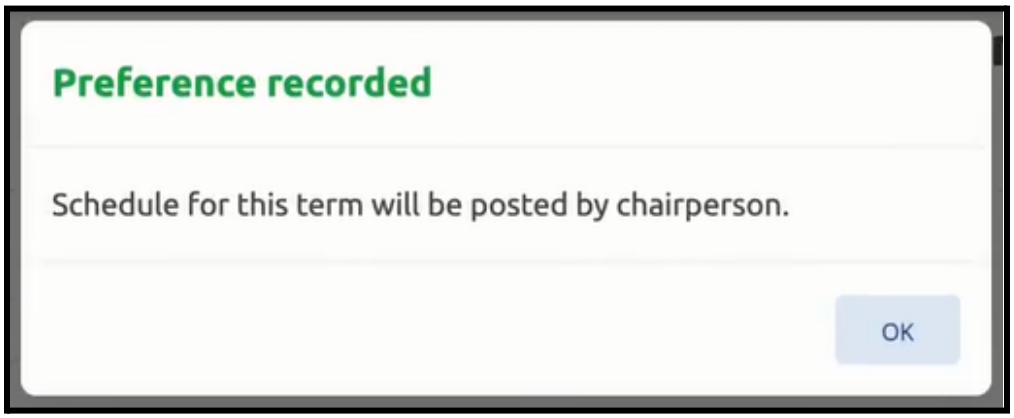
4. Fill up necessary inputs e.g., date of deadline, subject expertise, preferred schedule, etc.



5. Click the “Submit” button (also denoted by a check mark icon) if done.

6. If there are errors, you will be notified as well as providing actions you can do to resolve it.

7. If there are no errors, your preference is recorded. Press the “Ok” button to continue.



Update Curriculum:

1. Sign in.
2. Click the “Courses” tab in the left side of the menu.

3. Click the “Edit” button (denoted by a note and pencil icon) on a curriculum that you want to edit.

4. Fill up necessary inputs e.g., course code, course title, and units.

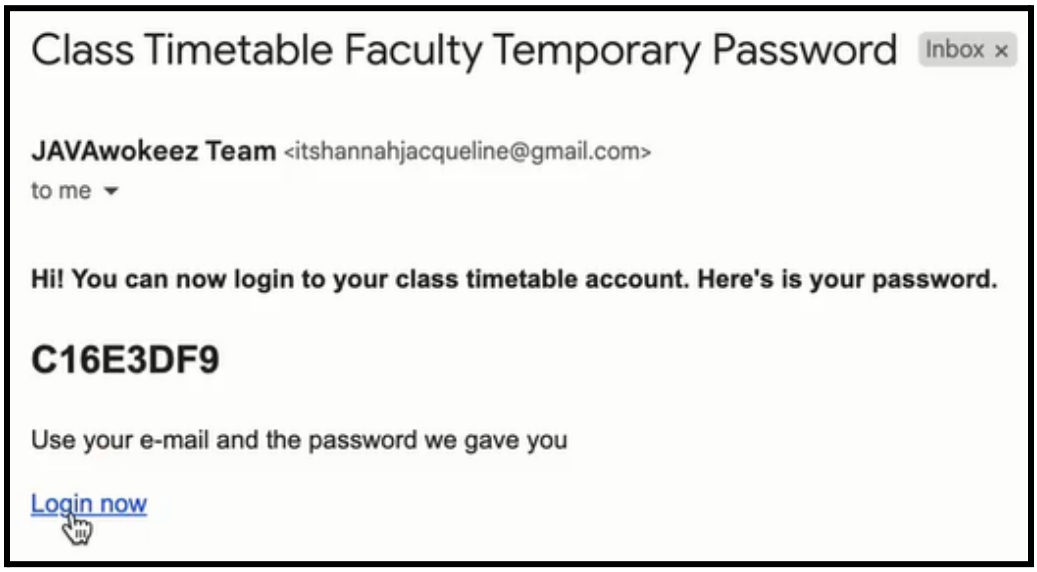
5. Press the “+” button in the action column to add it.

6. If modifying/removing a row, either press the “Edit” button or “Delete” button (denoted by a trash can icon) in the action column to edit or remove respectively.

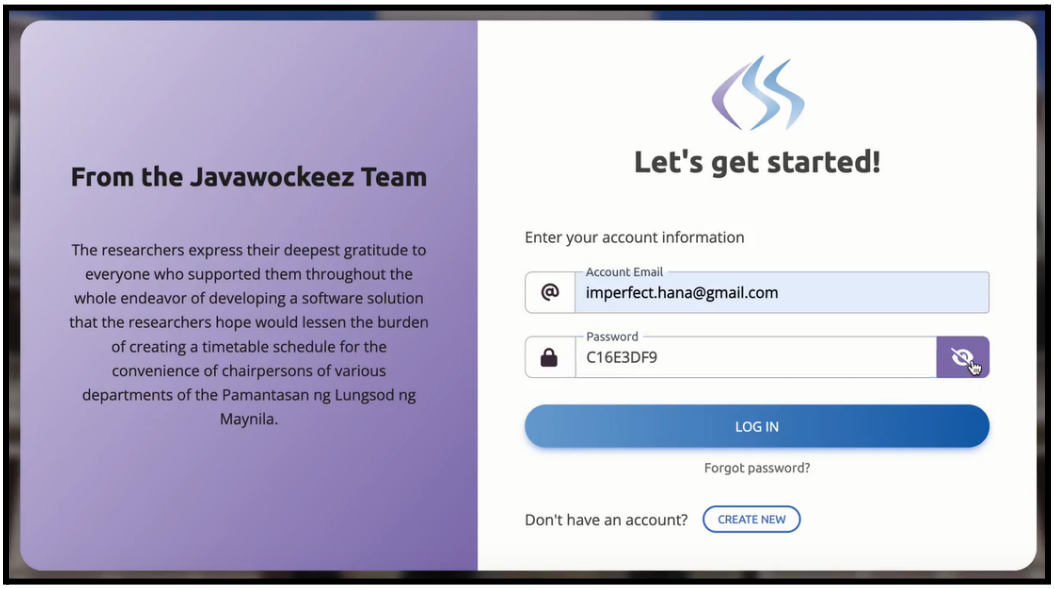
7. To finalize changes, click the “Save” button (denoted by a green double checkmark icon) to save it.

Verify chairperson account:

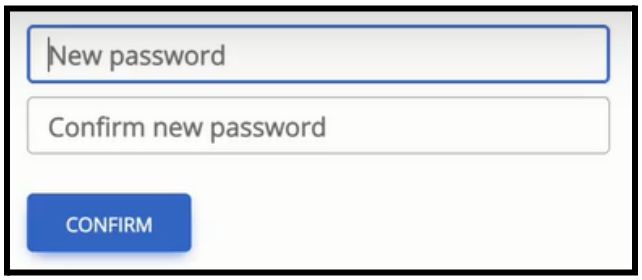
1. An email will be sent to you to verify your chairperson account for the system. Inside it, a password will be sent to you.



2. Sign in to the system using your PLM email address, and the temporary password that was provided to you in the mail.

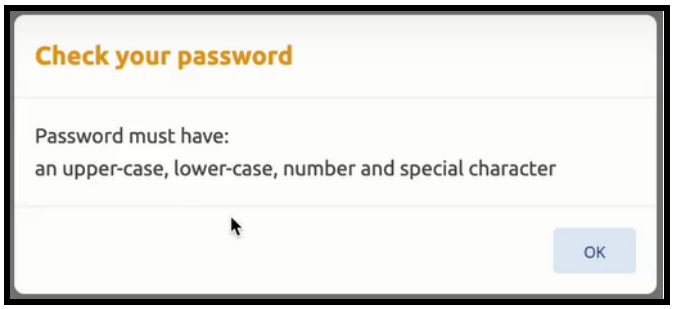


3. After signing in, you will be prompted to provide a new password to your account. Fill it up. Make sure that the password you provided includes an upper-case, lower-case, number, and a special character.

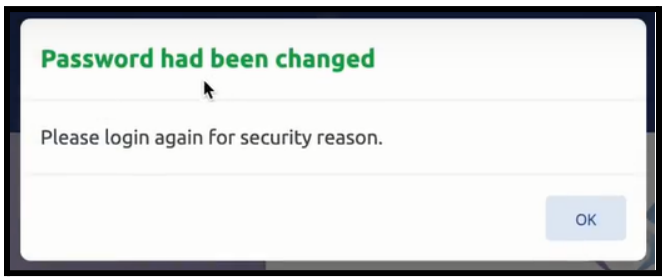


4. Press the “Confirm” button to verify changes.

5. If errors are found, you will be notified as well as actions you can do to resolve it. Press “Ok” to dismiss it and try again.



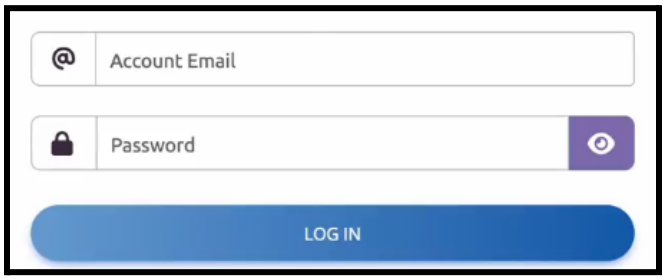
6. If there are no errors found, you will be redirected to the sign-in page.



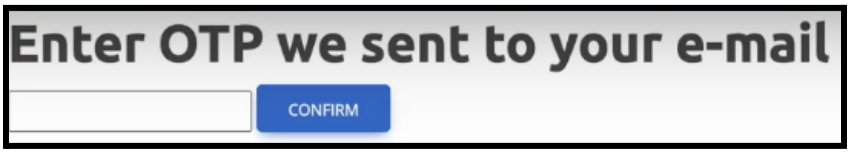
7. Sign in using your new credentials.

Login chairperson account:

8. Open the system.
9. Enter account email and password, then click login afterwards.



10. If credentials are correct, an OTP will be sent to your email address. Enter it, and press confirm. If successful, you will be redirected to chairperson UI. If not, you'll have to retry.

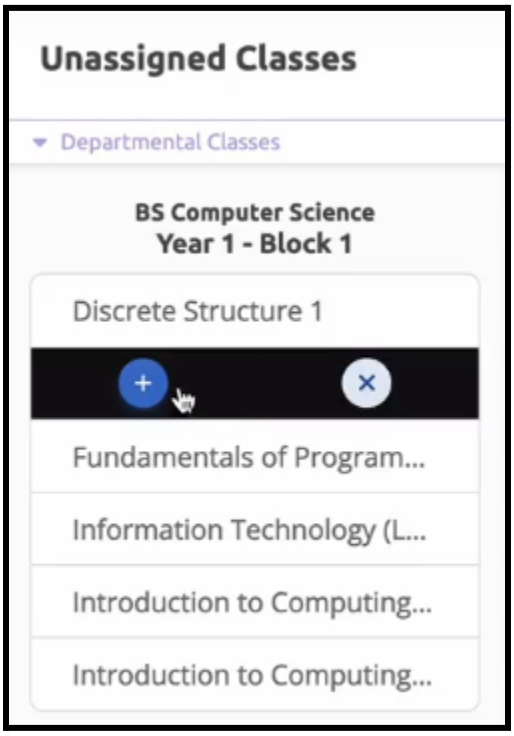


Plot individual faculty class:

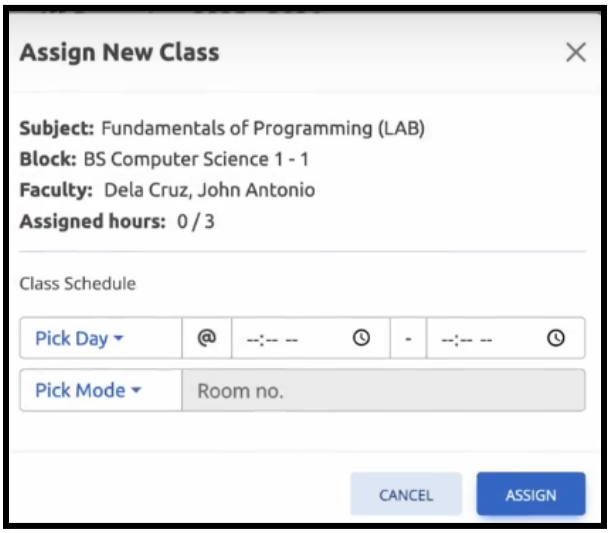
1. Click the "Plot Schedule" tab in the left side of the menu.

2. Click which faculty member in the table below that you would like to plot.

3. In the right side of the UI, there will be a list of unassigned classes. Pick which one, then press the plus (+) button to add it to the faculty member, or the close/exit (x) button if you want to cancel it.



4. If the plus (+) button is pressed, you will be prompted to fill up fields. Fill up the necessary inputs then either press the “Assign” button to assign it to the faculty member, or “Cancel” to cancel it. Once done, the calendar UI will be updated to reflect changes.

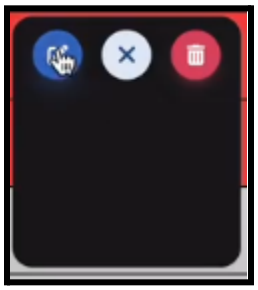


Update faculty class:

1. Click the “Plot Schedule” tab in the left side of the menu.

2. Click which faculty member in the table below that you would like to update.

3. In the calendar UI, pick which schedule that you want to edit/update. Once clicked, you will be presented on which action you would like to take.



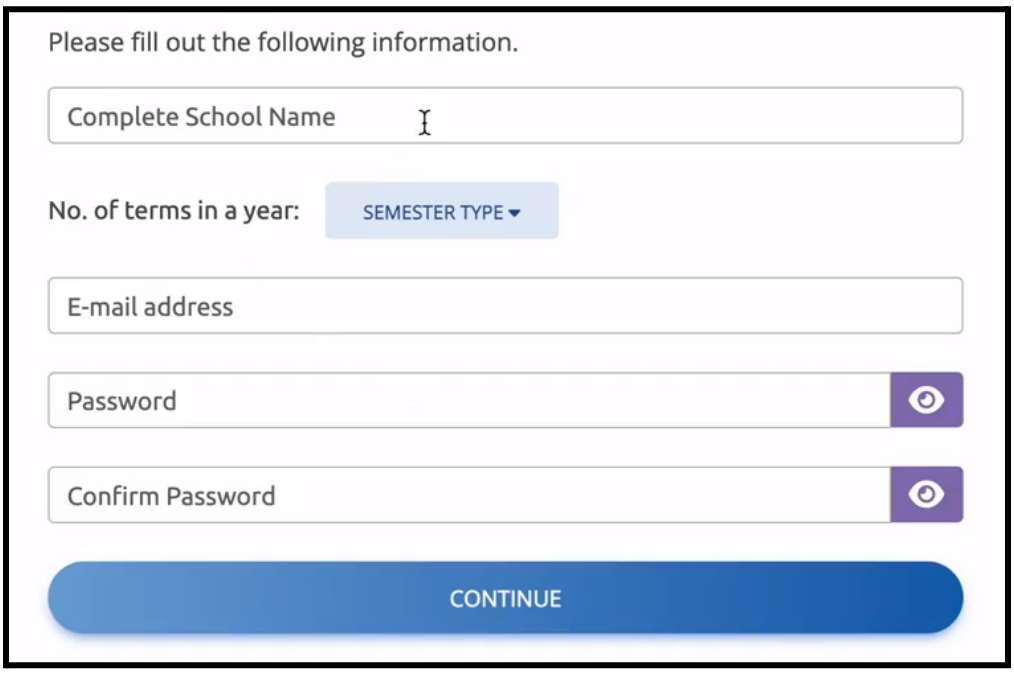
4. Click the blue “Edit” button if you want to update the schedule.
5. Click the white “Cancel” button to cancel.
6. Click the red “Trash Can” button if you want to remove it.

Administrator:

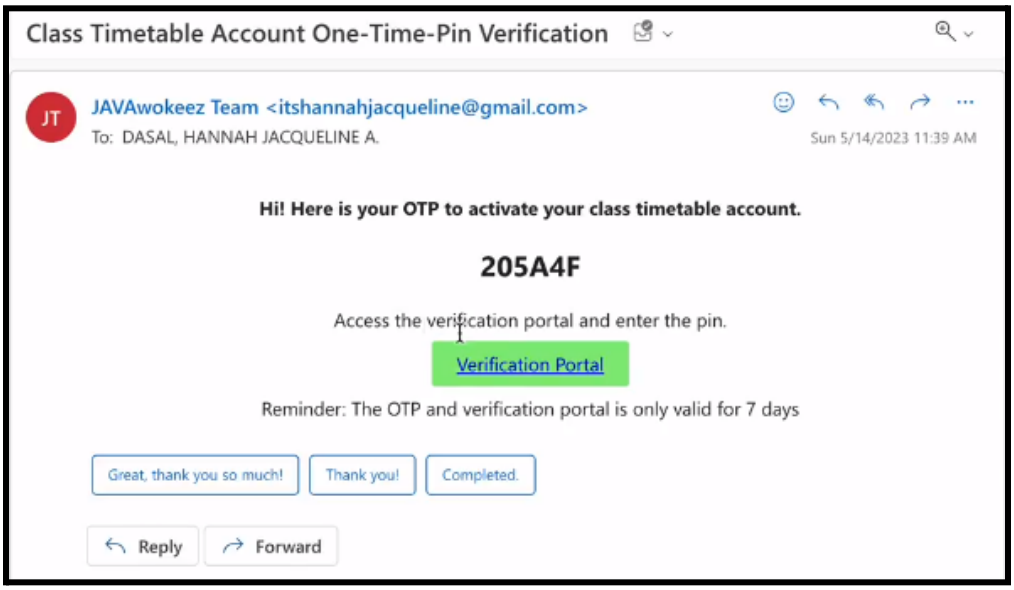
Creating an admin account:

1. Click the “Create New” button.

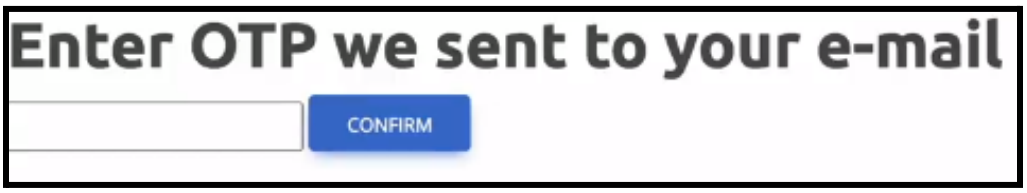
2. Fill all the necessary information needed to continue.



3. Afterwards, an OTP verification number and a link will be sent to your email to verify the creation of your account.



4. Enter OTP to the link sent to verify account. If successful, your account is created and you will be redirected to the sign in page.



Creating a chairperson account:

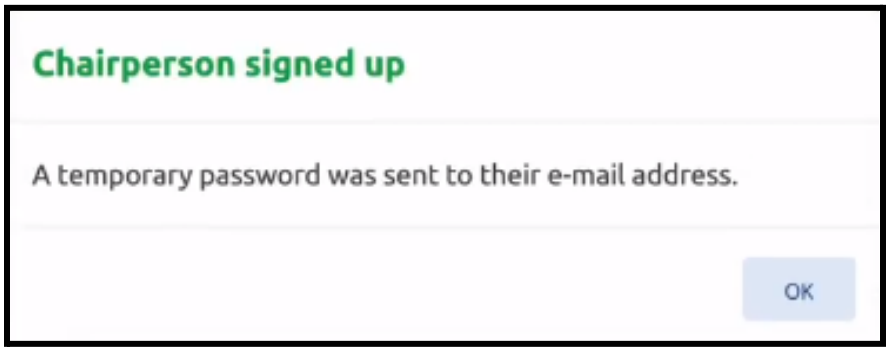
1. Sign in.
2. Click the “Faculty” tab in the left side of the menu.

3. Click the “Edit Table” button to add/edit/remove chairperson/s.

4. Fill all necessary information needed.

5. Once done, press the “+” button in the action column of the table to add chairperson/s.

6. Before the chairperson is added, a temporary password will be sent to their email. To finalize the creation of the chairperson's account, they must sign in using their email address, as well as the temporary password sent to them. Once signed in, the account will be finalized.



7. If editing inputted data on chairperson/s, press the edit button (notepad/pencil icon) to change.

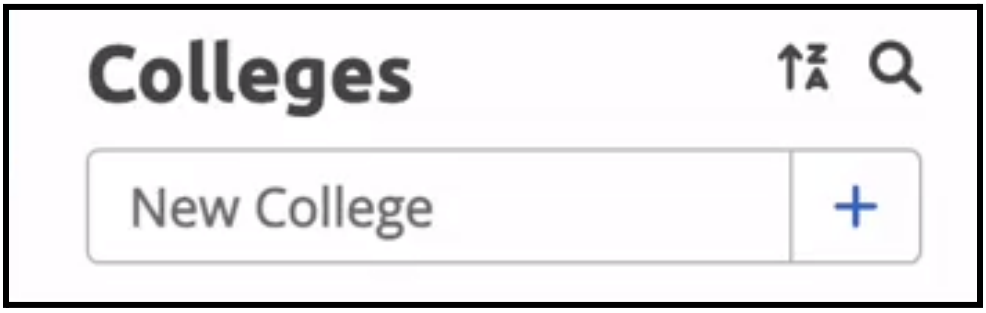
8. If removing chairperson/s, press the delete button (trashcan icon) to remove.

9. To save changes, press the "Save Changes" button where the "Edit Table" button used to be.

Creating a department:

1. Sign in.
2. Click the “Departments” tab in the left side of the menu.

3. Type the department you want to create in the text field.



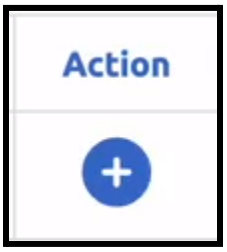
4. Click the “+” button beside the text field to create the department.

5. Click the “Edit Table” button to add/edit/remove courses.

6. Fill all necessary information needed.

Department	Chairperson	Recent Activity
Computer Science	To be assigned...	

7. Click the "+" button to create.



8. If editing inputted data on department/s, press the edit button (notepad/pencil icon) to change.

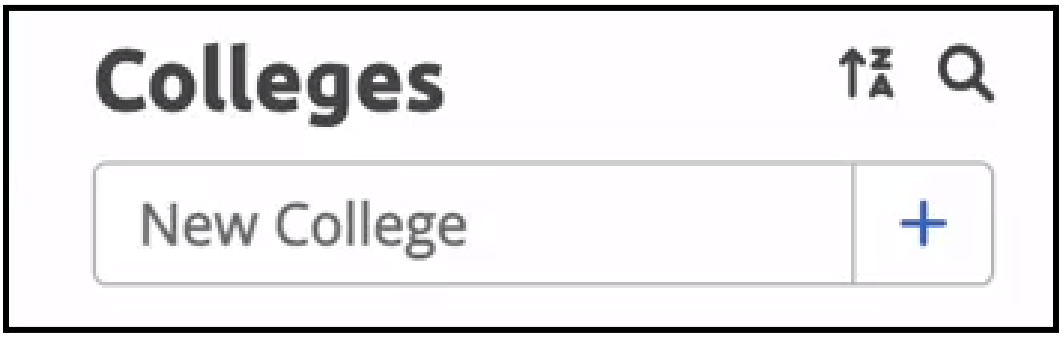
9. If removing department/s, press the delete button (trashcan icon) to remove.

10. To save changes, press the "Save Changes" button where the "Edit Table" button used to be.

Modifying existing departments:

1. Sign in.
2. Click the “Departments” tab in the left side of the menu.

3. Select the department you want to use.



4. Click the “Edit Table” button to add/edit/remove courses.

5. Fill all necessary information needed.

Department	Chairperson	Recent Activity
Computer Science	To be assigned...	

6. If editing inputted data on department/s, press the edit button (notepad/pencil icon) to change.

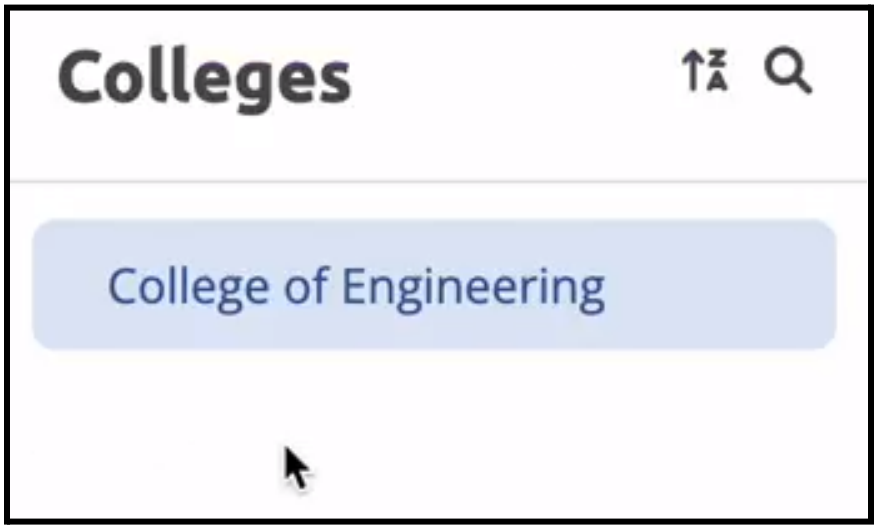
7. If removing department/s, press the delete button (trashcan icon) to remove.

8. To save changes, press the “Save Changes” button where the “Edit Table” button used to be.

Creating subjects:

1. Sign in.
2. Click the “Subjects” tab in the left side of the menu.

3. Hover on the “Subjects” tab until a side menu appears beside it with the list of departments to choose from and use. The text: “Subjects offered in: [department]” is displayed.

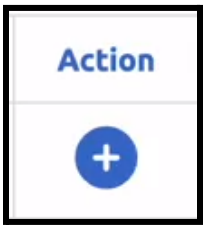


4. Click the “Edit Table” button to add/edit/remove subjects.

5. Fill all necessary information needed.

Code	Title	Type	Units	Required Hours	Specialized Rooms
No data to present					

6. Click the “+” button to create.



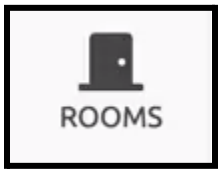
7. If editing inputted data on subject/s, press the edit button (notepad/pencil icon) to change.

8. If removing the subject/s, press the delete button (trashcan icon) to remove.

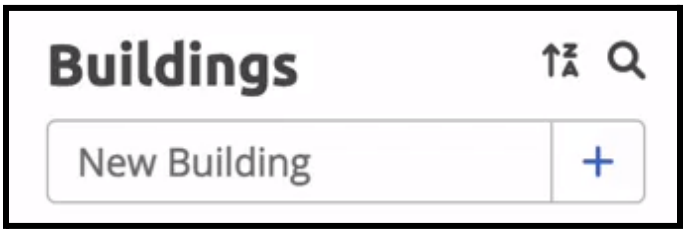
9. To save changes, press the “Save Changes” button where the “Edit Table” button used to be.

Creating rooms:

1. Sign in.
2. Click the “Rooms” tab in the left side of the menu.

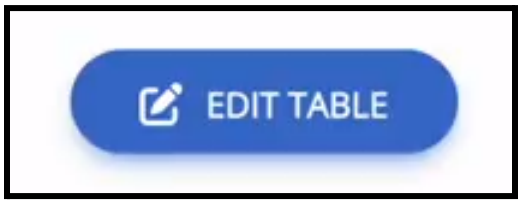


3. Type the building you want to create in the text field.

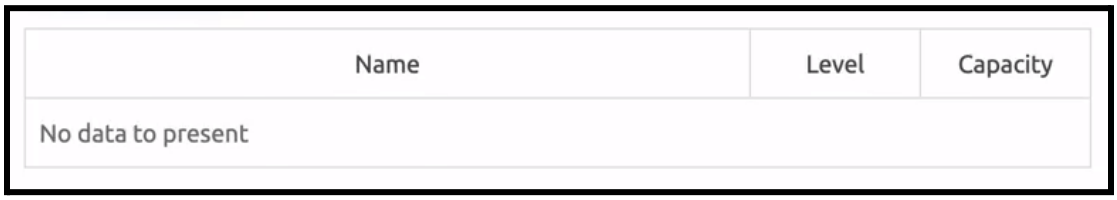


4. Click the “+” button beside the text field to create the building.

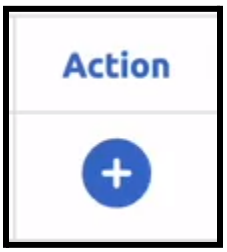
5. Click the “Edit Table” button to add/edit/remove rooms.



6. Fill all necessary information needed.



7. Click the “+” button to create.



8. If editing inputted data on room/s, press the edit button (notepad/pencil icon) to change.

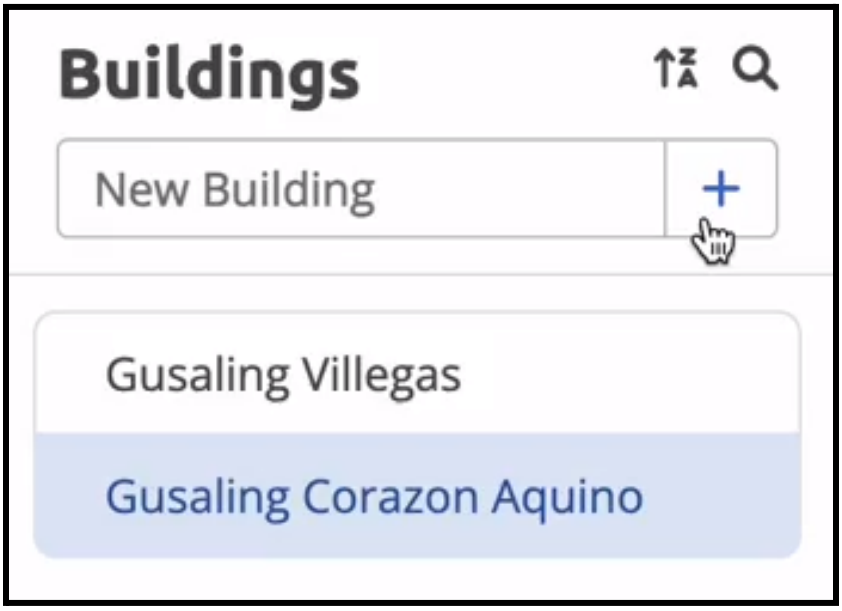
9. If removing room/s, press the delete button (trashcan icon) to remove.

10. To save changes, press the “Save Changes” button where the “Edit Table” button used to be.

Modifying existing rooms:

1. Sign in.
2. Click the “Rooms” tab in the left side of the menu.

3. Select the building you want to use.



4. Click the “Edit Table” button to add/edit/remove rooms.

5. Fill all necessary information needed.

6. If editing inputted data on room/s, press the edit button (notepad/pencil icon) to change.

7. If removing room/s, press the delete button (trashcan icon) to remove.

8. To save changes, press the “Save Changes” button where the “Edit Table” button used to be.

Import subjects:

1. Sign in.
2. Click the “Subjects” tab in the left side of the menu.

3. Choose a file to import subjects.

4. After choosing a file, click “Import Subjects” button

Faculty Member:

Submit faculty preference form

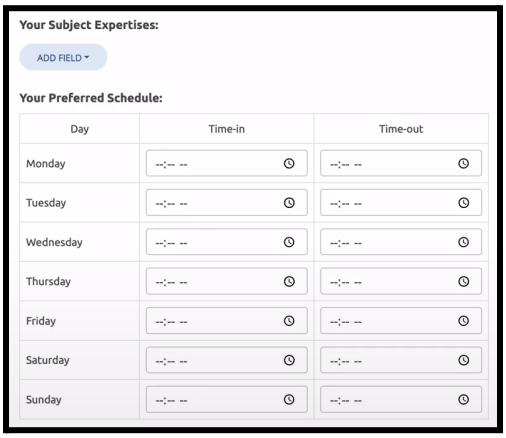
Note: The form has a deadline set by the Chairperson. You will be locked from submitting/further editing your preference form if it was not submitted on a specified date. When that happens, contact your specified Chairperson.

Assuming it isn't the date of the deadline yet, you are able to submit a preference form if you are still not able to. You are also free to edit your response, if one so wishes.

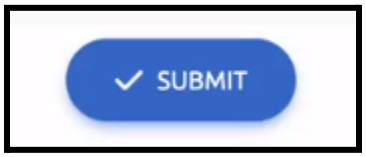
1. Sign in.
2. Click the "Preference" tab in the left side of the menu.

3. A menu will appear right beside the previous menu you've clicked. Click which one you want to submit/edit preference form from.

4. Fill up necessary inputs e.g., subject expertise, preferred schedule, etc.



5. Click the “Submit” button (also denoted by a check mark icon) if done.

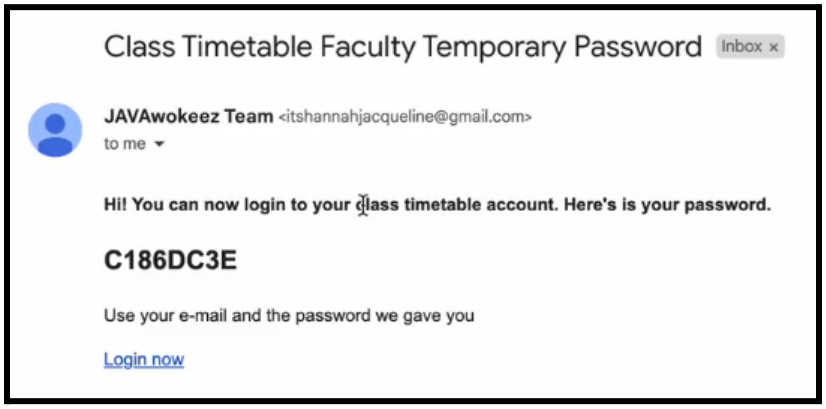


6. If there are errors, you will be notified as well as providing actions you can do to resolve it.

7. If there are no errors, your preference is recorded. Press the “Ok” button to continue.

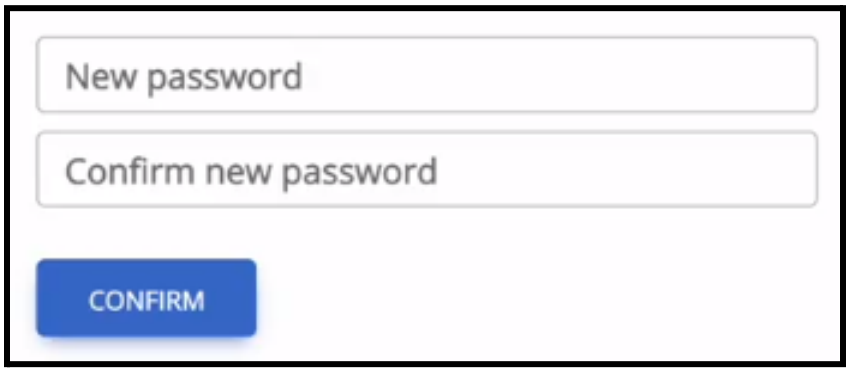
Verify faculty account:

1. An email will be sent to you to verify your faculty member account for the system. Inside it, a password will be sent to you.



2. Sign in to the system using your PLM email address, and the temporary password that was provided to you in the mail.

3. After signing in, you will be prompted to provide a new password to your account. Fill it up. Make sure that the password you provided includes an upper-case, lower-case, number, and a special character.



4. Press the “Confirm” button to verify changes.

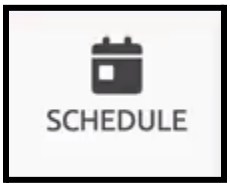
5. If errors are found, you will be notified as well as actions you can do to resolve it.

6. If there are no errors found, you will be redirected to the sign-in page.

7. Sign in using your new credentials.

View posted schedule:

1. Sign in.
2. Click the “Schedule” tab in the left side of the menu.



3. A calendar view of your schedule will be shown to you.
4. Click each individual schedule if you want to view that schedule in detail.

Individual Resume

Pamantasan ng Lungsod ng Maynila

Isiah Joshua G. Balagbag

DREAM TO BE A FRONT-END AND DATA ANALYST

CONTACT

09480933184

ijgbalagbag2020@plm.edu.ph

www.linkedin.com/in/isiahbalagbag

ABOUT ME

A third year student major in Computer Science that dream to be a Front-End Developer and Data Analyst with several experiences to the major such as Programming Languages, Algorithms, and Web Development.

EDUCATION

Pamantasan ng Lungsod ng Maynila
College: 2020 - Present
Bachelor of Science in Computer Science

Philippine Christian University
Senior High School: 2018 - 2020
Graduate of Science, Technology, Engineering, and Mathematics with Honors

Mariano Marcos Memorial High School
Junior High School: 2014 - 2018

Sta. Ana Elementary School
Elementary: 2008 - 2014

KEY SKILLS

- Programming Languages
  - HTML/CSS/PHP
  - Java
  - C++
  - Python
  - R
- Algorithms (Logistic Regression, PageRank, Decision Trees)
- Operating Systems (Windows, Linux)
- Web Development
- Communication
- Teamwork
- Problem Solving

REFERENCES

Available upon request.

PATRICK ARCHIE N. BUYAIN

ASPIRING GAME DEVELOPER & QA ANALYST

CONTACT

09999610770

patrickbuyain@gmail.com

www.linkedin.com/in/patrickbuyain

ABOUT ME

A hard-working third year Computer Science student that is aspiring to be a Game Developer & Quality Assurance Analyst with a total of 6 years of programming experience on various programming languages, game engines, and tools.

EDUCATION

Pamantasan ng Lungsod ng Maynila
College: 2020 - Present
Bachelor of Science in Computer Science
Consistent Dean's Lister 1st - 3rd Year

Emilio Aguinaldo College
Senior High School: 2018 - 2020
Graduate of Information & Communication Technologies Specializing in Programming & Robotics with High Honors

Tondo High School
Junior High School: 2014 - 2018
Graduated with Honors

Manuel L. Quezon Elementary School
Elementary: 2008 - 2014

SKILLS

- Total of 6 years of programming experience with the following languages:
  - Java
  - C, C# & C++
  - SQL
  - Lego Mindstorms EV3 Programming
  - Arduino Programming
- Photoshop & Adobe Premier/After Effects
- Microsoft Word, PowerPoint & Excel
- Git & Github
- Unity Game Engine
- Unreal Game Engine
- Game Modding

AWARDS & CERTIFICATE

2017 National Programming Quiz Bee Competition
2nd Place
Emilio Aguinaldo College

REFERENCES

Available upon request.

JHAIME JOSE CANDO

2031 Balintawak Ext., Jose Abad Santos, Tondo, Manila
Jhaimecando27@gmail.com
0965-342-5040

Motivated and diligent student seeking opportunities to leverage my skills and academic knowledge to contribute effectively in a professional environment. As a proactive learner with a strong work ethic, I am eager to apply my passion for Computer Science to make a meaningful impact.

EDUCATION

BS COMPUTER SCIENCE, PAMANTASAN NG LUNGSOD NG MAYNILA
EXPECTED GRADUATION: 2024

SENIOR HIGH SCHOOL - STEM, DOMINICAN SCHOOL MANILA
2018 - 2020

- Represents the school in 3 dance competitions as a member of the dance troupe.
- Taken Work Immersion at CREOTOC Philippines.

SKILLS

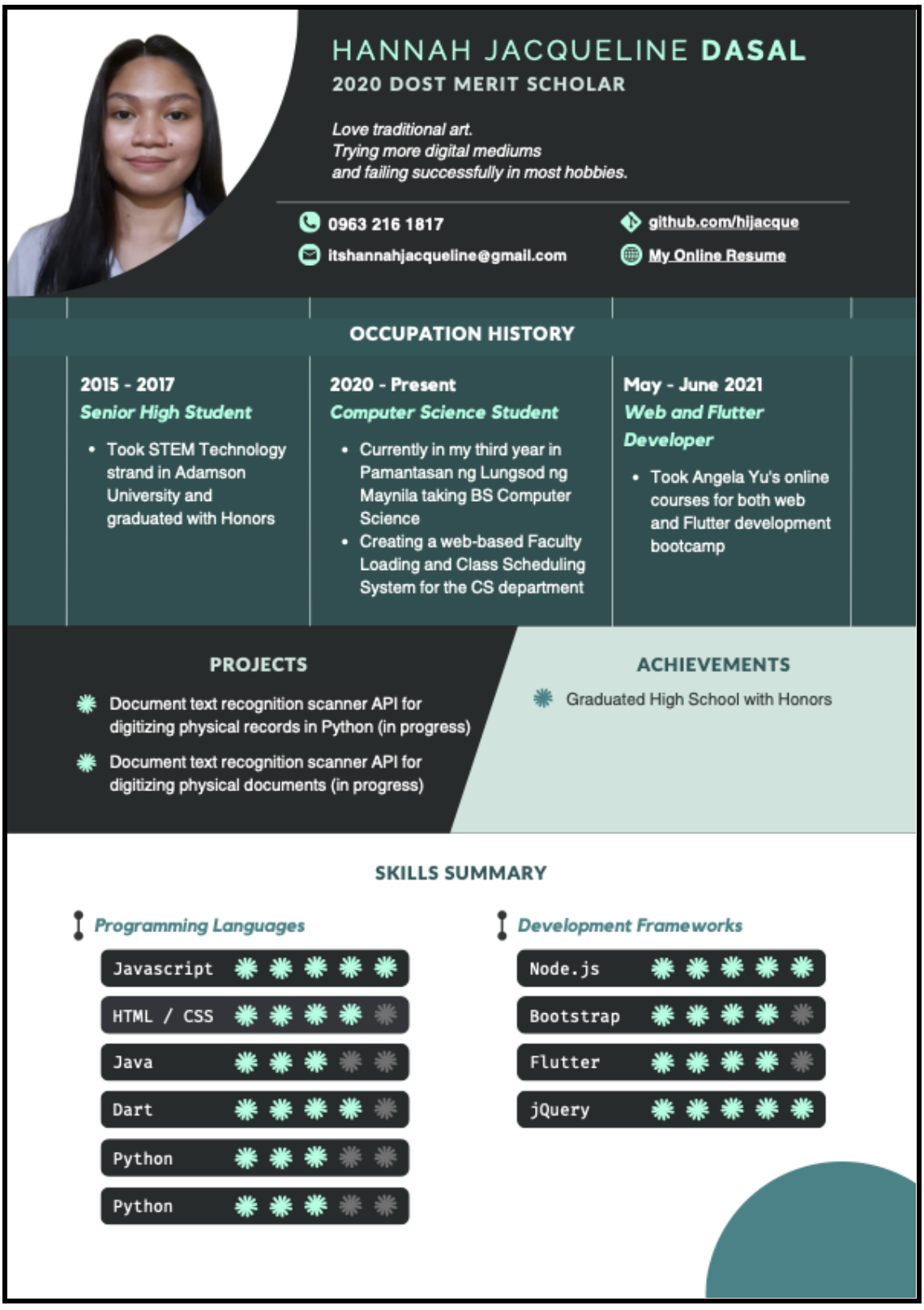
- Goal-oriented
- Efficient
- Patience
- Detail oriented
- Pleasing personality
- Responsible
- Resilience
- Adept
- Excellent Communication
- Eager to improve

ACTIVITIES

- Member of Google Developer Students Club.
- Member of a dance troupe of our college department (Knightmares).
- Took CS50x Online Course.

INTERESTS

- Fitness Activities
- Sports
- Dance
- Art



HANNAH JACQUELINE **DASAL**

2020 DOST MERIT SCHOLAR

Love traditional art.
Trying more digital mediums
and failing successfully in most hobbies.

0963 216 1817
itshannahjacqueline@gmail.com
github.com/hijacque
My Online Resume

OCCUPATION HISTORY

2015 - 2017
Senior High Student
- Took STEM Technology strand in Adamson University and graduated with Honors

2020 - Present
Computer Science Student
- Currently in my third year in Pamantasan ng Lungsod ng Maynila taking BS Computer Science
- Creating a web-based Faculty Loading and Class Scheduling System for the CS department

May - June 2021
Web and Flutter Developer
- Took Angela Yu's online courses for both web and Flutter development bootcamp

PROJECTS

- Document text recognition scanner API for digitizing physical records in Python (in progress)
- Document text recognition scanner API for digitizing physical documents (in progress)

ACHIEVEMENTS

- Graduated High School with Honors

SKILLS SUMMARY

Programming Languages

Javascript	★★★★★
HTML / CSS	★★★★☆
Java	★★★☆☆
Dart	★★★★☆
Python	★★★☆☆
Python	★★★☆☆

Development Frameworks

Node.js	★★★★★
Bootstrap	★★★★☆
Flutter	★★★★☆
jQuery	★★★★★

Mark James Estacio

Computer Science Student

An aspiring Front End and Mobile Developer who aims to gain professional work experience and establish more programming skills through learning from the corporate world.

markjamesestacio02@gmail.com
0955 629 2569
Parañaque, Philippines
github.com/Mjeeyyy

EDUCATION

Bachelor of Science in Computer Science
Pamantasan ng Lungsod ng Maynila
09/2020 - Present
Achievements
- Academic: Dean's Lister 1st Year 1st Sem
- Academic: Dean's Lister 1st Year 2nd Sem
- Academic: Dean's Lister 2nd Year 2nd Sem
- Academic: Dean's Lister 3rd Year 1st Sem

Science, Technology, Engineering & Mathematics Strand - Senior High School
Parañaque National High School - Main
06/2018 - 03/2020
Achievements
- Academic: Graduated With Academic Honor

Junior High School
Parañaque National High School - Main
06/2016 - 04/2018
Achievements
- Academic: 9th Grade With Academic Honor
- Academic: Graduated Junior High School With Academic Honor

Junior High School
Taguig Science High School
06/2014 - 03/2016
Achievements
- Academic: 7th Grade Class Top 10 Awardee
- Academic: 8th Grade Principal's Lister Awardee

Elementary School
Tipas Catholic School
06/2008 - 03/2014
Achievements
- Academic: Graduated With Academic Honor
- Academic: Graduated Top 8 Overall

WORK EXPERIENCE

Work Immersion
Parañaque Social Hygiene Clinic and Wellness Center
12/2019 - 01/2020 *Parañaque City*
On-the-job training for Grade 12 Senior High School Students
Achievements/Tasks
- Conducting HIV Awareness Lectures for citizens that consults the clinic for testing

Contact : ***(02) 8826 8219***

SKILLS

C++ Programming ●●●○○
Java Programming ●●●●○
HTML/CSS/PHP Programming ●●●○○
Flutter Programming ●●●●○
Team Cooperation ●●●●●
Documentation ●●●●●
Multi-tasking ●●●○○
Critical Thinking ●●●●○

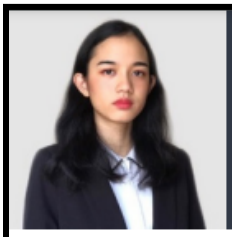
LANGUAGES

English
Professional Working Proficiency

Filipino
Professional Working Proficiency

INTERESTS AND HOBBIES

Music Creation | Mobile Development | Simple Program Development | Sports | Team Building Activities



Micah Therese Fabon

micahstudying@gmail.com 09772923552
Block 1, Lot 148, Starburst St., Glenbrook 2, LNC, PASCAM 1, General Trias, Cavite

Education

Elementary 2009 - 2014
Sun Valley Montessori Foundation Inc., Parañaque

Junior High School 2014 - 2018
St. Scholastica's College, Manila

Senior High School 2018 - 2020
De La Salle University, Manila
- Accountancy, Business and Management Strand

College 2020 - Present
Pamantasan Ng Lungsod Ng Maynila, Manila
- BS Computer Science

Personal Skills

- Ability to work under pressure
- Adaptability
- Excellent written and verbal communication skills
- Ability to work independently or as part of a team
- Proven leadership skills
- Multitasking

Achievements

Valedictorian	2014
Academic Excellence Award	2014 - 2020
Exemplary Conduct Award	2015 - 2020
SIGABO participant	2016
AMS Camp Math 23 participant	2016
Program of Excellence in Mathematics (PEM) participant	2016
Front Runner in Math Challenges	2018
Dedicated Math Club member Award	2018
Clean Discipline Record Award	2018
Dean's Lister	2020 - Present

Personal details

Date of birth
June 10, 2002

Gender
Female

Nationality
Filipino

Civil status
Single

Website
github.com/mykahh

Programming Languages

- Python
- Java
- Flutter
- PHP
- C/C++

Experience

- **CEO of PENTA Corporation**
  - 2019-2020
  - as a requirement for Practical Research

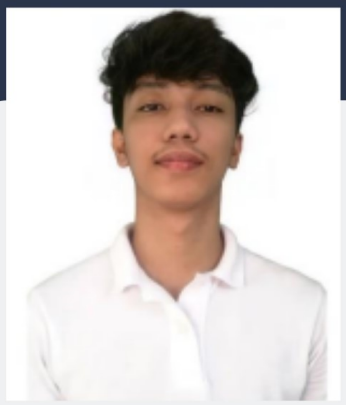
  *Academically
- **Project Manager**
  - 2022 - 2023
  - as a requirement for Software Engineering

  *Academically

Reference

Dan Michael A. Cortez, PhD
Chairperson
Computer Science Department
dmacortez@plm.edu.ph

DEANNE ANDREW R. OXALES



PERSONAL PROFILE

I am a Student at Pamantasan ng Lungsod ng Manila under the degree of Bachelor of Science in computer Science. I'm a Student Leader and can work under pressure.

EDUCATIONAL BACKGOUND

TERTIARY

2020 - present

- COLLEGE, PAMANTASAN NG LUNGSOD NG MAYNILA
  Gen. Luna corner Muralla St., Intramuros Manila, Philippines 1002
  Bachelor of Science in Computer Science
  "Consistent Performing Student"
  "Block President (3rd Year 2nd Sem - Present)"
  "Computer Science Irregular Representative(2021-Present)"
  "Block Secretary (1st Year - 3rd Year 1st Semester)"
  "Reserve Officers Training Corps (ROTC), CIVIL-MILITARY OPERATION UNIT (MENTAL HEALTH DIVISION)"

SECONDARY

2018-2020

- SENIOR HIGH, MANUEL G. ARAULLO HIGH SCHOOL UNITED NATIONS, MANILA
  Science, Technology, Engineering, and Mathematics (STEM)
  Honor Student (Grade 11- 12)
  "Supreme Student Government (SSG), Peace Officer"

2014-2018

- JUNIOR HIGH SCHOOL, LANDY NATIONAL HIGH SCHOOL LANDY SANTA CRUZ, MARINDUQUE
  Actively involved in Extracurricular Activities: Leadership, Organizations, and Clubs
  "Citizenship Advancement Training (CAT), Cadet 1st Lieutenant Alpha Company Executive Officer"

GRADE SCHOOL

2008-2014

- ELEMENTARY, SANTA CRUZ SOUTH CENTRAL SCHOOL BANAHAW SANTA CRUZ, MARINDUQUE

CONTACT ME AT

0929-895-74-61

deanneoxales@gmail.com

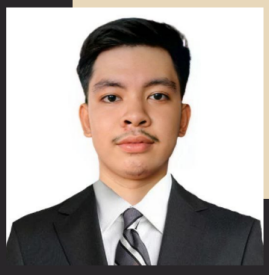
Santa Cruz, Manila

SKILLS SUMMARY

- Computer Literate
- Willing to Learn
- Dependable
- Willing to take the lead
- Team Player
- Adaptability

AWARDS RECEIVED

- Graduated in Senior Highs School With Honors
- Dean's Lister 2020-Present



DAILE JANDELL C. PUNZALAN

ASPIRING UI/UX DESIGNER & FRONT END DEVELOPER

ABOUT ME

I am in my third year of studying computer science at Pamantasan ng Lungsod ng Maynila, aspiring to be a UI/UX Designer and Front End Developer. I am intensely interested in user interface design, user experience, and front-end development.

CONTACTS

dailejandellpunzalan@gmail.com

09162709792

Manila City

REFERENCES

Available upon request.

EDUCATION

PAMANTASAN NG LUNGSOD NG MAYNILA
Bachelor of Science in Computer Science
College: 2020 - Present

ESPIRITU SANTO PAROCHIAL SCHOOL
Graduate of Science, Technology, Engineering, and Mathematics
Junior and Senior School: 2015 - 2020

GENERAL MAXIMINO H. HIZON ELEMENTARY SCHOOL
Elementary: 2012 - 2014

ACACIA ELEMENTARY SCHOOL
Elementary: 2009 - 2011

AWARDS

2020 BEST IN WORK IMMERSION - STEM
Espiritu Santo Parochial School

2020 COMPUTER SYSTEMS SERVICING NC II
Manila International Skills Academy

SKILLS

- Figma
- InVision
- Flutter
- Adobe Photoshop
- Adobe Premiere Pro
- Adobe Illustrator
- Microsoft Word, Powerpoint and Excel

Programming Languages

- Java
- C++
- HTML / CSS / PHP
- Python