

FYP Supervisor Allocation Management System

by

Muhammad Adib Zikri bin Rozali

17003975

Dissertation submitted in partial fulfilment of
the requirement for the
Bachelor of Information Technology (Hons)

FYP II

SEPTEMBER 2021

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CERTIFICATION OF APPROVAL

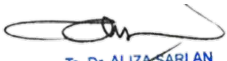
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A project dissertation submitted to the
Information Technology Programme
Universiti Teknologi PETRONAS
in partial fulfilment of the requirements for the
BACHELOR OF INFORMATION TECHNOLOGY (Hons)

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CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

Muhammad Adib Zikri

MUHAMMAD ADIB ZIKRI BIN ROZALI

ABSTRACT

The importance of a proper management system is to manage a certain workflow in an organization becomes a lot smoother and completely structured at the same time, which it could also be applied on this project which is titled as “FYP Supervisor Allocation Management System”. The project’s main purpose is to make the interaction between FYP students and lecturers become much more organized than its previous state, and also to help the coordinator to be able to manage the flow of FYP course without stumbling to any unnecessary problems. Since there is no centralized platform for FYP Management System in UTP, many students have been suffering from selecting suitable supervisors for their FYP project by not being able to choose them in time as they are unable to determine the targeted supervisors (lecturers) availability. Afterwards, the targeted supervisor has to recommend the students a bunch of alternative lecturers that could be their supervisor for the FYP project and if the targeted supervisor is somehow do not manage to help the students as quickly as possible, the coordinator will try to handle the situation by doing the same thing, but a little bit quicker. The objective is to make a certain management system that has the capability to conduct FYP session including finding suitable supervisors for FYP students without any difficulties. Agile methodology is chosen for this project as its development life cycle is the shortest and most efficient methods for solve the problems through the implementation of the project. The results that came from the project’s implementation indicates that students can finally apply for their preferred supervisor through the app, supervisors can opt to choose whether to accept or reject a student based on their quota which will be shown to both of the students and supervisor in the app, and coordinator can finally assign students to certain supervisors and also edit student’s and supervisor’s data if need be.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Based on the objectives above, project scope will be used as part of the requirement to maneuver the project's progress as it needs to develop a centralized platform that can make the interaction between final year students and FYP supervisors become much easier during FYP session. The targeted users for this project are including final year students, supervisors (lecturers) and coordinator. The reason for them to be targeted is simple, final year students are the ones who registered FYP 1 and FYP 2 for two semesters and some of the lecturers with certain area of specializations will be personally assigned as the supervisor for the final year students' FYP projects by the coordinator and later have to wait for the final year students to personally request them as their supervisor. The time limitation for this project is around 8 months, which is also equivalent to 28 weeks. Software materials that are involved for this project is including PowerApps at the moment.

1.2 Problem Statement

Challenges have come into people's lives in many forms as it is part of their daily routines and it already has been perceived as normal from the perspective of people's raw observation. Even Universiti Teknologi PETRONAS (UTP) has to deal with their problems that have strong connections to its stakeholders. First and foremost, most of students are struggling to find a lecturer as their supervisor because they are unable to determine their availability and therefore, they do not manage to get their desired lecturer in time and have to find alternative lecturers by themselves instead. There is also coordinator who will help the students who did not manage to get their targeted lecturers as their supervisor by manually assigning them said alternative lecturers just in case if they had no idea which lecturer is the right person to be picked as their supervisor for their FYP projects.

Other than that, there are no current platform that are built specifically for the interaction between final year students and supervisors (lecturers) during FYP session. Even if there are multiple studies that shows the possibilities of building the management system particularly for fulfilling FYP's purposes, it has never been established officially in UTP management system and the only system that UTP is currently using at the moment is ULearn. ULearn is a management system that is supposed to manage the flow of any courses that students are currently registering in each of the semesters. However, the system is always crashing on its own and causes both of students and lecturers to wait for a while for it to get back on its feet and ready to be used again. The maintenance for the system is also highly lacking as well as there are not enough IT technicians in UTP Management that could fixed the system efficiently.

1.3 Objectives

The project that has been titled as “FYP Supervisor Allocation Management System” is supposed to achieve these objectives:

- To conduct FYP session including finding suitable supervisors for FYP students without any difficulties.
- Conduct preliminary study to evaluate project feasibility.

1.4 Scope of Study

Based on the objectives above, project scope will be used as part of the requirement to maneuver the project's progress as it needs to develop a centralized platform that can make the interaction between final year students and FYP supervisors become much easier during FYP session. The targeted users for this project are including final year students, supervisors (lecturers) and coordinator. The reason for them to be targeted is simple, final year students are the ones who registered FYP 1 and FYP 2 for two semesters and some of the lecturers with certain area of specializations will be personally assigned as the supervisor for the final year students' FYP projects by the coordinator and later

have to wait for the final year students to personally request them as their supervisor. The time limitation for this project is around 8 months, which is also equivalent to 28 weeks. Software materials that are involved for this project is including PowerApps at the moment.

CHAPTER 2

LITERATURE REVIEW

2.1 Study on The Current Available System

Before there is a need to do a certain activity, a couple of good reasons must tag along with it too as a mean to increase the credibility of doing it. As for this project, it needs to have its own existence coming out of the closet and be seen by a group of selected people that is including students, lecturers and coordinators. The first point that can help to deepen the importance of the project is the existence of a similar project based on the facilitation of final year projects (FYP) process. This can be escalated further through a certain management system that is mostly focused on managing FYP projects such as the creation of project allocation module as a way to create all students' accounts and make it available for supervisors to input their proposed project themes, which then followed by the access for students to build their own group and choose the desired project topic through said module (Leung et al., 2015). Additionally, the program organizer (PO) will allocate projects to each group of students by automatic allocation function that has been provided via system and students will be informed as well at that moment (Leung et al., 2015). Besides, the particular management system also provides functions that are including task management, file sharing, and instant chat and discussion (Leung et al., 2015). After that, students are required to submit deliverables such as proposals or reports by uploading to the submission and grading module and followed by markers' and supervisors' notification through the process of inserting their score to each project after review (Leung et al., 2015).

Furthermore, Abdul Wahab (2012) has stated that she intended to replace her university's current manual system with proposed Final Year Project Online Management System as the manual system is disorganized, time-consuming and

heavily lacking in efficiency. She also pointed out that she has included many functions that she considered as useful for her management system, which are including profile management, project's topic proposal and request, marks' submission by the examiners, student's allocation, examiner's allocation and project's allocation.

Other than that, Yong (2013) has expressed that he created his own project, which is FYP Management Portal with a purpose that has specifically stated to develop a management system that can decrease the workload of the FYP Committee in handling the workflows of the Final Year Project. He further added three main features in his management system, which are involving project's allocation and its compilation, assignment submission, marks' submission by the examiners, profile management and the display of supervisors' status.

2.2 Benefits of Management System Towards University Community

Apparently, the university community has the chance to receive many positive benefits coming from the application of management system in the project. Firstly, Kafel (2016) has pointed out some positive impacts that could be conjured through the integration of management system such as the improvement of effectiveness and efficiency of an organization, which could also referred to the university community as it can be shown that a university is not only capable of achieving such tasks and personal goals, but they are also aware of the management system's importance and its role in helping the mankind to keep striving into a better future.

Plus, an organization's goals can be achieved through the great alignment in management system as it can unify objectives, processes and resources into a singular group and when one team has many heads, it would be easier to satisfy the conditions of transforming visions into a reality (Kafel, 2016). As an example, the university community can recommend a student to create a final year project

that can create a platform that is exclusively made for the interaction between the students, final year project's supervisors and coordinators.

Furthermore, the process of a certain organization can be refined until reaching an extent where its infrastructure will be stronger and systematic. The reason is fairly simple as it could upgrade the process performance and simplify tasks that are associated with said process performance (Talapatra et al., 2019). For instance, a university community that used to have zero platform on managing the interaction between FYP students and supervisors now can have the chance to make one through the implementation of management system in the form of a web application.

In addition, management system could also become a catalyst that sparks out a greater form of relationship between students and lecturers who are involved in final year projects. This fact can be supported as it could produce a sudden increase in lecturers' motivations to help out students to carry out their projects and that will lead to even better participation in team work from students themselves (Talapatra et al., 2019).

2.3 Creating A New Platform

Whenever there are many activities that are needed to combine into one huge event, it is always necessary to create a certain platform to properly conduct the event. Platforms such as web app are important to have in the university community especially for final year students and lecturers as there are no specific platforms that they can refer their projects with and thus it could be used as a tool to form an ecosystem, making it easier for demand and supply to meet (Kim, 2015).

Furthermore, the awareness of this topic is certainly should be highlighted in everyone's minds as Aljraiwi (2017) has mentioned through words that have been cited by Alghareeb (2009) the competences of the faculty should be familiarized by developing it because this could take a major role in the web app's usage in university education.

CHAPTER 3

METHODOLOGY

3.1 Project Methodology

The main methodology that is being used for this project is Agile development. Thesing et al., (2021) has stated that agile development's attributes are gradual, perpetual and its goal is long-term based. Moreover, the particular methodology could also become flexible and condensed if it is being executed based on short term goals. The system is mainly going to handle the data of interaction between FYP students, supervisors and coordinators and the working process which includes direct conversation, user feedback periods and a tremendous amount of flexibility. To put it simply, agile development is consisting of six phase including requirement, design, testing, deployment and review.

Agile development would be sufficed for this project as it starts with the acknowledgement of certain types of people who are going to be the users for the project, constructing a clear documentation and objectives of the project by identifying problems that need to be solved and the credibility of building the system. The users will be mainly prioritized in this project because they are the ones who will utilize it to its full potential. Each users have different role based on their needs and behaviors; FYP students, supervisors and coordinator will be included to fulfill those roles. Furthermore, agile is adequately appropriate for this project that requires six month before full completion because it can generate iterations and flexibility. Agile could also be unique as the project strives on providing quality and value to its users while finishing the project according to the standardized requirements.

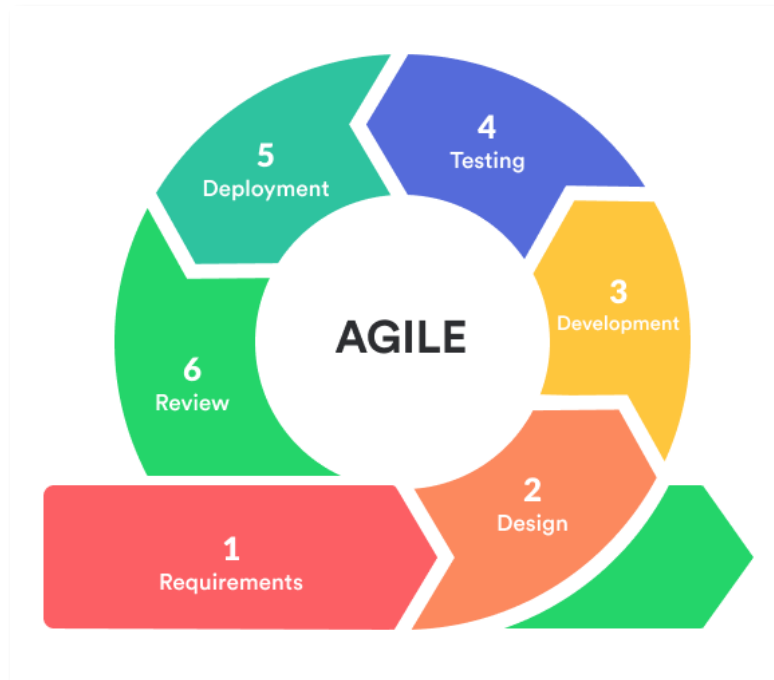


Figure 1. Agile Methodology

The first stage of the methodology is identifying the requirements by specifying the research topics, objectives and problem statement. There are multiple literature reviews that have been conducted based on past research papers for the sake of enhancing the facts. Additionally, data collection on FYP management through the interaction between students and supervisors also had been executed to support the facts even further. Next, the design for this project will be initiated through the usage of Moqup’s capabilities, which is a web app that transforms idea and concepts into a solid design of a web app’s UI.

Certain phases such as development, testing, deployment and review are not done yet but had already been planned ahead of their time. In development phase, the system will be developed by utilizing PowerApp’s equipments under its environment. Other than that, deployment phase will be making sure that the system is ready to be use and accessible by stakeholders involved and review phase is to detect any issues that could be conjured from the system and conduct maintenance phase if necessary.

3.2 Tools

The methods utilized in this project are split into two categories which are research tools and software development tools. The list of the tools used in each category are being displayed below:

Research Tools:

- Scribbr
- Moqups
- Google Forms

Software Development Tools:

- PowerApps

3.3 Planning and Requirement Analysis

The first stage is picking up a big role throughout the entirety of the project. Some brainstorming sessions were carried out with the supervisor for this project as to identify the main ideas and objectives of how the system can solve the user problems based on the requirements for the project. A preliminary study has also been conducted to determine the feasibility of the project and to see how far the scope of the project can really go from early standpoint. This is to ensure that the existence of this project can be more relevant and not redundant to be executed when the time comes. Plus, it helps to collect some useful knowledge that is related to the project's requirements by doing literature review from journals, research papers and online articles. Not only that, the project's Gantt Chart has been used to organize all tasks which have been divided into two courses, Final Year Project (FYP) I (refer to 3.5 Gant).

3.3.1 Preliminary Study

A preliminary study has been conducted during requirement phase as to understand the problems that the stakeholders are currently experiencing and use them as a part of the project's requirement for full completion. The involved participants are the stakeholders, and it has been divided into two sections, which are students and supervisors(lecturers). It can be observed through these sets of questions per below:

3.3.1.1 Supervisor's Section

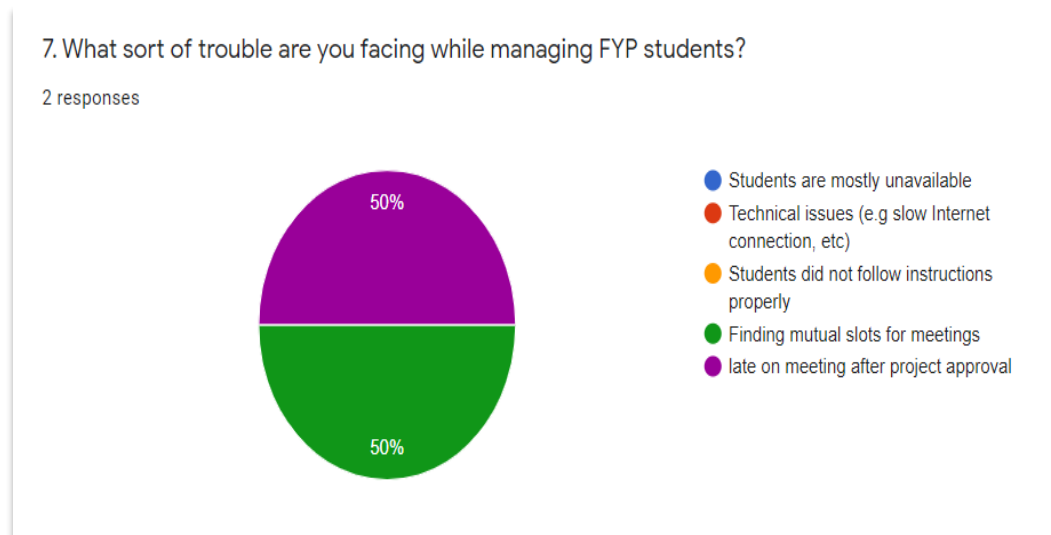


Figure 2. Preliminary Study: Supervisor's Section #1

Based on the Figure 2 above, it can be shown that 50% of the supervisors are having trouble in finding mutual slots for meetings with their supervisees (students) while the other 50% has stated that students are mostly late on meeting after project approval.

12. Do you think having a web app based platform that is focused on the interaction between FYP students and supervisors is necessary to make your work better in managing FYP students?

2 responses

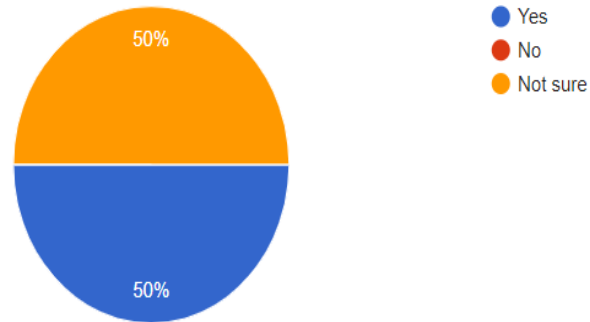


Figure 3. Preliminary Study: Supervisor's Section #2

Based on the Figure 3 above, 50% of the supervisors are agreed that having app-based platform that is focused on the interaction between FYP students and supervisors is indeed necessary to make their work better in managing FYP students while the other 50% has stated not sure as in they are unable to see the potential that could be caused from this project.

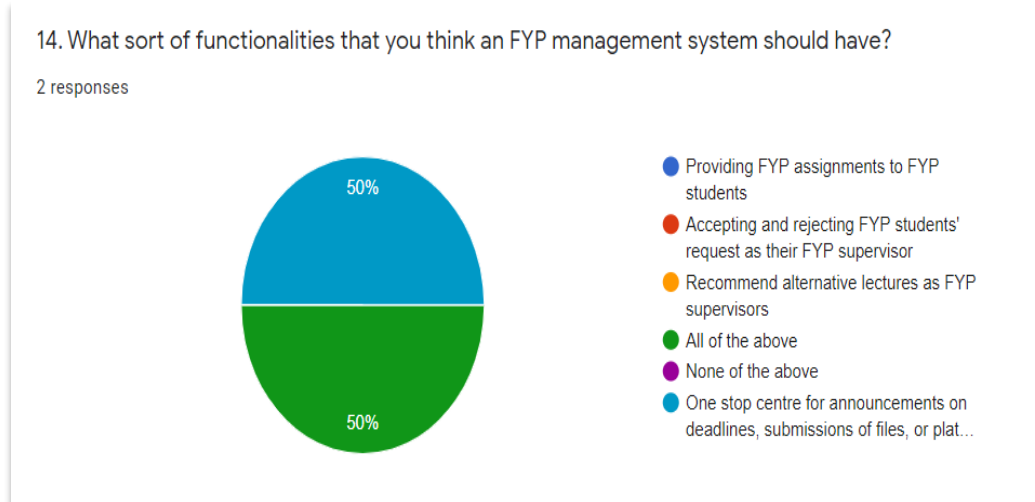


Figure 4. Preliminary Study: Supervisor’s Section #3

Based on the Figure 4 above, 50% of the supervisors have stated that there should be a centralized platform such as one stop center for announcements on deadlines, submission of files or platforms to link to various FYP related sources while the other 50% are saying that all of the functions that have been displayed in the figure above should be included in FYP Supervisor Allocation Management System.

3.3.1.2 Student's Section

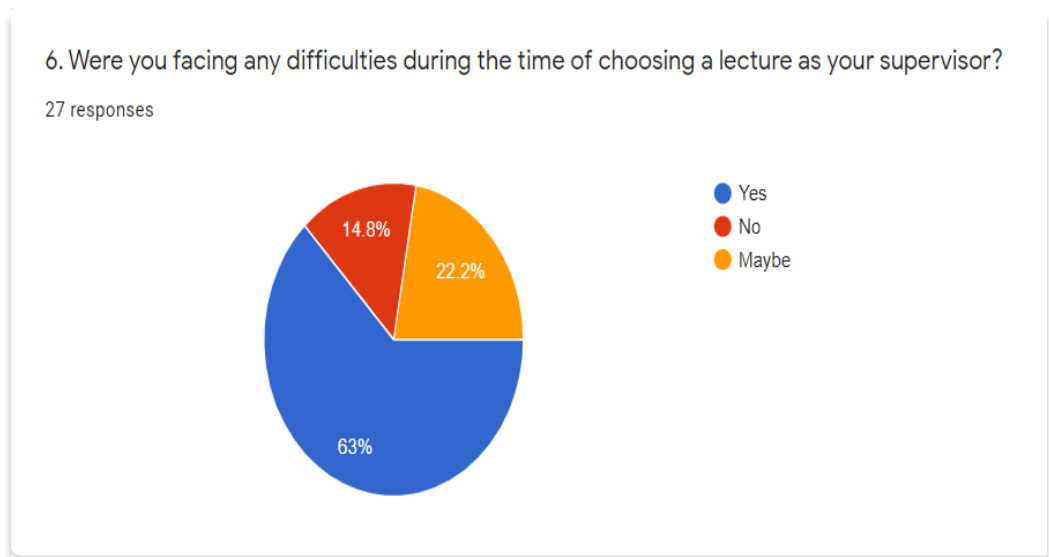


Figure 5. Preliminary Study: Student's Section #1

Based on the Figure 5 above, majority of the students are facing various difficulties during the time of choosing a lecturer as their supervisor by 63% and 22.2% for students who are not really sure whether they are really experiencing any difficulties regarding the matter of choosing lecturers as their supervisor. However, there is also a group of minorities that says they did not suffer from choosing a lecturer as their supervisor by 14.8%

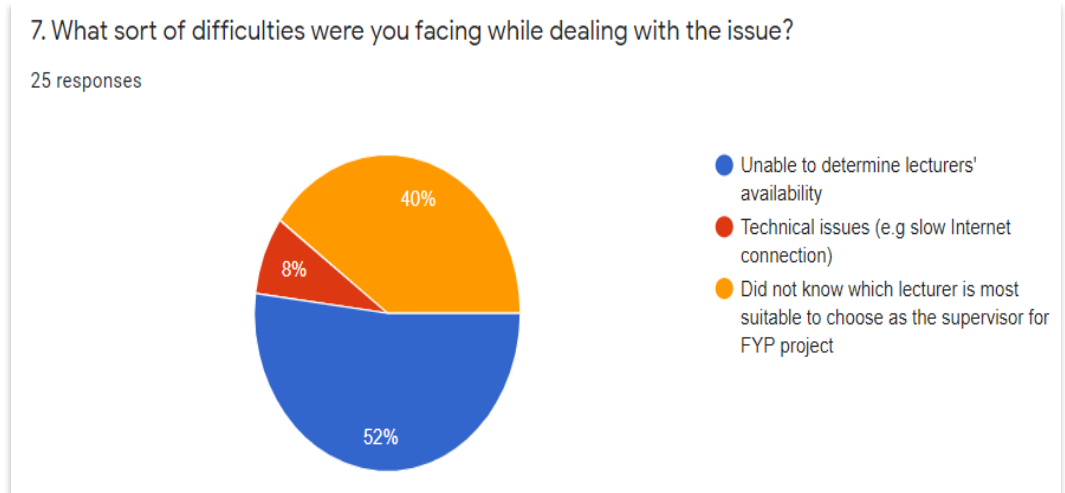


Figure 6. Preliminary Study: Student's Section #2

Based on the Figure 6 above, the main issue that has been suffered by majority of students is the fact that they were unable to determine any of the lecturers' availability by 52% and followed by 40% of students that were unaware of which lecturer is most suitable to choose as the supervisor for their FYP project. In addition, there is also a small problem of technical issues such as slow Internet connection among students by 8%.

11. Do you think web app based platform or any other platform related to that is going to be able to help you to choose and pick desired lecturer as your supervisor for your FYP project in time?

27 responses

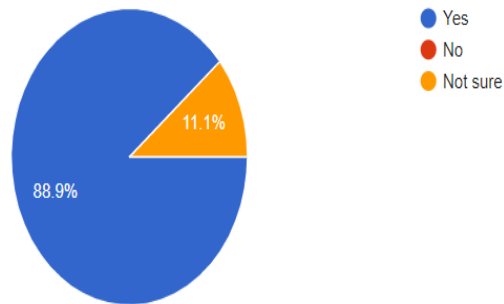


Figure 7. Preliminary Study: Student's Section #3

Based on the Figure 7 above, majority of the students do think that web app-based platform or any other platform related to that is going to be able to help them to choose and pick desired lecturer as the supervisor for their FYP project. On the other hand, some of them are also not sure of the web app's capabilities by 11.1%.

3.4 Design

The system's functionality and operation will be illustrated as the Unified Modelling Language (UML) during the design phase. Diagrams that will be included during the design phase are use case and activity diagram.

3.4.1 Use Case Diagram

There are three actors for this use case diagram, they are named student, supervisor and coordinator. The FYP Supervisor Allocation Management System's core functionality is expressed by a total of 9 use cases. Each actor interacts with a specific use case. A student actor can view the list of FYP supervisors and submit their desired supervisor through use case "Submit FYP SV Proposal". The lecturer actor can continue this process by accepting the student's request after viewing their application. Coordinator actor has the ability to publish the list of potential FYP supervisors for students who did not manage to get any lecturers as their supervisors yet at the time and they will also be the one who are going to assign alternative supervisors to students who are unable to find the right supervisors to choose in time.

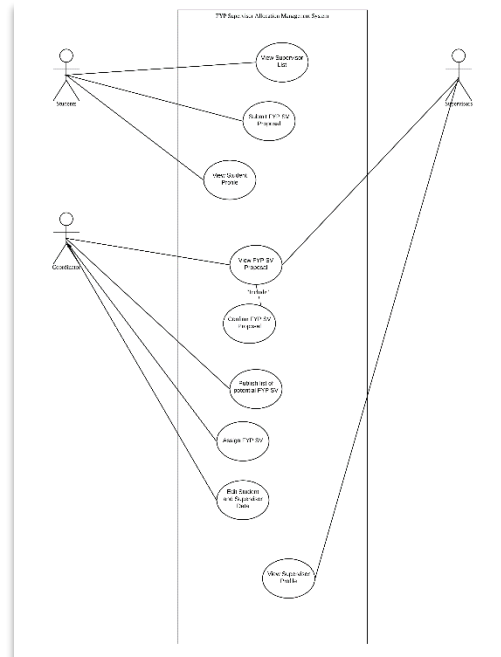


Figure 8. Use Case Diagram for Supervisor Allocation Management System

3.4.2 Activity Diagram

There are eighteen tasks specified in the activity diagram. Each user will be performing specific tasks in their own swimlane. The flow of execution of the processes is decided by multiple guard conditions such as “Available”, “Not Available”, “Full”, “Vacancy” in Web App’s swimlane, “Accept”, “Reject”, “Eligible” and “Not Eligible” in lecturer’s swimlane (supervisor). The process is eventually terminated at the termination node at the bottom to signify the completion of the activity.

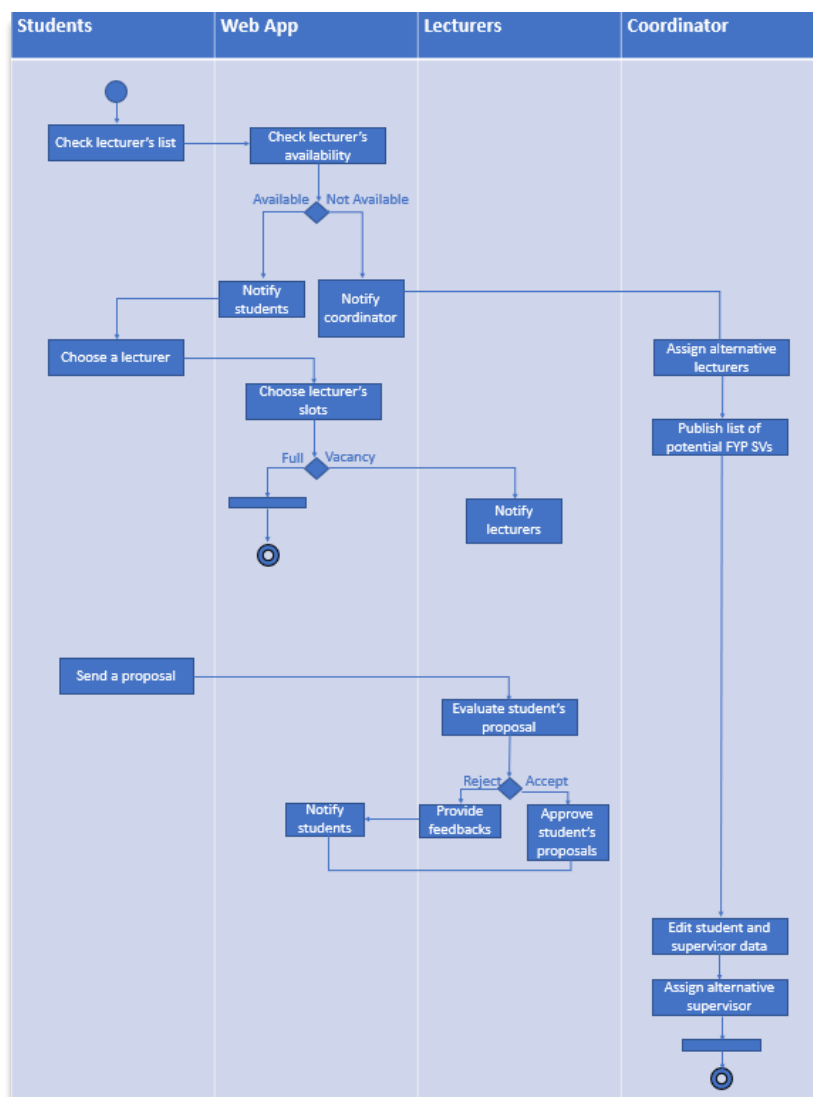


Figure 9. Activity Diagram for Supervisor Allocation Management System

3.5 Gantt Chart

TABLE 1. Project Gantt Chart

Task \ Week	1	2	3	4	5	6	7	8	9	10	11	12
Project Proposal	■	■										
Introduction			■									
Objective & Literature Review				■	■	■						
Data Collection & Analysis				■	■	■						
Methodology					■	■						
Proposal Defence							■	■				
Prototype Development								■	■	■	■	
Interim Report Submission											■	■

CHAPTER 4

RESULT AND DISCUSSION

4.1 Features

4.1.1 Attributes and Characteristics

In this project, there are few features that can be used for students, supervisors and coordinator, which are including “Login” for every users, “Supervisor List”, “Quota”, “Supervisor Recommendation”, “Student Profile” for students; “Student List”, FYP Proposal Evaluation”, “Supervisor Profile” for supervisors; “Update and View Data” for coordinator.

4.1.2 Grouping of Features (Student)

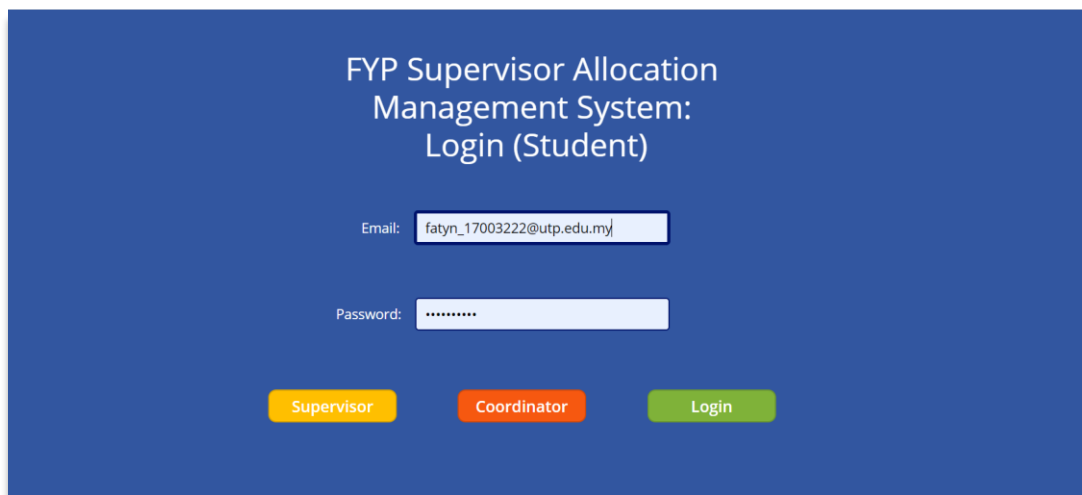


Figure 10. Student’s Login Page

Based on Figure 10 above, it shows that all students who are registering for FYP I and FYP II must register their credentials into the system before starting to use it. If a supervisor or coordinator wanted to use the app, they need to select the designated buttons according to their titular roles (“Student” for students, “Supervisor” for supervisors and “Coordinator” for coordinator).

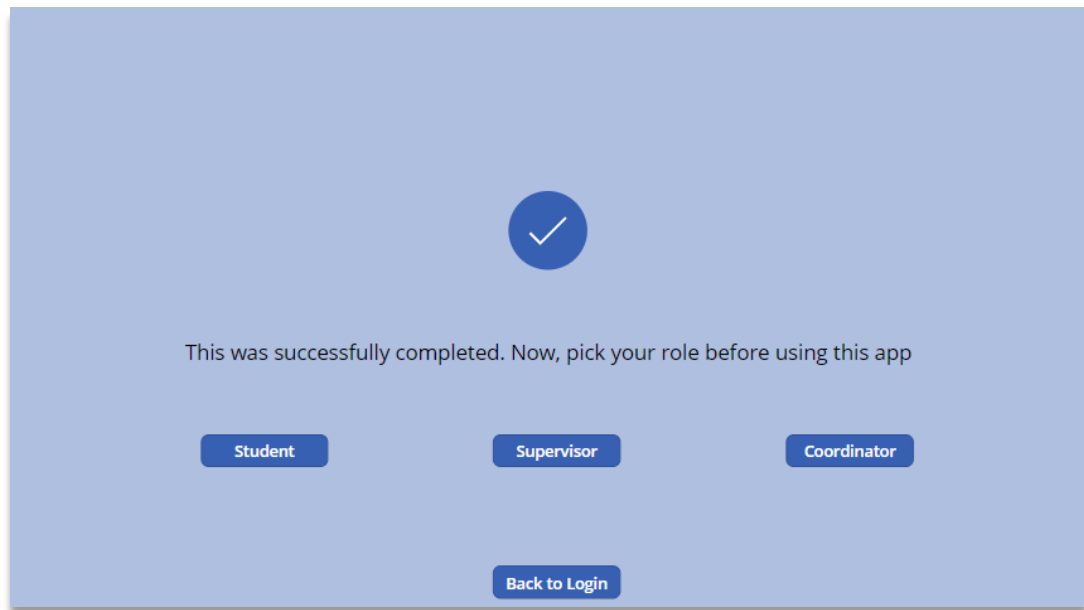


Figure 11. Student's Successful Login Page

Based on Figure 11 above, the student has managed to log in as their credentials has been retrieved from the system and currently being kept into the system's database. Before proceeding to student's homepage, they must pick their designated role or otherwise they would not be able to use the entirety of the system.

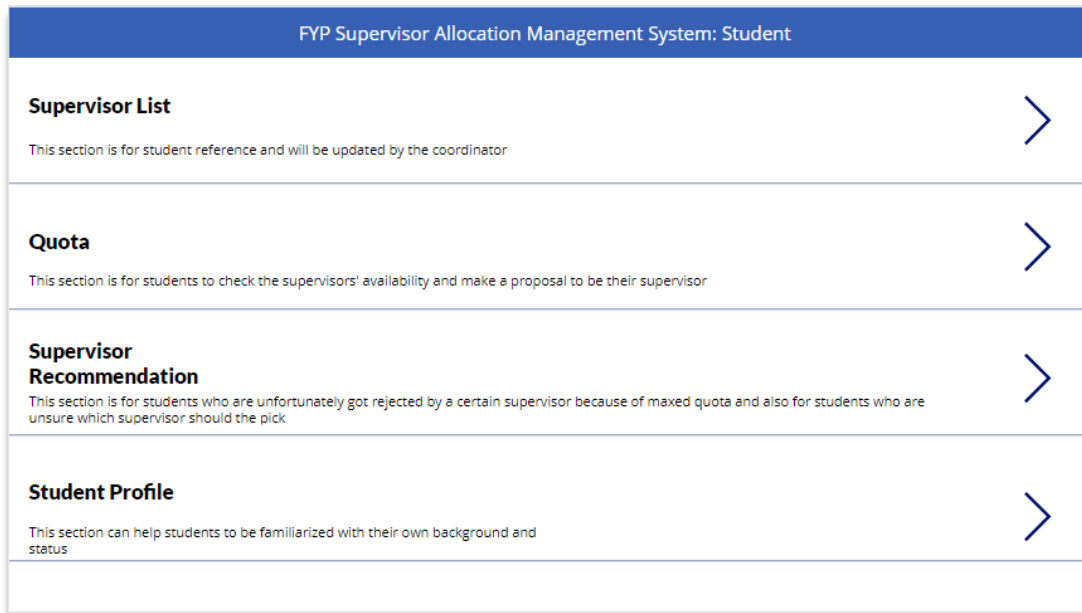


Figure 12. Student's Home Page

Based on the Figure 12 above, there are four main features that can be accessed by students only, which are including "Supervisor List", "Quota", "Supervisor Recommendation" and "Student Profile".

Supervisor List							Home	Logout
Position	Name	Nationality	Department	Specialization	Email	Quota	Status	
Senior Lecturer	Dr Ahmad Sobri ...	Malaysia	Computer & Infor...	Human Compute...	sobri.hashim@ut...	0	Available	
Senior Lecturer	Ts Dr Mohd Hilmi...	Malaysia	Computer & Infor...	Artificial intelli...	mhilmi_hasan@u...	0	Available	
Senior Lecturer	Ts Dr Hitham Sed...	Sudan	Computer & Infor...	Real-Time Syste...	seddig.alhussian...	1	Available	
Associate Profess...	Assoc. Prof. Ts Dr...	Malaysia	Computer & Infor...	Internet Routing...	msoperi.mzahid...	2	Available	
Senior Lecturer	Ts Dr Lukman bin...	Malaysia	Computer & Infor...	Model Driven En...	lukmanrahim@ut...	3	Not Available	
Associate Profess...	Assoc. Prof. Dr D...	India	Computer & Infor...	Management Inf...	dhanapa_d@utp...	1	Available	
Associate Profess...	Assoc. Prof. Ts Dr...	Malaysia	Computer & Infor...	Human Compute...	fatimhd@utp.edu...	2	Available	
Senior Lecturer	Ts Dr Said Jadid A...	Kenya	Computer & Infor...	Machine Learnin...	saidjadid.a@utp...	2	Available	
Senior Lecturer	Ts Dr Helmi bin ...	Malaysia	Computer & Infor...	N/A	helmim@utp.edu...	1	Available	
Senior Lecturer	Dr Mohamed Nor...	Malaysia	Computer & Infor...	High Performanc...	nordinzakaria@u...	3	Not Available	
Senior Lecturer	Ts Dr Yew Kwang ...	Malaysia	Computer & Infor...	Machine Learning	yewkwanghooi@...	1	Available	
Lecturer	Ts Jale bin Ahmad	Malaysia	Computer & Infor...	Artificial Intelle...	jale_ahmad@utp...	2	Available	
Senior Lecturer	Ts Dr Mazeyanti ...	Malaysia	Computer & Infor...	Culture and Com...	mazeyanti@utp.e...	3	Not Available	
Lecturer	Ts Abdullah Sani ...	Malaysia	Computer & Infor...	Cyber Security	sani.arahman@u...	2	Available	

Figure 13. Student's Supervisor List

Based on Figure 13 above, this page can help students to create their own reference and preference as in to find which supervisor is the most suitable to become their supervisor for their final year project.

Quota							
Title	Name	Nationality	Department	Specialization	Email	Quota	Propose
Senior Lecturer	Dr Ahmad Sobri bin ...	Malaysia	Computer & Inf...	Human Comput...	sobri.hashim@u...	0	Apply
Senior Lecturer	Ts Dr Mohd Hilmi bi...	Malaysia	Computer & Inf...	Artificial intelli...	mhilmi_hasan@...	0	Apply
Senior Lecturer	Ts Dr Hitham Seddig...	Sudan	Computer & Inf...	Real-Time Syste...	seddig.alhussian...	1	Apply
Associate Profes...	Assoc. Prof. Ts Dr M...	Malaysia	Computer & Inf...	Internet Routing...	msoperi.mzahid...	2	Apply
Associate Profes...	Assoc. Prof. Dr Dhan...	India	Computer & Inf...	Management Inf...	dhanapal_d@ut...	1	Apply
Associate Profes...	Assoc. Prof. Ts Dr W...	Malaysia	Computer & Inf...	Human Comput...	fatimhd@utp.ed...	2	Apply
Senior Lecturer	Ts Dr Said Jadid Abd...	Kenya	Computer & Inf...	Machine Learni...	saidjadid.a@utp...	2	Apply
Senior Lecturer	Ts Dr Helmi bin Md ...	Malaysia	Computer & Inf...	N/A	helmim@utp.ed...	1	Apply
Senior Lecturer	Ts Dr Yew Kwang Ho...	Malaysia	Computer & Inf...	Machine Learning	yewkwanghooi...	1	Apply
Lecturer	Ts Jale bin Ahmad	Malaysia	Computer & Inf...	Artificial Intellige...	jale_ahmad@ut...	2	Apply
Lecturer	Ts Abdullah Sani bin...	Malaysia	Computer & Inf...	Cyber Security	sani.arahman@...	2	Apply
Lecturer	Ts Ahmad Izuddin bi...	Malaysia	Computer & Inf...	Data Visualizatio...	N/A	2	Apply
Senior Lecturer	Ts Dr Aliza Bt Sarlan	Malaysia	Computer & Inf...	System Analysis ...	aliza_sarlan@ut...	1	Apply
Lecturer	Ts Dr Emelia Akasha...	Malaysia	Computer & Inf...	Data Quality, Bu...	emelia.akhir@ut...	2	Apply

Figure 14. Student’s Quota

Based on Figure 14 above, this is almost similar to “Supervisor List”, but it enables the students to pick their preferred supervisors by simply clicking a certain button with a title called “Apply” on it. Before clicking the button, the student must check the amount of targeted supervisors’ quota first as the higher the amount of vacancy in a certain supervisor’s quota, the higher the chances for student to get accepted by the targeted supervisor.

Supervisor Recommendation							Propose
Title	Name	Nationality	Department	Specialization	Email	Quota	
Senior Lecturer	Dr Ahmad Sobri bin H...	Malaysia	Computer & Inf...	Human Comput...	sobri.hashim@u...	0	Apply
Senior Lecturer	Ts Dr Mohd Hillmi bin ...	Malaysia	Computer & Inf...	Artificial Intellige...	mhilmi_hasan@...	0	Apply
Senior Lecturer	Ts Dr Hitham Seddig A...	Sudan	Computer & Inf...	Real-Time Syste...	seddig.alhussian...	1	Apply
Associate Profes...	Assoc. Prof. Ts Dr Moh...	Malaysia	Computer & Inf...	Internet Routing...	msoperi.mzahid...	2	Apply
Associate Profes...	Assoc. Prof. Dr Dhana...	India	Computer & Inf...	Management Inf...	dhanapal_d@ut...	1	Apply
Associate Profes...	Assoc. Prof. Ts Dr Wan...	Malaysia	Computer & Inf...	Human Comput...	fatimhd@utp.ed...	2	Apply
Senior Lecturer	Ts Dr Said Jadid Abdul...	Kenya	Computer & Inf...	Machine Learni...	saidjadid.a@utp...	2	Apply
Senior Lecturer	Ts Dr Helmi bin Md Rais	Malaysia	Computer & Inf...	N/A	helmim@utp.ed...	1	Apply
Senior Lecturer	Ts Dr Yew Kwang Hooi	Malaysia	Computer & Inf...	Machine Learning	yewkwanghooi...	1	Apply
Lecturer	Ts Jale bin Ahmad	Malaysia	Computer & Inf...	Artificial Intellige...	jale_ahmad@ut...	2	Apply
Lecturer	Ts Abdullah Sani bin A...	Malaysia	Computer & Inf...	Cyber Security	sani.arahman@...	2	Apply
Lecturer	Ts Ahmad Izuddin bin ...	Malaysia	Computer & Inf...	Data Visualizatio...	N/A	2	Apply
Senior Lecturer	Ts Dr Aliza Bt Sarlan	Malaysia	Computer & Inf...	System Analysis ...	aliza_sarlan@ut...	1	Apply
Lecturer	Ts Dr Emelia Akashah ...	Malaysia	Computer & Inf...	Data Quality, Bu...	emelia.akhir@ut...	2	Apply

Figure 15. Student's Supervisor Recommendation

Based on Figure 15 above, students can also try to apply for random supervisors, in case of not knowing which supervisor would be the most optimal choice to pick.

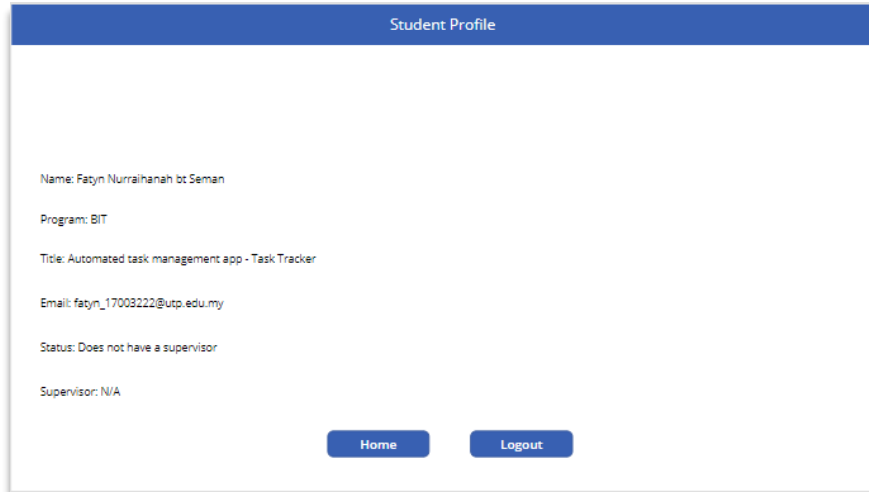


Figure 16. Student's Profile (Before Update)

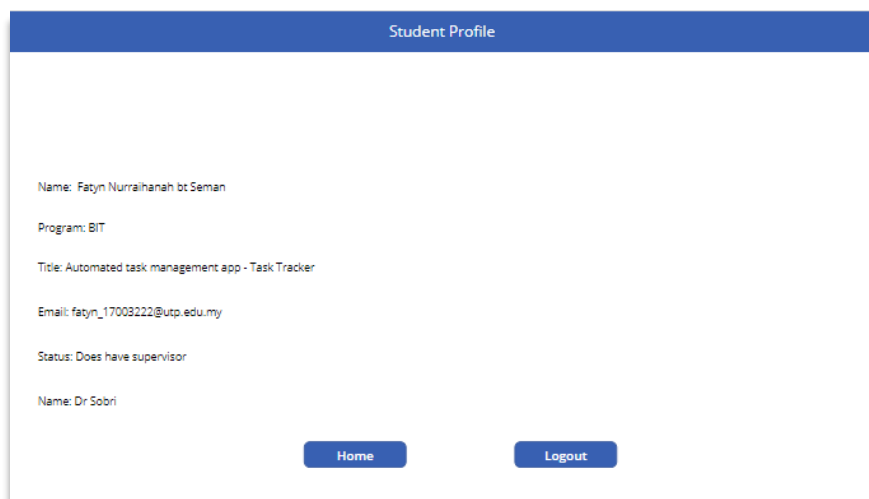


Figure 17. Student's Profile (After Update)

Based on Figure 16 and Figure 17 above, students are allowed to see their current status in the system as to ensure that students are fully aware of their standings. After students have selected their preferred supervisors and successfully accepted by them, the system will automatically update the student's profile by collecting newly retrieved data into the system's database.

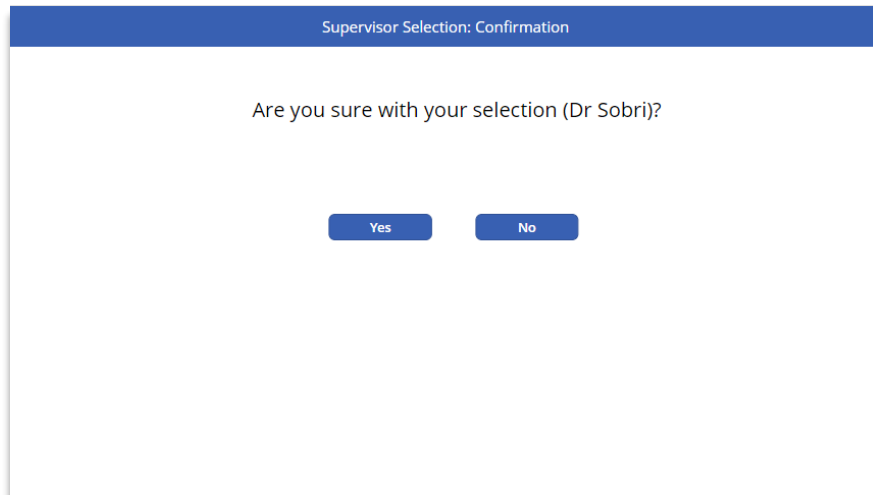


Figure 18. Student's Supervisor Confirmation

Based on Figure 18 above, a security procedure is provided for students when it comes to selecting their preferred supervisors, and the reason is to make sure the students are completely confident with their own selections and also to give them some time to think on it.

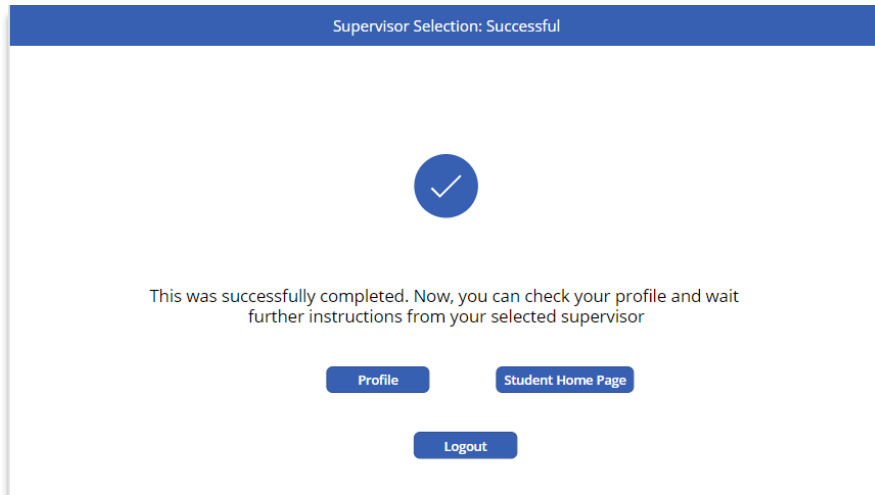


Figure 19. Student's Supervisor Selection: Successful

Based on Figure 19 above, students are finally accepted by the targeted supervisor and can freely interact with them whenever it is necessary and if FYP is involved in some way.

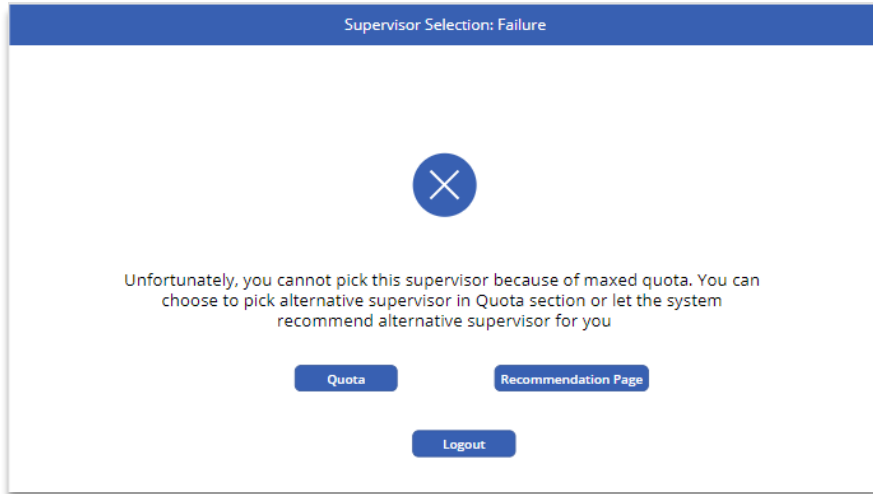


Figure 20. Student’s Supervisor Selection Failure

Based on Figure 20 above, this shows that a student has been rejected by a certain supervisor because the supervisor’s quota has been maxed out and they have to opt for clicking between two buttons which will lead them two different pages of selecting supervisors, which are including “Quota” and “Recommendation Page”.

Supervisor Recommendation							
Title	Name	Nationality	Department	Specialization	Email	Quota	Propose
Senior Lecturer	Dr Ahmad Sobri bin H...	Malaysia	Computer & Inf...	Human Comput...	sobri.hashim@u...	0	Apply
Senior Lecturer	Ts Dr Mohd Hilmi bin ...	Malaysia	Computer & Inf...	Artificial intelli...	mhilmi_hasan@...	0	Apply
Senior Lecturer	Ts Dr Hitham Seddig A...	Sudan	Computer & Inf...	Real-Time Syste...	seddig.alhussian...	1	Apply
Associate Profes...	Assoc. Prof. Ts Dr Moh...	Malaysia	Computer & Inf...	Internet Routing...	msoperi.mzahid...	2	Apply
Associate Profes...	Assoc. Prof. Dr Dhana...	India	Computer & Inf...	Management Inf...	dhanapal_d@ut...	1	Apply
Associate Profes...	Assoc. Prof. Ts Dr Wan...	Malaysia	Computer & Inf...	Human Comput...	fatimhd@utp.ed...	2	Apply
Senior Lecturer	Ts Dr Said Jadid Abdul...	Kenya	Computer & Inf...	Machine Learni...	saidjadid.a@utp...	2	Apply
Senior Lecturer	Ts Dr Helmi bin Md Rais	Malaysia	Computer & Inf...	N/A	helmim@utp.ed...	1	Apply
Senior Lecturer	Ts Dr Yew Kwang Hooi	Malaysia	Computer & Inf...	Machine Learning	yewkwanghooi...	1	Apply
Lecturer	Ts Jale bin Ahmad	Malaysia	Computer & Inf...	Artificial Intellige...	jale_ahmad@ut...	2	Apply
Lecturer	Ts Abdullah Sani bin A...	Malaysia	Computer & Inf...	Cyber Security	sani.arahman@...	2	Apply
Lecturer	Ts Ahmad Izuddin bin ...	Malaysia	Computer & Inf...	Data Visualizatio...	N/A	2	Apply
Senior Lecturer	Ts Dr Aliza Bt Sarlan	Malaysia	Computer & Inf...	System Analysis ...	aliza_sarlan@ut...	1	Apply
Lecturer	Ts Dr Emelia Akashah ...	Malaysia	Computer & Inf...	Data Quality, Bu...	emelia.akhir@ut...	2	Apply

Figure 21. Supervisor’s Recommendation

Based on Figure 21 above, this page can help students who are unsure of which supervisor should they pick for their final year projects as some of the students are finding it hard to make a decision to pick the right supervisor for their projects with a couple of certain reasons, be it did not do enough research about which supervisor would be the most suitable to be picked as their supervisor; or it could also be the fact that most of their preferred supervisors are already have been fully booked by other students. The process of picking a supervisor through this page is almost similar to “Quota” page, except this time, the system will create a randomized list of supervisors that are available to be picked by the students.

4.1.3 Grouping of Features (Supervisor)

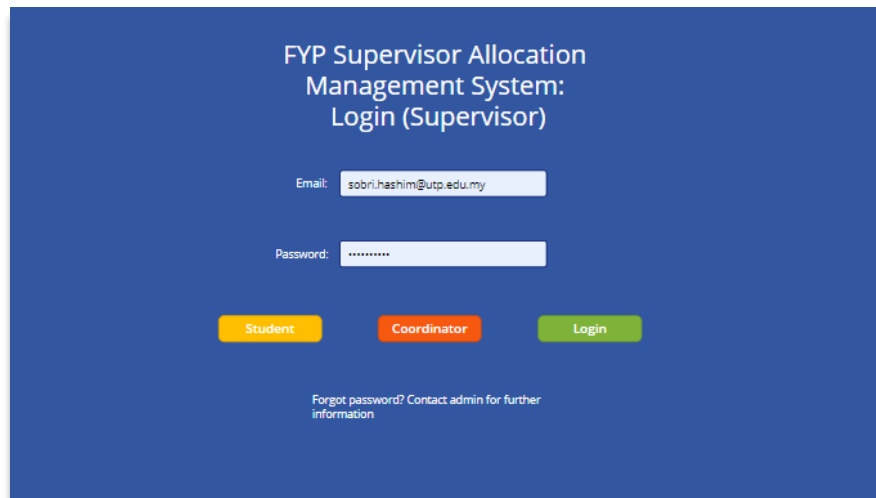


Figure 22. Supervisor’s Login Page

Based on Figure 22 above, it shows that all supervisors who are in charge for managing students’ final year projects in FYP I and FYP II must register their credentials into the system before starting to use it. If other users such as a student or coordinator wanted to use the app, they need to select the designated buttons according to their titular roles (“Student” for students, “Supervisor” for supervisors and “Coordinator” for coordinator).

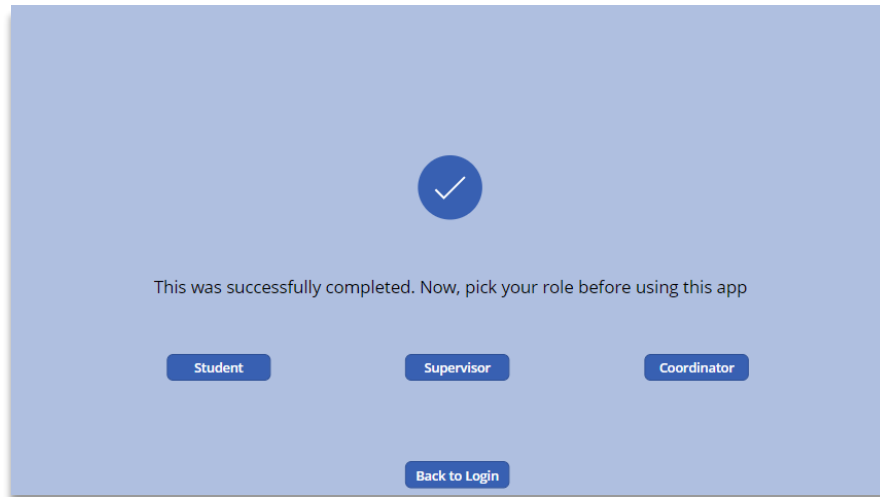


Figure 23. Supervisor’s Successful Login Page

Based on Figure 23 above, it shows that supervisors who keyed in the correct credentials according to the system database will be allowed to use the application and they can further proceed by clicking the button “Supervisor”. If they clicked buttons with different roles such as “Student” or “Coordinator”, they will be blocked from getting into those two different pages as it does not fulfil their current role in this system.

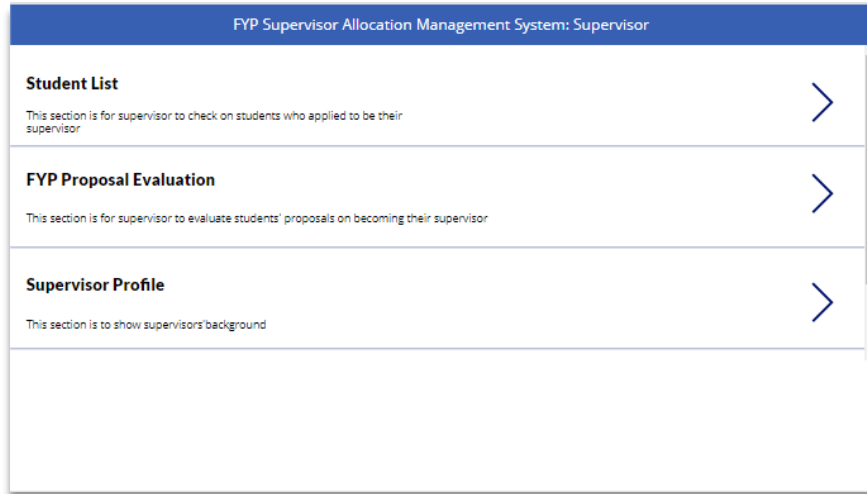


Figure 24. Supervisor’s Home Page

Based on Figure 24 above, there are four main features that can be accessed by students only, which are including “Student List”, “FYP Proposal Evaluation” and “Supervisor Profile”.

Student List						Home	Logout
Identification	Name	Title	Program	Email	Supervisor		
17002507	Faiq Haikal Bin Shahrin ...	Medicine Tracking and O...	BIT	faiq_17002507@utp.edu...	Dr Ahmad Sobri bin Has...		
17003222	Fatyn Nurraihanah bt Se...	Automated task manage...	BIT	fatyn_17003222@utp.ed...	Ts Dr Mohd Hilmi bin Ha...		
17001950	Azizul Qusyairin Bin Azm...	COVID-19 Sentiment An...	BIT	azizul_17001950@utp.e...	Ts Dr Hitham Seddig Alh...		
16004741	Izzat bin Mohamad Jeha...	End to end learning for s...	BIT	izzat_16004741@utp.ed...	Assoc. Prof. Ts Dr Mohd ...		
17004154	Fatin Nur Syafiqah binti ...	Sketch Recognition on C...	BIS	fatin_17004154@utp.ed...	Ts Dr Lukman bin AB Ra...		
17004915	Nur Dinie Binti Mohd Ra...	Dental Augmented Reality	BIT	nur_17004915@utp.edu....	Assoc. Prof. Dr Dhanapa...		
17004106	Ahmed Alif Bin Mohama...	Classification prediction ...	BIT	ahmad_17004106@utp....	Assoc. Prof. Ts Dr Wan F...		
17004961	IQBAL NURIL ANWAR BI...	IoTdoor lock using RFID...	BIT	iqbal_17004961@utp.ed...	Ts Dr Said Jadid Abdulka...		
17004942	Khairul Ilham	Hybrid security involving...	BIT	khairul_17004942@utp....	Ts Dr Helmi bin Md Rais		
17002975	SanjifA/LSaravanan	MotorcycleDetection,Tra...	BIT	sanjif_17002975@utp.ed...	Dr Mohamed Nordin bin...		
17001201	Gurjit Singh	ImagePreprocessing for ...	BIT	gurjit_17001201@utp.ed...	Ts Dr Yew Kwang Hooi		
17003605	Muhammad Hilmi bin M...	IoT Smart Home Security	BIT	muhammad_17003605...	Ts Jale bin Ahmad		
17002970	Nurareesya Amalin Binti...	GIS Pipeline inspection a...	BIS	nurareesya_17002970@...	Ts Dr Mazeyanti binti M...		
17002588	Tia Farisha binti Shahar...	Drunk Driving Iris Recog...	BIS	tia_17002588@utp.edu....	Ts Abdullah Sani bin Ab...		

Figure 25. Supervisor’s Student List

Based on Figure 25 above, it shows a list of students filled with their credentials including student’s identification, name, title, program, email and assigned supervisors. This page can be used as a source of reference by supervisors to see which students have they picked or been assigned to by the system or coordinator.

Proposal Evaluation							
Student ID	Name	Title	Program	Email	Status	Pending	
17003222	Fatyn Nurraihan...	Automated task ...	BIT	fatyn_17003222...	Does not have s...	Accept	Reject
17002558	Danial Fitri bin I...	MonitoringCovid...	BIS	dania_1700255...	Does not have s...	Accept	Reject
17003116	Maliza Binti Yusof	Class Relief Man...	BIS	maliza_1700311...	Does not have s...	Accept	Reject
17001331	Muhamad Hilmi ...	WEB APPLICATI...	BIT	muhamad_1700...	Does not have s...	Accept	Reject
17003085	Farah Batrisyia ...	Visually Impared...	BIT	farah_17003085...	Does not have s...	Accept	Reject
17002329	Sharvinessh A/L...	Green House Se...	BIT	sharvinessh_170...	Does not have s...	Accept	Reject
17004391	Ahmad Khairi Bi...	Essay grading us...	BIT	ahmad_1700439...	Does not have s...	Accept	Reject
19000059	Nur Shafiqah Sy...	Mobile App for ...	BIT	shafiqah_19000...	Does not have s...	Accept	Reject
16000892	Schubrian Bin S...	Data Scrapping f...	BIS	schubrian_1600...	Does not have s...	Accept	Reject
17001961	Teoh Jin Mei	Pet Charity Mobi...	BIT	jin_17001961@u...	Does not have s...	Accept	Reject
0023410	Hasvin Chandra...	IOT Flood Monit...	BIT	hasvin_23410@...	Does not have s...	Accept	Reject
17003364	Danial hisham b...	The computer g...	BIT	dania_1700336...	Does not have s...	Accept	Reject
18002087	Fatin Nor Atikah...	Abuse alert	BIT	fatin_18002087...	Does not have s...	Accept	Reject
17000395	Nur Alia Shafiah ...	Cookies Purchas...	BIS	nur_17000395@...	Does not have s...	Accept	Reject

Figure 26. Supervisor's Proposal Evaluation

Based on Figure 26 above, it shows a list of students who have applied for their preferred supervisors and at this point, the targeted supervisor must choose whether they wanted to choose the students who applied for them based on their availability, which is their quota.

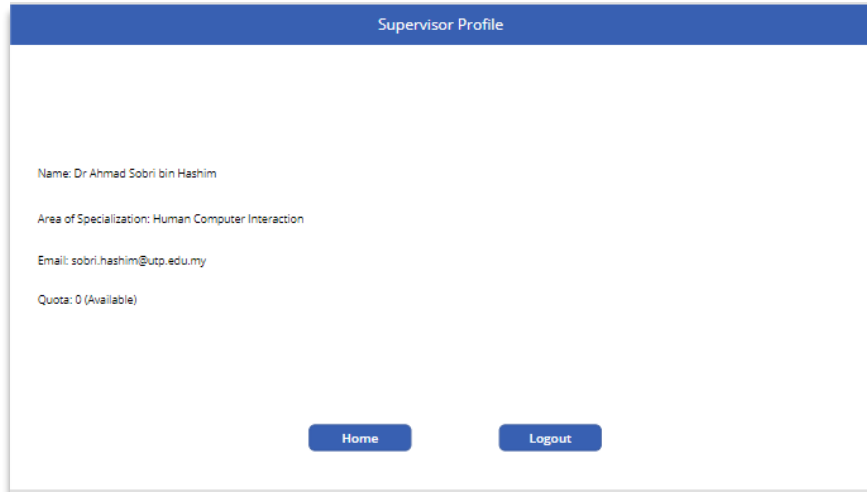


Figure 27. Supervisor's Profile (Before Update)

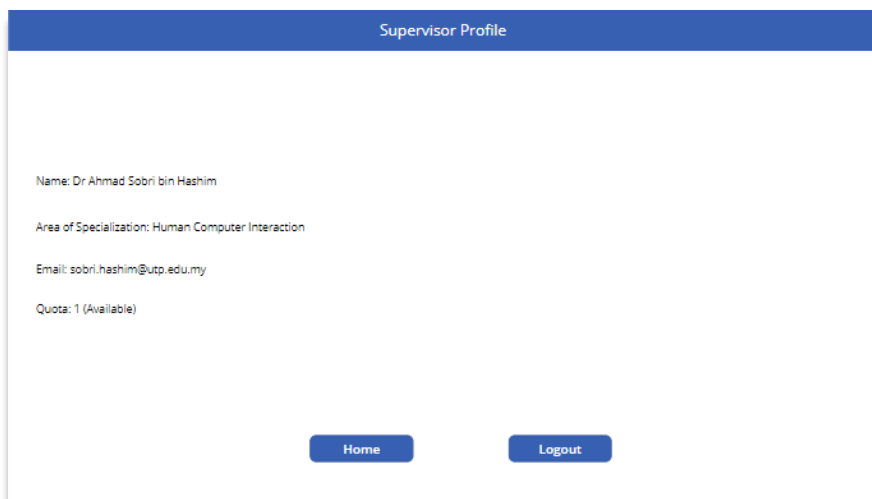


Figure 28. Supervisor's Profile (After Update)

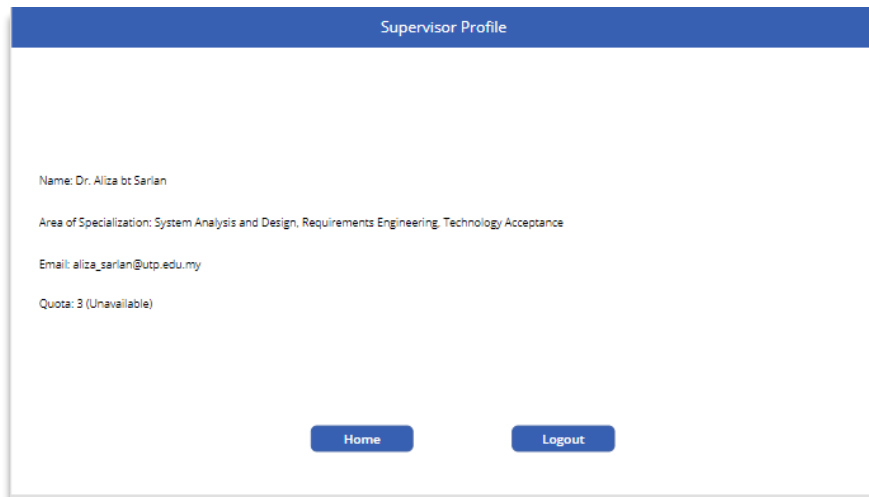


Figure 29. Supervisor's Profile (Maxed Quota)

Based on Figure 27, Figure 28 and Figure 29 above, supervisors are allowed to see their current status in the system as to ensure that they are fully aware of their standings. After supervisors have accepted/rejected a student, the system will automatically update the student's profile by collecting newly retrieved data into the system's database. If one of supervisors' quota is maxed out by 3, which means that supervisor is no longer available to be picked as students' supervisors as it has been clarified by the coordinator that a supervisor should have at most 3 students at once in their management.

4.1.4 Grouping of Features (Coordinator)

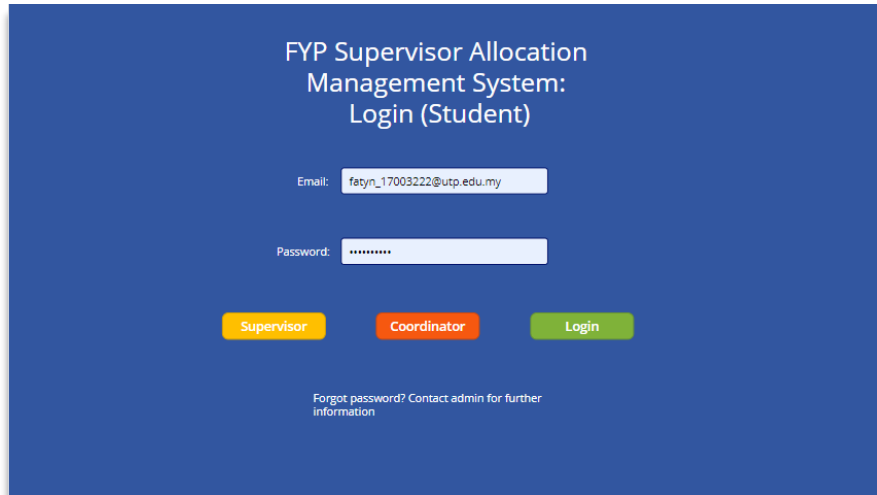


Figure 30. Coordinator’s Login Page

Based on Figure 30 above, it shows that the coordinator who is managing for FYP I and FYP II must register their credentials into the system before starting to use it. If a supervisor or students wanted to use the app, they need to select the designated buttons according to their titular roles (“Student” for students, “Supervisor” for supervisors and “Coordinator” for coordinator).

Student ID	Name	Title	Program	Email	Password	Status	Supervisor Name
17004100	Muhammad Basir	Social Media analy	BIT	muhammad_1700_ basir12345		Does not have sup	N/A
25571	Muhamad Hamzah	Web App for Tools	BIT	muhamad.hamzah_ hamzah12345		Does not have sup	N/A
23286	Muhammad Hafiz	CampusCompanio	BIS	muhammad.hafiz_ hafiz12345		Does not have sup	N/A
0023951	Dhruvasin A/L basl	UTP carpool ride a	BIT	dhruvasin_23951@ dhruvasin12345		Does not have sup	N/A
17001220	Nur Hanisah Mohc	Restaurant Manag	BIS	nur_17001220@uc_ hanisah12345		Does not have sup	N/A
18002064	Mohd Adib Fikri Bl	Sign language tran	BIS	mohd_18002064@ adibfik12345		Does not have sup	N/A
17000395	Nur Alia Shafiah bt	Cookies Purchase I	BIS	nur_17000395@uc_ alia12345		Does not have sup	N/A
18002087	Fatin Nor Asikah bi	Abuse alert	BIT	fatin_18002087@u_ fatin12345		Does not have sup	N/A
17003364	Danial hisham bin	The computer gam	BIT	danial_17003364@ danial12345		Does not have sup	N/A
0023410	Hasvin Chandrasej	IOT Flood Monitori	BIT	hasvin_23410@utp_ hasvin12345		Does not have sup	N/A
17001961	Teoh Jin Mei	Pet Charity Mobile	BIT	jln_17001961@utp_ jin12345		Does not have sup	N/A
16000892	Schubrian Bin Suh	Data Scrapping for	BIS	schubrian_160008_ schubrian12345		Does not have sup	N/A
19000059	Nur Shafiqah Syaz	Mobile App for Vet	BIT	shafiqah_1900005_ shafiqah12345		Does not have sup	N/A

Figure 31. Coordinator’s Update and View Data (View Mode)

Update and View Data							
STUDENT VIEW		Add New Student Info	Undo Student				
Student ID	Name	Title	Program	Email	Password	Status	Supervisor Name
17004100	Muhammad Basim	Social Media analy	BIT	muhammad_1700	basim12345	Does not have sup	N/A
25571	Muhamad Hamzah	Web App for Tools	BIT	muhamad.hamzah	hamzah12345	Does not have sup	N/A
23286	Muhammad Hafiz	CampusCompanio	BIS	muhammad.hafiz	hafiz12345	Does not have sup	N/A
0023951	Dhruvasin A/L bas	UTP carpool ride a	BIT	dhruvasin_23951@	dhruvasin12345	Does not have sup	N/A
17001220	Nur Hanisah Mohd	Restaurant Manag	BIS	nur_17001220@ut	hanisah12345	Does not have sup	N/A
18002064	Mohd Adib Fikri Bi	Sign language tran	BIS	mohd_18002064@	adibofik12345	Does not have sup	N/A
17000395	Nur Alia Shafiah bt	Cookies Purchase	BIS	nur_17000395@ut	alia12345	Does not have sup	N/A
18002087	Fatin Nor Atikah bi	Abuse alert	BIT	fatin_18002087@u	fatin12345	Does not have sup	N/A
17003364	Danial hisham bin	The computer gam	BIT	danial_17003364@	danial12345	Does not have sup	N/A
0023410	Hasvin Chandrasej	IOT Flood Monitori	BIT	hasvin_23410@ut	hasvin12345	Does not have sup	N/A
17001961	Teoh Jin Mei	Pet Charity Mobile	BIT	jin_17001961@utp	jin12345	Does not have sup	N/A
16000892	Schubrian Bin Suh	Data Scrapping for	BIS	schubrian_160008	schubrian12345	Does not have sup	N/A
19000059	Nur Shafiqah Syaz	Mobile App for Vet	BIT	shafiqah_1900005	shafiqah12345	Does not have sup	N/A
17004391	Ahmad Khairi Bin F	Essay grading usin	BIT	ahmad_17004391@	ahmad12345	Does not have sup	N/A
17002329	Sharvinessh A/LRa	Green House Sens	BIT	sharvinessh_1700	sharvinessh12345	Does not have sup	N/A

Figure 32. Coordinator’s Update and View Data (Update Mode)

Based on Figure 31 and Figure 32 above, it shows that the coordinator who is managing for FYP I and FYP II must register their credentials into the system before starting to use it. If a supervisor or students wanted to use the app, they need to select the designated buttons according to their titular roles (“Student” for students, “Supervisor” for supervisors and “Coordinator” for coordinator).

CHAPTER 5

CONCLUSION AND FUTURE WORK

5.1 Conclusion

As a mean to summarize this whole project, the project is meant for making the interaction between students and supervisors becomes easier as intended with the help of web app technology. Not only that, the project is also intended to help the assigned coordinator to manage the flow of FYP course in an easier manner so that issues such as FYP students are not able to find the lecturers as the supervisor for their FYP project due to the targeted lecturers unavailability will completely disappear effectively. Moreover, a proper web app can be developed as a main platform to make the FYP management seems seamless and quicker.

5.2 Future Work

After the project has been fully developed, further research will be executed as to strengthen the nature of the project even further by trying to unlock its hidden potential through the knowledge that could be gain from extra research such as finding ways to effectively integrate the project's web app into a mobile app so that it would be more accessible for the users in the future.

REFERENCES

- Abdul Wahab, R. B. (2012). *Final Year Project Online Management System (FYPOS): Client and Server Design*. Universiti Teknologi PETRONAS. http://utpedia.utp.edu.my/3814/1/RAIHANAH_11409_Dissertation.pdf
- Alghareeb, Z. I. (2009). *Electronic courses, design, production, publishing, application, and evaluation*. World Books: Cairo.
- Aljraiwi, S. S. (2017). The Effect of Classroom Web Applications on Teaching, Learning and Academic Performance among College of Education Female Students. *Journal of Education and Learning*, 6(2), 132. <https://doi.org/10.5539/jel.v6n2p132>
- Kafel, P. (2016). *Benefits of Management Systems Integration*. ResearchGate. https://www.researchgate.net/publication/312176321_Benefits_of_management_systems_integration
- Kim, J. (2015). *The Platform Business Model and Strategy: A Dynamic Analysis of the Value Chain and Platform Business*. https://www.research.manchester.ac.uk/portal/files/54581969/FULL_TEXT.PDF
- Leung, C. H., Lai, C. L., Yuan, T. K., Pang, W. M., Tang, J. K. T., Ho, W. S., & Wong, T. L. (2015). The development of a final year project management system for information technology programmes. *Communications in Computer and Information Science*, 494, 86–97. https://doi.org/10.1007/978-3-662-46158-7_9
- Thesing, T., Feldmann, C., & Burchardt, M. (2021). Agile versus Waterfall Project Management: Decision Model for Selecting the Appropriate Approach to a Project. *Procedia Computer Science*, 181, 746-756. <https://doi.org/10.1016/j.procs.2021.01.227>

Yong, K. W. (2013). *FYP Management Portal*. Universiti Tunku Abdul Rahman.
<http://eprints.utar.edu.my/945/1/CS-2013-1101074-1.pdf>