

CHAPTER I

INTRODUCTION

1.1 OVERVIEW

In most of the curriculum in information technology (IT) undergraduate program, it is common that students are expected to complete the Information Technology Project Course (IT Project) in their final year studies. That is also why it is usually known as a final year project (FYP). The Information Technology project course (IT Project), is a kind of activity course that gives opportunities to students. This course-based study aims to provide integrated training on their team working skills, technical knowledge learned from different courses, and project management skills. The students studied, researched and practiced by themselves according to their abilities, aptitudes, and interests.

In the IT degree program offered in the Faculty of Science and Technology of Fatoni University, the IT project course is delivered throughout 2 semesters in the fourth year of the study. Before the students to succeed in this course, they must pass the project presentation to measure the level of their knowledge. Students are grouped to work on a project under the supervision of a professor. The project allocation process is trying to match the interest of the student to the expertise of the professor. Each group of the students can choose their favorite project topics which are proposed by the advisor, and the allocation will help to resolve any conflict in the choices between groups based on their abilities. Therefore, each project group will be assigned a theme to work when the semester starts. Apart from prototyping the software according to the project theme, students are required to have meetings with supervisors, hand in project proposals, progress reports and carry out the presentation of their completed works

throughout the whole academic year. As a result, both the supervisor and the students have to work closely, face challenges and deadlines when finishing the project.

In addition, The IT project course examination is divided into three times: (1). Project Topic selection. (2). Examination of Project proposal. (3). Final project defence. In each exam, there will be steps in a difficult operation and complex. As the first implementation of the final year project (FYP) in IT department of faculty Science and Technology, Fatoni University many years before this paper is written, many of the processes are carried manually and highly rely on traditional ways for communication and assessment submission. These all cause trouble to track and monitor or to make the project can't meet the demand.

To overcome the various problems encountered during the implementation of the final project year in the previous years or the problem of tracking and monitor the project progress, we are as the developers , we decided to develop our own final year project to serve the whole process. IT Project Monitoring and Tracking by replying on use the web application in the system. This system helps in managing projects in various fields, including scheduling, project tracking and monitoring, selection as an advisor, file sharing, view list of project, etc. In order to improve performance and follow up with the situation as the current system and also to work faster and more efficiently. The main topics will cover important and source of the project, benefits from the project and the basic theory that is used in the project, the work process, the work of the system, how to use the system, problems and obstacles encountered will be appear in this.

1.2 PROBLEM STATEMENT

In Faculty of Science and Technology of Fatoni University, the Information Technology department is still use the traditional way to monitor and track the project process of students. There are many drawbacks in operation.

To solve this problem, the developer have consult with the advisor that there is no IT project tracking and monitoring system in the department of information technology. Actually, some of senior projects have been created, but the project could not take to use in department, because of these projects are not meet the demand of Information technology.

Moreover, Now the IT Project Monitoring and Tracking is still needed by the Information Technology department. And it will be provided some beneficial to junior student for establishing a new project or to develop existing project. Thus developer would like to develop the senior project tracking to be better than the previous one, should meet the need of the department and be able to use for Information Technology department.

According to study of the previous project, there are various problems encountered during the implementation in the system. The first of all is the process of tracking is not working as flow. The beginning until the end of project progress is not clear. There is no milestone for guideline the students in doing project. The student may not know what they have to do continue after finish this step. The task of students mostly just any add, delete, update. There is no the project progress for student side cause the student can't track the project to know where their projects stay in, how many percentage of their project process.

In addition, the other problems that happened with advisor and teacher in the IT Project of students are the students cannot submit or report on time, some student do not apply for the same exam level, Some skip the project step, some student's work do not follow the system is makes the project inaccurate, another problem is canceling-reporting schedule that make the

students loss of the mission in the time. Finally, the serious one of IT project for advisor is advisors cannot obtain real time they lose of suggestion any better thing to support the project.

According to those reasons, the developers consider to develop the IT project Monitoring and tracking that will replace of the previous project of senior. The IT Project Monitoring and Tracking will provide the system that makes the project process to be clearly. The project operation will be worked in flow. And the system will lists the entire task that students have to carry out. And it's also providing the milestone that will be the guideline for student in operation the project. It will be the system that provides the comfortable for project owners and advisors and also who have responsibility to manage schedule of whole project

1.3 PROJECT OBJECTIVE

The objective of this propose system is to develop a management system for IT project Monitoring and Tracking in Faculty of Science and Technology. There following objectives should be accomplished:

- To develop the IT project Monitoring and Tracking
- To gather IT project of IT department into a one system.
- To track and monitor the project process from the beginning until the end inform of work flow

1.4 PROJECT SCOPE

The scope of this proposed project is to develop the Web application of IT Project Monitoring and tracking system for IT Project course of Information Technology department.

The implementation of this system is using by the administrator, officer, lecturers, and students who registers for IP project course. The users who can use this system until they was accepted by the Admin while they require of registration. This system will develop by using the PHP programming language. This system will develop in English language only. There are five of project management features in the system:

- Milestone management : project schedule
- To do lists : lists all the task that have to carry out
- File sharing : upload file or any document
- Time tracking : record the working hour
- Forum chatting : group discussions (student and advisor)

1.5 SIGNIFICANT OF STUDY

- To promote and support research or project postures
- To be a system to support tracking and monitoring of project progress within departments
- To increase knowledge in system development
- Provide Facilitate students and lecturers to track and monitor project

1.6 CONTENT OF THE PROJECT

This report will consist of five chapters as following:

Chapter1 : Introduction

This chapter mention the project overview of IT Project Monitoring and Tracking (ITPMT). And it's also include the problem statement, project objective, project scope, expected benefits of the project and followed by the contec of the thesis.

Chapter 2: Literature review

This chapter will describes more information of the basic theories used in making projects and related works guideline to develop the web application. And it's also mention the definition of ITPMT including the some project managements in ITPMT system.

Chapter 3: Methodology

This chapter mentioned the design and development of the system.

Chapter 4: Implementation Chapter

Chapter 5: Conclusion

CHAPTER II

LITERATURE REVIEW

IT Project Monitoring and Tracking (ITPMT) is a kind of online system. To develop the ITPMT, the project developers have studied some of documents and related project as following:

- Definition of ITPMT
- Object-Oriented Paradigm
- Related work
- Information of software/hardware used in development of system

2.1 DEFINITION

2.1.1 IT Project

Information Technology Project (IT Project), it is an activity that gives opportunities. The student studies, researched and practiced by themselves according to their abilities, aptitudes and interests. Student will be required to plan the implementation of the program or related equipment using the knowledge Software engineering process Computer and equipment as well as basic skills to develop a project topic that student interes. The main aim of the IT project is to provide an opportunity for students to demonstrate their capacity to integrate the knowledge and skills acquired throughout their course and apply them to a real-world IT problem.(UTS, 2018)

2.1.2 Project Management

2.1.2.1 Project Tracking

Project Tracking refers to the management of projects which includes but is not limited to measuring and reporting the status of milestone, task, and activities required in achieving the predefined project results. Project Tracking can also refer to Project Management software, which automates the tracking of task, assignments, events, and activities relate to the project. A project tracking system assists you to recognize all of the tasks that are required to complete your project successfully on time. That is why it is recommended to be deployed during planning phase of a project to control and regulate the allocated resources. It provides a fully automated monitoring and evaluation system of financial requests by simply tracking planned, actual and modified expenditures to information system accounts. The project tracking system provides a highly-standardized, automated technique of budget and planning management across a diverse group of activities. (Sakda 2007)

2.1.2.2 Project Monitoring

According to KnowledgeHut (2011),Project Monitoring refers to the process of keeping track of all project-related metrics including team performance and task duration, identifying potential problems and taking corrective actions necessary to ensure that the project is within scope, on budget and meets the specified deadlines.

To simply put, project monitoring is overseeing all tasks and keeping an eye on project activities to make sure you're implementing the project as planned.

When project managers make important decisions without verified data, it is like taking a stab in the dark. Your decisions will be based on very little to no evidence, so the action may not be very efficient and could only be a waste of time and resources.

2.1.3 Project Management Features

2.1.3.1 To Do List

To-Do List is a fundamental task management that prioritized lists of all the tasks that users need to carry out. It will list all everything that user has to do with all the most important tasks. To do list is focus on tasks that users have to be done, without missing any detail. The system will appear all the tasks for user to do. Using To Do List function in the system, it will help users to organize, prioritize, and improve their work operations more effectively. (Sam Asadi, 2016)

2.1.3.2 Milestone Management

According to “Jason Wastand” 1028, Milestone management is a management that used to delineate a point in project schedule. These points can note the project’s start and end date of the project. Milestones are a way to see how far users are come in the project. By noting the completed milestones, users can measure the distance users are from the finish line of a project. Using milestone in this system for determine the project process of the users. Users can know that where their works stay on now (tracking).The system will show users the milestones their completed in this time and the ones users are on track to complete for the coming time.

2.1.3.3 Forum Chatting

This forum is for users to sharing and gain knowledge of project management. And it is an online discussion site where people can hold conversations in the form of discussion. It use for student and advisor to talk or discussing about the project or something else.

2.1.3.4 File Sharing

File sharing is the space for sharing the any documents or file of users into the system. User is being able to upload, to read or view copy and download it. Every team member can insert information into the system and others will have quick access whenever and wherever they need it. Some project management tools enable adding files to projects for quick sharing.

When choosing your project software, check whether they offer free storage for uploading your files and data. (Scoro 2013)

2.1.3.5 Time Tracking

Time tracking refers to how system record the working hour for users and ensure those users are compensated accurately for their time. It is a subcategory of time and attendance, which is a broad term that typically encompasses time tracking as well as other elements like attendance and scheduling. Time tracking, enables users to track time spent on tasks. Time tracking allows user to monitor the effective working hours of user involved in a project.

(Bamboohr, n.d)

And it is a way to track the project process of students. This system will let users know that when the time for submit is coming, students can submit their work on time or not. If the student can't submit the work on time, the system will lock so, student can't continue to the next step.

2.2 OBJECT-ORIENTED PARADIGM

Object-oriented paradigm is an approach to the solution of problem in which all computations are performed in the context of object.

The object-oriented paradigm took its shape from the initial concept of a new programming approach, while the interest in design and analysis methods came much later.

The other significant innovations were Object Modelling Techniques (OMT) by James Rumbaugh and Object-Oriented Software Engineering (OOSE) by Ivar Jacobson.

2.2.1 Object-Oriented Analysis (OOA):

Object–Oriented Analysis (OOA) is the procedure of identifying software engineering requirements and developing software specifications in terms of a software system’s object model, which comprises of interacting objects. The main difference between object-oriented analysis and other forms of analysis is that in object-oriented approach, requirements are organized around objects, which integrate both data and functions. They are modelled after real-world objects that the system interacts with. In traditional analysis methodologies, the two aspects - functions and data - are considered separately. Grady Booch has defined OOA as, “Object-oriented analysis is a method of analysis that examines requirements from the perspective of the classes and objects found in the vocabulary of the problem domain”. The primary tasks in object-oriented analysis (OOA) are: Identifying objects Organizing the objects by creating object model diagram Defining the internals of the objects, or object attributes Defining the behavior of the objects, i.e., object actions Describing how the objects interact The common models used in OOA are use cases and object models.(Tutorials Point, 2014)

2.2.2 Object-Oriented Design (OOD):

Object–Oriented Design (OOD) involves implementation of the conceptual model produced during object-oriented analysis. In OOD, concepts in the analysis model, which are technology–independent, are mapped onto implementing classes, constraints are identified and interfaces are designed, resulting in a model for the solution domain, i.e., a detailed description of how the system is to be built on concrete technologies. The implementation details generally include: Restructuring the class data (if necessary), Implementation of methods, i.e., internal data structures and algorithms, Implementation of control, and Implementation of associations. Grady Booch has defined object-oriented design as “a method of design encompassing the process of object-oriented decomposition and a notation for depicting both

logical and physical as well as static and dynamic models of the system under design”.
(Tutorials Point, 2014)

2.2.3 Object-Oriented Programming (OOP):

Object-oriented programming (OOP) is a programming paradigm based upon objects (having both data and methods) that aims to incorporate the advantages of modularity and reusability. Objects, which are usually instances of classes, are used to interact with one another to design applications and computer programs. The important features of object-oriented programming are: Bottom-up approach in program design Programs organized around objects, grouped in classes Focus on data with methods to operate upon object's data Interaction between objects through functions Reusability of design through creation of new classes by adding features to existing classes Some examples of object-oriented programming languages are C++, Java, Smalltalk, Delphi, C#, Perl, Python, Ruby, and PHP. Grady Booch has defined object-oriented programming as “a method of implementation in which programs are organized as cooperative collections of objects, each of which represents an instance of some class, and whose classes are all members of a hierarchy of classes united via inheritance relationships”.(Tutorials Point, 2014)

2.3 RELATED WORK

2.3.1 Industrial Project Tracking System (IPIS)

According to Sameeya Wopha And Assama Malidong (2017) , studied of the Industrial Project Tracking System (IPTS) of Information Technology Project course. This research is discussed the background and the importance of the developing a system to track the student project in IT project course, which has a steps in a difficult operation and complex of the

project tracking of students. Most students do not understand the correct project process such as student do not know how many times have to meet and consult with advisor before the presentation, students work do not follow the system, skip the project step causing delays and failures in the project operation.

Thus, the developer has developed a system that can track project and manage student project. The developer will develop this system using online system which is users can be operated 24 hours a day. IPTS is developed to provide users into three groups: 1) administrator 2) fourth year students or students who register IT Project 3) lecturers (advisor and committee). Administrator can manage and make changes to all system general information. The advisor checks the progress of the project and gives students the grade. The committee assess student's project, which must be evaluated by all members of the committee. IPTS has been developed using AppServ as a simulation server for testing system and uses PHP, HTML, CSS and JavaScript to write code and storage with MySQL.

As a result, the Industrial Project Tracking System can convert the manual format to be electronically. In actually, the aim of project is not only providing the system which can add, view, check project status and manage the schedule of project presentation, it also needs to measure of the users satisfaction after used the IPTS. But the developers of this project could not, because of the time limitation.

2.3.2 Online Project Timeline Tracking

Artthapol Bourwat (2011) Research "Online Project Timeline Tracking". This research is discussed the system Online Project Timeline Tracking .The system is designed to provide members of the project have to communicate more easily. The purpose of the research is to use the web application functions. Help to build Tools, help the project management to be effective.

In the implementation of the project for system development, there must be coordination with many parties. Which each department is responsible for the work in the relevant area and must inform the progress of each job to Project manager and parties that are involved in the project That it is in accordance with the planned time frame. From the nature of the current work , it is found that There is a delay in the operation.

Results of using the system, after using Online Project Timeline Tracking system to trial . Which has received good cooperation From employees in the department Come to join the test by referring to the project that each person is actually responsible for each project.

In conclude, from the study of problems in the management of information projects and system requirements , Therefore has set up a Online Project Timeline Tracking. By using web apps applications (Web Application) is the main tool.

2.3.3 Project Progress Tracking System

Narathip Wongpun (2006) Research "System to track student progress in business computer project of Far Eastern University Chiang Mai Province". This research is discussed the background of project and the importance of developing a system to track student progress in project subjects, which has a large number of students together with being a 4th year student who has quite a few subjects. There are some students are no need to come to the university to affect the consultation value and monitoring the project posture, causing delays and failures in operation.

Thus, the developer has developed a system to track progress under the scope and context of the university, which the system can control and support in many steps include (1) Progress tracking system in the process of proposing project headlines (2) Project examination management system (3) Project and document storage system (4) Project summary report system. From the above system development As a result, students and advisors can continue to

monitor the progress of the project implementation. As well as facilitating operations at various stages directly related to the system.

In conclude, the Project Progress Tracking System can support and facilitate the implementation of project management, which is useful both to students, teachers and educational institutions. It's also considered a factor another important aspect of the project management process. Thus, the developer saw the idea of adjusting the format of the system to be in line with the university's context, since each university has different operational guidelines.

Sansanee Taron (2011) Research Project "Project Progress Tracking System Case Study: Data Preparation Group, National Statistical and Information Technology Center". This research discusses the origin and importance of the development of the project tracking system of the data preparation section within the National Information and Communication Technology Center, which is a lot of work related to information coordination. Therefore there is a deviation in coordination, especially tracking the progress of the project and the follow-up of progress through communication interpersonal substance if found the person responsible for that project makes tracking work is complicated and delayed.

By conducting a real trial with 10 related users, the results of the system can show a report of progress to users at a good level. It can support progress notification via the system. And make the administrator can use such information for planning and manage the next project can be immediately and increasing the efficiency in monitoring work and project operations well.

The developer concluded that development of project tracking system can be applied with other work processes, which helps to promote coordination between practitioners and executives. That's clearly shows the overall picture of the project implementation and is a

system that can be used via internet channel allowing users to more easily track project progress.

2.3.5 FST Action Tracking System

Roseedah Mayalee, Nurida Enarae, (2012) Research "Faculty of Science and Technology Action Tracking System "This research is cover the importance and the problem statement of the project, which has a large number of students failures in project progress operation and tracking. In Faculty of Science and Technology of Yala Islamic University has been using traditional way to check and track activity. First of all, it is inconvenient to check and track activity. When user need to know activity there have to go the office by them self to get information. Second the information retrieval has been done slowly. When there need to find and retrieve a document using paper it is slow. In this situation where information contains in a document is required immediately. So it takes a long time to find it. Finally it concern with the way to maintain the information about activity. Usually the information is store in difference place because of a lot of project activity. It is hard to collect document and document might be damage and destroy.

So, the developer has developed a system develop a new system called tracking system for Faculty of Science and Technology, which This system proposes to help user easy to tracking activity of faculty of science and technology from traditional way to be a system. And this system is developed from manual system to be electrically system. FST action tracking system is a new system that consists of three main functions such as track project, view status of project and update project. This system developed by using PHP for write code and used Phpmyadmin for design database and used Adobe Photoshop for design user interface. This system consisted of four subsystems such as admin, lecturer, officer, and student of science and technology. As a result, this project has achieved the objective in developing the manual system to be new system.

2.4 TOOL OF USED

2.4.1 Front End

HTML: This software is stand for Hypertext Markup Language. "Markup language" means that, rather than using a programming language to perform functions, HTML uses tags to identify different types of content and the purposes they each serve to the webpage. It's a set of Markup symbols or codes inserted in a file intended for display on a World Wide Web browser page. Each page contains a series of connection to other pages called hyperlink. (Lindsay Kolowich, 2010)

CSS: This software is used for web designing. It's a style sheet language which is used to describe the look and formation of a written in markup language. CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colors, and fonts. It provides an additional feature to HTML. It's generally used with HTML to change the style of web pages and user interfaces. (Vaibhao Ghonge, 2015)

JavaScript : This software is a high-level, dynamic, un-typed, and interpreted programming language. It used to make web page interactive. It's what gives a page life, the interactive elements and animation that engage a user. It is a Scripting (lightweight) or a browser language, used to make web pages interactive. We can insert a dynamic text into HTML through JavaScript.(Renuka Peshwani, 2010)

Bootstrap: is free open source front end web framework to develop responsive (Mobile friendly) webpage. Bootstrap has HTML, CSS templates for better development of webpage. Bootstrap is very powerful technology and the second most-started project on GitHub. (Sumit T Jadiya, 2017)

2.4.2 Back End

PHP: PHP is a one type of computer language of the scripting language. This software is a widely used open source general purpose scripting language that is especially suited for web development and can be embedded into HTML. PHP is a server-side scripting language designed for Web development. (Vinod, 2016)

2.4.3 Database/ Web Server

XAMPP Control Panel V3.2.2

XAMPP: is a free and open-source cross-platform web server solution stack package developed by Apache friends, consisting mainly of Apache HTTP Server, MariaDB database, and interpreters for script writing in the PHP and Perl Programming Language. (Revel Yusuf, 2018)

And we use XAMPP for collect and store all information of Information Technology Project Monitoring and Tracking.

MySQL: is one of the most popular Open Source Relational SQL Database Management System used widely for storing and managing the structured data. It is one of the best RDBMS being used for developing various web-based software applications. (Shambhavi Shukla, 2018)

Apache: Apache is the most widely used open-source, cross platform web server meant for hosting one or more HTTP-based websites. It is free to download and is considered to be a reliable platform by majority of internet consumers on a global scale.(Sarah Elson, 2018)

Navicat Premium: is a desktop version of phpmyadmin. Meaning you need to install it on your computer to be able to run it. Phpmyadmin runs on a server. And it is a database development tool that allows you to simultaneously connect to MySQL, MariaDB, MongoDB, SQL Server, Oracle, PostgreSQL, and SQLite databases from a single application. You can quickly and easily build, manage and maintain your databases. (Ber Verhelst, 2017)

2.4.4 IDE/ Text Editor

PHPStorm: is a featured packed IDE [Integrated Development Environment] that can help developer's life easy in many ways. IDE facilitates the web developer for software and web development, including editing, debugging and build automation. In general, most IDE in bare minimum includes the following: Code Editor, Debugging or Testing Environment, Compiler, Build Automation. (Robin Thebe, 2015)

2.4.5 Code Repository

GitHub Desktop

Git is an example of version control. Version control is a system that records change to a file or set of file and helps us recall specific version later if needed. Github is a repository hosting service for Git. Github is a collaboration platform built on top of a distributed version control system called Git. One does not have to worry about losing data on his hard drive or managing a project across multiple computers -one can sync from anywhere. We can track issues, build and test the things and finally deploy. The new Github Desktop is now available. It's a fast, easy way to contribute to project from OS X and Windows. Whether you're new to Github or a seasoned user, Github Desktop is designed to simplify essential step in your Github

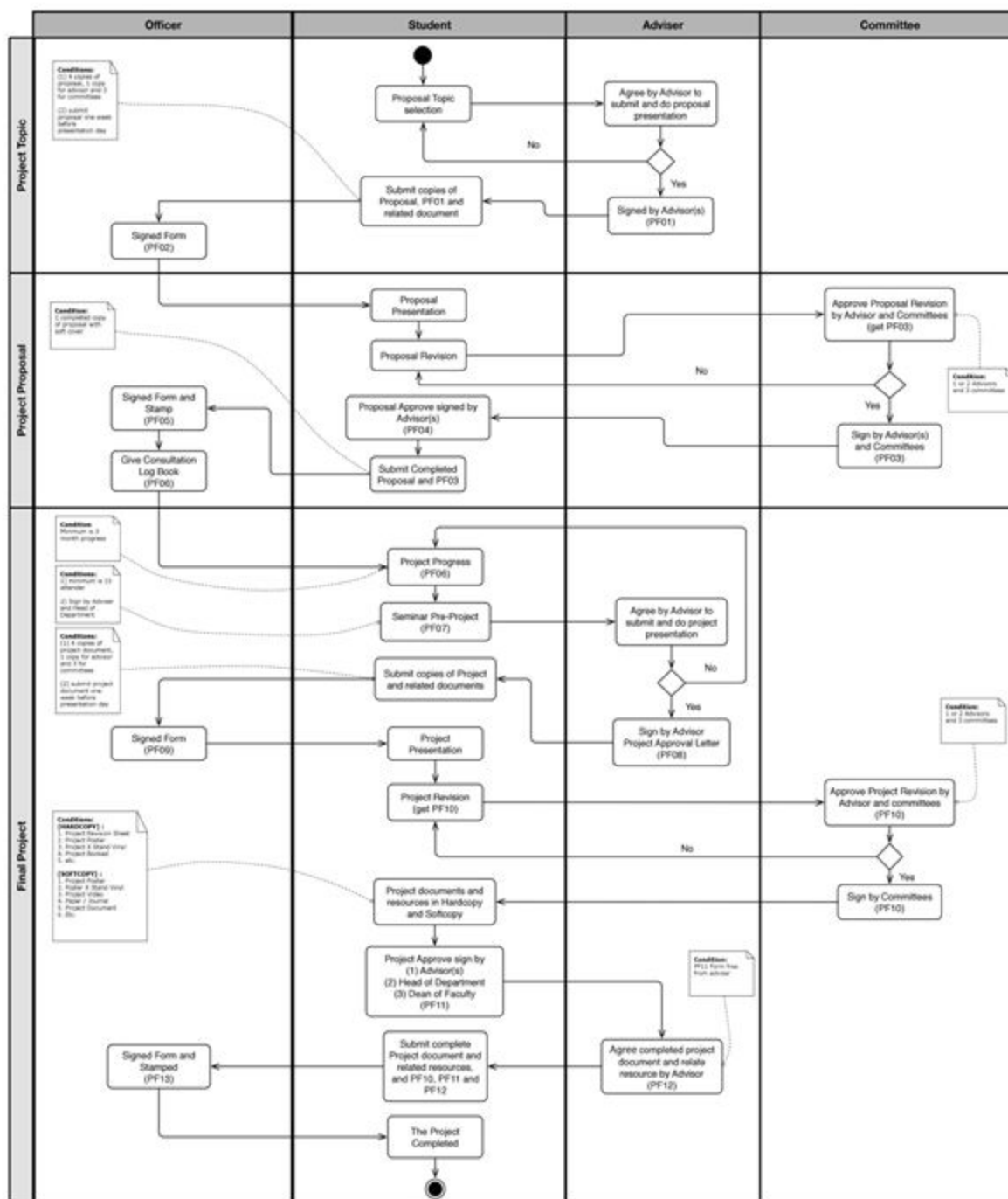
workflow and replace Github for Mac and Windows with a unified experience across both platforms. (Amy Palamountain, 2015)

2.4.6 StarUML

The StarUML is a tool useful of designing of software. It is used to describe aspects of a software system such as structure, behavior, etc. And it can describe multiple perspective of a software system in different perspectives by creating multiple models such as Use Case Diagrams, Class Diagrams, ER Diagrams, Data Flow Diagram, Flow Chart, etc. of the IT Project Monitoring and Tracking System. (Anurag Rajput, 2018)

Flow Process of Information Technology Project

IT234-232 โครงการเทคโนโลยีสารสนเทศ - Information Technology Project
 IT2301-321 โครงการเทคโนโลยีสารสนเทศ - Information Technology Project I, II



CHAPTER III

METHODOLOGY

The methodology is an important part of this project because it explain the procedures that used to achieve the objectives. For this project, It explains and describes the step and activity of IT project Monitoring and Tracking. In the study and development of IT Project Monitoring and Tracking, the developers have analyzed and design the system by considering the Rational Unified Process (RUP) Methodology. Rational Unified Process (RUP) is the ultimate guide for assigning tasks and responsibilities within a development organization and developing a high-quality software that meets the needs and requirements of its users. The RUP divides the development process into four distinct phases that each involve business modeling, requirements, analysis and design, implementation, testing and deployment as shown in the figure 3.1.

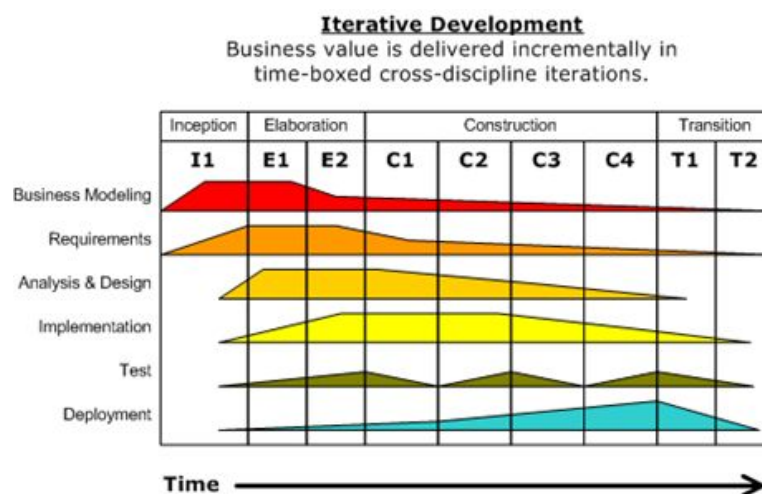


Figure 1 Rational Unified Process (RUP)

(From: Dutchguilder, 16 October 2007)

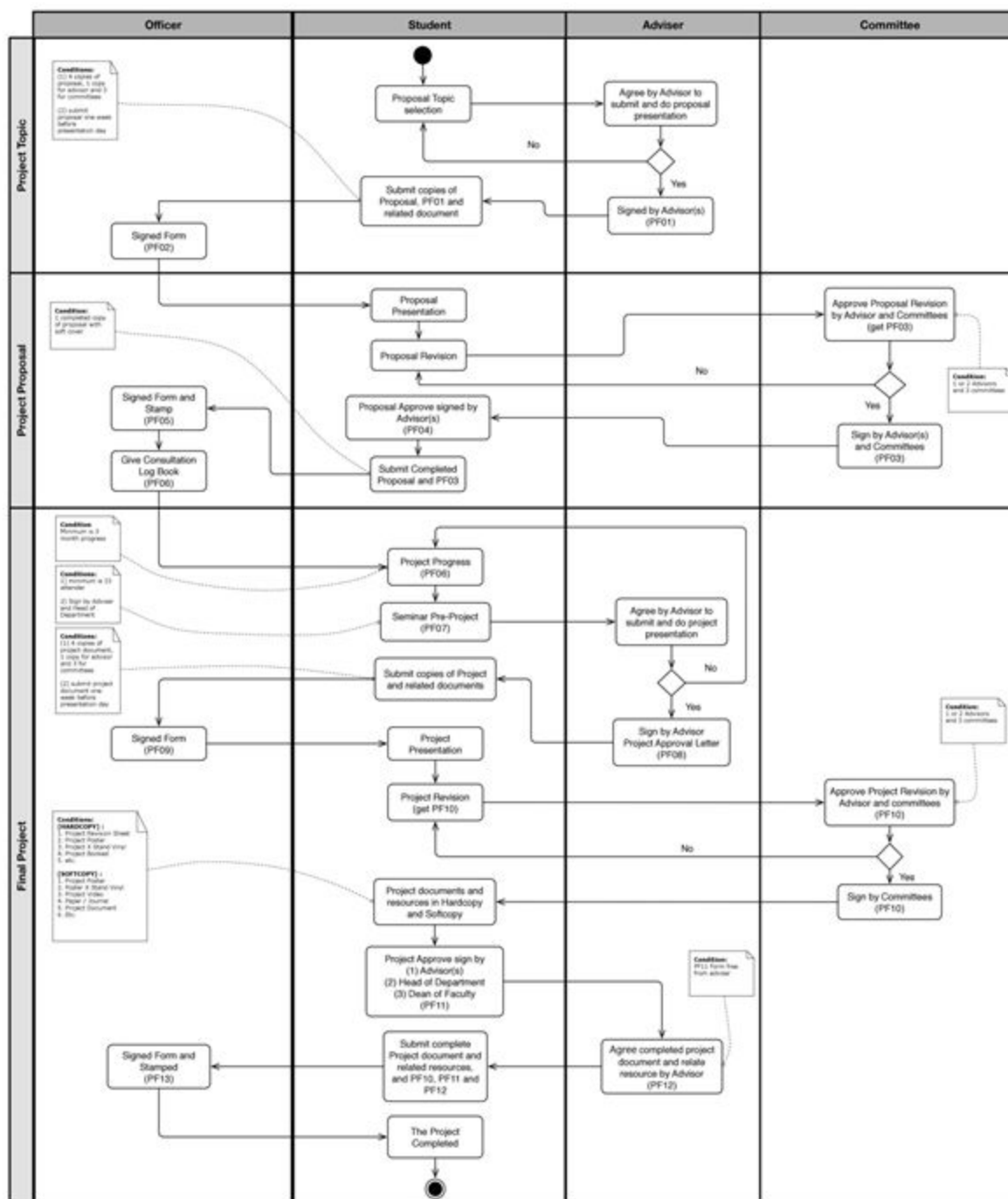
The software lifecycle is broken into cycles, each cycle working on a new generation of the product. The RUP divides one development cycle in four consecutive phases. These phases allow the process to present at a high level in similar way to how a Waterfall- styled project might be presented, although in essence the key to the process lies in the iterations of development that lie within all of the phases. Also, each phase has one key objective and milestone at the end that denotes the objective being accomplished.

3.1 INCEPTION PHASE

Inception is the first phase of four Rational Unified Process (RUP) phases. The life-cycle objectives of the idea for the project is stated. During this phase, the developer will set all about getting familiar with project goal and scope. The boundary condition and some requirements are established. In this phase the business case is the initiation step for develop the project which developer have to find the topic. What the topic that developer interest to do or want to develop. When the developer got the project topic that have to develop as IT Project Monitoring and Tracking (ITPMT) System, the developer has to determine the project overview, project objective, scope, the problem statement, risk assessment, expected benefits of develop this project (More information in chapter 1 and 2).

Flow Process of Information Technology Project

IT234-232 โครงการเทคโนโลยีสารสนเทศ - Information Technology Project
 IT2301-321 โครงการเทคโนโลยีสารสนเทศ - Information Technology Project I, II



3.2 ELABORATION PHASE

Elaboration is the second of the four phases in the RUP approach. In this phase, an analyze the requirements, establish a necessary architecture foundation is done. The developer have to make understand about IT Project monitoring and tracking and to find the sample system that relate to ITPM from the website or other document report of the senior project. The step and software, hardware requirement also have to find on this phase so. The developer has to deeper understand of requirement and other in order to analyze the function for ITPMT system. The outcome of this phase are:

3.2.1 List of Requirement

This section show the list of requirements are the document or a table containing all the requirements to a certain system. It is written to allow people to understand what a system should do. There are three kind of system requirements as following;

- M-mandatory requirement (what the system must do)
- D-desirable requirement (what the system preferably should do)
- O-option requirement (what the system may do)

D	Project management features	Requirement ID	Requirement Name	Requirement Description	Priority
	Fundamentals	REQ_1	Register	Users (students) have to register	M
		REQ_2	Login	-Admin login to admin page -Lecturer login to adviser page -Student login to student page -Officer login to officer page	M
		REQ_3	Manage Member	- Admin can select committee to student Admin can update/delete member information - Admin can accept user's request	M
		REQ_4	View all Project topic	- Users (admin, advisor, student) can view all project topic	M
		REQ_5	View all Member	- Admin can view all member	M

	To-do lists - สามารถที่จะ add form pf01-pf13 ได้ - และกระบวนการด้านใน เป็น milestone	REQ_6	Request Advisor/ topic	-Student can request a advisor - Student can request topic information	M
		REQ_7	Respond request	Lecturer can respond request advisor	M
	File sharing	REQ_8	Manage File	-Student/Lecturer can upload file -Student/Lecturer can delete file -Student/Lecturer can update file -Student/Lecturer can download file	M
		REQ_9	Manage Announcement	min/lecturer can add announcement -Admin/lecturer can update announcement -Admin/lecturer can delete announcement	M
		REQ_10	Manage project proposal	-Admin/Student can add project proposal -Admin/Student can update project proposal	M

				-Admin/Student can delete project proposal	
	Milestone	REQ_11	View schedule	-Admin can view exam schedule Lecturer can view exam schedule Student can view exam schedule	M
		REQ_12	Manage Schedule	-Admin/lecturer can add Schedule Admin/lecturer can update Schedule Admin/lecturer can delete Schedule	M
	Time Tracking	REQ_13	Track Project	-Advisor can track project -Student can track project	M
		REQ_14	View Project progress	Users (lecturer, student) can view project progress	M
		REQ_15	Give Mark	-Advisor can give mark -Advisor can update mark Committee can select pass / not pass	M
	Forum chatting - จะอยู่บนหน้าแต่ละ pf01 เป็นการคอมเม้น ตอบโต้	REQ_16	Join Group	-Student can join group with advisor	M

Table 1 : List of requirement table

3.2.2 Use Case Diagram

This section is to show the use case diagram. It's the behavior diagram used to presentation of the user's interaction with the system that show the relation between user and the different use cases in which the user is involved. The all entities associated with the system is represented as an actor. The actor can be a human, and external system.

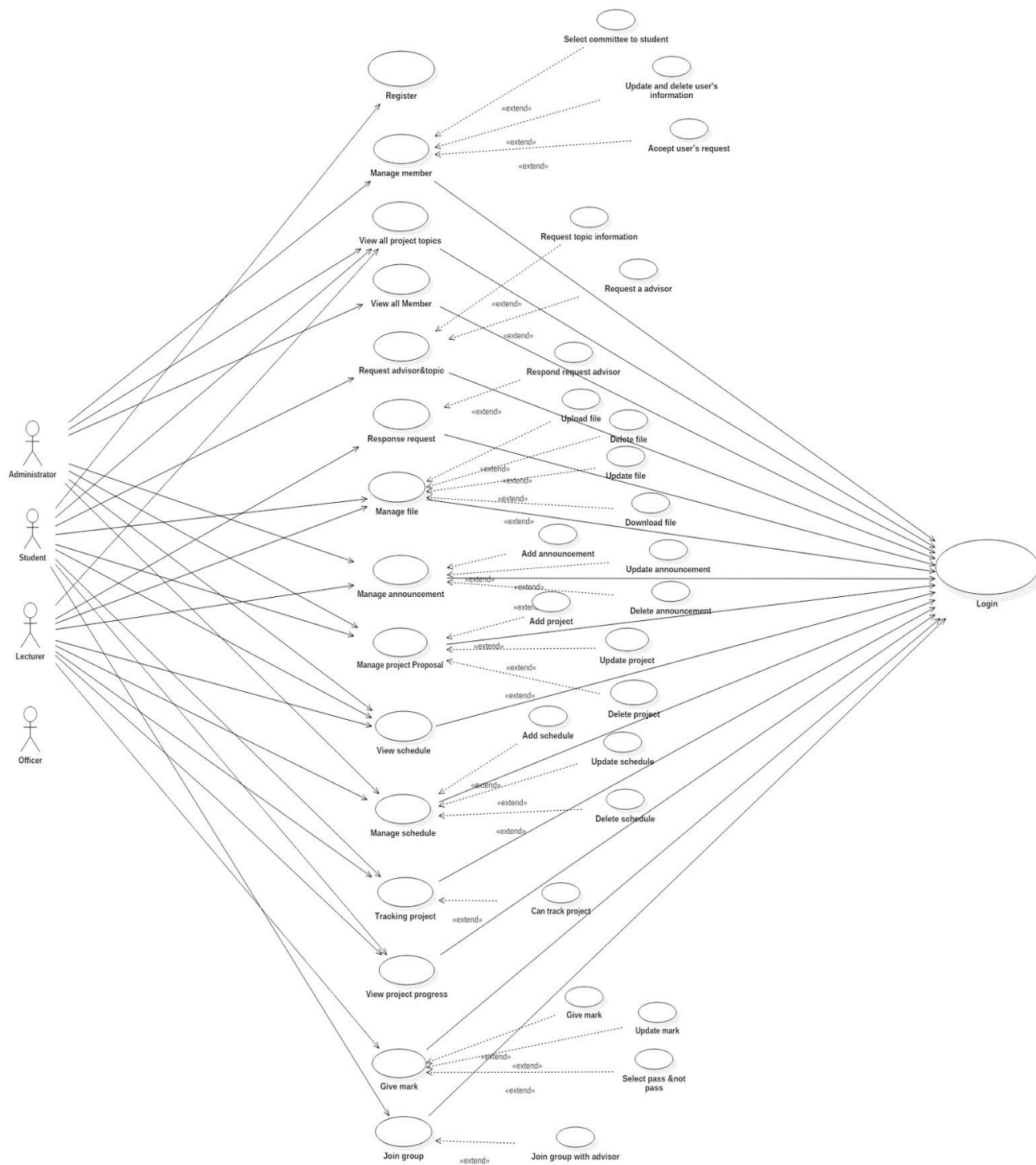


Figure 2 Use Case Diagram: Administrator, Officer, Lecturer, Student

3.2.3 Use Case Description

This section is to show the use case specification. Use case specification is synonymous to use case description and use case definition and use case interchangeably. Use case specification defines information that pertains to a particular use case which is important in understanding the purpose behind the use case.

1. Use Case Login

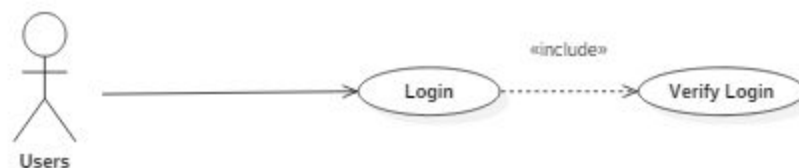


Figure 3 login task

1. ID: REQ_1

2. Brief Description

This use case will allow actor (Admin, Lecturer, Student and Officer) to access to the system.

3. Actor

Admin , Lecturer, Student and Officer

4. Preconditions

The actor must have a username and password to perform task.

5. Post-condition

The Actor can login to the system.

6. Flow of Events

a.Main Flow

1. All authorized actors want to login into the system.
2. Actor first must to UserName ID and Password.
3. This use case start when the actor press on login link. The system display a login form
4. The user enter correct UserName ID and Password.
5. The actor press on button login
6. The system authenticate the actor, and display the session request
7. The use case end

b. Alternative flow

- A. if actor have no UserName ID and Password:

A-1 : Actor request to create their own new account

A-1 : Go to Main Flow -step4

- B. If Actor entered the invalid UserName ID or Password

B-1: The system display an error message.

B-2 : Try with another UserName ID or Password

B-3 : Go to Main Flow -step 5

7. Limitation

The Password must contain at least 8 characters.

2. Use Case Member Registration

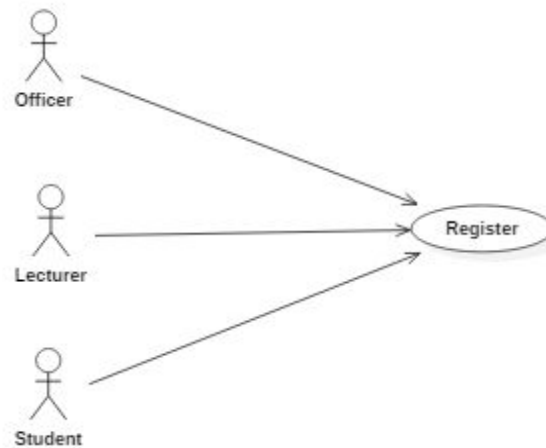


Figure 4 register request task

1. ID: REQ_2

2. Brief Description

This use case will allow user to request the registration to be a member.

3. Actor

Lecturer, Student and Officer

4. Preconditions

User send all their own required information request to be a member.

5. Post-condition

User are registered if admin approve.

User are not register if admin does not approve.

6. Flow of Events

a.Main Flow

1. User send all their required information for request to be a member
2. Admin look for user information request
3. Admin approve user's request according to the user whose relevant with IT Project course.
4. User are registered
5. The use case end

b. Alternative flow

A: if user whose relevant with the IT Project process, but did not send their required information for request to be a member ,

A-1 : The admin announced them to send own full information to request the registration to be a member.

A-2 : Go to step 3

B: if user request the registration to be amember, but their are not relevant with IT project,

B-1 : The admin does not approve their request

B-2 : User are not registration.

B-3 : The use can end.

7. Limitation

The user must be whose relevant with IT Project.

3. Use Case Manage Member

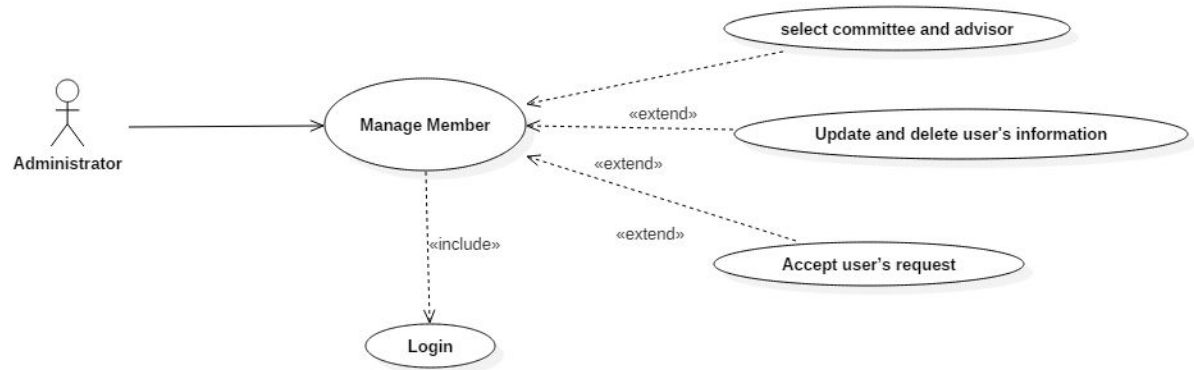


Figure 5 manage member task

1. ID: REQ_3

2. Brief Description

This use case will be used to allow the administrator to manage member whose enter in the system. The Admin can select committee to student for exam presentation time, can add, update, and delete user's information.

3. Actor

Administrator

4. Preconditions

The administrator must login in order to perform task.

5. Post-condition

- The Administrator can select committee to student.
- The Administrator can update/delete user's information.
- The Administrator can accept user's request.

6. Flow of Events

a. Main Flow

1. This use case begins when administrator select the manage member on admin dashboard.
2. The system display manage member information as A-1 , A-2, A-3
3. Administrator click update button to insert information in the form update member
4. Administrator click delete button to delete user's information
5. The use case end when the system successfully task

b. Alternative flow

A-1 : Select committee to student

The system shall selected committee to student information.

A-2 : Update/ delete user's information

The system shall update/ delete user's information from system

A-3 : Accept user's request to the system

The system shall accepted member to the system.

A-4 : Cancel user's request

7. Limitation

No limitation.

4. Use Case Manage Exam Schedule

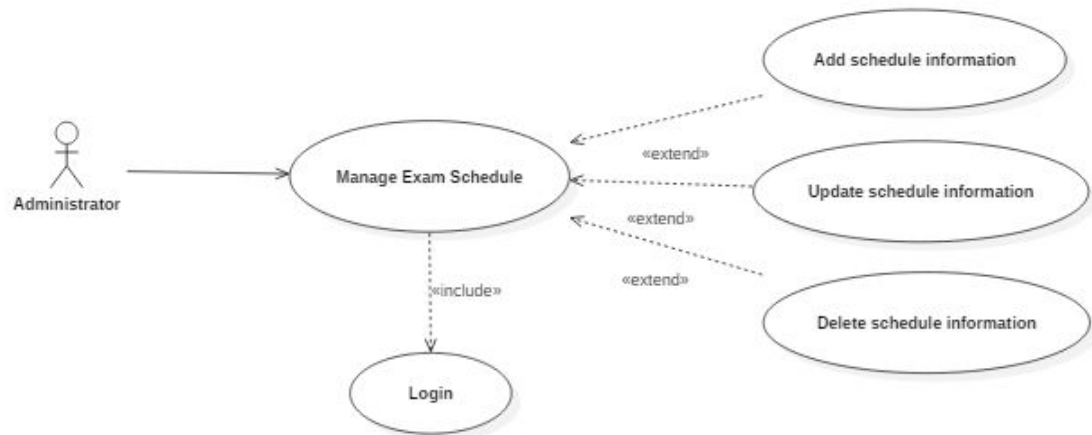


Figure 6 manage exam schedule task

1. ID: REQ_4

2. Brief Description

This use case will allow administrator to manage schedule of project in the system. The admin can add schedule information, update schedule information, and delete schedule information.

3. Actor

Administrator

4. Preconditions

The Administrator must login in order to perform the task.

5. Post-condition

The administrator can add schedule information, update schedule information and delete schedule information in the system.

6. Flow of Events

a. Basic Flow

1. This use case start when admin select the manage schedule project on the admin dashboard.
2. The administrator select the manage schedule information
3. The system display add schedule information, update schedule information, and delete schedule information page.
4. The administrator click add button to insert the new schedule information
5. The administrator click update button to insert the information in the schedule form
6. The administrator click delete button to delete the schedule information
7. The system shall validate the entering data
8. The use case end when the system successfully task

b. Alternative flow

A-1 : Add new schedule information

The system shall added new schedule information to the system.

A-2 : Update schedule information

The system shall updated schedule information in the system

A-3 : Delete schedule information

The system shall deleted schedule information from the system.

7. Limitation

No limitation

5. Use Case Request advisor



Figure 7 Request advisor task

1. ID: REQ_5

2. Brief Description

This use case will allow student to select lecturer to be the advisor.

3. Actor

Student

4. Preconditions

The student must login in order to perform the task.

5. Post-condition

Lecturer accept, student got the advisor

6. Flow of Events

a. Basic Flow

1. This use case start when student click on select advisor on the student control panel.
2. The student select the lecturer to be the advisor
3. The lecturer accept the student's request
4. Student got advisor
5. The use case end

b. Alternative flow

A: if lecturer does not accept the student's request,

A-1 : Student have to request the other advisor

6. Use Case Manage File

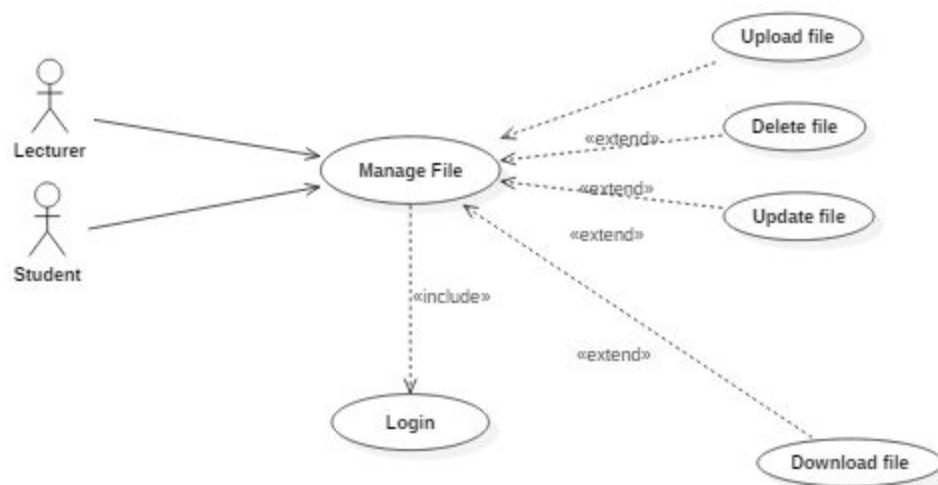


Figure 8 manage file task

1. ID: REQ_6

2. Brief Description

This use case will allow user to manage file or we can call file sharing in the system such as can Upload file information, Update file information, Delete file information, and Download file information.

3. Actor

Student, Lecturer

4. Preconditions

The user must login in order to perform the task.

5. Post-condition

The user can Upload file information, Update file information, Delete file information, and Download file information in to / from the system.

6. Flow of Events

a. Basic Flow

1. This use case start when the user click on file sharing in the user's dashboard.
2. The user click on file sharing
3. The system display upload file information, update file information, delete file information, and download file information into/ from the system

4. The user click on upload file to upload file project into the system
5. The user click on update file to update file project in the system
6. The user click on delete file to delete file project from the system
7. The user click on download file to download file project from the system
8. The use case end when the task complete successfully.

b. Alternative flow

A-1 : Upload file project

The system shall added file project into the system

A-1 : Update file project

The system shall updated file project in system

A-1 : Delete file project

They system shall deleted file project from system

A-1 : Download file project

7. Use Case Manage Announcement

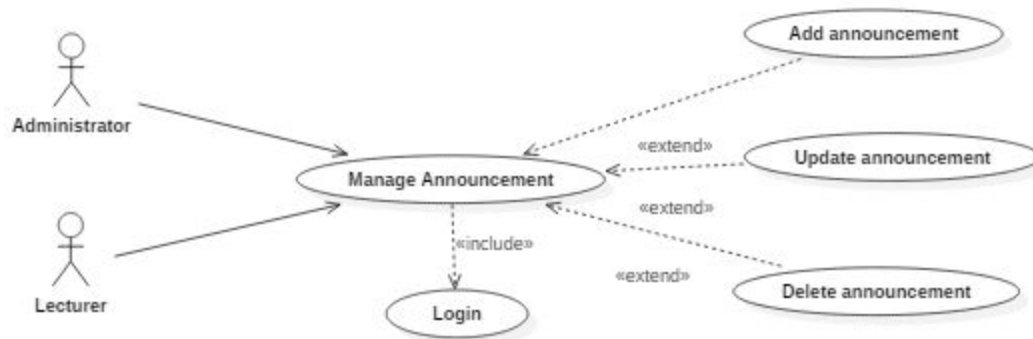


Figure 9 Manage Announcement task

1. ID: REQ_7

2. Brief Description

This use case will allow user (admin and lecturer) to manage announcement such as Add announcement, Update announcement, and Delete announcement in the system.

3. Actor

Admin and Lecturer

4. Preconditions

The user (admin & Lecturer) must login to perform the task.

5. Post-condition

The user (admin & lecture) can Add announcement, Update announcement, and Delete announcement in the system.

6. Flow of Events

a. Basic Flow

1. This use case begin when user (admin, lecturer) select announcement on the control panel.
2. The user (admin, lecturer) select forum announcement, (Add, Update, and Delete announcement)
3. The use case end when the task successfully completed.

b. Alternative flow

A-1 : Add Announcement information

The system shall added Announcement information to the system.

A-2 : Update Announcement information

The system shall updated Announcement information in the system

A-3 : Delete Announcement information

The system shall deleted Announcement information from the system.

A-4 : Cancel

The user press cancel button , the system will back to the previous page.

7. Limitation

No limitation

8. Use Case View all Members



Figure 10 View all Members task

1. ID: REQ_8

2. Brief Description

This use case will allow administrator to view all members in the system.

3. Actor

Administrator

4. Preconditions

The Admin must login to perform the task.

5. Post-condition

The admin can view all members in the system.

6. Flow of Events

a. Basic Flow

1. This use case being when the Admin click on view member on the admin dashboard.
2. The system will display the member's information.
3. The use case end

7. Limitation

No limitation

9. Use Case Give Mark

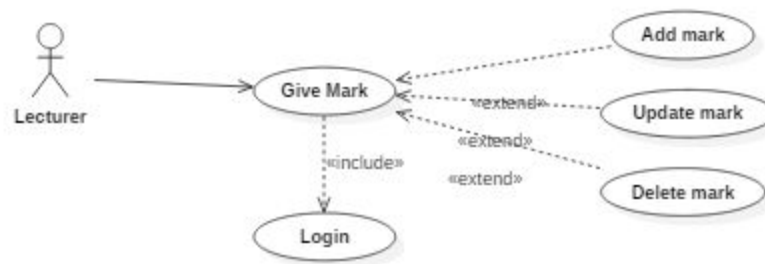


Figure 11 give mark task

1. ID: REQ_9

2. Brief Description

This use case will allow user to give mark to the student such as Add mark, Update mark, and Delete mark in the system.

3. Actor

Lecturer (advisor)

4. Preconditions

The lecturer must login to perform the task.

5. Post-condition

The lecture can add mark, update mark and delete mark to student in the system.

6. Flow of Events

a. Basic Flow

4. This use case begin when lecturer (advisor) select give mark on the lecturer 's dashboard.
5. The advisor select give mark information and insert the information in the form
6. Advisor press save button / cancel
7. The system shall validate the entering data
8. The system display new information added and update, delete page
9. The use case end when completely task.

b. Alternative flow

A-1 : Give mark information

The system shall added mark information to the system.

A-2 : Update mark information

The system shall updated mark information in the system

A-3 : Delete mark information

The system shall deleted mark information from the system.

A-4 : Cancel

The advisor press cancel button , the system will back to the previous page.

7. Limitation

No limitation

10. Use Case View Schedule

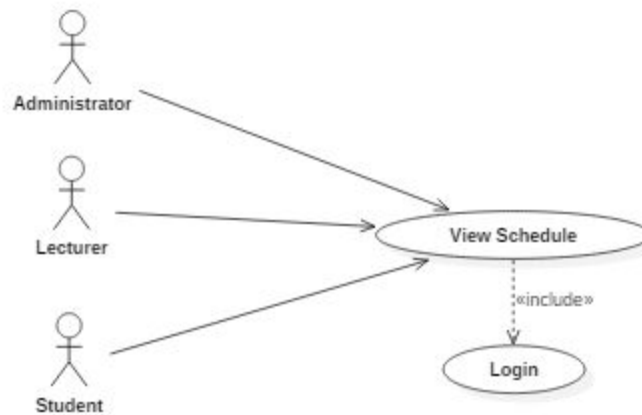


Figure 12 view schedule task

1. ID: REQ_10

2. Brief Description

This use case will be used to allow users (admin, student and lecture) to view schedule.

3. Actor

Admin, Student and Lecture

4. Preconditions

Users (admin, student and lecturer) must login first in order to perform task.

5. Post-condition

The users (admin, student and lecturer) can view the schedule of project process.

6. Flow of Events

a. Basic Flow

4. This use case being when the users click on view schedule
5. The system will display the schedule information.
6. The use case end

7. Limitation

No limitation

11. Use Case View all project topic



Figure 13 view project topic task

1. ID: REQ_11

2. Brief Description

This use case will allow users to view all project topic information in the system.

3. Actor

All users

4. Preconditions

-

5. Post-condition

Can view all project topic information.

6. Flow of Events

a. Basic Flow

1. This use case being when user press the view project topic.
2. The system will display the all project topic and detail
3. The use case end

b. Alternative flow

A-1 : Search project topic

A-2 : The system shall process the entering request.

A-3 : The system display the information request

7. Limitation

No limitation

12. Use Case View Project Progress

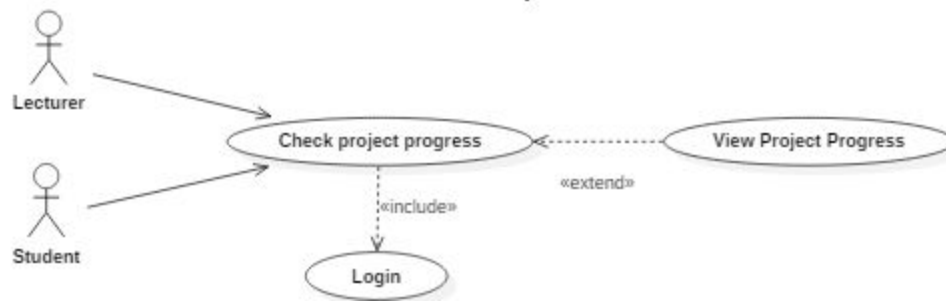


Figure 14 view project progress task

1. ID: REQ_12

2. Brief Description

This use case will be used to allow users (lecturer, student) to check project progress in the system.

3. Actor

lecturer, student

4. Preconditions

Users (student and lecturer) must login first in order to perform task.

5. Post-condition

The Lecturer and Student can Check project progress in the system.

6. Flow of Events

a. Basic Flow

1. This use case being when Lecturer (advisor) and Student press on the view check project progress.
2. The system display the request.

7. Limitation

No limitation

13. Use Case Track Project

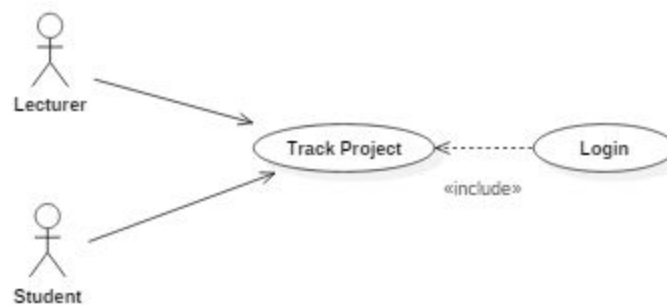


Figure 15 Track project task

1. ID: REQ_13

2. Brief Description

This use case will be used to allow users (lecturer, student) to track project in the system.

3. Actor

lecturer, student

4. Preconditions

Users (student and lecturer) must login first in order to perform task.

5. Post-condition

The Lecturer and Student can Track project in the system.

6. Flow of Events

a. Basic Flow

- This use case being when advisor and student press on ToDolist, Time tracking on the dashboard.
- The system shall display the request

7. Limitation

No limitation

14. Use Case Manage Project

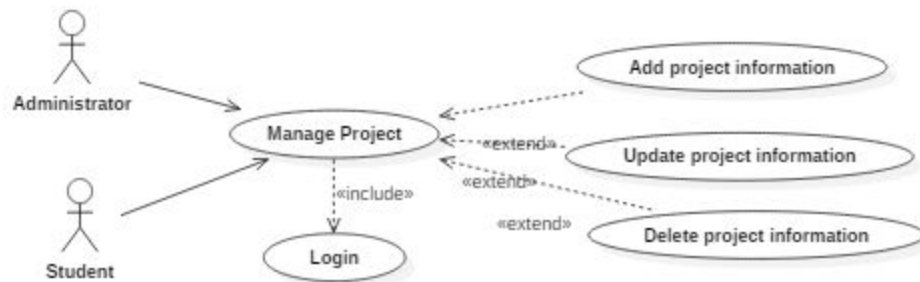


Figure 16 manage project task

1. ID: REQ_14

2. Brief Description

This use case will be used to allow users (Admin, student) to manage project in the system such as Add project information, Update project information, and Delete project information.

3. Actor

admin, student

4. Preconditions

Users (admin, student) must login first in order to perform task.

5. Post-condition

Can Add project information, Update project information, and Delete project in the system.

6. Flow of Events

a. Basic Flow

- This use case being when users manage project on the panel.
- The user select manage project (Add, Update and Delete) project information
- The system shall display the user's request page
- The system end when the task successfully completed.

7. Limitation

The Project must be the project which already done by the seniors or the project is doing now.

3.2.4 Activity Diagram

The Activity Diagram is another important behavioral diagram in UML diagram used to show the flow of operation in a system. Activity diagram is represented by shapes that are connected by arrows. Arrows run from activity start to completion and represent the sequential order of performed activities. Black circles represent an initial workflow state. A circled black circle indicates an end state. Rounded rectangles represent performed actions, which are described by text inside each rectangle. A diamond shape is used to represent a decision, which is a key activity diagram concept. Upon activity completion, a transition (or set of sequential activities) must be selected from a set of alternative transitions for use cases.

1. Users (Administrator, Officer, Lecturer, and Student) Login (REQ_1)

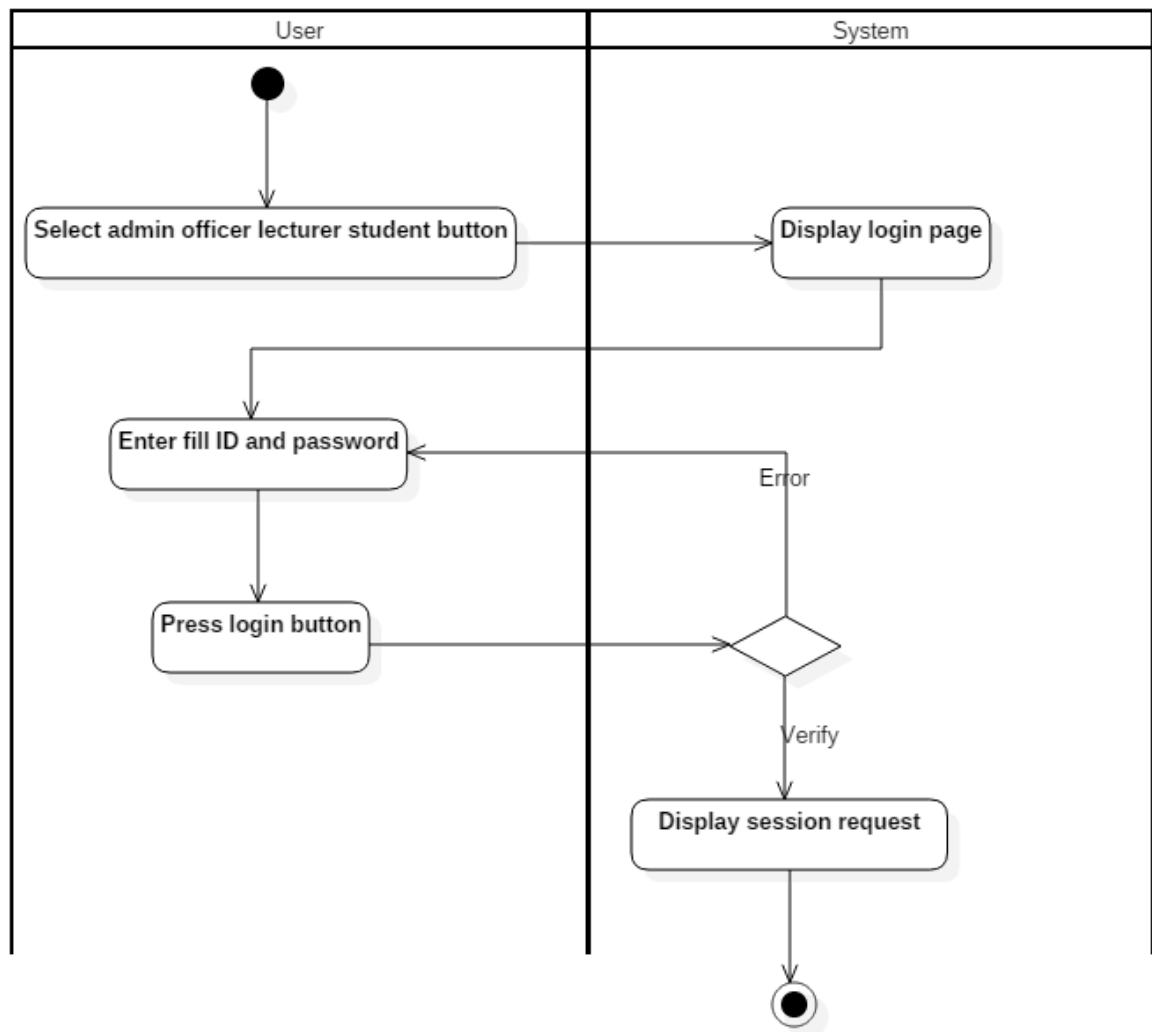


Figure 17 Activity Diagram: User's Login

2. Administrator Accept Member register

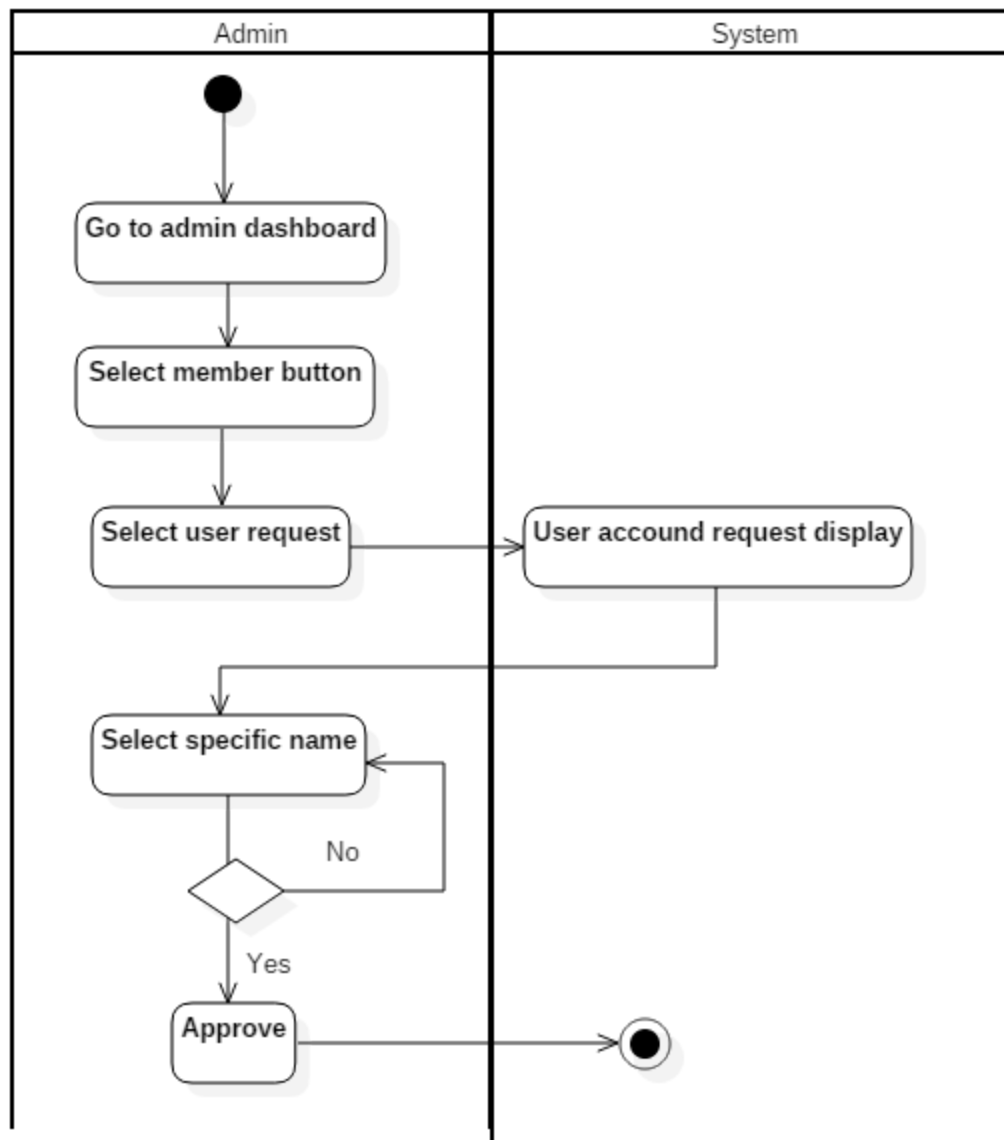
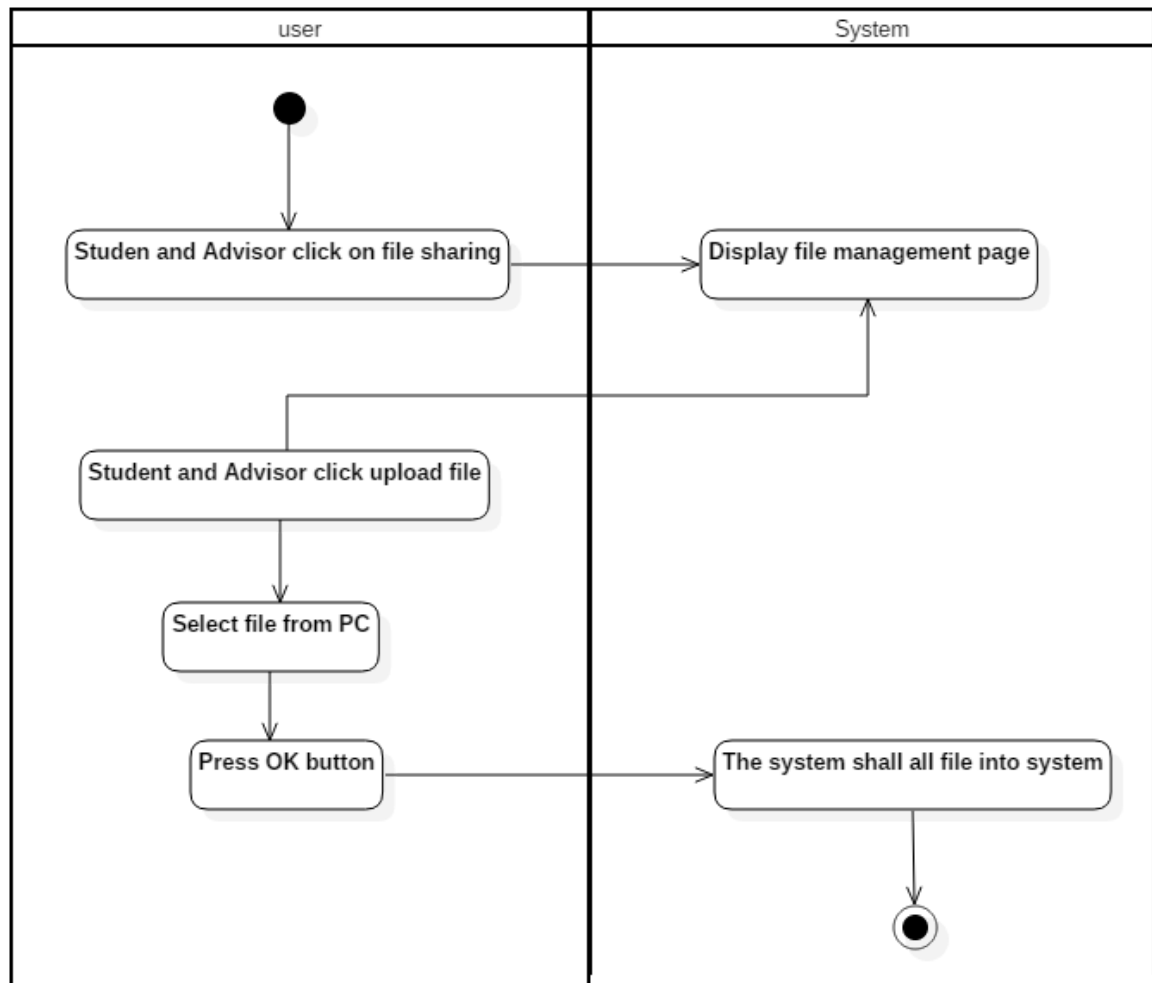


Figure 18 Activity Diagram: Administrator Accept Member register

3. Users (Lecturer and Student) Upload File (REQ_3)

*Figure 19 Activity Diagram: Upload File*

4. Administrator Manage Exam Schedule(REQ_4)

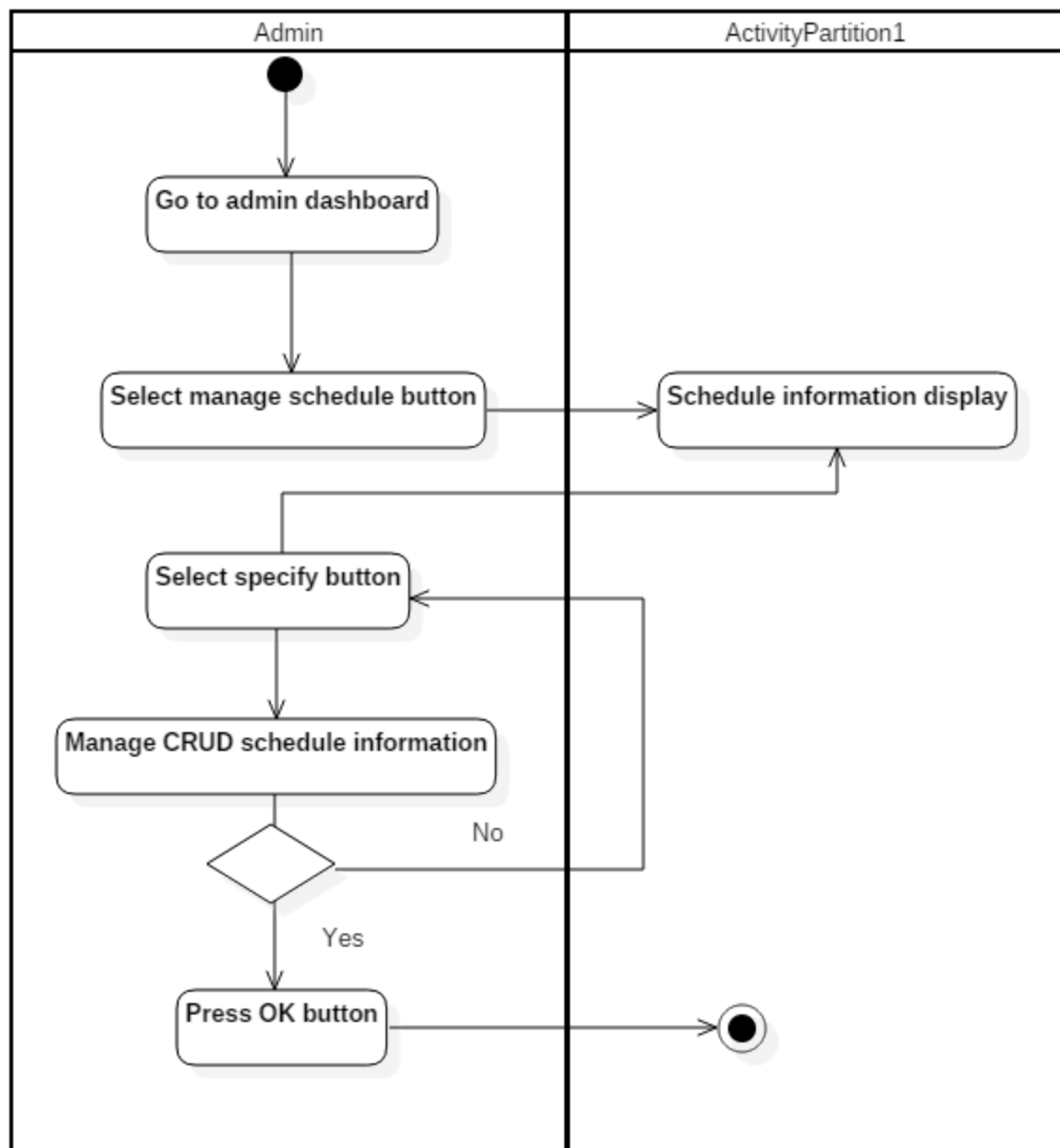


Figure 20 Activity Diagram: Administrator Manage Exam Schedule

5. Users (Administrator, Lecturer, and Student) View All Project Topic (REQ_11)

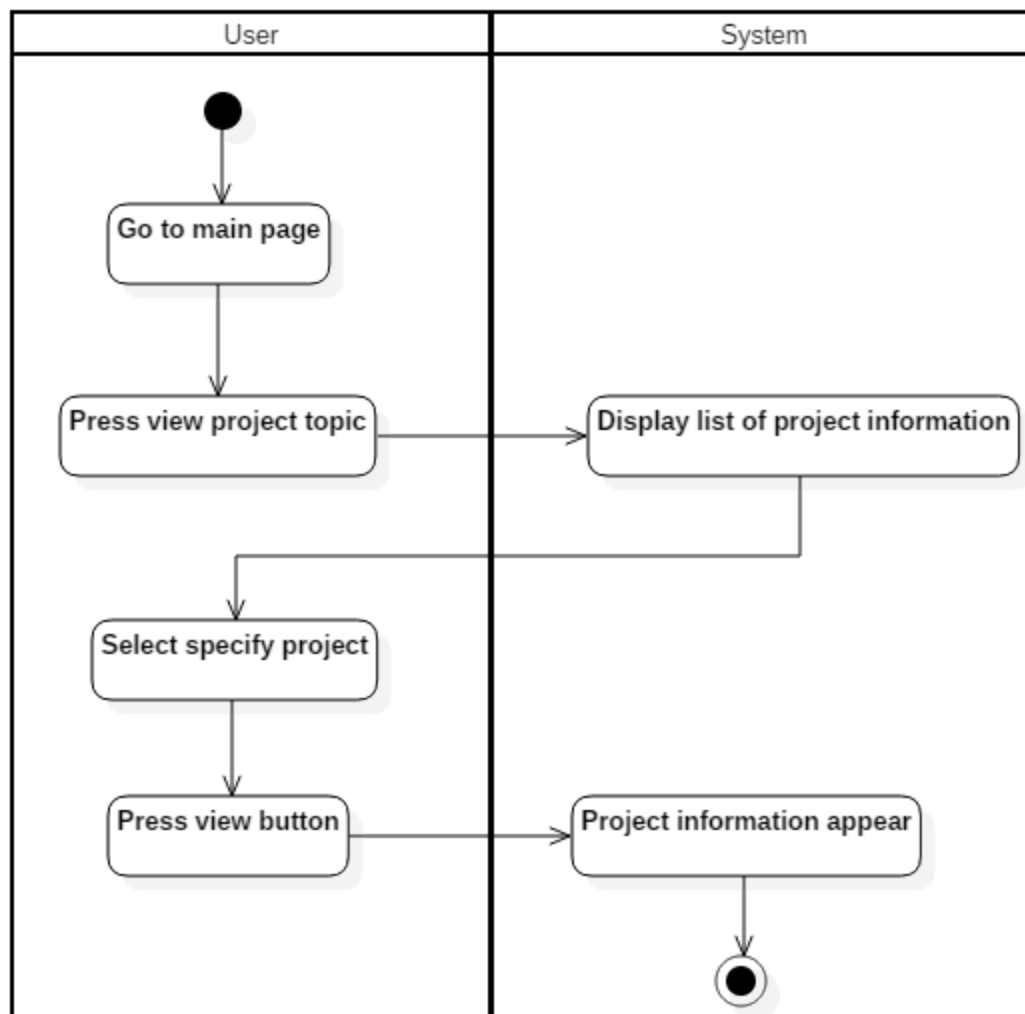


Figure 22 Activity Diagram: Users can view all project topic

6. Administrator Manage Project(REQ_3)

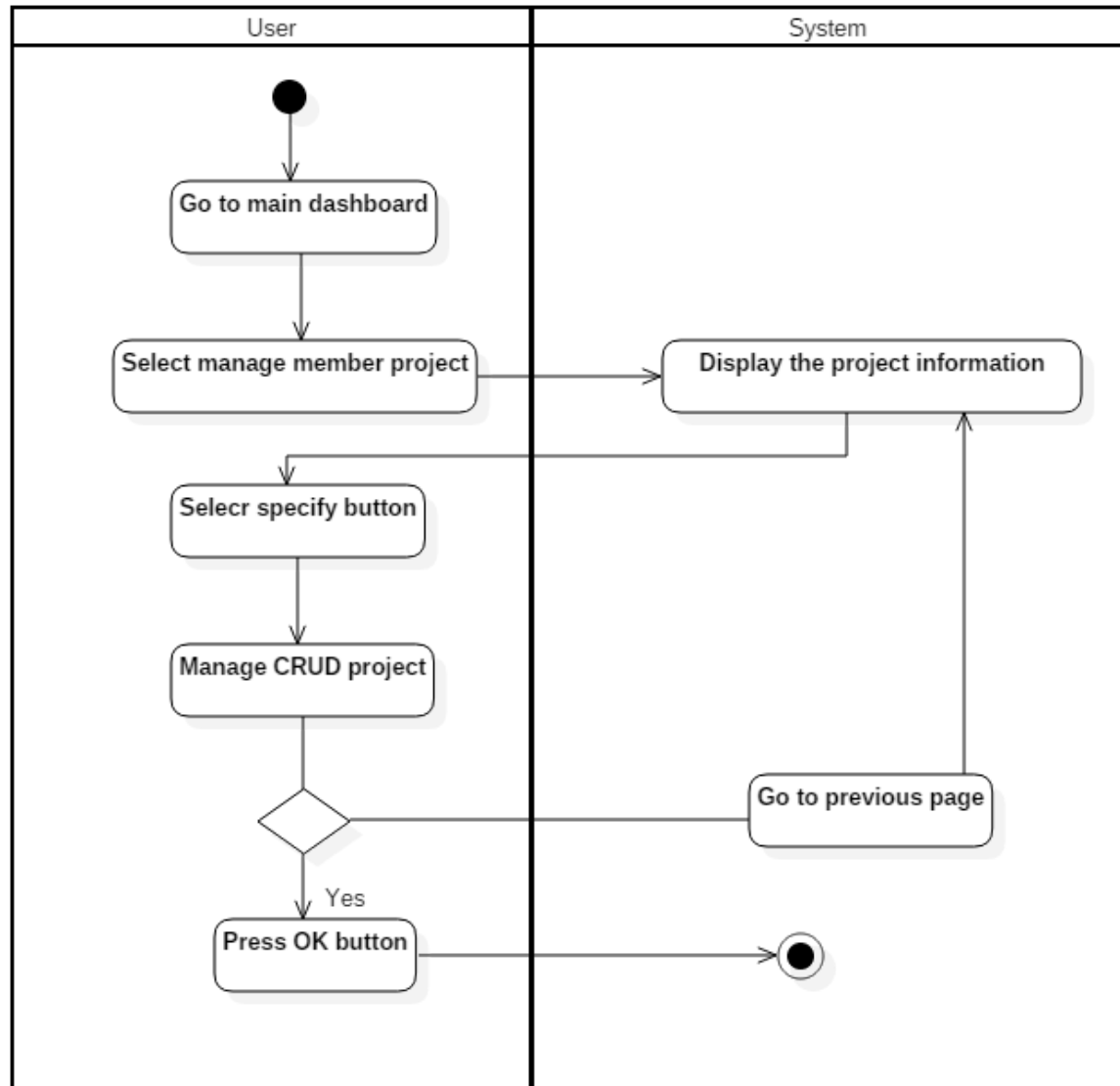


Figure 23 Activity Diagram: Administrator Manage Project

3.2.5 Sequence Diagram

Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're also called Timing diagram, event diagram, and event scenario. It represents object collaboration and is used to define event sequences between objects for a certain outcome. Object interactions usually begin at the top of a diagram and end at the bottom. In a sequence diagram, object interaction occurs through messages on the vertical and horizontal dimensions and are designated by horizontal arrows and message names. The initial sequence diagram message begins at the top and is located on the diagram left side. Subsequent messages are added just below previous messages. Sequence diagram messages may be subdivided by type, based on functionality. A lifeline, which indicates a role, is represented by a named rectangular box with a dashed line descending from the center of the diagram's bottom edge. Lifeline boxes represent participating sequence object instances. Blank instance names represent anonymous instances.

1. User Login

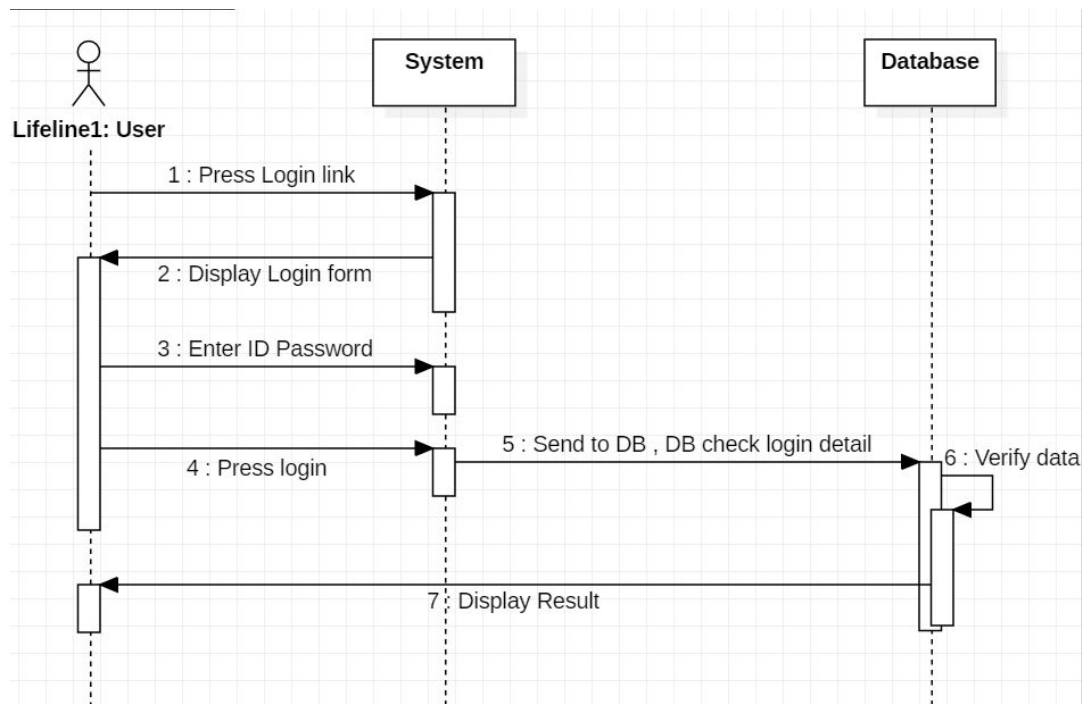


Figure 23 Sequence Diagram: User Login

2. Manage Schedule

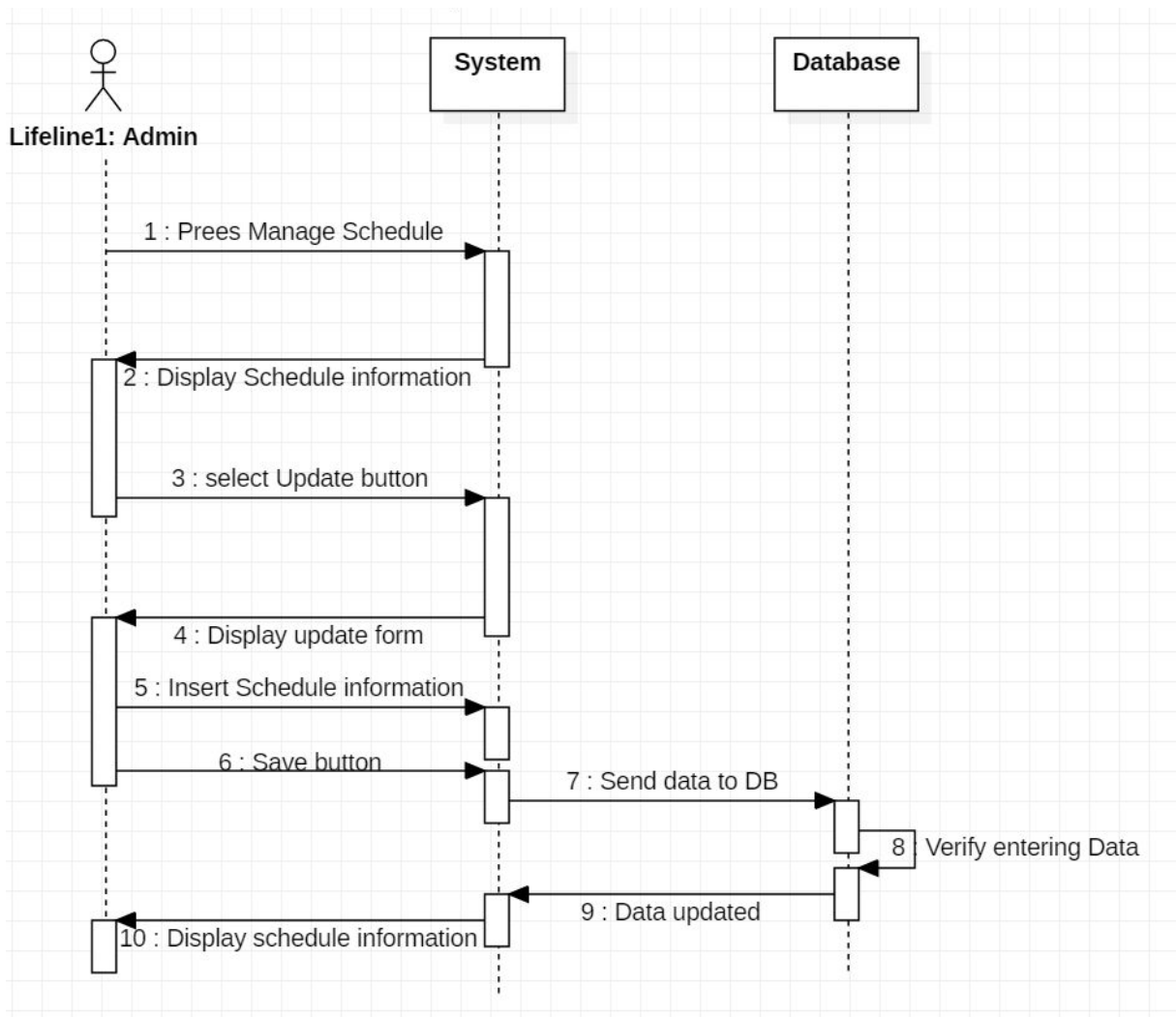


Figure 24 Sequence Diagram: Admin update schedule

3. Upload File

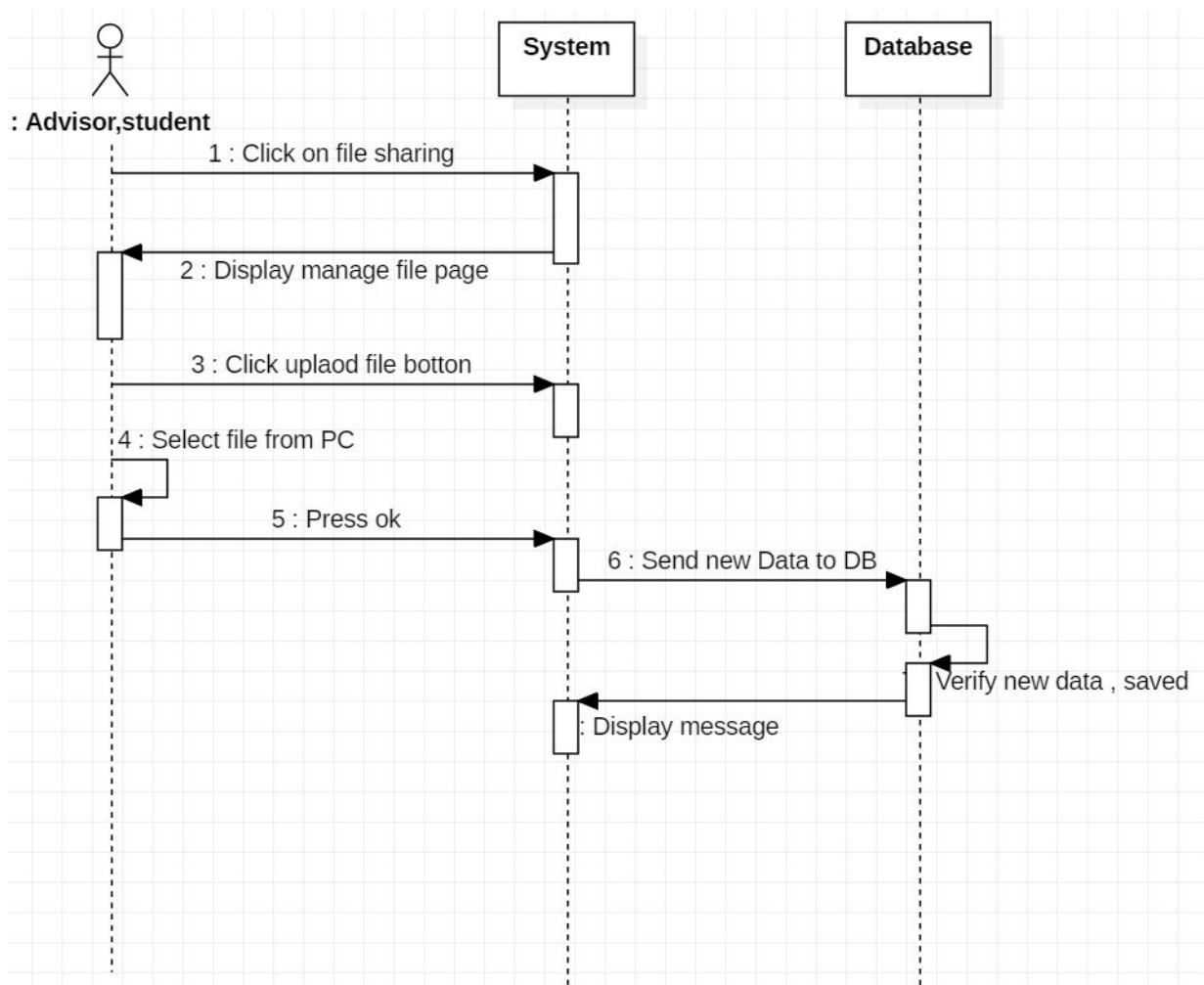


Figure 25 Sequence Diagram: Upload File

4. Add New Project

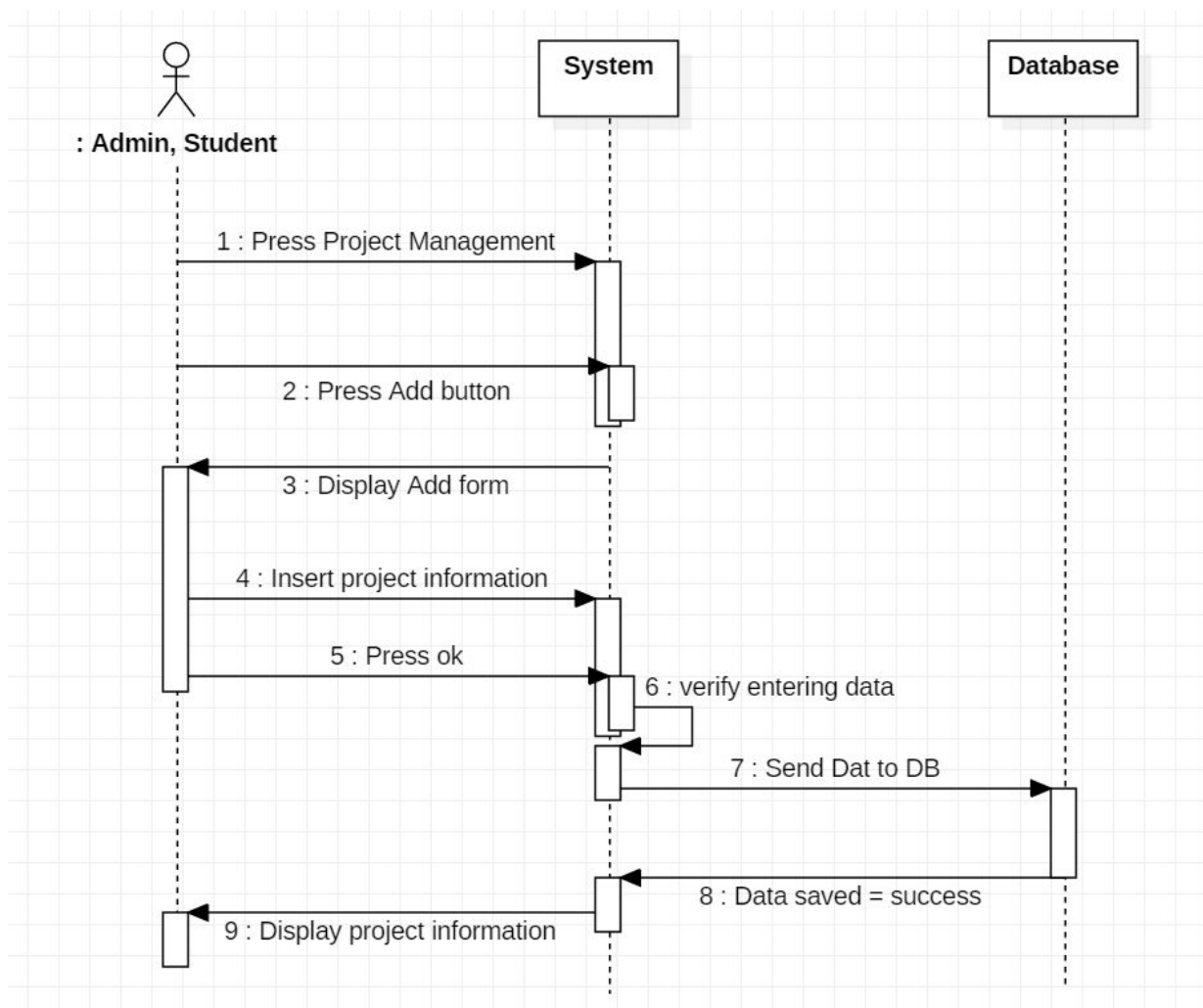


Figure 26 Sequence Diagram: Add New Project

5. View All Projects

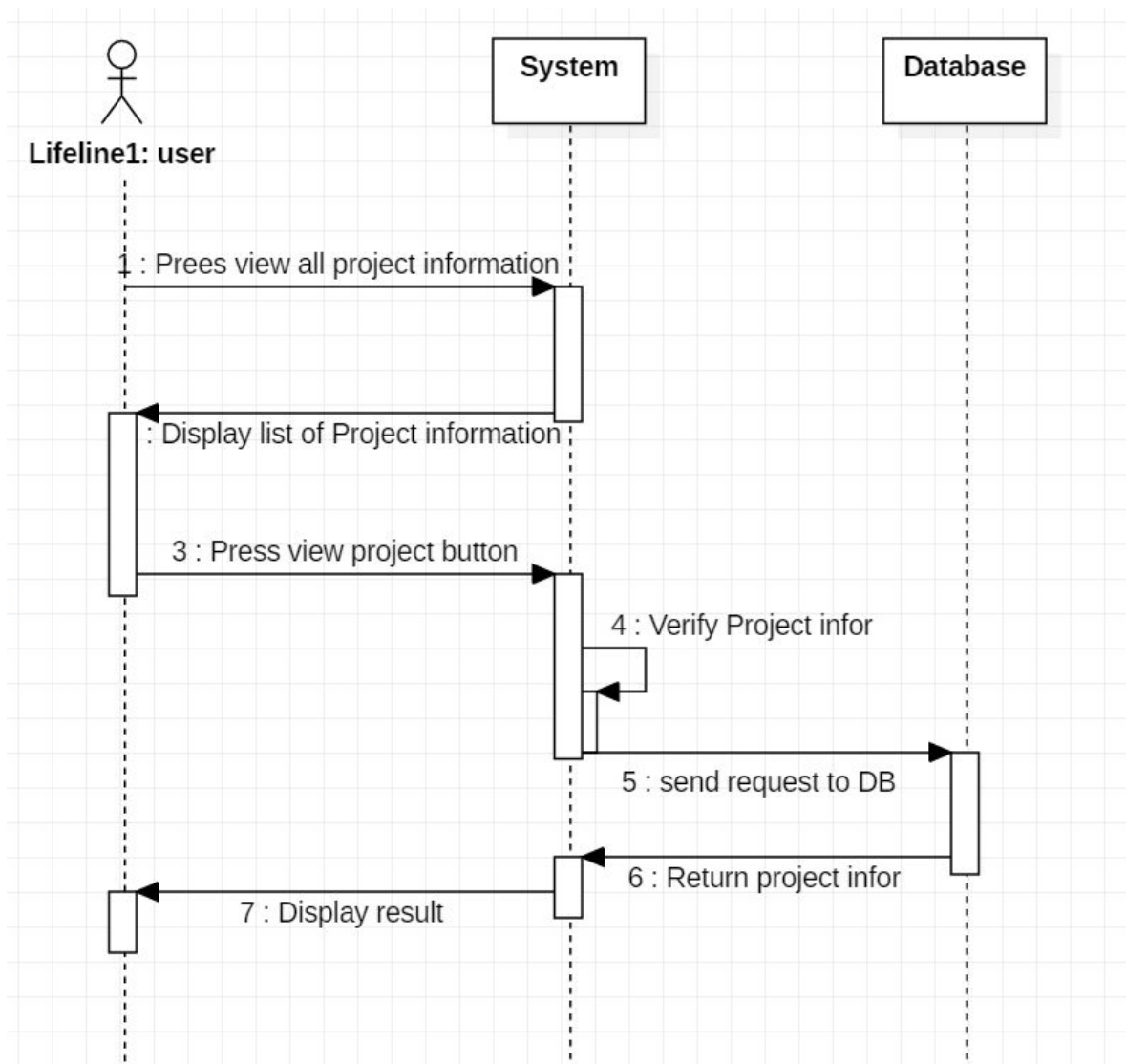


Figure 27 Sequence Diagram: View all Projects

3.2.6 Entity Relationship Diagram

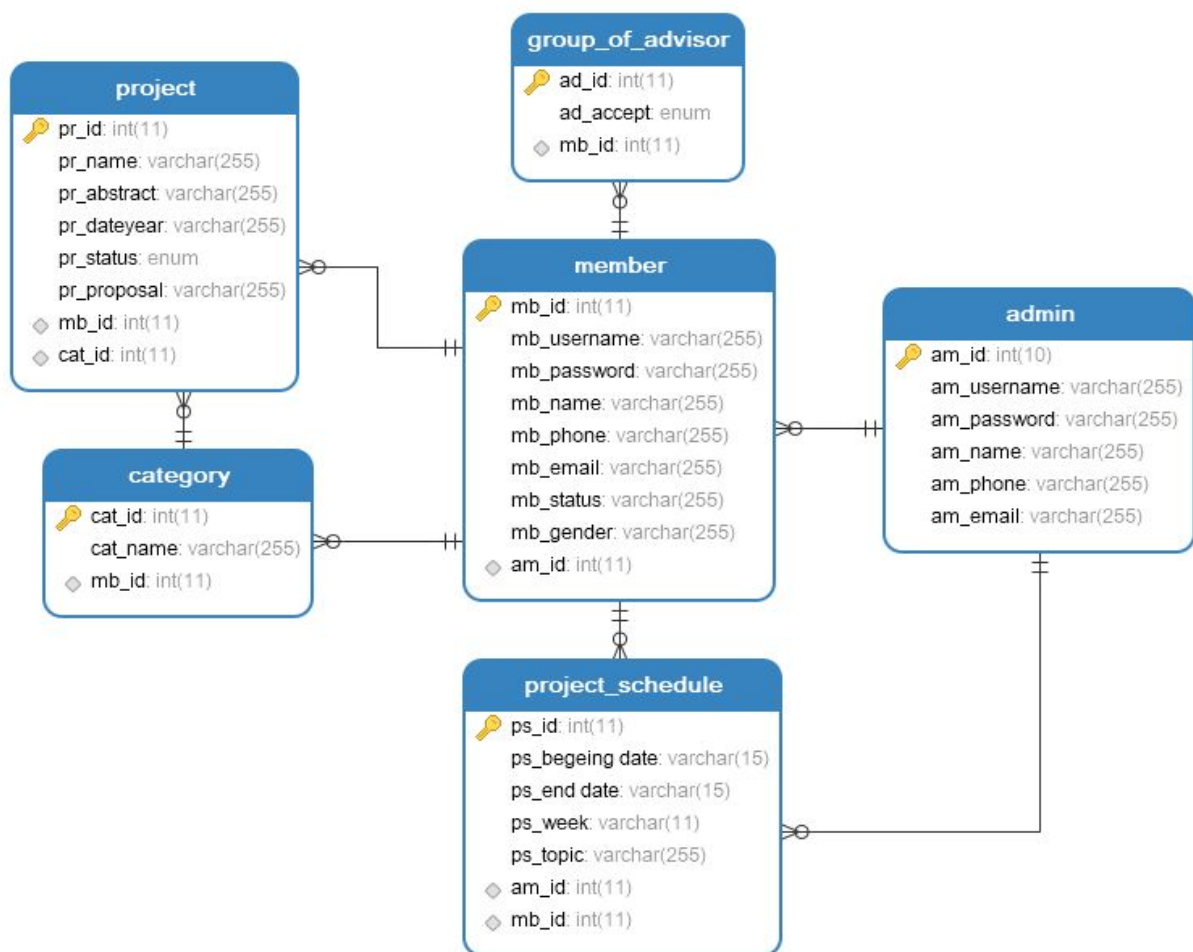


Figure 28: ER-Diagram of ITPMT

3.2.7 Database Analysis and Design

This section will discuss and show the contents of database that create for this system. The database for this system has been created by using MySQL. Below is a few table listed.

Table Admin

Table Name: Admin						
Field	Type	Length	Description	Key	Referent	Null
am_id	INT	11	Auto increment	PK	-	No
am_username	Varchar	255	username of admin	-	-	No
am_password	Varchar	255	password of admin	-	-	No
am_name	Varchar	255	Name of admin	-	-	No
am_phone	Varchar	255	Admin's phone	-	-	No
am_email	Varchar	255	Admin's email	-	-	No

Table 2 : Table of Admin

Table Member

Table Name: Member						
Field	Type	Length	Description	Key	Referent	Null
mb_id	INT	11	Auto increment	PK	-	No
mb_username	Varchar	255	username of member	-	-	No
mb_password	Varchar	255	password of member	-	-	No
mb_name	Varchar	255	Name of member	-	-	
mb_phone	Varchar	255	Member's phone	-	-	No
mb_email	Varchar	255	Member's email	-	-	No
mb_status	Enum	-	The position of member 1. officer 2. Lecturer 3. student	-	-	No
mb_gender	Varchar	255	Memer's gender	-	-	No
am_id	INT	11	The foreign key to table admin	FK	table admin am_id	No

Table 3 : Table of Member

Table of Project Exam Schedule

Table Name: Project Schedule						
Field	Type	Length	Description	Key	Referent	Null
ps_id	INT	11	Auto increment	PK	-	No
ps_beingdate	Varchar	15	The date start schedule	-	-	No

ps_end date	Varchar	15	The date end schedule	-	-	No
ps_week	Varchar	11	The week of schedule	-	-	No
ps_topic	Varchar	255	The schedule topic	-	-	No
am_id	INT	11	The foreign key to admin tabel	FK	admin tabel am_id	No
mb_id	INT	11	The foreign key to member tabel	FK	member table mb_id	No

Table 4 : Table of Project Schedule

Table of Project

Table Name: Project						
Field	Type	Length	Description	Key	Referent	Null
Pr_id	INT	11	Auto increment	PK	-	No
Pr_name	Varchar	255	The topic of project	-	-	No
Pr_abstact	longtext	255	project detail	-	-	No
Pr_dateyear	Varchar	255	date of doing project	-	-	No
Pr_status	Enum	-	The status of project (finished,doing...)	-	-	No
Pr_proposal	file	255	file of project proposal	-	-	No
mb_id	INT	11	foreign key to member table	FK	member table mb_id	No
cat_id	INT	11	foreign key to category table	FK	category table cat_id	No

*Table 5 : Table of Project***Table of Category**

Table Name: Category						
Field	Type	Length	Description	Key	Referent	Null
cat_id	INT	11	Auto increment	PK	-	No
cat_name	Varchar	255	category name	-	-	No
mb_id	INT	11	foreign key to member table	FK	member table mb_id	No

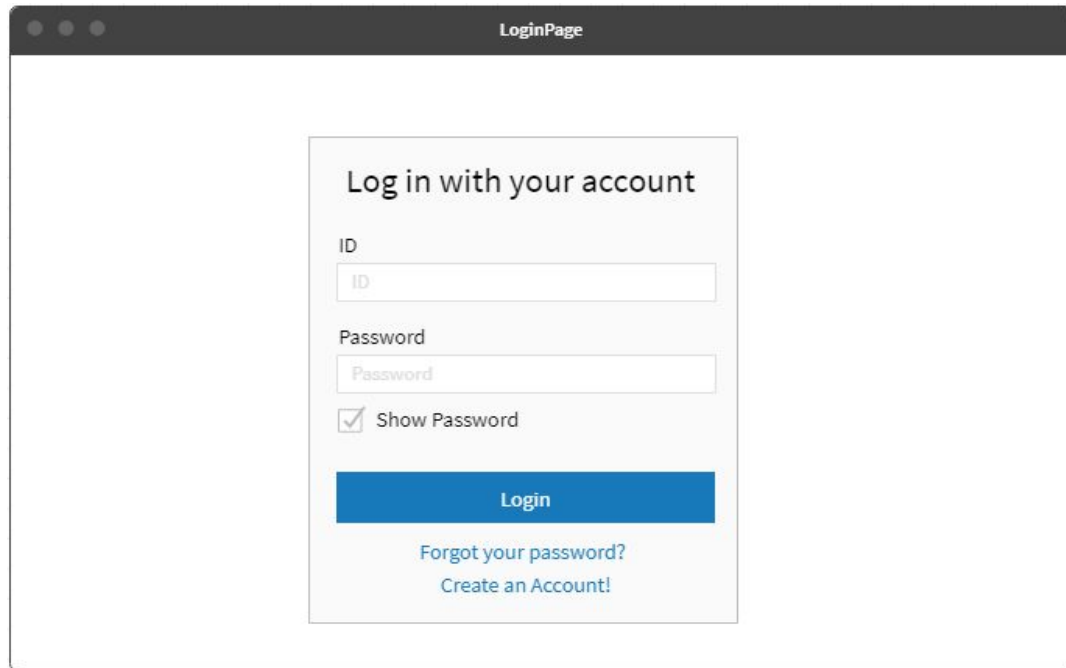
*Table 6 : Table of Category***Table of Advisor Group**

Table Name: Group of Advisor						
Field	Type	Length	Description	Key	Referent	Null
ad_id	INT	11	Auto increment	PK	-	No
ad_accept	Enum	-	value of accept or reject	-	-	No
mb_id	INT	11	foreign key to member table	FK	member table mb_id	No

Table 7 : Table of Advisor Group

3.2.8 User Interface Design

Before implementing the actual design of the project, a few user interface designs were constructed to visualize the user interaction with the system.



The image shows a mockup of a web application window titled "LoginPage". Inside the window, there is a light gray rectangular box containing the login form. The form has the heading "Log in with your account". Below the heading are two input fields: "ID" and "Password". The "ID" field contains the text "ID" and the "Password" field contains the text "Password". Below the "Password" field is a checkbox labeled "Show Password" which is checked. Below the checkbox is a blue button labeled "Login". At the bottom of the form box are two links: "Forgot your password?" and "Create an Account!".

RegisterPage

Create an Account!

ID	Username
<input type="text"/>	<input type="text"/>
Fullname	Phone
<input type="text"/>	<input type="text"/>
Gender <input type="checkbox"/> Male <input type="checkbox"/> Female	Email
	<input type="text"/>
Select position	Password
<input type="text"/>	<input type="text"/>

Register

[Forgot your password?](#)
[Already have an account? Login!](#)

Index(homepage)

(Logo)ITPromo&it

Register
Login

Annoucements
Topic
Project Proposal
Guide

Annoucements

Search

Topic: Dear IT Project student. Date:15/04/62
By: Administrator 30 December 2019 time 16:35:25
For who register IT Project subject from semester 2/2017 and do not do final project presentation and

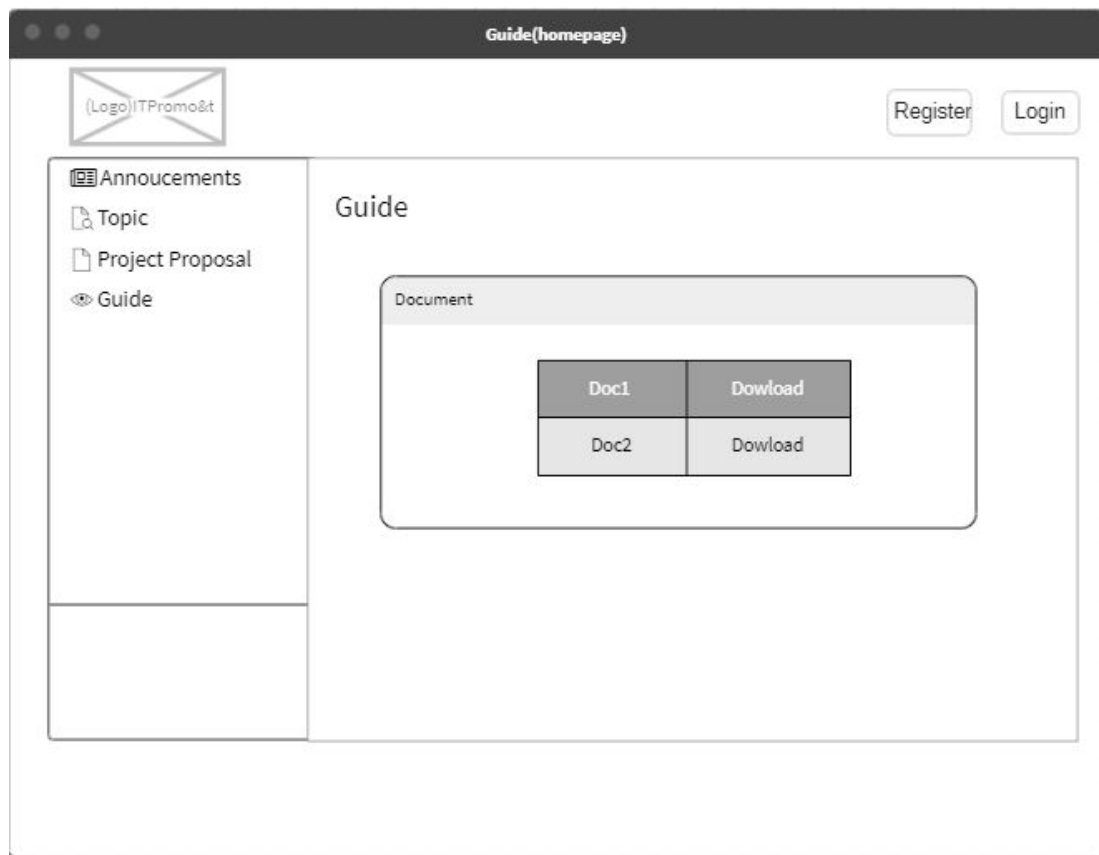
More

Topic: Congratulations. Date:01/04/62
By: Administrator 30 December 2019 time 16:35:25
Congratulations You have TWO weeks for project revision. Please consult with advisor and may with committees too.

More

Topic: Registered Project Couse. Date:02/03/62
By: Administrator 30 December 2019 time 16:35:25
Dear all IT Project students. For all IT Project students, who registered for 2/2018. Today we have class and...

More



Student(Tracking)

(Logo)ITPromo&

Search

572431003Student

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Memu

Tracking

Form Tracking Project

12345678910111213

Step 1

Select Topic

Select Advisor

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80%

Total: 8%

Advisor

How are you?

2019-07-09 | 08:33:01

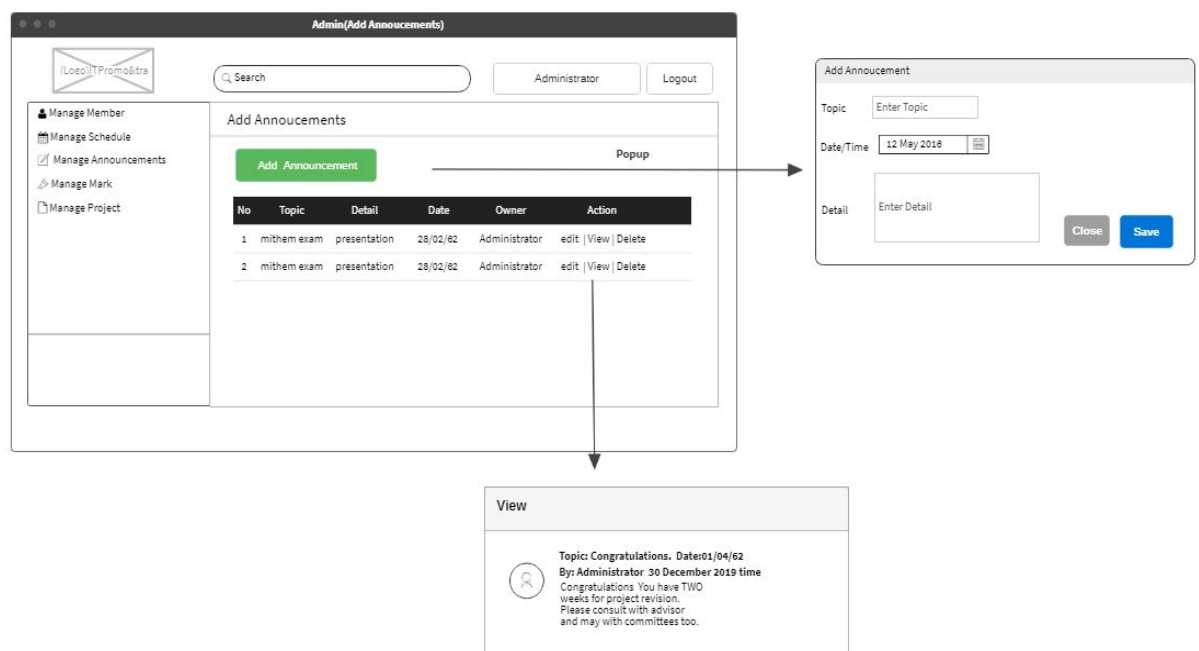
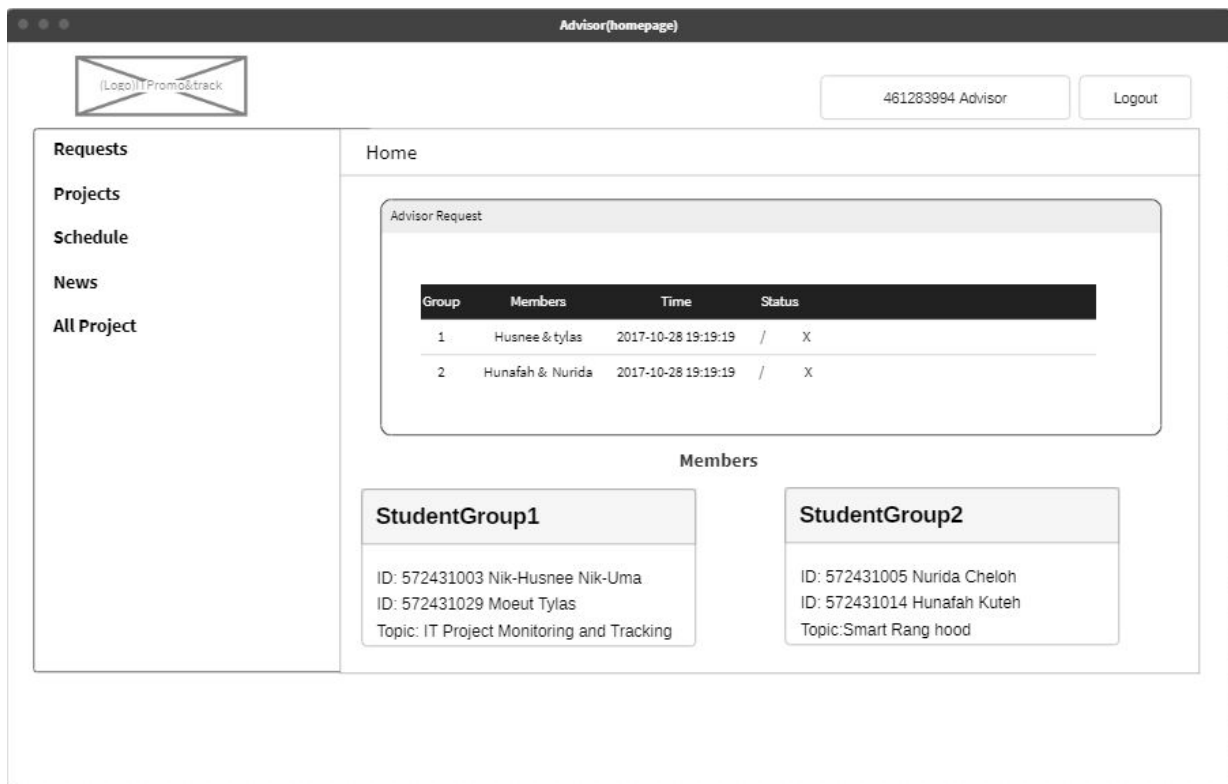
Student

I'm fine Thanks.

2019-07-09 | 08:34:00

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Manage Schedule

Manage Announcement

Manage Mark

Manage Project

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ID

Topic

Topic

Abstrack

Keyword

Field of study

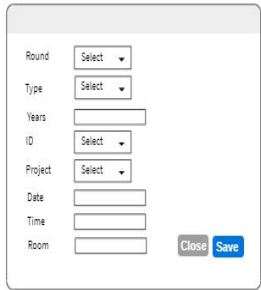
Years

Advisor

Proposal status

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choose advisor/Topic

Choose advisor

Topic

Partner

