

Chapter III

METHODOLOGY

This chapter presents the outline of the study. The different methods and procedures used to collect and analyzed the intended data to support the study. It also includes the description of step-by-step structures, instruments, techniques, design of the website and processes, consisting of sub-phase that will guide the system developers in managing, controlling and evaluating the study. Lastly, it might be considered as an approach that can be accurate in each stage of the project.

Developmental Method

The researchers will use agile model in developmental process. It is a rapid delivery of progress in a short period of time, where this project is applicable. It also undergoes to several step-by-step procedure that is helpful to the developers because it is their guide in creating the Online Thesis Project Management System. It allows the website to be done in given time frame while giving space for iteration or changes.

All developmental models have phases. In this model, we have seven phases.

1. **Planning.** The planning phase will take all the relevant information from the target agency and from there, all the possible design and features of the Online Thesis Project Management System carefully plan. It also includes the requirements for the system which is vital before going to the next phase.
2. **Design.** The design phase will be the one to identify the prospect physical and logical design of the software needs. This will be showed using different models, concepts, and template that can be used on the website.
3. **Development.** The development phase will be the starting ground for this project. This is the implementation of coding using PHP, HTML, AJAX and JQuery. Under the development phase, the system will use Lavalust framework for faster development.
4. **Test.** This phase is to ensure that there are no errors that will be encountered. And the testing phase will eliminate possible errors that the user might encounter. Every module will undergo testing phase to identify hidden bugs and to create alternative solution if possible.
5. **Deployment.** The researchers will use a web hosting platform to deploy the system in the web and be accessible for the users with regards to internet

connectivity. All the files being deployed will help the system to run on its proper function.

6. **Review.** The review phase will tell if the system is ready to be launch and if there are other specification that needs attention. In this phase all modifications, changes and corrections occur in the project.

7. **Launch** - This is the last part of phase which the system already tested and done.

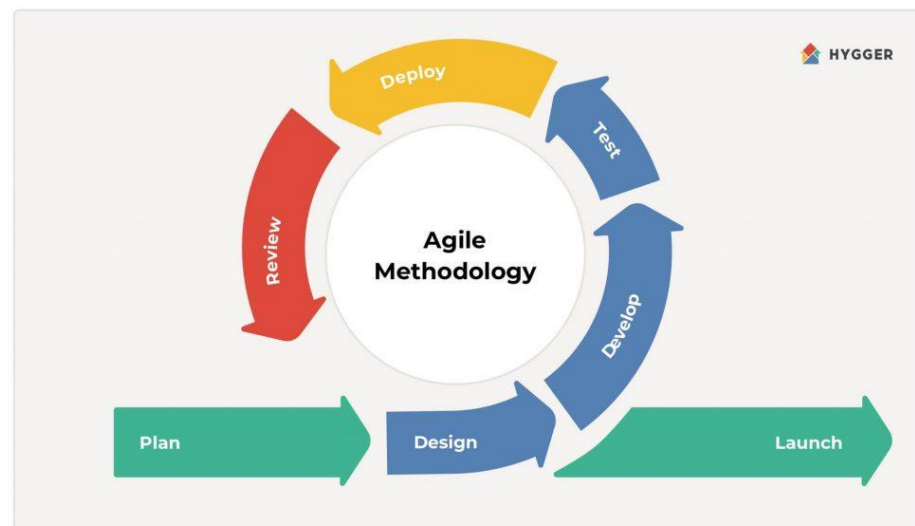


Figure 2. Agile Developmental Model

Gantt Chart

The gantt chart used by the researchers follows the agile model process during the scheduled weeks in making progress for the capstone project. The month range id from February to June where it includes the planning, design, development, test, deployment, review and launch.

Table 1. Gantt Chart

PROCESS	FEBRUARY				MARCH				APRIL				MAY				JUNE			
WEEKS	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planning																				
Requirements																				
Information																				
Target Agency																				
Design																				
Concept																				
Physical																				
Logical																				
Development																				
GUI																				
Coding																				
Test																				
GUI																				
Codes																				
Deployment																				
Hosting																				
Review																				
Module Inspection																				
Modification																				
Launch																				
Release																				

necessary information to create an account based on their designations. All of the users are required to log in for security measures. The website is divided into different portals where the features of the said portal is based on the specific position of the user. To sum up all the functional requirements it covers the creation of a class and group, accepting or declining of a student to a class, uploading of documents, scheduling, posting of announcements and activities, commenting, video conferencing, print records and database. Moreover, it will tackle the efficiency of the website, reviewing the process and how the data are manipulated to create a functional output.

User Interface

The researcher used a minimalistic and interactive design which shows a more simplistic but pleasing to the eyes of the users. Yet, the Research and Development portal is also a part of the website that highlights the theme of the school which is color green. All interfaces for all functions are made using the bootstrap for seamless design and responsive to different devices. The pages use side navigation and drop downs for sub category to easily navigate to a specific menu that user wants. Every form has a validation and label property to aide

the users what are the required inputs for specific fields. For additional information, the developers used modals to lessen the pages and confirmations or alerts on every omitted action of the user.

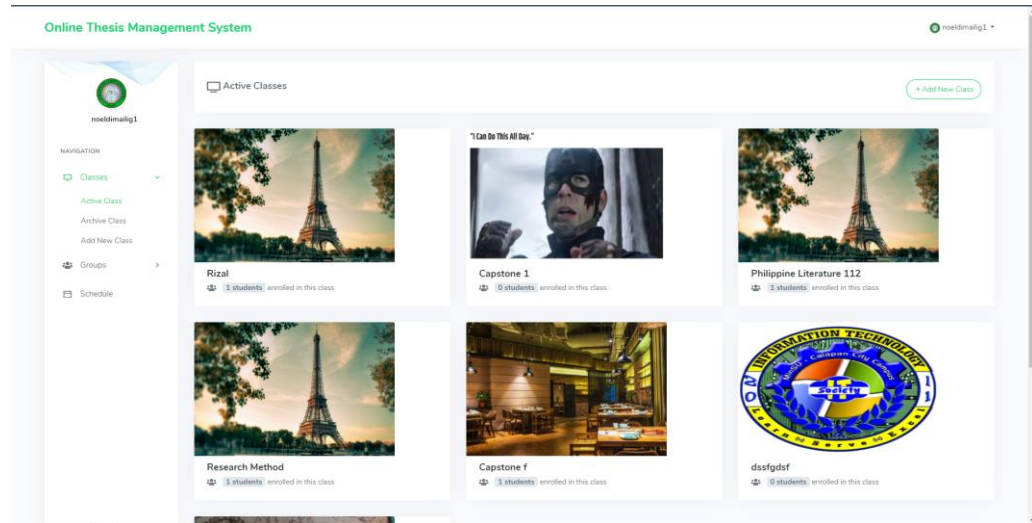


Figure 3. Online Thesis Project Management Teacher Portal

Hardware Interface

The Online Thesis Project Management System used different hardware devices to make the system run in the most efficient way. These are laptops/desktops (main component) for web browsing and render a website, wi-fi routers to provide internet for online processing, uploading and testing of websites, digital files and storage devices such as flash drives for storing the needed files.

Software Interface

The software interface describes the connection between the website and other software requirements including operating system, database, and programming language. An operating system serves as a machine with Windows OS as the development device also supported platform any OS with GUI that supports a web browser. The researcher used a WampServer or XAMPP that will serve as a local host for the database of the website. For front-end common web technologies are used such as HTML, CSS and JavaScript. LavaLust Framework were used by the researchers as PHP programming language framework. And also, for the programming language, researchers used PHP programming language that is used to handle MySQL queries that will be used for back-end development. The created system was uploaded and tested using the GoDaddy webhost.

Security Requirements

In this process, the developer maintains, enhances and protects the website. Maintenance, changes, correct errors and adapt to changes in the environment. So that the researchers ensure that the website was used and controlled by the authorized users. The use password has been hashed to protect the information stored on the

database such as user accounts and other information that makes accurate and reliable anytime when the users access the platform. Through this the assurance of the security of the website will be granted.

Technical Background

The researchers will use the agile model on the development of Online Thesis Project Management System. Agile model is the process in development life cycle where it is on step-by-step procedure and following a specific time and date on the delivery of every progress for customer satisfaction and more space for adaptability to modern technology. It is also where the application or system was broken down into smaller builds and tested for further iterations. Each process of iteration was expected to be delivered within one to three weeks.

Hardware Specifications

Hardware Specifications are referring to the technical descriptions of the hardware items, its components and capabilities. Table 2 below presents the different hardware components to be used for the completeness of this project.

Table 2. Hardware Specifications

Hardware	Functions	Specifications		Unit
		Minimum	Recommended	

Processor	Performs basic arithmetic, logic, controlling, and input/output operations specified by the instructions in the program.	Intel Core 2 Duo	Intel i5	1
Memory	Its usage is to handle all active tasks and apps.	2gb	8gb	1
Hard drive	It permanently stores data in a chip built into computers and other electronic devices.	64gb	500gb	1
Network Interface	Transmit and control the flow of data on the network.	Intel 825xx Gigabit Ethernet	Qualcomm Atheros QCA61x4A Wireless Network Adapter	1

Software Specifications

Software Specifications refers to the representation of the software used by the system. The researchers recommend to install any browser like Chrome or Microsoft Edge, medium to fast internet connection and any form of search engine to search for the website. Table 3 below also presents the other software specifications to be used by the project.

Table 3. Software Interface

Software Used	Description
Operating System	We have chosen Windows operation system for its best support and user-friendliness.

Chrome or Microsoft Edge	Web browser used for accessing web pages on the internet.
Database	All the processes of the application is done by MySql database.
Programming Language	For front-end common web technologies are used such as HTML, CSS and JavaScript. For back-end PHP is used to handle Mysql queries

System Analysis and Design

The system comprises primarily of a PC, mobile and internet connection on running the graphical user Interface application. The admin will be the one to manipulate the system where in fact they have the privilege to use all the functionality of the system without limitation, while the users on the other hand could create minimal changes like create their own personal records and upload digital files on the system.

System Overview

The Online Thesis Project Management System will collect and store digital files of the thesis of the students. There are portals for faculty, research office and students. They have their specific functions like the faculty portal is the one responsible for students' behavior, accepting their submissions, checking, evaluating and return of their research papers. And the student's portal, it is where the students could

interact with their perspective instructors and lastly the research office portal specifically made for the Research and Development Office is designed to store and facilitate the submitted theses from the faculty that had already complied with the prerequisite before accepting it under the care of research office. This system will serve as an archive that will hold the said files. The admin specifically the Research department will be the focal person to maintain the organization of those files. The faculty or the teachers teaching research or capstone subjects are one of the users of the system, their main objective is that they have to make sure that they are going to collaborate with the Research Department for the research files because it will be provided by them--after it was checked, compiled and undergone with pre oral and final defense. The system will be a platform of the students if they have concern regarding with the thesis they have submitted, proposals, letters and other research related concerns.

System Architecture

A system architecture shows the representation and structure of the system. In figure 4, it shows the system architecture of the Online Thesis Project Management System.

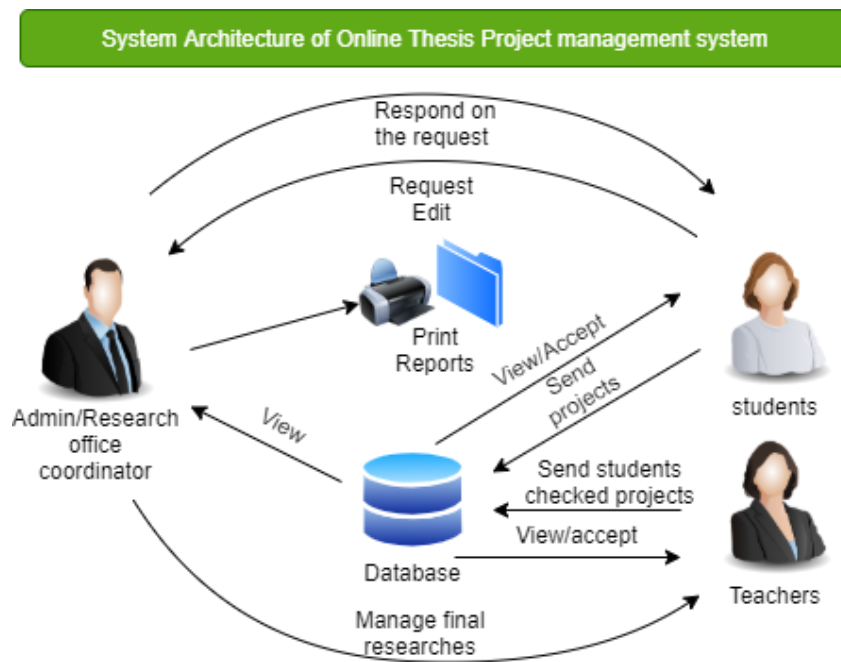


Figure 4. The System Architecture of Online Thesis Project Management System

Use Case Diagram

The use case diagram shows the actors which is the admin, students and faculty/teachers with their functionality or the use cases.

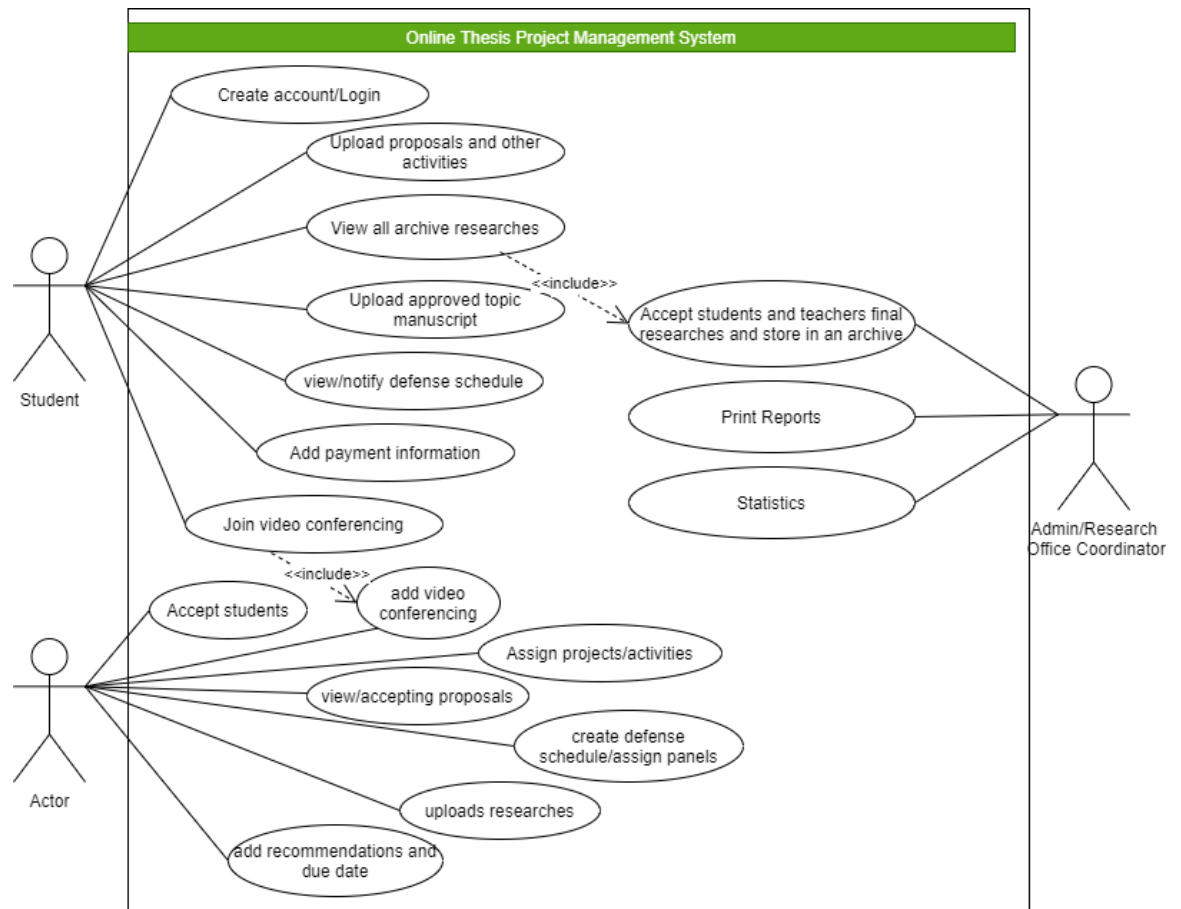


Figure 5. The use case diagram of Online Thesis Project Management System

Activity Diagram

This part of the document presents the flow of the project using an object-oriented flowchart. Its purpose is to capture the dynamic behavior of the system. It

focuses on the execution and flow of the behavior of a system instead of implementation.

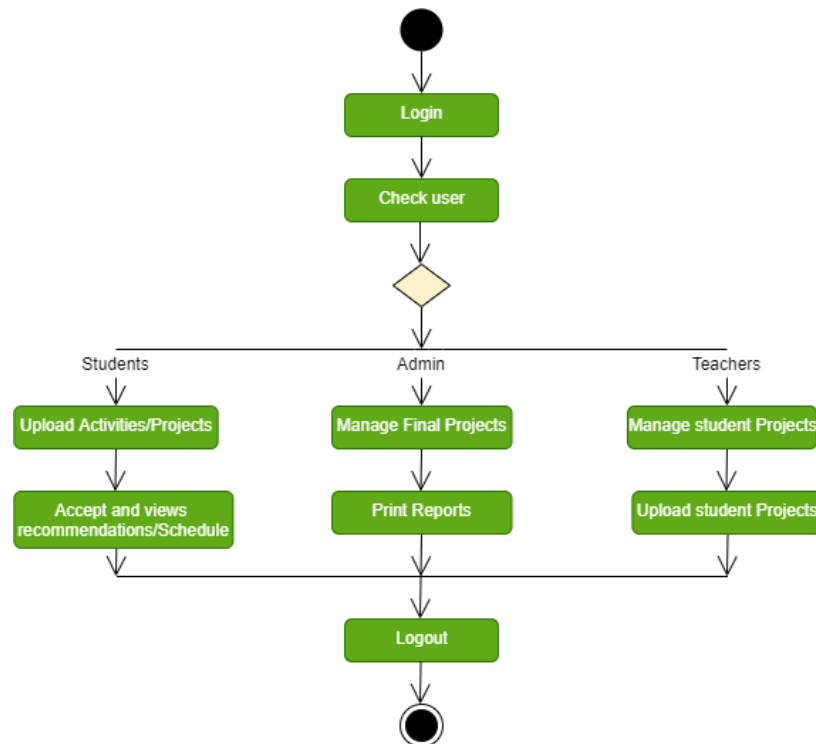


Figure 6. The Activity diagram of Online Thesis Project Management System

Data Flow Diagram (DFD)

This presents the flow of information for any process of the system. It is used to analyze an existing system or model a new one.

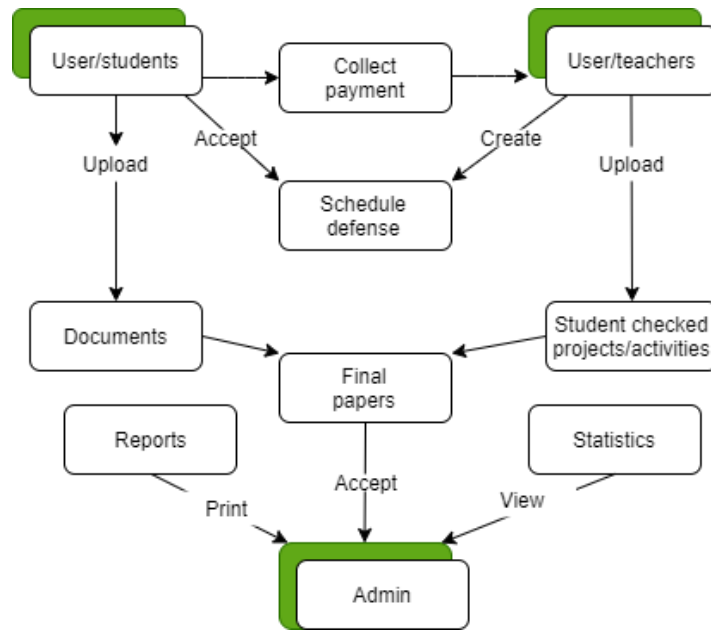


Figure 7. The data flow diagram (DFD) of Online Thesis Project Management System

Diagram 0

This breaks down the context diagram into a more detailed piece.

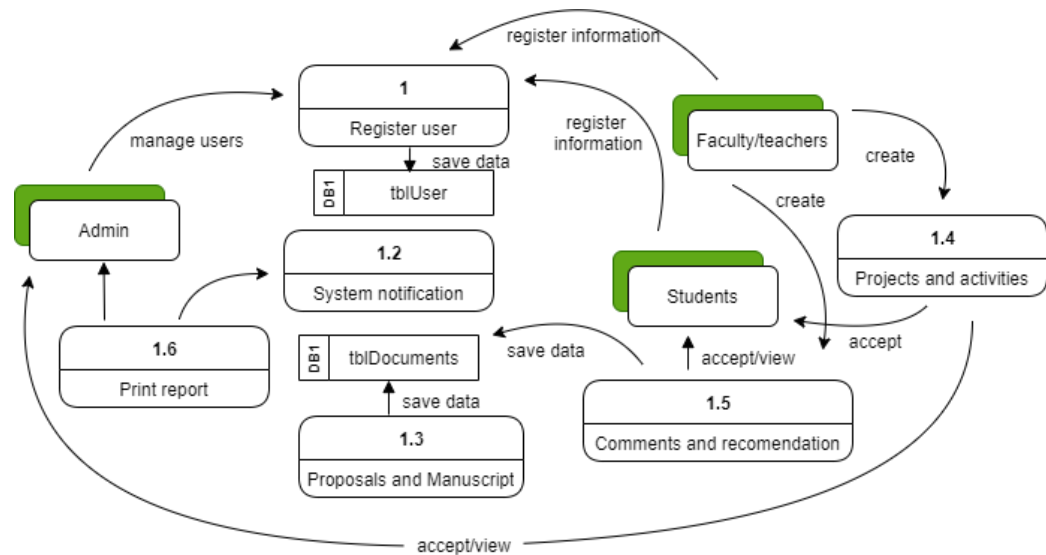


Figure 8. The Diagram 0 of Online Thesis Project Management System