

**FACULTY OF COMPUTING AND INFORMATICS  
FINAL YEAR PROJECT PROPOSAL  
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**FCI FYP MANAGEMENT SYSTEM USING USER**

**CENTRED DEVELOPMENT**

|  |  |  |
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# ABSTRACT

The main purpose of this project is to build an online platform/system to help reduce the FYP committee's workload in the managing works related to FYP process. It also helped to speed up the process and sort the relevant data, in addition to lowering the workload for the FYP committee. It will provide the FYP Committee of University Malaysia Sabah, Labuan International Campus with many conveniences by introducing this method, while saving time. The idea of the project derived from two problem statements which are *no formal platform for FYP* and *insufficient information and interaction in the FYP community*. This project has four objectives which are *to investigate the concern, needs, and worries of the current FYP Management System* ,*to develop a systematic online system for FCI FYP community, to design the architecture of the system and its functionalities, and to test the reliability of the system.* The scope of study for this project is the complete implementation of a web-based system that is accessible by approved users throughout the campus. The incremental and iterative model is the approach that was chosen for the creation of this system due to the continuous development and constant improvement that could be done to the system.

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1. **Project Background**

**1.1 Problem background/Motivation**

Quick access to information is the biggest gift human being has received in this modern world. A compilation of data becomes information that can facilitate someone's life. With the significant amount of information in today’s world, it needs a system that can manage it. The need of online system has increase rapidly as the technologies advanced.  In education institutes, online management system has been a great tool to reduce the cost of hardcopies, spaces for physical paper, to deliver information and the amount of times spend to sort the information. This type of management system has been used in UMSKAL in SMP to manage the students and broadcast any information because it involves many participants, information, and resources. The FYP committee as well as the student need an online management system that can help to smooth the process of Final Year Project, deliver the right information, and manage the Final Year Project. Thus, the FCI FYP Management System (FFMS) is ideal since it provides the solution for previous manual FYP management. This system is proposed as the need to enhance the FYP management efficiency and information delivery. In this project, a web-based system will be introduced to provide a convenient solution to the FYP committee. This system will be developed using freely distributed software and made available to the related party.

**1.2 Literature Review**

Before system development started, research and study on several aspects were needed. For instance, study on the related management system based on this project can ensure the understanding of researchers about the system. Better comprehension of system development is important to make sure the system is running smoothly. Along with it, tools and techniques need to be studied too. Below are studies and researches that have been done:-

**1.2.1 Management System**

FCI FYP Management System is a system which will be implemented in education institutes. This project tries to develop an online platform/system which facilitates the final year project (FYP) process. According to Xiu-ying OU (2018), the information development of college education management is also the future development trend. Samuel, Ilkka and Markku (2019) said that the growing digital-native generation also forms the basis for the application of advancing features of technology into the processes to efficiently utilize the knowledge resources for greater educational and research endeavours towards sustainability of higher education.

**1.2.2 System Development**

   To build an online system, there are several programming languages that can be used. Studies on the available programming languages have been carried out and two popular languages have been chosen in web-based application development. PHP and ASP.net have been selected from all the available languages so that studies can be performed to determine which programming language will be the most appropriate to be used.

       Tamanna (2011) said that PHP has some advantages over ASP.NET [1]. The benefits displayed on the website are summarized as PHP is easier than ASP.net, PHP is more user-friendly than ASP.net, PHP also has MySQL service that is both free compared to ASP.net and MSSQL that require users to pay, PHP is far more popular around the world as it is open-source programming, PHP is free of charge but ASP.net is not, and PHP has better security. Janko (2008) reported that PHP over ASP.net is mostly used by web designers [2]. This is because PHP is a very basic language and PHP is always free. It is possible to create ASP.net applications without purchasing developer software, but all of them have limitations. Compared to PHP, the web design blogs or posts concerning the ASP.net are smaller.

The PHP has a connection to the MYSQL database according to the points mentioned above, in which both are free while licensing fees are required for ASP.net with MSSQL. PHP is older than ASP.NET, but there are more examples of codes and tutorials in PHP than in ASP.NET. Most significantly, when the user wants it, PHP is an open-source programming language whereby developers from throughout the world can enhance and provide support [3]. Another relevant point is that the system is distinct from PHP. Several operating systems, such as Mac OSX, Linux, and Windows, support PHP, while Windows only supports ASP.NET. It is favourable to use this to build website applications due to the platform-independent capacity of PHP. In addition, compared to ASP.NET, there are more websites using PHP and MYSQL, which means that PHP development tools or guides can be easily accessed. In short, for their databases, most well-known websites use PHP as well as MYSQL. As these sites are run by Microsoft, ASP.NET is used only by websites like msn.com.  Computer languages such as PHP and MYSQL are frequently used. In the meantime, there are some other elements needed to consider in developing an online system.

1.2.2.1 Operating System

Operating system is the core part of every computer. It served as the main manager for software and hardware to handle different computer programs access to CPU, memory, and storage [4]. There are many existing operating systems that are available in the open world either its free or paid version such as Microsoft Windows, Mac OS, Linux, Phoenix OS, Ubuntu, and Chrome OS.

* Microsoft Windows Operating System

Microsoft created the Windows OS in the mid-1980s [5]. There have been many different versions of Windows, but the most recent ones are Windows 10 (released in 2015), Windows 8 (2012), Windows 7 (2009), and Windows Vista (2007). Windows comes pre-loaded on most new PCs, which helps to make it the most popular operating system in the world.

1.2.2.2 Programming Language

One of the most important components in developing a web page is to select the best available language. A programming language is used as a bridge to communicate and interact with computers. A programming language is a set of commands, instructions, and other [syntax](https://techterms.com/definition/syntax) used to create a software [program](https://techterms.com/definition/program). Languages that programmers use to write code are called "high-level languages." This code can be compiled into a "low-level language," which is recognized directly by the computer hardware [6]. Below is the list of programming languages usually used in web development.

1. PHP

PHP is a [script](https://whatis.techtarget.com/definition/script) language and interpreter that is freely available and used primarily on [Linux](https://searchdatacenter.techtarget.com/definition/Linux-operating-system) Web servers. PHP, originally derived from Personal Home Page Tools, now stands for PHP: Hypertext Pre-processor, which the PHP FAQ describes as a "recursive acronym” [7]. The PHP programming language has been around for over two decades and established itself as a powerful and reliable solution, gaining an army of supporters and admirers [8]. There are bunch of pros in using PHP for web development such as a large base of reference and educational materials, better loading speed of websites, more options for database connectivity, a large collection of open source addons, inexpensive website hosting, great synergy with HTML, and excellent flexibility and combinability.

1. HTML

First developed by [Tim Berners-Lee](https://www.computerhope.com/people/tim_berners-lee.htm) in [1990](https://www.computerhope.com/history/1990.htm), HTML is short for Hypertext Markup Language. HTML is used to create electronic documents (called pages) that are displayed on the [World Wide Web](https://www.computerhope.com/jargon/w/www.htm) [9]. HTML will ensure the proper formatting of text and images for your internet browser. Without HTML, a browser would not know how to display text as elements or load images or other elements.

1. CSS

CSS stands for Cascading Style Sheets with an emphasis placed on “Style” [10]. CSS and HTML are programming languages that complement each other. While HTML is used to structure a web document (defining things like headlines and paragraphs, and allowing you to embed images, video, and other media), CSS comes through and specifies your document’s style—page layouts, colours, and fonts are all determined with CSS.

1. JavaScript

JavaScript is a scripting or programming language that allows you to implement complex features on web pages [11]. Along with [HTML and CSS](https://www.bitdegree.org/goon/udacity-intro-to-html-and-css-course), JavaScript forms the basis of front-end web development, allowing the creation of interactive elements. JavaScript code would be used to make your login button perform the required actions (logging a user in when it is clicked).

1.2.2.3 Database

Data is there everywhere and so are databases of all kinds, and when it comes to web development, it is a highly database-intensive process now [12]. Database applications are used to search, sort, filter and present information based upon web requests from users. Databases can also contain code to perform mathematical and statistical calculations on the data to support queries submitted from web browsers [13]. One of many databases that are available for system developers today is MySQL.

* MySQL

MySQL is an open-source relational database management system (RDBMS) with a client-server model [14]. SQL is a standard language for accessing and manipulating databases [15]. You can use SQL to access, update, and manipulate the data stored in a database. However, MySQL is a database that stores the existing data in a database in an organized manner. SQL is used for writing queries for databases, MySQL facilitates data storing, modifying, and management in a tabular format. SQL does not have support for any connectors. However, MySQL comes with an integrated tool – MySQL workbench – for designing and building databases [16].

1.2.2.4 Web Server

A web server is a computer that stores web server software and a website's component files. (for example, HTML documents, images, CSS stylesheets, and JavaScript files) A web server connects to the Internet and supports physical data interchange with other devices connected to the web [17]. A website can be hosted by our own personal computer, but for convenience purposes it is better to store all files on a dedicated web server. With a web server, we can store our data remotely and it is accessible wherever there is internet access [18].

**1.2.3 User Requirement Gathering Technique (User centred development)**

Implementation of technology to the people who will be using it is critical for a good return on investment with high adaptation rates and satisfied users (White, 2020). According to Eid (2015), requirements are one of the most vital pieces to ensuring the success of a system. To ensure the optimal requirements are received, the methods in which those requirements are obtained are equally important. User requirements gathering techniques are to collect and gather expectation or need of users to develop a system that can fulfil user’s needs. There are a lot of techniques or methods that can be applied to collect user’s requirements such as interview, questionnaire, observation, document reading, survey, etc. A few techniques are chosen to be discussed such as interviews and questionnaires.

1. Interview

The interview is the primary technique for information gathering during the system analysis phases of a development project (21). According to Lim (2002), an interview is very effective for understanding a phenomenon in-dept and it can make a valuable contribution to the course.

Client opinions and preferences are important to be implemented into the system to satisfy the client.

1. Questionnaires

According to Yaddanapudi and Yaddanapudi (2019), a questionnaire appears to be just a simple list of questions to the naïve. However, the language of the questions, the type of questions used, the order in which they are arranged and many other details, all impact the results of the survey. In this project, a questionnaire is used to gather information regarding the FYP process and procedure, and system design requirement from the FYP coordinator.

1. Document analysis

Document analysis is one of the user requirements gathering technique that available. This method exists to help researcher to gain the details that are often buried in existing documents. Reviewing the current process and documentation can help the analyst understand the business, or system, and its current situation (Eid, 2015).

**1.2.4 Lacks information and interaction**

In the traditional FYP process, students will attend lecturer’s lectures to acquire the information needed. The problem occurs when some students are absent during the lecture. Those students will probably refer to their fellow friends to gain information, but this might become a nuisance for their friends. The student can also privately meet the lecturer but for students who do not have the gut, they will stay in a loop and blurred because of insufficient information. The communication between teachers and students is rare and cannot meet the current needs of students (Xiu-ying Ou, 2018).

**1.3 Problem Statements**

These are few problems initially that led to the idea of developing FKI FYP Management System:

1. No formal platform for FYP community.

The current situation of the management of the FYP is that it does not have any system which supports all the processes in a single system. Basically, from the beginning of the FYP process, which is the submission of proposals until final report submission, the present FYP follows a manual method.

1. Insufficient information and interaction in the FYP community.

Since there is no formal portal for the FYP, it is hard to deliver the information regarding the Final Year Project. Lecturers have been using social media (Facebook) and online communicating applications (WhatsApp) to provide information to the students. This problem contributes to the lack of information among the FYP students regarding the FYP.

1. (Need backup statements from FYP coordinator)

# Project Objectives

# the objectives of developing this application are:

# To investigate the concern, needs, and worries of the current FYP Management System.

# To design the architecture of the system and its functionalities for FCI FYP Management System using User Centred Development Method.

# To develop a systematic online system for FCI FYP management system.

# To evaluate the usability of the FCI FYP management system.

# 3.0 Project Scope

The project scope for this project is the complete implementation of a web-based system that is accessible by approved users throughout the campus. This project will involve the knowledge and experimentation based on

* Web design and development
* Database design and management
* Server setup

In web design and development, the project will entirely use the user centred development method which includes users as closely to the development of the app:

* To achieve objective 1, I will interview the FYP coordinator.
* To achieve objective 2, I will design a low-fi prototype of the app and will evaluate its usability with a group of experts.
* To achieve objective 3, I will develop the app based on the outcome of Objective 1 and 2.
* To achieve objective 4, I will evaluate the app with the FYP coordinator and FYP supervisors.

# 4.0 Methodology

4.1 Chosen Methodology

After certain investigations on the appropriate approach, I chose to utilize the **Agile** Development from Incremental and Iterative Development. The explanation behind picking this approach is a direct result of the idea of the framework that will be created. The framework centres around the expansiveness instead of the profundity Despite the importance of having few working functions that the user can use once the initial version of the system has been created, I may not concentrate on the depth of a function. This indicates that the system components are first assembled so that they can be used by the user. The user will then give the developer feedback and adjustments can be made in the next cycle (Waterfall Model, 2012). Because the user's prerequisites are constantly evolving, it is shrewd to progressively perform on the system so that more capabilities can be introduced or modified later.

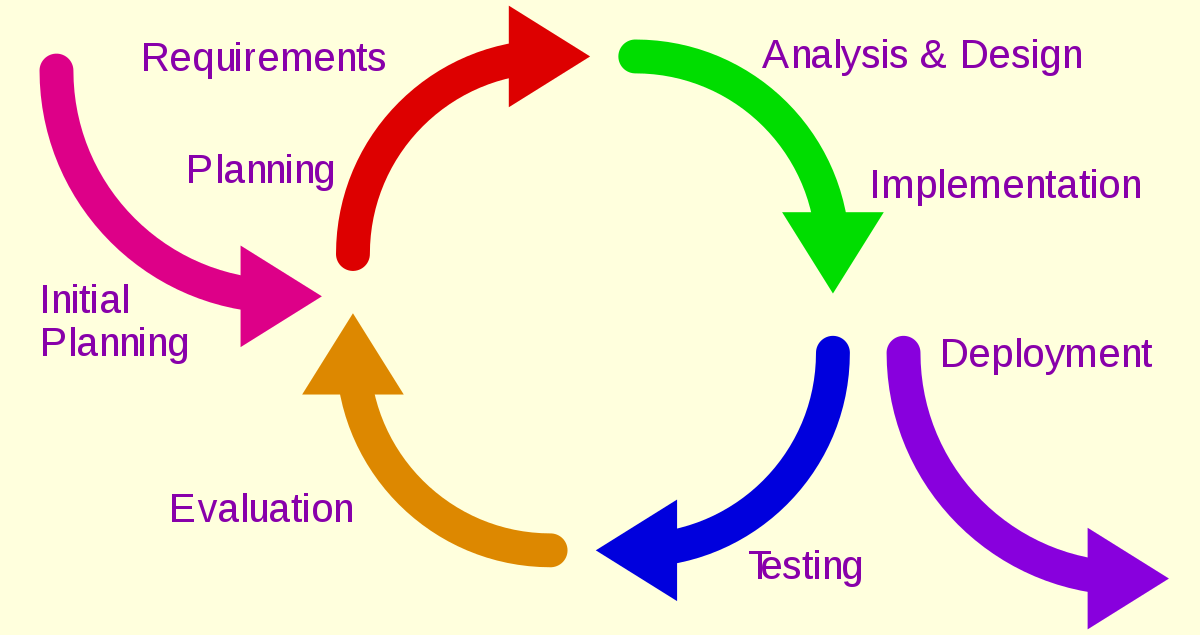


Figure 4.1 Incremental and iterative development stages (Waterfall Model,2012)

There are 7 stages in the Incremental & Iterative development model which are:

1. Planning
2. Analysis
3. Design
4. Implementation
5. Testing
6. Evaluation
7. Deployment

4.2 Tools Requirement

The tools required to develop the system are as follow:

|  |  |
| --- | --- |
| **Description** | **Details** |
| Laptop | Windows 10 or later  1.6GHz or faster processor  4Gb ram memory  Minimum hard disk space of 5Gb or larger  Video card – DirectX 9 or later  1920 x 1080 resolution (13 inch or larger)  Internet Connection (WIFI/LAN) |
| Internet Browser | Opera GX, Google Chrome or Mozilla Firefox |
| PHP/UI editor | Brackets v1.14 or later |
| XAMPP | MySQL 5.0 or later  Apache 2 or later |

# 5.0 Gantt Chart

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# 6.0 Reference

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