SECJ2203: Software Engineering

Project Proposal

FYP Management System

8 April 2023

Faculty of Computing

Prepared by: Software Geeks

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1. Introduction

1.1 The Goal

The Industry Integrated Project Proposal is a project-based learning activity designed for fourth-year Data Engineering Students (SECPH) in the Faculty of Computing, Universiti Teknologi Malaysia. This project proposal needs to be completed by the students in order for them to finish their Final Year Project (FYPi) in their bachelor's degree. The project proposal consists of three main objectives that need to be achieved. Firstly, producing a project proposal based on user requirements which involves researching, analyzing, and identifying user requirements and proposing a solution that meets those requirements. Secondly, designing project solutions according to user requirements. Finally, deliver the project solution clearly to the industry coach, university coach, and two examiners from the university via an online presentation.

This project has been in a more traditional way for all these years. It is done manually where all the registration, allocation, and markings are in hardcopies and forms and then managed by the coordinators. This current way has some disadvantages for both students and the coordinators. It will be time-consuming when running the system manually, hence it is considered less efficient. There is no proper medium of interaction between students and coordinators for better discussion. There is no formal and integrated management system for the industry-integrated project proposal.

Thus, the Final Year Project Management System (FYP) is an ideal solution since it provides the best solutions for the previous system. This system is proposed as the need to enhance the process and management system efficiently compared to the previous system. In this project, a web-based software solution will be introduced to eliminate the current tedious way of managing students' final-year projects by developing a computerized system that assists in managing all the operations of the final-year project. It also provides a medium for easy communication between students and lecturers or coordinators during all the phases. Thus, it improves productivity. From the system, there will be better collaboration between students and lecturers. So, it improves project planning and execution. In addition, there will be a more efficient use of resources.

The objectives of this project include:

- to develop a web-based FYP Management System that is systematic and user-friendly.
- to improve the communication system in the FYP community.
- to design the architecture of the system and its functionalities.

1.2 The Scope

This project's scope is to grab more students involved in the industry-integrated project using FYP Management System as a platform to complete their project-based learning activities. The user of this system will be fourth-year Data Engineering students in the Faculty of Computing, an industry coach, a university coach, and the examiners. This FYP system allows students to submit their proposals to be reviewed and evaluated by the instructors assigned to them.

Multiple technologies will be implemented to construct the FYP Management System, each with specific functionalities that help in the system's development. These are the technologies that will be applied to the system.

No	Technology	Description
1	Web Server	● Has HTTP handling, meaning that it can receive data submitted by students and store it in a database, or retrieve data from a database and send it back to the student in the form of a web page. ● Provide security features authentication and access control, which can help to protect the system and its data from unauthorized access or attacks.
2	Relational databases	● Provide query optimization capabilities, which can help to improve the performance of complex queries. This is important for the system, as it may need to retrieve and analyze large amounts of data. ● Enforces data integrity rules, which help to ensure that the data is reliable and trustworthy.
3	Cloud databases	● Provide automatic backup and recovery capabilities, which can help to ensure that data is not lost in the event of a failure or disaster. This is important as the data is likely to be critical and irreplaceable.

Here are some features to include in the system and its function.

No	Feature	Description
1	Login	● Allow the system to track user activities, provide personalization options, and enable the user to retrieve their work or assignments easily.
2	User-friendly interface	● Easy to navigate and use. ● Easier for students to submit their work and for instructors to check the work submitted without encountering technical difficulties.
3	Submission portal	● Students can upload their projects. ● Support various file formats, such as PDF, Word, Excel, and PowerPoint.
4	Plagiarism checker	● Can detect any instances of plagiarism in the submitted work to ensure that students are submitting original work.
5	Feedback mechanism	● Allows instructors to provide feedback on the submitted work to help students to improve their work.

Overall, a system that requires submission from students should be secure, reliable, and easy to use. It should also provide features that make the submission and grading process more efficient and effective for both students and instructors.

2. Software Process Model

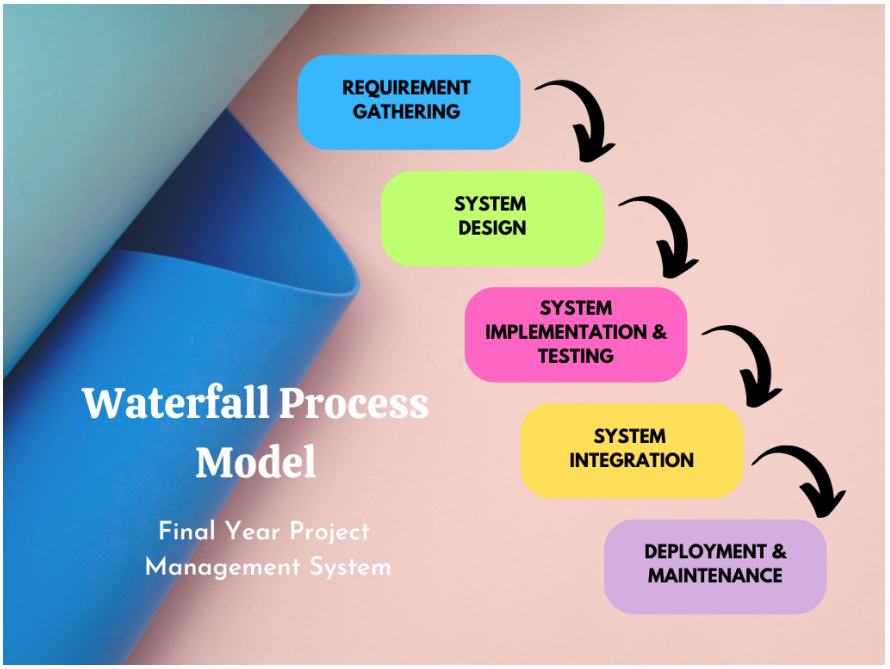
2.1 The Goal

A software process model is similar to a guidebook for developing software. It explains the stages you must take, what you must do in each phase, and what you will have when finished. It also assists you in avoiding mistakes and notifies you when you have completed each stage. A software process model can be useful if you are new to developing software since it shows you exactly what to do in each phase. It may also assist you in determining how long each step will take so that you can complete the projects on time. Consider it a plan that will assist you in creating high-quality software without skipping any critical tasks. There are several process models available to meet different demands. These models define the stages that must be taken in software development, such as the tasks that must be completed, the input and output of each task, the criteria that must be satisfied before and after each task, and the general order and flow of these activities.

2.2 The Chosen Software Process Model

In developing this system, we decided to choose the Waterfall model since it is the ideal model for the software development process. The waterfall model is a linear-sequential life cycle model in which all the processes are planned in advance and progress is measured against this plan. This means that any phase in the development process begins only if the previous phase is complete and there is no overlap process in this model.

There are numerous benefits to using the waterfall approach, including its simplicity, usability, and ease of understanding. Because of the rigidity of the model, it is also simple to manage. Each phase has particular deliverables, and they are handled and finished one at a time. The jobs can be set up quickly using this paradigm. Consequently, the procedure and outcomes are thoroughly recorded.



This process model contains five phases: requirement gathering and analysis, system design, implementation, integration, and testing, followed by system deployment and maintenance. We collect all the needs for the engineering process in the first phase through feasibility studies, in which we examine the system's technical and financial viability, requirements elicitation and analysis, system specification, and system validation. In the second step, which is the Final Year Project Management System, we will translate the system definition into an operational system. The database design, architectural design, interface design, and component design of the system are all included in this process.

With inputs from the system design, the system is then first created in small programs called units before being combined in the following phase. Unit testing is the process of developing and evaluating each unit for functionality. Following the testing of each unit created during the implementation phase, the entire system is then merged. After integration, the complete system is checked for errors and failures before moving on to the deployment and maintenance phases. Following the validation phase, the system will develop and evolve during this phase in accordance with the evolving business requirements.

2.3 Project duration

This project can be approached using an Agile process with three phases. In phase 1, the team will create a proposal that includes defining the system goal and objectives and selecting an appropriate software process model. In phase 2, the team will conduct a system analysis, determine functional and non-functional requirements, and create suitable diagrams. In phase 3, the team will design the proposed system by identifying weaknesses in the existing system, creating a system architecture and detailed component descriptions, data design, and interface design(prototype). According to the project plan, the project is estimated to take 53 days to complete.

Phase 1: Proposal.

- Establish the system's aim and objectives.
- Create an appropriate software process model.

Phase 2: Specification of System Requirements

- Conduct a system analysis by obtaining data on the present system through surveys and interviews.
- Determine the functional, non-functional, user, and system needs.
- Create suitable diagrams such as UML, Use Case diagrams.

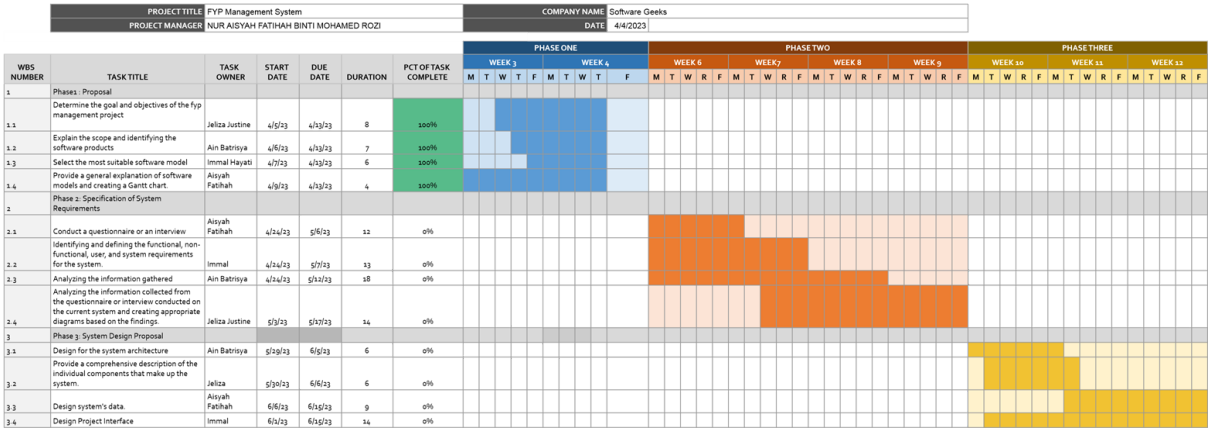
Phase 3: System Design Proposal

- Create the system's architecture, including the workflow and DFD.
- Give a thorough explanation of the components, including data types.
- Use dataflow, ERD, and SQL to create data designs.
- Create an interface prototype.

Phase 1 is scheduled to commence on Week 3 (3/4/2022) and complete on Week 4 (12/4/2023), requiring 10 days. Phase 2 will begin on Week 6 (24/4/2022) and end on Week 9 (19/5/2023), with an estimated duration of 25 days. Phase 3 is set to start on Week 10 (29/5/2022) and finish on Week 12 (15/6/2023), requiring approximately 18 days to complete.

Progress	Task
Phase 1: we will present a proposal to establish the system's goal and objective. Following this, we will collaborate and determine an appropriate software process model that will serve as a reference for our workflow and direction. We can utilize communication platforms such as Telegram group, Google Meet or Webex to facilitate our discussions and decision-making process.	Task 1: Determining the goal and objectives of the Fyp management project
	Task 2: Explaining the scope and identifying the software products
	Task 3: Selecting the most suitable software model and presenting visual illustrations of the chosen model. This will require evaluating different software models and selecting the one that best meets the project requirements. Once the model is chosen, it will be illustrated through diagrams to aid in the understanding of its structure and functionality.
	Task 4: Providing a general explanation of software models and creating a Gantt chart. The explanation will give an overview of different software models and their uses, while the Gantt chart will help to visualize the timeline and dependencies of the project tasks.
Phase 2: Define the system requirements and prepare detailed documentation, which will involve conducting a meticulous analysis of the current system. An appropriate model that includes all the necessary requirements will be developed, and several workflow diagrams will be created to aid in the visualization of the system. To enable effective collaboration and discussion of the findings, communication platforms such as Telegram group, Google Meet, or Webex will be utilized.	Task 1:Conducting a questionnaire or an interview to gather information about the current system. This will help us better understand how the system works and identify any areas for improvement.
	Task 2 : Identifying and defining the functional, non-functional, user, and system requirements for the system. This will involve determining what the system needs to do (functional), how it should perform (non-functional), who will use it (user), and how it will work with other systems (system).
	Task 3 : Analyzing the information gathered from the questionnaire or interview conducted on the current system and creating appropriate diagrams based on the findings. The data collected will be carefully examined to identify the system's strengths and weaknesses, and the diagrams will be constructed to represent the system's

	processes, data flow, and interactions.
	Task 4: Analyzing the information collected from the questionnaire or interview conducted on the current system and creating appropriate diagrams based on the findings. The data gathered will be carefully evaluated to identify areas for improvement in the system, and the diagrams will be constructed to represent the proposed changes and their impact on the system's processes and interactions.
Phase 3: Create a design for the proposed system based on the weaknesses identified in the current system. To facilitate effective communication and collaboration among the team members, we will utilize communication platforms such as Telegram group, Google Meet, or meetings. The proposed system design will aim to address the identified weaknesses and improve the system's overall functionality and performance.	Task 1: Creating a design for the system architecture. This will include determining the components, structure, and organization of the system to ensure its optimal functionality and performance.
	Task 2: Providing a comprehensive description of the individual components that make up the system. This will include a detailed explanation of the functionalities and interactions of each component to ensure a thorough understanding of the system's workings.
	Task 3: Creating a design for the system's data. This will include determining the structure and organization of the data, as well as specifying the relationships between different data elements. The data design will ensure that the system can effectively store, retrieve, and manipulate data to meet the project requirements.
	Task 4: Designing Interface for the Fyp project management system



PROJECT TITLE	FYP Management System	COMPANY NAME	Software Geeks
PROJECT MANAGER	NUR AISYAH FATIHAH BINTI MOHAMED ROZI	DATE	4/4/2023

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
1	Phase1 : Proposal					
1.1	Determine the goal and objectives of the fyp management project	Jeliza Justine	4/5/23	4/13/23	8	100%
1.2	Explain the scope and identifying the software products	Ain Batrisya	4/6/23	4/13/23	7	100%
1.3	Select the most suitable software model	Immal Hayati	4/7/23	4/13/23	6	100%
1.4	Provide a general explanation of software models and creating a Gantt chart.	Aisyah Fatihah	4/9/23	4/13/23	4	100%
2	Phase 2: Specification of System Requirements					
2.1	Conduct a questionnaire or an interview	Aisyah Fatihah	4/24/23	5/6/23	12	0%
2.2	Identifying and defining the functional, non-functional, user, and system requirements for the system.	Immal	4/24/23	5/7/23	13	0%
2.3	Analyzing the information gathered	Ain Batrisya	4/24/23	5/12/23	18	0%
2.4	Analyzing the information collected from the questionnaire or interview conducted on the current system and creating appropriate diagrams based on the findings.	Jeliza Justine	5/3/23	5/17/23	14	0%
3	Phase 3: System Design Proposal					
3.1	Design for the system architecture	Ain Batrisya	5/29/23	6/5/23	6	0%
3.2	Provide a comprehensive description of the individual components that make up the system.	Jeliza	5/30/23	6/6/23	6	0%
3.3	Design system's data.	Aisyah Fatihah	6/6/23	6/15/23	9	0%
3.4	Design Project Interface	Immal	6/1/23	6/15/23	14	0%

Gant Chart Link:

https://docs.google.com/spreadsheets/d/1_yhjxiljVWedznBAKc3meRLvv-aCbtMY/edit?usp=share_link&ouid=111280028398260320121&rtpof=true&sd=true