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Tiger Cookies MNL: Unified Attendance and Salary Computation for Efficient Bake Shop Management

Software Project Management Plan Document

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1. Introduction

1.1 Project Overview

This project aims to develop an automated Biometric Attendance and Payroll System that allows employees to check in and out using facial recognition technology, eliminating the need for manual attendance tracking. The system will automatically capture and store attendance data, which will then be seamlessly integrated into a payroll system for efficient and accurate salary computation. By automating these processes, the system will significantly reduce Tiger Cookies MNL's administrative workload, minimize payroll calculation errors, and enhance security by ensuring attendance records are easily accessible and historically viewable by employees.

Furthermore, the project is designed with scalability in mind, allowing for future enhancements to accommodate a growing workforce, integrate additional features, or adapt the system to different industries as needed.

1.2 Project Deliverables

Deliverables	Type	Date	Responsible Party
Letter for interview	Document	Sept 21, 2024	Client
Certificate of non-relation	Document	October 12, 2024	Client
Software Project Management Plan	Document	Nov 30, 2024	Project team
Software	Document	Nov 30, 2024	Project team

Deliverables	Type	Date	Responsible Party
Requirement Specification Document			
Software Design Document	Document	Nov 30, 2024	Project team
Software Test Plan	Document	Nov 30, 2024	Project team
Web System	Software	April 2025	Project team
Software Test Document	Document	April 2025	Project team
Software Documentation	Document	April 2025	Project team

Table P-1: Project Deliverables

2. Project Organization

2.1 Process Model

The project will adopt the Waterfall model as its development methodology, following a sequential process that includes Requirements Gathering, Requirements Analysis, Design, Coding, Testing, Verification and Maintenance.

Phases to cover	Role	Activist	Entry Criteria	Exit Criteria
Requirements Gathering	The whole team	Refer to Table P-6: Work package table	The entire team must be enrolled in ICS26010, select a client for the project, and obtain the client's acceptance. Additionally, the project must receive approval from the course adviser.	Completed and approved project charter and requirements outline.
Requirements Analysis	Project Manager, Business Analyst, and Systems Analyst	Refer to Table P-6: Work package table	Review client interviews to analyze and identify their problems.	Determine the system and its specific functions to be developed in

			Formulate hypotheses about the causes of these problems and gather relevant data. Propose solutions by categorizing the issues and pinpointing the exact technical approach required to address them.	order to effectively address the client's identified problems.
Design	Systems Analyst, and (3) Developers	Refer to Table P-6: Work package table	The SRS document serves as the foundation for the creation of the system design.	Approved design documents and mockups.
Coding	Systems Analyst, Developers, and Project Manager	Refer to Table P-6: Work package table	Obtain approval for the SMPM, SRS, SDD, and STP, along with the go-ahead	Completed and compiled system ready for testing.

			signal from the panelists.	
Testing	(2) Quality Assurance, Business Analyst, and Systems Analyst	Refer to Table P-6: Work package table	Fully developed system.	All test cases passed and client approval received.
Verification and Maintenance	The whole team	Refer to Table P-6: Work package table	System deployed and is functioning.	The project is finalized with comprehensive documentation to support future scaling or address potential issues.

Table P-2: Process Model

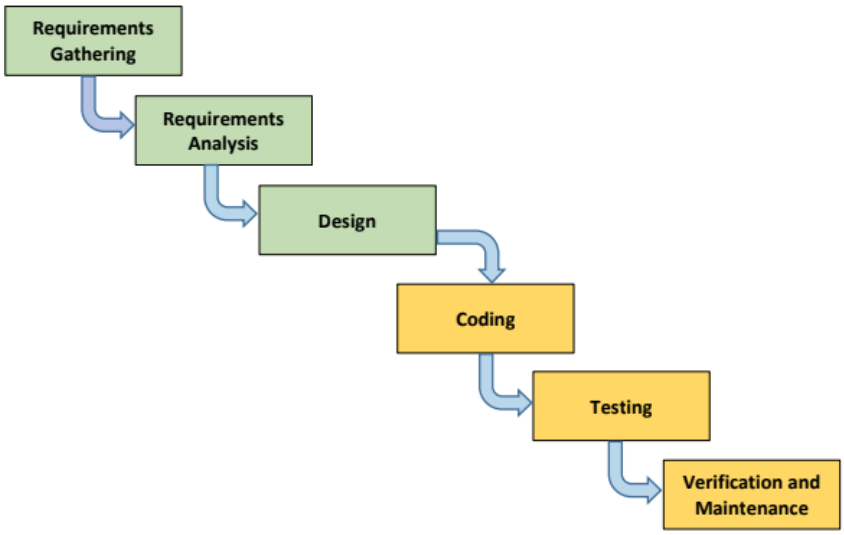


Figure P-1: Project Process Model

2.2 Organization Structure

Internal Management Structure of the Project

The project is overseen by Mia Eleazar, our instructor, who acts as the overall supervisor and ensures the project meets its academic and practical objectives.

Composition of the Project Team:

Project Manager (1), Business Analyst (1), Systems Analyst (1), Developers (3), Quality Assurance (2): Refer to Table P-3: Project Responsibilities

The Project Manager and Business Analyst serve as the primary liaisons with the client, Tiger Cookies MNL, ensuring their needs are accurately translated into project deliverables

Client Organization (Tiger Cookies MNL)

Tiger Cookies MNL is led by Daphne P. Dalumpines, the sole proprietor and head of the business. The company has a hierarchical structure, with the following key roles:

Daphne P. Dalumpines (Sole Proprietor): Oversees all aspects of the business, including strategic decision-making. She is directly involved in providing input for the project.

Daniela Julia Dalumpines (Business Development Manager): Focuses on the growth and future development of the business.

Juliet Dalumpines (Operations Manager): Developed the operational framework for Tiger Cookies MNL and continues to refine it. Her expertise ensures that the operational processes remain efficient and adaptable to the company's evolving needs.

Louie Manalo (Branch Manager): Handles the branch's day-to-day operations, ensuring smooth functioning. He supervises two sales assistants:

Wendilyn Rona

Almira Orogo

For this project, the team frequently interacts with Daphne P. Dalumpines and Louie Manalo. Their input has been crucial during interviews and the creation of the validation board, as their feedback ensures the project aligns with Tiger Cookies MNL's operational needs.

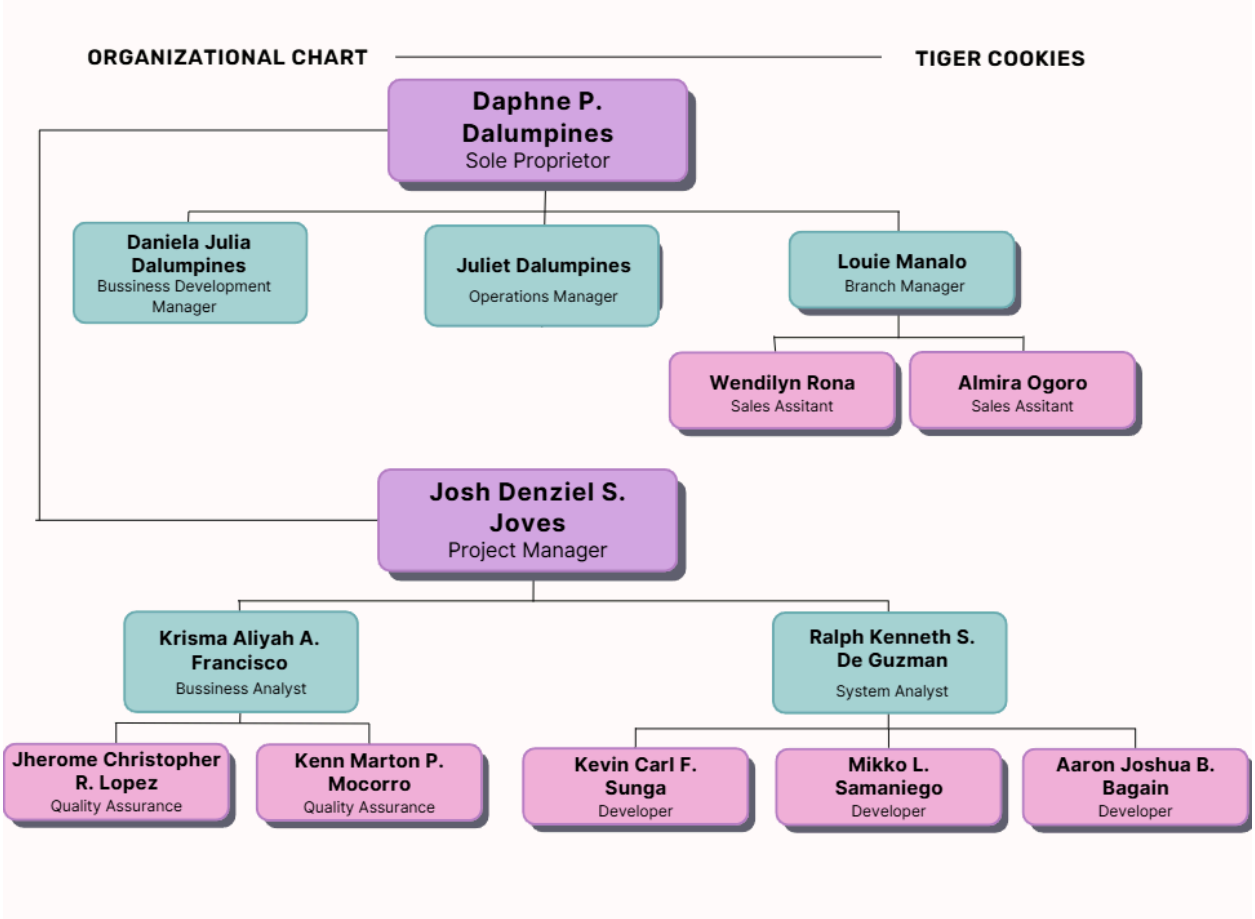


Figure P-2: Organization Chart

2.3 Project Responsibilities

DESIGNATION	No. of staff	TASKS (SE1)	TASKS (SE2)
PROJECT MANAGER	1	identification of all project tasks	Monitoring of all project tasks
		Creation of group's time table; creates project schedule through the use of Gantt Chart to show tasks, task dependencies and critical tasks	Monitoring of group's timetable and making sure all deliverables are submitted on time
		creation of project feasibility plans	Monitoring feasibility plans to ensure they are still in line with actual project outcomes
		Monitors weekly progress report	Monitors weekly progress report via Trello
		leads the team in meeting with client for requirements gathering	Continually updates client of project progress
		Continually updates client of project progress	May take part in the Development team (i.e. help

			in coding) OR QA team (i.e. help in testing), but not both
		Leads the creation of the Validation Board	Must work closely with QA team in delivering the Survey Questionnaires (UAT) to the client and users
		leads the creation of the SPMP Document	
SYSTEMS ANALYST	1	Leads the creation of the SDD Document	Leads creation of an Installation Manual (if applicable)
		Identify system requirements (functional and non-functional), technical requirements, and system/software scope and limitations	Monitor if Dev team and QA team are following the Design model identified in the SDD document
		Leads in the design plan, i.e. what methodology to use, what programming language to use, etc.	

		Identifies possible risks which may occur during system development	
			May take part in the Development team (i.e. help in coding) OR QA team (i.e. help in testing), but not both
		Identify operational requirements and other design considerations (i.e. operating systems, software platforms, etc.)	
		Work alongside the Project Manager in creating feasibility plans	Must work closely with QA team in writing the Survey Questionnaires for UAT
		Work alongside QA team to develop the test plans	
		Work alongside the Business Analyst to identify the project's technical specifications and create technical diagrams for developers to follow	Monitor and fix critical issues which may occur during development phase

		(i.e. class diagram, sequence diagram)	
		Considers scalability to ensure that the system can support future growth and expansion	
BUSINESS ANALYST	1	leads the creation of the SRS document	leads creation of a User's Manual (if applicable)
		identifies the business-related requirements for the proposed project by reviewing existing business process flows, forms, documents, and including organizational culture	Continually updates client of project progress
		work alongside the System Analyst to ensure system design meets the company's strategic goals	review project's output (i.e. forms) to check if user expectations/needs are met
		be able to identify system inputs and format outputs to meet user needs	monitor and fix critical issues which may occur during implementation stage (strategic goals must

			still be met)
		identify possible risks which may occur during system implementation	May take part in the Development team (i.e. help in coding) OR QA team (i.e. help in testing), but not both
		create specifications, flowcharts and model diagrams for developers to follow (i.e. use case, activity diagram)	Must work closely with QA team in delivering the Survey Questionnaires (UAT) to the client and users
		should work hand-in-hand with the Project Manager in interviewing the client and other stakeholders	
Developer	3	creates system prototype (mockups)	creation of the code for the front end (user interface) as per the Design document in SE1
		follow design model created by the System Analyst to create the prototype	creation of the code for the back end (database) as per the Design document in SE1

		must NOT work with QA team in creating test plans	does debugging and unit testing
			continuously sends to QA finished codes/modules for review
			revise reviewed codes/modules identified by QA with errors
			revise codes/modules as per UAT report (maintenance phase) from QA team
			must NOT work with QA team in testing
			handle user training alongside QA team
Quality Assurance	2	leads in the creation of the Software Test Plan (STP) document	leads in the creation of the Software Test Document
		follow design model created by the System Analyst and requirements model created by the Business Analyst to create the test plans	does unit testing and integration testing

		identifying test plans for all functional and non-functional requirements	examine systems performance issues taken from codes created by the developers
		must NOT work with Developer team in creating prototype	re-test revised codes/modules from developers
			make sure all testing (and re-testing) is documented/recorded
			Leads in the creation of the Survey Questionnaire for UAT; leads in the delivery of the UAT to client and users
			Collect, record, tally (use statistical treatments) and analyze the results of the UAT for project maintenance
			handle user training alongside QA team

			must NOT work with Dev team in coding

Table P-3: Project Responsibilities

3. Managerial Process

3.1 Management Objectives and Priorities

The primary goal of this project is to assist our client Tiger Cookies MNL in addressing the issues identified through our validation board. (refer to Figure P-3 &4) Specifically, the project focuses on resolving challenges related to attendance and payroll management.

The project is designed to be flexible, allowing for the incorporation of additional features that may arise during the development process as solutions to unforeseen challenges or logic-related issues. While adaptability is a key aspect, the project's scope is grounded in the problems and solutions outlined in the validation board. As such, priority will be given to delivering the identified solutions to the specified problems, ensuring alignment with the initial objectives and client expectations.

Figure P-3: Validation Board

Figure P-4: Validation Board

3.2 Assumptions, Dependencies, and Constraints

The project assumptions are as follows:

- The required resources (hardware, software, and personnel) will be available throughout the project.
- Team members will remain available and committed for the project's duration.
- Existing infrastructure will support the system without requiring significant upgrades.
- APIs or third-party tools used in the system will remain operational and accessible during development.
- Deliverables will be completed as planned.
- Client actively participates in providing feedback.

- The project adhered to the established timeline without unexpected delays.
- The project will be approved by the panelists and client.
- The project will be used by the client.
- End-users willingness to adapt to the new system.

Dependencies:

- Availability of devices for accessing the Web System
- Successful and reliable integration of the attendance system with the payroll management system
- Secure internet connectivity on the end-users
- Secure account registration and login process
- Successful rental of domain and cloud storage
- Successful integration of APIs

Constraints:

The proposed project is constrained by the timeline set by the department. Its features are limited to addressing the problems identified in the validation board. Any additional features not mentioned in the board will be considered only if they arise to address unforeseen issues during development, but the team will remain focused on the identified problems. The team was also advised against proposing more than five main functions, as adding more would increase complexity and make the project unmanageable within the given time constraints.

3.3 Risk Management

The process used to identify the risk factors involved a collaborative brainstorming session with the entire team. During this session, we categorized potential risks into four main areas: technical, operational, financial, and external.

Risk	**Category**	**Mitigation & Contingency Plan**
Team members availability Team members will remain available and committed for the project's duration.	Operational	Regularly remind the team of the consequences of delays to reinforce accountability. Aim to complete tasks ahead of the intended timeline to create a buffer and minimize the impact of unforeseen risks.
Data inconsistency Data inconsistencies may occur due to errors in data input, database design, or system logic, which may only become apparent during development.	Technical	To mitigate the risk of data inconsistency, we will validate data inputs, database design, and system logic early in the planning phase, ensuring the ER diagram and relationships are thoroughly reviewed. In the event that data inconsistencies arise, we will revert to backup versions and conduct an audit to identify and correct the issues.
Existing infrastructure	External	Optimize the system design to

Existing infrastructure will support the system without requiring significant upgrades		minimize resource demands, such as using lightweight frameworks or reducing computational overhead. Plan for minor infrastructure upgrades or alternative hosting options, such as cloud-based services, to ensure system compatibility and performance without significantly increasing costs.
Reliable API's APIs or third-party tools used in the system will remain operational and accessible during development.	External	Implement version control to lock dependencies to stable versions and monitor provider updates or announcements that may impact availability. Identify alternative APIs or tools that can perform similar functions and maintain backup options in case the primary tools become inaccessible.
Data security The system may be vulnerable to unauthorized access, data breaches, or loss of sensitive information, compromising user	Technical	Implement encryption, secure authentication protocols, and maintain audit logs to track who accesses what data and when. Instead of directly deleting data from the database, implement a status-based approach to

trust and compliance with regulations.		allow backtracking and maintain data integrity.
Integration of the Project with the Current Workflow Users may perceive the new system as a hassle compared to their familiar manual process, potentially resisting adoption.	Operational	To address this, the system is designed to be user-friendly and require minimal training, emphasizing its efficiency and time-saving benefits.
Proposed Project Effectively Addresses the Identified Problems	Technical	Thorough requirement analysis and stakeholder validation will be conducted. If gaps are identified, the scope or functionality will be adjusted, and iterative feedback sessions with stakeholders will be held to refine the solution.
Further Expansion of the System to Address Emerging Issues During Development	Technical	Implement a clear project scope and requirements. If expansion becomes necessary, an early timeline will be followed to allow sufficient time for adjustments, ensuring the system remains functional and aligned with objectives.
Sudden shift in priorities by the client or business	External	The mitigation plan ensures that the project is built with scalability in

		mind, allowing the attendance and payroll system to be adaptable for use by other types of businesses.
Timely completion of SDD document. The SDD may be challenging to complete on time, as it is the first system we are proposing and developing based on a client's specific needs, requiring detailed technical specifications.	Technical	The mitigation strategy is to start early within the project timeline, ensuring that the system's features are kept simple and focused, avoiding unnecessary complexity while still meeting the client's requirements.
Incorrect Software Testing Insufficient or improper testing could result in undetected bugs, performance issues, or security vulnerabilities.	Technical	Research and implement a comprehensive testing strategy, including unit, integration, and system tests, ensuring thorough coverage of all high priority tests.If issues arise post-deployment, prioritize urgent fixes and conduct additional rounds of testing to identify and resolve any remaining problems.
Low Team Motivation	Operational	To keep the team motivated, we will make the project engaging and informative, highlighting how their contributions directly benefit the client. This approach fosters a sense of

		ownership and investment. If progress slows or motivation declines, we will implement clear consequences for lack of action, ensuring accountability and reinforcing the importance of meeting project objectives.
Delays in Project Timeline Due to Class Suspensions	Operational	The contingency plan is to continue working on the project as long as the impact on individuals is minimal, ensuring progress is maintained without significant disruption.

Table P-5: Risk Management

3.4 Monitoring and Controlling Mechanisms

All communications with the client will primarily be handled by the project manager or the business analyst, ensuring clear and consistent dialogue. In cases of unavailability due to unforeseen events, other team members may substitute as needed. To maintain alignment and transparency, the team has established weekly report meetings to discuss the status of tasks, including current, ongoing, and newly identified tasks, completed work, and upcoming milestones.

The project will leverage Trello to facilitate the reporting and communication plan, visually tracking progress and updates. Trello will showcase the communication schedule, including expected regular reviews, and as-needed communications. This ensures all team members have clear visibility into the project's progress. ProjectLibre will be used for work package breakdowns, offering detailed insights into task dependencies and timelines.

For team collaboration, tools such as Messenger, Discord, Zoom, and Google Meet will be employed to ensure seamless communication and flexibility in coordinating efforts, especially when addressing complex or urgent issues. Identifying and utilizing these communication channels and tools at the start of the project fosters efficiency and helps ensure all team members and stakeholders remain well-informed.

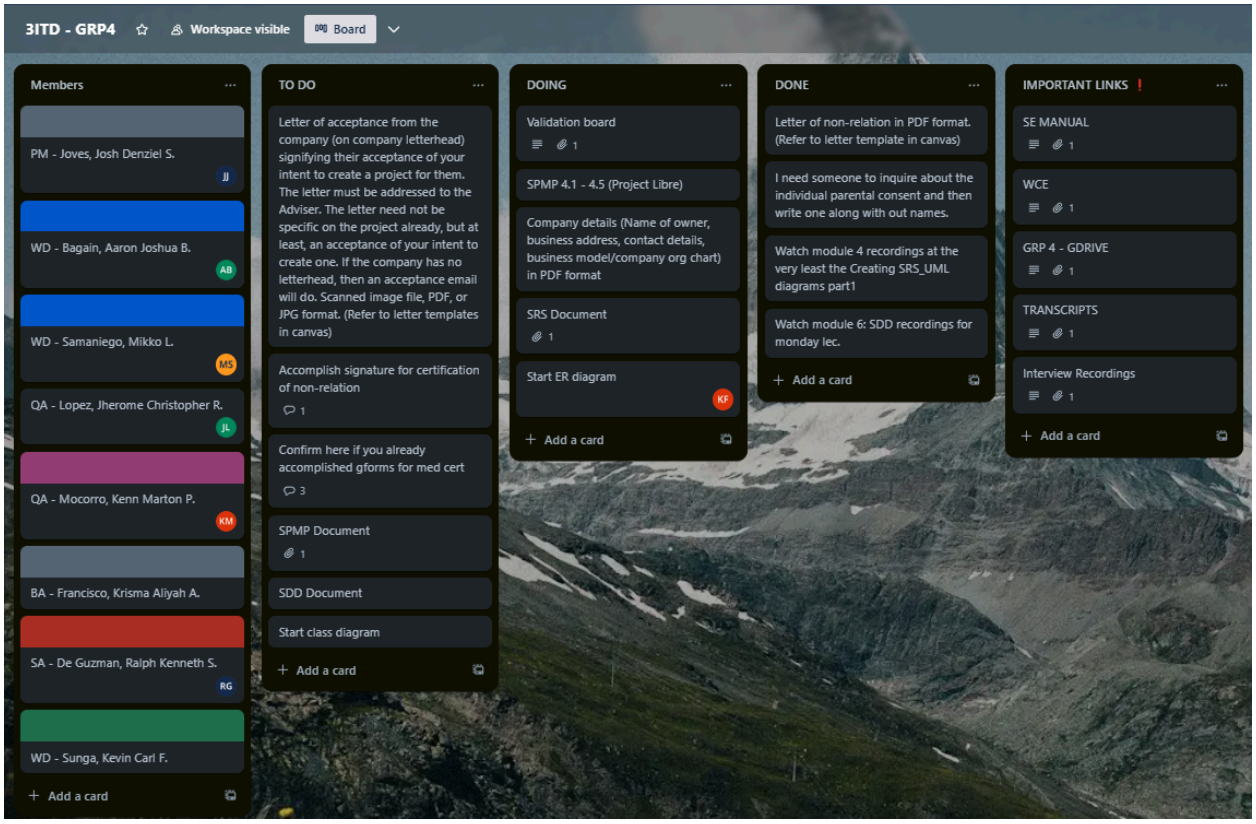


Figure P-5: Communication and Reporting Plan

4. Work Packages, Schedule, and Budget

4.1 Work Packages

Work Package	Activities	Tasks
Planning	Pick group members	Identifying group members, finding a client, Writing the SPMP, and interviewing a client.
	Decide on a role	
	Choose a client	
	Gather information about client's business processes and challenges	
	Continue writing the SPMP after defining project objectives, major work activities, goals, required resources, assumptions, dependencies, and constraints	
Requirement Analyst	Identify the client's problem	Creation of validation board, finalizing the validation board, and writing the SRS
	Write assumptions about the identified problems	
	Get out of the building	
	Proposed technical solution	
	Create use case diagram	
	Create activity diagram	
Design	Create detailed use case diagram	Writing of the SDD and the creation of UML diagrams

	Create swimlane diagram	
	Create sequence diagram	
	Create ER diagram	
	Create class diagram	
	Write data dictionary	
	Create subsystem sequence diagram	
	Mockups	
Defense and revisions	Present the proposed project in front of the panelist and client	Presentation of the proposed project and revisions
	Revision of the document if deemed necessary.	
Implementing	Building of the system	Starting the development and testing of the system.
	Test system	
Defense	Present the system in front of the panelist	Presentation of the system
Deployment and Maintenance	Performing User Acceptance Testing (UAT)	UAT, training, and maintaining.
	Training the identified users	
	Maintaining the system for the foreseeable future	

Table P-6: Work Package table

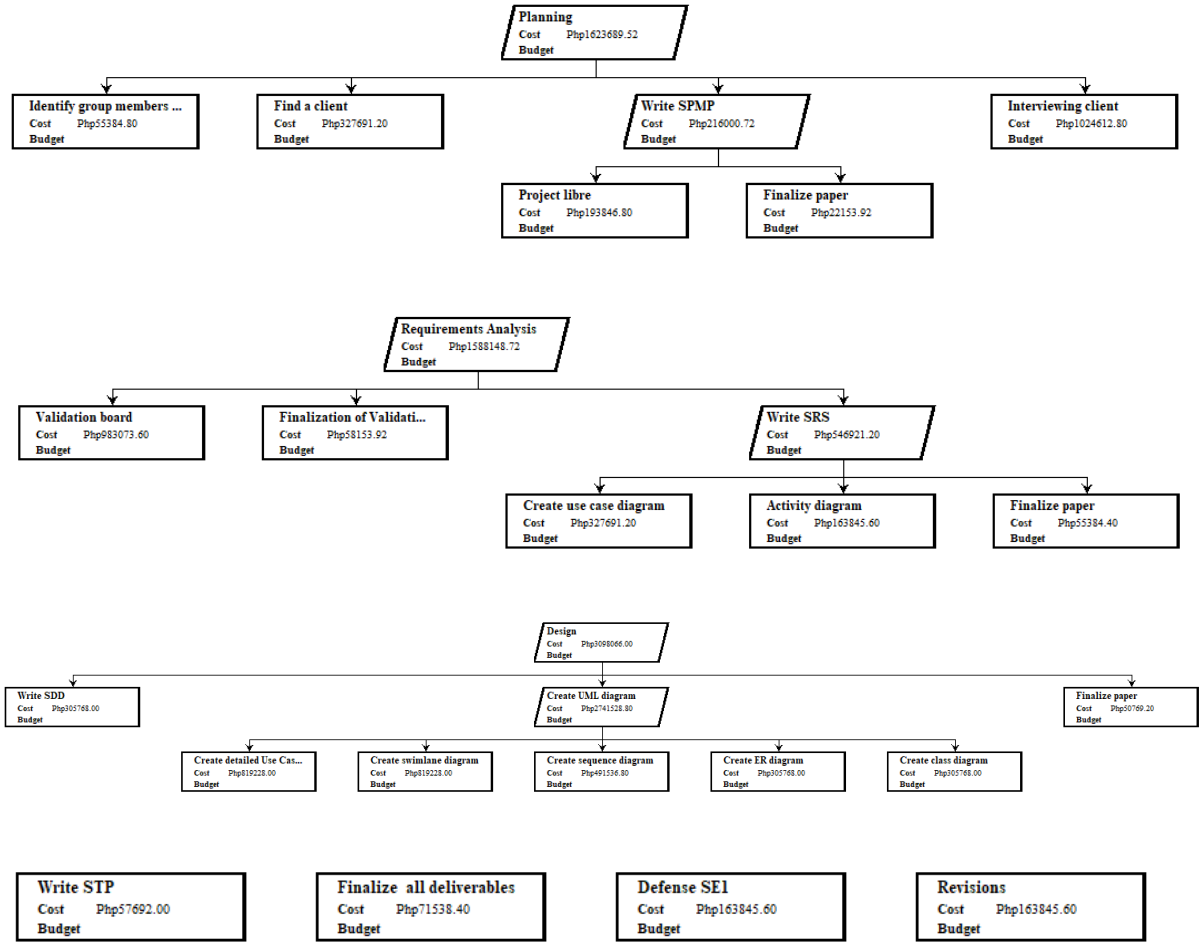


Figure P-6: Work Breakdown Schedule

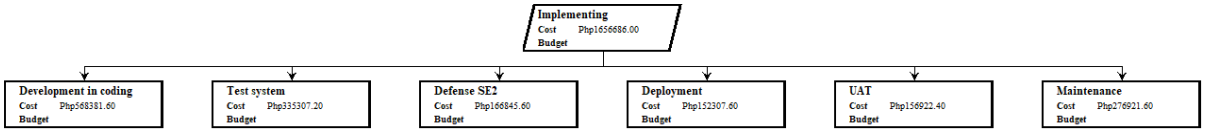


Figure P-7: Work Breakdown Schedule

4.2 Dependencies

Work Package	Dependency Type	Dependent On
Find a client	FS	Identifying group members
Writing SPMP	SS, FS	Find a client, Identifying group members
Creation of validation Board	FS	Find a client
Writing of the SRS	SS	Creation of validation board
Creation of Use Case Diagram	SS	Creation of validation board
Activity Diagram	FS	Creation of Use Case Diagram
Writing of the SDD	SS	Writing of the SRS, Creation of validation Board
Creation of various UML diagrams	FS, SS	Creation of Use Case Diagram, Activity Diagram, Writing of the SDD
Writing the STP	SS	Writing of the SDD
Finalization of deliverables	FF	Writing of SPMP, SRS, SDD, STP
Defense	FS	Finalization of deliverables

Revisions	FS	Defense
Development Stage	FS	Writing of SPMP, SRS, SDD, STP and Defense
Deployment and Maintenance Stage	FF	Development Stage

Table P-7: Dependency Table

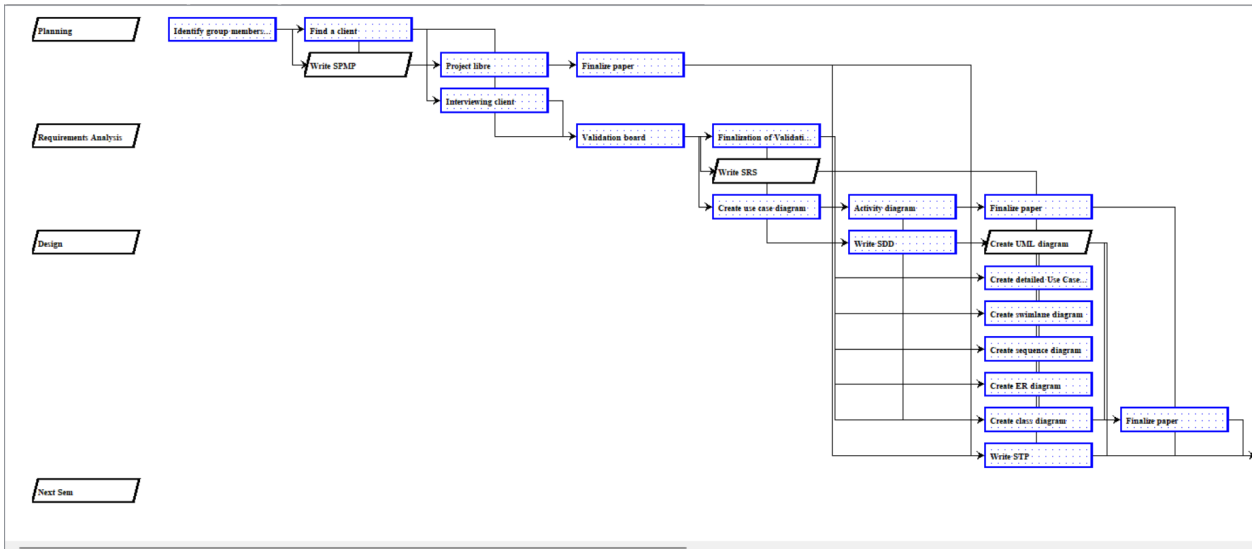


Figure P-8: Dependency Diagrams

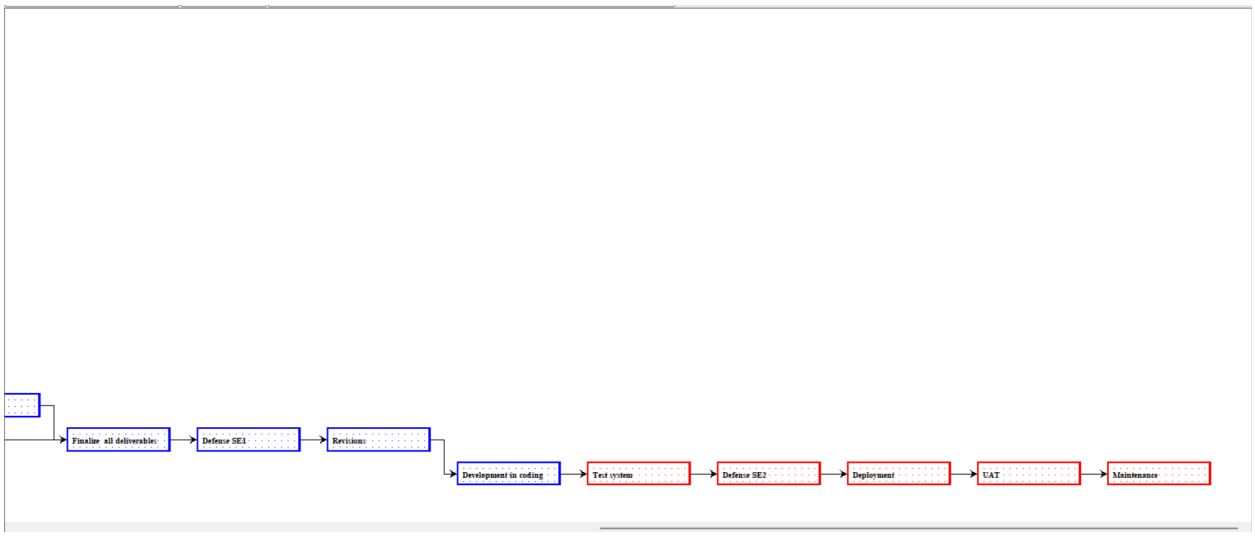


Figure P-9: Dependency Diagrams

4.3 Resource Requirements

The projected resources necessary for the successful completion of the project are outlined in detail below. These categories include the number and types of personnel and the specific software and hardware resources.

Personnel:

- Project Manager (1)
- System Analyst (1)
- Business Analyst (1)
- Software Developers
- Quality Assurance

Support Software:

- IDE: Visual Studio 2022.
- Frontend: React JS

- Backend: ExpressJS & NodeJS
- Database: MongoDB.
- Project Management Tool: ProjectLibre.
- Collaboration Tools: Trello, Draw.io, Google Workspace, Zoom, Discord, and Messenger.
- Domain Registration.

Computer Hardware for the team (Minimum specification):

- 8GB RAM.
- 256GB Storage.
- I5/AMD Ryzen 5 processor.
- Windows/Mac OS.

Client Device Hardware Requirements:

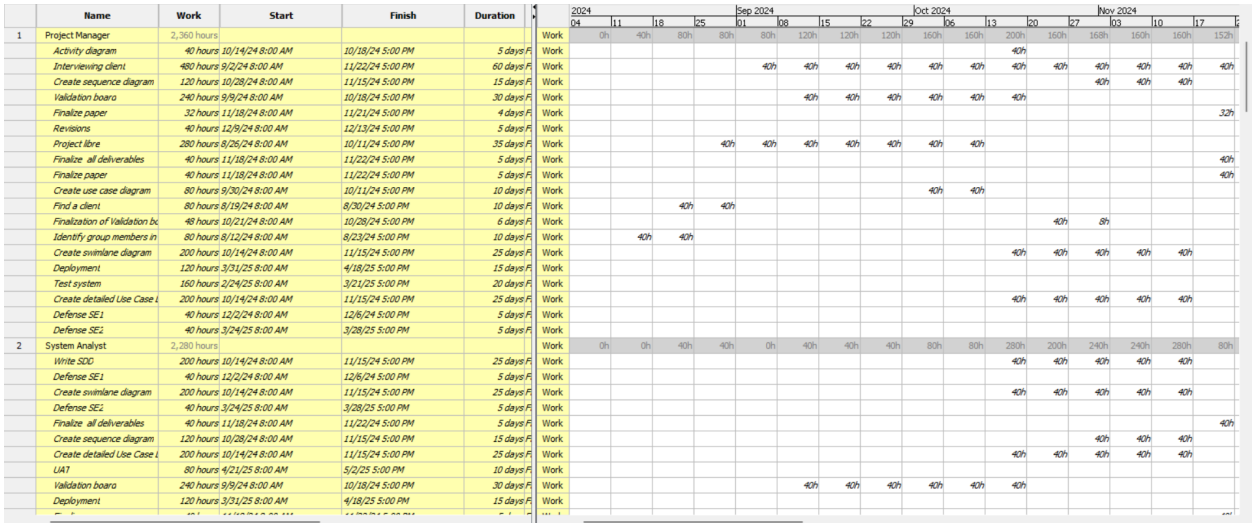
- Any compatible and internet-enabled device for accessing the web application system.

4.4 Resource Allocation

Resource Allocation	
Work packages	**Allocated resources**
Planning Stage	Personnel: 1 Project Manger, 1 System Analyst, 1 Business Analyst, 3 Developers, 2 QA Support Software: ProjectLibre, Trello, Google Workspace, Zoom, Discord, and Messenger Hardware: Laptop, computer, mobile phone (Personal Devices)
Requirements Analyst Stage	Personnel: 1 Project Manger, 1 System Analyst, 1 Business Analyst, 3 Developers, 2 QA Support Software: ProjectLibre, Trello, Draw.io, Google Workspace, Zoom, Discord, and Messenger Hardware: Laptop, computer, mobile phone (Personal Devices)
Design Stage	Personnel: 1 Project Manger, 1 System Analyst, 1 Business Analyst, 3 Developers, 2 QA Support Software: ProjectLibre, Trello, Draw.io, Google Workspace, Zoom, Discord, and Messenger Hardware: Laptop, computer, mobile phone (Personal Devices)
Defense and Revision Stage	Personnel: 1 Project Manger, 1 System Analyst, 1 Business Analyst, 3 Developers, 2 QA Support Software: ProjectLibre, Trello, Draw.io, Google

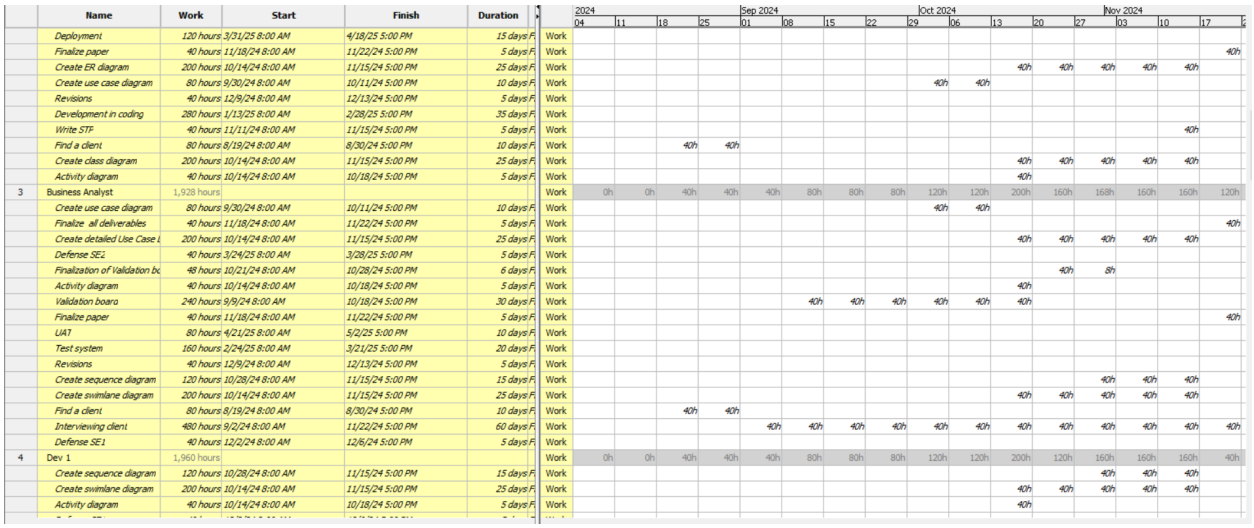
	Workspace, Zoom, Discord, and Messenger Hardware: Laptop, computer, mobile phone (Personal Devices)
Development Stage	Personnel: 1 Project Manger, 1 System Analyst, 1 Business Analyst, 3 Developers, 2 QA Software:Visual Studio 2022, HeidiSQL and/or MySQL Workbench, ProjectLibre, Trello, Draw.io, Google Workspace, Zoom, Discord, and Messenger Hardware: Laptop, computer, mobile phone (Personal Devices) Other resources: Cloud Storage and Domain
Deployment and Maintenance Stage	Personnel: 1 Project Manger, 1 System Analyst, 1 Business Analyst, 3 Developers, 2 QA Software:Visual Studio 2022, HeidiSQL and/or MySQL Workbench, ProjectLibre, Trello, Draw.io, Google Workspace, Zoom, Discord, and Messenger Hardware: Laptop, computer, mobile phone (Personal Devices) Other resources: Cloud Storage and Domain

Table P-8 Resource Allocation Table



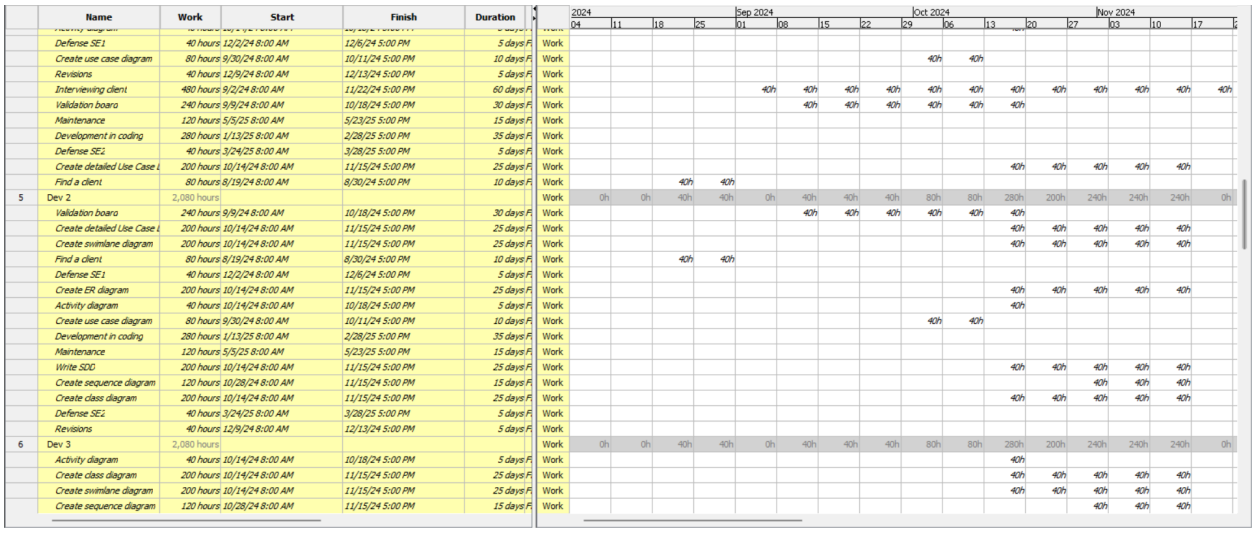
	Name	Work	Start	Finish	Duration
1	Project Manager	2,360 hours			
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days
	Interviewing client	480 hours	9/2/24 8:00 AM	11/22/24 5:00 PM	60 days
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
	Finalize paper	32 hours	11/18/24 8:00 AM	11/21/24 5:00 PM	4 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
	Project libre	280 hours	8/26/24 8:00 AM	10/11/24 5:00 PM	35 days
	Finalize all deliverables	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	Finalize paper	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
	Finalization of Validation bo	48 hours	10/21/24 8:00 AM	10/28/24 5:00 PM	6 days
	Identify group members in	80 hours	8/12/24 8:00 AM	8/23/24 5:00 PM	10 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Deployment	120 hours	3/31/25 8:00 AM	4/18/25 5:00 PM	15 days
	Test system	160 hours	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
	Create detailed Use Case L	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
	Defense SE2	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
2	System Analyst	2,280 hours			
	Write SDD	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Defense SE2	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Finalize all deliverables	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days
	Create detailed Use Case L	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	UAT	80 hours	4/21/25 8:00 AM	5/2/25 5:00 PM	10 days
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
	Deployment	120 hours	3/31/25 8:00 AM	4/18/25 5:00 PM	15 days

Figure P-10: Resource Allocation



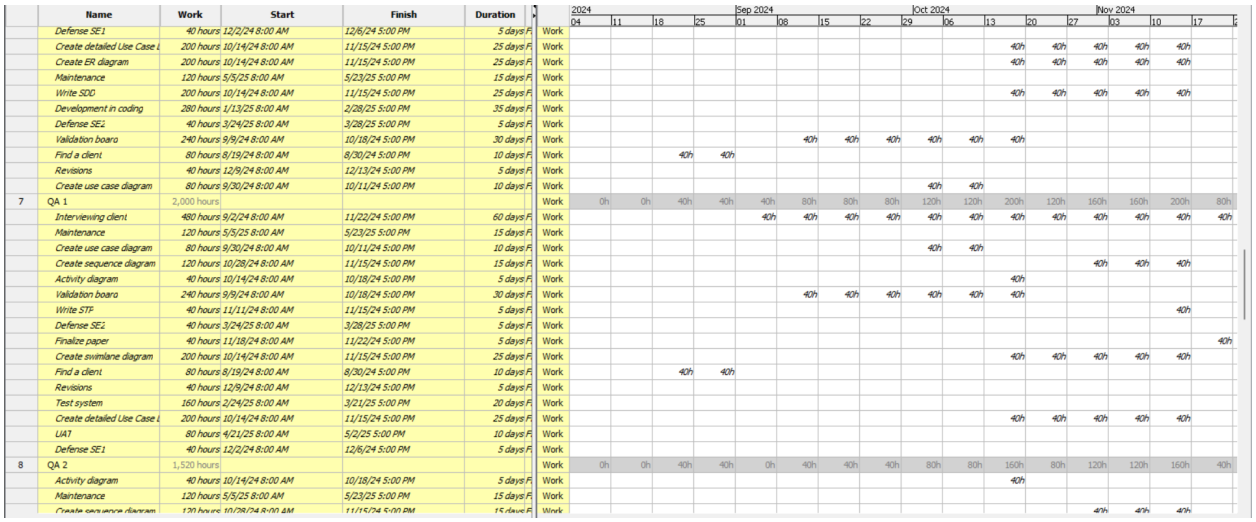
	Name	Work	Start	Finish	Duration
	Deployment	120 hours	3/31/25 8:00 AM	4/18/25 5:00 PM	15 days
	Finalize paper	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	Create ER diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
	Development in coding	280 hours	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
	Write STP	40 hours	11/11/24 8:00 AM	11/15/24 5:00 PM	5 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
	Create class diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days
3	Business Analyst	1,928 hours			
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
	Finalize all deliverables	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	Create detailed Use Case L	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Defense SE2	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Finalization of Validation bo	48 hours	10/21/24 8:00 AM	10/28/24 5:00 PM	6 days
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
	Finalize paper	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	UAT	80 hours	4/21/25 8:00 AM	5/2/25 5:00 PM	10 days
	Test system	160 hours	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
	Interviewing client	480 hours	9/2/24 8:00 AM	11/22/24 5:00 PM	60 days
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
4	Dev 1	1,960 hours			
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days

Figure P-11: Resource Allocation



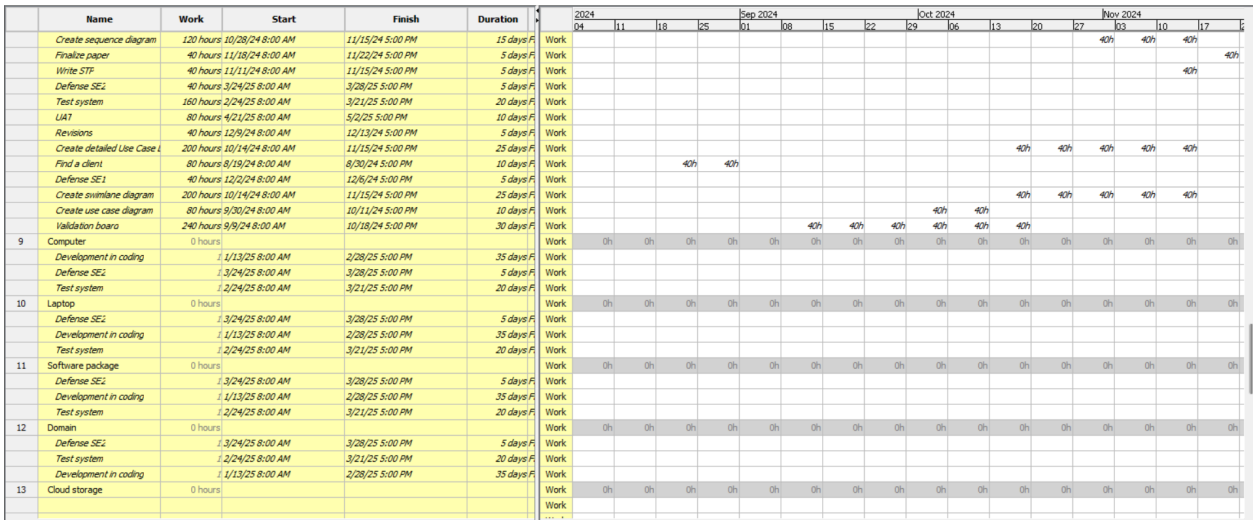
	Name	Work	Start	Finish	Duration
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
	Interviewing client	480 hours	9/2/24 8:00 AM	11/22/24 5:00 PM	60 days
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
	Maintenance	120 hours	5/5/25 8:00 AM	5/23/25 5:00 PM	15 days
	Development in coding	280 hours	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
	Defense SE1	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Create detailed Use Case D	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
5	Dev 2	2,080 hours			
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
	Create detailed Use Case D	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
	Create ER diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
	Development in coding	280 hours	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
	Maintenance	120 hours	5/5/25 8:00 AM	5/23/25 5:00 PM	15 days
	Write SDD	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days
	Create class diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Defense SE1	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
6	Dev 3	2,080 hours			
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days
	Create class diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days

Figure P-12: Resource Allocation



	Name	Work	Start	Finish	Duration
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
	Create detailed Use Case D	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Create ER diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Maintenance	120 hours	5/5/25 8:00 AM	5/23/25 5:00 PM	15 days
	Write SDD	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Development in coding	280 hours	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
	Defense SE1	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
7	QA 1	2,000 hours			
	Interviewing client	480 hours	9/2/24 8:00 AM	11/22/24 5:00 PM	60 days
	Maintenance	120 hours	5/5/25 8:00 AM	5/23/25 5:00 PM	15 days
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
	Write STP	40 hours	11/11/24 8:00 AM	11/15/24 5:00 PM	5 days
	Defense SE1	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Finalize paper	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
	Test system	160 hours	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
	Create detailed Use Case D	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	UAT	80 hours	4/21/25 8:00 AM	5/2/25 5:00 PM	10 days
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
8	QA 2	1,520 hours			
	Activity diagram	40 hours	10/14/24 8:00 AM	10/18/24 5:00 PM	5 days
	Maintenance	120 hours	5/5/25 8:00 AM	5/23/25 5:00 PM	15 days

Figure P-13: Resource Allocation



	Name	Work	Start	Finish	Duration
	Create sequence diagram	120 hours	10/28/24 8:00 AM	11/15/24 5:00 PM	15 days
	Finalize paper	40 hours	11/18/24 8:00 AM	11/22/24 5:00 PM	5 days
	Write STP	40 hours	11/11/24 8:00 AM	11/15/24 5:00 PM	5 days
	Defense SE2	40 hours	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Test system	160 hours	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
	UAT	80 hours	4/21/25 8:00 AM	5/2/25 5:00 PM	10 days
	Revisions	40 hours	12/9/24 8:00 AM	12/13/24 5:00 PM	5 days
	Create detailed Use Case D	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Find a client	80 hours	8/19/24 8:00 AM	8/30/24 5:00 PM	10 days
	Defense SE1	40 hours	12/2/24 8:00 AM	12/6/24 5:00 PM	5 days
	Create swimlane diagram	200 hours	10/14/24 8:00 AM	11/15/24 5:00 PM	25 days
	Create use case diagram	80 hours	9/30/24 8:00 AM	10/11/24 5:00 PM	10 days
	Validation board	240 hours	9/9/24 8:00 AM	10/18/24 5:00 PM	30 days
9	Computer	0 hours			
	Development in coding	1	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
	Defense SE2	1	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Test system	1	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
10	Laptop	0 hours			
	Defense SE2	1	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Development in coding	1	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
	Test system	1	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
11	Software package	0 hours			
	Defense SE2	1	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Development in coding	1	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
	Test system	1	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
12	Domain	0 hours			
	Defense SE2	1	3/24/25 8:00 AM	3/28/25 5:00 PM	5 days
	Test system	1	2/24/25 8:00 AM	3/21/25 5:00 PM	20 days
	Development in coding	1	1/13/25 8:00 AM	2/28/25 5:00 PM	35 days
13	Cloud storage	0 hours			

Figure P-14: Resource Allocation

4.5 Schedule

The creation of project schedules is divided into six distinct stages.

Planning Stage (starting on 8/12/2024):

This stage involves forming the project team and assigning roles and responsibilities to each member. The succeeding tasks cannot begin until the team is formed. Once the team is established, the next step is to find a client and begin drafting the Software Project Management Proposal (SPMP).

Requirements Analysis Stage (starting on 9/9/2024):

In this stage, the team will create the Validation Board, which requires finalizing the client by 9/9/2024. The Validation Board is scheduled to be completed by 10/28/2024. Concurrently, the team will work on the Software Requirements Specification (SRS). The SRS will include two key diagrams: the Use Case Diagram and the Activity Diagram. The Use Case needs to be done before the Activity Diagram can be created.

Design Stage (starting on 10/14/2024):

During this stage, the team will begin work on the Software Design Document (SDD), which includes the creation of various UML diagrams in a cascading manner in unison. The team will also work on the Software Test Plan (STP), with the STP scheduled to be completed by 11/24/2024. All deliverables from the three stages above are expected to be finalized by 11/24/2024.

Defense and Revision Stage (12/2/2024 - 12/13/2024):

After the deliverables are finalized, the project is scheduled for defense in front of the panel between 12/2/2024 and 12/6/2024. The project team will then have time for revisions from 12/9/2024 to 12/13/2024. The development stage cannot begin without the approval of the panel and the completion of all four documents (SPMP, SRS, SDD, STP).

Development Stage (1/13/2025 - 5/23/2025):

This stage, referred to as Implementing in Table P-5, will begin on 1/13/2025 and is estimated to end on 5/23/2025. The development process will involve building the system, followed by testing. A defense for Software Engineering II is estimated to take place on 3/24/2025. After the defense, the deployment phase will begin, contingent on panel approval and the successful testing of the system.

Deployment and Maintenance Stage:

The final tasks in this stage will include User Acceptance Testing (UAT) and ongoing maintenance of the system. The deployment phase will commence only when the system has been approved by the panel and thoroughly tested.

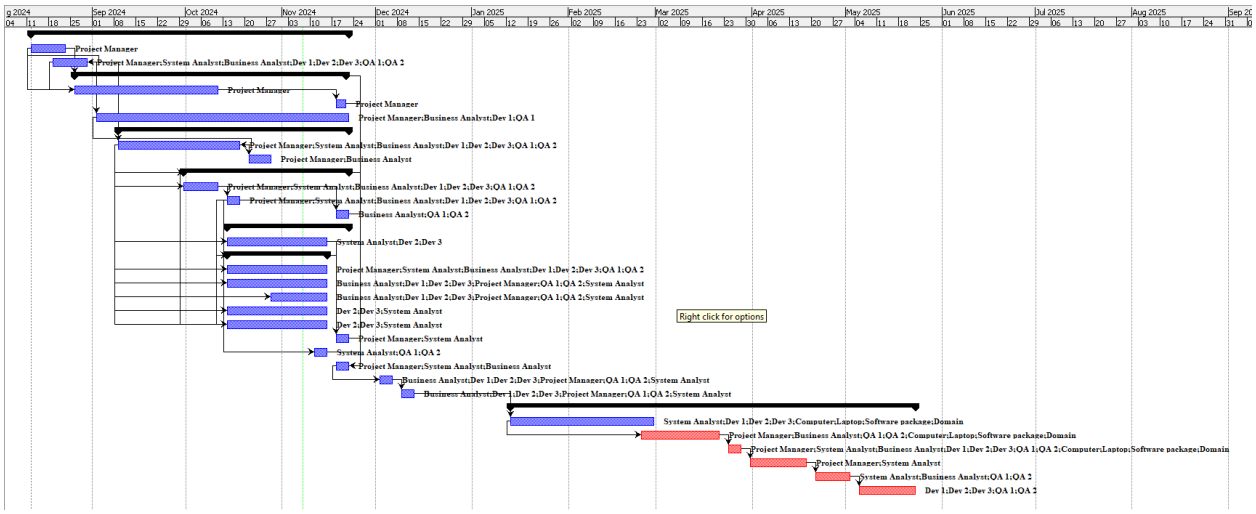


Figure P-5: Gantt Chart

5. Additional Components

5.1 Appendices

5.1.1 Current top 10 Risk Chart

Rank	Risk	Category	Likelihood (1-5)	Impact (1-5)	Risk Score (Likelihood * Impact)
1	Data inconsistency	Technical	5	5	25
2	Data security	Technical	4	5	20
3	Integration of the Project with the Current Workflow	Operational	3	5	15
4	Proposed Project Effectively Addresses the Identified Problems	Technical	3	4	12
5	Further Expansion of the System to Address Emerging Issues During Development	Technical	3	4	12
6	Sudden shift in priorities by the client or business	External	2	5	10

7	Timely completion of SDD document.	Technical	3	3	9
8	Incorrect software testing	Technical	2	4	8
9	Low Team Motivation	Operational	3	2	6
10	Delays in Project Timeline Due to Class Suspensions	Operational	1	5	5

Table P-9: Current top 10 risk

5.1.2 Operational Feasibility

The client's current workflow for attendance management involves manual record-keeping using a logbook. This project aims to replace this process with an automated system that integrates attendance tracking and payroll management.

To ensure the system's effectiveness and successful integration into the existing workflow, a trial run will be conducted over a one-month period. This trial will allow for a thorough evaluation of the system's performance and usability in real-world conditions.

The system has been designed with a user-friendly interface, requiring minimal training for end-users. The primary impact of the proposed project will be on the administrative side, where the system will automate attendance tracking and seamlessly integrate with payroll processing. This automation will eliminate the need for manual cross-checking and counting of employee attendance during each cutoff period, significantly improving efficiency and accuracy.

Assessment:

The proposed system is operationally feasible, as it aligns well with the client's needs, improves workflow efficiency, and offers a realistic implementation strategy. The trial run will further confirm its usability and integration success.

5.1.3 Technical Feasibility

The technical tools and resources planned for development and project management are adequate to support the proposed system. The development team, composed of third-year students with experience in successfully completing various academic projects, has the necessary technical skills to implement the system effectively.

The system can be accessed using an existing tablet device, and interviews with the client revealed that all employees own mobile phones. Additionally, the mall provides free internet access, enabling connectivity for the system.

However, there are potential risks to consider:

1. The free internet provided by the mall is limited in usage and restricted to a specific number of hours per day.
2. Cellular data signal strength in the area is weak, which may impact consistent access to the system.

To mitigate these risks, alternative solutions such as offline capabilities or exploring partnerships for more reliable internet connectivity may be considered. Despite these challenges, the system remains technically feasible given the available resources and the team's expertise.

5.1.4 Economic Feasibility

The proposed project is an academic endeavor, which prohibits accepting any form of payment from the client, thereby eliminating labor costs. The development team will utilize open-source tools and existing devices, significantly reducing hardware and software expenses.

The only identified costs are associated with renting a domain name and acquiring cloud storage for hosting the system. These expenses are minimal and manageable within the scope of the project, ensuring economic viability while meeting the client's needs effectively.