Fpt University

TRƯỜNG ĐẠI HỌC FPT

CAPSTONE PROJECT REPORT

Smart online electronics sales system

Report 2 – Project Management Plan

– Can Tho, May 2024 –

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II. Project Management Plan

1. Overview

1.1 Scope & Estimation

Table 1 - Scope & Estimation

#	WBS Item	Complexity	Est. Effort (man-days)
1	**Research background knowledge**		**107**
1.1	Website Programming	Medium	10
1.2	IDE Tool	Easy	2
1.2.1	Visual Studio Code	Easy	1
1.2.2	Knowledge dev tool on Browser(Chrome,..etc)	Easy	2
1.3	Programming Language		45
1.3.1	Frontend(HTML/CSS/JS, ReactJS/NextJS, Ant, TailwinCSS)	Complex	10
1.3.2	Backend(NodeJS, VNPay)	Complex	10
1.3.3	AI(AWS Lex, Algolia)	Complex	10
1.4	Resource Management - Git version control(Github)	Medium	3
1.5	Deploy on Vercel	Medium	2
1.6	UI/UX Design (Figma)	Medium	12
2	**Initial Project**		**30**
2.1	Analyze user requirements	Complex	1
2.2	Define project goal	Complex	2
2.3	Define project scope	Medium	2
2.4	Define project risk	Medium	2
2.5	Choose Technology	Medium	3
2.6	Provide Report 1 - Project Introduction	Medium	3
2.7	Provide Report 2 - Project Management Plan	Complex	17

#	WBS Item	Complexity	Est. Effort (man-days)
3	**Design**		**65**
3.1	Design Prototype	Complex	3
3.2	Design Database	Complex	12
3.3	Design Website	Complex	20
3.4	Provide Report 3 - Software Requirement Specification	Complex	30
4	**Implementation**		**62**
4.1	Sign In	Easy	1
4.2	Sign up	Easy	1
4.3	Sign out	Easy	2
4.4	View all products	Medium	5
4.5	View product detail	Easy	1
4.6	View orders history	Complex	5
4.7	View all blogs	Easy	1
4.8	Suggestion and search by keyword	Medium	4
4.9	Recommendations by behavior	Easy	3
4.10	Manage Cart (CRUD)	Complex	3
4.11	Check out	Easy	1
4.12	Feedback	Medium	2
4.13	Rating	Easy	1
4.14	Filter	Medium	5
4.15	Manage Profile (RU)	Medium	7
4.16	Manage Blogs (CRUD)	Medium	6
4.17	Manage Orders (RU)	Easy	1
4.18	Manage Product (CRUD)	Complex	2

#	WBS Item	Complexity	Est. Effort (man-days)
4.19	Manage Staff (CRUD)	Easy	1
4.20	Manage Customer (R)	Easy	1
4.21	Dashboard Statistics	Complex	3
4.22	Export File	Easy	2
4.23	Manage Category (CRUD)	Easy	2
4.24	View blog detail	Easy	2
5	**Testing**		**36**
5.1	Unit Testing	Medium	10
5.2	System Testing	Medium	11
5.3	Integrated Testing	Medium	11
5.4	Fix bug	Complex	2
5.5	Provide Report 5 - Test Documentation	Medium	2
6	**Closing**		**26**
6.1	Provide Report 6 - Software User Guide	Medium	5
6.2	Deliver Report 7 - Final Project Report	Complex	14
6.3	Prepare Thesis presentation	Medium	7
Total Estimated Effort (man-days)			**314**

1.2 Project Objectives

Table 2 - Project Objectives

#	Testing Stage	Test Coverage	No. of Defects	% of Defect	Notes
1	Reviewing	100%	0	0	
2	Unit Test	100%	0	0	
3	Integration Test	100%	0	0	
4	System Test	100%	0	0	

#	Testing Stage	Test Coverage	No. of Defects	% of Defect	Notes
5	Acceptance Test	100%	0	0	
Total		100%	0	0	

1.3 Project Risks

Table 3 - Project Risks

#	Risk Description	Impact	Possibility	Response Plans
1	The problems with member's health.	Medium	Medium	- Assign that task to the other members of the team. - Perform Overtime to complete tasks.
2	The member is leaving the project	High	Low	- Recruitment of new members - Duplicate tasks to the members of the team.
3	Lack of resources for the research.	Easy	Low	Organize classes for the member of the team to improve their knowledge
4	The machinery does not meet the requirements and has a weak configuration. When there are too many access requests, the connection will be disconnected, overloading the system or power off	High	Medium	Equipped with modern, highly configured machinery, it can withstand the load when there are too many access requests at the same time. Buy a battery to store electricity in case of unexpected power outages

2. Management Approach

The project management process for the e-commerce website is being conducted following the Scrum framework. This approach is adopted to ensure timely completion of tasks and continuous improvement after each Sprint Cycle. Scrum, derived from the Agile methodology, embodies the core principles of the Agile Manifesto. It serves as a robust process and management framework facilitating the resolution of intricate challenges while upholding efficiency, fostering creativity, and delivering products of utmost value. This implementation of Scrum encourages teams involved in developing the e-commerce website to engage in learning through experimentation. It promotes self-organization when tackling issues and

encourages reflection upon achievements and shortcomings. This reflective process enables iterative development, allowing the project to evolve gradually toward its desired outcome.

Figure 1 - The Scrum Process

2.1 Project Process

Sprints: In Scrum, a product is constructed through a series of iterative cycles, dividing the project into sections known as Sprints. Each Sprint is a fixed time frame during which a team completes a specific task. Within Scrum, the development team is segmented into three distinct roles with clear responsibilities: Product Owner, Scrum Master and Development Team.

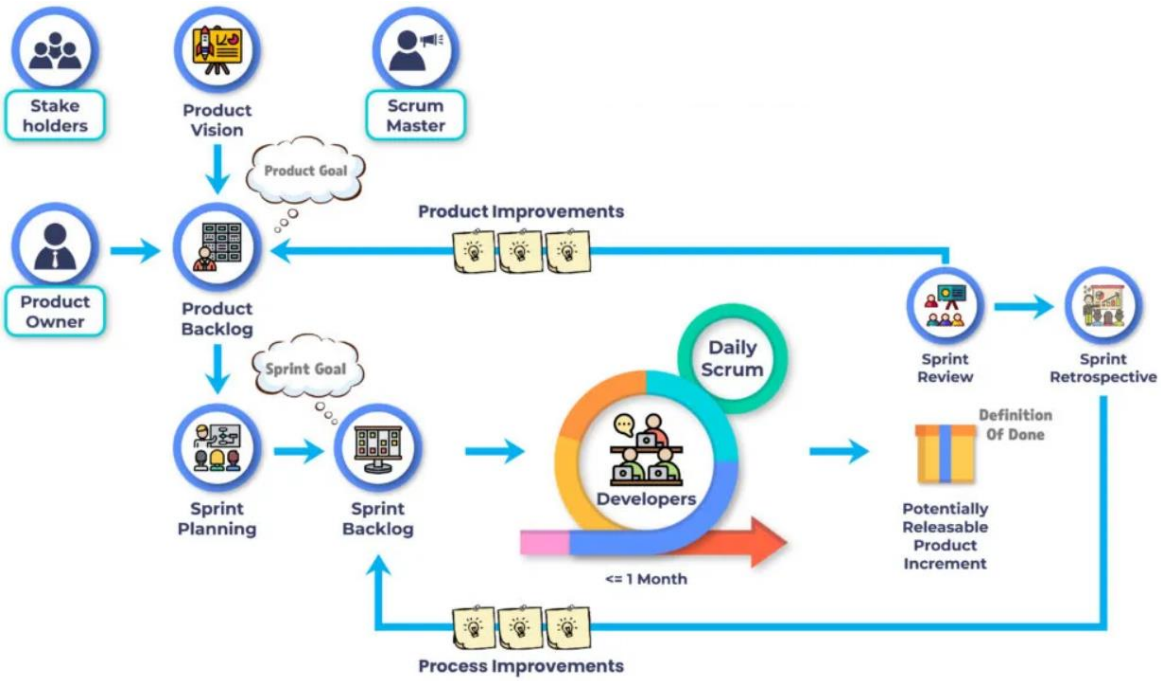

Figure 2 - Scrum Methodology

- **Product Owner**: This individual bears the responsibility for the project's success, defining requirements and ultimately evaluating the output of software developers. The Product Owner must accept all requests and establish work streams. This is crucial as clear priorities and guidance lead to enhanced team efficiency.
- **Scrum Master**: A person well-versed in Scrum principles guides knowledge and ensures the team functions effectively within the Scrum framework.
- **Development Team**: A self-managing, cross-functional group that transforms organised requirements in the Product Backlog into system capabilities. The development team encompasses not only software engineers but all stakeholders involved in the project development process, including designers, programmers, and editors.

Sprint Planning: The development team convenes with the Product Owner to plan out the upcoming Sprint. This involves outlining development requirements and conducting analysis to identify necessary tasks, as well as estimating the time needed to accomplish them within the Sprint.

Daily Scrum: A daily meeting designed for team members to stay informed about the team's progress and individual contributions. During the Daily Scrum, the Development Team shares updates on work progress and discusses any challenges encountered in software development within the current Sprint.

Sprint Review: Assess completed tasks, gather feedback from stakeholders, and suggest necessary adjustments and changes to the product.

Sprint Retro: Aids the team in understanding what has been accomplished and what hasn't, thereby identifying methods for improvement, development plans, and action steps.

Product Backlog: This is the prioritised list of work for the development team, including the roadmap and requirements. The Product Owner organises tasks based on their importance for the team to understand which parts need to be completed and delivered first.

Sprint Backlog: The plan for a Sprint is formed after the Sprint planning meeting. Tasks are divided according to priority and presented in the form of a To-Do List.

Growth Segment: The Growth Segment encompasses all completed product backlogs in one Sprint and the growth value of all previous sprints.

Scrum Operational Process

To begin, the Product Owner curates a detailed Product Backlog outlining project requirements and prioritised items. Subsequently, the Production team iteratively brings these requirements to fruition in collaboration with the Product Owner, with each iterative cycle termed a Sprint. The Product Backlog serves as the input, while the output is fully functional software ready for deployment. Before commencing each Sprint, the Production team collaborates with the Product Owner in a meticulous planning session to strategize and

outline objectives. This planning session culminates in the creation of a Sprint Backlog, detailing the tasks to be accomplished during the Sprint.

Throughout the development phase, the team consistently updates the Sprint Backlog and convenes for daily meetings, known as the Daily Scrum, to share progress and troubleshoot any encountered challenges. At the conclusion of the Sprint, the team assembles a comprehensive software package showcasing complete functionality, poised for customer delivery.

The Sprint Review meeting marks the conclusion of the Sprint, providing an opportunity to evaluate deliverables and identify areas for refinement or enhancement. Following the Sprint review, the Scrum Master and the team engage in a Sprint Improvement meeting, seeking avenues for optimization before embarking on the subsequent Sprint. This iterative process fosters continuous learning and development with each Sprint iteration.

2.2 Quality Management

In this project, to improve project quality, we use the following method:

- **Defect Prevention**: Defect prevention in software quality management means stopping mistakes before they happen. Teams do this by following strict rules for writing code, checking each other's work carefully, and using special tools to test the software automatically. This way, they catch problems early, make better software, and save time and money in the long run.
- **Reviewing**: Throughout the project development process, the team will regularly review the code to detect errors and anomalies promptly. These assessments ensure our software meets all established requirements.
- **Unit Testing**: Each member is responsible for writing a unit test to ensure correct functionality and operation.
- **Integration Testing**: After completing coding a module, integration testing needs to be performed to ensure the module can operate smoothly from the client side to the server side.
- **System Testing**: After completing writing code for the entire system, all team members need to retest all functions and modules to ensure the system operates stably.

2.3 Training Plan

Table 4 - Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Git desktop, GitHub	Tran Gia Cuong Tran Chi Do	Week 1 - 1 day	Mandatory

	Tran Quoc Thai Quach Dang Khoa		
Next.js	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 – 2 days	Mandatory
Posgress	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 –1 day	Mandatory
Web API	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 - 2 days	Mandatory
AWS	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 –1 day	Mandatory

3. Project Deliverables

Table 5 - Project Deliverables

#	Deliverable	Due day	Notes
1	Project Plan Document	05/05/2024	Creating a plan for each specific part.
2	Report 1_Project Introduction	11/05/2024	
3	Report 2_Project management plan	18/05/2024	
4	Report 3_Software Requirement Specification	25/05/2024	
5	Report 4_Software Design Document	01/06/2024	
6	Code Backend	20/06/2024	Code & System test cases
7	Code Frontend	20/07/2024	Code & System test cases
8	Report 5_Test Document	27/07/2024	
9	Report 6_Software User Guides	03/08/2024	
10	Report 7_Final Project Report	09/08/2024	

11	Final Product, Final presentation slide	09/08/2024	

4. Project Organization

4.1 Team & Structures

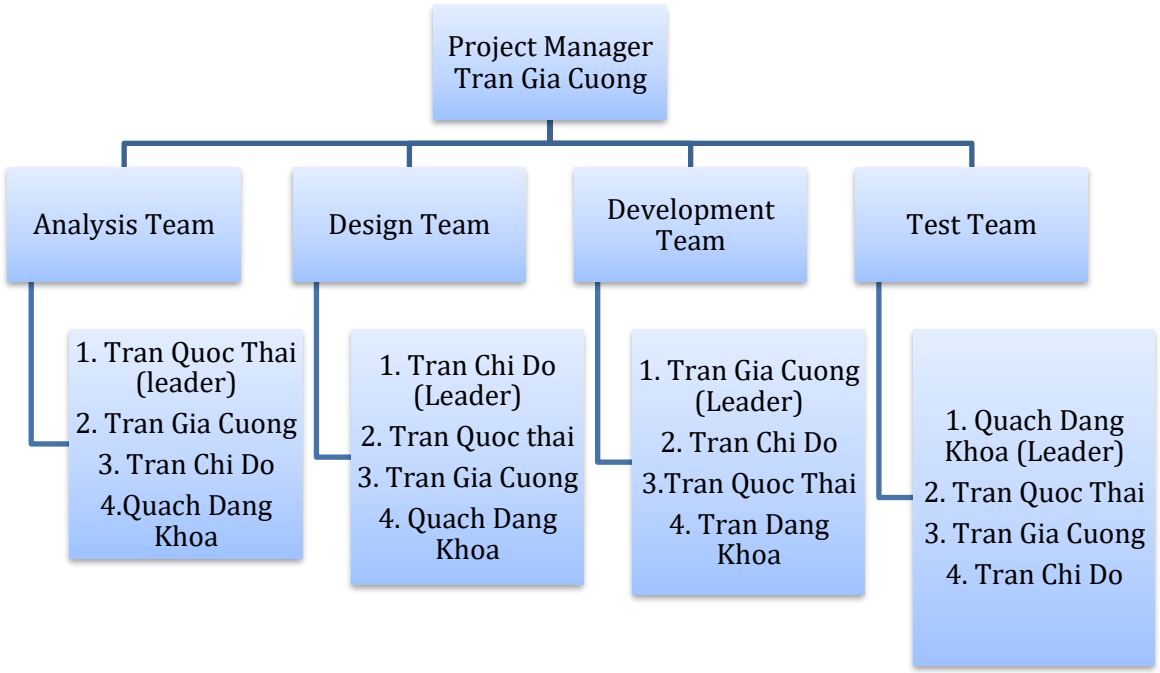

Figure 3 - Team & Structures

4.2 Roles & Responsibilities

Table 6 - Roles & Responsibilities

Role	Responsibility
Project Manager	Tran Gia Cuong
Analysis Leader	Tran Quoc Thai
Analysis Member	Tran Gia Cuong, Tran Chi Do, Quach Dang Khoa
Design Leader	Tran Chi Do
Design Member	Tran Gia Cuong, Tran Quoc Thai, Quach Dang Khoa
Development Leader	Tran Gia Cuong
Development Member	Tran Quoc Thai, Tran Chi Do, Quach Dang Khoa
Test Leader	Quach Dang Khoa

Test Member	Tran Gia Cuong, Tran Chi Do, Tran Quoc Thai

5. Project Communications

5.1 Communication Plan

Table 7 - Communication Plan

Communication Item	Who/ Target	Purpose	When, Frequency	Type, Tool, Method(s)
Daily Scrum	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	- Raise problem - Review source code - Evaluate progress and result	Every day	- Face to face - Google Meet - Zalo
Sprint Review Meetings	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa Mentor	- Review documentation - Demonstrate features - Evaluate progress and result	Every weekend	Offline/ Google Meet

5.2 External Interface

a. FU Contacts

Table 8 – FU Contacts

Function	Contact Person (Name, position)	Contact address (Email, telephone)	Responsibility
Supervisor	Vo Hoang Tu	TuVH6@fe.edu.vn	- Provide document template - Give instruction to project team - Review deliverables - Supervise project status

6. Configuration Management

6.1 Document Management

Figure 4 – Google Drive

To manage project documents and their changes/versions, we will implement a systematic approach using version control and documentation tools. All project documents, including requirements, design documents, user manuals, and any other relevant materials, will be stored in a centralized repository accessible to the project team. We will utilize Google Drive for collaborative editing and sharing of documents. Each document will have a designated owner responsible for maintaining its accuracy and relevance.

Any changes to documents will follow a formalized process:

- Document owners or authorized personnel will initiate change requests.
- Changes will be reviewed by relevant stakeholders, ensuring alignment with project objectives and requirements.
- Approved changes will be implemented, and document versions will be updated accordingly.
- Previous versions will be archived for reference and version history tracking.

6.2 Source Code Management

For managing project source codes and their changes/versions, we will leverage GitHub as our version control system. GitLab provides robust features for code collaboration, version tracking, and continuous integration/continuous deployment (CI/CD) pipelines. All source code repositories will be hosted on GitHub, allowing developers to collaborate effectively and track changes seamlessly.

The source code management process will include:

- Developers will work on feature branches, ensuring isolation and parallel development.
- Regular code reviews will be conducted to maintain code quality and ensure adherence to coding standards.
- Changes will be merged into the main branch following successful reviews and testing.
- Continuous integration pipelines will automate build, test, and deployment processes, ensuring code stability and reliability.

Figure 5 - GitHub

6.3 Tools & Infrastructures

Table 9 – Tools & Infrastructures

Category	Tools / Infrastructure
Technology	ReactJS, TailwinCSS, Ant Design (FrontEnd,NextJS), Web, Node JS(BackEnd), AI (Recommendation(Algolia)), AWS Lex, Kommunicate.
Database	Postgres
IDEs/Editors	Visual Studio Code
Diagramming	Diagrams.net
Documentation	MS Office, Google Docs/Sheets/Slides
Version Control	GitHub (Source Codes), Google Drive (Documents)
Deployment server	Vercel
Project management	ProjectLibre (Schedule), GitHub (Tasks, Defects)