DUY TÂN UNIVERSITY
International School

Capstone Project 2
CMU-SE 451

Project Plan
Version 1.4
Date: 25th May 2021

Food Care

Submitted by

Huynh Dac Vinh
Dang Van Duan
Tran Quoc Trung
Ton That Minh Huy

Approved by

Proposal Review Panel Representative:

| Name | Signature | Date |

Capstone Project 2-Mentor:

| Name | Signature | Date |

Dang Viet Hung

PROJECT INFORMATION

Project acronym	FC		
Project Title	Food Care		
Start Date	01 Mar, 2021	**Start Date**	25 May, 2021
Lead Institution	International School, Duy Tan University		
Project Mentor	Ph.D Hung, Dang Viet		
Scrum master / Project Leader & contact details	Vinh, Huynh Dac Email: dacvinh98@gmail.com Tel: 0347191925		
Partner Organization			
Project Web URL			
Team members	Name	Email	Tel
1	Vinh, Huynh Dac	dacvinh98@gmail.com	0347191925
2	Trung, Tran Quoc	quoctrung.tran210@gmail.com	0935420530
3	Huy, Ton That Minh	tonthatminhh@gmail.com	0935432561
4	Duan, Dang Van	dangvanduan755@gmail.com	0769710126

REVISION HISTORY

Version	Date	Comments	Author	Approval
1.0	29/3/2021	Initial Release	C2SE.18 team	
1.1	25/4/2021	Updated Release	Dang Van Duan	
1.2	4/5/2021	Updated Release	Tran Quoc Trung	
1.3	12/5/2021	Updated Release	Ton That Minh Huy	
1.4	25/5/2021	Final	Huynh Dac Vinh	

Document Approval
The following signatures are required for approval of this document

Mentor	Dang Viet Hung	Date:
Scrum Master	Huynh Dac Vinh	Date:
Product Owner	Tran Quoc Trung	Date:
Team member	Ton That Minh Huy	Date:
Team member	Dang Van Duan	Date:

TABLE OF CONTENTS

1.   PROJECT OVERVIEW

1.1.   Project Description

Project code	HDVT	**Contract type**	Internal Project
Customer	Teacher	**2nd Customer**	University
Project Level	Group	**Project rank**	A
Group	C2.SE18	**Division**	
Project Type	External	**Project Manager/ Scrum master**	Huynh Dac Vinh
Project Category	Captone2	**Business domain**	Application
Application type	Website		

1.2.   Scope and Purpose

- Food Care is a system which allows users to build, adjust their own diet plan with the available food while having the nutrition calculated. User will also receive a warning if the chosen one do not match their body's need.
- The system will also recommend diet for users that based on their information and target. Users can also adjust the given diet plan with their favorite food and the nutrition will be re-calculate.
- Users can provide feedback for the meal, food, or the combination of them, which will help the system give a more precise suggestion next time.

1.3.   Assumptions and Constraints

No	Description	Note
Assumptions		
1	Provide nutrition according to the condition of all subjects (food, diets, ...)	Scope
2	Provide all ingredients information in the dish, the interface must be clear and easy to use	External Interfaces
3	Suggest the same menu for people with similar tastes and needs	Scope
Constraints		
1	All sprint tasks must be completed as soon as possible before the sprint deadline	Schedule
2	Information security for users and Anti network attacks, altering data	Security

3	Define the correctness and transparency of the formula, Data and content must be clear and sourced	Safety

1.4. Project Objectives

1.4.1. Standard Objectives

Metrics	Unit	Committed	Re-committed	Note
Start Date	01-03-2021			
End Date	25-5-2021			
Duration	85 days			
Maximum Team Size	4 Persons			
Billable Effort	6 hours/ 5days/ 1 Month			
Calendar effort	6 hours/ 5days/ 1 Month			
Effort Usage	6 hours/ 5days/ 1 Month			

1.4.2. Specific Objectives

Functional goals:
- Works correctly
- Don't have conflict
- Correct to the requirement

Strategic goals:
- Satisfactory requirement documents
- Bringing knowledge and health to users
- Provide income for developers

Business goals:
- Income is based on effort

Quality goals
- Correct to the requirement

Organizational goals
- Update later

Other goals
- Update later

1.5. Critical Dependencies

No	Dependency	Expected delivery date	Note
1	Does not depend on another project		

1.6. Project Risk

Risk	Description	Probability	Impact	Mitigation Strategy
Estimates of project planning	The plan may be delayed for the initial estimate of the project.	1	1	Analysis and assessment of the scale. Reduce requirements.
Not enough knowledge to implement the project	Members' knowledge may or may not be consistent with their expertise	2	2	Spend more time for learning and training.
Requirements	Important requirements may be missing from the formal requirements specification.	3	3	Try to ensure to get as much of the requirements before we start development.
Estimated project schedule	Programming Languages and technology	3	2	Experience sharing used to reduce the research time.
Technical processes	The standard procedure cannot meet the requirements of specific solutions. The new process may be required. The process can be improved and more efficient.	2	3	Analysis of requirements and processes to ensure appropriate levels. If the new process is needed, we need to evaluate this response has improved over the old process.
Network	Block by Limited Bandwidth	4	4	Upgrade transmission line network

Time	Project implementation period is too short, so our team cannot complete this project in a short time. During project implementation, our team learns and has more work to do, our team cannot focus all their time to carry out this project.	4	5	Reduce time and increase individual personal time working in their stay on the 7th day and Sunday.
Project Management	Project management systems may not be sufficient to support the requirements of the project	1	4	Discuss with the group to offer solutions and consistent accuracy.

2. PROJECT DEVELOPMENT APPROACH

2.1. Technical Process

2.1.1.   Reasons for selecting

This is the first time the whole group has worked together, with not much experience, and will surely encounter many difficulties in the development process. As for the traditional model we are not allowed to make mistakes but for our scrum it allows us to make mistakes, through each sprint we will discuss, test and adjust to work better.

Scrum process is a flexible development model so in this project we think it is suitable for workflow creation and communication among members.

2.1.2.   Agile Methodology
Definition:
  - Agile methodology is a type of project management process, mainly used for software development, where demands and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers. It is a collection of principles that value adaptability and flexibility. Agile aims to provide better responsiveness to changing business needs and focuses on enabling teams to deliver in workable increments.

Process:
  - **Concept**: Projects are envisioned and prioritized
  - Inception: Team members are identified, funding is put in place, and initial environments and requirements are discussed
  - Iteration/Construction: The development team works to deliver working software based on iteration requirements and feedback
  - Release: QA (Quality Assurance) testing, internal and external training, documentation development, and final release of the iteration into production
  - Production: Ongoing support of the software
  - Retirement: End-of-life activities, including customer notification and migration

Manifesto:
  - When the IT industry talks about the Scrum framework, It's also often we hear the term "Agile Scrum" along the same lines as "Scrum". It led some of us in the industry to think and look for differences between the terms "Agile Scrum" and "Scrum".
  - We have discovered a better way to develop the software by doing it and helping others to do it.
  - Individuals and interactions rather than processes and tools;
  - Software that runs better is full documentation;
  - Collaborate with customers rather than negotiate contracts;
  - Respond to changes rather than stick to the plan.

2.1.2.1. Scrum Process

- Scrum is an iterative and incremental agile software development framework for managing software projects and product or application development.
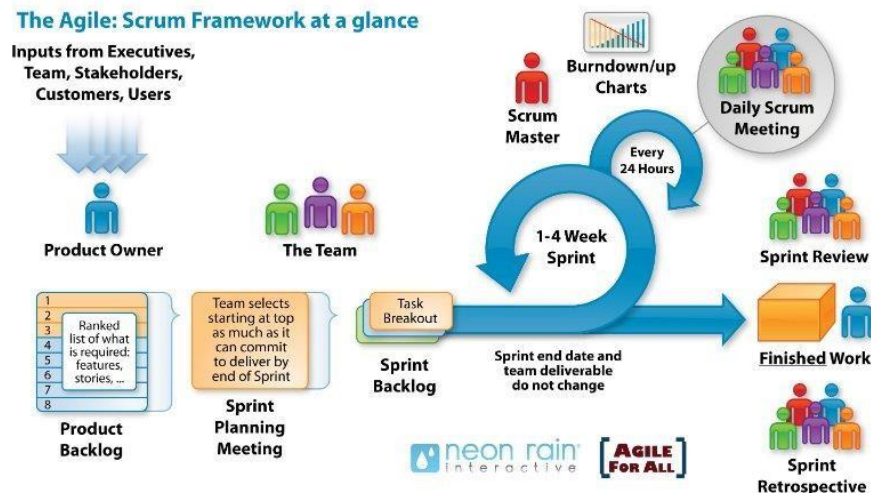
- Scrum focuses on project management institutions where it is difficult to plan ahead.
- Mechanisms of empirical process control, where feedback loops that constitute the core management technique are used as opposed to traditional command-and-control management.
- Its approach to planning and managing projects is by bringing decision-making authority to the level of operation properties and certainties.
- Scrum has three roles: product owner, scrum master and the development team members.

Benefit of the methodology:
- Project can respond easily to change.
- Problems are identified early.
- Customer gets most beneficial work first.
- Work done will better meet the customer's needs.
- Improved productivity.
- Ability to maintain a predictable schedule for delivery.

2.2. Quality Management

2.2.1. Estimates of Defects to be detected

Pre-release review defects

Process	Planned found by review	Actual found by review
Requirement	10	5
Design	10	20
Coding	40	20
Other	15	10
Total	75	55

Pre-release test defects

Process	Planned found by review	Actual found by review
Requirement	10	5
Design	10	20
Coding	40	20
Other	15	10
Total	75	55

2.2.2. Measurements Program

Strategy	Expected Benefits
Do defect prevention using the standard defect prevention guidelines and process; use standards developed in ABC for coding.	10–20% reduction in defect injection rate and about 2% improvement in productivity
Group review of program specs for first few/logically complex use cases. Group review of design docs/first time-generated code by project leader, developer, and one consultant.	Improvement in quality as overall defect removal efficiency will improve; some benefits in productivity as defects will be detected early
Introduction of RUP methodology and implementing the project in iterations. Milestone analysis and defect prevention exercise will be done after each Iteration.	Approximately 5% reduction in defect injection rate and 1% improvement in overall productivity

2.2.3 Quality Control

Review Item	Type of Review	Reviewer	When
Project plan Project schedule CM Plan	Group review Group review One-person review	Huynh Dac Vinh Tran Quoc Trung Ton That Minh Huy Dang Van Duan	End of Initiation stage
Business analysis and requirements specification document, Use Case catalog	Group review	Huynh Dac Vinh Tran Quoc Trung	90%
Design document, object model	Group review	Huynh Dac Vinh Tran Quoc Trung Ton That Minh Huy Dang Van Duan	End of 90% design
Stage plans	One-person review	Huynh Dac Vinh Tran Quoc Trung	Beginning of each stage
Complex/first specs incl. diagramstime test generated cases, program interactive	Group review	Huynh Dac Vinh Tran Quoc Trung Ton That Minh Huy Dang Van Duan	End of detailed design
Code	Group review	Huynh Dac Vinh Tran Quoc Trung Ton That Minh Huy Dang Van Duan	After coding for first few programs

2.2.4 Measurements Program

Data to be collected	Purpose	Responsible	When
Size: No. of KLOC// FP		PM/SM	At the end of stages
Effort: No. person-day		Team members	Daily
Quality: No. defects detected		Reviewer, Tester	Right after the review/test
Schedule		PM/SM	Weekly and at the end of stages

2.3. Unit Testing Strategy
Completion criteria:

Completion criteria are stated to for two purposes:

- Identify acceptance criteria for product quality.

- Identify when the testing is successfully executed

A clear statement of completion criteria should include the following items:

- Function, behavior, or condition being measured

- Method of measurement

Criteria or degree of conformance to measurement

Special considerations:

This section should identify any influences or dependencies, which may impact or influence the test effort described in the test strategy. Influences might include:

Human resources (such as availability or need for non-test resources to support / participate in test)

Constraints, (such as equipment limitations or availability, or the need / lack of special equipment)

Special requirements, such as test scheduling or access to systems

Testing may be stopped when:

- It becomes unproductive

- It requires a certain coverage

- It requires a certain number of errors to be found

- Schedule time runs out

2.4. Integration Testing Strategy

Using Big Bang Testing for an Integration testing approach in which all the components or modules are integrated together at once and then tested as a unit. This combined set of components is considered as an entity while testing. If all of the components in the unit are not completed, the integration process will not execute.

2.5. System Testing Strategy

Participating in test cases of each function created in the test case document assesses whether the functions created by the programmers meet the set criteria or not and checks the integrity of the system

3. ESTIMATION
3.1 Size
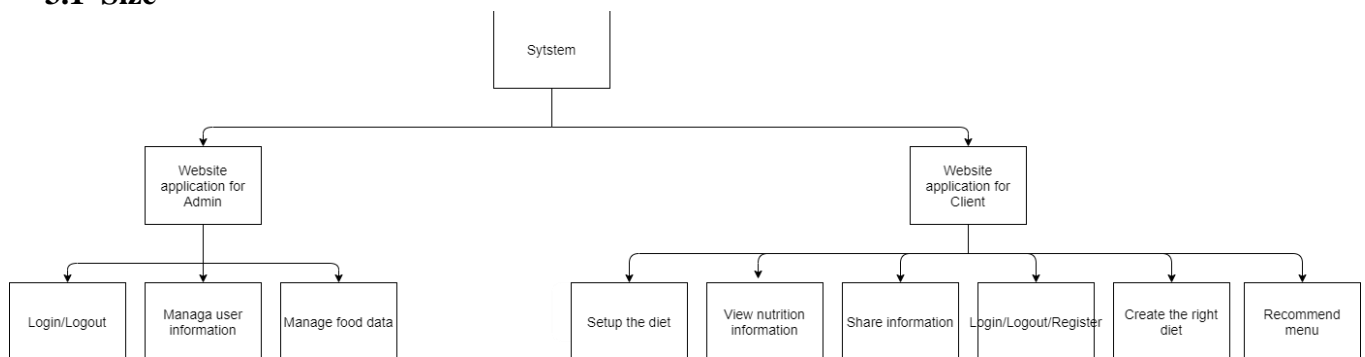
3.2 Effort

The Effort estimation is documented in Sprint Backlog

Activity/Process	Total budgeted Effort Usage (pd)	Total % budgeted Effort Usage (%)	Stage 1/ Sprint 1		Stage 2/ Sprint 2		Stage 3 / sprint 3	
			No.	%	No.	%	No.	%
Requirement	100	2.6%	100	3.3%	100	3.3%	0	0%
Design	800	20.5%	300	7.7%	350	9%	150	3.8%
Coding	1700	43.6%	500	12.8%	400	10.3%	800	20.5%
Unit Testing	150	3.9%	50	1.3%	50	1.3%	50	1.3%
Testing	400	10.2%	100	2.6%	100	2.6%	200	5.1%
Deployment	100	2.6%	0	0%	0	0	100	2.6%
Support for Acceptance Test	90	2.3%	30	0.8%	30	0.8%	30	0.8%
Project Planning	90	2.3%	30	0.8%	30	0.8%	30	0.8%
Project monitoring	90	2.3%	30	0.8%	30	0.8%	30	0.8%
Quality Assurance	80	2.1%	30	0.8%	30	0.8%	30	0.8%
Training	300	7.6%	100	2.6%	100	2.6%	100	2.6%
Total	3900$	100%						

3.3. Schedule

3.3.1. Project Milestone & Deliverables

No	Milestones	Time	Product	Delivery
1.	Initial	01/03/2021	Proposal document Project Plan User Story Product Backlog Architecture Design	Bringing many new ideas for the project, building the project structure more and more carefully
2.	Development	08/03/2021	Database Design	
2.1	Sprint1	08/03/2021	Test Plan	Design, code login/logout/register UI and API for User
2.2	Sprint2	05/04/2021	Test Case	- Design, code menu, add, remove food UI and API for User, - Give ways to fix the process and affordable way of working for each member
2.3	Sprint3	03/05/2021	Sprint Backlog, Meeting Document	Make Dashboard for Admin
3.	Final Release	29/05/2021	Reflection Document	Evaluate the ability of each member

3.3.2. Work Breakdown Structure
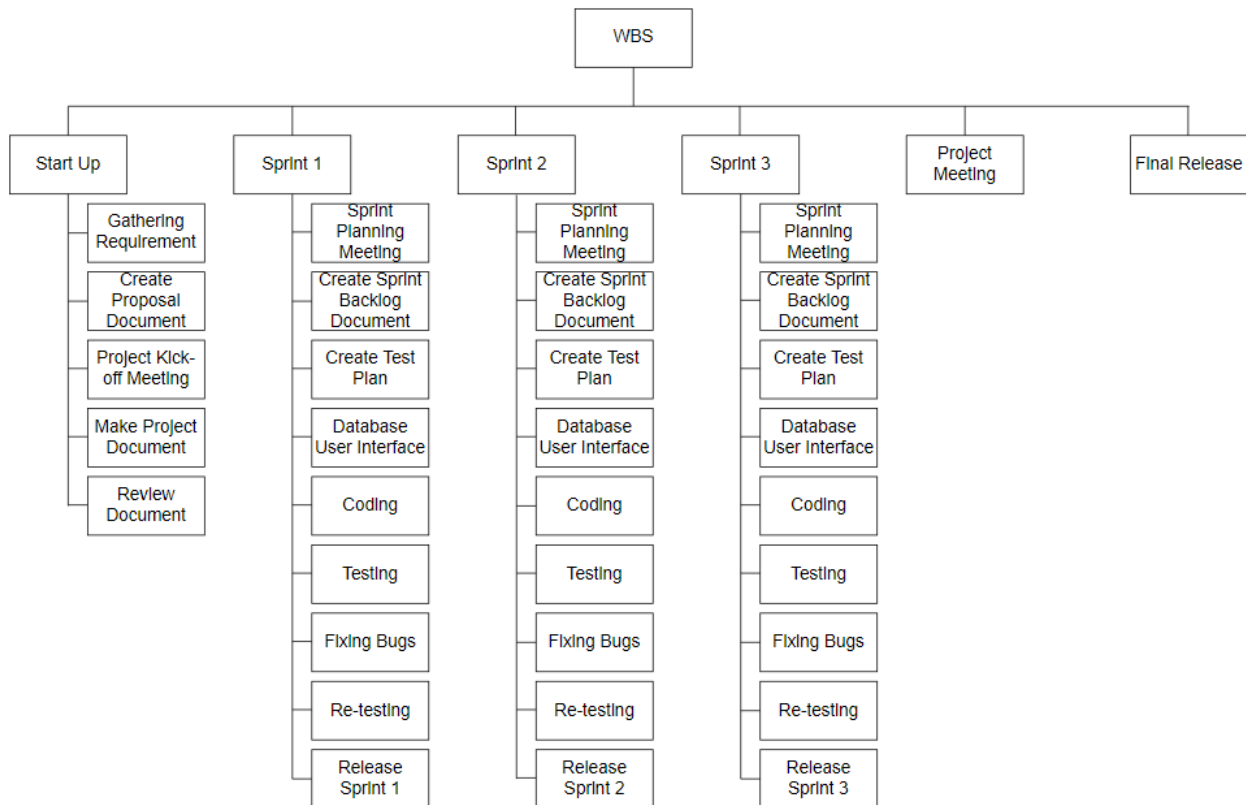
3.3.3 Detailed Schedule

No.	Task Name	Duration (Days)	Start	Finish	Assign to
1.	**Initial**	5	1/3	7/3	All members
2	**Development**	80	8/3	28/5	All members
2.1	Sprint 1	28	8/3	4/4	All members
2.2	Sprint 2	28	5/4	2/5	All members
2.3	Sprint 3	21	3/5	23/5	All members
3	**Close project**	5	24/5	29/5	All members
	Duration	90	1/3	29/5	All members

3.3.4 Project Schedule

No	Activity	Start date	Responsible	Note
Defect Prevention				
	Sprint 1	08/03/2021		
	Sprint 2	05/04/2021		
	Sprint 3	03/05/2021		
Quality Control				
	Review: Work Product 1	17/04/2021		
	Review: Work Product 2	29/04/2021		
Project Tracking				
	Stage name milestone review meeting	17/04/2021		
	Stage name milestone review meeting	29/04/2021		
QA				
	Final Inspection: Deliverable 1	01/06/2021		
	Final Inspection: Deliverable 2	02/06/2021		
	Baseline audit: Startup	04/06/2021		
	Baseline audit: Wrap-up			

3.4 Resource

Specified as in the section *Project Team*

3.5 Infrastructure

Work/Product	Purpose	Expected Availability by	Note
Development Environment			
NT Server	Operating System	Initiation stage	
Mainframe	Operating System		
Win NT	Operating System		
DB2	DBMS		
Java Script	Development language for Web interface		
Python	Development language for data collection		
Hardware & Software			
1GB space on server			
Rational Rose	Design		
Other Tools			
CVS	Source version control	Definition stage	
Unit	Unit Test	Construction stage	
DMS	Defect logging and tracking	Definition stage	
Timesheet	Effort logging	Initiation stage	
FI	Project management tool	Initiation stage	
MS Project	Task tracking	Initiation stage	

3.6 Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Technical			
React JS framework	Huynh Dac Vinh	14 days	If already trained
Python language	Ton That Minh Huy		
Node JS framework	Tran Quoc Trung, Dang Van Duan	14 days	If already trained
Business domain			
Banking	Huynh Dac Vinh	7 days	
Process			

Quality system	Huynh Dac Vinh	3 hrs	If already trained
Configuration management	Huynh Dac Vinh	2 hrs	If already trained for python. For others, on-the- job training
Group review	Huynh Dac Vinh	4 hrs	If already trained
Defect prevention		4.5 hrs	Mandatory
React Js	Ton That Minh Huy Huynh Dac Vinh	8 hrs	If already trained
Connect Firebase	Ton That Minh Huy Huynh Dac Vinh Tran Quoc Trung Dang Van Duan	8 hrs	Mandatory
NodeJS	Tran Quoc Trung Dang Van Duan	8 hrs	Mandatory

3.7 Finance

No.	Criteria	Price (USD)	Amount	Total (USD)
1	Working hour	$2.5	1560	$3900
2	3rd services	$200	1	$200
			Total	$4100

Table 2: Cost Description

Description	Amount	Unit
Number of members	4	Person
Number of working-day per week	6	Hour
Number of working-hour per week	2.5	Dollar
The cost per member per week	3	Month
The duration of the project	65	Day
The number of working days	200	USD

- **Explain:**
  - Amount of working hours = 4 members * 4 hours * 65 weeks.
- **Overall**:
  - Resource: 4 peoples
  - Budget: $4100
  - Time: The project must be completed within 3 months
  - Area: Vietnam

Item	Total Budget ($)	% Budget	SPRINT 1	SPRINT 2	SPRINT 3
Purchases (COST)	4100	100%	1367	1367	1367
Team building	0	0	0	0	0
Tools	0	0	0	0	0
Travel costs	0	0	0	0	0
Training	0	0	0	0	0
Review activities	0	0	0	0	0
Other	0	0	0	0	0
Total	4100	100	0	0	0

4. PROJECT ORGANIZATION

4.1. *Organization Structure*
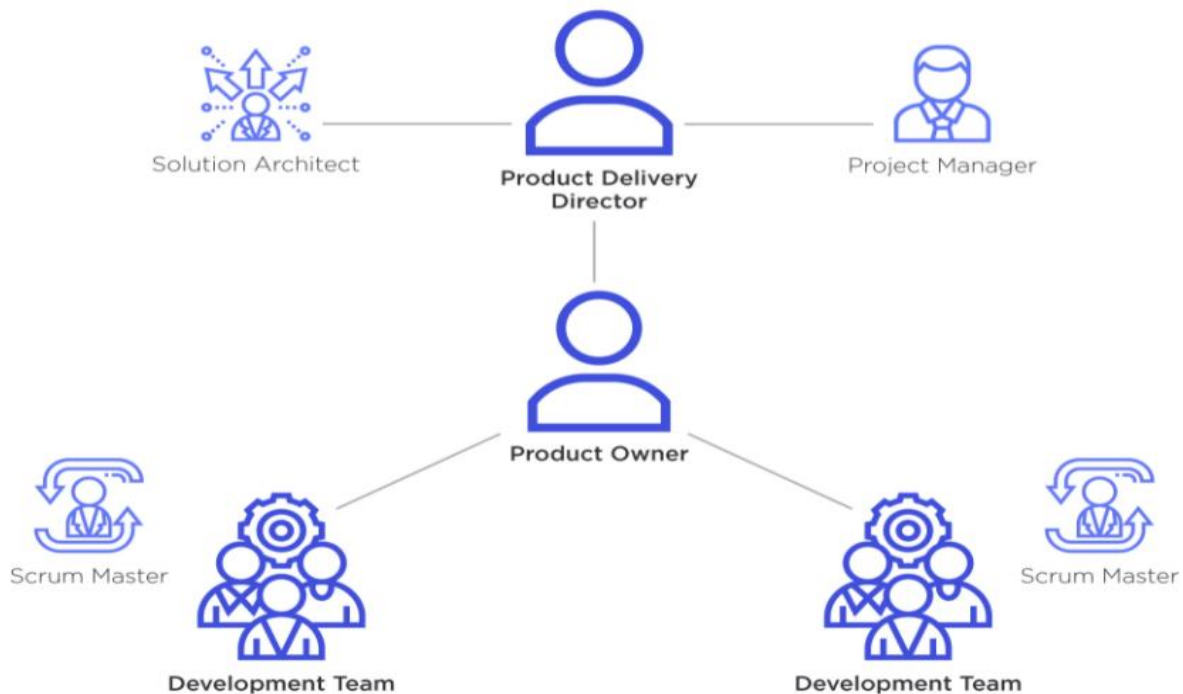
4.2. Project Team

Role	Responsibility	Name
Scrum Master	- Communicate the value of Scrum - Teach the organization on Scrum to maximize business value - Attend all Scrum meetings - Preserve the integrity and spirit of the Scrum framework - Maintain the focus of the Team and facilitate efforts to resolve them - Serve as a coach and mentor to members of the Team - Respectfully hold the Team, Product Owner and Stakeholders accountable for	Vinh, Huynh Dac

	their commitments	
	- Continually work with the Team and business to find and implement improvements	
	- As a timekeeper	
	- Record team meeting	
	Make the Team aware of impediments	
Product Owner	- A spokesperson for the customer and needs to represent them	Trung, Tran Quoc
Developer	- Responsible for quality - Responsible for delivering the potentially shippable product of the Application each sprint - Report progress based on the remaining time - Self-organized - Owns the Sprint backlog	All members
Tester	- Do the Test plan - Creation of test designs, test processes, test cases and test data. - Carry out testing as per the defined procedures. - Graph the results and make sure people know when test results decline. - Prepare all reports related to software testing carried out. - Analysis and evaluate the Test result. - Ensure that all tested related work is carried out as per the defined standards and procedures.	All Members

Mentor	- Guide on the process. - Monitoring all activities of the Team. - Help with anything. - Reviews project documents - Reviews product	Viet Hung Dang, Ph.D

5. COMMUNICATION & REPORTING
Communication Methodology.

Audience/Attendees	Topic/ Deliverable	Frequency	Method
Mentor and Team member	Project Progress Review	Weekly	Zoom Meeting, Face to Face
Team Member	Project Progress Review and Daily Meeting	Daily	Email, Facebook, Zoom Meeting, Slack

Communication and Report.

Audience / Attendees	Topic / Deliverable	Frequency	Method
Scrum Master, Members	Daily meeting	Daily	Face to Face / Zoom Meeting / Facebook Chat / Slack
Scrum Master, Members	Sprint Planning Meeting	When starting a sprint	Face to face / Zoom Meeting
Scrum Master, Members, Mentor	Sprint Review Meeting	When finishing a sprint	Face to face / Zoom Meeting
Scrum Master, Members	Sprint Retrospective	When the sprint review finish	Face to face/ Zoom Meeting
Scrum Master, Members	Individual Meeting	When need	Face to face / Message /
Scrum Master, Members, Mentor	Working report, review problems	Once a week	Face to face / Facebook Chat / Slack

6. CONFIGURATION MANAGEMENT

Refer to the CM plan or insert here the contents of the CM plan as appropriated

7. SECURITY ASPECTS
- Use authentication to ensure user data integrity

- Encrypting user data to avoid stolen data, decrypting data is also extremely difficult, takes a lot of computational resources and takes a lot of time.

- Do not disclose important documents to the outside

REFERENCES

- Provide a complete list of all documents and other sources of information referenced in this Plan.
- Identify each referenced document by title, report number, date, author and publishing organization.
- Identify other referenced sources of information, such as electronic files, using unique identifiers such as path/name, date and version number.

DEFINITIONS AND ACRONYMS

Define, or provide references to documents or annexes containing the definition of all terms and acronyms required to properly understand this Plan.

Acronym	Definition	Note
PM	Project Manager	
PTL	Project Technical Leader	
QA	Quality Assurance Officer	
CC	Infrastructure Configuration Controller	
DV	Developer	
URD	User Requirement Document	
SRS	Software Requirement Specification	
ADD	Architecture Design Document	
DDD	Detail Design Document	
TP	Test Plan	
TC	Test Case	
SC	Source Code	
CM	Configuration Management	
CSCI	Computer Software Configuration	

	Items	
CI	Configuration Item	
CCB	Change Control Board	
UI	User Interface	
NE	Node express	
CSV	Comma Separated Values	
Axios	HTTP client	
JWT	JSON Web Token	
Heroku	Cloud Application Platform	
Mongoose	a MongoDB object modeling tool	
WC	Web crawling	
WS	Web Scraping	