

SWEN90016
Software Processes and Management

Project Management Plan for Ship Management

Prepared by: Jingzhi Ju, Mingzhe Du, Yidi Liu, Yiran Wu
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Executive Summary:

The poor efficiency and user experience of existing systems cause great troubles for customers. The aim of this project is to develop a web-based system for shipment management to improve efficiency as well as customer experience of shipping box and provide a dynamic, efficient and more customer-friendly box shipping software for users. After successfully applying this project, the efficiency of shipping box company will be improved significantly. The poor customer experience, i.e. heavy phone traffic due to delays in ship, will also be avoided. The platform will appeal to end users and it will build up loyalty with a significant proportion of customers. A team consists of four members enrolled in SWEN90016 at the university of Melbourne will be responsible for the project. The scrum model is used to develop the project and it will take about 4 weeks to implement it.

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1 Introduction

1.1 Purpose of document

The document is used as a guideline to plan, execute, monitor and control the project. It identifies ways of executing, monitoring and ending projects, including the process of project execution, project life cycle, and phase partitioning.

1.2 Audience of document

All project stakeholders, including internal stakeholders: Jingzhi Ju, Yiran Wu, Mingzhe Du, Yidi Liu and external stakeholders: Susanto and Susanto's brother-in-law.

1.3 Limitations of document

- 1) Technical details are not included in this document.
- 2) The document does not mention how to perform system maintenance.
- 3) The document does not involve information about how to use the ship management system.

1.4 Evolution of document

Version	Created by	Date created	Location	Comments
0.5	Jingzhi Ju	10.9.2018	ERC Library	Discussing a suitable SDLC model for this project. Sketching the framework of project. Defining roles of team members.
0.8	Jingzhi Ju	12.9.2018	Baillieu Library	Discussing about the project risks. Discussing the benefit of this product.
1.0	Jingzhi Ju	14.9.2018	ERC Library	Discussing the first Scrum plan of the project.

2 Project Information

2.1 Key Stakeholders

Name	Position	Type	Project Role	Contact Information
Jingzhi Ju	Employee	Internal	Scrum master	jingzhij@student.unimelb.edu.au
Yiran Wu	Employee	Internal	Product Owner	wuyw1@student.unimelb.edu.au
Mingzhe Du	Employee	Internal	Team Member	mingzhed@student.unimelb.edu.au
Yidi Liu	Employee	Internal	Team Member	yidil1@student.unimelb.edu.au
Susanto	Consultant	Internal	Subject Matter Expert	
Susanto's brother-in-law	Consultant	External	Subject Matter Expert	

2.2 Scope

2.2.1 What is in-scope?

The objective of this project is to develop an efficient web-based system for shipment management with the following functionality:

1. Create a **Superuser**, who is referred to **Shipper** in this case. The **Shipper** has a predefined email address and a default password initially. Moreover, several specific functions should be performed by the **Shipper**.
2. Similarly, the **Collector** should have an initial email address and a default password in this system.
3. As the core function, the system needs to support **Customers** registering in the system. During this process, **Customers** should provide the following information: name, home address, contact phone number, email address, initial password.
4. **Customers** can login to the system using their email address and password.

5. Logged in **Customers** can update their **Personal_Information**.
6. Through posting information from the web interface, logged in Customers are able to create orders (**Shipping_Booking**). Customers must be able to:
 - a) Enter the number of boxes (assume the initial system supports only tea-chest sized boxes)
 - b) Enter the destination address in Jakarta (assume the address is valid)
 - c) Enter the pickup address in Melbourne (assume the address is valid)
 - d) Select the preferred ship departure and arrival date from a list of dates. This list is referred to as Shipment_Information. (Refer to requirement 10)
 - e) Enter an optional message from Customer to the Shipper.

A **Shipping_Booking** also includes a **Shipping_Booking:Ack**, created by the Shipper entering information from the web interface, which must provide the following data:

- a) Status
 - b) Pickup date and time – default to empty
 - c) Cost – system generated as (cost-per-box @ \$35)*(number-of-boxes)
 - d) HBL Number – default to empty (legal import/export licence id)
 - e) An optional message from the Shipper to the Customer
7. Logged in **Customers** have access to view all orders they have created, but they do not have access to modify these data.
 8. The status of order can be modified by the **Shipper**, except for the cost. The Status must be one of the following:
[To be Approved (default), Request Accepted, Pick-up Scheduled, To be Shipped, Shipped, Arrived at Destination, Delivered, Delivery Delayed]
 9. The system must send a message to relevant **Customers** and the **Collector** by email, which needs to include the following information:
Departure Date from Melbourne
Estimated Arrival Date in Jakarta
 10. Customer information and Shipping_Booking must be persisted (stored in a database).

2.2.2 What is out-of-scope?

- 1) Eliminate identified security weaknesses in software.
- 2) A user manual for this software will not be created by the team.
- 3) The upgrade and failover management tool of the software

2.3 Delivery approach / SDLC - Formal or Agile

Formal Agile Hybrid

Justification: The agile life cycle can satisfy the customers' demands by rapid, continuous delivery of usable software. In this case, the different functions, such as getting the correct address in the database and calculating the cost of the package, can be satisfied in the different stages of the development of software. People and interactions are emphasized rather than process and tools in the process. So the interactions with the stakeholders can be emphasized in this project, the team can know the specific requirement of the stakeholders. The agile focus on the continuous attention to technical excellence, good design and quality. Also, it holds regular adaptation to changing circumstances. So that the team can trace the increase of the demands of functions and achieve all the requirements even some of them are raised in the process of development the product. For example, some new functions such as noting the volume of the package can be accomplished.

2.4 Business Value (Financial & Non-Financial Benefits)

Financial benefits: when the shipment management system does have a presence in the market then there may be an opportunity to earn profit from it. E.g. charge a small handling fee for each order.

Non-Financial benefits: Customers will experience a dynamic, efficient and more customer-friendly services from the company owned by Susanto.

2.5 Constraints

- a) Only four students that enrolled in SWEN90016 are responsible for developing this project. Team members have no development experience.
- b) The team must complete the work within 5 weeks.
- c) No extra resources is given to help to finish the project.

3 Project Governance

3.1 Roles and Responsibilities

Scrum Master: Jingzhi Ju

Scrum team is affiliated by the scrum master, who is responsible for avoiding impediments which affect the goals or delivery abilities of the scrum team. It is notable that the scrum master is not a traditional team lead or project manager but acts as a buffer between the team and the external influence. The scrum master helps to ensure the team follows the agreed processes in the Scrum framework, often facilitates key sessions, and encourages the team to improve.

Product Owner: Yiran Wu

Communication is a core responsibility of the product owner. Product owner should represent the voice of the product's stakeholders and customers, designs development directions, and maximising the value that the team delivers to the business. Moreover, The product owner ought to pay attention to the business side of product development and spend the majority of wariness their time liaising with stakeholders, instead of dictating how the team reaches a technical solution. As the coordinator of the team to the stakeholders, the product owner bridges the communication gap between the team and its stakeholders, serving as a representative for the overall stakeholder community.

Dev Team Members: Mingzhe Du, Yiran Wu, Yidi Liu, Jingzhi Ju

The development team is responsible for developing and delivering shippable product increments in every sprint (the sprint goal). Furthermore, the team has several members who carry out all tasks required, such as build the product increments, analysis, design, development, testing and technical writing. The development team in Scrum is self-organizing, and members may also be competent as other roles outside the team.

Subject Matter Expert: Susanto, Susanto's brother-in-law

Subject matter expert is a person who have fairly reputation and authority in a particular area. Generally, these areas are refer to the topic out of the software domain. In the process of software development, development team might need help from subject matter experts in specific areas since development team may not understand the relevant situation in particular.

3.2 Communication Plan

- a) A WeChat group was created for communicating purpose.
- b) A weekly meeting will be held to summarize the work content of this week, and the upcoming work of the next week.

3.3 Risk Management

Risk ID	Risk Type	Description	Probability	Impact	Justification
1	Business	The security of this project	70%	8	Because of lacking network security experts in the development team, the security of this system is difficult to guarantee. Once attacked, all data may lose and the user's private information may be exposed.
2	Project	Most team members have limit experience in programming.	90%	6	The ability of programming is important for the achievement of this project, but most team members have limit experience in programming. At the same time, due to the complexity of the system and the short development time, these factors may lead to failure to complete the project on time and even lead to project failure.
3	Business	Control over embargoed items	65%	5	Since this is a startup company, there is a lack of express content inspection equipment. This makes it difficult to detect whether the item in the customer's courier package meets the user's description. Some items in the courier may contain contraband, which would break the law and cause the company to be prosecuted.

4	Product	In the absence of user guides, some users may have no ability to understand how to use the product.	60%	5	The system uses English and some of the functions are more complex, and the target users are basically from the Indonesian community. So, in the absence of user guides, some people who are not proficient in English and computer may be confused, resulting in the inability to use this system.
5	Business	Lack the experience of delivering items	60%	4	The brother-in-law has a moving company but lacks the experience of managing an express company. Express delivery needs to be delivered quickly, efficiently and accurately. Delivery of small shipments by trucks may increase transportation costs and make it difficult to reach multiple users on time.
6	Product	Demand changes rapidly	60%	4	Due to the rapid development of demands of shipping, some feature and need of software functions may be changed. Redesigning product functionality is a possible situation when external business models change. For example, some large goods may be required to be shipped so that the door-to-door model should be change.
7	Project	The complexity of algorithm in this project.	40%	5	The team members may not be able to define a specific right algorithm to achieve these functions. It is important for the development team to achieve all functions with algorithm to ensure the product can be useful.

8	Business	Consignee's decentralized address and only one warehouse is a problem.	30%	3	Some goods may need to be stored separately, but the only warehouse may makes the goods unclassified for storage. A single warehouse and consignee's decentralized address makes the company face high shipping costs.
9	Product	Inconsistent interface format for data and information	40%	2	The information of the shipping company and the system platform may be different in format or the key information display mode is different, which may result in the inability to view the shipment information in the system. Similarly, the transportation company of the system and the founder's brother-in-law also has the problem of accurate data exchange.
10	Business	User's package lost or damaged	90%	1	From Australia to Indonesia, the package may be damaged or lost due to the long distance. This will cause the company will compensate to the client, resulting in damage to the company's economy.

Table 1: 10 key risks in the Risk Impact Analysis

Risk ID	Trigger	Owner	Response	Resources Required
1	Security of the data	Jingzhi Ju	Encryption algorithm can be used for the storage and transportation of the data. And it can also help to avoid the data being attacked.	Network security expert
2	Lack of programming experience	Mingzhe Du	Communicate with the experts in programming and practice more. Hold a meeting for the team members to improve their skills.	Experts in programming
3	Users are unclear about the contraband.	Susanto	Put a notice about what kinds of goods cannot be delivered. And some security scanners can be used.	Security scanner
4	Complexity of the function	Yiran Wu	Give the user guide for the users to learn about the functions and the instruction of the product. Make the product be user-friendly.	User guide
6	Rapidly changed requirements	Yiran Wu	Communicate with Susanto to get the requirements of new functions and the improvement.	Market research results
7	Complexity of the algorithms in the project.	Mingzhe Du	Use agile and hold a sprint meeting regularly.	Meeting records
9	Inconsistent interface format	Yidi Liu	Create an abstract layer of data for	

	for data and information		different databases to get the specific format of data and information for each database.	
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Table 2: Risk Register and relevant response

3.4 Technology

Language:

Python is selected as the major programming language, since numerous excellent libraries can be found in the warehouse of Python, which could be agreeably utilized to establish the delivery management platform, and completing the subsequent increment development agilely. In this project, the develop team is going to use a number of libraries from Python, such as Flask, Python-redis and Jinjia, which would remarkably boost the development speed.

Technology:

Considering that this system should be easy to use, it is necessary to develop a compatible user interfaces, the web interface therefore is a decent choice. In order to facilitate customers to use the system on different devices (mobile phone or PC), the front-end adopts Bootstrap framework supporting the adaptive interface. Meanwhile, back-end use Flask, a flexible web framework, as the gateway of this service. Through several views and routers, the web server is able to handle with enormous requests of order. For the field of database, our team will use Redis, an advanced memory database system. The lightweight, high-speed, and flexible features of Redis make it greatly fit for the project.

Framework:

Bootstrap:

Bootstrap is an open source toolkit for developing with HTML, CSS and JS, which facilitates developer quickly prototype their ideas. moreover, the Sass variables, responsive grid system and extensive prebuilt components can remarkably boost the development speed and the quality of user interface.

HTML5:

HTML5 is the latest evolution of HTML, which embraces all-new elements, defines, attributes and behaviours. It is notable that HTML5 has a great number

of advanced technologies that allow the building of more diverse and powerful Web sites and applications.

Flask:

Flask is a micro web framework written in Python without requirement of any other tools or libraries. Database Abstraction Layer, form validation and some common components cannot be found in original Flask. However, a powerful extension system is able to add a great number of application features for Flask. For example, extensions exist for object-relational mappers, form validation, upload handling, various open authentication technologies and several common framework related tools.

Jinja:

Jinja2 is a full featured template engine for Python. It has full unicode support, an optional integrated sandboxed execution environment, widely used and BSD licensed. Meanwhile, Jinja2 is one of the most used template engines for Python. It is inspired by Django's templating system but extends it with an expressive language that gives template authors a more powerful set of tools. On top of that it adds sandboxed execution and optional automatic escaping for applications where security is important.

Redis:

Redis' lightweight, high-speed, persistence, and flexible features make it a great fit for the project.

3.5 Project Planning

Product Backlog

1. As a customer, I can create a booking. ---1 Story Point
2. As a Shipper, I can confirm a booking. ---1 Story Point
3. As a Shipper, I can modify the Shipping booking. ---1 Story Point

Sprint Goal

To achieve the function for the users to create a booking.

Sprint Plan

1. *Sprint Backlog* : As a customer, I can create a booking, so that I can deliver the package.

Task Breakdown

Start Time: 10.9.2018

End Time: 14.9.2018

<i>Tasks</i>	<i>Mon(17/Sep.)</i>	<i>Tues(18/Sep.)</i>	<i>Wed(19/Sep.)</i>	<i>Thurs(20/Sep.)</i>	<i>Fri(21/Sep.)</i>
<i>Code the user Interface</i>	8	8			
<i>Code the middle tier</i>		6	6	8	
<i>Test the middle tier</i>			6	6	
<i>Add error logging</i>			4	6	6