

SWEN90016 Software Processes and Management
Semester 1 - 2018
Assignment 2
Project Management Plan (PMP)
EO9_orange

Ivan Ken Weng Chee	736901	ichee@student.unimelb.edu.au
Ruifeng Luo	686141	ruifengl@student.unimelb.edu.au
Wuang Shen	716090	wuangs@student.unimelb.edu.au
Yu Ting Lin	762826	ylin8@student.unimelb.edu.au

Executive Summary

Tom, being a dog lover, ambitions to start and expand a dog grooming business. He envisions it to be mobile, in which he would provide customers with his grooming service at the convenience of their doorstep, via a mobile trailer. However, having had experience in grooming before, he foresees difficulties that lie ahead, such as the challenge of managing the scheduling of his customers' appointments. This is primarily due to the nature of his work, in which he will be driving for a significant portion of his time. Should he choose to receive calls from customers wishing to schedule an appointment, he would have to multi-manage speaking, writing down, cancellation, and time-estimation, all the while during his commute. Not only does this prove difficult, but it poses a safety risk while on the road.

As such, Tom has decided to seek an alternative solution - to develop an online appointment system, to aid in his work. Due to the expensive nature of well-established software development services, and following the advice of his friend Grace, Tom has appointed Team Orange to be his development team, for the timeframe between April to May.

This project is aimed primarily at solving the problem of scheduling, ultimately enabling Tom to work under optimal efficiency with minimal time and resource wastage. After much discussion and consideration into the key functional, operational, as well as technical requirements of the prototype as detailed by the client, the team has chosen to implement an Agile Scrum software development lifecycle. In adopting this methodology, the project is broken down into smaller, short sprints, in which a collection of tasks are specified and completed by the team within a given timeframe. With this, the team can ensure continuous improvement of the project with respect to the client's requirements, while maintaining the flexibility for incorporating future changes to the specification.

The system will take roughly four weeks for development. One week is allocated for planning and constructing project requirements, and the remaining three weeks for development sprints. A feasibility prototype is expected to be ready by the end of the first three sprints. The creation of burndown and burnup charts, calculation of Team Velocity, and frequent sprint meetings contribute to the measurement of the team's progress, as well as monitor and minimize scope creep.

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1. Introduction

This document is the Project Management Plan for the case study. It helps to develop a prototype web-based system based on client's requirements, which will be used for online appointment management. The system will automatically handle dog grooming appointments, which aims to solve the issue of receiving phone calls. Based on the client's business objectives and requirements, several aspects of the document have been followed below.

1.1 Purpose of document

The purpose of the document intends to guide the developing process of the web system by following, in order, the plan, execute, monitor and control processes. According to the client's requirements, this document will detail the scope, deliverable, timescale, and role and responsibilities of everyone involved in the project. Furthermore, we will discover the benefits our product will bring to the client and its corresponding constraints, challenges and risks. Also, by recording meeting notes on the project management plan (PMP), we can check the progress of each sprint, which contributes to the desired outcome. This document should be read with other documents listed in section 7.

1.2 Audience of document

The intended audience of this document includes everyone involved in this project, including our supervisor. By adopting the Agile software development lifecycle (SDLC) approach, we can ensure team members will communicate with each other and construct detailed requirements, as well as understand the processes that will be undertaken, based on the client's requirements.

1.3 Limitations of document

None identified at this time

1.4 Evolution of document

Substantial changes are made during reviews in this project. This document is updated continuously based on management procedures. The following table is used for recording updates and review modifications.

Version	Created by	Date created	Location	Comments
1	Ruifeng Luo	28/04/2018	ERC	In the first version of PMP, our team have structured the basic plan, and will work on completing subsequent sections

2 Project Information

2.1 Key Stakeholders

Key Stakeholder	Type	Description	Interest	Power
Client/Product Owner	Initial	Tom	High	High
Scrum Master	Initial	One member of the student team	High	High
Development Team	Initial	Student team	High	Low
Customers	Future	Pets owner who like to book appointments	High	Low

2.2 Scope

2.2.1 What is in-scope?

The project's main objective is to provide an appointment system for users.

There are several requirements listed below:

- Basic user system enabling users to login with an email address and a password.
- Users' information can be added and edited in the system. Information about clients' dogs should also be able to added and edited.
- Appointments can be made online by customers. Listed features of the system should be supported when customer makes appointments online:
 - Customers can choose from existing dogs in the system.
 - Customers can choose an available appointment time-slot.
 - Customers can choose grooming options from the system.
 - Customers can add comments to the appointment.
- Bookings can be rescheduled or canceled by customers.
- Automatic email reminders can be generated by the system one day before the appointment commences.
- Groomer can view all appointments.
- The prototype should be extensible for future enhancements.
- The system requires a front-end (website), and a back-end (server, database).
- The system should be secure and stable for its users.

2.2.2 What is out-of-scope?

This project's only delivery is the prototype, so further development will be out of scope.

For example, the future enhancements listed below:

- Payment system supported for the booking system.
- The available booking time-slot will be based on the location of appointments.

2.3 Delivery approach / SDLC

The delivery approach chosen for this project is Agile Scrum. Benefits of using this approach includes:

- The main advantage of the agile is its flexibility. It will be much easier to apply changes or make improvements later in the project.
- An Agile approach costs less than other traditional approaches. With this approach, the team will only focus on the in-scope website features, where unnecessary planning and documentation will be avoided. Thus, Agile will be a more appropriate approach for this project, as the client has a limited budget.
- This methodology enables the team to produce fast delivery, unlike other traditional methods which may require a longer time to finish the project. Given the limited time for this project, Agile will be a better choice.
- With Agile, team members can collaborate with each other more efficiently. Instead of writing rigorous documentation in the requirements, team members can quickly pick up user stories to start conversations.

2.4 Business Value (Financial & Non-Financial Benefits)

- The main purpose of this project is to provide the client a reliable website appointment system, which can free him from the time-consuming and complicated appointment scheduling process, saving him more time and helping him concentrate more on dog grooming business.
- By providing an automatic appointment system, all appointments can be carefully scheduled and optimised. Shifting from one appointment to another will be much easier for the client. Besides, customers can experience better service provided with on-time services.
- Tom can also provide this appointment service to other groomers. He can get benefits from charging of the service, while other groomers can save a lot of time by using this service. Besides, this system will make management much easier, when Tom recruits new groomers to expand his business.
- The website is a key component for digital marketing. With it, Tom can execute a better marketing strategy for his business to attract more potential customers.
- Students can practice software development skills during the project, applying the knowledge learned from university to a real case.

2.5 Constraints

Constraint	Description
Time	The website prototype should be available by the 20 th May 2018
Budget	No specific amount of funding is shown in the case study. However, Tom is only able to invest a limited amount into this project.
Manpower	A team of four inexperienced student developers are available for this software project.

3 Project Governance

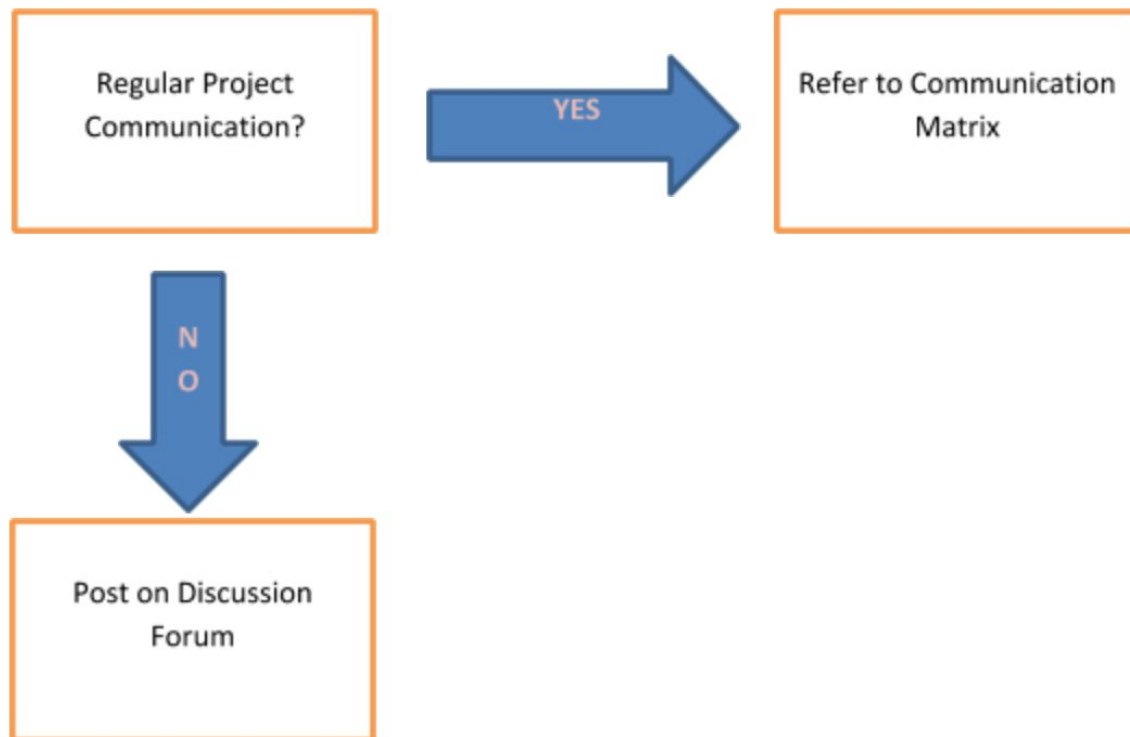
3.1 Roles and Responsibilities

Role	Responsibility
Product Owner	<ul style="list-style-type: none"> • Defines the key requirements and features of the product • Accepts or rejects sprint results • Collaborates with the development team to define the product backlog and understand development progress • Sets the product final release date • Funds the project • Deals with business aspects i.e. return on investment • Makes adjustments after every iteration according to market changes or personal dissatisfactions • Signs off approval
Scrum Master	<ul style="list-style-type: none"> • Resolves conflict within the team • Shields team from external interferences • Communicates with external parties to remove roadblocks. i.e. Financing problems • Makes sure team is adhering to scrum practices
Development Team	<ul style="list-style-type: none"> • Provides a working product at the end of each iteration • Provides the final product • Makes sure product is fully functioning and well tested • Makes sure client requirements are implemented • Cross-functional • Contains a small number of skilled members • Takes responsibility for their own roles

3.2 Communication Plan

Communications Matrix

Stakeholder	Communication Objective	Format	Frequency	Owner	Importance
Product Owner	<ul style="list-style-type: none"> • Provide update on progress of product and understand any necessary adjustments • Approve prototype, final product and scope • Clarify key requirements • Gain approval for funding 	Sprint reviews and Sprint Retrospective (face to face) Formal Documentation	After every sprint (weekly) At the start and end (monthly)	Scrum Master	High
Development Team	<ul style="list-style-type: none"> • Understand team progress • Discover any conflicts • Identify resources for all phases • Ensure team members are contributing • Clarify tasks and responsibilities 	Daily Stand-Ups (face to face) Sprint Planning (face to face)	Daily Beginning of each sprint (weekly)	Scrum Master	High

Communication Flowchart**Communication Escalation Plan**

Priority	Definition	Decision Authority	Timeframe for resolution
Priority 1	Major impact to schedule. Will delay product final release or cause a reduction in product quality.	Product Owner	Within 1 business day
Priority 2	Medium impact to schedule. May delay sprint release or not able to implement sprint plan fully.	Scrum Master	Within 1 business day
Priority 3	Minor impact which will not result in any delays or reduce in product quality but may disrupt schedule slightly.	Scrum Master	Within 1 business day
Priority 4	A better solution is suggested while project is being worked on, will not cause any disruptions to the scheduling.	Development Team	Can be brought up in the next sprint review.

3.3 Risk Management

Risk ID	Risk Type	Description	Probability	Impact	Justification
1	Product	Personal Information Leakage	Low	Major adverse impact on the security of the product	Security is very important to any application that collects personal information and is an ever-present risk.
2	Business	Customer preference in calling	Medium	Will render the application useless	Many middle-aged customers might prefer to call and book an appointment rather than use an online booking system. Depending on the target market this may have an adverse effect on the revenue the product generates.
3	Product	Unsuccessful Appointments - Customers are not able to make appointments over the application.	Medium	Loss in revenue and customer satisfaction.	Product must at least fulfil basic requirements.
4	Product	Unable to verify the identity of users	High	Security Risk within the Product	May subject the Product owner to malicious behaviour from competitors who might use up available time slots then cancel appointments.
5	Product	Network Coverage Issue - Groomer will not receive appointment notifications on time.	Low	Loss in revenue and customer satisfaction.	Impacts usability of the application.
6	Project	Team member unavailable	Low	Adverse Impact on scheduling	Will delay final product release

				and Product quality	
7	Project	Low Motivation within the Team	Low	Adverse Impact on Product Quality	Low motivation can cause team members to only do the minimum that is required and not be concerned about product quality.
8	Project	Destructive conflict within the Team	Low	Possible reduction in Product Quality	Destructive conflict may adversely affect attempts at positive communication and reduce overall product quality
9	Business	Marketing Issue	Low	Impact on revenue	Since this is a start-up company, Tom may not have a large enough client base.
10	Business	Grooming scheduling issue – Groomer cannot get to next appointment on time	Low	Reduce customer satisfaction and loyalty	Punctuality is important to maintain basic service standards

Risk ID	Trigger	Owner	Response	Resources Required
1	Malicious attacks or admin leaks	Development Team	Encryption of Confidential User Information	Development time
3	External uncontrollable elements (exp. Network problems) or software bug	External or Development Team	Rigorous testing of the software	Development time
5	Uncommitted team member	Scrum Master	Appropriate scheduling	Scrum Master time
6	Team Dissatisfaction	Scrum Master	Recognition of achievements	Budget
7	Team unable to exit storming stage	Scrum Master	Bonding activities	Time and budget

3.4 Project Planning

3.4.1 Product backlog:

According to requirements gathered from virtual client meetings and discussions, those requirements has been documented in the product backlog. Items listed in order based on the priority of features (story points).

1. As an active user, I want to make appointment online, so that I can use computing device to make appointment using internet at any location. (20 story points)
2. As an administrator, I want the system to be able to calculate the shortest path for me to travel so that I can accommodate as many appointments as possible during a day's work. (20 story points)
3. As an administrator, I want the system to be able to identify areas of traffic congestion so that I can avoid being delayed by heavy traffic. (20 story points)
4. As an active user, I want register to the web system with email address and password, so that I can utilize functions on the system and make my account private. (15 story points)
5. As an active user, I want to select from a list of available appointment time slots, so that I can successfully schedule appointment. (15 story points)
6. As an active user, I want to cancel or re-schedule my appointments, so that there will be no crash with my scheduling timetable. (15 story points)
7. As an administrator, I would like to have an option of creating a backup of data so that I can be prepared should something go wrong. (13 story points)
8. As an administrator, I want appointments to be schedule at least 90 minutes apart, so that I have time for grooming and travelling between locations. (12 story points)
9. As an administrator, I want to notify customer appointments 24 hours prior to the appointment time via email, so that I can confirm appointments. (12 story points)
10. As an administrator, I want the system to be extensible, so that the system can incorporate future enhancements. (10 story points)
11. As an active user, I would like to have an option of selecting the language to use in the system so that I can use the system in my native tongue. (10 story points)
12. As an administrator, I want to view list of all appointments have been made, so that I can prepare for them. (10 points)
13. As an active user, I want to be reminded before appointments, so that I won't miss those appointments. (10 story points)
14. As an active user, I want to be able to reset my password if I forget it so that I will be able to continue using the system. (8 story points)
15. As an active user, I want to view appointments I made, so that I can confirm my appointments online. (8 story points)

16. As an active user, I want to add and edit personal information, so that it allows for more streamlined communication with the company as well as verification of identity. (6 story points)
17. As an active user, I want to add and edit my dog's information, so that I don't have to edit each time when I create new appointment. (6 story points)
18. As an active user, I want to give description to groomer, so that groomer can follow the instructions. (6 story points)
19. As an active user, I would like to be able to give feedback on the system so that I can convey my thoughts about something that I like or dislike. (6 story points)
20. As an administrator, I would like to view feedback from active users so that I can work on improving how I delivery my service. (5 story points)
21. As an active user, I want to select a specified dog, so that I can make appointment online. (4 story points)
22. As an active user, I want to select from variety of grooming options, so that I can personalize my services. (4 story points)
23. As an administrator, I would like to be able to cancel appointments made by the customer if they request me to do so, so that I can free up time for other appointments. (3 story points)
24. As an active user, I would like to see contact details of the service I am using on the website, so that I can call or send an email for other enquiries. (1 story point)

Future enhancements:

1. As an administrator, I want system to accept online payments or PayPal, so that customer can make payments immediately when making appointment. (4 story points)
2. As an administrator, I want customer to make 10% of final payment deposit, so that it will be sure they are interested in the services. (4 story points)
3. As an administrator, I want system to support an intelligent geolocation aware calendar manager, so that it will show the available appointment times based on the distance between the location of appointments, as opposed to the fixed 90-minute slots. (4 story points)

3.4.2 Features developed in sprints

Our team plan to complete all necessary features used for the system within 3 software development life cycle sprints. The important features were selected from product backlog based on client priorities of the requirements. For each sprint, we separate sprint backlog into 3 different sprints evenly based on the story points. As total story points are 240 from key requirements in the product backlog, each sprint will take 80 story points to achieve final outcome. The list of features that are planned for each sprint have been followed below:

Sprint	Features planned for implementation
1	1,5,7,8,12,18,22 from product backlog
2	None identified at this time
3	None identified at this time

The future enhancements' features from product backlog will be considered due to time limitation.

3.4.3 Sprint Backlog:

Some requirements that have been discovered is to contribute to the desired outcomes and listed as high-level definition of user stories in the Sprint Backlog below.

Sprint Backlog - Sprint 1:

The first software development life cycle Sprint is to develop appointment online management system according to client's requirements. And the user stories are listed based on the corresponding priorities (user points). It completes by an appropriate workload of 4 members in a team and in a week. (p.s. story points below are scaled)

1. As an active user, I want appointments to be schedule at least 90 minutes apart, so that I can prepare for the next job and have a rest. (5 story points)
2. As an administrator, I would like to have an option of creating a backup of data so that I can be prepared should something go wrong. (5 story points)
3. As an active user, I want each appointment of the day to have specific location/address, so that I can take drive to there. (5 story points)
4. As an active user, I want to select available appointments from time slots, so that I can make a successful appointment based on my time schedule. (3 story points)

5. As an administrator, I want to have view list of all appointment, so that I can prepare for them. (2 story points)
6. As an active user, I want to select one from various grooming options, so that I can choose what I like my pet to be done. (1 story points)
7. As an active user, I want to add a description in the general comment field, so that groomer can follow my instructions. (1 story points)

The features above can be developed into multiple low-level tasks based on the distinguishing characteristics or capabilities of the application. The developers will handle each task. Based on functionality of tasks and its corresponding priority, these can be categorized below.

Backend

1. Create database to store appointments information (5 hours)
2. Store location information with each appointment (3 hours)
3. Write data structure to store information (2 hours)
4. Create backup database (5 hours)

Frontend

1. Create calendar widget (4 hours)
2. Code time slots on the page (2 hours)
3. Code list of grooming option (2 hours)
4. Code comment field on the page (1 hour)
5. Create an interactive user interface for displaying (5 hours)

Calculation Algorithm

1. Write class to validate 90 minutes time apart (5 hours)
2. Create a list of 90 minutes appointments (2 hours)
3. Disable the available appointment time slot if it has been taken by user (2 hours)
4. Display available time slot on the page (5 hours)

Testing

1. Add error logging (1 hour)
2. Test the code (6 hours)
3. Improve user interface (3 hours)