

Software Requirement Specification

**Agile Software Project
Management System**
by
Team Coca-Cola

Unit Convenor : Prof. Patrick Then
Supervisor: Ms. Fu Swee Tee
Client: Dr. Brian Loh



1.1 Introduction:

● Purpose

- The purpose of this document is to provide the software requirement specifications of the Agile Software Project Management System. The creation of the system includes various basic essential functionalities, requirements given by client and also non-functional requirements that supports the agile software development lifecycle.

● Scope

- The scope of the project is to improve by combining several task management and time tracking websites/application into the agile software project management system. Different role will have different level of access towards the system (Admin, project manager & project members). By accessing the system, they will need to **register an account** so that they can **login and logout of the system**. Admin will later **appoint project manager** , **switch project manager (scrum master)** and also **delete user** if neccessary. The system will also provide features like **creating new project**, **add, edit requirements**, **assigning them to project members and delete requirements**. Besides, **progress can be tracked**, **due date can be adjusted** and they will **perform bug testing, reporting, fixing** and lastly **generating report**. The system also includes requirements listed by our client which are **upload PDF from system**, **mark off tasks as complete** by project manager, **give comments**, **capture timelines and sprints**.

● Definitions, Acronyms and Abbreviations

Below are definitions of term used within the domain of the Agile Software Project Management System. Definitions are further are covered in the next section (Business Rules)

Terminology	Definition
Dependencies	The software needed so the system will work without problems
Responsive	A design technique to ensure the software scales through different screen dimension and resolution

Sprint	Sprint is one timeboxed iteration of a continuous development cycle. Within a Sprint, planned amount of work has to be completed by the team and made ready for review.
Product backlog items	the Product Backlog is an ordered list of everything that is known to be needed in the product and constantly changes to identify what the product needs to be appropriate
Progress Tracking	A feature for all users to record and track their progress throughout certain period of time based on their actions in the task management and generate a graph or report to have an overview of their work progress.
Scrum Master	Scrum Master takes on the administrative, coaching and leadership roles that make Scrum development possible. In our system, project manager appointed with be the Scrum Master

● ***Business Rules***

Rule	Condition
Creating user account	Account created by default will be set as Project members. Project manager is given the power by Project admin.
Assigning tasks	Only project manager will be able to assign tasks to project members. Exchanging task is not allowed between different project members. Project members will not be able to reject the tasks assigned once confirmed. One task can be assigned to multiple project members. Second member pushing the codes will result in updating the codes of the first member. A report should be

	generated indicating the codes added, updated or removed using respective colour indications.
Completing task assigned	Only tasks that are marked off as completed by project manager can be set as "Done" in the task management section. Project members can only move tasks assigned from "To Do" to "Doing". A task that is completed after the due date will be considered incomplete.
Task due dates	Task due dates will be given to each task assigned depending on the workload and number of members working on it. However, under special conditions, due dates can be adjusted by the Project manager if reasons given are acceptable.

2. Overall Description:

2.1 System Perspective

Agile Software Management System is a improved project management system that allows project manager to assign tasks to each project members and all of the task management, progress tracking, codes storing & updates are done within the system. After each sprint, a complete documentation can be generated to summarized the progress for each project member. Project manager will also keep track of his/her project members' progress on the project and give comments if there is any bugs found or corrections to be made. The improved codes will then be pushed to the repositories which automatically updates and integrates into the demo system. Project manager and members will be able to communicate and discuss by using the comment

feature on the tasks assigned. The task management concept will be somewhat similar to Trello board with “To do”, “Doing” and “Done”.

2.2 New System Features

There are 3 main actors in the Agile Software Project Management System. Different role in the system will have several features that are only available to certain roles such as **Appoint Project Manager for Admin**, **Assigning tasks by project manager** and **Registering an account for Project member**. The system features that will be implemented in the first iteration is listed down below:

Admin:

- Appoint project manager
- Delete user

Project Manager:

- Create new project
- Add requirements to project
- Edit requirements
- Delete requirements
- Assigning tasks
- Delete user
- Mark off task after completion
- Due dates adjustments

Project Members

- Register an account

Project Manager & Project members

- Add comment on requirements
- Upload PDF files

Admin & Project Manager

- Switch Project Manager (Scrum Master)

Admin, Project Manager & Project members

- Login
- Logout
- Progress Tracking
- Bug testing
- Bug reporting
- Bug fixing
- Generating reports
- Capture timeline and sprints

2.3 User Classes and Characteristics

➤ Client (Dr. Brian Loh)

- Dr. Brian Loh is the lecturer in Faculty of Engineering, Computing & Science and in computer science, agile software project management is widely used to promote a disciplined project management process that encourages frequent inspection and adaptation. He would like to have a system that is created that supports the agile software development lifecycle.

➤ Admin

- The admin will be able to appoint project manager to create new project and have new requirements added into the project. The rest of the job will then be done by the project manager. Admin will also have the power to remove the user's account from the system if there is a need. They are controlling the back end of the system and manages both project manager and project member ensuring that they are doing their job properly therefore having the ability to do progress tracking and generating weekly reports.

➤ Project Manager

- The project manager appointed by the admin will have access to create new project and add, edit, delete requirements of the project. The created tasks are assigned to different project members. They will be in charged of the progress tracking of the project member ensuring that they are doing their job properly.

➤ **Project Member**

- Project members will be assigned with tasks and their job is to finish their tasks within the expected due dates. They will push the codes and it will update automatically. After their task is done, they will perform bug testing to make sure that everything is working properly. The final product will then be mark off as complete after checked by the project manager.

2.4 Design and implementation Constraints

Language

The primary language used in Agile Software Project Management System will be English. It has been the most popular language and widely used all around the world. Community with different cultural backgrounds will most likely be using English to communicate before getting to know more about each other.

The User Interface Design

The user interface will be able to scale across different screen resolutions (responsive design). Important information will still remain on the screen when the browser is resized and navigation bar is shrunk into a hamburger.

Security

The system must be secure so that the project that users are working will be keep safe. Only project member will be able to mark off tasks and some features like appoint project manager is only restricted for the project admin. Other users that are not involved in the particular project will not be able to gain access to it, this is to prevent information leakage.

2.5 Assumptions

1. All users must have internet connection to access to the system.
2. All users must have basic knowledge about Agile software development so that they will be able to navigate throughout the system.
3. Admin are more experience individuals whom will be capable to have the rights to appoint project manager and delete user if neccessary.
4. Project manager also have the feature to remove project member from project if neccessary.
5. When user are removed from the system, their personal information will be totally removed. If they would like to participate in the project, they will need to create a new account.
6. If the performance of the project member is not acceptable, admin have the right to remove them from the project and take in new users to replace them. This is to ensure the quality and the efficiency of the project.

2.6 Operating Environment

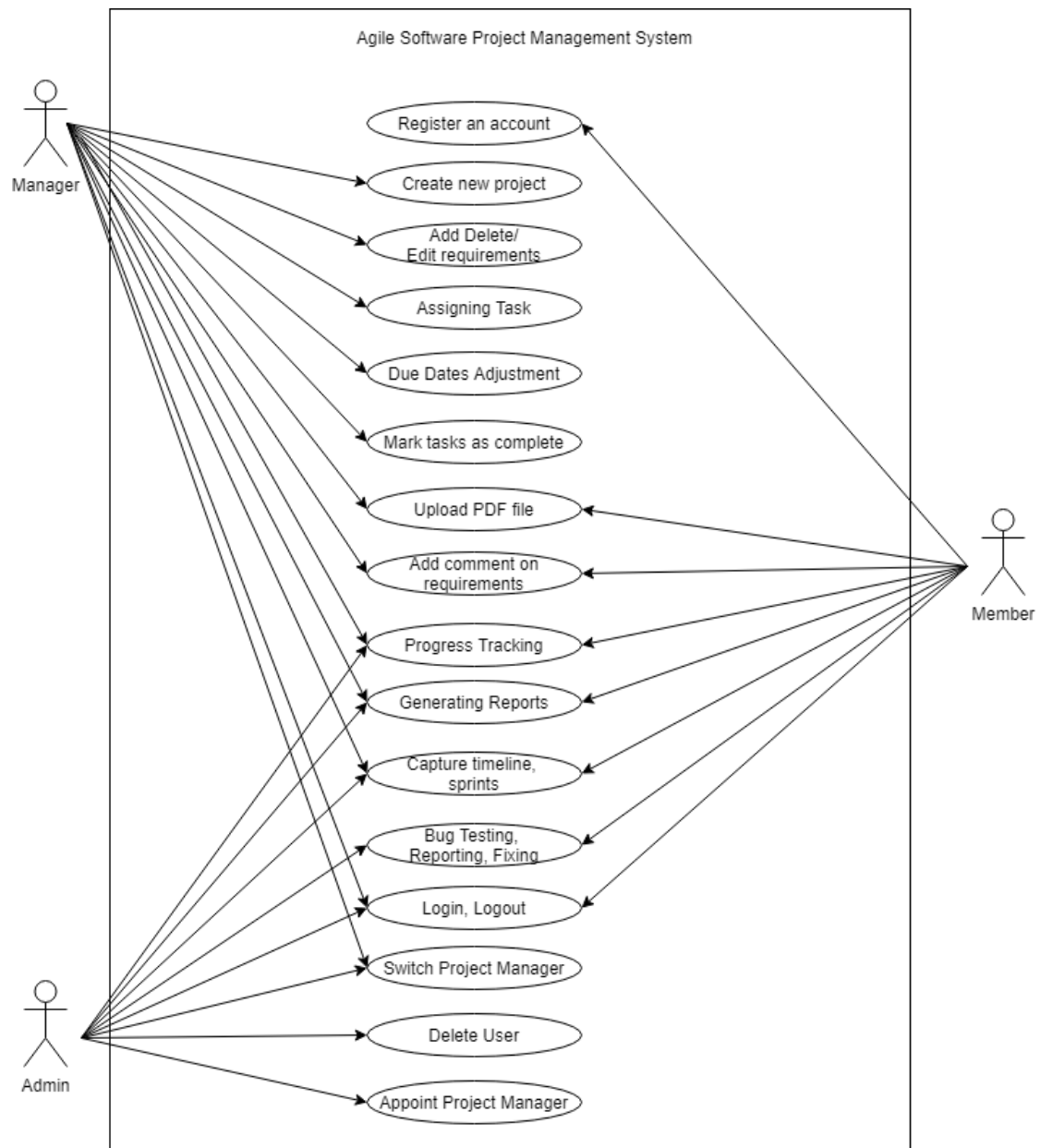
The web application can be operated on any device that have a web browser support.

3. System Features:

The functional requirements involved in the Agile Software Project Management System are listed down below:

- **Register an account**
- **Login**
- **Logout**
- **Appoint project manager**
- **Delete user**
- **Create new project**
- **Add requirements to project**
- **Edit requirements**
- **Delete requirements**
- **Assigning tasks**
- **Mark task as complete**
- **Due dates adjustments**
- **Add comment on requirements**
- **Upload PDF files**
- **Progress Tracking**
- **Bug testing**
- **Bug reporting**
- **Bug fixing**
- **Generating reports**
- **Capture timeline and sprints**
- **Switch project manager (Scrum master)**

3.1 Use Case Diagram



3.2 Use Cases

1. Use Case: Register an account

Use Case Name	Register an account
Actor(s)	Project member
Purpose	To register an account
Precondition	The user does not have an account
Success Guarantee	The user registered an account successfully
Sub-Tasks/Scenario	
1. User navigates to the register page of the system.	
2. User enters their email address, create a username, password and click	

register.
3. User registered an account for the system.
Variant
3a. The email address or password is invalid.
3a1. The system displays error message "Invalid email address or password".
3a2. Repeat step 2.

2. Use Case: Login

Use Case Name	Login
Actor(s)	Admin/Project manager/Project member
Purpose	To login to the system
Precondition	The user has not logged into the system but had register an account before
Success Guarantee	The user logs into the system successfully
Sub-Tasks/Scenario	
1. User navigates to the login page of the system.	
2. User enters their username and password.	
3. User logs into the system.	
Variant	
3a. The username or password is invalid.	
3a1. The system displays error message "Invalid username or password".	
3a2. Repeat step 2.	

3. Use Case: Logout

Use Case Name	Logout
Actor(s)	Admin/Project manager/Project member
Purpose	To logout of the system
Precondition	The user had logged into the system and would like to logout of the system
Success Guarantee	The user logs out of the system successfully
Sub-Tasks/Scenario	
1. User clicks the logout button and confirms the selection by clicking "Yes" when a popup message "Are you sure you want to logout?" appears .	
2. User logs out of the system.	
Variant	
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4. Use Case: Appoint Project Manager

Use Case Name	Appoint project manager
Actor(s)	Admin
Purpose	To appoint project manager
Precondition	There is no project manager at the moment to in charge a new project

Success Guarantee	The project member is successfully appointed as the project manager
Sub-Tasks/Scenario	
1. Admin navigates to view the namelist of the project members available in the system.	
2. Admin clicks on the project member's name that he/she would like to appoint him/her as the project manager.	
3. Admin clicks on the "Crown" icon to appoint the project member to project manager.	
Variant	
3a. No existing project member suitable to take on the role of project manager.	
3a1. Admin will have a meeting to decide on which project member is suitable to be appointed as project manager.	
3a2. Repeat step1.	

5. Use Case: Delete user

Use Case Name	Delete user
Actor(s)	Admin, Project Manager
Purpose	To delete user
Precondition	The attitude and performance affects the project and is not suitable for him/her to continue staying in the project management system.
Success Guarantee	The user successful remove the project member from the system
Sub-Tasks/Scenario	
1. User navigates to the project member namelist of the system.	
2. User chooses the project member that he/she wish to remove.	
3. User clicks the "remove" button and a popup message will appear to confirm the selection.	
Variant	
-	

6. Use Case: Create new project

Use Case Name	Create new project
Actor(s)	Project Manager
Purpose	To create new project
Precondition	Project manager is appointed and planning to start a new project
Success Guarantee	The project manager creates the new project successfully
Sub-Tasks/Scenario	
1. User navigates to the home page of the system.	
2. User clicks on the "Create" button to create new project.	
3. User gives a name to the project created.	
Variant	
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7. Use Case: Add, Edit requirements

Use Case Name	Add, edit requirements
Actor(s)	Project manager
Purpose	To add and edit requirements
Precondition	A project is created and a new task is ready to be added
Success Guarantee	The project manager add, edit requirement successfully
Sub-Tasks/Scenario	
1. User navigates to the project to add new requirements.	
2. User clicks on the edit button to edit the details.	
Variant	
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8. Use Case: Delete requirements

Use Case Name	Delete requirements
Actor(s)	Project manager
Purpose	To delete requirements
Precondition	A requirement had been created and to be deleted from the project
Success Guarantee	The project manager deletes the requirement successfully
Sub-Tasks/Scenario	
1. User navigates to the project requirements.	
2. User clicks on the delete button to delete the requirement from the project.	
Variant	
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9. Use Case: Assigning Tasks

Use Case Name	Assigning Task
Actor(s)	Project manager
Purpose	To assign task to project members
Precondition	The project manager had added new tasks and ready to be assigned to members
Success Guarantee	The project manager assigned tasks to project members successfully
Sub-Tasks/Scenario	
1. User navigates to the added task.	
2. User clicks on the "assign" icon and choose members from namelist of project members.	
Variant	
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10. Use Case: Mark Task as complete

Use Case Name	Mark task as complete
Actor(s)	Project manager
Purpose	To mark the task done by project members as complete
Precondition	The project member had done with the task and submit for checking
Success Guarantee	The project manager check through the task and mark as complete
Sub-Tasks/Scenario	
1. User navigates to the tasks section and check through the submission of codes.	
2. User mark the task as complete and move it to "Done" section.	
Variant	
2a. The task checked still needs improvement.	
2a1. The task is not marked complete and project member to continue to work on it to fulfil all requirements until next submission.	
2b1. Repeat step1.	

11. Use Case: Due date adjustments

Use Case Name	Due date adjustments
Actor(s)	Project manager
Purpose	To adjust the due dates of the tasks assigned
Precondition	The project member requires more time to complete the tasks assigned and needs an extension
Success Guarantee	The project manager extends the due dates successfully
Sub-Tasks/Scenario	
1. User clicks on the task in the task management section.	
2. User edits the due date of the task.	
3. User updates the due date of the task for the project member to complete the task.	
Variant	
3a. The project member is still not able to finish the task on time.	
3a1. Repeat step 1 or mark the task assigned as incomplete and further actions taken.	

12. Use Case: Add comments on requirements

Use Case Name	Add comments on requirements
Actor(s)	Project manager/Project member
Purpose	To add comments on requirements on communicate between manager and member
Precondition	The task is created and user had logged in when viewing the comment section
Success Guarantee	The project manager/project member comments successfully on the task
Sub-Tasks/Scenario	

1. User clicks on the task in the task management section.
2. User clicks on the “Comment” button to post comments about the task as he/she is viewing the progress or codes.
3. Project member working on the task sees the comment and replies to the comment to communicate.
Variant
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13. Use Case: Upload PDF files

Use Case Name	Upload PDF files
Actor(s)	Project manager/Project member
Purpose	To share external files with each other in the system
Precondition	The user logged into the system and would like to upload a pdf file to the system
Success Guarantee	The user uploads the pdf file successfully
Sub-Tasks/Scenario	
1. User navigates to the task that they would like to upload a pdf file.	
2. User clicks on the “Upload” button.	
3. User selects pdf file from device to be uploaded and upload the file.	
Variant	
3a. The file extension selected is not compatible or too large for the system, fails to upload.	
3a1. Repeat step 1.	

14. Use Case: Progress Tracking

Use Case Name	Progress Tracking
Actor(s)	Admin/Project manager/Project members
Purpose	To track the progress of the task
Precondition	The project member is assigned with a task and had started working on it
Success Guarantee	The user able to view or generate document of the progress tracking.
Sub-Tasks/Scenario	
1. User clicks on the task in the task management section.	
2. User clicks on the “progress tracking” icon to view the progress of the task (in %)	
3. User able to view the task completion percentage and generate a pdf file about the codes (added, removed, updated).	
Variant	
3a. The task progress is less than 10%, insufficient data available to generate report.	
3a1. The project members continue to work on the task assigned.	
3a2. Repeat step 1.	

15. Use Case: Bug testing, reporting and fixing

Use Case Name	Bug testing, reporting and fixing
Actor(s)	Admin/Project manager/Project members
Purpose	To perform bug testing, generate bug reports and fix them
Precondition	To perform bug testing, generate bug reports and fix them
Success Guarantee	The bug is found, recorded in reports and successfully fixed.
Sub-Tasks/Scenario	
1. User performs bug testing.	
2. User encountered bugs and recorded for bug reports.	
3. User fixes the bug and test it until there is no longer bugs found.	
Variant	
-	

16. Use Case: Generating Reports

Use Case Name	Generating reports
Actor(s)	Admin/Project manager/Project members
Purpose	To generating reports and have an overview/summary of the task completed
Precondition	The task will need to be completed and is sufficient to be converted into graphs and data.
Success Guarantee	The reports is generated and can be downloaded in PDF/Excel format.
Sub-Tasks/Scenario	
1. User navigates to the task section and select on the completed task.	
2. User views the summary of the task and click download to generate the reports of the task.	
3. The report generated is then downloaded in PDF/Excel format, user can share the softcopy or print it out as hardcopy.	
Variant	
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17. Use Case: Capture timeline and sprints

Use Case Name	Capture timeline and sprints
Actor(s)	Admin/Project manager/Project members
Purpose	To capture timeline, sprints and milestones so project member will be able to perform time tracking to ensure they finish their work on time
Precondition	The user will have to set a time period for the task to be done and then record the time spent for the task and allocate it to respective sprints.
Success Guarantee	The project manager had completed the task assigned and is ready for bug testing
Sub-Tasks/Scenario	
1. User performs bug testing.	

2. User encountered bugs and recorded for bug reports.
3. User fixes the bug and test it until there is no longer bugs found.
Variant
-

18. Use Case: Switch Project Manager (Scrum Master)

Use Case Name	Switch Project Manager (Scrum Master)
Actor(s)	Admin/Project Manager
Purpose	To switch project manager after each sprint
Precondition	The previous sprint is completed and moving on to the next stage where next project manager (scrum master) will be appointed
Success Guarantee	The project manager's role is switched successfully to another user.
Sub-Tasks/Scenario	
1. User navigates to the project manager namelist.	
2. User switches the role of existing project manager to a new member.	
4. New project manager in charge of the project in new sprint.	
Variant	
-	

4. External Interface Requirements

4.1 User Interfaces

The Agile Software Project Management System applies certain rules of user interface design, such as simplicity, visibility, responsivity and consistency. The user interface will be designed to be user-friendly so that users can interact and works with the system without any technical Information Technology knowledge when using it. Simplicity principles will be applied on the system by removing all unnecessary elements from the system and having a clean layout and uniform colour scheme to maintain the consistency of the system. Proper colour scheme will be selected and used in the system for header, body and footer to show consistency and visibility of the system. The system will be designed to be responsive on the layout so that the system can be used on different device with different screen resolutions. Apart from that, proper heading will be provided for user in order for them to navigate to the correct screen on the system. Visible font size and font weight will be used in the system to maximize the consistency and visibility on the system.

4.2 Software Interfaces

As the Agile Software Project Management System is a web-based application, the system will be accessible through web browsers such as Internet Explorer, Safari, Mozilla Firefox, Google Chrome and other latest web browsers that supports web kit. In addition, the system can be accessed from any devices of different screen ratios and resolutions and also from any platforms including Windows, Android, iOS and Linux.

4.3 Communication Interfaces

Users will be using the Integrated Management System (IMS) through a PHP-based webpage which stores and extracts data from a MySQL-based database server over File Transfer Protocol (FTP). The browsers will be using Hyper Text Transfer Protocol (HTTP) and FTP as communication standards.

5. Non-functional Requirements

5.1 Quality Attributes

5.1.1 Usability

- The system will be having a simple user interface to ensure user-friendliness for users, where technical Information Technology knowledge are not required to operate the system.
- User Interface of the system will be designed according to the rules such as simplicity, visibility, responsivity and consistency.
- The design of the system is consistent throughout the whole system.
- The system will be designed to be responsive on the layout in order for user to operate the system in different devices that used different screen resolutions.
- Proper heading will be provided for user to navigate to the correct part in the system.
- User manual will be provided in another page of the system for users' guidelines on using the system and how the system works.

5.1.2 Reliability

- The system shows accurate data from the database such as time completion of task and timelines set by manager.
- The system shows analytical data and graph to user with a high level of accuracy by generating various type of reports according to users' needs.
- The system shows analytical data according to the specific input of the user such as the period of time to generate reports on that period of time.
- The system will be able to make comments and remind user on task completion.
- The system will be able to capture the timeline, sprints and milestones correctly.
- The system could perform testing for bug testing, reporting and fixing in order to notify user and generate report.

5.1.3 Security

- The system can only be used by the users that had registered an account on the system and when they are signed in.
- Users with different authority will be having different levels of access to perform different actions in the system.

5.1.4 Portability

- The system's web application will be compatible with cross platform browsers such as Microsoft Edge, Google Chrome, Safari and Mozilla Firefox.
- The system is able to be run from any portable devices with different operation system responsively.

5.1.5 Maintainability

- The system is able to be updated or modified based on different requirements.
- Additional updates and features can be implemented to the system if required in future.

5.1.6 Availability

- The system will have an uptime of more than 95% and it will be having a downtime of no more than an hour to fix or update in future.

6. Change Management Process

The following actions would be taken in the event that the clients propose a new set of requirements or request to amend the proposed requirements:

- Brainstorming will be carried out among the team in regards to the new set of requirements, after which the most feasible solution is determined.
- The proposal for all amended and new requirements will be documented and presented to the clients for approval.
- The team will proceed on implementing the changes upon the approval of the client.
- The changes will be integrated into the existing system.

7. References

- AltexSoft. 2020. *Non-Functional Requirements: Examples, Types, How To Approach*. [online] Available at: <<https://www.altexsoft.com/blog/non-functional-requirements/>> [Accessed 5 September 2020].
- Blog, D., 2020. *A Basic Non-Functional Requirements Checklist*. [online] Thoughts from the Systems front line.... Available at: <<https://dalbanger.wordpress.com/2014/01/08/a-basic-non-functional-requirements-checklist/>> [Accessed 5 September 2020].

Document Approval

This document is approved by:



.....
Dr Brian Loh
(Project Client)



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Ms Fu Swee Tee
(Project Supervisor)



.....
Lee Jia Jun
(Project Team Leader)