**Final Report**

# Agile software development practices

After team discussion, we have decided to use the Agile development approach over the traditional approach due to its benefits that suites our project. One of the benefits is that agile software development approach welcomes late requirement changes, which fits our project as not all the requirements are clear and it gets clearer as the project ages. In this section I will talk about how our team used agile practices to endeavour the Morse code project.

## Planning game

Planning is the first phase, it plays a crucial role in keeping the project intact and make it a success. For the Morse application project, our team members started the planning phase by listing down our areas of strength and weaknesses. Then we review the user stories listing them down according to priority and breaking complex stories to multiple simple stories. Finally, we turn the simple stories to a product backlog and each member choses stories to include in the sprint backlog based on priority of the requirement then their area of strength.

## Test-Driven Development

The test-driven approach is to create a unit testing case for any simple functionality to test for errors before using the adding or using the code in the main application. Our team have adapted a version of this approach as members are required to test simple functionalities for errors before adding them to the code base or using it in the application. However, we found that the normal approach is a little bit “Extra” for the Morse application as the size of the project is small. Hence, we implemented this approach by testing simple functionalities as the normal approach but not creating a unit testing case.

## Refactoring

Our team members refactor each functionality they produce to prevent code rot and other code defects. Some processes in the refactoring phase is simplifying the responsibility of each function to handle. This is to prevent unnoticed errors “bugs” and to ease understandability of the function as well as error tracking. Another process is commenting on each line of code. This improves understandability and reduces rotten code as members know the function of each line of code.

## Continuous Integration

Continuous integration is one of the very important approaches in agile development. This is because the codes are developed by multiple members. Hence, it is important to ensure that all the codes work together in the project we are developing. For our team, multiple members have carefully developed different functionalities for the Morse code application in the sprint backlog. Before the end of the sprint all members gather to integrate the functions to the main application and solve any integration difficulties.

## Scrum daily meetings

Daily scrum meeting play a crucial role in keeping track of the progress of members and to help the scrum master know the difficulties that are on the way of team members. It also plays an indirect role in helping the project meet its time scope. Our team adopted a version of this practice as we noticed its importance and its benefits. However, due to members’ daily schedule constraint, it is extremely difficult to adopt the traditional scrum meeting. Hence, we use one of the social media application to perform our daily scrum meetings as we found it more convenient and does not depend on an empty schedule of any of the members. Each day, we will discuss what have members achieved, is anyone facing difficulties, what will they work on tomorrow.

# Working in teams

Working in teams can help the team finish the project faster if team members are managed well. However, if members of the team is not performing, they may affect the whole team. For this assignment, I find working with team a hurdle rather than an aid. This is because the team consists of two members only, and the other member lied about his skills during project planning phase which caused multiple tasks to be delayed as they couldn’t figure out the solution. Furthermore, the member highly depends on people to get tasks done and cannot work independently. Hence, working in teams for this project actually delayed the achievement of tasks rather than speed it up.

## Communication

Communication plays a major role in making the project a success, hence, we focused on communication and ensure that all the difficulties are known to all members. However, because all members have to attend classes, it is difficult to find a time when both of us are free to meet. Hence, we decided to use facebook messenger as our medium of communication. Each day, members will discuss about the current tasks that they are doing, the difficulties that they are facing with the task and what they will be doing tomorrow.

## Task allocation

All the tasks are divided between members based on the complexity at the beginning. However, some members had difficulties achieving because they could not get the tasks done and started to delay the project as they had difficulties. Hence we agreed to distribute the tasks again based on the area of strength of each member.

## Taking the practices to the real world

Taking the previous practices to the real world and working with a real team would increase the productivity of the team as members already have the skills to achieve their tasks and with the help of the practices mention above, they can coordinate and increase the productivity of the team which will speed up the project and make it a success.

# Design

Designing plays an important role in helping members to visualize, understand the logic of the program and to know how multiple parts interconnect. In the design part of this project, we ensured to design the codes to tolerate changes and easy to trace bugs.

## Putting the requirements together

After gathering the requirements and breaking them up to user stories, we represented the requirements as a photo and wrote the requirement below it. Then, we connected the photos based on priority noting down the dependencies and integration requirements. This way members can easily have a basic understanding on how each story interconnects and the required dependencies to integrate stories which make it easier for them to come up with functions that are integration friendly.

## Welcoming changes

All team members ensured that each functionality they write are change friendly. This is done by dedicating each function for a single purpose which makes it easier to upgrade or add extra functionality without the causing errors or getting lost in the function because it is too complex.

## Error tracking

Each function in our code handles a single purpose which increases the understandability of the function which reduces the probability of making an error while modifying the function. Furthermore, since the complexity of the function is low, any error in it can be easily seen compared to more complex functions.