# Project Review Report

## Team Management

A key factor in the successful completion of the project was our approach to team management. At the start of the first phase of this project, our first few meetings involved getting to know the strengths and weaknesses of each member of the team, and how the first batch of work could be distributed to play to our strengths and keep everyone happy. A solid mark in our first assessment confirmed that our approach to team working had been strong.

During the second phase of the project where most of the implementation was carried out, we had to adapt our team management as the project workload sharply increased. Because there were plenty of features to implement along with documentation to complete, it was no longer feasible to just give each person in the group a section to work on. Instead, we needed to upgrade our methods of communication and work on sets of features in sub-groups. We adopted aspects of the SCRUM agile methodology [1] after doing some research during the first phase of the project, as we felt that it was a suitable for a small group project like ours. These aspects included:

- Creation of a product backlog at the start of the assessment, containing features we needed to implement based off the requirements
- The use of sprint cycles in our implementation process

We also integrated Slack [2] into our team management approach during the second phase, with the idea that if we could provide each other with as much information as possible about the tasks we are currently working on, we would have a better understanding of each other's progress on tasks. Doing this also allowed us to assist each other if we came across problems with completing a particular task. By using these ideas, our team management improved to meet the demands of the second assessment, once again earning us a solid mark.

Our team management approach to the third phase of the project remained the same as the second phase, because we felt this system of working made us very productive and making any further changes to it may have had a detrimental effect to the work produced.

During the final phase of the project, a few changes were made to how the team was currently working. James had already implemented the 4-player support, which was now needed by the requirements change in the previous assessment, so opted to implement it again in this assessment. Jixun had also had a great idea about how to implement the “Capture the Chancellor” feature so he took that task on. With the 2 members working on the implementation, we divided some of the documentation tasks between the rest of the team, along with creation of the slides for the assessed presentation. Making this change to our team management allowed us all to continue working to our strengths and keep motivated as we were all carrying out tasks we were happy doing.

**Development Methods**

Our choice of development methods was a key factor in the success of our project. In the first phase of the project, our team carried out extensive research in order to decide which development methods were the most suitable for our team. We all agreed that agile methods would be the most suitable for our project, and thus decided to use XP (eXtreme Programming) for our development process and SCRUM for our team management.

We introduced our chosen methods into the project at the end of Assessment 1 when the requirements were being crafted from the brief. Some of the key aspects of eXtreme Programming that we used throughout the project include:

- Test Driven Development (TDD)
- Pair Programming
- User Stories

Test Driven Development was great for developing our back-end during assessment 2, as it made us write the simplest code possible to pass each test, while also providing us with a test suite we could regularly run to check for errors. When developing the front-end however, TDD wasn't very useful as writing unit tests for GUI design was too difficult. As a result we switched to writing the code as normal and used integration testing instead for this part of the implementation.

Pair programming has been used a fair amount over the course of the project, especially when attempting to remove tricky bugs. However it hasn't been used extensively because when it is used, it tends to decrease the productivity of the team overall, and features are not completed as quickly. This runs the risk of the game not being fully completed before a deadline.

We also made use of several software engineering tools throughout the project, including:

- Java, libgdx and the IntelliJ IDE [3]
- Gradle [4]
- Git & Github [5]
- Slack[2]
- Tiled [6]
- Trello [7]
- Lucidchart [8]

The majority of these tools we used from start to finish without much change in how they were used, although there were a few which were dropped. An example of this was Trello, which was being used as a product backlog board along with keeping track of what features still needed to be implemented. However after integrating our GitHub commits in our Slack channel, we felt that Trello had become redundant to our project and so we stopped using it. We also dropped Lucidchart in the final assessment and replaced it with the IntelliJ architecture diagram generator as it automatically created an accurate representation of the current state of the architecture.

**Bibliography**

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