Method Selection and Planning

Cohort 1 Group 10

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The Engineering Process

Various Engineering methods were used but the main one implemented was a scrum style of software engineering that was centred around customer and peer feedback and iteration, this was displayed in our discussions as a team and evident in the client meeting. We asked questions and used this feedback constructively to guide our design and implementation of our game.

We were all a self-organising team. After splitting up the tasks between ourselves we were able to collaborate on what further tasks were allocated to who independently. Furthermore, we also improved and implemented our tasks iteratively throughout the engineering cycle as more feedback and discussion was implemented. We were abl;e to reflect accurately on our faults and failures throughout the process and learn and iterate on what to improve.

This gradual and continuous improvement was a strong factor in the implementation of the game as the game was continuously updated and improved over many weeks using small sprints of releases and changes until it was ready. Using the Scrum framework we were able to learn and improve over the weeks the project also emphasised the importance of transparency and adaptation that are key principles of the scrum process. The product was scrutinised and inspected thoroughly throughout the process and improved to ensure it was pertaining to the core principles and requirements of the product brief.

Everything was done in a set period time box and was implemented with value based prioritisation of tasks and completed with strong collaboration between team members especially between individuals who were working on the same parts of the project together. All team members implemented the scrum principles of sprint planning, daily scrum, a sprint review twice a week, and a sprint backlog.

We implemented the principles of the agile methodology by implementing the 6 stages of: Planning, requirements analysis, designing, implementation, testing and deployment. These were particularly in the implementation of the game.

The team used the client meeting for requirement gathering. The project team was able to identify and document the needs and expectations of the client, this helped us further identify the project's requirements and create a project plan to meet these further requirements.

The agile methodology was sufficient as we were aware that the requirements would be changing in the middle of the project due to the client meeting that occurred in the middle of the creation of the project. We were able to convert a big large project into smaller individual projects that we broke down into smaller manageable projects that we all contributed to. The team also implemented a regular updates method that allowed for continuous improvement by all team members on the project. Furthermore, we also implemented a Risk control method that was demonstrated through the risk and mitigation section of the project before they came up. Agile development favours face to face communication, we definitely implemented this factor in our meetings that were held twice a week. We also ensured that the user requirements were clearly defined before coding as inline with an agile methodology.

We were also aware of the pitfalls of the agile methodology approach such as a less rigid scope control which at times may not have been suitable and also the lack of predictability to do with our project that may have led to development issues.

We felt that the agile methodology was a good fit for the project and our team as it had the benefits of feedback from clients such as in the client meeting. Allowed us to change our approach as requirements were added and change occurred, encouraged face to face communication, and was time efficient which was a major benefit as all work had to be completed in a short period of time. Also consistent improvement was a major practice that we implemented as a team.

Team Organisation

We implemented various forms of team organisation throughout the project that showed signs of both hierarchical structure and functional structure. The hierarchical structure was typically demonstrated in the forms of the meetings with Cai typically taking charge and assigning tasks for the team to complete as well as there being other various roles in the structure such as a secretary. However, outside the meetings there was a strong functional structure with team members grouped according to their skill and knowledge to complete tasks that complement their strengths. These approaches were effective for the team as the hierarchical approach ensured that someone had the responsibility of being in charge which was an essential role to delegate tasks and ensure that tasks were completed. Also, the functional organisation increased efficiency, and stability. This provided great value for the team and ensured that work was completed to a high standard.

Furthermore, the functional structure ensured that the tasks were completed in line to people's strengths and that work was completed to a high standard. We also implemented a product-focused approach which was particularly relevant in regards to the implementation where particular features had to be implemented and improved continuously. This was great for the project sas the entirety of the structure implemented was in regards to completing the project to a high standard and that all the features and requirements were met. Teams were also organised in relation to the assessment document so the marks were split evenly. The assessment document did a good job of splitting the task into sections for each member to complete in regards to marks.

It can also be said that our organisational structure implemented aspects of the marketing based structure after the client meeting was completed where we modelled the implementation in regards to the clients needs.

We can definitely say that there were strong elements of departmentalization within the team with each team split into departments according to the sections categorised in the assessment document. There was also the organisational concept of span of control in regards to who had the control and responsibility of which sections of the assessment document this was great for the project and the team as it kept everyone accountable.

We certainly implemented an organic team structure over a mechanistic team structure for the majority of the project, this was great for the project as it implemented a more collaborative flexible approach with low to no centralisation, this was in stark contrast to the mechanistic structure which we felt was usually not appropriate for the project and completion of the tasks due to its high centralisation and bureaucratic nature.

To conclude, for the majority of the project, I believe a good method of describing the team's organisation was an organic structure with a strong level of departmentalisation which we felt was optimal for the completion of the project and comfort for each individual team member.

Planning

Collecting customer requirements, building the implementation of the product and creating the relevant documentation within the 6-week timeframe required appropriate planning. We decided that each member of the team would work on two deliverables each, so that most of the deliverables had multiple people working on them, allowing some progress to be made on each of them in case a member of the team was unavailable for any reason.

Constructing the plan necessitated that we develop a set of key tasks for the project. Additionally, we needed to work out the priority of each of these tasks, so that the most important tasks could be given more attention to ensure proper completion. We also needed to recognise the dependencies of each of these tasks so that we know which tasks require the completion of other tasks in order to work on allowing us to ensure prerequisite tasks are completed in time to give sufficient time to complete their dependents.

Taking this information into account, we set out to establish some of the key tasks for the project as listed in the table below:

Task No.	Task	Priority	Dependencies	Contributors
1	Conducting a client meeting to gather requirements.	High	None	All
2	Documenting the requirements.	High	1	Riad, Simon
3	Constructing an initial plan.	High	1	All
4	Conducting a risk assessment	Medium	1, 2	Riad, Simon
5	Documenting method selection and planning	Medium	1, 2	Adeola, Ben, Cai
6	Designing the architecture for the implementation.	High	1, 2	Adeola, Matthew
7	Constructing the implementation.	High	1,2,3,4,5,6	Ben, Cai
8	Creating a website for the deliverables.	Low	None	Matthew

<u>Task Priorities</u>

We considered the priorities of the tasks and ranked them as high, medium and low priority tasks. Some of the high priority tasks include conducting the client meeting, designing the architecture, and building the implementation. Creating the software is a high priority task as it is the main goal of the project. The client meeting is required to gather the requirements for the project, which is needed to complete every other task, making it the highest priority task

and should be completed as early as possible to give more time to other parts of the project. The website was ranked as a low priority task as it didn't not require as much material as the other tasks, and most of the website could be set up around missing documentation that was to be added later.

Task Dependencies

Some of these tasks could not be started until others were finished. Most tasks needed the project requirements to have been gathered beforehand, so the client meeting had to be the first task we completed. Additionally, the initial planning had to be completed before continuing with the design and implementation, with the implementation also requiring the design of the architecture to be completed prior.

Snapshots (Gantt Charts)

Gantt charts were created for each week of the project to track the start and expected end dates for each of the deliverables. The Gantt charts also display who is assigned to which task, what section of the task they are on.

- Weekly Gantt charts

The Gantt chart for the first week shows initial start and finishing dates for each of the deliverables and who is responsible for working on them.

In the second week, we had decided who would be working on different sections of individual tasks. An additional 4 days were assigned to "Method Selection & Planning", the risk assessment was moved to start on 25/02 to fit better with when we had our client meeting booked.

In week 3, we shifted some of the weighting of the time allocation for "Method Selection & Planning" so that part B had slightly more time assigned for it. This time was taken from part C of the same section as the bulk of this segment took less time than expected to complete.

The time allocation of the chart remained the same for week 4, however the chart was updated to show the division of work for the Architecture documentation. Additionally, the group member assigned to part B of "Method Selection & Planning" was swapped from Ben to Cai.

The Gantt chart for week 5 repeated the style of the previous week's update; the allocation of time for the general tasks remained the same but was updated to show the division of assignments between the members of the group working on the implementation.