Method Selection and Planning

Method Selection

After careful consideration, we have decided that an agile approach would be the most suitable approach for our project since it is recommended for small teams [1] and encourages team communication [2]. Due to our lack of experience in game design, the flexibility it offers through its incremental and iterative work sequences will help us adapt and change our plan each work cycle as we learn from our mistakes. We will also be able to quickly implement new features to better satisfy the requirements of a customer that may change over time [3].

We have chosen the Scrum framework due to its popularity [4], short length of sprints and the overlapping development model [5] which will suit our project best. Scrum is an agile framework that emphasises product development instead of the overall plan and documentation. It breaks down the work into sets of tasks that can be completed in a certain time frame called a ‘sprint’. It encourages team communication through the introduction of regular team meetings called ‘scrums’, where all team members discuss what they have already implemented and what the goals for the future sprint are. In our case, the length of each sprint will be about one to two weeks depending on the complexity of each assessment. We will have one to two meetings a week to discuss the current state of the project and individual tasks of each team member, as well as any difficulties they may have encountered or expect to encounter. We will also make sure to regularly communicate with the client to ensure that new requirements are being implemented.

Tools

To support our project, we have used the following tools:

Google Drive (File Sharing)
Google Drive was chosen to be our file storage service as it allows file sharing across multiple different devices, as well as instant collaboration on documents between team members. It also prevents data loss as all documents created on the drive are saved in the cloud.

GitHub (Code Sharing)
GitHub was chosen to be our code sharing and version control tool as it allows any changes pushed into the global repository to be easily noticed, and having multiple repositories makes it less susceptible to data loss. If a server failure was to occur, production is not halted, as people can still push changes to their local repositories.

Slack (Communication)
Slack was chosen to be our communication tool as it allows the creation of multiple channels, and has a searchable history, which allows us to quickly search through conversations and find shared files. In addition, slack bots allow supplementary features such as setting reminders or tracking important conversations to improve organisation. Finally, as a few members of the team did not have facebook, Slack was chosen due to its accessibility and ease of use on multiple devices.

Website Builder (Web Development)
Website Builder was used to create our website as the site has hundreds of different templates to select from, and offers free hosting as well as free website creation services. The simple-to-use editor allowed us to make professional looking websites quickly and efficiently.

StarUML (UML Diagram Production)

StarUML allows for quick and simple UML diagram creations with multiple different customization options, letting us create professional looking diagrams in a short amount of time. Furthermore, it can be easily exported to different file formats.

Google Sheets (Gantt Chart Production)
Google Sheets allows for quick chart generation and easy editing in case of changes to the plan.

Paint.net (Logo + Game Graphics Production)
Paint.net was used to create various different arts and logos as it offered a variety of different editing options while being free to use.

ASANA (Work Management)
A tool used to describe, assign, organize and prioritize tasks. Any team member can add or complete tasks, as well as see any questions people have raised and avoiding multiple people doing the same task. Additionally, emails are sent to all the team members if any changes are made, so all team members are notified and aware.

IntelliJ IDEA (Code Implementation)
A Java IDE was required for our code implementation. We chose to use IntelliJ IDEA as it is a powerful tool that allows people to quickly and easily write or edit code. It can anticipate and suggest appropriate names, methods and expressions during coding, on top of being able to analyse code on the run, to detect any errors.

Tiled Map Editor (Level Editor)
We decided to use a level editor to create our levels to save time. Tiled was selected due to its ease of use, as well as the fact that it supports numerous different level implementations, which allowed us to be far more flexible with our level creation.

Project Planning

To assign and manage all individual tasks of each member, we are using Google Drive, where we can create to-do lists and GitHub Project Boards. However, for a better overview of all the tasks and their deadlines we have created a Gantt Chart [6] to help visualise time constraints of each task. Each task has a starting date, a finishing date, an assigned priority (low, medium or high; based on the marking scheme in the assessment brief and predicted difficulty of completion), and is made up of ‘subtasks’ which are indicated with a lighter colour than the main task. Tasks and subtasks belonging to the critical path are coloured orange. Task dependencies are indicated by black arrows. If a dependency path branches out it is indicated by a knot (black dot). Paths that cross but do not have a knot are not dependent on each other.
The Gantt chart was updated to feature additional tasks for Assessment 4.

As the project is being developed according to the Scrum methodology, the plan will be regularly revised to ensure that each task is assigned a suitable time frame as current predictions are only estimates and will change depending on team performance and changing requirements.

Team Roles

After analysing each team member’s skills and interests we have assigned specialised roles for each person. In addition to their main role, each team member is expected to participate in software development and testing. However, since the agile approach is flexible and encourages close

collaboration between team members, team roles are not fixed and can be changed and modified to better suit current tasks.

Team Leader - Merry Boyes
Team leader takes on the role of the Scrum Master, i.e. is responsible for managing sprints, setting tasks and leading team meetings.

Secretary - Eleanor Bracegirdle
Secretary is responsible for recording time, attendance, what was discussed and what the set tasks are at each meeting.

Head Developer - Merry Boyes
Head Developer coordinates developers and makes sure the code is properly documented.

Web Developer - Matthew Hibbert
Web Developer is responsible for creating the website and keeping it up to date according to the requirements set in the assessment brief.

Test Leaders - Matthew Hibbert & Merry Boyes
Test Leader is responsible for testing the game and making sure it runs smoothly without any bugs.

Risk Manager - Eleanor Bracegirdle
Risk Manager maintains and updates the Risk Assessment document. Team members are assigned risks to monitor and then report their status to the Risk Manager at the start of each meeting if they have changed.

Client Interface - Iszy Kilkelly
Client Interface is responsible for communicating with the client and making sure that all the requirements are understood and ultimately met by the team.

Graphic Designers - Jacob Adams & Emma Phillips
The graphic designers create the team logo and produce images and graphics for the website and the final game.

References

[1] I.S. Sommerville, “Software Engineering”, 9th ed. [Online]. Available: https://edisciplinas.usp.br/pluginfile.php/2150022/mod_resource/content/1/1429431793.203Software%20Engineering%20by%20Somerville.pdf [Accessed: 24-Oct-2018].

[2] “Manifesto for Agile Software Development”, 2001. [Online]. Available: http://agilemanifesto.org/ [Accessed: 24-Oct-2018].

[3] J. Highsmith and A. Cockburn, “Agile software development: the business of innovation”, 2001. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/947100 [Accessed: 24-Oct-2018].

[4] G. Azizyan, M.K. Magarian and M. Kajko-Matsson, “Survey of Agile Tool Usage and Needs”, 2011. [Online]. Available: https://ieeexplore.ieee.org/document/6005503 [Accessed: 24-Oct-2018].

[5] M. Cohn, “Introduction to Scrum”, 2014. [Online]. Available: https://www.mountaingoatsoftware.com/presentations/an-introduction-to-scrum [Accessed: 24-Oct-2018].

[6] “Geese Lightning Gantt Chart” [Online]. Available: https://drive.google.com/open?id=1BOSIotijhqRKzfSGPk2d6Ov3EU8i6pJX [Accessed: 20-Jan-2019].

[6] “Plan3GanttChart” [Online] Available: https://github.com/mh1753/AbstractDelete/raw/master/Documentation/Assessment%203/Plan3GanttChart.pdf [Accessed: 17-Feb-19]