Method Selection and Planning

Tools Overview

Jira - Project Management & Task Organisation:
Jira makes the use of the SCRUM framework easily manageable and operational. For example, it allows us to easily create a collaborative backlog, 'SCRUM board' for each sprint, assign effort estimations and assign tasks. Our workflow will revolve around our Jira project, and it will play a large part in our team's organisation. Before beginning the system development, each team member was given a tutorial/introduction to the software, in order to ensure that everyone sufficiently understands its functionality and role in our workflow. GitHub issues was considered as an alternative, but decided against due to multiple members past experience with Jira, as well as its superior *story point* assignment ability to help ensure work is evenly divided; and clear layout.

GitHub - Version Control:
Initially, we were going to use BitBucket for this purpose, as it is easily interfaceable with Jira as they are both Atlassian products. However, we have chosen to use GitHub as we feel that the advantage of being able to easily link and update our website, outweighs BitBucket's Jira integration. We also feared that excessively linking out task management with our version control may over-complicate our approach and create a "spaghetti"-like situation if not fully devoted to. GitHub, like alternatives, allows multiple team members to easily contribute to the project development by branching, cloning and merging work.

Slack - Communication:
In order to avoid mixing personal use and project planning, we will use Slack for messaging outside of meetings. We feel this is a better option than using a casual application, such as WhatsApp or Facebook Messenger. Within Slack, different channels can be used to separate topics of conversation, which will help to ensure that no messages are lost from having one main thread. Slack is also easy to use on both desktop and mobile.

LucidChart - Flowchart & UML:
LucidChart is an industry recognised web app for creating graphic designs. The software supports the creation of both flowcharts and UML diagrams thanks to its many available templates as well as a wide variety of shapes and symbols for use. Because of this, it is more than suitable for our design requirements. Draw.io was considered as an alternative, but decided against due to LucidChart's capability for more complex diagrams and collaborative tools.

Google Docs / Google Drive - Documentation:
Our written reports, product briefs and other text-based documentation will be created/stored on our shared Google drive. The real-time nature of Docs is very useful for collaboration; allowing multiple team members to work together from different devices. It is useful to have everything stored in one place using a drive. The 'review changes' feature is good for version control, as well as being able to leave comments on each other's writing. This is compared to, for example, Microsoft Word where documentation versions are not real-time updated and shared.

LibGDX – Game-Development Application Framework:
It was dictated by the product brief that the game must be written in the programming language Java. LibGDX provides a library of useful code base and is cross-platform which is good for our team as members work on a mix of Mac OS and Windows. It allows for the same code to be used to run desktop PC and Android applications, which is appropriate due to our customer's desire (confirmed in one-on-one customer meeting) to run the final game on mobile. jMonkeyEngine was considered as an alternative, but decided against due to its weighting on the use of 3D graphics, which the team decided against in early concept meetings.

Eclipse – Integrated Development Environment:
Although alternatives, such as Visual Studio Code, provide much of the same features, Eclipse was chosen as our IDE as it was found to be the most familiar to the majority of the team. It is easily compatible with our Git usage due to helpful plugins, and the autocomplete and code tidying features contribute to development efficiency.

a) Team Organisation

We approached our team organisation rather casually at first - we felt that an informal conversation about our preferred working styles would be more beneficial than taking personality tests or similar. We each made references to the roles that we had individually taken on in previous group projects, such as first year modules and sports teams. This also served as a good ice breaker. Proof of this process' effectiveness was our success in agreeing on, and bonding over, the creation of our team name: SpaceKey Projects. Ian Sommerville's book 'Software Engineering' proved as a guide for us, and stresses the importance of choosing a team name inclusively; taking the first steps towards creating a team identity and forming a "cohesive group"[5].

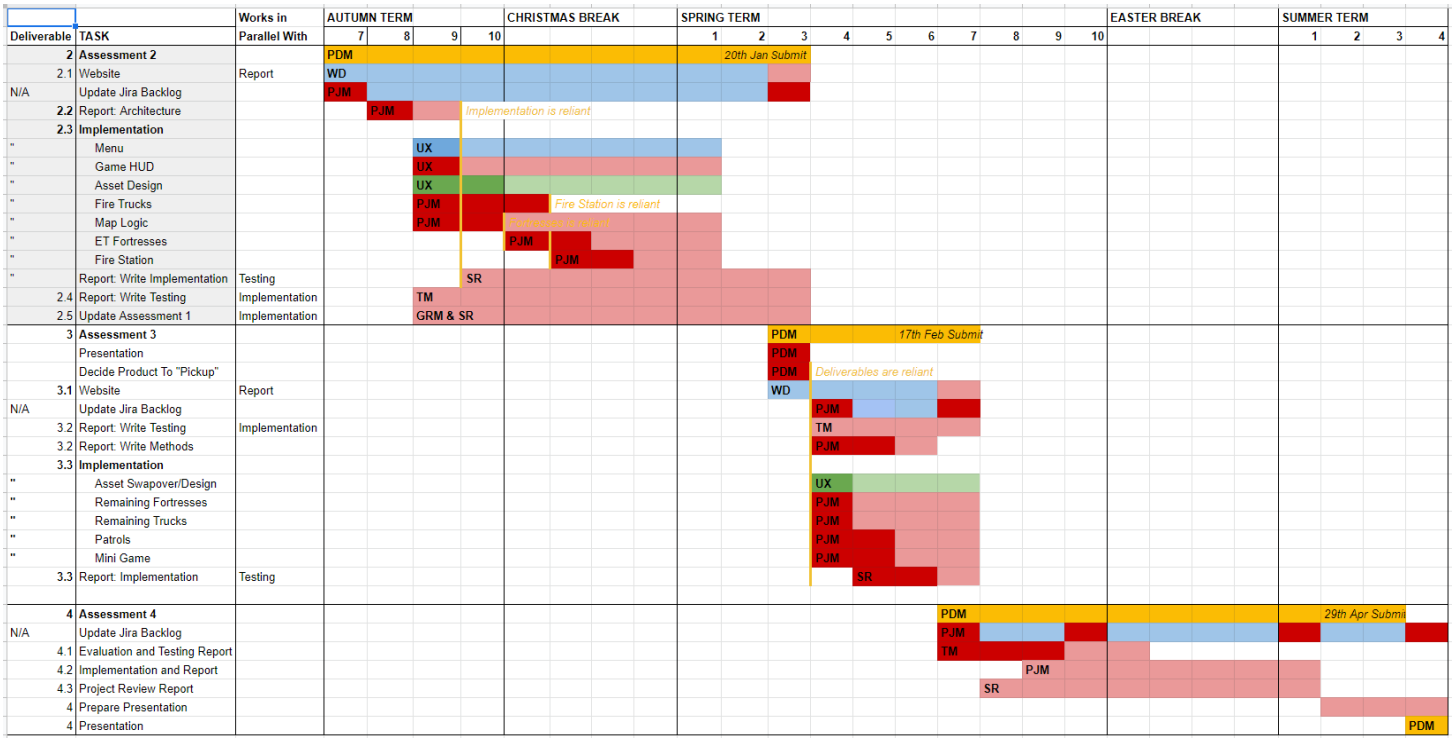
To a certain extent, we aim to maintain this informal approach throughout the organisation of our project, our decision is supported by Sommerville, "Agile development teams are always informal groups". However, we do recognise the need to loosely appoint a number of roles and responsibilities to members, in order to avoid a lack of strategy. The team will remain cross-functional as "the best agile teams" should be [3]. The roles were decided as a group and appointed based on a number of factors, including each individual's self-assessed technical experience, organisation level and enjoyment. We thought it to be important that we appoint roles not on skill level alone, and that each team member has a particular interest in their role as to promote cohesiveness and performance. Roles were appointed as a result of open, group discussion considering the above factors. Skill level was determined by verbal self-assessment.

At the current stage of assessment, the roles include, but are not limited to:

- **Project Manager (PJM)**
  Encourage group cohesiveness, keep track of critical decisions, act as "SCRUM master", manage project/code development
- **Product Manager (PDM)**
  Monitor product success throughout the entire lifecycle regarding customer needs
- **General Risk Manager (GRM)**
  Monitor risk mitigation throughout implementation [see *Risk Section*]
- **Secretary and Reviewer (SR)**
  Ensures records are kept, that the report sections are consistent with each other and that there is good communication between roles
- **UI and Graphics Designer** (x1) **(UX)**
  Design and create assets and GUI for the system
- **Web Designer (WD)**
  Ensure website is up to date and functional
- **Test Manager (TM)**
  Ensures system testing is thorough and completed to a high standard

The roles themselves were derived from the assessment brief, and predicted game-development requirements. The roles are fluid, meaning that one person may be responsible for multiple roles at one time; retire from/switch a role during the course of the project and new roles may be introduced as needed (reviewed case by case by the whole team). Everyone will contribute to code development. Our sprint-planning and retrospective creation forms a large part of our organisation - see "Software Engineering Methods" above.

c) Plan for the rest of the project



The Gantt Chart above shows our systematic plan for the rest of the project.

A tasks earliest starting and finishing dates are shown by the lighter block colour corresponding to each task. Within this, the darker colour shows an estimate for the length of time that this task should take - but this can be done anytime within the lighter colour. The exception to this are the yellow assessment bars, which are included simply to make the assessments easier to overview as a whole.

The task priorities are shown by the following colours:

- Red - This must be done well / it is a deliverable
- Blue - This should be done to a high standard
- Green - This may be done but expense can be spared for other tasks' sake if needed

A critical path can be followed by the darker coloured blocks.

Task dependencies are shown by thin yellow bars which link the end and beginning of the dependant tasks - an explanation is also given in yellow text for each case. Tasks with no darker colour means that they are ongoing, or revolve around another task. In this case, an estimate is not given as they work in parallel with multiple other subtasks. An explanation for each case is given in the "works in parallel with" column.

The group member/role responsible for each task is shown at the beginning of each task's colour block. A key to these can be found on the page above.

[This chart is also included on our website as Figure 1, under Assessment 1 so that it can be viewed in more detail if required]

REFERENCES

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