METHOD SELECTION AND PLANNING

NP Studios – Team 8

Team Members

Lucy Ivatt, Jordan Spooner, Alasdair Pilmore-Bedford, Matthew Gilmore, Bruno Davies, Cassandra Lillystone

Software Engineering Method

The software development method that we have decided to use for this project is Scrum. This takes an iterative approach to development where there are multiple opportunities to receive feedback from the client throughout the process. This contrasts with more traditional approaches such as the waterfall method [1]. Scrum focuses on multiple 'sprints' whereby a goal is set to achieve and a set of tasks are created that will lead to that goal. Each team member then chooses a task and completes it in time for the end of the sprint. This means that there is plenty of opportunity to quickly change software based on requirements changes which we believe to be important for a task such as this.

As a part of this methodology, we will produce a backlog for each sprint which is a prioritised breakdown of the tasks [2] (generated using our most up-to-date list of requirements). This ensures that the most important features are at the top of the list, so they are created first. This is especially important if a different task relies on another being finished. This list will be monitored frequently so that the prioritisation is accurate and any feedback from the client or internally within the team is incorporated.

We will also have regular stand-ups, where each team member will specify what element of the program they have just completed, what they are going to begin working on and any issues they are facing when trying to complete their next task. At these meetings we will ensure that the backlog tracker is up-to-date and that if a risks status has changed then it is made clear to everyone.

One of the reasons we chose an agile method is because of the short iteration cycles it utilizes. We believe that is suitable for this project as we will be implementing the game in stages, i.e. the game produced for assessment two does not contain the full range of features required for the final product. As each iteration is produced over a short period of time, the risks of the project are reduced as the product produced is reviewed both early and constantly throughout the entire project life cycle [3].

Scrum also allows us to frequently involve the client in decisions. This is important in this project as it allows us to check with the customer that the product we are producing meets their expectations. This development process also allows us to incorporate changing requirements easily and without a large delay which is important as the client may wish to add something in the future. This flexibility can be difficult as it will require strong teamwork and regular communication, however as we are a small team who can meet regularly to discuss the changes and overall development process very frequently, we believe this is a perfect methodology for us.

Development and Collaboration Tools

Our primary tool for the storage of documentation is Google Drive. We believe this choice will be beneficial for our team as we have experience in using this program for previous group projects and are comfortable with the applications capabilities, allowing us to use it quickly and efficiently. Having Google Drive as a centralised space to store and access our

documentation is helpful as we can work on it collaboratively during group meetings and see live updates as well as keeping backup versions if a file is accidentally deleted. The cloud storage aspect of Google Drive allows us to access our files as long as we have an internet connection which is useful for when team members are working from home or a small change needs to be made which could easily be done on a mobile device. This storage is both free and unlimited so we don't need to worry about running out of space.

For code storage and version control we will be using GitHub particularly because of its collaboration features and being able to have all team members contribute to the code. GitHub will also keep a changelog of every push to the repository so we can go back and view specific changes made during the development process. As well as this, each version of the software is preserved meaning if code is pushed which causes a problem, we can always revert to a previous working version. Finally, GitHub is so commonly used that it has many third-party tools which integrate well with it. For example, we are looking at a tool called Travis CI which automatically tests committed code.

In terms of a development environment, we have and will continue to use IntelliJ as our IDE. It offers full support to libGDX and Gradle, as well as a plethora of tools to help with development (one example which we especially like is the ability to mass rename a variable or a class which makes refactoring so much easier). This means that in the event that one team member runs into a problem with IntelliJ the rest can help them out as we are all familiar with the IDE.

Another application we have decided to use within our team is Trello, a web-based organisation tool. Trello has an intuitive and clean user interface ensuring we can keep the time spent learning it to a minimum. As well as this, many of our team members have experience with the application already. We believe that having an application where we can see the overview of progress is extremely important to ensure all team members are on the same page. Additionally, since this is a web-based application we can access it easily from any machine without having to install a specific program and we can download the app for our phones so we can access the board when working remotely.

Each task within the Trello board will be in the form of a card which is sorted into one of our three lists: Backlog, In-Progress or Completed. A task can then have all the information associated with it that we need such as a description, a checklist of subtasks, file attachments, team members allocated the task, due dates, and any other labels we may require in the future. Once the status of the task changes, the card can be easily dragged to a different list while keeping the relevant information with it. We believe this will be useful to the team as we can store all the information needed when completing the task in one place, removing the need to switch applications and documents during the development process, allowing us to work in the most efficient way possible. Adding to this, each card (task) also has a comments section. This means that our team can communicate about specific tasks within the application and if another team member is added to the task further down the line, they will still be able to access the conversations which took place.
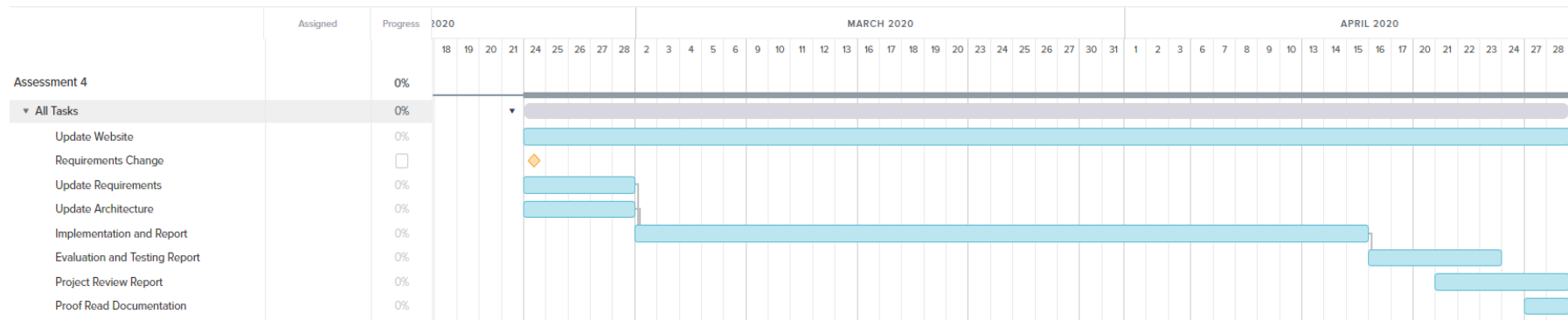
Team Organisation

We opted to allocate roles based upon strengths in a given area, for example Jack has shown strong leadership skills from the beginning and Peter has experience with JUnit tests. Thus Jack and Peter were made Project Manager and head of Quality Assurance respectively. We decided on having 2 team meetings per week plus any time which we had available during practicals as well as time spent individually researching or writing up documentation. We also have a group chat on social media so that we can communicate easily when we are not together. This could be to organise group meetings or give each other updates/ask questions when we are working individually. We have also made sure to prepare as well as we can for the Christmas break as we will not be able to meet in person. We are planning to try and complete the most difficult work before we leave so that we can easily come up with solutions as a group rather than struggling individually. We will also have an extended meeting just before the end of term where we make sure all tasks for over Christmas are allocated and everyone understands what work needs to be completed while we are away. As we have ensured that all of our documents can be accessed with an internet connection it makes this much simpler.

As well as the Trello board which we will use to keep track of our sprints, we are also currently using another Trello board to keep track of the work that needs to be completed for the assessment. We have split the requirements of each assessment down into smaller tasks so that we can keep track of what has been completed, what is being completed and what is still left to begin. We believe this is very useful for us as there are many elements that need to be completed, so being able to see the different tasks clearly will enable us to stay focused and keep on track in order to meet deadlines. Due to the comments section available, it also allows us to save any ideas we may have before we begin the work so that we can be reminded later on.

We plan to loosely allocate tasks to a subset of team members so that there is a level of responsibility for the write-up of each document. These allocations will be documented on the Trello board. However, we do intend to collaborate on the overall structure of each piece of work which ensures that we are all in agreement of the decisions made and the documentation produced. We believe this is an ideal way of working as it means as a team, we are all contributing, and the workload can be shared equally. It also means that each team member has an overall knowledge of the entire project rather than a very focused understanding on a specific area. Because of this, if a piece of the assessment is more work than originally expected, we can allocate another team member without needing too much time to bring them up to speed.

To plan the overall schedule of the project we have decided to use Gannt charts. We picked this form as it is a simple document to understand and creating one has helped us assess how long each section of the project is going to take. To create the Gantt Charts, we used an extension to Trello called TeamGantt. We decided to use this as it easily integrates with the Trello boards which we are already planning to use for each sprint. This means that when a task is completed, we only need to specify this in one application rather than keep track in two separate documents. This also means it has the same advantages as Trello has such as easy access from any machine.

Systematic Plans

	Assigned	Progress	2020								MARCH 2020																	APRIL 2020															
			18	19	20	21	24	25	26	27	28	2	3	4	5	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30	31	1	2	3	6	7	8	9	10	13	14	15	16	17	20	21	22	23	24	27	28
Assessment 4		0%																																																				
▾ All Tasks		0%																																																				
Update Website		0%																																																				
Requirements Change		☐																																																				
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Update Architecture		0%																																																				
Implementation and Report		0%																																																				
Evaluation and Testing Report		0%																																																				
Project Review Report		0%																																																				
Proof Read Documentation		0%																																																				

Before Assessment 4 starts there will be a week within which we will have to choose another teams project to take over. As with in Assessment 3 we must prioritise well documented code rather than purely focusing on individual task completion (although both would be ideal). Further to this we must also aim to present our project as thoroughly as possible during that period to maximise our chances of gaining extra marks.

Once the selection process is over a requirements change will be issued. It is imperative that we quickly modify our requirements and architecture to suit this change and do so within the week that the change is issued since work on the implementation cannot begin until we have done so. We aim to begin work on the implementation on the 2nd of March and have the work for it done by the 15th of April. Since a lot of the time for implementation will be over the Easter break, we must ensure to keep up frequent and consistent communication in order to hit the deadline.

Since the majority of the testing cannot be done until the implementation has finished we have set that as a dependency on the gantt chart. This means that we will have plenty of time to bugfix before we submit the assessment. Furthermore, the Project Review Report also cannot be completed before the rest of the assessment is complete and as such is the last scheduled task.

Once all the above tasks have been completed, we must prepare a presentation to pitch our game. The presentation will mainly focus on technical details as we will be pitching it to an experienced client. This means that requirements need to be kept in mind as we may need to justify some features. Marketing must also be kept in mind as the pitch is aimed at bringing our game to market, therefore we may wish to research the demand for such a game and direct them to our website for more information.