

Methods Selection & Planning

Cohort 3 Team 5 - alltheeb5t

Aaron Heald

Alex Gu

Arun Hill

Jade Stokes

Maksim Soshchin

Meg Tierney

Will Hall

Approach

To organise our project, we decided to use an agile approach to development, specifically by implementing sprints into our development process. Agile was also a logical choice as we needed to maintain constant communication with our customer which an agile method encourages.

We'd considered using an alternative approach to development by utilising the waterfall methodology, though since our project will definitely have changing requirements throughout it isn't useful to have a set-in-stone plan. As highlighted by Forbes [1], we can manage risk within our project more efficiently by taking an agile approach compared to a waterfall one as we are able to review any unforeseen changes and issues with the project, whereas with waterfall we may have to start our planning and documentation again if we run into a major issue.

Our sprints followed an outline set by the Scrum methodology. We held meetings on Monday afternoons to discuss what is needed from each member of the team for the week, based on roles that we assigned for the different sections of the project (architecture team, implementation team etc.). This marked the start of the sprint. We would then work on our tasks throughout the week and review how the tasks were progressing during our Friday practical. We also kept track of which tasks were ongoing with a short tracker at the end of each meeting, stating who was in charge of a certain task and whether it was open or closed. As such, we ended up following the recommended Scrum pattern [2] for our meetings:

- **Sprint Planning:** On a Monday, we would meet and decide what parts of the project needed to be worked on for that week, and what was needed from each member of the team. It was important that everyone understood their role so we could all move forward with a key goal in mind for that week.
- **Scrum:** The team would keep in communication with each other throughout the week using our chosen messaging apps to ensure work was going smoothly and if any problems had been run into.
- **Sprint Review:** On a Friday, we would showcase what work had been completed through the week, and see how much work needed to still be done or changed over the weekend. This gave us an opportunity to find out what wasn't working during the week and reassign any tasks or deadlines for the following sprint.
- **Sprint Retrospective:** Before our next bout of planning on a Monday, we would try to find what went well during the last sprint and keep that energy for the following one, whilst trying to find solutions to any problems that had come up so that we could continue development smoothly.

Our sprints were just under a week long, which allowed for a certain level of flexibility but not so much that we struggled to find something to do within the week if our task had been completed unexpectedly early or if we had gotten stuck with something that we couldn't explain fully over text.

Communication and Collaboration

We decided to use Whatsapp and Discord to communicate during the project. We used Whatsapp for general conversation about meeting times, locations, and whether someone couldn't make a particular meeting. We used Discord for conversations specifically relating

to different sections of the project as we could separate conversations into different channels, ensuring that important information wouldn't get buried within different conversations and so that everyone could clearly see what has been discussed for a particular part of the project that they may not be focusing on in case we need people to switch onto different tasks. Discord was also useful for the development team due to the screen sharing feature of calls which meant that debugging could be done collaboratively without needing to be in person. This was helpful during the consolidation week where most of the team weren't on campus to meet up.

We had considered using a program like Trello or Notion to organise our workflow and keep track of tasks however since we were already using two different programs to communicate and because our Discord server was organised properly we decided to not complicate things further by using another program that people may not be familiar with. We were also already keeping track of tasks and who owned those tasks.

We decided to use a shared Google Drive to organise all of the files for the project. This was because everyone was already familiar with this and it meant that we could always access the files for the project whilst others were updating them, and we could see the files for each section of the project at any time in case we needed to refer back to them later. Most files were created using Google Docs, including our meeting records and tracking of tasks.

For the repository of code and version control for our project, we decided to use GitHub. This was because everyone in the group had used it before so we didn't need to spend time teaching anyone, and because it is easy to navigate through a repository. We created an organisation for our group so that we could separate the website and game repository, and so we weren't spread across different profiles to access each.

Organisation

We chose to organise our project by sticking to the scrum method of agile development. To make sure that everything in the project ran smoothly, we decided to assign areas of focus for each person, ensuring that everyone was a 'Product Owner' in at least one area. We also gave each person a support role in each area in case the leader for that part of the project couldn't complete their tasks or needed help for whatever reason. This was useful for larger tasks like the implementation itself or the architecture deliverable.

Our assigned focus areas were as follows:

- **Website:** Maksim
- **Requirements:** Jade
- **Methods Selection & Planning:** Meg
- **Risk Assessment & Mitigation:** Alex
- **Architecture:** Arun/Maksim
- **Implementation:** Aaron/Will

Giving each other specific areas of focus for the project meant that we could easily define what each person was meant to be doing for the week based on what part of their deliverable was needed for later parts of the project. This ensured that no member of the team was unclear on what their role was for this project and that nobody felt like they weren't making a contribution.

We also decided on Arun to make a record of our meetings and keep track of any ongoing tasks at the end of each meeting to ensure that we all knew what was expected of us.

We met regularly twice a week, once in our Friday practical session and once within the meeting slot on a Monday, with more meetings scheduled between smaller subsets of the team as they were needed. We found that meeting twice a week in person helped settle any issues we were having as we found it easier to explain issues or confusion with certain aspects of the project in person than over messages.

Meeting in person also allowed us to quickly deal with unforeseen circumstances within the team or the project that may have arisen over the weekend or the week between our meetings. It meant that we could identify any problems together as a group and refer to the risk assessment document to see what action needed to be taken if appropriate.

Project Plan

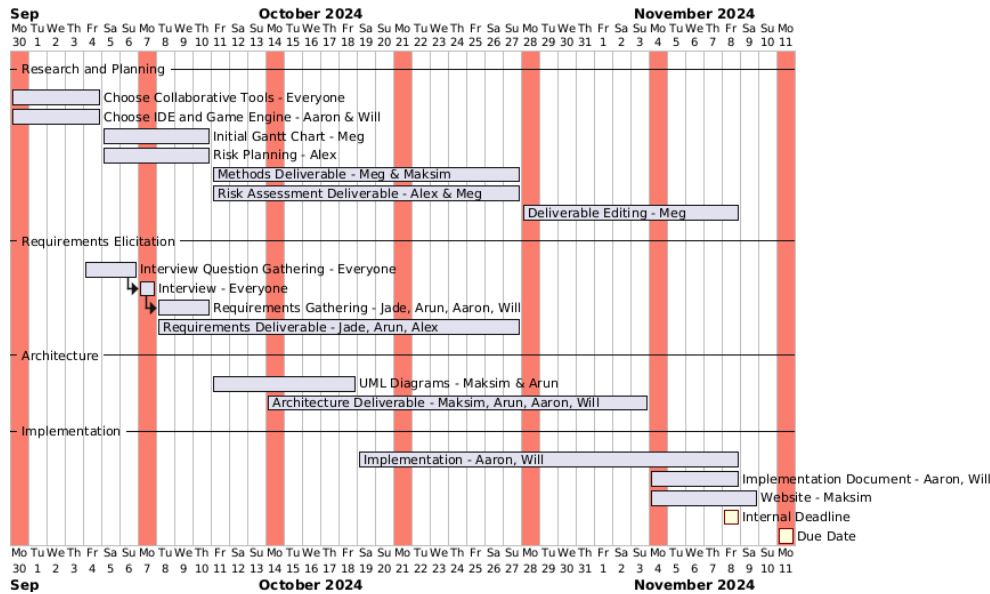


Fig 1. Initial Gantt Chart for the project.

For the first week of the project we didn't yet have the full assessment released so we took the time to do some research into possible methods of organisation and which types of software we would use to program our game.

At the beginning of Week 2 the full project was released, so we decided on roles for the project and set ourselves an internal deadline for 08/11/2024, as this would give us a few days before the external deadline to correct any small errors and upload everything needed to our website. We also decided that by the beginning of the next sprint we should have confirmed our collaboration tools and development tools, as well as have come up with a few questions for our meeting with our stakeholder in order to gauge requirements. We scheduled the meeting for 07/10/2024, just before our own group meeting that marked the start of the next sprint, so that we could immediately get to work on our requirements with the interview fresh in our minds.

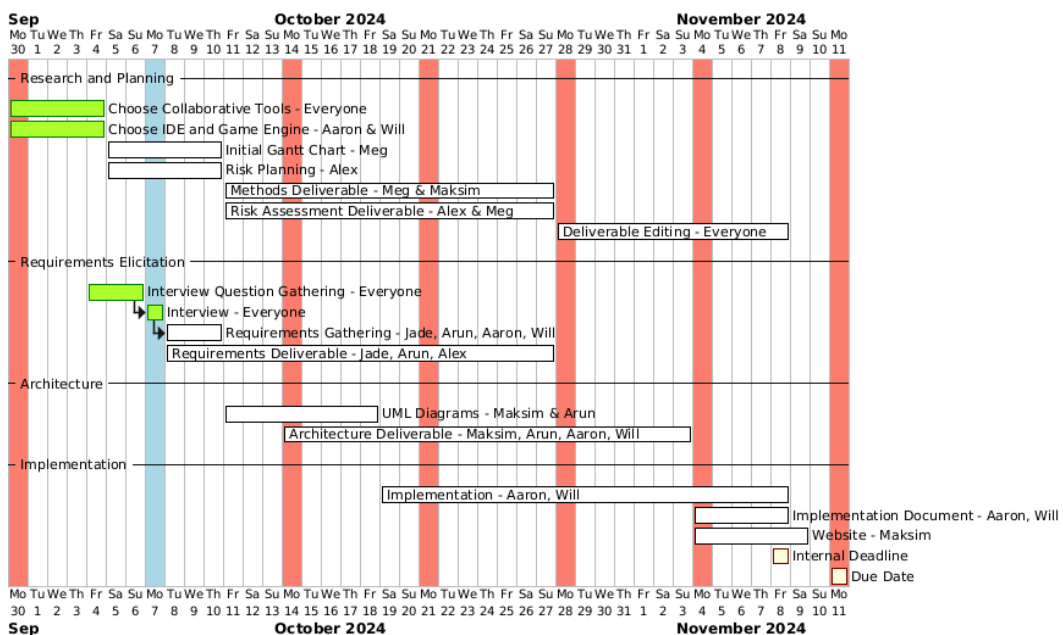


Fig. 2 - End of Week 2 Gantt Chart

In Week 3, we held our stakeholder interview and immediately got to work on our requirements as planned. This gave us the basis for the architecture planning later in the week. The risk assessment and Gantt charts were also finalised this week rather than in Week 2 as planned as we wanted the full requirements first before we began work on the majority of the project.

In Week 4 we split off into documentation and implementation teams, we would start our meetings by having a brief chat with everyone together before each team talked between themselves about their respective responsibilities. This allowed us to not get bogged down with other tasks that we didn't need to focus on since we were now in the full swing of the project and knew our roles well by this point.

In Week 5 we focused on finishing the main draft of each deliverable, ready for them to be edited for consolidation week.

In Consolidation Week and Week 6 we finished off the implementation, edited each deliverable ready to be uploaded to the website, and made sure all diagrams had been fully completed and that everyone was happy with them. In Week 6 we also finished the implementation and created the website so that we could upload everything needed for our project to it.

A full week-by-week update of the project Gantt chart can be found on our team's website.

During the project, not many deadlines changed from our original plan, and the vast majority of tasks were kept to the same timeframe as shown in the initial Gantt chart. One thing that did end up changing was the deadline for the UML diagrams as we had to change them around a bit once they were first completed to fit in more with how development had been progressing. We also changed who certain tasks were given to. Whilst Meg was originally going to edit all documents, we decided to take a more group-focused approach to the editing so that everyone could agree on the standard quality of the documents.

We also ended up having more people than expected move onto implementation at the end of the project so that we could sufficiently meet the external deadline, but this didn't affect the planning too much as we had already completed the majority of deliverables by this point.

References

[1] L. Hoory and C. Bottorff, "Agile vs. Waterfall: Which Project Management Methodology Should I Use?," Forbes Advisor, May 31, 2024.

<https://www.forbes.com/advisor/business/agile-vs-waterfall-methodology/>

[2] M. Rehkopf, "Scrum Sprints," Atlassian, 2019.

<https://www.atlassian.com/agile/scrum/sprints>