Architecture Group 12 - T12

Members

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Method Selection and Planning

Software Engineering Method Outlined and Justification

In order to develop a game that meets the requirements set by our client, an appropriate software engineering method was required. To choose a method we had to take into account time constraints, our client and their requirements including user, system and any possible future changes.

We chose to use SCRUM which is an Agile method as it is good for small teams, short iteration cycles, accommodating change with low documentation overhead which was beneficial to us due to our time constraint. Other engineering methods such as plan-driven methods were not as advantageous to us as they require a stable environment and extensive documentation in order to communicate and progress the project. Plan-driven methods are not suitable for this project as new requirements from the client will be produced causing a need for change. Also, due to the time constraints a large amount of paperwork would detract focus from development.

When using SCRUM we would have one weekly SCRUM meeting, potentially more depending on deadlines, to see what work has been completed and delegate more tasks. This way we were able to ensure requirements were met due to the regular meetings and changing any plans if tasks took longer to complete than anticipated.

We had considered other Agile methods such as XP however we, as a team, wanted to be able to prioritise which tasks were done first which you cannot do with XP. XP also has technical practices such as pair programming which you have to follow and due to our time constraints and small team size we wanted to be able to have more flexibility with our resources. Therefore we chose to use SCRUM.

Development and Collaboration Tools

UML: PlantUML
We chose to use PlantUMLfor our UML architecture diagrams and Gantt charts. We chose to use PlantUML as it was free, intuitive and easy to make changes and update diagrams. It also has an extension that works with Google Docs to easily add the diagrams into documents and edit them in the document too. Compared to graphical chart creators the process of extending and modifying the charts was much simpler as PlantUML automatically determines the layout.

Team communication: Discord, when2meet
For team communication we chose to use Discord as everyone was familiar with it and had access to it. We created multiple messaging channels that had different functions in order to keep related information together. We had a channel for meeting reminders, a main channel for general communication and an implementation channel to discuss topics relating to implementation. We also created multiple voice call channels for subgroups to hold meetings and for the entire team to meet.

We had a general channel to host whole team meetings, this is where we used when2meet to determine when we were all available to meet, an architecture channel for the subgroup working on the architecture to meet and then a programming channel for the programmers to meet. We considered other messaging platforms however the ability to separate discussions into channels and the ability to hold meetings on the same platform made it more beneficial. When2meet was beeifical for the team as it allowed us to make sure we would meet at a time everyone was comfortable with.

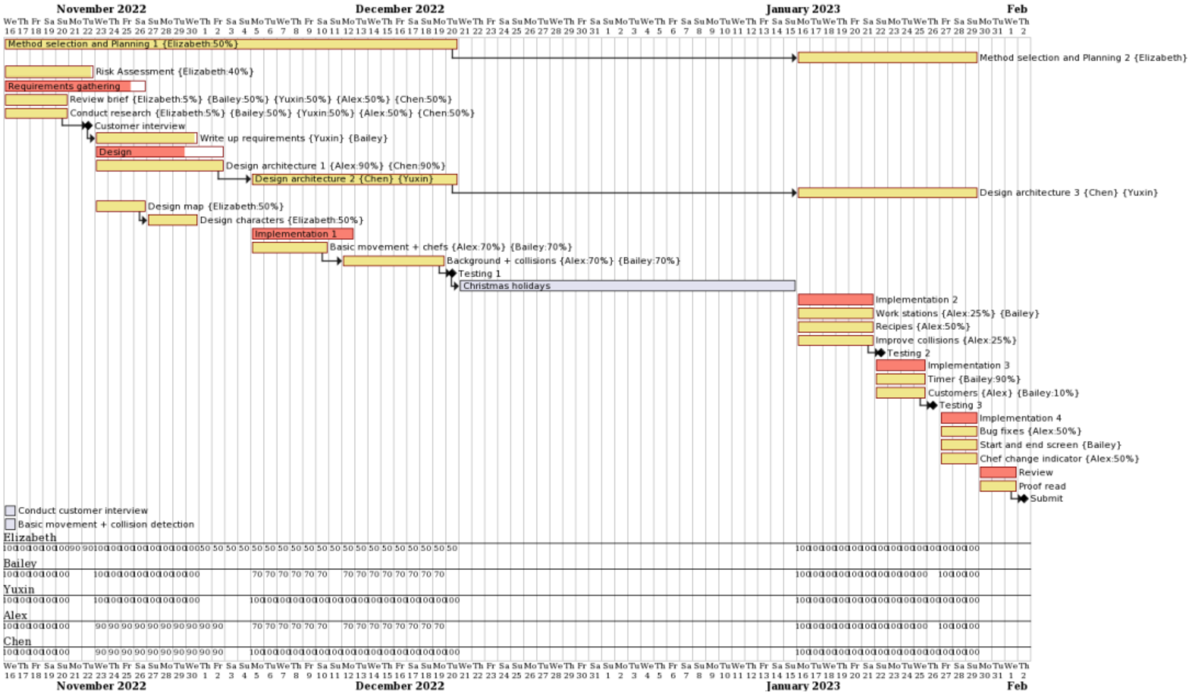
Java Game Framework: libGDX
We decided to use libGDX instead of LWJGL as due to its many built in functions and supported libraries, such as box2D, it is easier and quicker to implement and develop a game. libGDX is built on top of LWJGL, simplifying common tasks such as creating a window or handling inputs. This is beneficial as due to our limited time constraint set by the client, we can put more time towards implementing the requirements instead of implementing the foundations from scratch

Team Organisation

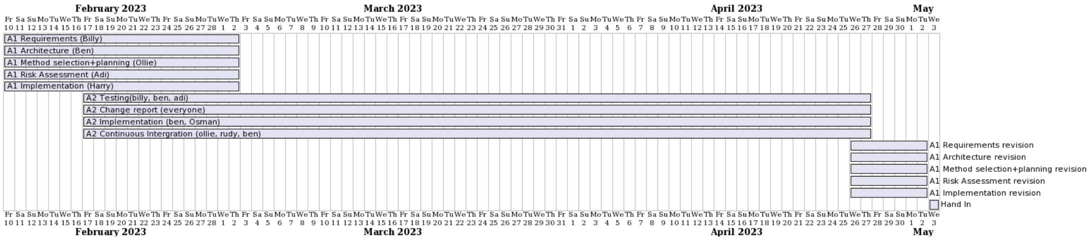
While we initially considered splitting the team into hard-set groups, we figured it would make more sense for our members to contribute as much as they can to each deliverable, while they still focus on areas they're more familiar with. This allows the work to be done at a decent pace while also not restricting any member to one specific task, letting us assist each other where necessary. Through this method and our larger than average team, we could advance through the work in reasonable time; we'd always have someone working on code, another working on another written deliverable and can be a collaborative effort when necessary. This still allows for weekly scrums in each area, allowing for more collaboration in the scrums.
The final result is an effective and efficient weekly scrum method, alongside regular and prolonged work on all fronts of the project.

Project Plan

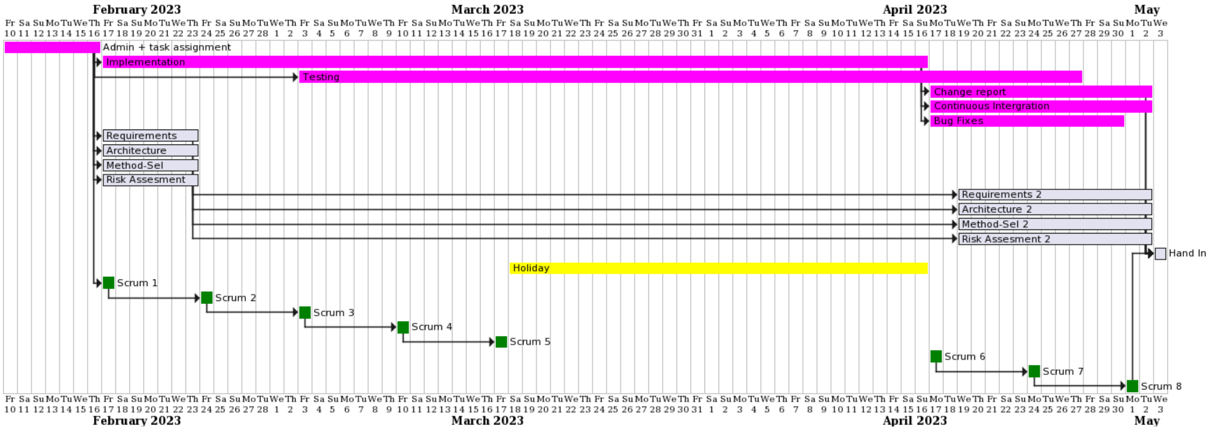
Assesment 1 final Gantt chart can be found below:



When starting assessment 2 we made a very brief outline of the documents that everyone should work on for this assessment, this is to help with team productivity as it meant if you were waiting on a teammate to complete something, we were able to work on something else.



Assessment 2 final Gantt chart can be found below:

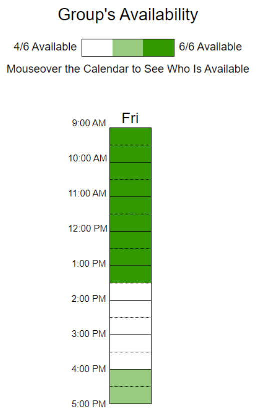


We can see here that our critical path is: Admin + Task Assignment → Implementation → Testing → Change Report + Continuous Integration → Hand In.
You will also see that before the holiday we had our scrum meetings every friday and after the holiday we had our meetings every Monday

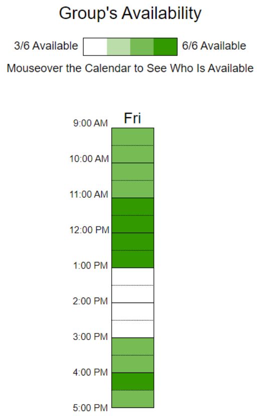
When2meet Screenshots

These are screenshots of the when2meet planners for scrums 1-5 before we left for the holiday

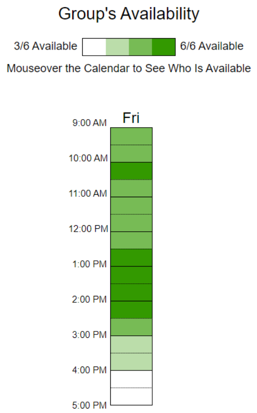
Scrum 1



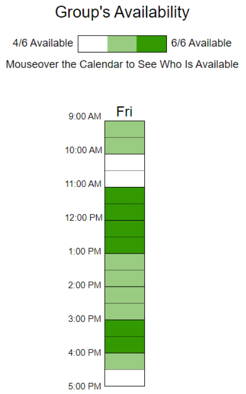
Scrum 2



Scrum 3

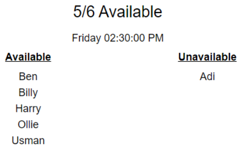


Scrum 4



Scrum 5

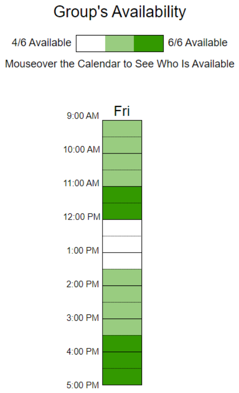
This screenshot here shows how we can see who is available at what times for the scrum meetings.



5/6 Available

Friday 02:30:00 PM

Available	Unavailable
Ben	Adi
Billy	
Harry	
Ollie	
Usman	


Group's Availability
4/6 Available
6/6 Available
Mouseover the Calendar to See Who Is Available
Fri
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM