Change Report

Before beginning to make changes to the inherited deliverables we first began by thoroughly reading through each document to help us understand exactly the previous group's ideas, methodologies and implementations. This gave us a lot of insight into their development on the project so far and also how we would be able to continue with it.

After reading through each deliverable in detail, they were then compared to our original deliverables submitted for assessment 1 and compared. This helped us identify aspects of each of group 16's deliverables that we thought were missing, implemented incorrectly or in need of updating.

In addition, the updated user requirements for assessment 2 were consulted to look for additions that needed to be made to certain deliverables - most notably the requirements and architecture deliverables due to the inclusion of the leaderboard and the streaks/achievements.

For each change we wished to make to the deliverables, we first wrote them as suggestion comments onto copies of group 16's original deliverables within Google Docs. This allowed us to speak as a team and discuss our drafted changes to the deliverables. Once these changes were agreed upon and finalised they were added to our updated deliverables for assessment 2.

Requirements

Making changes to the requirements deliverable started with reading the original document submitted by group 16. This document was then compared to our Req1 submission and requirements that we felt necessary, but were missing on group 16's deliverable, were added as suggestions to the document.

	sleeping if they run out of energy	
FR-MENU4	The menu shall provide the player with a list of options	UR-MENU
FR-COUNTER	The amount of each activity performed shall be counted	UR-INFO

To be added:

- **The game shall save the overall high score after the player finishes the game and present it on the leaderboard**
- **The user shall be able to choose between multiple avatars**
- **The game shall track when the player completes streaks of certain activities, and these streaks will be shown on the end screen as hidden achievements**

Non-Functional System Requirements

ID	Description	User requirements	Fit criteria
NFR-DOCUMENT	The game shall be		6 pages of architecture

We also consulted the additional requirements laid out by the client for assessment 2 when looking to add new requirements. These were added to the suggestions comments similar to the missing requirements we had found originally.

Once the new requirements had been agreed upon as a team, they were appended to the existing tables of user requirements as shown below.

UR-SCORE	The user shall be informed of the overall score they get compared to all the players at the end of the game	Shall
UR-ACHIEVEMENTS	The user shall get achievements based on certain streaks of activities done in the game.	Shall

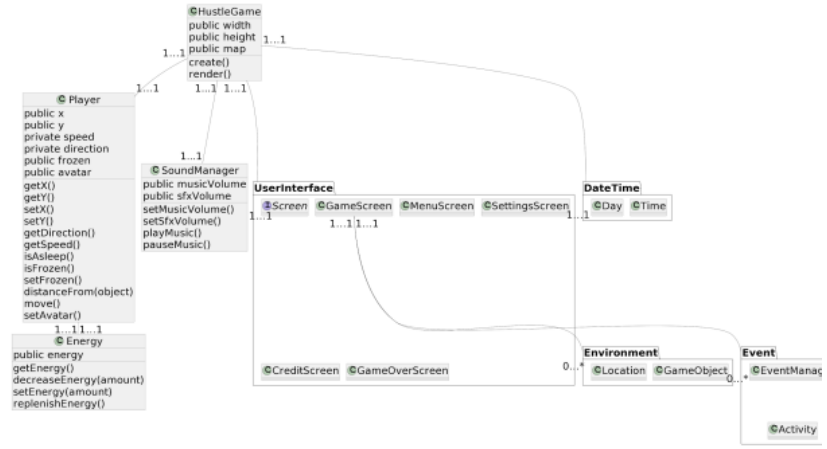
FR-HIGHSCORE	The game shall save the overall high score after the player finishes the game and present it on the leaderboard	UR-SCORE
UR-AVATAR	The user shall be able to choose between multiple avatars	UR-MENU
-FR-STREAKS	The game shall track when the player completes streaks of certain activities, and these streaks will be shown on the end screen as hidden achievements	UR-ACHIEVEMENTS

Some other small changes to the requirements document were also made such as updating the deadline to the 23rd May as opposed to the previous assessment 1 deadline & updating the names on the document to those of members of our team instead of group 16.

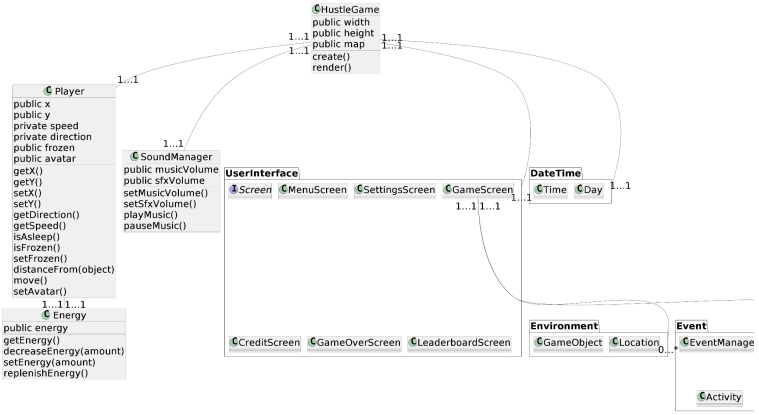
Architecture

A lot of the changes have to be made in the architecture as we were required to add new features to the existing game namely a leaderboard and achievement system. The changes are reflected as below.

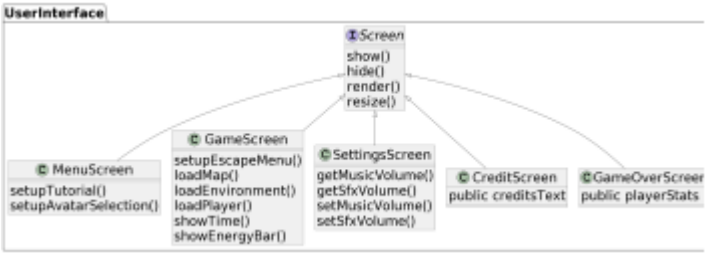
Structural Diagrams (Class Diagram)



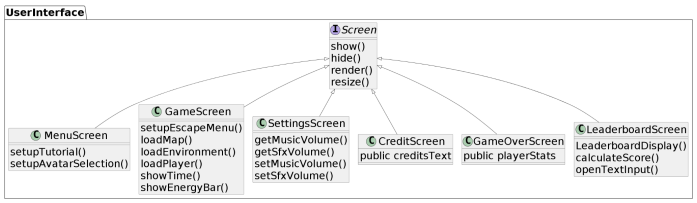
Old final class diagram



New class diagram - included LeaderboardScreen in the UserInterface

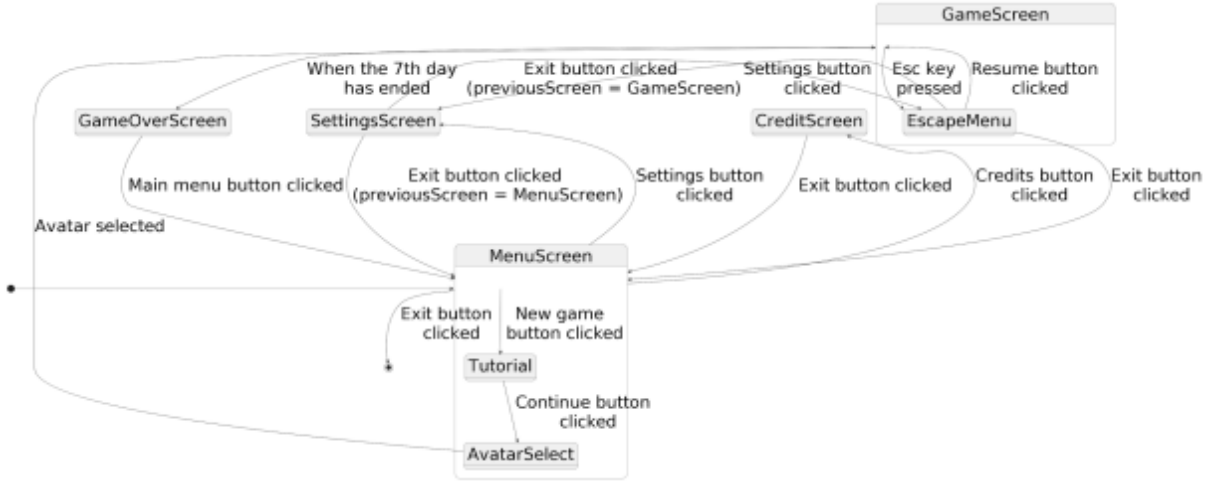


Old class diagram with packages

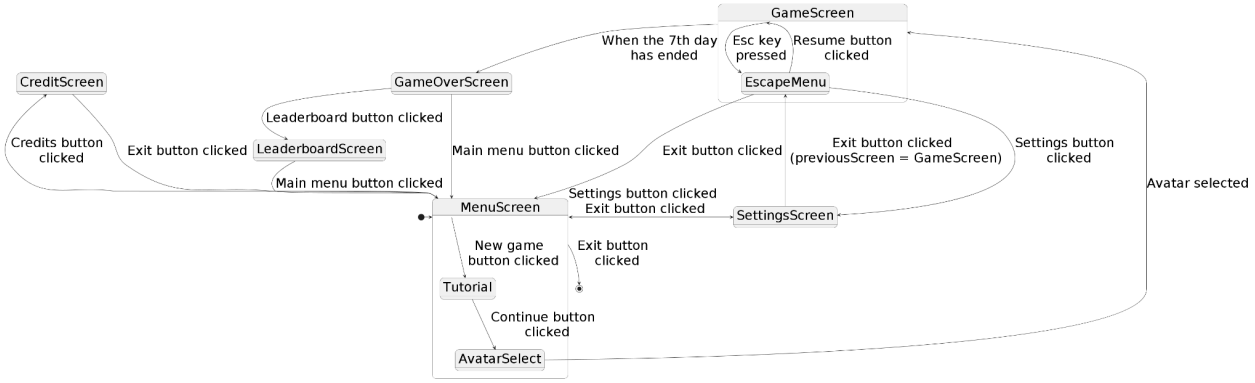


New class diagram with packages - added LeaderboardScreen with its method in the UserInterface

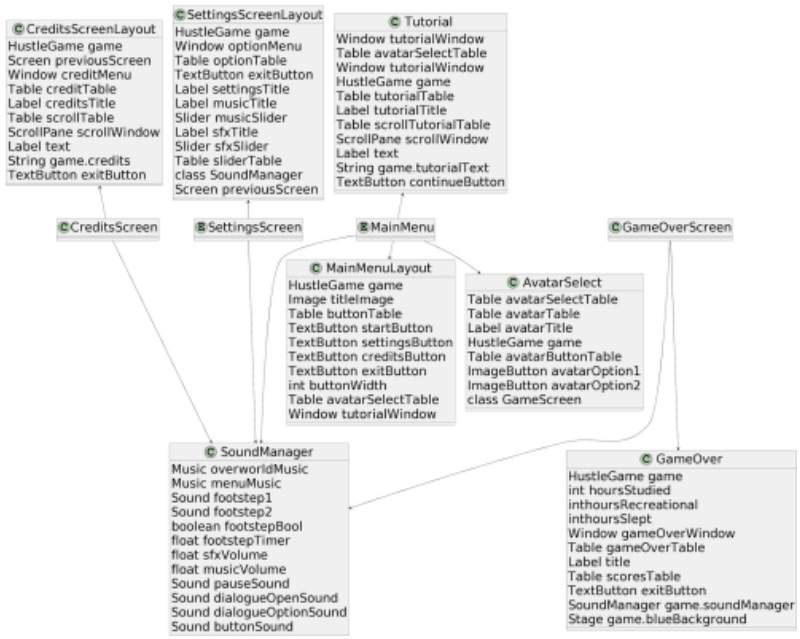
Behavioural Diagrams (State Diagram for screen)



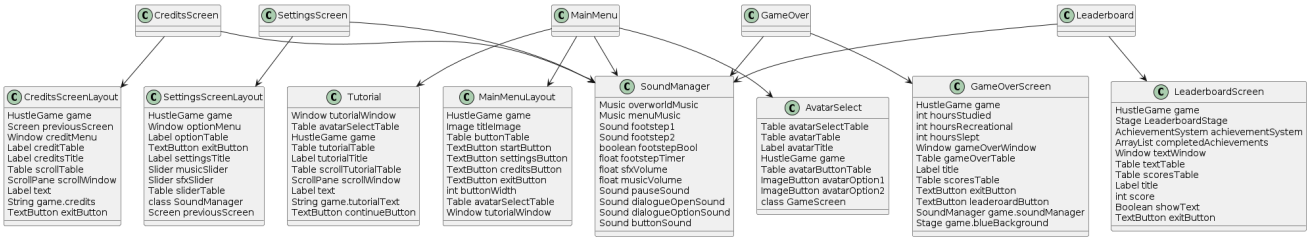
Old final state diagram for screen



New state diagram for screen - included LeaderboardScreen and how to access it



Old component-entity-system diagram



New component-entity-system diagram - added LeaderboardScreen as well as its attributes and edited GameOverScreen to include textButton leaderboardButton to redirect to the LeaderboardScreen

Need to include write up about diagrams that has not been changed

The CES sub-diagram for rendering the GameScreen has not seen any changes as the required new features added – leaderboard and achievement – are all under the surface. With that being said, new changes such as inclusion of new places, activities, objects in the map or screens in the game reuses the same implementation as it was designed modularly to ease the extension process.

Method Selection and Planning

For the method selection and planning, we chose to adopt many of the methodology decisions made by group 16. This was due to the fact they were very similar to the methods/ tools we had used in assessment 1. We found keeping this the same made sense as it made it easy for both us to continue and for us to pick up from where group 16 finished. This was added to Plan2 as shown below:

> After picking up the project for assessment 2, it was natural for us (Group 13) to continue developing the game with the agile approach. This was the approach we selected initially for assessment 1 for very similar reasons to Group 16 and we felt it to still be suitable for us as the nature of the development hadn't changed much for assessment 2. We continued with our short timeframes and regular group meetings to ensure the project stayed on schedule. The agile approach also meant that the new requirements elicited for assessment 2 were easy to manage and allocate to group members.

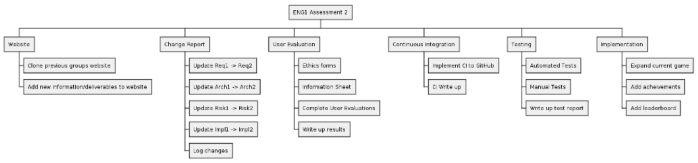
> For assessment 2 we continued this approach of using the weekly meetings to focus our attention on the tasks that needed to be completed. With each member of the group leading a different deliverable, this was easy as each group member could provide feedback on what tasks had been completed and which tasks still required work. This enabled us to very easily understand the progress on the project as a whole and therefore allocate people to assist in other deliverables where required.
>
> For assessment 2 we will be continuing with all of the choices made by group 16. We've kept LibGDX as it was both the software we had learned for assessment 1, and also the software group 16 had used for the project we took over. We also continued use of Github, Google Drive and Discord as we had been using all of these previously for assessment 1.

Group 16 had a nice approach to splitting up the workload between members and assigning leadership to each deliverable for one person. We implemented this approach for the assessment 2 deliverables and included that within the document:

> Similarly to group 16, for assessment 2 we assigned different team members to different deliverables to split the workload evenly. Where possible, team members were assigned similar tasks to what they contributed towards assessment 1. The website was assigned to Alex who took leadership for this deliverable. The Change Report was split between Haiqal and Alex. Haiqual took leadership for this. Implementation was kept to Ivo, Caner and Owen as they had been responsible for the implementation during assessment 1. Sticking to the original split, Ivo and Caner were to work on the code while Owen worked on the map. Leadership of this task was given to Ivo. The testing deliverable was assigned to Carys and Shravani for which Shravani was to lead. For user evaluation this was led by Carys however each group member contributed by invigilating their own user assessments. Finally continuous integration was implemented and led by Alex.

Finally, we created an updated version of group 16's deliverables, tasks tables and work breakdown diagram. This will allow us to plan the completion of different deliverables as well as provide something for us to consult during team meetings to gauge progress on the different deliverables.

Work Breakdown



Deliverables Table

ID	Title	Due date	Description	Visibility	Relevant tasks
D7	url2.txt	23/5	Website	Shared	T7
D8	Change2.pdf	23/5	Requirements	Shared	T8.1-T8.6
D9.1	Impl2.pdf	23/5	Implementation	Shared	T10.1-T10.3
D9.2	Code	23/5	Implementation	Shared	T10.1-T10.3
D9.3	Executable JAR	23/5	Implementation	Shared	T10.1-T10.3
D10	Testing	23/5	Tests	Shared	T11.1-T11.3
D11	User Evaluation	23/5	Evaluation of game	Shared	T12.1-T12.3
D12	CI	23/5	Continuous Integration	Shared	T13.1 & T13.2

Tasks Table

Task ID	Description	End date	Dependencies	Priority
T7	Add new information/ deliverables to website	23/5	T8.1 - T8.6	High
T8.1	Change/ update Req1 -> Req2	23/5		High
T8.2	Change/ update Arch -> Arch2	23/5		High
T8.3	Change/ update Plan1-> Plan2	23/5		High
T8.4	Change/ update Risk1-> Risk2	23/5		High
T8.5	Change/ update Impl1-> Impl2	23/5		High
T8.6	Change/ update Url1-> Url2	23/5		High
T9	Write up change report	23/5	T8.1 - T8.6	High
T10.1	Expand current game (code -> interactables)	23/5	T8.1	High
T10.2	Expand current game (map -> campus west)	23/5	T8.1	High
T10.3	Add new functionality to game	23/5	T8.1	High
T11.1	Automated tests	23/5		High
T11.2	Manual Tests	23/5		High
T11.3	Test Report write up	23/5	T11.2-T11.3	High
T12.1	Ethics Forms for User Evaluations	23/5		High
T12.2	Complete user evaluations	23/5	T12.1	High
T12.3	User evaluation write up	23/5	T12.2	High
T13.1	Implement CI to github	23/5		High

Risk Assessment and Mitigation

The risk assessment document had owners of the risk assigned through roles, so to update this, the people's names next to the roles had to be changed. These were changed to reflect the similar group roles that members of our team had during development of the assessment 1 part of the project.

Project Manager	Hollie and Luis
Product Owner	Owen and Sam
Team Leader	Charlotte and Kaustav

Project Manager	Carys and Shravani
Product Owner	Owen, Ivo and Caner
Team Leader	Haiqal and Alex

No further changes were made to the Risk deliverable for assessment 2 as the risk deliverable produced by group 16 fulfilled all of the requirements required for assessment 2. Their 4-step approach to risk assessment (Identification - Analysis - Planning - Monitoring) meant their risk assessment was very thorough and covered every risk we had identified ourselves in our original Risk1 document.

The addition of the new game features required for assessment 2 did not elicit any new risks for our group either, and so no new risks needed to be added to accommodate these new user requirements.