Requirements

Cohort 4: Group 2

Greyhounds

Olwenn Gillespie
Glenn Asher
Praise Konji
Jennifer Oakley
Alice Cavens
David Naji
Igor Dylewski

Requirements Elicitation

"User requirements refer to the specific needs, expectations, and constraints of the end users or stakeholders who will interact with the software system." [1]

After researching user requirements and understanding exactly what the written brief called for, we organised a meeting with our client and created a list of clarifying questions to ask him. During this meeting, our client informed us of his ideas for the game, what he specifically wanted to be implemented, and elements he liked, but didn't necessarily need, as well as answering the questions we had prepared. From this, we were able to compile a list of user requirements, and after further research, the appropriate system requirements, sorted into functional and non-functional.

Then, following the IEEE Guide [2], we formatted each set of requirements (user, functional and non-functional) into separate tables, with the latter two tables containing a column that referenced the specific user requirement they fulfill. This meant that all of the system requirements we were outlining could be clearly justified and explained, as they all had a direct link to a requirement our client desired.

Finally, using the MoSCoW prioritisation categories [3] , we added a column to each table that marked the priority of each requirement according to both what our client expressed in our meeting and also how relevant the system requirements would be. This meant we could effectively start the implementation of the project with a clear understanding of what our client expected, and what needed to happen to achieve those goals.

References:

[1] QAT Global, "Guide to User Requirements", *QAT Insights Blog,* Jan. 13, 2025. [Online]. Available: https://qat.com/guide-user-requirements/
[2] "IEEE Guide for Developing System Requirements Specifications," in IEEE Std 1233-1996 , vol., no., pp.1-30, 22 Dec. 1996. [Online]. Available: https://ieeexplore.ieee.org/document/502838
[3] Product Plan. "MoSCoW Prioritisation." productplan.com. Accessed: Oct. 9, 2025. [Online]. Available: https://www.productplan.com/glossary/moscow-prioritization/

User Requirements Table

UR ID	Description	Priority
UR_RUN	The player must be able to start, restart and quit a run	High
UR_MOVE	The player must be able to move the avatar during play	High
UR_HUD	The player must be able to see the timer, health bar and events counter during play	High
UR_WIN	The player must win by reaching the exit	High
UR_LOSE	The player must lose if the health bar is at 0	High
UR_EVENTS	The player must be able to trigger simple events (e.g bike boost)	High
UR_GUIDE	The player must be able to read on-screen instructions for controls/rules	High
UR_MUSIC	The player should be able to toggle music on/off	Moderate
UR_DESKTOP	The game must run on desktop (Windows/Linux/macOS)	High
UR_OFFLINE	The game must run offline	High
UR_VISUALS	Visuals should be colour-blind friendly	Moderate
UR_PLAY	The game must run smoothly on a lab PC	High

Functional Requirements Table

FR ID	Type	Description	User Requirements	Priority
FR_STATIC_MAP	Performance	The game map must stay the same each time it is booted up	UR_PLAY	High
FR_MOVEMENT	Input	Player movement must be controlled with WASD keys	UR_MOVE	High
FR_PC_GAME	Hardware	The game must be played on a PC	UR_DESKTOP	High
FR_MULTIRESOLUTION	Adaptability	The game must have multiresolution to be played on PCs with different screen sizes	UR_DESKTOP	High
FR_MUSIC	Features	The game should have music that has the option to be muted	UR_MUSIC	Moderate
FR_OFFLINE	Availability	The game must not require internet connection to be played	UR_OFFLINE	High
FR_RUNTIME	Performance	The game must last 5 minutes	UR_PLAY	High
FR_CROSS_PLATFORM	Compatibility	The game must be able to run on at least Linux, Windows and MacOS	UR_OFFLINE	High
FR_SETTINGS_MENU	Navigation	The game should have a simple settings menu	UR_GUIDE	Moderate
FR_INSTRUCTIO	Accessibility	The game must have a pop-up	UR_GUIDE	High

NS		showing instructions for how to play on the start screen		
FR_PLAYABILITY	Accessibility	The game must be able to be played by users with little to no experience with PC games	UR_GUIDE	High
FR_START_BUTTON	Performance	Pressing the 'play' button on the start screen must lead to the map loading and game play starting	UR_RUN	High
FR_SPEED_BOOST	Interactions	The avatar interacting with the bike sprite must lead to a speed boost	UR_EVENTS	High
FR_SB_LENGTH	Performance	The speed boost should last for 30 seconds	UR_EVENTS	Moderate
FR_BELL	Interactions	The avatar interacting with the bell sprite must lead to a crowd of students moving towards the player	UR_EVENTS	High
FR_SLOW_DOWN	Interactions	If the player doesn't avoid the crowd of students, the crowd must surround the avatar and slow them down	UR_EVENTS	High
FR_SD_LENGTH	Performance	The slow down event should last for 30 seconds	UR_EVENTS	Moderate
FR_GOOSE_BITE	Interactions	The avatar being 'bitten' by goose sprite should decrease the health bar by a third	UR_EVENTS	Moderate
FR_LOSE	Performance	The health bar being 0 must lead to the 'lose' screen being displayed	UR_LOSE	High
FR_WIN	Performance	The avatar reaching the exit of the maze should lead to the 'win' screen being displayed	UR_WIN	High
FR_BOUNDARIES	Performance	The avatar must not be able to walk through map objects e.g walls	UR_PLAY	High
FR_QUIT	Performance	The player pressing the 'quit' button must lead to the game exiting	UR_RUN	High
FR_TIME_OUT	Performance	The player not reaching the exit in under 5 minutes must lead to the 'lose' screen being displayed	UR_RUN	High
FR_HIDDEN_EVENT	Interactions	The avatar interacting with the trapdoor sprite must lead to the player accessing the hidden event - a 'duck cult' where the player can avoid the dean and get closer to the exit	UR_EVENTS	High
FR_TIMER	Performance	The timer must start when game play starts and must be visible to the player.	UR_HUD	High
FR_COUNTER	Performance	Events counter must display which, and how many events have been triggered, and must be visible to player	UR_HUD	High
FR_GOOSE_CHASE	Performance	The goose sprite must chase the avatar during gameplay	UR_PLAY	High

Non-Functional Requirements Table

NFR ID	Description	User Requirements	Fit criteria	Priority
NFR_MAP_LOAD_TIME	The map will load quickly after the user starts the game	UR_RUN	The map will load < 2 seconds after player presses 'start' button	High
NFR_VOLUME_CONTROL	The user can control or mute the volume	UR_MUSIC	Volume is adjustable in increments of 5 and can be muted	High
NFR_CRASH_FREE	The game will not crash due to critical bugs during gameplay	UR_PLAY	No crashes from critical bugs during normal play	High
NFR_FRAME_RATE	The game will run smoothly at a set frame rate	UR_PLAY	Game runs consistently at 30 fps	Moderate
NFR_SPEED_BOOST	The speed boost provides increased gameplay speed	UR_EVENTS	Speed boost increases speed by 1.5x	High
NFR_SLOW_DOWN	The slow down event provides decreased gameplay speed	UR_EVENTS	Slow down reduces speed by 0.5x	High
NFR_ACCESSIBILITY	The game includes helpful accessibility features	UR_VISUALS	Features like color blind mode	Moderate
NFR_IMPLEMENT_JAVA	The game must be implemented using java	UR_DESKTOP	Java is used as the main implementation language	High
NFR_RESOULTION_SUPPORT	Supports various screen sizes	UR_PLAY	Game scales to 720p, 1080p and windowed mode	Moderate
NFR_SOUND_EFFECTS	Sound effects should be clear and synced with in game actions	UR_MUSIC	Sound effect should play within 0.2 seconds	High
NFR_SMOOTH_ANIMATION	Movement and animations should appear smooth	UR_PLAY	No jittering in movement or transitions	High
NFR_KEYBROAD_SUPPPORT	Full game control with WASD	UR_MOVE	Movement should work flawlessly with WASD	High
NFR_MENU_LOAD_TIME	Menu should load quickly	UR_RUN	Menu appears in < 1 second after launch or toggled	High
NFR_OPTIMISED	Game should use minimal CPU, GPU and memory	UR_PLAY	Game should have less than 50% CPU,GPU and Memory usage on an average laptop	High
NFR_GUIDE_IN_GAME	The game should include an in-game guide for players	UR_GUIDE	Guide is accessible from menu and during gameplay	High