

## Requirements

C3 Group 6  
Team WHNI

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### Introduction:

The following requirements are presented in three sections: user requirements, functional requirements and non-functional requirements. Each requirement is labeled with a unique id so it can be referenced in other deliverables. The format for the ids is as follows: UR\_XXXX is a user requirement, FR\_XXXX is a functional requirement and NFR\_XXXX is a non\_functional requirement, where XXXX is a descriptive identifier of said requirement. It is formatted in this way to help with referencing in other deliverables, as the identifiers clearly state what the requirement is and are unique so as to avoid confusion when being used.

Requirements were gathered from the design brief initially presented to us and then expanded upon through customer meetings and their transcriptions which we analysed to identify what the user wants from the game and to what degree each requirement is necessary. For many requested features only the broad framework and theming was specified, leaving us with a lot of freedom but also meaning some requirements cannot be made more specific at this stage. To begin we converted answers we got from the meeting to user requirements which we then break down into several functional and non-functional requirements designed to be more targeted and give a clearer description of what needs to be developed for the game.

### Constraint Requirements

- Time limit on the coding process so may not be able to build as complex of a game as wanted.
- The game shall be presented to a fellow student so the game should also cater to them along with the client (stakeholder).
- The game needs to run on an average desktop device e.g Windows, Mac and Linux.
- The game also has to be created within Java and no other languages.

Below is a table including the transcripts from when the client was interviewed and the requirements that we have managed to create from the information gathered.

<u>Answer</u>	<u>Requirements</u>
" yes you need a main menu for tutorial, settings, credits, play button"	UR_MAIN_MENU
" You could show just a timer, you could show the score, you could show how many events are gone, you could show lots of numbers if you wanted to."	UR_ENDING, UR_UI
" You need to choose an art style that is consistent with the game and that it's immersive, right? So the themes, the sounds and events that make no sense of it's completely off, right?"	UR_STYLE
"Oh, they need to impact gameplay."	UR_EVENTS, UR_SCORING
" So we're thinking of like a top-down where you see the map.Yep."	UR_CAMERA
"So we're trying to make a reasonably easy and accessible 2D puzzle game for desktop, for a young adult who are	UR_MAP, UR_CAMERA, UR_DIFFICULTY,

gonna relate and understand to this idea of what happened at university”	UR_RATING
” We don’t care about the competitive nature, storing scores of anything like that for this stage. Also, simplifying the development so that we don’t need to and these features. So you don’t need to have some sort of persistent state.”	UR_SCORING
” So it should be easy, medium and hard....Um, and you can notice that you have enough features that it might be interesting to have in other difficulties.”	UR_DIFFICULTY
”Anyone that has a desktop computer should be able to run it, and it should run reasonably fine on any sort of internal hardware.”	UR_SYSTEM_REQUIREMENTS
” We just want something more PG-13”	UR_RATING
” Pretty much to cover as many users as we can at this initial stage to see what the interest on the market is.”	UR_SYSTEM_REQUIREMENTS, UR_DIFFICULTY, UR_RATING
” So we’re looking at 17-25 year olds.”	UR_RATING
”Make sure that it isn’t offensive. Also, if there are um, either interactions such as removing some obstacle that is living, or referring to real-world people, make sure that it’s done in a meaningful and impactful manner instead of just being extreme. “	UR_RATING
”Time is obviously one of the main components and for the early version, yes, you could just have a very simple thing that just looks at time. That sounds like a perfectly fine aspect especially if it’s only five minutes. For the full version, we want to make it much more interesting so that there’s not a single dimension that people are competing on, right?	UR_TIME, UR_SCORING

From the given brief the requirements such as UR\_PAUSE, UR\_LICENSING AND UR\_PROGRAMMING\_LANGUAGE were also developed.

### **User Requirements**

ID	Description	Priority
UR_RATING	Game should be appropriate for children (age-12), no offensive content	High
UR_LICENSING	Game should not result in company being sued	High
UR_EVENTS	The game will have 5 visible events that hinder the player, 3 that benefit the player and 3 hidden events	High
UR_SCORING	User has a score that is saved upon winning the	High

ID	Description	Priority
	game	
UR_MAP	There is one map for the user to play through	High
UR_PAUSE	Game should be able to be paused	High
UR_STYLE	Art style should be consistent and immersive	Medium
UR_TIME	The game should last no longer than 5 minutes.	High
UR_SYSTEM_REQUIREMENTS	The game should be able to run on any operating system and minimal hardware to reach as many users as possible	High
UR_DIFFICULTY	The game may have difficulty modes that may remove some features or make gameplay harder compared to the base difficulty	Low
UR_CAMERA	The game should be top down and the player should be able to see the map	Medium
UR_ENDING	The game should have an end screen which at a minimum displays their score	High
UR_UI	The game should have a UI showing the time remaining and a pause button	Medium
UR_PROGRAMMING_LANGUAGE	The game MUST be coded in Java 17. Libraries can be used but must be java.	High
UR_MAIN_MENU	The game should open with a main menu with buttons to start a new game, open settings and exit. The game should return here at the end of the maze.	High
UR_RUNTIME	The game should not crash or fail to load at any point.	High
UR_CLEAR_DESIGN	There will be a clear and easy to follow graphic design for the game that will keep the user interested and allow them to see everything clearly.	High
UR_GAME_DESIGN	The overall game design should satisfy the user and client demands and should be at an adequate quality.	High
UR_ACHIEVEMENTS	There should be achievements that the player can get from pursuing certain goals.	High
UR_LEADERBOARD	There should be a leaderboard where scores are saved with a name once the player finishes the game. Only the top 5 scores should be displayed.	High

## Functional Requirements

ID	Description	User requirements
FR_CREDITS	The game should properly credit licensed products used (like sprites and art) on screen (such as credit screen) when the game is played	UR_LICENSING
FR_POSITIVE_EVENTS	Throughout the duration of the game, the game must contain three beneficial events which the player has to interact with and must benefit them	UR_EVENTS
FR_NEGATIVE_EVENTS	Throughout the duration of the game, the game must contain five negative events which the player has to interact with and must impede them	UR_EVENTS
FR_HIDDEN_EVENTS	Three of the events within the game must be hidden, meaning they must not be visible until the player activates them.	UR_EVENTS
FR_SCORING	The game must calculate score based on time taken to escape and any point modifiers from activated events	UR_SCORING
FR_MAP_CREATION	The program has to load a pre-made, or generate, a map at the start of the game which has all events within it and has an escape route	UR_MAP
FR_MAP_STYLE	Map should have a consistent art style and should be immersive	UR_STYLE
FR_EVENT_STYLE	Events must have a consistent art style and be immersive	UR_STYLE
FR_PAUSING	Game must have a pause function, with a pause screen or indicator that the screen is paused	UR_PAUSE
FR_GAME_CAMERA	The gameplay should be from a top down perspective where the player can view their character and see the map	UR_CAMERA
FR_DIFFICULTY	The game may have options to make certain elements more or less difficult.	UR_DIFFICULTY
FR_WIN_SCREEN	If the user wins their score will be displayed on the screen at a minimum, and maybe a congratulations message.	UR_ENDING
FR_LOSS_SCREEN	If the user loses the game their score is displayed and a message which tells them they have lost	UR_ENDING

ID	Description	User requirements
FR_MAIN_MENU	The main menu should have a 'new game' button that starts a maze, an 'exit' button that closes the game and a 'settings' button that opens the settings screen	UR_MAIN_MENU
FR_SETTINGS	The game should have a settings screen where the user can change volume	UR_MAIN_MENU
FR_RUNTIME	The game should not crash or fail to load at any point while the game is being played	UR_RUNTIME
FR_SYSTEM_RESTRICTIONS	The game must not be difficult to run and should run on any OS and most machines	UR_SYSTEM_REQUIREMENTS
FR_PROGRAMMING_LANGUAGE	The game MUST be coded in Java 17. Libraries can be used but must be java.	UR_PROGRAMMING_LANGUAGE

### Non-Functional Requirements

ID	Description	User Requirements	Fit criteria
NFR_LICENSING	All third party products used should be non-copyrighted and with all checks we should be certain we are allowed to use them in game.	UR_LICENSING	100% of assets have correct licensing.
NFR_AGE_LIMITATIONS	The game should not contain any features that will make it inappropriate to children.	UR_RATING	The game is PEGI 12. Either party should not be offended by and of the content of design included within this game.
NFR_TIMER_ACCURACY	The in-game countdown timer should maintain accurate time tracking to ensure fair gameplay.	UR_TIME	The 5-minute timer will remain accurate within $\pm 0.5$ seconds of real time.
NFR_COLOUR_BLINDNESS	The colour palette within the game should be designed accordingly so that it doesn't negatively affect someone with colour blindness.	UR_CLEAR_DESIGN	Users should be able to see and clearly understand the game despite having visual impairments.