Requirements

Team 19

DAVIDE BRESSANI
ALEX DAVIS
HASSAN MAHMOOD
DANIEL PARRY
HARRY SWIFT
BENJAMIN WITHNELL

Requirements

In order to ascertain the requirements for this project we broke it down and abstracted it into three distinct sets of requirements these include user requirements, functional requirements and non-functional requirements. In essence the user requirements is trying to extrapolate the tasks that the users should carry out when they are using a system. Typically this type of requirement should be taken as early as possible in the requirement process. In addition to this the user requirements are supposed to be written in such a way that non-technical people involved in the requirements process are able to understand everything with ease. When it comes to functional requirements what we want to get out of this is the things that a system must do. A function is nothing more than inputs into a software system, its behaviour and its outputs. These were mandatory requirements that we needed to prioritise and we documented these to show how the game should function. Non-functional requirements are qualities that a system must have, there should also be consideration for the constraints that are placed on the functional requirements. In addition to this non-functional requirements are critical to a systems success. The goal of non-functional requirements is to deal with issues that may arise within the development of a software system, and how the game should perform, these can include scalability, maintainability, performance, portability, security, reliability and so forth. We focused on the actual user expectation for this, and documented them with an emphasis on how the game is described.

In order to obtain all of the requirements we took part in a client meeting, this was chosen as this would be able to provide us with a broad and comprehensive overview of what the expected outcome of the game is. Before we held the client meeting a set of questions were derived, with the idea in mind of the three sets of requirements that we have previously discussed. Once we had compiled a list of questions for the client meeting we proceeded with the meeting itself, this was conducted over zoom for practicality. Before the meeting we had also devised a system of how to ask the client the questions so that we have enough time to get through everything we had initially set off to ask so that we can leave no stone left unturned. This system devised of different people asking about the different set of requirements who each have a time limit. This was to ensure that we have a broad and even representation of all of the requirements instead of a concentration to one type of requirement as this wouldt give an accurate portrayal of what is needed from the project. We had a designated scribe who would note down the responses that we were obtaining from the client. Once the meeting with the client had concluded we took all of the raw responses that we had obtained from the client and placed them into suitable tables which relate to the type of requirements that were devised. Within all of the tables we have included the ID, description, priority, environmental assumptions, associated risks and alternatives in addition to the user requirement ID to the non-functional requirements table as these are intertwined.

From the research that has taken place we are able to understand in more detail what the intended purpose of this system is to provide the user, who is a prospective university student on a university open day, on the CS stand we would like to show the game, so the visitors can interact with the game. It's also an insight for prospective students, parents and siblings to see what the university is like. Developed by us, meant to be enjoyable, and produce some sort of inspirational effect, to make new students join the university. Design the game, to demonstrate the enjoyment. Make them happy. Also playable by all ages, which has a competitive edge by having scores. Not too long game duration (5-10 minutes) assessment one shorter than assessment two, game should be free of violence, nonviolent combat as this is intended for all ages.The use of a bigger screen with decent graphics to scale, scalable in the sense of screen size, should be clear and easy to see from a big screen, attract people's eyes. Every year it is run by different people, so having the option of different operating systems means that there is flexibility and a contingency for anything that may go wrong with a particular operating system.

User Requirements Table

ID	Description	Priority	Environmental assumptions	Associated risk	Alternatives
UR1	Reporting bugs should be only for mechanical issues	1	Assuming there is only one interaction the user won't spend too much time with the game	Some crucial bugs may go unreported and may adversely affect the game	• Verbal communication while the user is playing the game, and the bugs can be fixed at a later date. • Allow other bugs to be reported under different categories
UR2	The user can choose the start / base college	5	Assuming that the user has sufficient knowledge about York's college system	May lead to users not engaging as they do not understand completely	Have the game set a default college so the user doesn't have to choose
UR3	The game should be enjoyable and motivational for the user, but it has to have a level of challenge	5	Assumption that the game will relate to the challenge intellectually of the University of York	Too much of a challenge may cause the prospective student to not apply as they may think its not for them	• Provide different levels to the game • Provide difficulty options from easy to hard regarding the AI
UR4	Clear concise instructions whereby it's fairly simple to pick up.	5	The user can read and understand english to an acceptable standard	May lead to foriegn users struggling to grasp the game.	Provide visual clues and indicators within the game or hearing aids
UR5	There should be no blood and free of violence / limited violence as the younger audience needs to be considered.	5	A range of ages will be playing	May alienate younger players from being involved	Implement a blood filter that can be switched on and off depending on the user's age
UR6	The target audience has to be prospective students (for Computer Science) and their families	4	Assumption that the game will relate to the University of York	May not have the knowledge of the university to understand what everything means	Just have the gameplay set up for just the prospective students only, take into consideration family later in development
UR7	Disability and accessibility	3	A range of people with different disabilities will attend	May lead to not all users being able	Incrementally add new features to support a

	options			to get involved	wider audience
UR8	The User can go up against many colleges	3	User's will be able to navigate around the map	User's may find it complicated to fight multiple colleges	Introduce different level difficulty to suit the user

Functional Requirements Table

ID	Description	Priority	Environmental assumptions	Associated risk	Alternatives
FR1	The game can save progress of a single game	5	Users may want to come back to play the game at a later data	Lead to the computer not being able to used by other users	Have a game play out one time only with no save progression
FR2	The game has to be played in real-time, not in turns	5	That there is one user playing the game at a time	Lead to the computer not being able to used by other users	Implement display and visual cues directing the next user to take over once the game is complete
FR3	The screen size must be scalable	5	There may be different types of devices being used	Compatibility on all devices may provide the game not being playing	Have one preset screen size ensuring that there is consistency in the game
FR4	Gold and XP have to be in the game for upgrades (they're different "currencies")	5	The currency will be spent as the game goes along	Might make the game unnecessary complicated to prospective users	Implement an intermission where you can upgrade with assistance
FR5	The combat has to start if the boat is in range of a college	5	User goes in the desired range to begin combat	User confusion on why combat has not started if they are out of range since no distance is specified	Provide a distance metric of how close the boat has to go to begin combat.
FR6	The game should be in 2D	5	Assumes game is playable to user in 2D	User may find it hard to grasp depth perception	Introduce high resolution textures to make it clear
FR7	The game **shouldn't** have the possibility to visit other colleges	4	Assumption that the user is tied to one team	May make biased choices	Provided information about each of the colleges and talk to the prospective student about it
FR8	It has to have clear graphics from a long distance	4	User's have good enough eyesight to see it from a distance	User's with poor vision may still struggle to see	Have a limit on the how far the graphics from a distance should be but make sure it is visible enough from a distance to attract even those with poor vision
FR9	The game has the option to be played on multiple	4	Assumes that there will be availability of different operating systems	Users may want to use it on other incompatible	Make the game compatible on all major OS and platforms such

	platforms - Windows and Linux			operating systems such as iOS	as iOS too
FR10	You can pause the game, as it is a single player game	3	Assumes that there may be a break within a game	May add more time to the amount of time the game is played and with it being on paused it may not allow everyone to play	Provide a pause but for a limited set amount of time only

Non-Functional Requirements Table

ID	Description	Priority	User requirements	Environmental assumptions	Associated risks	Alternatives
NFR1	The game should be 5-10 minutes long and it has to be a one level game	5	UR3	Assume the user will play the game as intended regarding the runtime	Could prolong the length of the match	Provide a completion goal and if reached then game will end, or an implemented timer to end game in a draw and prevent elongation
NFR2	The characteristics of each college can be unique but need to consider fairness and they should have overall similar capabilities	5	UR2	Assume no colleges are overpowered	Can lead to easier / harder wins depending on college chosen	Make each college the same in terms of capabilities, or use a common measurement of power to make them balanced
NFR3	The game has to be a one-off experience (it should be one game)	4	UR3	Assuming that the user will only play this once, in the open day setting	Users may play it multiple times and not let others have the one-off experience	Implement display and visual cues directing the next user to take over once the game is complete
NFR4	The game should offer alternative input interaction options to the user	3	UR7	There is potential for new input devices to exist	Can lead to incompatibility or it being unrecognised by the game	Provide one set of inputs that is universal
NFR5	The game shouldn't go into too much detail in terms of levels focus on the design	3	UR3	Only a limited time to play so too much detail would make the game too difficult to understand	The game may look good but may not provide the user with very much challenge	Strike a balance between both but prioritise the design