Requirements
Team 21
Team21Direction

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Elicitation

- We began eliciting requirements by reading through the game brief we were given at the beginning of the project looking for any ambiguity, either a feature with generally limited explanation or a feature that's implementation could change to work best depending on the context surrounding the game.
- Having gone through all of the explicit requirements, highlighting any key areas that needed further discussion, we formulated questions which we felt would shed light on each of our qualms with the brief.
- We took these questions to the customer so that we could get a clear understanding of what they required rather than simply speculating within the development team. Our customer meeting allowed us to find out exactly what the customer wanted for each feature and to understand the context surrounding the game.
- The game is designed to be played at a university open day event, this means that people should be able to walk up and complete the entire experience in five to ten minutes. This context played an important role in deciding how the game should be structured and is intrinsically linked to many of the requirements.
- When formalising requirements we began by coming up with the user requirements, these are written for non-technical people involved in the requirements process and relate directly to the actions that the user will take.
- The User requirements table defines a requirements idea, describes the requirement and makes a note of any environmental assumptions we have made when coming up with the requirement.
- There are two more tables which hold our system requirements, each system requirement is given a requirement id, described and where appropriate linked to one of the user requirement ids so that it is clear how the requirement will help in completing the project. The system requirements are split into functional and non-functional requirements Functional requirements are the things the game must do
- Non-Functional requirements detail the qualities the game must have
- Each non-functional requirement will have fit criteria which are precise criteria on which the success of the system can be judged

Statement of Requirements

Single Statement of Needs

The game should be playable by visitors on a university open day so that they have an enjoyable experience and may be inspired to pursue Computer Science.

User Requirements

ID	Description	Priority	Environmental Assumptions
UR_LAUNCH	The user should be able to launch the game without opening any additional software	Should	While this is important in the context of the open day the game will already be open ready for the user to play
UR_EASY_TO_UNDERSTAND	The user should be able to quickly understand the controls and narrative of the game.	Shall	The user will be seeing the game for the first time when they come to play it but will be comfortable using a keyboard and mouse to control a computer
UR_CLEAR_GRAPHICS	The player should be able to see the game clearly when playing	Shall	Those viewing the game will have good vision.
UR_ACCESSIBILITY	The game should be playable by almost anybody, it should be easy to control and support colour blindness	Should	Those playing the game will have good enough vision to see the objects on the screen

ID	Description	Priority	Environmental Assumptions
UR_RUN_TIME	The game should take between 5 to 6 minutes to complete for a new player. This will involve capturing or destroying 4 colleges.	Should	Visitors will want to spend time looking around the university and town and therefore will not want to spend too long playing
UR_CONTROLS	The player should be able to control the game with a keyboard	Shall	
UR_COLLEGE_COMBAT	The player should be able to engage other colleges in combat	Should	
UR_SAILING	The player should be able to control where the ship sails around the map.	Shall	
UR_COLLEGE_CAPTURE	The player should be able to capture the other colleges within the game when they have defeated them in combat.	Should	
UR_COLLEGE_DESTROY	The player should be able to destroy the other colleges within the game when they have defeated them in combat.	Should	
UR_MUTE_SOUND	The player should be able to mute the game sound at any time during gameplay	May	The game will be played in a public setting, likely with conversations taking place
UR_UPGRADES	The player should be able to upgrade their ship as the game progresses with new weapons or abilities	Should	

UR_FAIRNESS	The game should be fair on the player, offering a satisfying level of challenge whilst not leading to frustration. There should be a new player win rate of around 90%	Should	Players will likely only get one opportunity to play so the game needs to be easy enough that they will probably win first try
UR_INSPIRATIONAL	The game should have an inspirational effect on the player, compelling them to pursue computing themselves	Shall	
UR_FUN	The player should leave the game with a positive mindset	Shall	The open day is designed to engage visitors with activities at the university and leave them with a positive image of the institution
UR_WIN	The player should be able to achieve a predefined condition within the game which triggers a win	Shall	
UR_SOUND	The player will be able to hear music and sound effects which relate to the actions taking place on screen.	Should	The game will be played in an open day environment, likely with lots of background noise and people talking
UR_GOLD	The player ship should be able to earn gold throughout the course of the game	Shall	

System Requirements Functional Requirements

ID	Description	User Requirements
FR_PC	Runs on a computer device with a mouse and keyboard	
FR_PLATFORM_AGNOSTIC	Runs on any OS with a Java environment and a keyboard and mouse	
FR_STANDALONE	Does not require any external system interfaces to play	UR_LAUNCH
FR_KEYBOARD	The keyboard can be used as the sole means of controlling the ship and game interfaces	UR_CONTROLS, UR_SAILING
FR_START_SCREEN	A start screen will display when the game is opened which details the controls and objective of the game and has a button to start the game	UR_EASY_TO_UNDERSTAND
FR_PAUSE	A pause button will be available which can be used at any time to pause the game until the play button is pressed	
FR_REALTIME_COMBAT	The ship will be able to fire weapons at and attack the other colleges as it sails around the map without entering a different game screen.	UR_COLLEGE_COMBAT

FR_DAMAGE	The player ship will take damage when it collides with objects or is hit by projectiles.	UR_COLLEGE_COMBAT
FR_CURRENCY	Currency can be gained throughout the game which can be earned through combat with enemy colleges.	UR_GOLD
FR_EXP	Experience points can be gained throughout the game which can be earned through combat with enemy colleges and through the passage of time.	

FR_WEAPONS	The ship will have weapons which can be used to attack enemy colleges.	UR_COLLEGE COMBAT
FR_STATS	The ship will have stats which will be upgraded throughout the course of the game as experience points are earned.	UR_UPGRADES
FR_FIGHT_BACK	The enemy colleges can attack the player boat using projectiles which must be dodged.	UR_COLLEGE_COMBAT
FR_SOUND	The game will have sound effects that are relevant to what is currently happening within the game as well as music playing throughout	UR_SOUND
FR_MUTE	The sound will be mutable at any time during the game.	UR_MUTE_SOUND
FR_ENEMY_SHIPS	Enemy ships will sail around the map.	
FR_CAPTURE_OR_DESTROY	When an enemy college is defeated in combat the choice should be given as to whether they should be captured or destroyed.	UR_COLLEGE_CAPTURE, UR_COLLEGE_DESTROY

Non-Functional Requirements

ID	Description	User Requirements	Fit Criteria
NFR_SHORT_GAME	The game should not take a long time to complete.	UR_RUN_TIME	Time to complete the game < 6 minutes
NFR_RUNS_WELL	The game should run smoothly with a consistent framerate	UR_FUN	The game should run with a framerate locked at 60fps
NFR_FAST_LOADING	The game should load quickly when transitioning between screens.	UR_FUN	Time to transition between screens must be < 3 seconds
NFR_COLOUR_BLINDNESS	The game should be playable without reliance on colour	UR_ACCESSIBILITY	
NFR_CLEAR_INSTRUCTIONS	The objective and controls of the game should be described clearly and concisely upon starting the game.	UR_EASY_TO_UNDERSTAND	The player should have to spend no more than 30 seconds familiarising themselves with the controls and concept of the game before starting.