

Requirements

Team 21

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Elicitation

- We began eliciting requirements by reading through the game brief and looking for ambiguity, e.g. a feature with generally limited explanation or a feature where its implementation is optimized based on its context.
- Having gone through the explicit requirements, and highlighting key areas that needed further discussion, we formulated questions which we felt would shed light on 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 speculating. 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, with the entire experience being completed 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 formalizing requirements, we started with the user requirements, which is written for non-technical people and relates directly to the actions that the user will take.
- The user requirements table defines a requirements idea, describes the requirement and notes any associated environmental assumptions.
- There are two more tables which hold our system requirements - each requirement is assigned an id, described and linked to one of the user requirement ids as appropriate - this indicates how it will help to complete the project. The system requirements are split into functional and non-functional requirements: functional requirements are the things the game must do and non-functional requirements detail the qualities the game must have.
- Each non-functional requirement will have a fit criteria which are precise criterias 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_EASY_TO_UNDERSTAND	The user should be able to quickly understand the controls and narrative of the game.	Shall	The user is playing for the first time, and is 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 - easy to control and support colour blindness	Should	Those playing have sufficient vision to see the objects on the screen
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 other colleges when they have defeated them in combat.	Should	
UR_COLLEGE_DESTROY	The player should be able to destroy other colleges 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 offer a satisfying level of challenge whilst not leading to frustration. New player win rate ~ 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

ID	Description	Priority	Environmental Assumptions
UR_FUN	The player should leave the game with a positive mindset	Shall	The open day is designed to engage visitors and leave them with a positive image of the institution
UR_WIN	The player should be able to achieve a predefined condition which triggers a win	Shall	
UR_GOLD	The player should be able to earn gold throughout the course of the game	Shall	

System Requirements Functional Requirements

ID	Description	User Requirements
FR_PLATFORM_AGNOSTIC	Runs on any OS with a Java environment and a keyboard and mouse	
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 upon game start which details the controls and objective of the game and has a button to start the game	UR_EASY_TO_UNDERSTAND
FR_REALTIME_COMBAT	The ship will be able to fire at other colleges at any time.	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 through combat with enemy colleges.	UR_GOLD
FR_EXP	Experience points can be gained through combat with enemy colleges and through the passage of time.	
FR_STATS	The ship will have stats which will be upgraded as experience points are earned.	UR_UPGRADES
FR_FIGHT_BACK	Enemy colleges can attack the player ship using projectiles which must be dodged.	UR_COLLEGE_COMBAT
FR_SOUND	The game will have relevant sound effects and music playing throughout	UR_SOUND

ID	Description	User Requirements
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 to either capture or destroy.	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 between screen transitions.	UR_FUN	Time to transition - 3 seconds
NFR_COLOUR_BLINDNESS	The game should be playable without reliance on colour	UR_ACCESSIBILITY	
NFR_CLEAR_INSTRUCTIONS	Objective and controls should be described clearly upon starting the game.	UR_EASY_TO_UNDERSTAND	The player should require < 30s familiarising themselves with the game concept and controls.