Requirements
Group 9

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Introduction to requirements:

[1][2] Our requirements were elicited through an interview with the main client (Tommy Yuan) for our project. During this interview all 7 developers of the project were present (listed at the top of the document), and all questions asked in the interview were prepared prior to the engagement. These questions gathered information on expansion of the basic requirements already elicited in the assessment documentation, which also allowed us to create updated requirements for our project.

[3] Requirements are split into user and system requirements, and functional and nonfunctional requirements. User requirements are what the user demands from the system, and system requirements are a description of constraints, functionality and services, on how the system will carry out the demands of the users. System requirements are then further broken down into functional (basic facilities and functionalities the user demands) and nonfunctional (according to the project contract, quality constraints system must adhere to) requirements. All have been presented in the format of tables (separate table for each section of requirements) for ease of reading and understanding, in addition to making the documentation modular, providing simple management and tracking of requirements. This means there is a smaller chance of a requirement being missed.

Separation and gathering of the requirements has been done in this way to avoid ambiguity, so that the needs of the user and constraints of the system can be clearly defined and worked with. In addition, this creates a base for planning the project construction and estimating time frames, which makes the project more manageable. Finally, this allows clear definition of the clients needs from the project and outlines expectations of the client, keeping all primary stakeholders on the same page.

The primary stakeholders are the project developers, whose interest lies in development, management, and maintenance of the project. Tommy Yuan is the project's main client, whose interest is in the creation of a game that meets the system and user requirements that he (the client) has given.

Single Statement of Need (SSON)

"The game shall enable players to create and manage their own interactive university campus through construction of buildings, responses to events, and management of budget, in order to maximise student satisfaction."

Requirements

User Requirements

ID	Description	Priority
UR_PLACE_BUILD_SDY	User can place buildings that act as study locations	High
UR_PLACE_BUILD_EAT	User can place buildings that act as locations for students to eat	High
UR_PLACE_BUILD_HME	User can place buildings that act as locations for students to live	High
UR_PLACE_BUILD_RLX	User can place at least 2 buildings that act as recreational areas	High
UR_DESTROY_BUILD	User can destroy buildings	High
UR_PLACE_PATH	User can place paths for students to move around on	Medium
UR_UX	The GUI should be intuitive to navigate for the user and the system shall have a pleasant user experience	Medium
UR_RESOLVE_EVENTS	The user should be able to resolve events	High
UR_MOVE_BUILD	User can move placed buildings	Medium
UR_BUILD_LIMITS	The user must not be able to place buildings in forbidden	High
UR_SATISFACTION	The user must receive a satisfaction score as a way to judge how well they have done in the game.	High
UR_LEADERBOARD	The user will be able to save the game score and see top scores on a leaderboard.	High
UR_ACHIEVEMENTS	The user must be able to complete a range of different achievements by completing specific tasks	High

System Requirements

Functional Requirements

ID	Description	User Requirements
FR_GAME_TIMER	The game should last exactly 5 minutes.	UR_NA
FR_BUILDING_COUNTER	Must display a real-time counter of how many buildings have been placed	UR_NA
FR_SSC_DISPLAY	Display the current Student Satisfaction Score	UR_SATISFACTION
FR_MONEY_DISPLAY	Display the current money gained by the university in the game	UR_SATISFACTION
FR_SAT_CALCULATION	The game must logically calculate a satisfaction score based on a number of variables as outlined in the product brief	UR_SATISFACTION
FR_EVENTS	Game must include at least 3 events that affect the outcome of the game and that the user can respond to.	UR_RESOLVE_EVENTS
FR_LEADERBOARD	The system shall have a leaderboard to see the 5 previous top scores	UR_LEADERBOARD
FR_ACHIEVEMENTS	Achievements should affect satisfaction score	UR_ACHIEVEMENTS, UR_SATISFACTION
FR_MUSIC	The game should include background music	UR_UX
FR_MUTE	The music should be mutable	UR_UX
FR_SIZE_CHANGE	The game window should be resizeable	UR_UX
FR_MAP_LIMITS	Buildings should not be placeable outside of map	UR_BUILD_LIMITS
FR_BUILD_COLLISIONS	Buildings should not be able to be placed on top of one another	UR_BUILD_LIMITS
FR_MAP_COLLISIONS	Buildings should not be placeable on banned tiles e.g. water	UR_BUILD_LIMITS
FR_PAUSE	The game must have the ability to	UR_UX

	pause and resume the game at any given point after starting.	

Nonfunctional requirements

ID	Description	User Requirements	Fit Criteria
NFR_FAST_LOADING	The game should load reasonably quickly on the user's machine.	UR_UX	Home screen to load within <5 seconds of running.
NFR_OPERABILITY	Game should be playable by anyone, without computer knowledge	UR_UX	Buttons should be easily recognised, and buildings should be able to be removed.
NFR_GAME_END	Once timer runs out, score should be calculated and displayed to user within 5 second maximum	UR_SATISFACTION	Screen with the final game score should be shown within 5 seconds maximum.

References

1. GeeksforGeeks, "Software Requirement Specification (SRS) Format," *GeeksforGeeks*, Jun. 18, 2020.
   https://www.geeksforgeeks.org/software-requirement-specification-srs-format/
2. [2]"Requirement Documentation in Software Engineering: How To," *aloa.co*.
   https://aloa.co/blog/requirement-documentation-in-software-engineering
3. [3]"Importance of Requirement Gathering in Software Development," *GeeksforGeeks*, Jan. 30, 2024.
   https://www.geeksforgeeks.org/importance-of-requirement-gathering-in-software-development/