Requirements

Group 4

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We followed a 4-step requirements specification program[3] to ensure that we were on top of requirements. We began with requirement gathering, the stakeholders provided us a product brief detailing the core functionalities and user requirements. As a team, we read through the brief, discussed our vision for the game, talked about our target audience and wrote down questions we had for the stakeholders based on this. The following week we had a 30 minute meeting with a shareholder to clarify ambiguities as well as talk about other aspects of the system. This was made into a transcript after getting consent from the shareholder. On top of sourcing requirements from stakeholders, we discussed it with friends in our target audience and family. As well, we looked at similar games on the market to see how they made the game both appealing and fun. One example we used is the game series 'The Sims', which has been sold more than 200 million times meaning that people like it. The games share many similarities and they inspired some of our requirements. Notable requirements taken from this market research include the camera movement and the obstacles used in the game.

After research online and internal discussion, we determined the best way to present the requirements for clear understanding was a table. I have presented them below in this format. Throughout the project, we have remained in close contact with the software developers, ensuring any requirement changes could be quickly communicated. Due to the nature of the task and our unfamiliarity with game development in Java, the requirements and our implementation of them has often had to change. This is due to our initial limited knowledge and the new possibilities we have discovered. We began by agreeing on a base set of requirements, changing, adding or removing them based on what the coders were able to achieve at that moment. Due to consolidation week, in which we wouldn't have a scheduled meeting due to us not all being in the same place, we decided to have the requirements fully fleshed out and agreed upon before then. We set three priorities: 'Shall', 'Should' and 'May'. 'Shall', for what is in the product brief or could be implied from it, is our highest priority tier, and is preferably non-negotiable. 'Should' is for things we want to include and believe are viable to implement in the time frame, and finally 'May' is for ideas that would add to the system but are not essential and therefore may not be included due to time restrictions. To keep track of this we have included a 'Met' column which shows which ones we eventually implemented. The name is a brief title of what the requirement is and should be recognizable from the ID but in some cases it won't be as we limited the ID sizes for readability. Overall we met the majority of our requirements set out at the start but decided to leave the sound to focus on other things in the limited time frame and through this we also didn't meet some of our accessibility requirements.

SSON: **"A single-player game system that allows the player to build their own university campus from scratch, placing various buildings and activities, and overcoming obstacles."**

User Requirements:

User_ID	Name	Description	Priority
UR_LEN	Length of Game	The user shall play for a maximum of 5 minutes.	Shall
UR_TIM	Timer	The user shall see a countdown until the end of the game.	Shall
UR_CNT	Building Counter	The user shall know how many buildings have been placed, in the form of a counter.	Shall
UR_BLD	Build	The user shall be able to place buildings on a map.	Shall
UR_TYP	Building Type	The user shall be able to place at least 1 of each building type: Sleep, Eat, Learn and Recreation.	Shall
UR_FUN	Fun	The user should find the game fun.	Should
UR_UI	UI	The user should not find it difficult to play the game.	Should
UR_ABY	Accessibility	Users with specific accessibility requirements should be able to play.	Should
UR_END	End	The user should be aware when the game has finished.	Should
UR_PAU	Pause	The user may be able to pause the game.	May
UR_CAM	Camera	The user may be able to move the camera position on the map.	May
UR_SND	Sound	The user may be able to hear in-game sounds and music.	May

Non-Functional Requirements:

ID	Name	Description	Met?	User_ID
NFR_RBY	Readability	The text should be easily legible and at least size 14. **[1]**	Y	UR_ABY

NFR_CUE	Multiple Cues	Nothing should rely entirely on text cues or audio cues – should include multiple, or image elements.	N	UR_ABY
NFR_VOL	Volume	The max decibels used should be 70 but minimum 30 so some users with hearing difficulties can hear.[2]	N/A	UR_ABY
NFR_ZOM	Zoom	The map shouldn't be too zoomed in or too zoomed out. Min 8 and Max 40 possible buildings on screen.	Y	UR_ABY
NFR_DGN	Design	Terminology, button placement and language used should match similar games and systems.	Y	UR_UI
NFR_ITN	Intuition	The system should make available actions and current events clear at all times. Verify using test users.	Y	UR_UI
NFR_FUN	Fun	Through test users, we will implement functionality and design to make the game fun to play.	Y	UR_FUN
NFR_MAP	Map	The map should look interesting and engage both our test and actual users.	Y	UR_FUN
NFR_SND	Sounds	The sounds should not be jarring and should not startle the user.	N/A	UR_SND
NFR_OBS	Obstacles	There may be obstacles and/or a lake on the map where the system will prevent building placement.	Y	UR_BLD
NFR_PLC	Placing Buildings	The map should update in less than 1 second when a building is placed with the new building.	Y	UR_BLD
NFR_END_PLC	End of Game Build	Once the timer has finished, the system should prevent placement of additional buildings immediately.	Y	UR_BLD
NFR_END	End of Game	After the game ends, the system should make this clear to the user.	Y	UR_END

Functional Requirements:

ID	Name	Description	Met?	User_ID
FUN_EXE	Executable	The game shall be a .JAR executable that the user can run, which sends them to the start screen.	Y	UR_UI
FUN_STA	Start Screen	There shall be a start screen with a start game button. Clicking will send them to the main game screen.	Y	UR_UI
FUN_TRL	Tutorial	There may be a tutorial button in the start menu with how to play.	Y	UR_UI

FUN_CNT	Counter	The main game screen shall have a countdown starting at 5 minutes once the start button is pressed.	Y	UR_TIM
FUN_SCR	Score	There may be a section with the score on the main game screen, telling the player how well they are doing.	Y	UR_FUN
FUN_TIM	Time Passed	There may be a Figure on the main screen telling the user how many in game years/months have passed.	Y	UR_FUN
FUN_BLD_BTN	Building Button	There shall be a button that opens the building section on the main game screen.	Y	UR_BLD
FUN_BLD_TAB	Building Type Tab	There may be separate tabs in the building section that contain each different type of building.	N	UR_BLD
FUN_BLD_CNT	Building Counter	There shall be a counter in the main game screen with the number of different buildings placed.	Y	UR_CNT
FUN_PAU_BTN	Pause Button	There may be a pause button on the main screen, stopping the timer and opening the pause screen.	Y	UR_PAU
FUN_PAU_MEN	Pause Screen	The pause screen may show how to play with the option to resume. Resuming continues the timer.	Y	UR_PAU
FUN_SND_EFF	Sound Effects	The game may produce sound effects when something happens e.g. placing a building, end of game etc.	N	UR_SND
FUN_SND_MUS	Music	The game may contain non-copyrighted background music	N	UR_SND
FUN_SET	Settings	There may be a settings menu that could be accessed through the start screen.	Y	UR_UI
FUN_VOL	Volume	There should be a mute volume button in the settings menu.	Y	UR_SND
FUN_CAM	Camera	The map should be able to change position using the arrow keys.	Y	UR_CAM
FUN_END_SCR	End Screen	After the time has ended an end screen shall appear displaying the results, retry and exit buttons.	Y	UR_END
FUN_END_BUT	Buttons at End	Clicking on the exit button shall close the application, the restart button shall start a new game.	Y	UR_END

Work Cited

[1]   "Real Inclusion - Accessible formatting." *Inclusion Scotland*,

https://inclusionscotland.org/wp-content/uploads/2021/08/44634-Real-Inclusion-Accesssible-Formating-Document-1.pdf

[2]   "Do you know how loud is too loud?" *2020. NIDCD.*

https://www.nidcd.nih.gov/news/2020/do-you-know-how-loud-too-loud.

[3]   "What are the four 4 major steps of requirements specification?" *Pallavi - Ba careers,*

https://www.bacareers.in/tag/what-are-the-four-4-major-steps-of-requirements-specification/#google_vignette