Digital Escape Room

Software Requirements Specification

CSCE 247: Software Engineering

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I.   Introduction

Purpose

The product that we are building is a virtual escape room that is prison-themed. This is to add some spice to escape rooms and give the user some thrill or fun while playing the game and being immersed in it. We plan to make this game not too hard, but at least some difficulty, since the game will have a time limit of 30 minutes max. Our goal for this project is to make a fun prison-themed escape room game that gives the user a time limit to escape the prison after being falsely imprisoned. We want the user to have to think to find these clues and give them time to think, but not too much time, since it is limited. We feel like a super long escape room gives too much time; we want the user to be able to perform under pressure, knowing they have a certain amount of time to escape. This could also increase the user's critical-thinking skills. The business problem we are trying to solve is the boring themes or genres of escape rooms for games, and also making the game boring for our clients/players.. We want to give our clients/players some fun while playing the game and actually make them think. We don't want the game to be too simple since it would make it too easy for the user and make it boring and short. This game would also be good for a little playtime since you get 30 minutes to work your brain and give you a break from a long day of work/school.

II.   Stakeholders

- Gamers
  - Parents of gamers
- Client (Dr. Portia Plante)

Personas

Edna Brown

Age	68 years
Gender	Female
Location	Richmond, VA
Occupation	Retired
Education	B.S. in Nursing

Biography

Edna is patient, open-minded, deep thinking, thrill-seeking, loosely religious.

She is an old retiree who's looking to kill time during her final days on Earth. She used to work as a nursing home assitant but now lives her days in a nursing home herself. She likes to talk long walks outside and play cards with her friends. She is the president of her nursing home's knitting club but has recently been taking days off from her duties because of health problems.

She has a huge phobia for dimentia and has been trying everything to preserve her witts. Her grandson told her that he read a study about video games being good for improving cognitive ability, so she lately garnered an interest around them. She's specifically been looking for simple, story driven games that don't make her dizzy.

"I don't trust these computers but I'm bored and you only live once!" - Edna

Goals

- Prevent neurodegeneration via natural methods
- Connect with her grandchildren by sharing in their hobbies

Needs

- A game that's not too action packed so she doesn't get dizzy
- A game that's not too time demanding so she can spend her freetime doing other things (like being with family)
- Beginner friendly controls and menus
- Easy-to-follow tips and tutorials

Emma Tillman

Age	15 years
Gender	Female
Location	Raleigh, NC
Occupation	JC Penny Cashier
Education	High Schooler

Biography

Teenager who is introverted, mellow, judgey, spiritual.

She loves reading novels and using her computer at her local starbucks. Her favorite book genres are romance, mystery, and thriller. Enjoys playing single-player games like Skyrim. She's most familiar with AAA adventure games, but is open to trying more indie games to spice up her life.

She just recently got out of a relationship, and has been feeling very lonely lately. She longs for human connection, but her introvertedness prevents her from making new friends with real people. Her parents also got divorced a couple years ago and is still dealing with the frustrations she has from it. She's been yearning for an escape in life.

Goals

- Find her calling in life (like career goals) by trying new things
- Find a way to make new friends and be more relatable
- Improve her problem solving skills to help relieve some of her insecurities

Needs

- A captivating story that rivals the writing from her favorite books
- To be able to make impactful decisions in game (she likes having control)
- Simple but effective and familiar game mechanics

Derek Jones

Age	9 years
Gender	Male
Location	Chicago, IL
Occupation	Student
Education	Elementary Schooler

Biography

Little kid who is bashful, impatient, hyperactive, academically gifted.

He loves soccer and video games. He tried to play Fortnite once but got destroyed by the veteran players, so now has a soured impression on hyper-competetive games. He got so addicted to Roblox, his parents only allow him to play on the weekends now (but also during the holidays and summer break). He does pretty well in school and is in one of the gifted classes. He gets easily bored during class, so he brings a rubix cube and occasionally other fidget toys everyday.

His parents have recently been reconsidering the video game soft ban they've imposed on him and have been wondering if puzzle games would be beneficial for his brain development. They prefer him not to play online games because they make him frustrated and can expose him to online predators. The games they've showed him so far don't keep his attention, so they long for a game with a premise that can properly captivate him.

Goals

- Find a game that his parents approve of
- Explore new genres of games

Needs

- A game captivating and immersive enough for him to binge play during his long weekend gaming session
- Fun puzzles that engage his young brain stimulatingly
- A minimal amount of reading (he's more visually oriented)

III. Constraints

Time Constraints
- The project must be completed by the end of the semester.

Money Constraints
- The project's development has an allocated budget of $0.

Technical Constraints
- The project software must be coded in Java.
- The project software must run on Java-supported devices, including desktop (Windows, macOS, Linux) and mobile (namely Android) platforms.

IV. Overall Description

This application must be accessible to users on Java-supported devices. It must simulate a prison-escape style scenario with strong puzzle and strategy elements. The game must feature a GUI and user reactivity within a story-driven game environment. It will allow players to interact with this simulated environment and work towards the win condition—escape—via point-and-click style gameplay.

IV. Functional Requirements

[Requirements Spreadsheet](.).

V. Non-Functional Requirements

Look and Feel Requirements

- The user interface of the game shall be easy to navigate for players of any experience level.

Usability Requirements

- The game shall be accessible to players of various skill levels.

Performance Requirements

- The game shall be able to run offline on any system.

Maintainability and Support Requirements

- The game shall be able to run on Windows, Mac, and Linux operating systems.

Security Requirements

- The player's information shall be stored securely.

Legal Requirements

- The game shall comply with all applicable legal regulations.

IX. Competitive Analysis

	Trace (Coolmath Games)
Strengths	The graphics in the game actually look great. The textures are crisp and realistic. The lighting and reflections also look amazing. It's a simple point and click game. You can "move" around by clicking one of 4 arrows on each side of the screen, and you can zoom in further on objects to inspect them. The game provides clear and easy to understand directions. One feature that I loved was that you can basically craft items. You can combine items in your inventory to create new items that you need to progress further in the game. Some items you have to repair/fix. Another wonderful feature is that it saves your progress when you quit, so you can easily pick up right where you left off. Not to mention the game itself is also very fun to play. You rarely get the same type of pizza twice. The map is also fairly big with lots to explore.
Weaknesses	The game is awesome, but it's also a very long game. If you try it by yourself with no tutorials then it could take a couple of hours to complete. There's nothing objectively wrong with that, we're just looking at creating a much shorter game. Since this game is very detailed and challenging, it might be frustrating for new players since they aren't experienced in these types of games. Different difficulty modes could fix that.
Audience/Focus	Definitely geared towards the more dedicated escape room players. I say that because it is a pretty challenging game with a lot of moving parts. Still, anyone can play it, some would just take a long longer and might have to watch a tutorial on it.

	Mr. Mine Escape (Coolmath Games)
Strengths	This game shared the same point and click style as well as the movement with Trace. One feature this game had over Trace was hints. You could get a hint at the price of an Ad. I like the style of the graphics, it's much more like pixel art compared to realistic textures and lighting. The music is a nice touch. It's nice ambient music with soft piano notes in the background. The actual gameplay is nice too. It was very clear what I had to do. The length of the game aligns more with our goals as well, only lasting around 20 minutes.
Weaknesses	One weakness is the difficulty of this game. This game does not take much problem solving. The things you have to do are obvious and the hints make it even easier. The difficulty of the game simply does not align with our targeted audience. It also lacks detail compared to a game like Trace.
Audience/Focus	The audience for this game is kids. The graphics, difficulty, and the content of this game is aimed more at kids.

	Faraway (Coolmath Games)
Strengths	This game surprised me. Unlike the others, you can actually look around with your mouse. You can also click where you want to walk. Those features add more depth to the point and click style games. Something else that stood out was the user interface. It's very clean and smooth. The music in the game is awesome. Good music makes a lot of difference while playing. The audio in general is very good. The game also has some sort of a storyline. You are trying to find your brother in the ruins, which makes it more interesting since you have an end goal in mind. There are notes from your brother hidden throughout the map that you can collect and piece the story together.
Weaknesses	The gameplay isn't the best. The puzzles you have to solve are very simple and don't require much thought, which makes it a little boring after playing for a while. It lacks the problem solving other escape rooms require, making it feel more like a puzzle game than an escape room. The lack of clues also contributes to it feeling like that.
Audience/Focus	This game would appeal to kids the most. The only reason for that is because of how simple the puzzles are. Everything else doesn't scream that this game is for children.

Summary

	Strengths	Weaknesses	Focus
Trace	+ Graphics + Crafting Items + Details	- Length - Difficult for some	+ Experienced players
Mr. Mine Escape	+ Hints available + Length + Music	- Too easy - Lack of details	+ Children
Faraway	+ Music is superb + Storyline + Clean UI	- Gameplay - Too easy - Lack of clues	+ Children and teens

Following the competitive analysis above, we have extracted key insights from the strengths and weaknesses of similar puzzle/escape-type games. Trace makes good use of graphics, crafting, and detail, however its length and difficulty may alienate the casual player.   Mr. Mime Escape and Faraway deliver good solid music, hints, and/or narrative elements, yet are bogged down by shallow mechanics and limited offerings for experienced players. Bearing these in mind, it is clear that our game must strike a careful balance: engaging enough to satisfy seasoned gamers, accessible enough to entice newer players, as well as maintaining an optimal run length of 20 to 30 minutes. Our core priorities include strong narrative grounding, engaging puzzle design, a clean graphical interface, and music that enhances the user experience without distracting from the task at hand – that is, incorporating the strongest elements of competing titles while eliminating potential shortcomings.