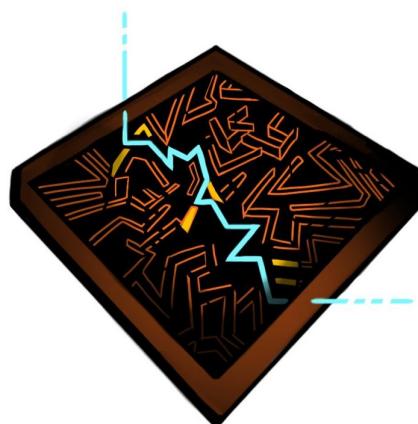


Book of Specifications



iAmaze

iAmUnknown

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Contents

Contents	3
1 Introduction	5
1.1 The Team	5
1.1.1 Thuraya Shanbari	5
1.1.2 Carl Van Hoorebeke	6
1.1.3 Sergio Moubayed	6
1.2 The Game	7
1.2.1 State of the Art	7
1.2.2 Origins	9
1.2.3 Concept	9
2 The Game	10
2.1 Goals	10
2.2 Benefits	10
2.2.1 Individually	10
2.2.2 Collectively	10
2.3 Parts of the project	11
3 Structure	11
3.1 Functional	11
3.2 Technological and methodological	12
3.3 Operational	13
References	15
Index	17

1 Introduction

1.1 The Team



1.1.1 Thuraya Shanbari

My interest in games has always been apparent, but never in a million years did I believe I would be in a position to make one. It felt like a tedious task at first, especially since we were expected to be original, and the pressure is still evident as I write this. . . The idea of a maze-based game was not suggested by me, but as soon as I heard it, I knew it would be the perfect idea. It reminded me of when I used to play mini-games like Pac-Man as a child. I had many visions for the aesthetic part of our game; to give it a bit of life and step out of the overused colors a normal video game would have. That was when we mutually decided I would design textures and come up with the colorful and stylish ideas including background music and sound effects for the game. With this project, my main goal is to have fun, no matter what happens. I also feel the need to be the “happy pill” of the team just to keep the morale when everyone is feeling down and exasperated. I have so many hopes for this game to the point where it got real at one group meeting where we discussed wanting to publish our game on an online platform by the end of 2020. I believe we are a group with diverse personalities, giving us room for a strong flow of creative thoughts and with that, we can conquer any obstacle in our way.



1.1.2 Carl Van Hoorebeke

I'm the gamer of the group, but not the kind of guy who plays sometime on his free time, I have played video games all my life since I was a little kid and still playing them a lot till now. Making a video game was my dream which combines my 2 passions, gaming and coding. The idea of creating my own game, with my own character, story, rules, mechanics, fascinates me so much. My goal for the project is nowhere near having a good grade. My only goal is to make the best game I can while just having fun. As the gamer of the group I give a lot of ideas to the game, and arrange them so that the game can be playable as not too easy nor too hard and adding features that make the game more fun, as a game designer. I'll be in charge of most of the mechanics of the game, using Unity game engine and C sharp with rider. Making my first game is not just a project to present in front of a jury, making my first game is the door to my future, knowing where I stand, what I can achieve and what I can create. We will all give our best for this game and will give everything we have to do it as best as we can.

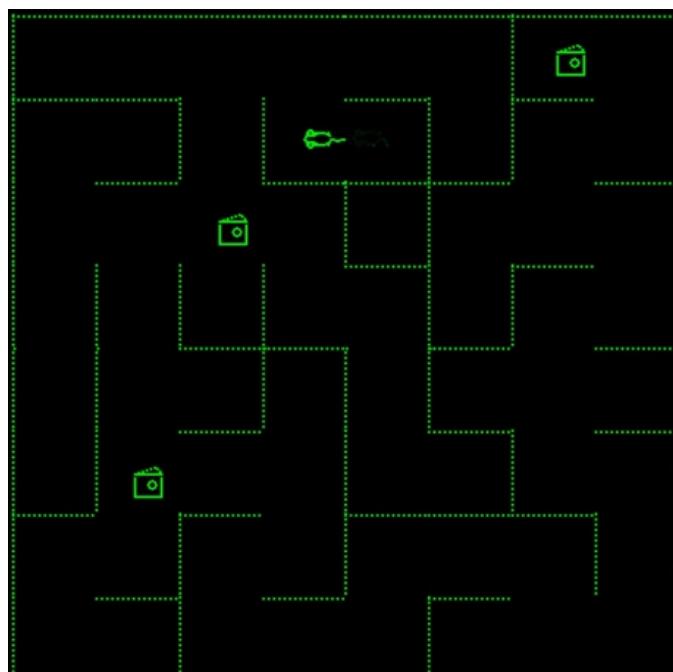
1.1.3 Sergio Moubayed

Being the only non-gamer in my group, I felt like I was the least motivated person of the team before starting the project, but when we began discussing it, I started appreciating the freedom and the opportunity we had to express our creativity through this task. When discussing the game, lots of ideas would flow to mind. Being a creative person who usually likes arts (mainly photography and using photo shop), I liked to focus on the graphics of the game since I have always been intrigued to learn how to do create 3d models for games and for different applications. It is an opportunity for me to learn blender and put my creativity in use for this project. I am usually considered more of a scientific guy who loves programming. I have developed a love for problem-solving which has made good enough at solving various algorithmic-like problems. This is why I would like to code some of the tricky rules the game would potentially have. Being someone that is usually punctual, I identify myself as the secretary of the group, mainly managing documents (Like this one) and deadlines.

1.2 The Game

1.2.1 State of the Art

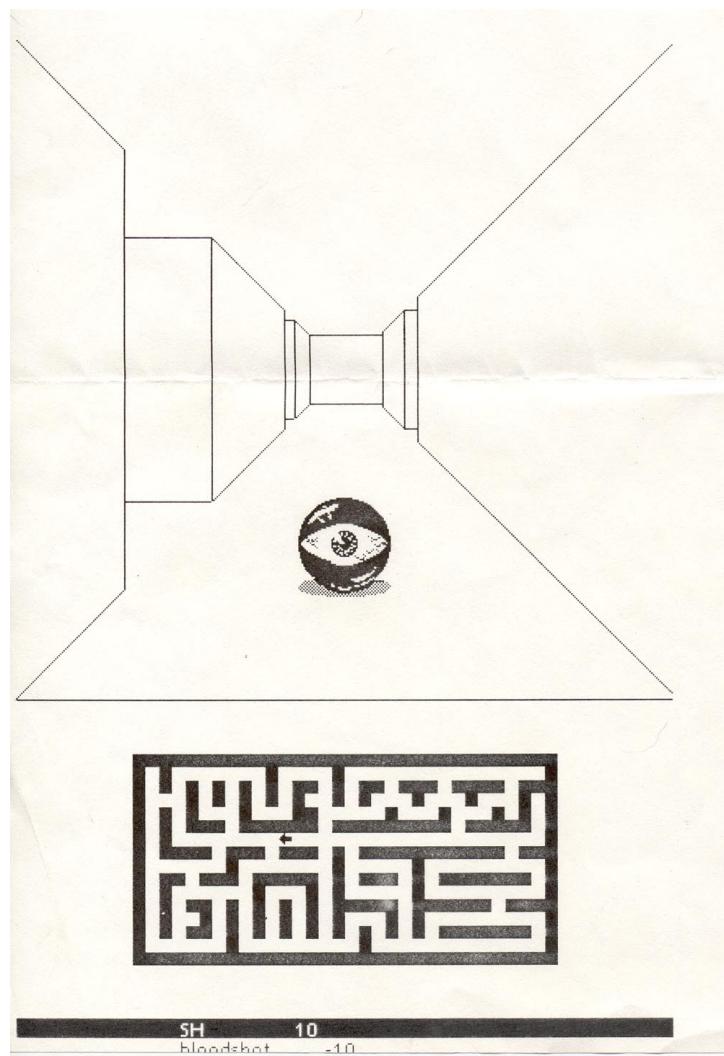
Maze games have been apparent ever since the late 1950s, with "Mouse in the Maze", which consisted of a mouse having to parkour a maze and get all the cheese slices. The player would use a "lightpen" which is a sort of flashlight pen that is applied on the screen to create the maze on an 8x8 grid, once done, a mouse would be set free and roam around to eat all the cheese slices. "Mouse in the Maze" was the first video game to ever use a light pen.



Moving onto about twenty years later, one of the most famous maze games we know came out: "Pac-Man"; along with its copies "Ms. Pac-Man", "Pac-Mania", "Jr. Pac-Man" etc. One of this game's strengths is its ability to intrigue the player into wanting to beat the four ghosts pursuing him. With each round getting harder and ghosts moving faster, the player gets even more addicted. Specific features of "Pac-Man" include how each ghost moves differently than the other. In other words, they each have an algorithm to follow in order to catch the player. Another specific feature that appeared while searching about this specific game is the occurrence of an integer overflow at the 256th level, making it so that the highest score a player could ever attain is 3,333,360 points.

Moving on to first person maze games, "Maze War" was released in mid 1970s. It is a game where players are put in a maze and gain points for shooting each other, and losing them when being shot. Something to be known about this game is that it was never released commercially. It may seem to be a very simple game, but it was an advancement in the time and age it was released in. Players' avatars appeared as eyeballs, and could only make small simple movements and turn in

90 degree angles.



Lastly, in 1982, one of the first of maze games to offer full 360 degrees 3D view of movement was released called “Wayout”. It was characterized as one of the games with high-end graphics at the time of its release. It revolves around a player, who needs to escape the maze with the use of a compass and a map-making kit. Generally, the game made the map available to the player as he discovered the maze. These maps could be stolen by beasts within the game, but could also be retrieved by chasing the beasts down.



1.2.2 Origins

Thinking about making a game is not as easy as it may seem. It is generally believed, especially upon young generations, that the only obstacle they have to defeat to create a game is learning how to program it. We just learned that this is not really the case. Coming up with the whole concept of the game is VERY difficult, especially because we are asked to be creative in the design of the project. It might not seem obvious until you start thinking about it: it feels like almost all games already exist.

To prove our point, we could take the final exam of S1 (2024) where we were asked to actually write an entire game that could be played, in 3 hours of time, along with other functions. We were also asked more than a time to create existing games in practicals. Although these games were not that complex, they were nevertheless unique and creative games.

When we started thinking about a concept for the project, we went through many ideas including race games, combat games insert here. It isn't until we started joking about making easy games like X/O and kids mazes that it hit us; there aren't many maze games out there. So we decided to start creating the concept around the fact that it would be a maze. The hardest part to find was how to implement the game in a way to enable many players to play.

1.2.3 Concept

The concept of the game is easy. There are two categories of players for the multiplayer version of the game: The runners which need to escape the maze before the time ends, and then we have the god which controls some parts of the maze and can tamper with it to stop the runner from escaping. In the single-player version of the game the player takes the role of the runner while the god becomes a bot. The different characters have different powers they could use to achieve their goals.



2 The Game

2.1 Goals

When we started working on the project we all agreed that it wasn't a typical school project, it was a dream come true for most of us. That's why we don't consider this task as another test or exam, we consider it as a fun activity we'd always wanted to try. So our goals are not limited to the grade of the project, it is more about the whole experience we gain through it and most importantly to realize this dream that has been for a long time in our minds. We were also talking about publishing the game online when we are done with it. It would be really good to receive constructive criticism from other players and learn from our mistakes.

2.2 Benefits

2.2.1 Individually

This project is extremely beneficial on the individual level. Having knowledge in C sharp helps a bit but isn't close to being enough to create a whole game on unity. This project gives us the opportunity to learn about game engines (Unity) and 3D computer graphics software (Blender) and how to use them along with Rider. Having to learn all this on our own makes us work more independently and really teaches us how to go through the documentation, troubleshoot problems and use the internet in a way to learn new things without copy-pasting code.

2.2.2 Collectively

Being a computer engineer in a company is pretty hard, you are usually part of a team that isn't only composed of people with the same hobbies and majors. That's why it's important to be able to communicate with these people. Our team is composed of very different members with various interests, this sometimes makes it hard for us to agree on certain things but it's also this diversity that has enriched the game and made it what it is.



2.3 Parts of the project

As mentioned in the individual paragraphs written by each of the members, everyone was really excited about dividing the work into parts. We elected Carl to be the group leader because he has the most knowledge in gaming, allowing him to steer us in the right way and providing the team with optimal ideas for various in-game difficulties. He will also take a major role in the mechanical aspect along with the physics associated with the game. Carl will also be helping Sergio and Thuraya adapt to Unity software, or even help translate their ideas into code. Sergio will be in charge of graphics using Blender, he will be assisted by Thuraya who will be helping in designing the whole aesthetic aspect of the game (ie. the walls, doors, floors, etc.) As for the background music, Thuraya will be handling it. We agreed that music is an important aspect in gaming. It allows the gamer to be more immersed into the environment. Keeping in mind that the player will be in a maze, means that he is in a place where the slightest sounds should affect how he plays the game and which next steps he would take. Thuraya will be working on web design, assisted by Sergio, which will have information on the team, an overview about the game, links to the reports (LaTeX), and a link to download the game (once it is complete).

3 Structure

3.1 Functional

Our game (iAmaze) is a puzzle-strategy maze game in which the players have the chance to play one of the roles: The God or a Runner. Each role is completely different with a different POV and a different goal. In the game, the runners will have to escape from a maze with various puzzles in limited time. On the other hand, the goal of the God is to stop them from getting out of the maze. Both roles will have multiple characters each having different abilities that will lead them to victory. The God will be granted a godlike point of view, where he sees the entire maze from above, while the runners will be in first-person. The map will be done manually, and to have each time a different experience, we will divide the map into different sectors that will be interchangeable. Each sector will have its own theme and its own puzzle, entries, and exits, and in each game, the entry and the exit of the maze will be different. The runners will be granted a map that will only reveal path already discovered. In the maze, rewards will be granted to runners for solving additional and optional challenges that will be given by the God, but once accepted, if the challenge isn't completed, a reward will be granted to the God.

3.2 Technological and methodological

To build our game we will use multiple engines to help us. First, for the mechanics of the game, we will use the Unity game engine with C sharp language written on Rider. We decided to use Rider because it aids us in finding easily the actions to code within the game. We chose Unity to work with over other engines because Carl already has some knowledge of it, in which he can help other team members learn and because it is very widespread. For the animations and graphics such as the map, or the characters, we will use Blender and maybe Mixamo because they make animation much easier to work with. For the music, we agreed to start with a basic, easily accessible application called "Garage Band". It is user-friendly, especially for people who have little to no experience with music production. To communicate with each other, we created a WhatsApp group because of its easy and fast access on the phone. We also shared a Google Drive document where we all typed our ideas for brainstorming. Finally, we shared a LaTeX file through the Overleaf platform.



3.3 Operational

