S2 PROJECT

REPORT 2

Deplorable Odyssey

a platformer game

Group name:

comme_convenu.exe

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Contents

1 Tasks Distribution

Since Serge Bangerski left the project, we had to divide the tasks once again:

Tasks	Martin	Mathias	Albin
Artificial Intelligence	**D**		**S**
Multiplayer		**S**	**D**
Graphics (Backgrounds)		**D**	**S**
Graphics (Characters/Entities)	**D**	**S**	
Coding (Game)	**S**		**D**
Coding (Website)	**S**	**D**	

Deleguate: D
Substitute: S

2 Book of specifications follow-up

2.1 Origin and type of project

In our Book of specifications, we introduced the Origin and type of project, where we introduce some characters and the form our game will take, such as the fact that our game is pixelated and 2D, and that it will be a form of RPG where the main character will be able to fight monsters to buy better equipment and gain power.

We also detailed the story of the game, where a resident goes out of his village and comes face to face with a slime, and decides in the future to protect his village by buying weapons from the person who had previously saved his life, the village armorer.

2.2 Object of study

We mentioned that this project will allow us to discover the tools used to make a video game, the team cohesion and the distribution of tasks will be key to the success of our project.

After multiple hours spent working on the game, we discovered new features in the world of video game creation, how Unity works, how multiplayer works, what tools to use, and in general it's an experience we never had the chance to have before.

2.3 State of the art

The first platformer game, Space Panic, was released in 1980 by Universal for arcade machines. Players had to move on platforms and climb ladders to dig holes to lure and kill aliens. The game lacked the jump mechanic that would become a defining feature of future platformers, such as Donkey Kong, released by Nintendo in 1981.

Donkey Kong involved climbing platforms using ladders, avoiding barrels thrown by Donkey Kong, and reaching Pauline to complete levels. Early platformers were often clones of existing games, such as Miner 2049er, released in 1982. Despite being an old genre, platformers have remained popular, with many 2D platformers incorporating adventure elements.

The simplicity of 2D platformers makes them easy to play and requires less energy to run, making them accessible to low-end PCs. Platformers involve controlling an avatar in a 2D environment, fighting entities controlled by AI or avoiding obstacles through increasingly challenging levels. Players move using two vectors: up and down, left and right.

2.4 Parts of the project

2.4.1 Artificial Intelligence

In our game, we planned to use artificial intelligence to create a more engaging player versus environment (PVE) experience. The different mobs spawning on the map had integrated AI to make their movements more randomized and to make them follow the player. This give the illusion that the monsters are alive and create a more challenging gameplay experience. Initially, due to the low difficulty of the monsters, their movements are limited, but as the difficulty increased, they move more accurately and make better decisions to attack the player. The AI govern the different difficulty levels of the monsters and there are several types of monsters with different levels of difficulty.

As for the villagers, they will be governed by a simpler program and act independently of the player's movements. When it comes to bosses, we have considered giving them some form of artificial intelligence, similar to the bosses in Terraria.
However, we have not made a final decision on this and will discuss it further when we start coding the game. Overall, the integration of artificial intelligence into our game will create a more immersive and challenging game play experience for our players.

2.4.2 Multiplayer

We planned to develop a PvP mode for the game where two players would fight against each other using weapons already in the game.
PvP mode would be playable online from different computers, and it would be playable on a server hosted by one of the players' PCs. The online library for the multiplayer feature has not been chosen yet.

In the PvP mode, players are given random weapons of the same level, and they fight each other using their own strategies. One of the players have to host the game and have a good internet connection since their PC take all the server's load.

2.4.3 Graphics

In our game, we will have pixel-art graphics with a medieval setting. The background will be a blurred image and there will be dynamic buttons for the user to select options. The game will have three different screens with different environments and decorations.
The characters will be represented in pixel-art style, with different sprites for the hero, armorer, and villagers. The monsters will have varying sizes to represent their power, and bosses will have unique designs highlighting their attack style.
To draw the characters, we used an app called piskelapp that allows us to draw and animate pixel art easily. We can export the drawings as PNG files to keep the alpha background and prevent black backgrounds.

2.4.4 Coding

The game features AI-controlled monsters with evolving movement patterns that become less random and more targeted towards the player as the game progresses.
Items have varying rarity classes that affect their damage and life duration, with higher rarity items also being categorized into weapon, armor, or consumable types (divided further into consumable care and damage).

The player have access to an inventory to manage their items. The menu will have options to launch the game, change settings such as movement and interaction keys, sound and music intensity, and resolution. The game require interaction between elements such as the effect of potions on entities, armor buffs, weapon damage, and screen changes triggered by player sprite contact.

3 Chronological individual progress

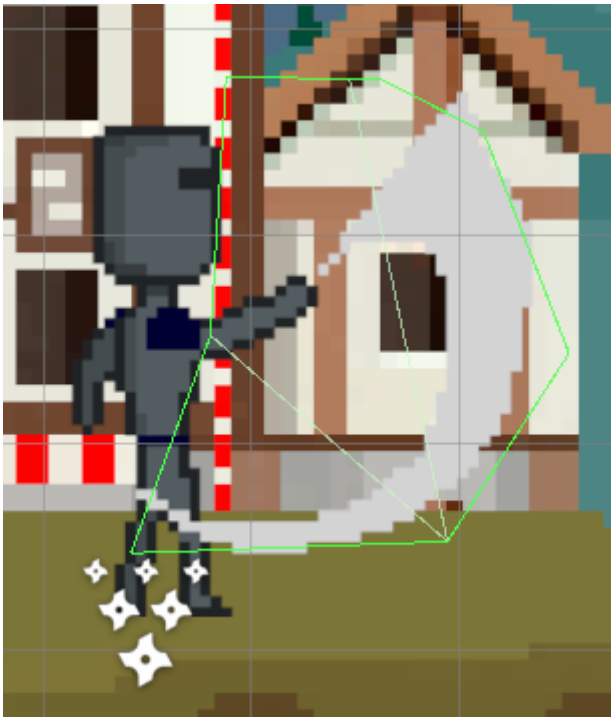
3.1 Martin Boulanger

I worked on coding the game, coding the artificial intelligence of the monsters and on the design of the website.

First, we had a little problem. In fact, the only monster that was fully implemented into the game, the green slime, was able to deal damage to the knight, but it wasn't able to receive damage, and therefore couldn't die.
I fixed this by implementing his health points. After that, I needed to add a hitbox to the animation of attack of the Knight.

There was an issue, the hitbox was too small and the player had to get hit by the slime in order to hit the slime himself. Therefore, I made the hitbox wider in order for the player to be able to hit the slime without getting hit.

Hitbox of the Sword when swinging with it.



With this change, competent players will be rewarded when maintaining a good distance with the monsters. This way it adds a mechanic to mastering and a training aspect to the game.

After testing these changes, I thought something was missing during the fight: the hit marker. You couldn't realize if you successfully hit your opponent or not.

Therefore, I added an effect which makes both the Player and the monster turn red for a few frames. This way, the player can properly understand whenever he gets hit, and when the monster gets hit aswell.

Player and Monster turning red when getting hit.

As you can see on this picture, I also added a Healthbar in order to know how much health-points the monsters have.

Full HP Slime.

To make it look better, the healthbar is only shown whenever the monster already lost a few healthpoints.Then, the less the monster has healthpoints, the more the healthbar tends to turn red, starting from green when having almost all his healthpoints.

In order to properly do that, I used the function Lerp, which was used in the last prog practical work. This helps the player to have a fast understanding of what's happening.

Here are a few pictures of the healthbar:

High HP Slime.

Mid HP Slime.

Low HP Slime.

Finally, I added a few particules effect whenever the Player runs, and jumps. This little detail makes a huge difference!

Here is how it looks:

Dust when Knight is running.

Dust when Knight is jumping.

To conclude, I helped Mathias with the design of the website.

3.2 Mathias Cadiou

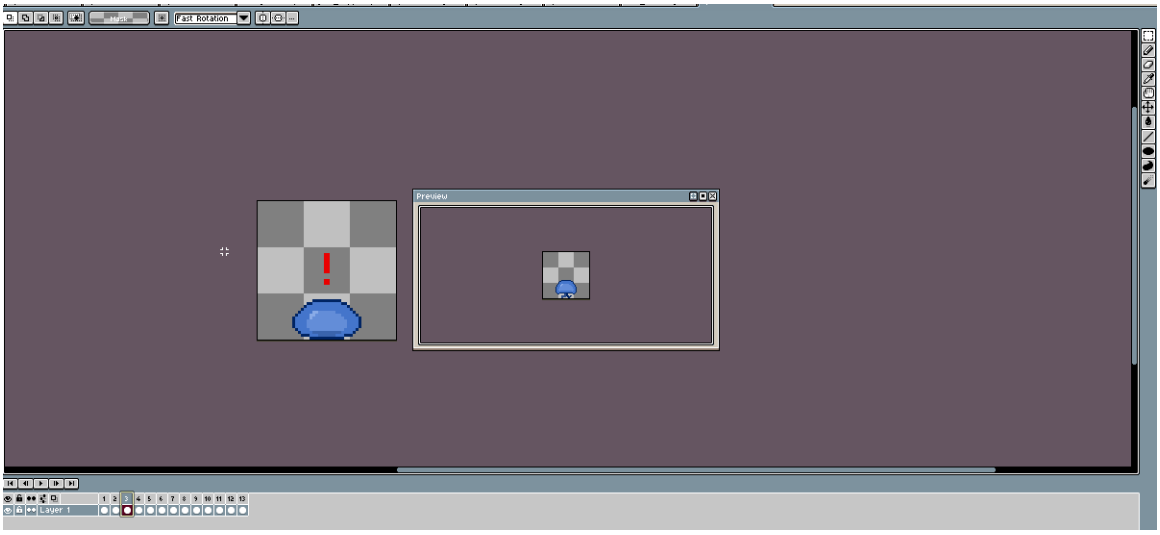
One of my primary responsibilities in the group was designing new characters for our Unity game. Our goal was to create a second slime character with different artificial intelligence (AI) from the first one. This new slime would move faster towards the player and not jump, providing a unique challenge for players to overcome.

Initially, I used an app called Piskelapp to create the sprite for this new character. However, I found that the website was too slow for our needs, so I transitioned to using Aseprite, which provided a more efficient and robust toolset. Aseprite allowed me to work faster, experiment with different designs, and refine the character's appearance and animations.

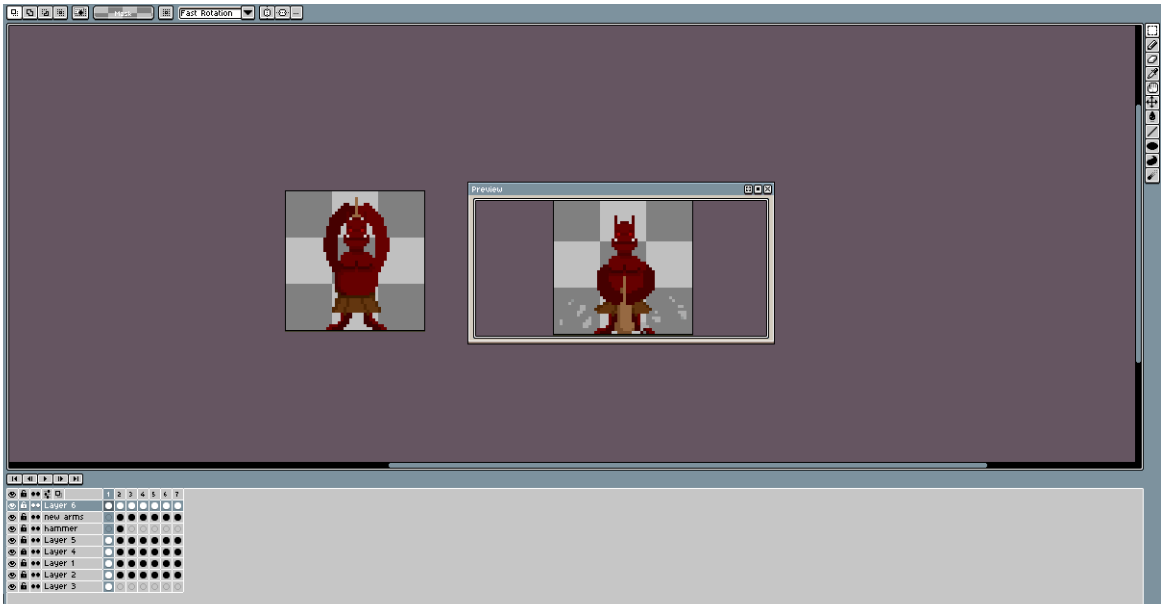
During the design process, I spent considerable time researching and gathering inspiration from various sources, including existing games, concept art, and online forums. This research helped me to better understand the desired look and feel of the character and enabled me to iterate on my designs more effectively.

Once the design was complete, we were able to import the sprite into Unity and make the animation work seamlessly within the game. To ensure that the character's behavior aligned with its design, I worked closely with our team's programmer to fine-tune the AI and address any issues that arose during testing.

Picture of Aseprite, the new sprite editor.



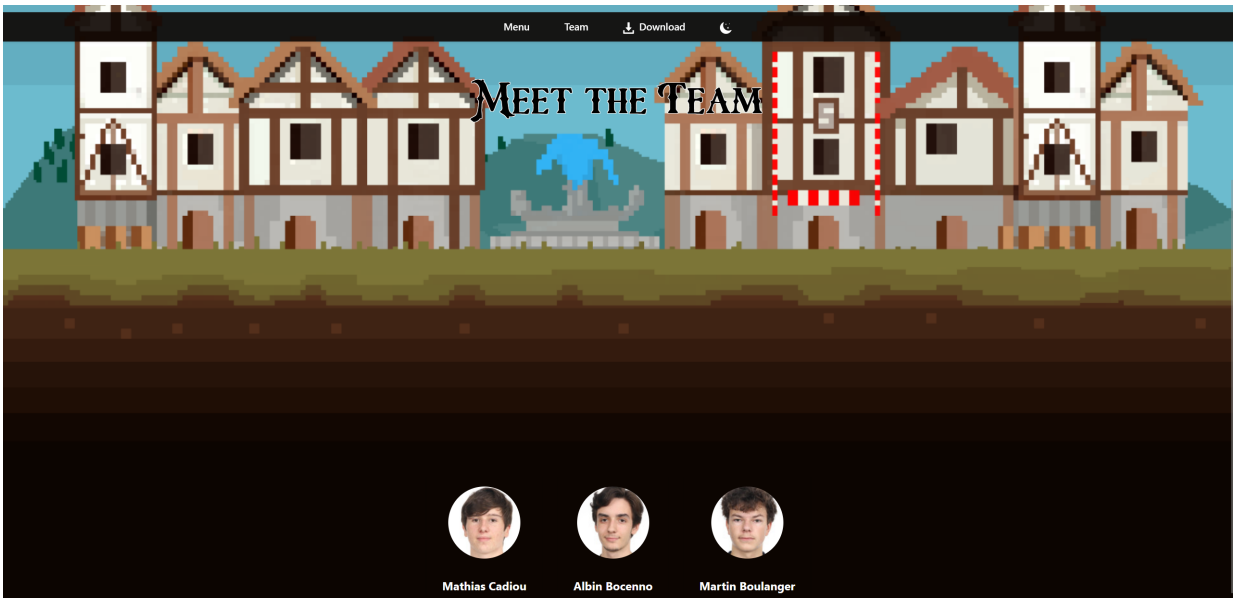
Picture of the animation of the boss using aseprite.



Another important aspect of the project was developing a website to showcase our work. My role in this part of the project included completely redesigning the main page for improved usability, as well as adding a navigation bar for easier navigation throughout the site. I carefully considered the layout, color scheme, and overall aesthetics of the website to create a visually appealing and cohesive design that aligned with the project's goals and target audience.

In addition to the main page and navigation bar, I also focused on optimizing the website's performance and accessibility. This involved compressing images, minifying CSS and JavaScript files, and ensuring that the site was compatible with various devices and browsers.

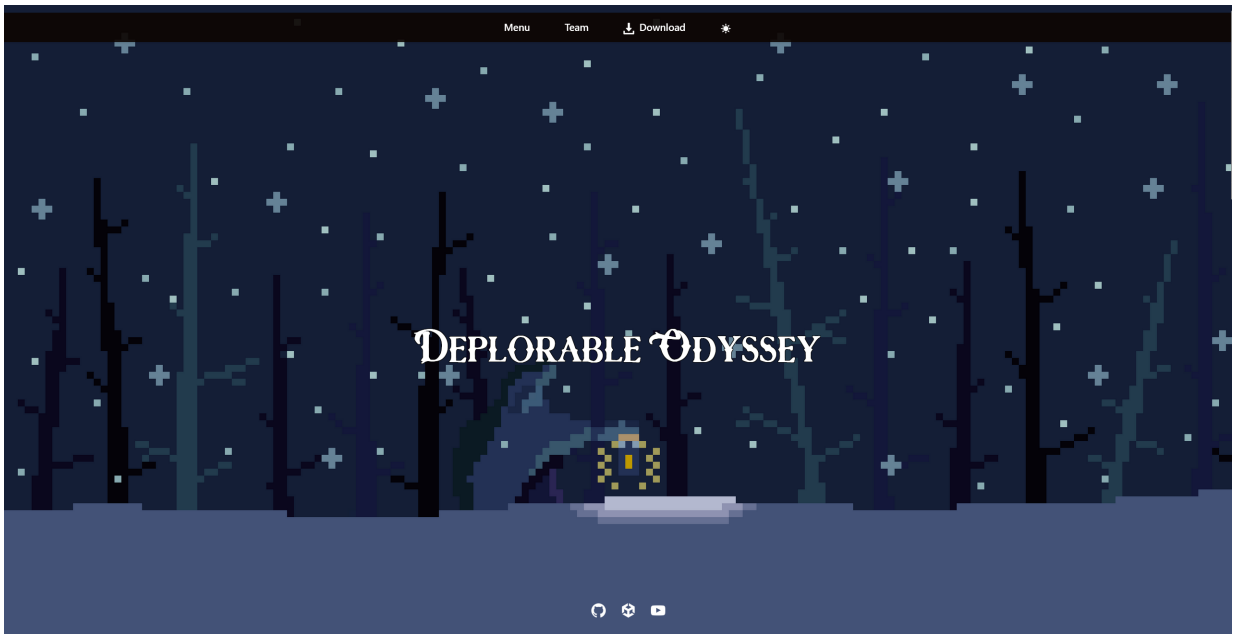
Picture of the update of the website that includes the team faces.



To meet our team's expectations, I also created a team page that highlighted the various members working on the project and their respective roles. This addition not only showcased our group's diverse talents but also fostered a sense of camaraderie among the team members.

Throughout the website development process, I collaborated closely with other team members to gather feedback and address any concerns. This collaborative approach helped to ensure that the website met the needs of the entire team and effectively showcased our project.

Picture of the new website javascript function including dark mode.



In addition to character design and website development, I also worked on the in-game user interface (UI) for our Unity project. This included creating a health bar for the player and designing the coin animation that plays when a player picks up a coin. I researched various UI design principles and best practices to ensure that our in-game UI was both visually appealing and user-friendly.

Furthermore, I designed different items that would be implemented in the game and made available for purchase after each wave of monsters. These items added an additional layer of strategy and customization to the gameplay, providing players with an enhanced and immersive experience. The item design process involved brainstorming ideas, sketching concepts, and iterating on designs based on feedback from team members.

I also collaborated with Albin on implementing multiplayer functionality for our game. We initially set up the multiplayer to work on a local host, allowing players to connect and play together within the same local network.

The system we created for local multiplayer could easily be adapted for online play by opening the necessary ports on our devices. This flexibility allows our game to potentially reach a broader audience by offering both local and online multiplayer options, further enhancing the overall gaming experience.

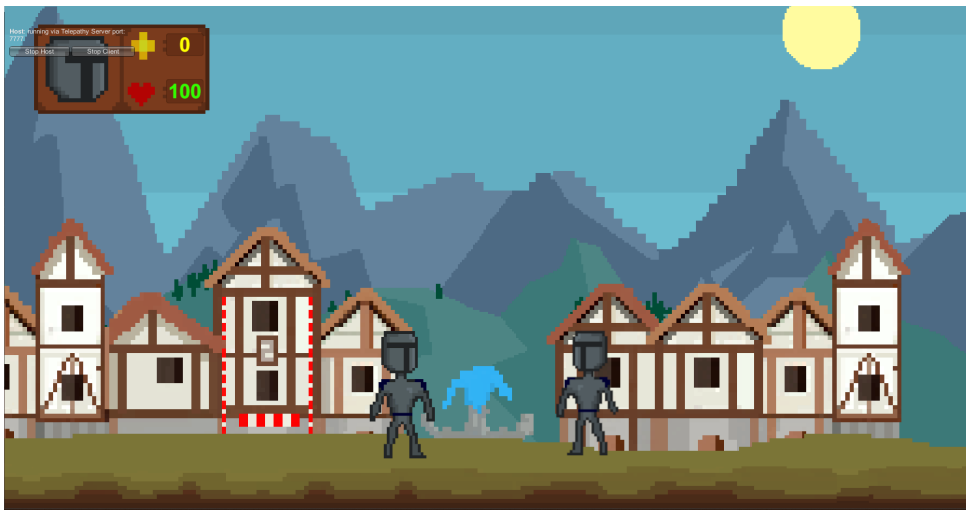
3.3 Albin Bocenno

Firstly, I focused on developing a multiplayer feature for the game. After careful consideration, I decided to create a LAN multiplayer mode where one player would act as the host and client, while the other player would be a client.

Menu.

Indeed, we can choose to create the server and thus be both the host and client, or we can join the server. Finally, we can choose to be the server but not be a client to allow other players to connect to our server. This mode would allow two players to battle in an arena whose background could be changed according to their preferences.

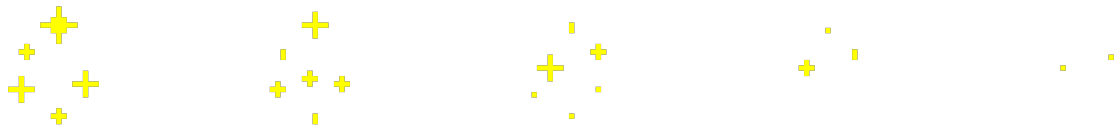
Multiplayer Arena.



To develop this feature, I used the Morror asset and created a relatively simple multiplayer mode. The host and client could select their respective characters, and the game would automatically connect the two players. The host would then start the game, and both players could battle each other in the arena. Next, I implemented new animations to enhance the gameplay experience. Specifically, I added animations for the player's attacking action when running,

Player Attack, the disappearing piece animation,

Coin Disparition.



the boss's attacking animation, the boss's walking animation, and an animation of the boss jumping (for future implementation).

Boss Animations for Move and Attack.

I also implemented another sprite called "Kirikou," a small blue blob that runs with two legs. Kirikou is designed to inflict damage on the player, so I implemented two animations: an idle animation and a walking animation where the object runs towards the player to attack. This "Kirikou" will behave like a blob, staying still until the player approaches too closely. At that moment, Kirikou will start running on its two little legs towards the player to try to attack them. We discussed how Kirikou should attack, but we find it preferable for the attack to be limited to contact with the player, which will decrease their HP.

Kirikou Animation.

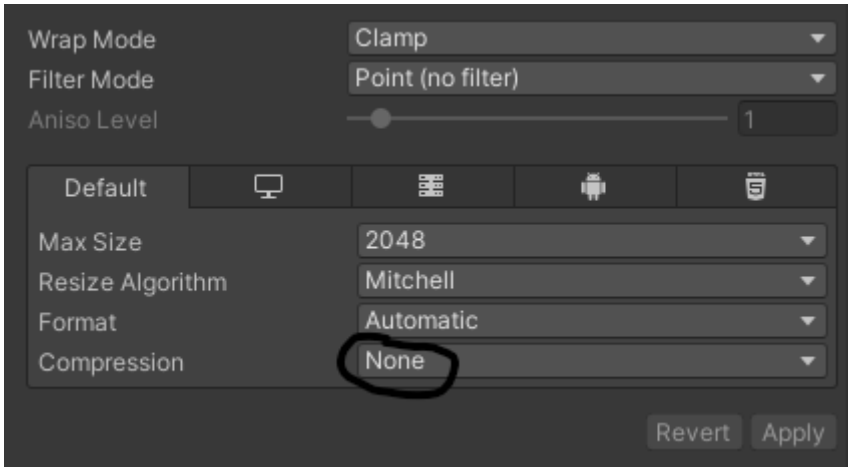
Furthermore, I created "Waves" as a way to make the game more challenging and engaging. After the player finishes the Cave level, they restart the game from the Plain level. However, each time they restart, the game gets more challenging, and the enemies become harder to defeat. This way, the player has to strategize and come up with new tactics to defeat the enemies in each new wave. Finally, I polished the backgrounds to include sharper images on Unity, resulting in a more enjoyable gaming experience. I added new textures and graphics to the backgrounds to make them more visually appealing and engaging.

Before.

After.

To achieve this, we found that Unity compresses images by default. This has its benefits, such as allowing for faster gameplay on larger games that load many images. However, for smaller games (in terms of graphic content, as our images are pixel art), it detracts from the player's visual experience, who may notice a slight blur when zooming in on the game. This is undesirable, so we decided to have the most optimal image quality to create an even more visually enjoyable game.

Screenshot from the interface.



After that, I worked on the Cave section of the game, building on Mathias' work to add some interesting elements to the Cave's exit. Just before the player reaches the exit, they will have to pass behind some lava, which adds an extra level of difficulty and excitement. Additionally, I extended the Cave by adding more backgrounds and expanding the gameplay to make it even more engaging and challenging for players. Furthermore, I extended the Cave's length by adding more background layers, which helps to create a more immersive and expansive atmosphere. By expanding the background and adding more details, I aimed to create a more captivating and engaging environment for players to explore.

End of Cave.

Overall, I'm proud of the work I've done on "Deplorable Odyssey" since the last presentation. The multiplayer feature, new animations, waves, and polished backgrounds have all contributed to making the game more engaging, challenging, and enjoyable for players. I look forward to continuing to improve the game and creating an even better experience for players in the future.

4 Description of achievements

4.1 Artificial Intelligence (Martin & Albin)

4.1.1 Positive Points

The Boss has a very unique way of searching and fighting the main character. The blue slime is different, he doesn't move until someone is in his view range.

4.1.2 Negative Points

We are pretty proud about the AI, there aren't any negative points to mention for this version.

4.2 Multiplayer (Albin & Mathias)

4.2.1 Positive Points

We have a working multiplayer, where 2 knights can connect onto the same server in order to fight.

4.2.2 Negative Points

There are some bugs to fix, for example, animations and jumps sometimes don't work.

4.3 Graphics (Backgrounds) (Mathias & Albin)

4.3.1 Positive Points

No backgrounds were added since the last version.

4.3.2 Negative Points

No backgrounds were added since the last version.

4.4 Graphics (Characters/Entities) (Martin & Mathias)

4.4.1 Positive Points

We added animations for the boss to be able to attack, walk, and jump. We also have a new monster, a blue slim that can walk.

4.4.2 Negative Points

We could add more monsters for the final version.

4.5 Game Code (Albin & Martin)

4.5.1 Positive Points

We added hitpoints and healthbars for our monsters.

4.5.2 Negative Points

We still have a few bugs to fix.

4.6 Website (Mathias & Martin)

4.6.1 Positive Points

We added the necessary categories to our website. We now have ”Team” Section, where we can see the 3 Members of the group. We also have other categories for the game and the lore [...]

4.6.2 Negative Points

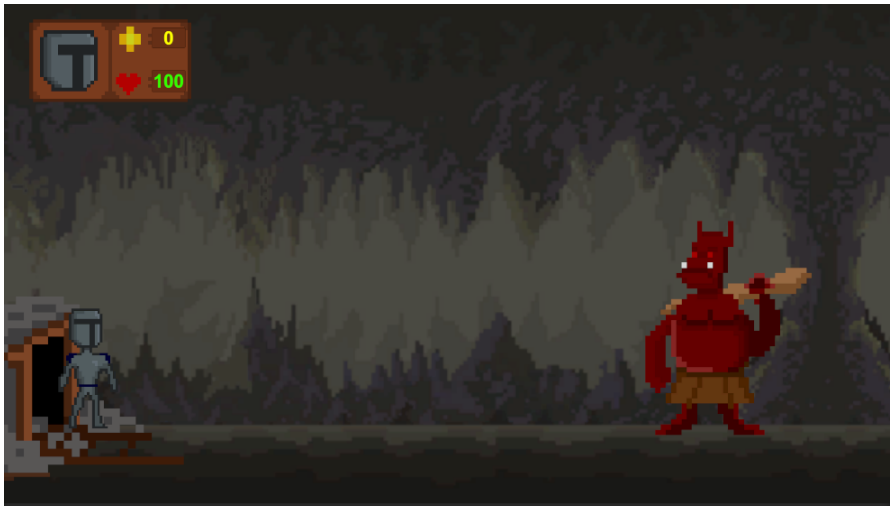
We still have to fill some categories, and upload the game into the website so that everyone visiting the website can play the game.

5 Appendices

To conclude, here are a few pictures of the current state of the game:

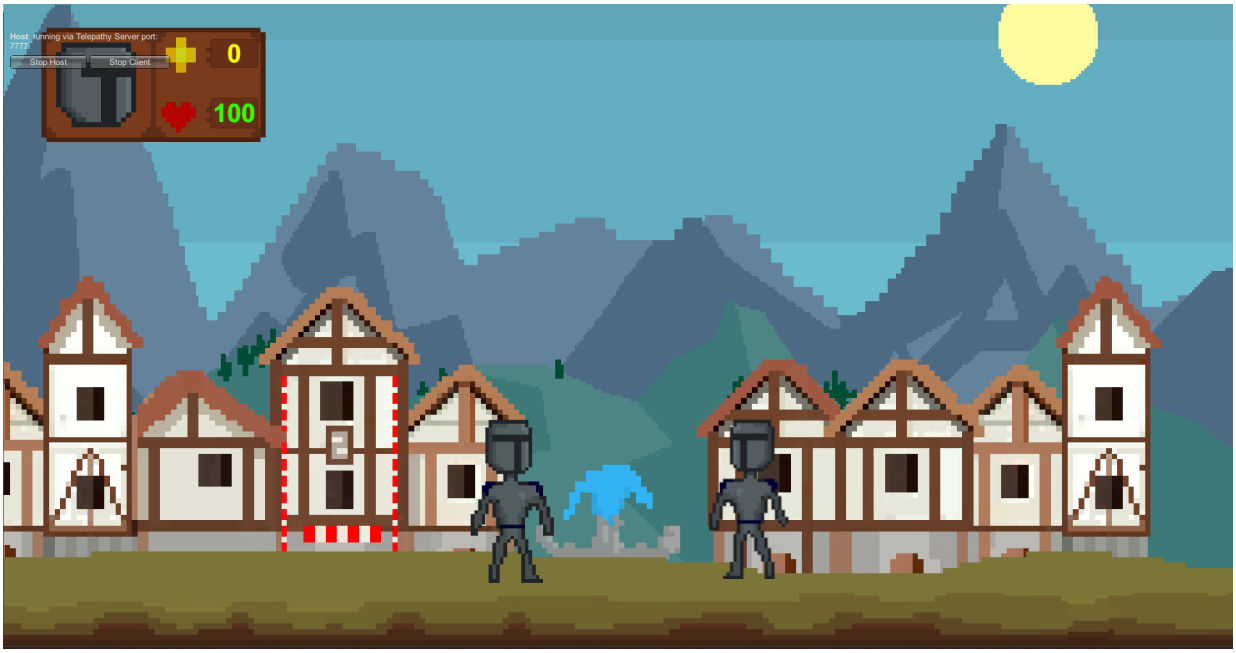
The Plain

The Cave



The Shop

The MultiPlayer Fight Zone



Player fighting one of the monsters.