



S2 Project

Final Report

Deplorable Odyssey

a platformer game

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2022-2023

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1 Book of specifications follow-up

1.1 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.

1.2 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.

1.3 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.

1.4 Parts of the project

1.4.1 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.

1.4.2 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.

1.4.3 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.

1.4.4 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.

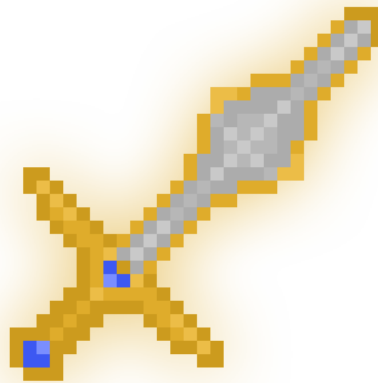
2 Chronological individual progress

2.1 Martin Boulanger

Before our first presentation, we embarked on a journey of discovery and creativity. We began by exploring different aspects of our project, such as creating graphics and familiarizing ourselves with various software applications.

In the realm of graphic design, I took on the task of crafting shields, a shopkeeper character, and various other captivating characters and items for our game.

Alongside Mathias, I also started working on the development of our project's website. We utilized two powerful tools, to bring our website to life and showcase our project effectively.



Sprite of a new item.

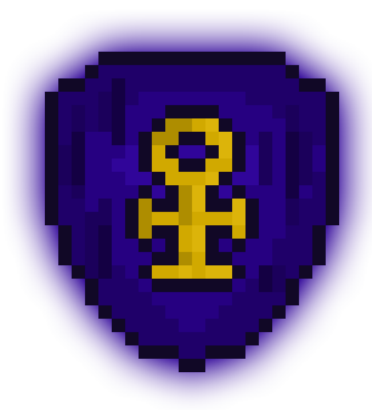
When it came to choosing the design for our knight character, we considered multiple examples. After careful consideration, we settled on the one you can see at the top of the first page of this document. This design perfectly embodies the essence of our game, portraying strength, resilience, and an appealing aesthetic.

To summarize, our first presentation marked the beginning of an exciting adventure. We explored graphic creation, learned to use software applications like Aseprite and PixelApp, and started working on our project's website. Additionally, I made significant contributions to the visual elements of our game by creating shields, characters, and items. With the knight character design finalized, we looked forward to the next stages of our project, driven by our shared passion for computer science and game development.

Before our second presentation, I actively contributed to the development of the game by focusing on coding various elements, including the artificial intelligence (AI) of the monsters and the design of the website.

Initially, we encountered a minor issue with the implementation of the green slime monster in the game. Although it was capable of dealing damage to the knight, it lacked the ability to receive damage, rendering it unable to be defeated. To rectify this, I introduced a health point system for the green slime, allowing it to sustain damage and be defeated by the knight.

Following this fix, I identified the need to incorporate a hitbox into the knight's attack animation. However, we faced another challenge as the hitbox turned out to be too small. As a result, players had to deliberately position themselves within the slime's reach to successfully strike it. To address this, I expanded the hitbox's width, enabling players to strike the slime without necessarily being in harm's way. This adjustment rewarded skilled players who were able to maintain a safe distance from the monsters, introducing a mechanic that required mastery and training.



Sprite of a new item.

After testing these modifications, I noticed that something was missing during the battles: a visual indication of successful hits. It was difficult for players to determine whether they had effectively landed an attack on their opponent. To address this, I implemented an effect that temporarily turned both the player character and the monster red for a few frames upon a successful hit. This visual feedback allowed players to clearly perceive when they were hit and when the monster was hit as well.

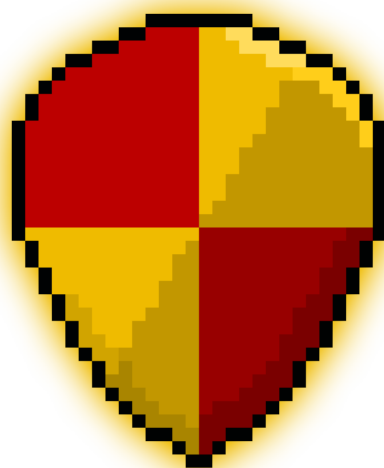
Additionally, I introduced a health bar to provide players with information regarding the monsters' remaining health points. To enhance its visual appeal, the health bar only became visible after the monster had lost a certain amount of health points. Furthermore, as the monster's health points decreased, the health bar gradually transitioned from green to red, serving as a visual indicator of its diminishing vitality. To achieve this effect, I utilized the "Lerp" function, which was also employed in our previous practical work, providing players with a quick and intuitive understanding of the ongoing battle.

In conclusion, apart from my involvement in the game's coding aspects, I also assisted Mathias in the design of the website. By leveraging my skills and creativity, we collaborated to ensure the website effectively represented our project's essence and captured the interest of potential users.

During my project, I focused on adding different types of monsters to the game. We included new monsters like the Skeleton and the Anubis.

The Skeleton is a scary monster that uses a sword to attack the player when they bump into each other in the game. It lives in a dark and dangerous place called the dungeon. The Skeleton moves quickly and attacks the player without mercy, so the player needs to react quickly to avoid getting hurt.

On the other hand, the Anubis is a special monster and one of the main challenges in the game. It has magical powers and can summon a dark cloud to attack the player. Defeating the Anubis is a big accomplishment in the game. When the player defeats it, a chest appears, and when they open it, they get a random item that helps them deal with the next group of enemies.



Sprite of a new item.

These new monsters and their settings make the game more interesting and exciting. We are always working on making the game better and creating a fun experience for players.

In terms of artificial intelligence, the behavior of the skeleton is designed to be relatively straightforward, closely resembling that of the slime enemy. Both the slime and the skeleton share certain characteristics in their movement patterns and interaction with the player.

For instance, the slime exhibits a simple left-right movement pattern that lasts for approximately 3 seconds. During this time, it continuously oscillates between these two directions, creating a sense of unpredictability in its movements. Similarly, the skeleton adopts a slightly more complex approach by randomly selecting a direction and actively pursuing it for the same duration of 3 seconds. This randomization adds an element of variability to the skeleton's behavior, making each encounter with it a unique experience.

Like the slime, the skeleton is programmed to respond defensively when the player enters its attack perimeter. This defensive stance triggers an aggressive response, with the skeleton launching a swift and decisive attack against the player. This mechanism ensures that players must exercise caution and employ strategic maneuvers to avoid direct confrontation and potential harm.

By implementing these consistent behavioral patterns for the slime and the skeleton, we aim to create engaging and challenging encounters for the player. The alternating left-right movement of the slime and the randomized pursuit of the skeleton foster an atmosphere of uncertainty, demanding quick thinking and nimble reactions from the player. Furthermore, the defensive nature of these enemies encourages players to carefully plan their approach, finding opportune moments to strike while minimizing the risk of retaliation.

The meticulous design of artificial intelligence for these enemies adds depth and excitement to the gameplay, providing players with a range of encounters that require adaptability and skill.

The Anubis, unlike other bosses, remains stationary throughout the encounter and does not obstruct the player's path. In fact, the player can freely pass through the Anubis without any physical hindrance.



Sprite of a new item.

However, the Anubis possesses a unique ability to summon a malevolent cloud when the player enters its attack range. This cloud serves as a potent offensive tool, delivering powerful attacks that can inflict significant damage upon the player if they linger within its vicinity for too long. This places a sense of urgency and demands swift reactions from the player.

Upon entering the Anubis' attack perimeter, the cloud materializes and initiates its assault. The cloud's attacks carry a substantial level of force, necessitating the player's quick thinking and decisive action to avoid sustaining heavy damage. This creates a heightened sense of challenge and intensifies the gameplay experience, compelling the player to react promptly to the looming threat.

The Anubis's ability to summon the attacking cloud adds a layer of strategic gameplay, prompting players to carefully navigate the battlefield and find windows of opportunity to strike while avoiding the cloud's devastating assaults. By incorporating this dynamic element, we aim to provide an engaging and fast-paced encounter that tests the player's reflexes and decision-making abilities.

I also made significant changes to the artificial intelligence of the boss in the cellar. Now, after attacking, the boss tries to dodge the player's attacks by running away. It has become considerably faster and more resistant to damage.

Previously, the boss would simply attack without any defensive tactics. But now, it has learned to retreat and evade the player's counter-attacks. This makes the boss more unpredictable and requires players to adjust their strategies accordingly.

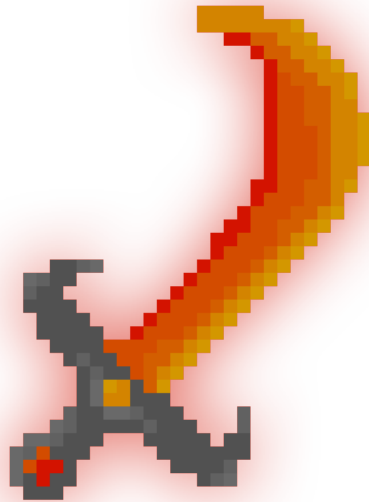
To increase the challenge, I also made the boss faster, allowing it to move quickly and respond swiftly to the player's actions. Its increased speed adds a sense of urgency to the battle, forcing players to react quickly and make decisive moves. Additionally, the boss has become more resilient, meaning it can withstand more damage before being defeated.

These changes in the boss's artificial intelligence aim to make the battle more engaging and exciting. With its ability to dodge attacks and its improved speed, the boss presents a greater challenge for players.

With the updated artificial intelligence systems in place, the next step was to introduce the wave system, which I undertook with enthusiasm. This system adds a new layer of progression and challenge to the game, ensuring that players face increasingly difficult encounters as they advance.

The wave system begins with the player starting at Wave 1, where a variety of monsters appear across the game's four distinct zones. For instance, in the plains zone, players will encounter creatures like the slime and Kirikou. The cellar harbors the formidable boss ogre, while the desert becomes the domain of the mighty Anubis. Lastly, both the desert and the dungeon become the haunting grounds of the elusive skeleton.

To make the end of each wave more complex and intense, I strategically placed a cluster of skeletons in close proximity within the dungeon. This arrangement adds an additional layer of challenge for players, requiring them to deal with multiple skeletons simultaneously and test their combat prowess.



Sprite of a new item.

As players progress through the waves, they will encounter an escalating number and variety of monsters, testing their skills and adaptability. Each wave presents a new and exciting challenge, pushing players to hone their strategies, master their abilities, and showcase their progress in the game.

The implementation of the wave system contributes to the overall progression and replayability of the game. By gradually increasing the difficulty and introducing new combinations of enemies, players are rewarded with a sense of accomplishment as they overcome each wave's unique obstacles.

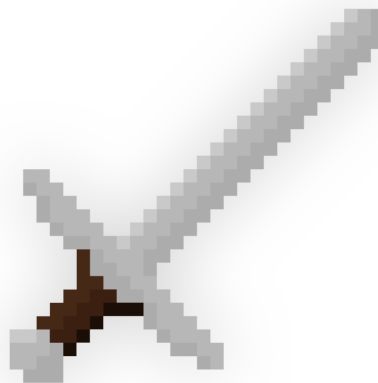
As the player progresses through the waves, the difficulty steadily increases. The monsters become stronger, gaining more health points and dealing higher levels of damage. Additionally, their frequency of appearance gradually intensifies, requiring the player to face hordes of enemies.

To tackle this rising challenge, the player has the opportunity to equip themselves with new items and gear, which are available for purchase in the shop. By utilizing the gold coins obtained from slaying monsters, the player can browse through a variety of equipment options to enhance their abilities and combat prowess.

The shop serves as a valuable resource for the player to upgrade their character and gain a competitive edge. They can invest their hard-earned gold coins into acquiring better weapons, armor, and special abilities. These new equipment options not only boost the player's offensive and defensive capabilities but also provide unique advantages in battling the increasingly formidable foes.

By carefully selecting and investing in these new items, the player can adapt their playstyle and overcome the mounting challenges posed by the advancing waves. It adds a strategic element to the game, as players must decide how best to allocate their resources to maximize their chances of success.

Acquiring new equipment from the shop creates a sense of progression and empowerment for the player. It fosters a rewarding loop where the player's skill in defeating monsters directly translates into the means to improve their own capabilities, allowing them to tackle even tougher encounters with confidence.



Sprite of a new item.

One of the notable additions to the shop's arsenal is the bow, which I have implemented to introduce a long-distance combat mechanic to the game. This weapon offers players the unique opportunity to engage in battles from a safe distance, allowing them to strategically attack monsters without being directly in harm's way.

The bow provides players with the advantage of targeting and eliminating a significant number of adversaries from a distance, granting them a tactical advantage against large groups of monsters. This opens up new possibilities for players to devise clever strategies, carefully picking off enemies and thinning their ranks before engaging in close-quarters combat.

However, it's important to note that the bow has its limitations. It relies on arrows as ammunition, which players must purchase from the shop using their hard-earned gold coins. This creates a delicate balance between using the bow effectively and managing resources wisely.

Players must carefully consider how to allocate their funds between purchasing arrows and other valuable equipment or upgrades. They need to weigh the advantages of long-distance combat against the cost of maintaining a sufficient supply of arrows. This decision-making process adds depth to the gameplay experience, as players must strategize and prioritize their spending to optimize their chances of success.

By incorporating this mechanic, we encourage players to think critically about their choices and engage in resource management. It enhances the overall game strategy and immerses players in a thoughtful decision-making process, as they weigh the benefits of long-distance combat against the need to wisely invest their resources for maximum effectiveness.

The addition of the bow to the shop's inventory enriches the gameplay experience, offering players a new dimension of combat and challenging them to consider the most effective and efficient use of their hard-earned coins.

Another valuable addition I implemented is the healing potion, which serves as a vital resource for players. This restorative elixir is designed to replenish a quarter of the player's maximum hit points, equating to a rejuvenating 25 hit points. It can be obtained from the shop as well as the chests dropped by defeated bosses.



Sprite of a new item.

The healing potion plays a pivotal role in empowering players to adopt a more aggressive playstyle, knowing they have a means to recover lost health during intense battles. It offers a lifeline when faced with perilous situations or when the player is engaged in prolonged encounters with relentless adversaries.

However, it is crucial for players to make wise choices when allocating their resources. The decision of how to spend their hard-earned gold coins becomes even more significant, as they must consider whether to prioritize offensive options such as healing potions and powerful swords or defensive measures like arrows for long-distance combat.

Investing in healing potions provides players with the confidence to engage in riskier maneuvers, knowing they have the means to recuperate. It encourages a bolder approach to combat, allowing players to push their limits and explore more aggressive tactics while keeping the prospect of recovery in mind.

On the other hand, players may opt for a more defensive strategy by investing in arrows, which grant them the ability to maintain a safe distance from enemies. This can be a prudent choice for those who prefer a more cautious and methodical approach to battles.

The introduction of the healing potion and the choice it presents in resource allocation adds an additional layer of depth to the gameplay experience. Players must carefully assess their playstyle, considering the benefits of offensive capabilities and healing potential against defensive measures. This strategic decision-making process ensures that each player can tailor their gameplay experience according to their preferred style and adapt to different challenges encountered throughout the game.

The game now features an exciting addition: shields. These shields have a passive effect, meaning they only need to be present in the player's inventory to provide their benefits. The shield with the highest damage reduction value is automatically utilized, reducing the amount of damage the player receives from enemy attacks.

As players progress through the waves and overcome challenges, they will unlock access to stronger and more resilient shields. This progression system ensures that the player's defensive capabilities improve alongside their offensive capabilities. With each wave conquered, the player not only gains access to new and powerful weapons but also acquires shields with increased resistance to enemy attacks.



Sprite of a new item.

The introduction of shields adds a strategic element to the game. Players must carefully consider which shield to equip in order to maximize their damage reduction and overall survivability. By making informed choices, players can tailor their defensive approach to best suit their playstyle and the challenges they face.

Furthermore, new swords have been added to the game's weaponry. These swords offer enhanced attack power, allowing players to unleash devastating blows upon their enemies. As players progress through the waves and acquire stronger swords, their offensive potential increases, granting them a greater advantage in combat.

The addition of new swords and shields ensures a dynamic and engaging gameplay experience. Players are motivated to continuously improve their arsenal by conquering waves, unlocking powerful weapons, and obtaining shields with greater damage reduction. This progression system rewards players for their efforts and provides a sense of growth and accomplishment throughout the game.

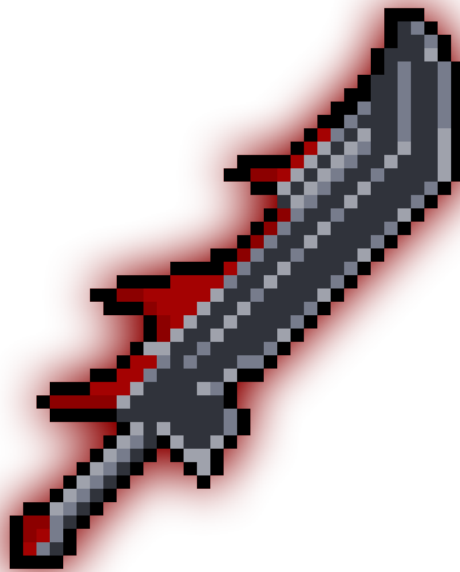
As the player ventures deeper into the game, they will face increasingly challenging enemies. The combination of formidable swords, resilient shields, and strategic decision-making allows players to adapt to these challenges and overcome them with skill and determination.

With the inclusion of these new weapons and shields, the gameplay experience becomes even more immersive, satisfying, and enjoyable.

To further enhance the depth and excitement of the game, each shield and sword in the inventory is assigned a rarity level, determining the strength and uniqueness of the item. These rarities come in three tiers: common, rare, and legendary.

The rarity of an item directly correlates to the power it offers to the player. Legendary items possess exceptional abilities and grant significant advantages in combat, while rare items provide moderate enhancements. Common items, although more readily available, offer more modest improvements to the player's capabilities.

Obtaining items of higher rarity becomes increasingly challenging. The chances of acquiring rare or legendary items as drops from defeated monsters are lower compared to common items. This rarity system introduces an element of anticipation and excitement, as players eagerly pursue elusive and powerful gear.



Sprite of a new item.

Furthermore, the rarity of an item affects its cost in the store. Rare and legendary items are priced higher, reflecting their enhanced capabilities and desirability. This pricing mechanism encourages players to carefully consider their purchasing decisions, as they weigh the potential benefits against the investment required.

The introduction of rarity levels for shields and swords adds a layer of exploration and progression. Players are motivated to seek out and acquire the most coveted and powerful items, driving their quest for success in the game. The rarity system adds an element of collectability and fosters a sense of accomplishment when obtaining rare and legendary items.

This introduces an engaging decision-making process, where players must determine the most effective use of their in-game currency and prioritize their acquisitions accordingly.

In summary, the incorporation of rarity levels for shields and swords adds depth, excitement, and a sense of progression to the gameplay experience.

Another significant enhancement I made to the game was the addition of sound effects, which play a crucial role in bringing the game to life. Sound effects enrich the overall gaming experience by providing auditory feedback and immersion for the player. We mainly took the sounds from a no copyright website, called Pixabay.

By incorporating sound effects, players can now hear their character's actions, such as attacking enemies, slaying monsters, and accessing their inventory. These audio cues provide valuable feedback, reinforcing the impact of the player's actions and creating a more dynamic and engaging gameplay experience.

Moreover, the inclusion of music in the game further elevates its appeal. The carefully selected and composed music adds depth and atmosphere, setting the tone for various in-game situations. Whether it's an intense battle or a serene exploration moment, the music enhances the overall ambiance and captivates the player's attention.



Sprite of a new item.

By integrating sound effects and music, the game becomes significantly more immersive and engaging. The auditory elements contribute to the overall sense of presence and create a more believable and captivating world for the player to experience. It heightens the emotional impact of the gameplay and adds an extra layer of enjoyment.

The attention to detail in sound design not only enhances the player's overall experience but also demonstrates the dedication to creating a polished and professional game. It showcases the effort put into making every aspect of the game enjoyable and well-rounded.

In the past, we worked on different aspects of the game on separate computers. However, we encountered challenges when it came to merging all the changes together. To overcome these difficulties and collaborate more effectively, we turned to a powerful tool called GitHub.

GitHub provided us with a centralized platform to manage our project and streamline our development process. With GitHub, each team member had the opportunity to contribute their own changes to the game in an organized manner. We could work on different features simultaneously, making the development process more efficient and collaborative.

By utilizing GitHub's version control system, we were able to keep track of all the modifications made to the game. This allowed us to easily review, discuss, and merge the changes, ensuring that the final version of the game incorporated everyone's contributions seamlessly.

In the past, there were instances where certain changes had to be redone due to difficulties encountered during the merging process. However, by utilizing GitHub, we were able to minimize these challenges and improve our development workflow. We learned from those experiences and adapted our approach to ensure smoother collaboration moving forward.

GitHub not only facilitated better teamwork but also provided us with a backup of our project. In case any issues or setbacks occurred, we had the ability to revert to previous versions and restore the game to a stable state.

Overall, GitHub played a vital role in enabling us to work more diligently on the game.

During this process, I took the opportunity to completely revamp the scripting for each monster, leveraging the programming knowledge I gained in my programming courses. One of the key improvements I implemented was the use of interfaces.

By creating an "IMonster" interface, I established a connection between each monster and this interface. This approach significantly enhanced the clarity and readability of the codebase, making it easier to identify and address the numerous bugs we encountered.

The implementation of interfaces allowed for a more modular and organized structure in the monster scripts. It defined a set of common behaviors and properties that every monster should have, which simplified the overall logic and increased code reusability. This meant that modifications and bug fixes could be implemented more efficiently, as changes made to the interface would automatically propagate to all the connected monsters.

Additionally, using interfaces helped to abstract the underlying implementation details of each monster. It allowed us to focus on defining the essential characteristics and functionalities without getting bogged down in the intricacies of individual monster scripts. This separation of concerns made it easier to fix bugs.

Through the application of interfaces, we were able to create a more cohesive and maintainable codebase for the monsters. It not only improved the efficiency of our bug fixing efforts but also made future enhancements and expansions to the game more straightforward.

In conclusion, I am grateful for the opportunity to have been part of this project. It has been an incredible learning experience for me, and I have gained a wealth of knowledge throughout the development process. While there were some challenges along the way, such as the departure of one of our team members, which significantly impacted our productivity, I am proud of what we were able to accomplish together.



Sprite of a new item.

Working on this project has ignited a passion within me for game development. The skills and insights I have acquired have inspired me to embark on my own journey of creating small video games. I believe that by undertaking smaller projects, I can continue to learn and grow in this field. It has been a pleasure to be involved in this project, and I am excited to apply what I have learned to my future projects.

While this project may have come to an end, I am confident that the experience and lessons learned will continue to shape my journey in the world of game development. I am excited about the possibilities that lie ahead and look forward to exploring new ideas and creating enjoyable gaming experiences.

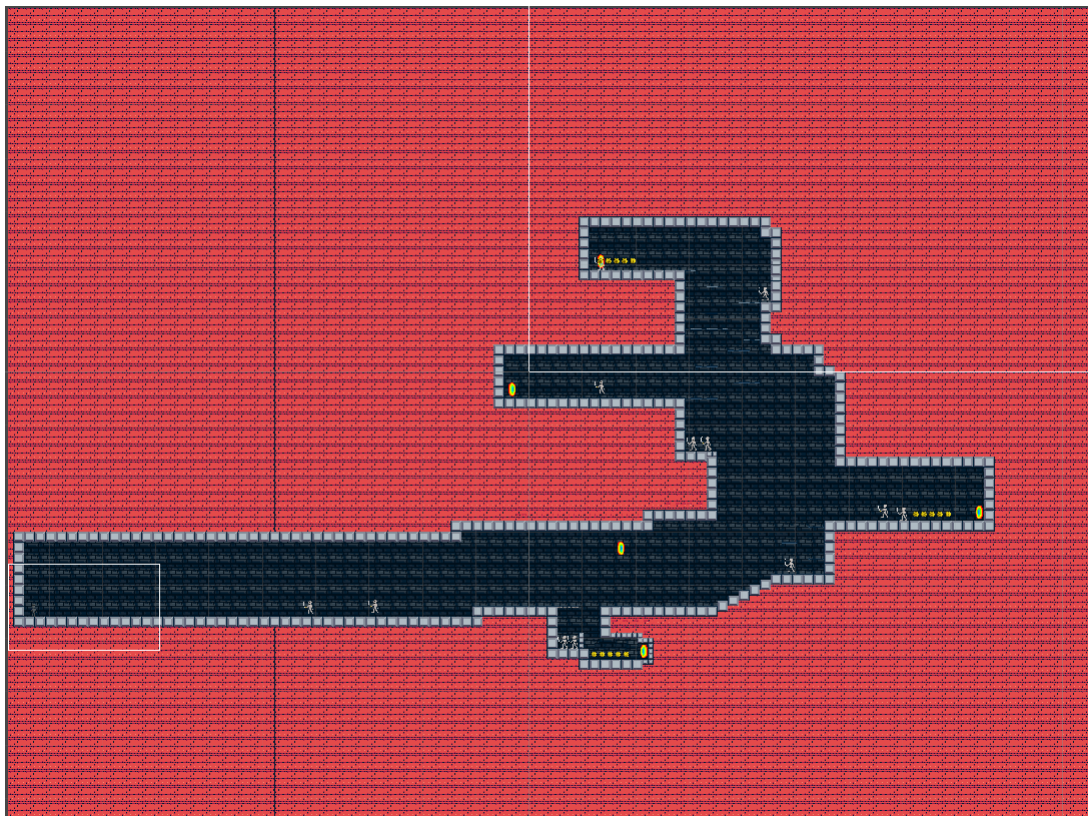
2.2 Mathias Cadiou

We started working on the project already 6 months ago, we had many ideas to create the game and decided to make a 2D platformer, we also brainstormed for long hours to decide which name would be the good one for our game and we decided to go with “Deplorable Odyssey”.

We stayed in voice chats for many hours also trying to find a group name, and we couldn’t find any good one as a joke we said that it would be the *comme convenu* group.

We started by imagining a knight, but it was too complicated. We figured out that with all the different shadings did on it, it would be impossible to animate without spending large amounts of time working on the drawings. Not discouraged by the obstacle, we regrouped and reimagined our knight’s design. By simplifying the character’s appearance, we found a new elegance that didn’t sacrifice the game’s visual appeal.

This simplified version not only made animation easier but also had a special charm that players would appreciate. The success of this redesign showed our ability to adapt and our dedication to creating an amazing gaming experience. That’s why I and Martin then changed the design of the player to a simpler and easier to animate version. Though, it was still very hard to animate and I did not expect at first spending this much time on it. It is surely the asset in the game I spent the more time on as there is a lot of different animations like idling, jumping, jumping while running, attacking and attacking while running. It is also the character of the game that has the most animations.



Dungeon

I worked on the different animations that were later implemented in the game, including the straight jump, the running and the jumping animation. Animation of the slime jumping.

But our world demanded more than just a singular protagonist. We needed to create a whole population of different characters for our game. Thus, we ventured forth into the realm of character design, immersing ourselves in the creative process with enthusiasm. The Slime, the Cave Monster, and the enigmatic Shopkeeper were just a few of the characters that we created. Each one presented its own set of challenges, pushing our artistic prowess to new heights while fostering a deeper understanding of the intricate nuances of character design and animation.

I also worked on a mob called “Kirikou”, that would trigger his animation only if the player was in range. It works a bit like in Pokémon where you encounter trainers. When the mob see’s you, an animation starts playing and he starts to chase you. If he touches the player, he gradually starts dealing damage to him. This sprite was easier to draw than the Blob as it’s body only slightly changes when he runs. The player is now able to fight it in the Plain scene, at this moment, we didn’t add it to any other scene of the game.

As we continued on our creative journey, we faced challenges that tested our determination and creativity. One such obstacle arose when we discovered a problem with the game’s backgrounds. We had entrusted a team member to create them, but when they were delivered, we found they didn’t meet our expectations. The backgrounds were the wrong size and had strange mistakes in them. We later discovered that they were not created by our team member, but by someone outside our group. Instead of letting this setback discourage us, we saw it as a chance to take control and keep moving forward with renewed energy.

With determination and a clear goal in mind, we set out to overcome this setback. Using the flawed backgrounds as a reference, we worked hard to create new backgrounds that fit seamlessly into our game world. It required careful attention to detail and an understanding of the game’s overall style. Stroke by stroke, we brought to life captivating landscapes that would transport players to our imaginative realms. To enhance the game’s visual appeal, I collaborated closely with Albin. Together, thought about adding a parallax effect to the backgrounds and that is what we finally decided to do. By moving different layers of the backgrounds at varying speeds, we created a captivating illusion of depth. This added a dynamic quality to the game, immersing players in our game, making them feel like the game has depth and has 3D when it does not.



Options in game

Afterwards, we had to start working on the mobs that the player would be able to fight in the game. Let's talk about the Slime, for example. It was our first attempt at creating an enemy. Although its combat mechanics were simple, designing the Slime was hard as its movements and how its body behaves is based on gravity. We wanted it to be both scary and cute at the same time, striking the right balance. Its animation was also a fun challenge, making its gelatinous body wiggle as it moved.

Then we introduced the Cave Monster, a bigger and more dangerous foe. Designing the Cave Monster was different from the Slime. While the Slime was small and funny, the Cave Monster was larger and scarier. It represented the lurking dangers in the game's dungeons. Its animations were aggressive and powerful, meant to intimidate the player and provide a tough challenge.

After finishing the main aspects of our game, we had to design a website. Working closely with Martin, we dedicated ourselves to creating one that matched the immersive experience of the game. We faced challenges along the way, dealing with responsiveness and CSS stylesheet errors. But through determination and teamwork, we finished by obtaining a result that was aesthetically pleasing to the eye and was also responsive enough to be visited on computer as well as on phone.

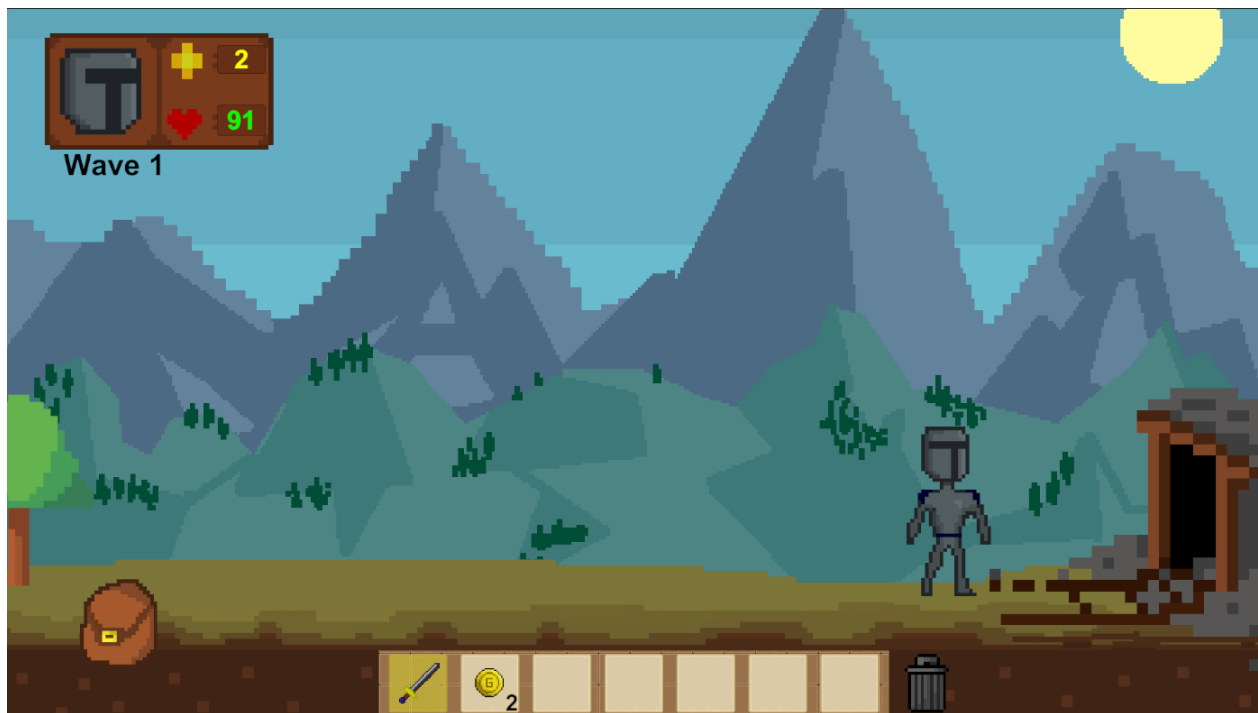


Shop Interface

To conclude the first part, we faced some difficulties along the way. One big problem was with the game's backgrounds. Serge, our teammate, was supposed to create them, but they didn't turn out as expected. The backgrounds were the wrong size and had strange things on them that made them unusable in the game. It was disappointing, but we didn't let it stop us. We saw it as a chance to learn and kept working on making the game better.

Our journey went beyond visual spectacle and website design. There was a lot more to be added to the game. We felt like the game was missing out from essentials, apart from killing monsters, there were not many other things you could do, the coins that we designed had barely no utility apart from rewarding the player from killing the different monsters, he could not use them to get anything and that was frustrating. The shop system became a gateway to new possibilities.

The unassuming shopkeeper transformed into a vital character, offering a wide range of items that players could purchase using in-game coins. Based on their rarity, the player could purchase the different items at different costs. This task was a lot harder to add than what i thought, I had to mess with the inventory system as well as the default script that would give the player coin. A lot of different scripts had to be rewritten for this to work. But after some days, we had a fully working shop system where the Player would be able to spend his in-game currencies.



End of plain.

All the different items that I was working on were added to the shop. This include potions, swords from different rarity each with an unique description and damage amount, shields made to protect the player as well as a bow and arrows to be able to shoot monsters without having to get close to them.

To make exploration even more thrilling, we created an exciting lottery system. Whenever players defeated a powerful boss, a chest would appear, triggering an animated lottery with slots sounds. This element of chance added excitement and unpredictability, keeping players on the edge of their seats as they eagerly awaited their rewards. Now that I understood how the inventory system and the shop one was working, adding this was not a hard task. I put my knowledge together and in the span of only some hours, I was able to come out with something that was great.

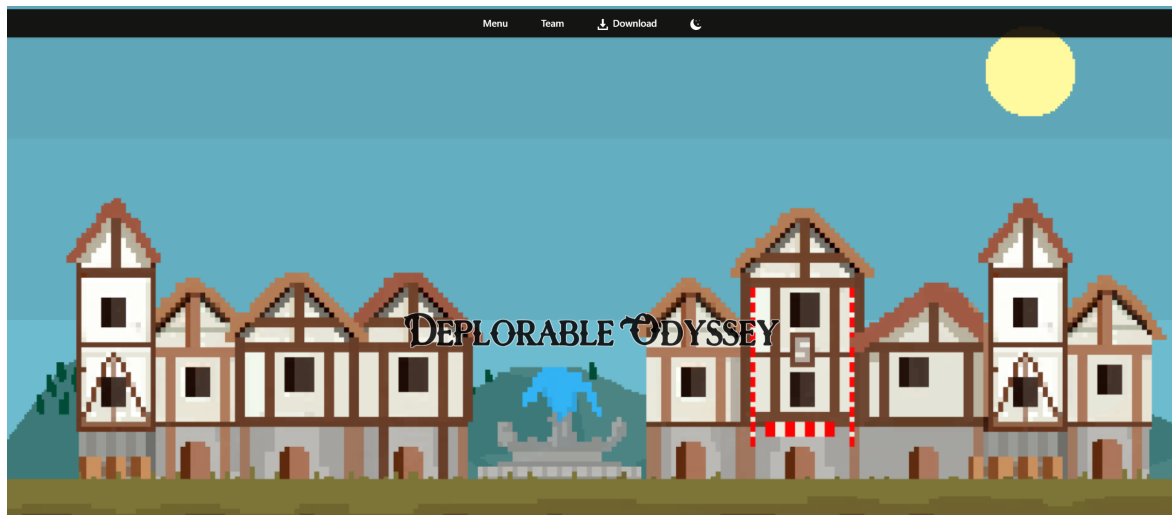
To enhance immersion, we focused on refining the game's audio. By adding volume options in the settings of the main menu of our game, players could adjust the volume and choose whether to have sound effects on or off. These personalized settings were saved using the playerpref Unity functionality, allowing each player to create their own immersive auditory experience based on their preferences and playing environment. To conclude this part, now, the player had a new inventory system, completing the gameplay as well as an item drop one, allowing him to win some items without spending any coins. We made that their drop is based on luck so he would not likely get a legendary item first to not destroy the whole gameplay as these items are supposed to be acquired a lot later.

We expanded our game world by creating an exciting new scene, the dungeon. To create this scene, I started back from scratch, went online and looked for how to create a basic level in unity with tilings. After looking at different tutorials, taking inspiration on a sprite sheet I found online and the main look of our game, I designed new backgrounds that would be easy to repeat as well as platforms that were matching our game style. These different assets were now easy to insert in the game, just like tiles, where you had just to precise whether you want it to be a ground or a background.

This is not the only scene that was added in the game. Because we thought that it lacked newness, we decided to create a new scene. I was in charge of drawing the Sand scene, where while the name summarizes it all, we worked on a nice parallax effect with pyramids, sand dunes from different colors that would be put on different layers on the background. Later, we would design new sprites, including the skeleton as well as a new boss, Anubis.

Another important task was designing the game's menus. We wanted them to look good and be easy to use. Martin and I worked together, giving feedback and suggestions, making changes until we were happy with them.

Alongside improving the game's visuals, I've also been working on updating some of the game's core systems. It's like fine-tuning a musical instrument, making small adjustments to achieve perfect harmony and create a smooth gaming experience. We're not only focusing on the game itself, but also on improving the website. The website is the face of our project, the first thing players see. It's important to keep it running smoothly and up-to-date.



Website.

Designing the animation for Anubis was an exciting journey into the world of sprite creation. It required a mix of creativity and technical skills to bring this important character to life. Anubis, with its mystery and power, deserved an animation that was visually stunning and smooth. It was like painting a picture that flowed seamlessly, held attention, and captured the character's essence. But Anubis's didn't stop at just one animation. To make the gameplay more dynamic, we also created an attack, the cloud attack animation. This additional move gave Anubis more combat strategies, adding variety and unpredictability to player encounters.

I also made a new mob that would be available to fight in the sand scene and in the dungeon, this was the skeleton. As I now knew how to draw sprites and animate them, this task was quicker than before, we simply added a walking animation, an attack one, but no idling one as it would constantly follow the player and therefore it wasn't needed. This made us save precious time. The boss had the same behavior as the Kiriko mob that we created earlier. It was only chasing the player and attacking him when he is in range.

In "Deplorable Odyssey," we added an exciting new feature called the shop system. The shopkeeper, who was once just another character, became a central figure in the player's journey. By clicking on the shopkeeper, players could access a special shop interface. It displayed a wide variety of carefully designed items that players could purchase using in-game coins. This addition not only made the gameplay more strategic and immersive but also allowed players to customize their experience and increase their chances of success in their quest.

There you can see that we can purchase different items in the shop with the player's gold. The items that are greyed out are the ones that cannot be purchased by the player as he doesn't have enough gold to do so.

On this screenshot the shop is kind of empty, but we added much more items to it to guarantee some diversity and not make the game feel boring to the player. The buy button is fully functional, it triggers the script that adds a selected amount of items to the player inventory. I then focused on creating weapons and shields for the player in "Deplorable Odyssey." Each weapon had its own unique design, and I had to find a balance between visual appeal and gameplay mechanics. The shields were especially important for providing extra defense against enemies, making the combat more interesting.



Chest Loot

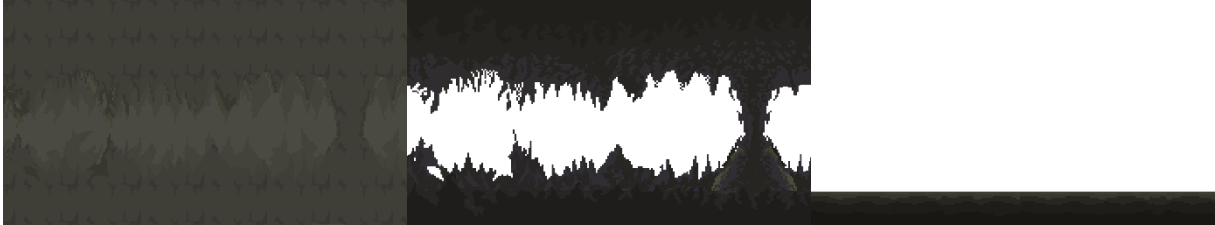
In addition to developing the game, I also took on the task of improving and updating the game's website. I wanted the website to be a central place for players to explore and engage with our creation. I carefully added a detailed progress report to the website, showcasing our hard work and achievements. This report gave our audience insights into the game's development process.

To make it easy for players to access the game, I included download links on the website. These links provided a simple way for players to get the game, encouraging more people to embark on their own Deplorable Odyssey. I also created a tutorial on the website, giving step-by-step instructions to help players download and start playing the game. This tutorial made it easy for newcomers to jump into our captivating world.

I also addressed a significant issue that affected the game's flow and player experience. It was frustrating to see the coin amount and health points reset whenever the scenes changed. I quickly found a solution by using the `DontDestroyOnLoad` function, which allowed these important elements to persist throughout the game. Now, players could smoothly move between scenes without any interruptions or progress loss, fully immersing themselves in the captivating gameplay experience we created.

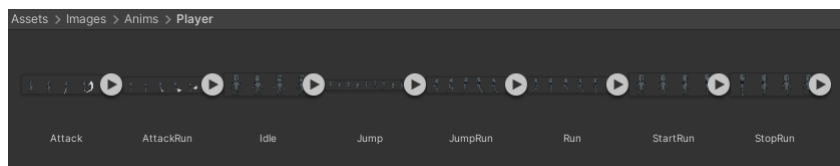
2.3 Albin Bocenno

For the beginning of the project, we shared the task, so I chose the multiplayer part and the coding game part to be delegated and IA and the background to be replaced. So I spent a long time creating and gradually implementing sprites and backgrounds as an example:



Examples of backgrounds

We found the parallax feature very interesting and very pleasant to play. We therefore decided for the creation of most of the backgrounds to divide them into layers to obtain the parallax effect, which is very pleasant to use. Most of the work was creating and implementing animations for each object. For example, the Player has 8 animations.



Each animation for the Player.

Nevertheless, I considered this working time necessary for a more immersive, realistic and above all pleasant gameplays. So, I coded scripts for every possible player interaction, movement, attacks etc. And then I coded scripts for the environment, the scene change, the Artificial Intelligence of the monsters, parallax.

So I gradually created the scenes, Plain, Cave, Shop, Sand, Dungeon and Online (which we will see later) by always implementing the sprites created by myself and by my comrades.

For each scene there is a different immersion and for the most part different monsters. For the Plain, the scene obviously takes place in a plain where there are two types of monsters, the Blob and the Kirikou.

By killing them and advancing he passes through a mine and arrives in the Cave scene, where there is a cave and a Boss representing an Ogre.



The Ogre, the Cave's Boss.

I will explain later who is there in the Sand and Dungeon scene because that is what I created between the second defense and the third defense. For the Shop, the player is in one of the houses of the village and interacts with the Shop Keeper to be able to buy new items.

Now that I have quickly explained what my work consisted of during the first two defenses, I will detail what I brought to the project for the third defense.

Firstly, for the multiplayer part of the game, I made changes to the Mirror package to make it easier for players to connect and play together in a LAN (local area network) setting. In this setup, one player acts as both the host and client, while the other player simply connects as a client.

With the Mirror package, there are three possibilities: a player can be the host and client at the same time, join the network as a client by selecting the appropriate button and entering the network name (like "localhost" for LAN), or act as a server without being a client. The server option requires a separate server to run the game.



Mirror Package's options.

To improve the multiplayer experience, I also fixed issues with animations. Previously, players couldn't see each other's animations because they weren't synchronized properly with the server. I addressed this problem by making sure that all animations are synced across the network. This means that now players can see and enjoy each other's animations during multiplayer gameplay.

In addition, I resolved a recurring bug that affected scenes other than the multiplayer scene. This bug prevented the player from fully interacting with the game world after spawning. Specifically, the player couldn't jump and could only move horizontally.

By investigating the issue and making necessary adjustments, I fixed this bug, allowing the player to interact with the game world as intended.



Two players in the arena at their spawner.

While progress has been made in improving the multiplayer functionality, there are still some unresolved issues. For instance, when a player dies, two buttons appear to give them the option to either replay the game or quit.

The quit button works correctly, but there are issues with the replay button, and it doesn't function properly now. Resolving this issue is a priority, as it will provide players with the option to restart the game seamlessly after their character's demise, enhancing the overall multiplayer experience.



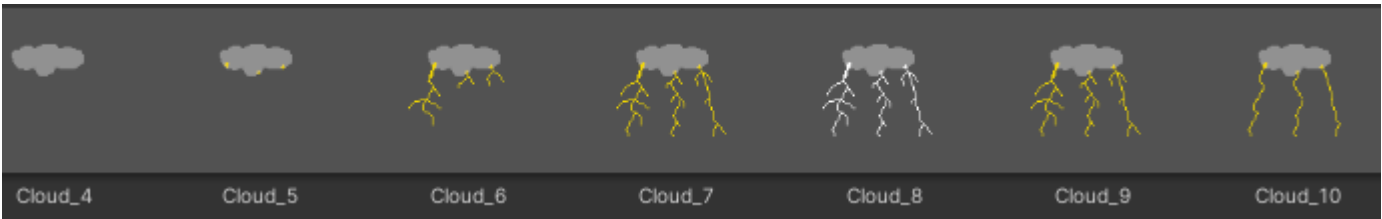
Buttons that appear when a player die.

To sum it up, my focus as a game coding and multiplayer coding delegate was on enhancing the multiplayer aspect of the game. Through changes to the Mirror package, fixing animation synchronization issues, and addressing bugs, I aimed to create a smoother and more enjoyable multiplayer experience. While some issues remain, progress has been made, and efforts are ongoing to further improve the multiplayer gameplay in the game.

Among the new animations, I can mention those of the new Boss of the "Sand" stage called "Anubis" and his attack "Cloud" which will give the player damage, or those of the monster of the same stage called "Skeleton".



Attack animation of Anubis.



Images/Few images of the Cloud's animation.



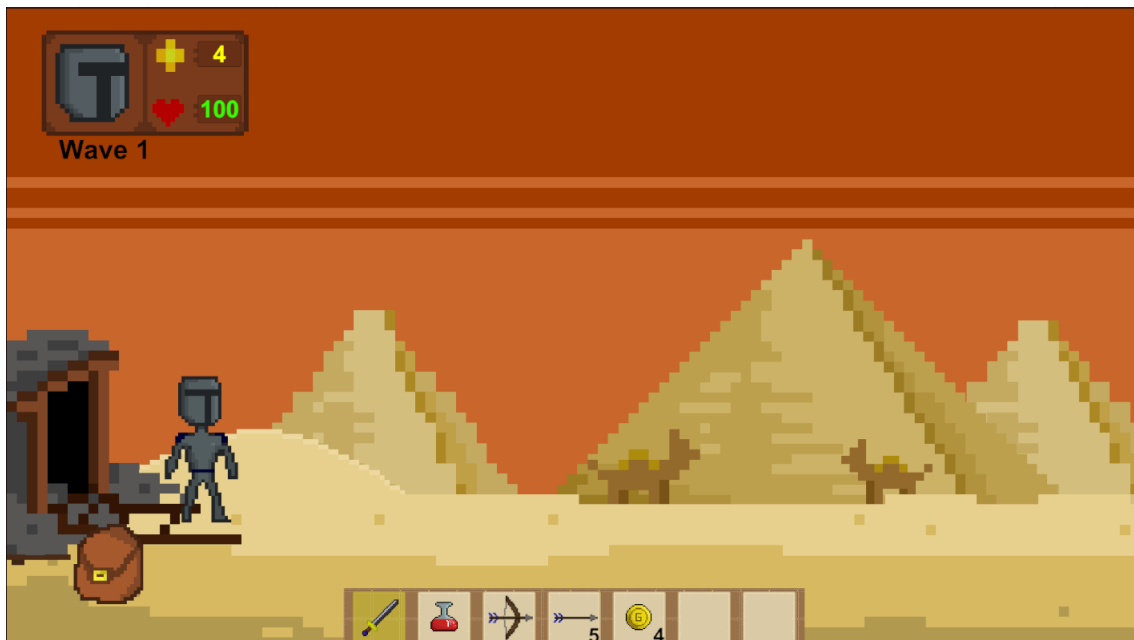
Attack animation of the Skeleton

The "Sand" scene transports players to the vast and sandy expanse of the Egyptian desert. In this scene, the player starts by venturing out of a cave, clutching a valuable Mine. As they traverse the desert, they encounter various captivating sights, including majestic pyramids, graceful camels, and towering sand dunes. However, their journey is not without peril.

Along the way, the player confronts a formidable foe: a dangerous skeleton. This skeleton possesses increased speed and inflicts more damage compared to previous adversaries. Players must be vigilant and skillful in their movements to overcome this challenging opponent. Additionally, as the player approaches Anubis, the God of Death, an intense attack animation is triggered.

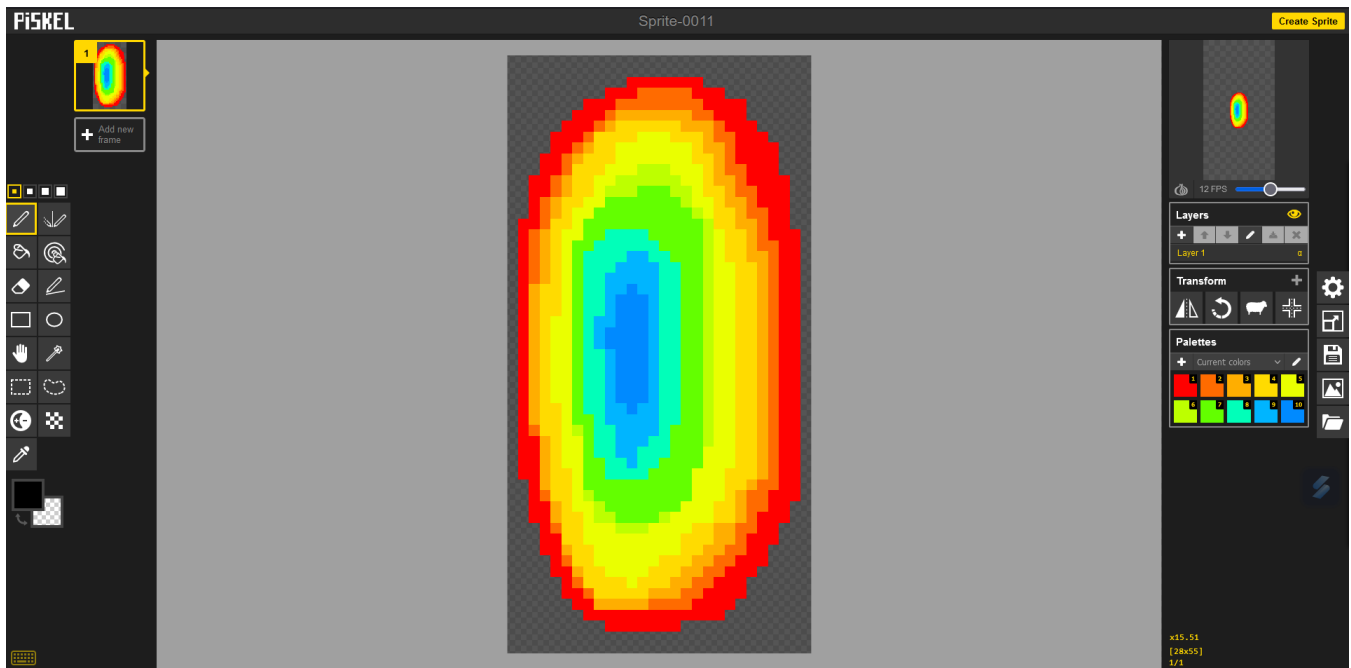
This unleashes a menacing cloud above the player, causing continuous damage until Anubis is defeated.

The "Sand" scene offers an immersive experience, allowing players to explore the beauty and danger of the Egyptian desert. It presents a thrilling encounter with the skeleton and the ultimate challenge of confronting Anubis, the powerful deity of death. Players must utilize their skills and strategic thinking to survive and succeed in this treacherous environment.



The Player coming out of the mine and starting the Sand scene.

The Parallax is always activated in this scene, giving the Player a pleasant journey. In the end we decided it would be nice to create another transition between the scenes than the Mine to vary it a bit, so I created a teleporter with the help of piskelapp.



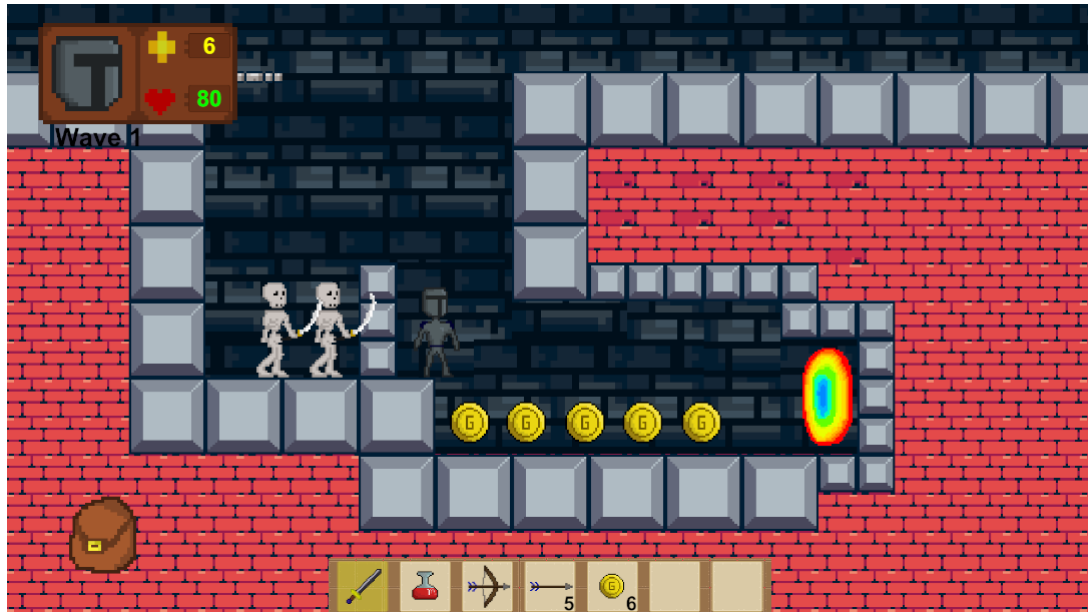
The site of piskelapp and the teleporter sprite created.

After completing the "Sand" scene, the player progresses to a brand-new scene I designed called the "Dungeon". This scene offers a unique experience compared to the previous ones. While the previous scenes typically moved from right to left, the "Dungeon" scene presents a different challenge. Here, the player encounters menacing monsters and must navigate through a series of obstacles to reach the end of the stage.

To provide guidance and ensure the player knows which way to go, I implemented a zoomed-out camera perspective. This wider view helps the player understand the correct path to follow amidst the obstacles and challenges that lie ahead. As the player traverses the scene, they will encounter multiple monsters and face various traps that require careful maneuvering to overcome.

In the development of the "Dungeon" scene, we drew inspiration from the iconic game "Mario Bros" released on the NES in 1983. We utilized different sprites, such as various types of blocks, walls, and platforms, to create a visually engaging environment. These elements, reminiscent of the classic game, add familiarity and nostalgia for players while also enhancing the overall gameplay experience.

Among the monsters and traps I added a secret passage where, by dodging a trap, the Player can collect several coins and teleport on the way. This was done by creating a teleport script to a precise coordinate using a script by implementing it in the teleporter.



Secret Passage

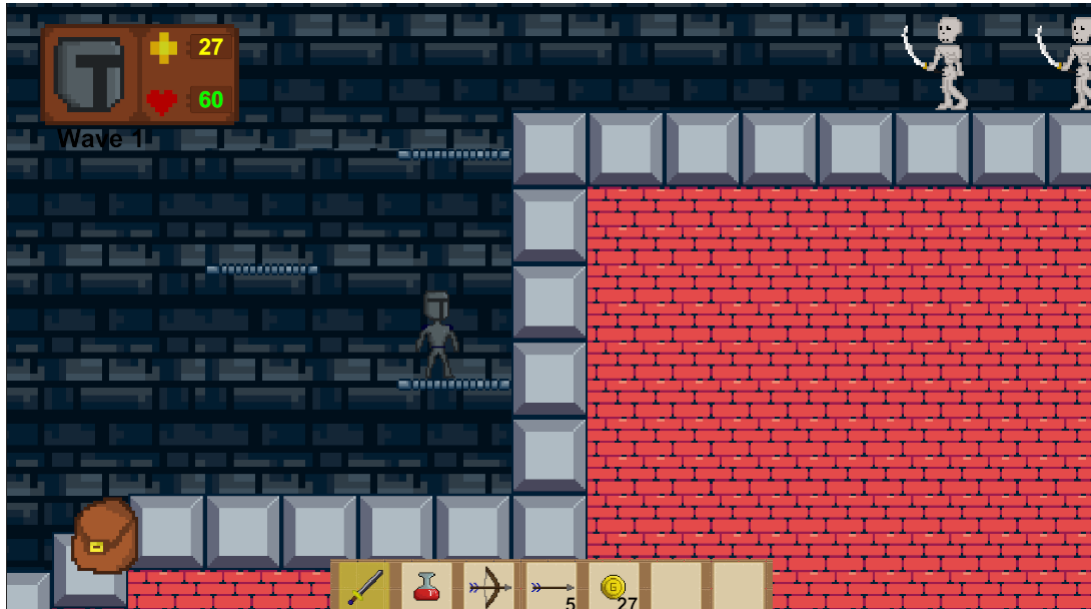
When designing the "Dungeon" scene, I considered different options for the player to ascend and progress. One possibility was to create ladders that would allow the player to climb upwards. Another option was to implement jumpers, which would provide an additional boost for the player's movements. Lastly, I contemplated using raised platforms positioned at different heights to enable the player to climb.

After careful consideration, I decided against using ladders or jumpers in the "Dungeon" scene. Implementing these elements would have made it too easy for the player to ascend and would have resulted in a rather straightforward path through the dungeon. The goal was to create a more challenging and engaging experience for the player, rather than just a simple walk.

Instead, I opted to maintain the teleporter mechanism that had been previously utilized. I found this method to be more suitable for the overall gameplay and atmosphere of the dungeon. By using the teleporter, players are presented with a more unique and dynamic way to progress through the scene. It adds an element of surprise and requires players to strategize their movements and interactions with the environment.

As the name suggests, the "Dungeon" scene necessitates the player to move upwards to advance further. This vertical progression adds an additional layer of complexity to the gameplay, making it more interesting and challenging. By utilizing raised platforms and the teleporter, players must carefully navigate the obstacles and make calculated decisions to ascend successfully.

By opting for these alternative methods of ascent, I aimed to strike a balance between providing a challenging gameplay experience and maintaining the thematic integrity of the "Dungeon" scene. Players will find themselves facing a more intricate and engaging journey through the dungeon, enhancing their overall satisfaction and sense of accomplishment.



Platforms that allow you to climb 1.



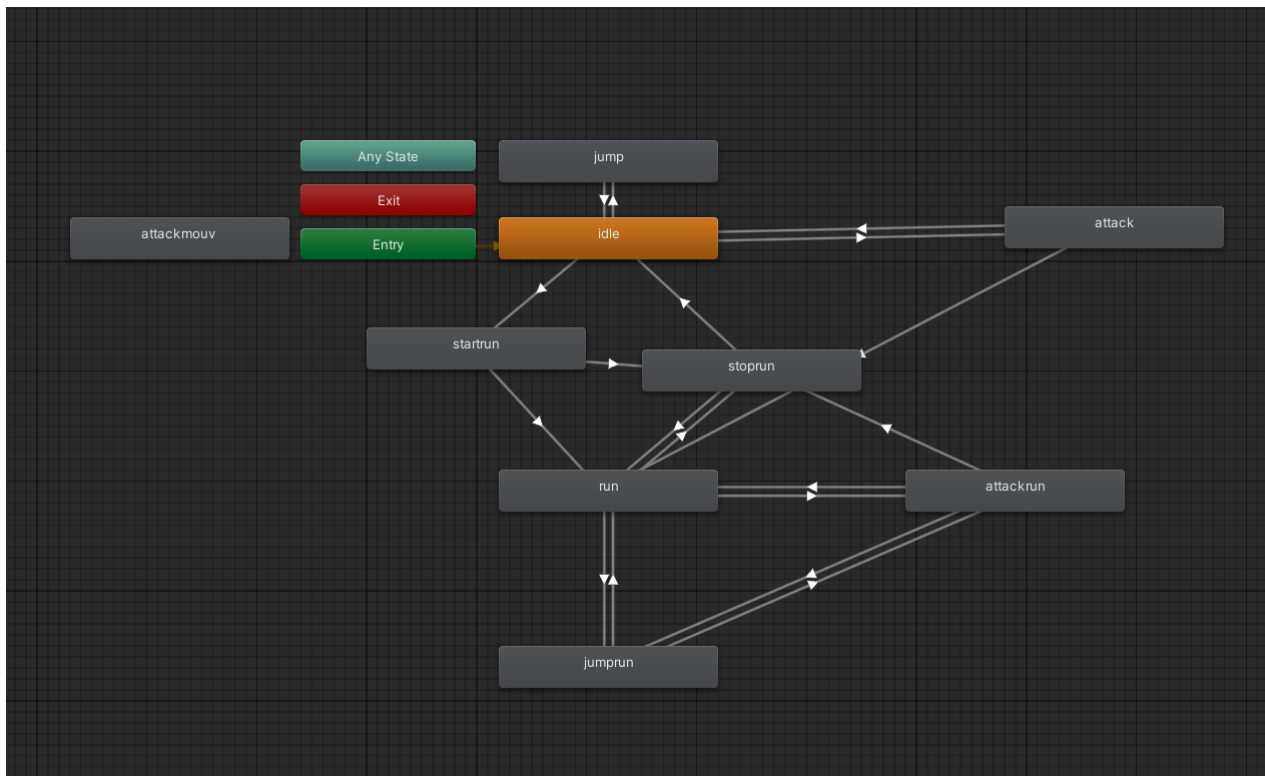
Platforms that allow you to climb 2

To add difficulty to the scene, if I Player misses a platform in frame number two, he falls and must start his parkour again. We decided not to spawn a new mob if the Player fell because we judged parkour hard enough like that.

After implementing new features, I focused on fixing bugs in the game. One major issue was with the blobs and kirikou characters' physics. They would become unstable and fly into the air when the player passed over them. To solve this, I made adjustments to their physics to ensure they stayed grounded and behaved correctly. This made the gameplay more stable and enjoyable.

I also worked on improving the player's animations to make them look better for the user. Animations are important for creating a visually pleasing experience. By refining the player's animations, I made their movements smoother and more appealing. This made the game more visually engaging and enhanced the overall user experience.

Fixing these bugs and improving the animations were important steps in making the game better. With these improvements, players can enjoy a more stable and visually pleasing gameplay experience.



Player Animator

3 Description of achievements

3.1 Artificial Intelligence (Martin & Albin)

3.1.1 Our Joys

The AI we can propose in our game are pretty good, we think the monsters, especially the 2 bosses are strong and will get very hard to kill the more the player goes through the waves.

3.1.2 Our disappointments

The Skeleton and the Slime have pretty basic AI, chasing the player when they see him or go right and left, maybe we could have proposed something better for them. However, we needed a few easy mobs to kill, so they do the job well without being too easy either.

3.2 Multiplayer (Albin & Mathias)

3.2.1 Our Joys

Among the positive points of multiplayer, two players can meet remotely on the same network and therefore play together. The animations are server sided and the attack has been implemented to damage the other player. We have created spawners to allow the player to spawn without the risk of direct collision after the other player.

3.2.2 Our disappointments

There are nevertheless many negative points, the multiplayer remains very simple and does not allow a real multiplayer experience. Indeed when a player kills another, the game stops and needs to be restarted after each fight. Round implementation with Retry and Quit buttons failed.

3.3 Graphics (Backgrounds) (Mathias & Albin)

3.3.1 Our Joys

The result of the different backgrounds is very nice, the fact that each background is split into a set of different layers makes that we can recreate an illusion of depth, making the player think that the game could be in 3D when it's not. This also granted us the possibility to add different assets like the pyramid and the dunes that would not be able to fit on only one background.

3.3.2 Our disappointments

The different backgrounds of the game were mostly difficult to create. Apart from the dungeon one that is static, we used parallax for all of them. This means that we must design for each background a set of at least 5 different layers that needs to be coherent with each other. They also need to have their border drawn so that if we duplicate the backgrounds it must be continuous. This needs to be done for all layers.

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

3.4.1 Our Joys

We made a lot of new swords and shields and all of them look very good! We are proud of what we can propose on the Graphics side, in fact everything was made by us on the graphic side. The Sword's style reflects their rarity, and their power. Same for the shields, which will defend the user in his fights.

3.4.2 Our disappointments

We don't really have any disappointments for the Entities and Characters graphics, maybe we could have added a new Character if we spent less time fixing bugs.

3.5 Game Code (Albin & Martin)

3.5.1 Our Joys

The game code has some really good things that we want to talk about. We think the scripts that we put into the Player and other game objects make the gameplay enjoyable. Beforehand, we made a decision not to give the Player too many different moves, so that the game would feel realistic even though it's set in a fantastic world. But don't worry, the script still allows the Player to do cool things like moving around, attacking enemies, and even changing items to help in the game.

When it comes to the monsters like Blob, Kirikou, Troll-Boss, Skeleton, and Anubis, we wanted to make their artificial intelligence simple yet challenging. We worked hard on coding them to make their behavior interesting and tough for players to handle. It was a bit tricky, but we're really proud of the outcome.

We're also really proud of how the game flows and the interactions it offers. We made different scripts that are connected to the buttons, so players can easily control the game and make things happen. Additionally, we added a feature that allows smooth scene transitions, which means that when one scene ends, the next one starts quickly.

3.5.2 Our disappointments

That said, we're a little disappointed with all the bugs we had to work out, which slowed us down considerably. The game is now finished, but if we hadn't had so many bugs it's certain that more content could have been added for the player.

3.6 Website (Mathias & Martin)

3.6.1 Our Joys

The design of the site is exactly what we expected when we started, and we're quite proud of it. The information is well distributed for the reader, and everything needed for a good understanding of the game and how it works is there.

3.6.2 Our disappointments

We're not really disappointed about our website, we think we've done a good job so far. It looks good and represents the team well, there's the game installer as well as the user guide. This way, any user who wants to try out our game is ready to start the adventure. A few aesthetic additions, such as the day and night mode, make it unique in its genre.

4 Appendices

To conclude, here are is a picture of the final state of the game, when the player starts.

