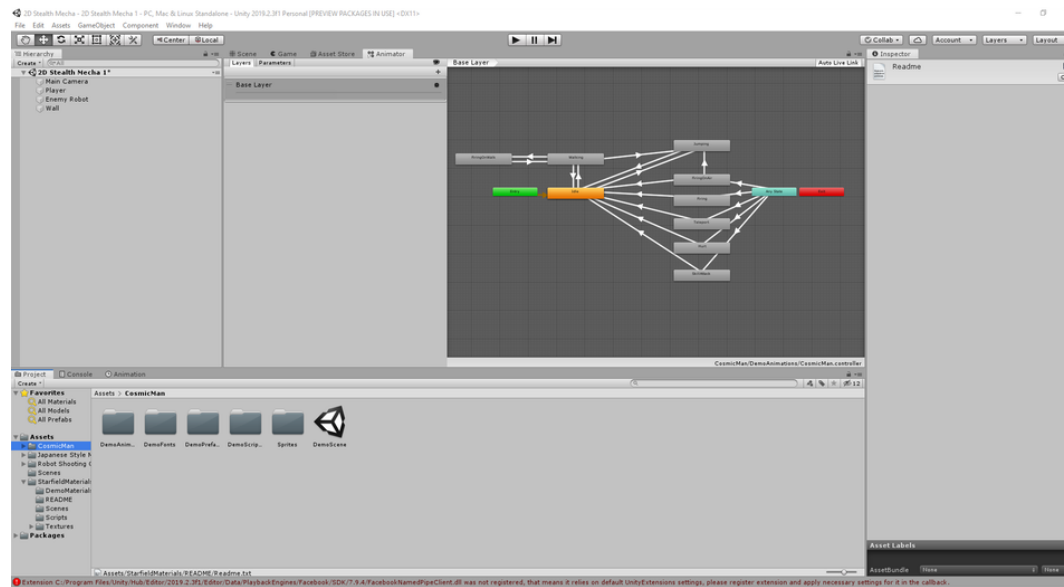


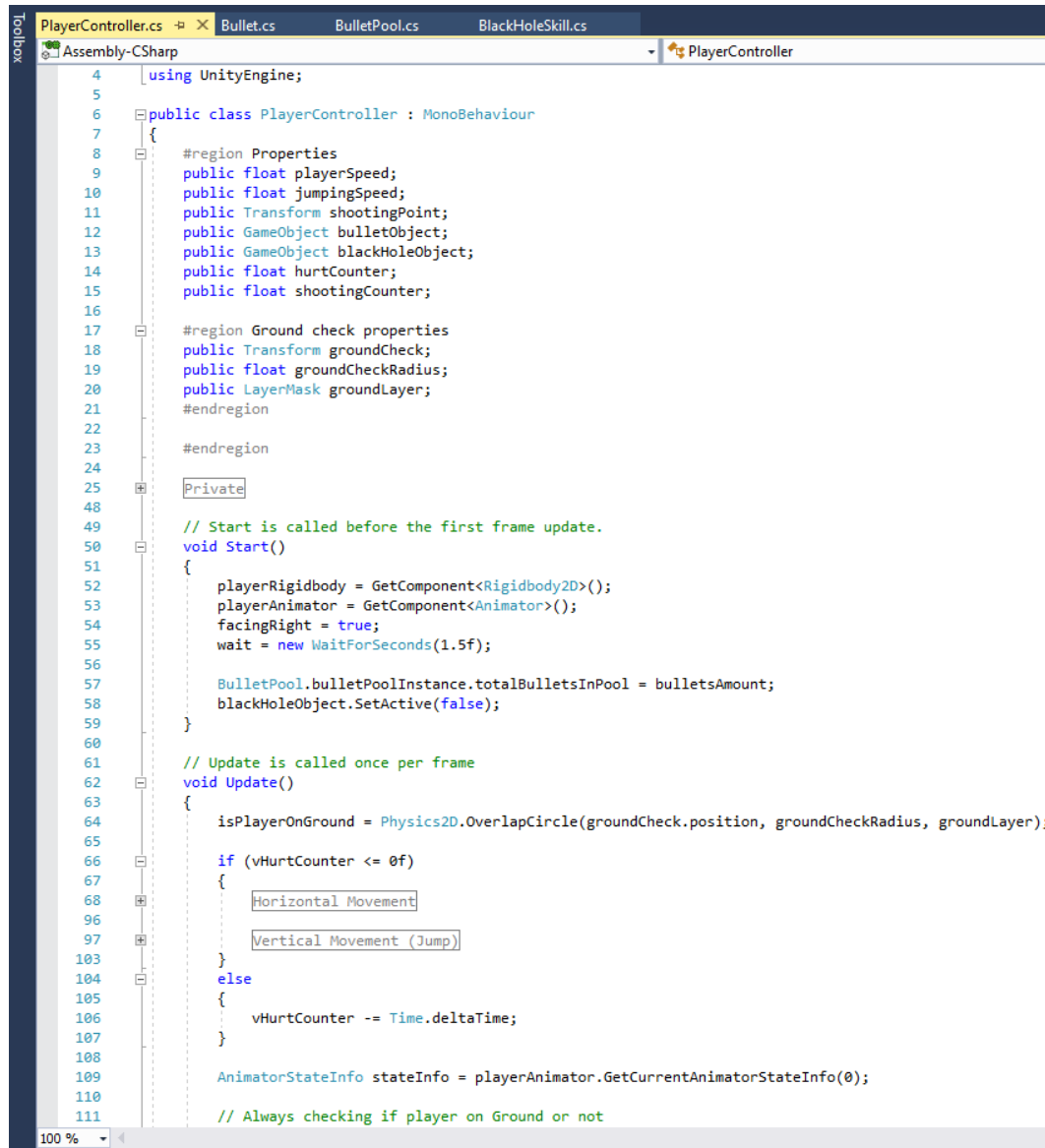
Production Journal



Diogo Constantino



The assets i have downloaded and the things already done in the animator with the Cosmicman asset.



```
4 using UnityEngine;
5
6 public class PlayerController : MonoBehaviour
7 {
8     #region Properties
9     public float playerSpeed;
10    public float jumpingSpeed;
11    public Transform shootingPoint;
12    public GameObject bulletObject;
13    public GameObject blackHoleObject;
14    public float hurtCounter;
15    public float shootingCounter;
16
17    #region Ground check properties
18    public Transform groundCheck;
19    public float groundCheckRadius;
20    public LayerMask groundLayer;
21    #endregion
22
23    #endregion
24
25    Private
26
27    // Start is called before the first frame update.
28    void Start()
29    {
30        playerRigidbody = GetComponent<Rigidbody2D>();
31        playerAnimator = GetComponent<Animator>();
32        facingRight = true;
33        wait = new WaitForSeconds(1.5f);
34
35        BulletPool.bulletPoolInstance.totalBulletsInPool = bulletsAmount;
36        blackHoleObject.SetActive(false);
37    }
38
39    // Update is called once per frame
40    void Update()
41    {
42        isPlayerOnGround = Physics2D.OverlapCircle(groundCheck.position, groundCheckRadius, groundLayer);
43
44        if (vHurtCounter <= 0f)
45        {
46            Horizontal Movement
47
48            Vertical Movement (Jump)
49        }
50        else
51        {
52            vHurtCounter -= Time.deltaTime;
53        }
54
55        AnimatorStateInfo stateInfo = playerAnimator.GetCurrentAnimatorStateInfo(0);
56
57        // Always checking if player on Ground or not
```

The code that came with the Cosmicman asset.

01/10/2020 was the date i started this cultural project in Frankie's class, since he asked everyone to do it. What i wanted to have in my first thing first are some assets that will help show people what i want to my game to look like somewhat, even if it's not perfect. I downloaded

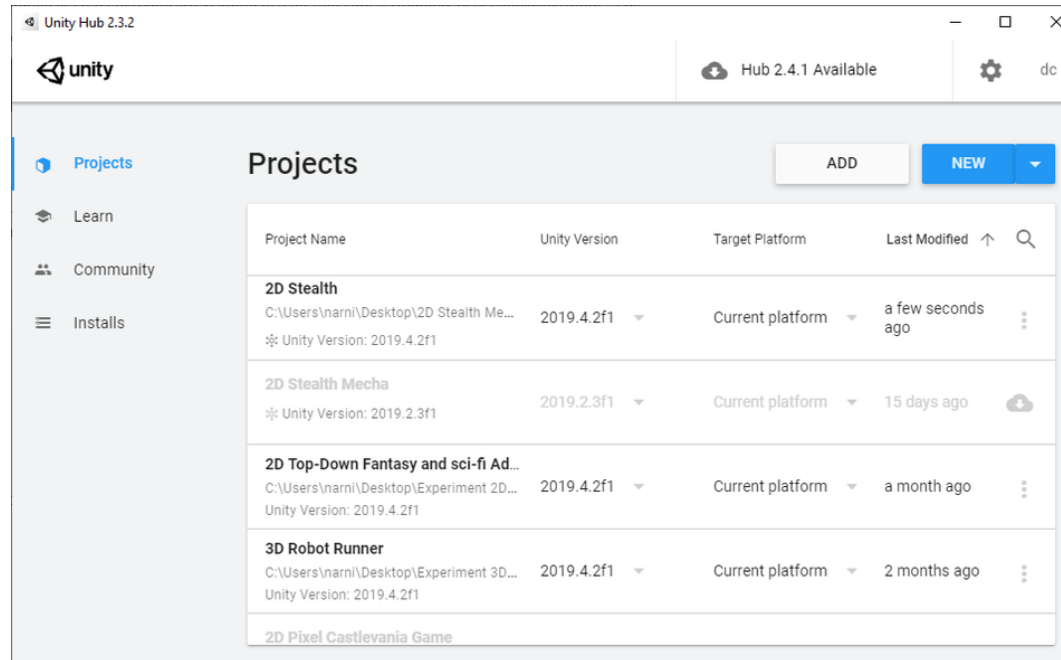
two 2D character asset packs, some Japanese music and a background, i believe will help me show people the Japanese mecha culture i have added to my 2D stealth game.

The background i added to my project is a space background, the reason i downloaded this is because i was thinking of having a map that is in space, since a lot of mecha anime and games are usually in the future and they fight in space, but now i am not so sure, i'm now thinking i should have some dark tilemap or something, the reason i want a dark background is because i'll be making a stealth game and stealth games are usually dark or have shadows involved, so that's why i want a dark background.

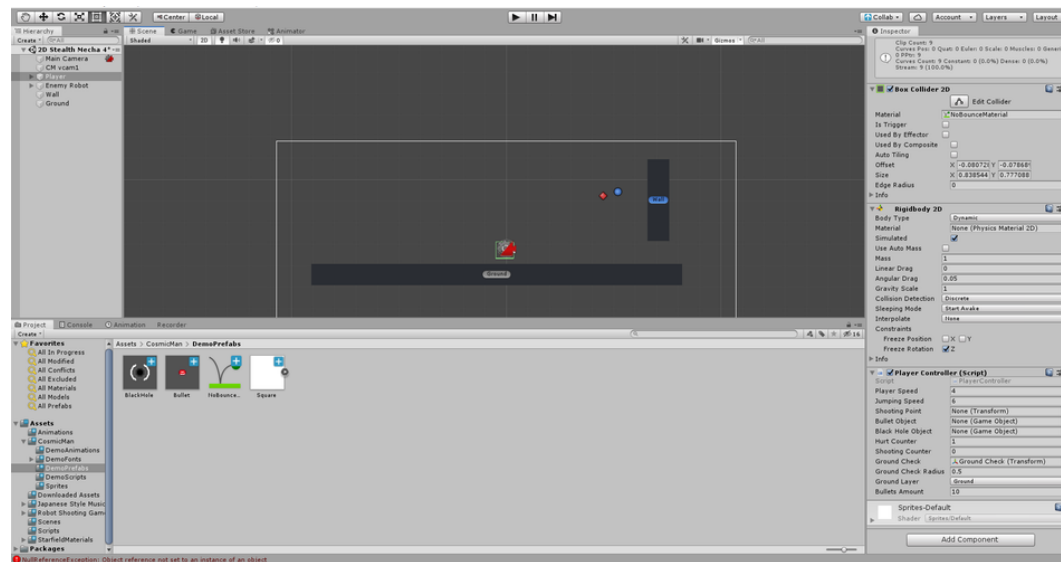
What i added next are two 2D character asset packs with a lot of stuff inside it, one is called the robot which is from an asset for a 2D shooter where you are a robot with a jet pack and a sniper rifle, and it also has a few enemies and endless background but i'm more interested in the robot as i think i will use that character as an enemy since it has a weapon and everything.

The other asset i downloaded was another character called Cosmicman, this asset has the character movement, attack and special attack animations, it even came with an animator done so i don't have to do the animator myself saving me a lot of work, not only that but this asset also came with scripts to make the character move, attack, teleport, do a black hole ability and more. Even though all of these things in the asset are amazing, i won't be using it all, i'll probably just use the movement code in the C# script as i won't be needing a complex mechanic at least for the Player.

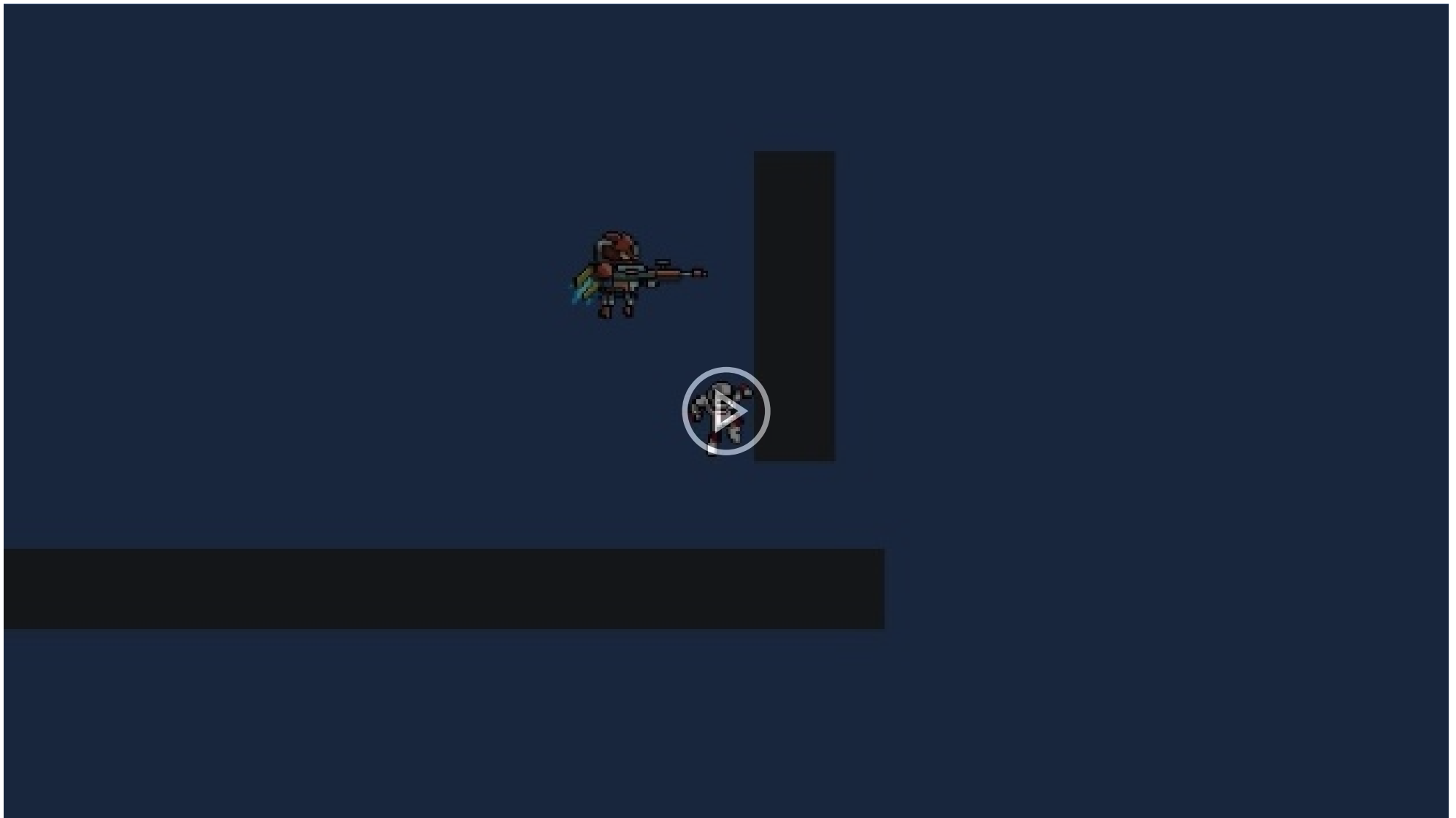
As you can see on the image to the left, i got 4 C# scripts, thanks to the Cosmic man asset. I will use most of the assets, if not all of it, i downloaded in order to make my game good or at least satisfactory to have a passing grade. All of these assets will definitely reduce the time of making custom art and code, giving me more time to add accessibility and more Japanese culture to my game and make a good level for a 2D stealth game.



My Unity Hub and the Unity version problem and storage collab problem.

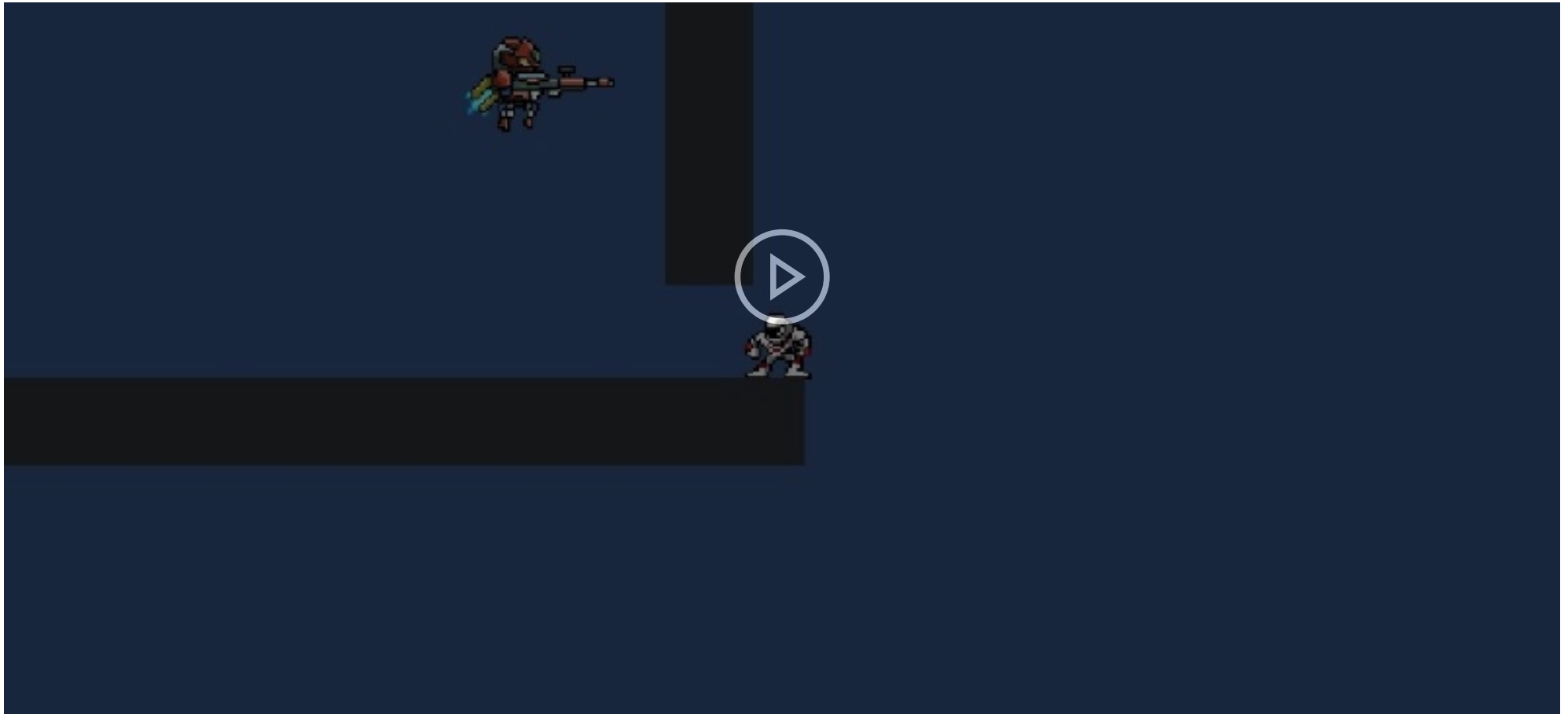


What changes i made to my game so far in just one day in class.



The movement of my Player but with some problems.





How my Player moves and jumps after the improvements i made.

At 15/10/2020 in Frankie's class, i was having some problems with my Unity for some reason when i tried to launch my game, for some reason my game was in a older version of Unity, 2018.1 to be specific. I had no idea why this was the case but that wasn't the only problem i was having, i couldn't collab my 2D stealth mecha game, when i try to collab it Unity said that the storage space was full and i should add more space. I was thinking about how to change my 2D stealth game's Unity version and then i found a way. I just have to go to my Unity hub and change it's Unity version on the arrow to 2019.2.3 and then i could finally go to my game and edit it and play test it.

I didn't fix the storage problem this day because i wanted to update my 2D stealth game first and then fix the storage problem if i have time.

After fixing the problem i was having involving not being able to open my Unity project, i immediately started to work on my game and i did a few things. I added box colliders to my Player, enemy, Grounds and walls and i also added a Rigidbody to my Player. After that i gave my Ground, Wall, enemy and it's blue fire a a thing that lets me know where my objects are and what they are, because since the animations and sprites only appear when i'm in play mode i would like to know what my objects are and where they are so i can more easily modify and change my objects.

I later added the Player movement C# script that i gained after downloading the CosmicMan asset, i gave the script to my Player and tried to test it out. At first my Player wasn't moving, nor jumping but the Player was doing the idle animation so something was right i just had to change a few things.

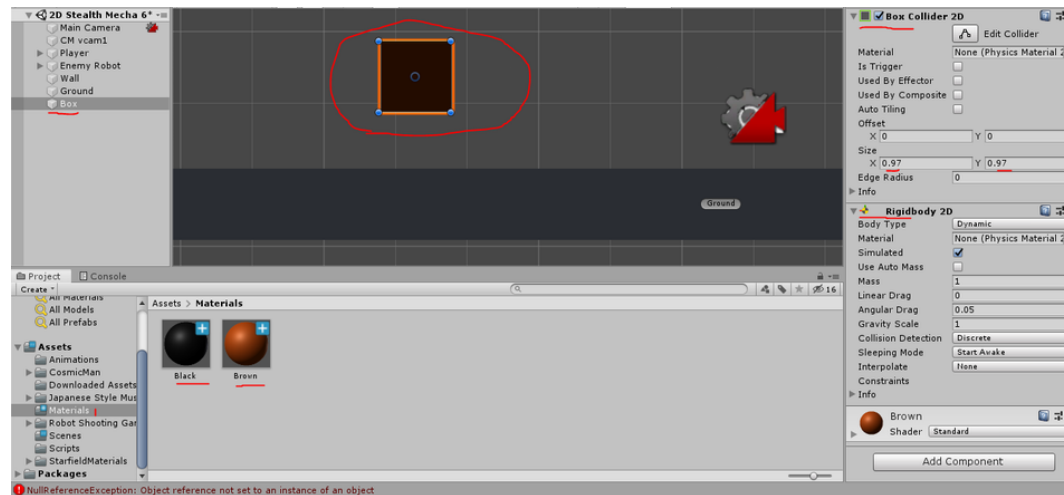
I went to my Player's inspector and changed some things from it's Script that were public to make sure the player could move. Then i made a Empty GameObject called "Ground", gave it a box collider and made it a child of the Player. With all that i finally made the player move left and right and make it able to jump, with animations and all. But there was still a few problems that needed to be solved, i tested my game and the movement seemed ok i can always adjust it later, when i jumped into a wall and hold the a direction into a wall the player will get stuck onto the wall and not move. Not only that but the Player can be tilted if you jump on a ceiling with one part not on the ceiling.

To fix these issues i went to my Player's Rigidbody and went to constraints and freezed the Z axis, solving the tilting problem, after that i added a materiel to my Players box collider with a called "no bounce" that the Cosmicman asset had which was a good time saver since i didn't have to create anything new. I then did some more play tests and i wanted to do a few jump and speed adjustments because i didn't like how my player moved. Then i made my Player's Ground radius smaller so that the jumping animation would happen sooner then later, making everything look smoother and better.

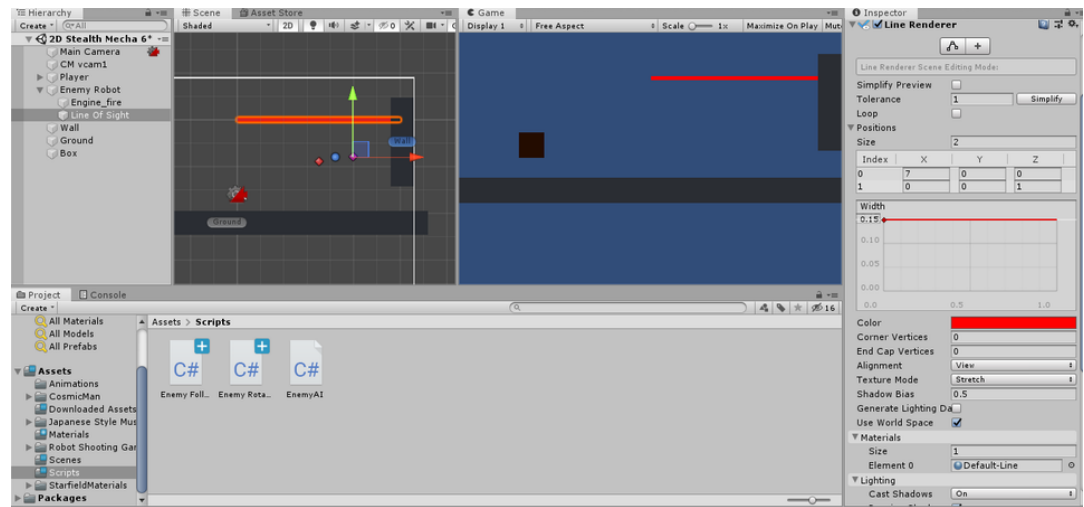
The video to the left is how my game looks and how it moves right now, i am satisfied with it but i still have a lot of work to do. I am extremely happy that i have downloaded this CosmicMan asset as it has animations, code and everything that i could want for a Player even

though i just wanted the character art because i thought it would suit well with my 2D stealth mecha game.

I'm probably not going to add more mechanics or abilities to my Player in the future because i want a simple stealth game with not too many or complex mechanics and also i believe i won't have the time of all of those things. I believe what i'm going to do next is add the enemy AI or have a decent level design for the Player to go from start to end, i don't know yet.



The Box i added to my game with a box collider 2D and Rigidbody 2D. And the two new materials, black and brown.



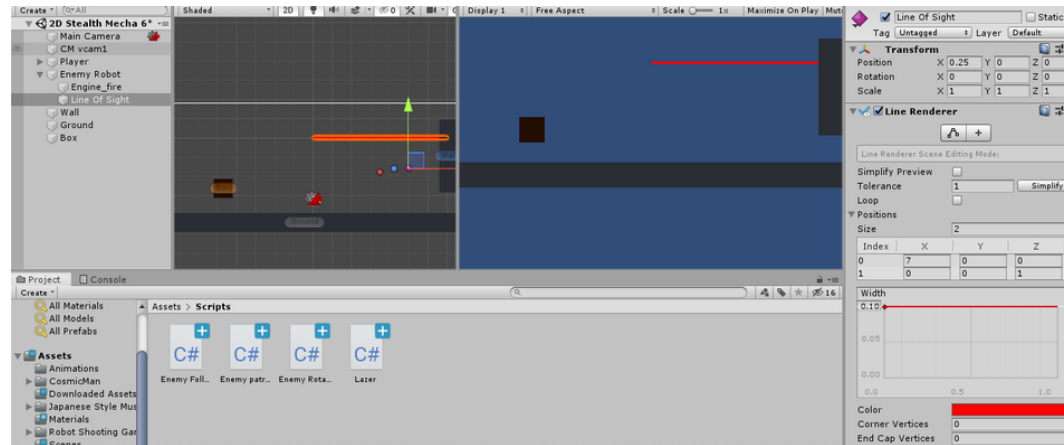
The new C# scripts i created, the empty gameObject called "Line Of Sight", inside the enemy, with the Line Renderer component and the changes i did to that component.

```

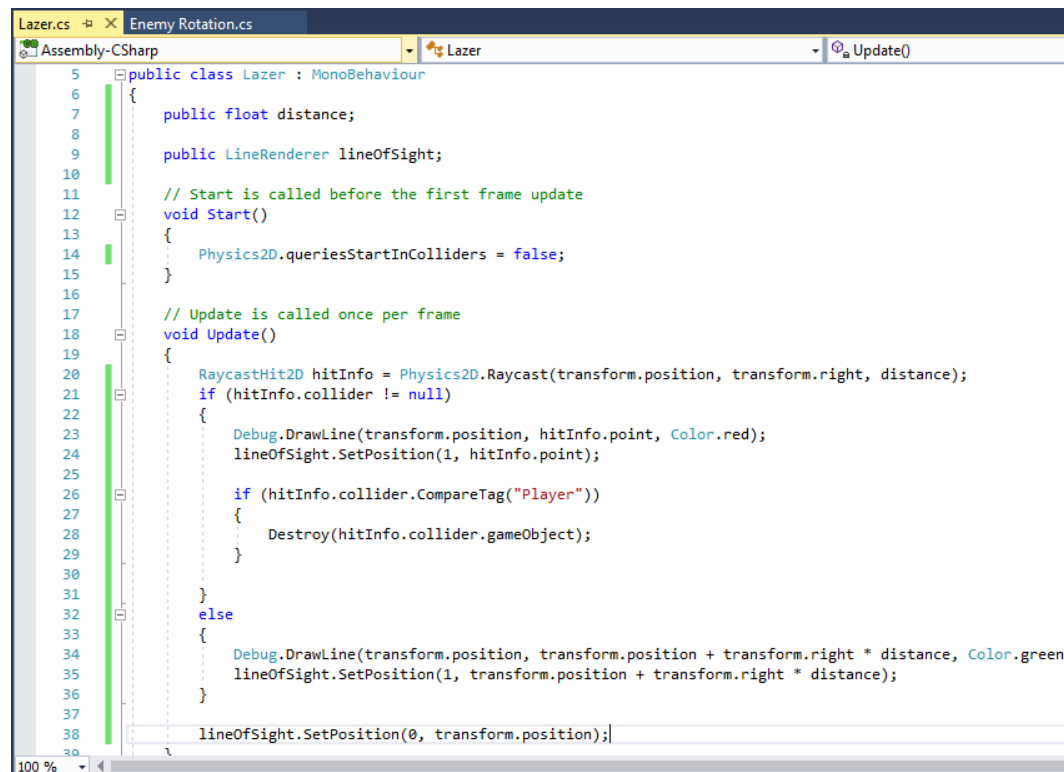
Enemy Rotation.cs
Assembly-CSharp
1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class EnemyRotation : MonoBehaviour
6  {
7      public float rotationSpeed;
8
9      // Update is called once per frame
10     void Update()
11     {
12         transform.Rotate(Vector3.forward * rotationSpeed * Time.deltaTime);
13     }
14 }
15

```

The simple code i added to the Enemy Rotation script.



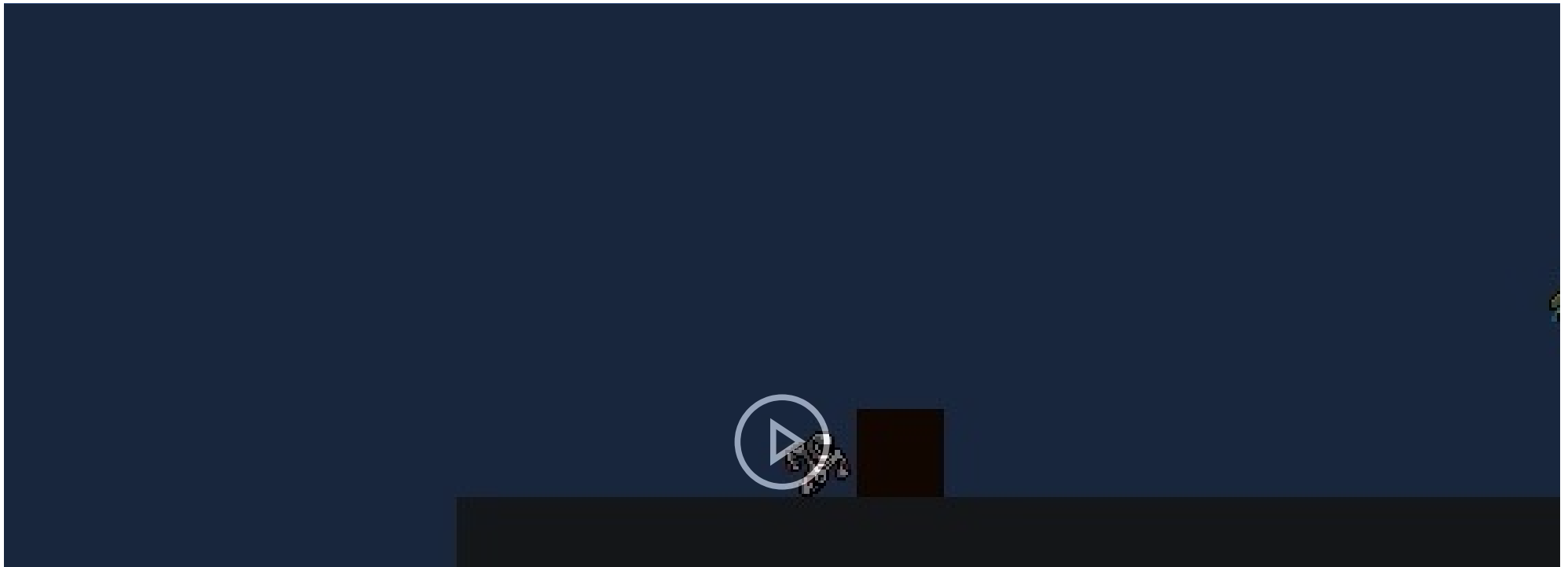
The new scripts i added and the one script i deleted. Also more changes with the game and Line Renderer.



The code i added for the Lazer C# script.

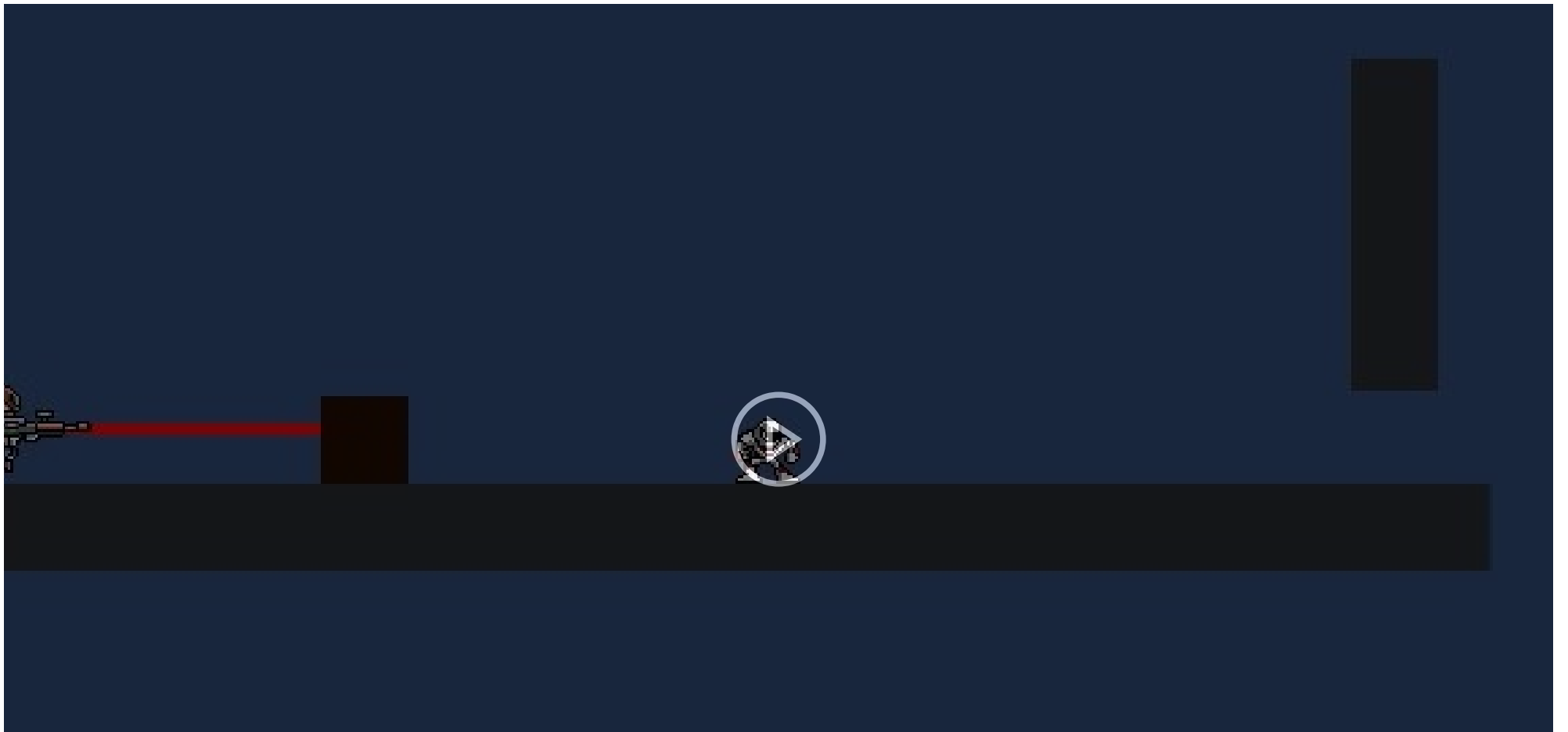


The images and things i imported from the internet.





The test i did to see how the Box and lazer interact with the Player.





The small test i did to see if the lazer is block by other object and not destroy the Player when it doesn't have a line of sight.

On 24/10/2020 i decided to work on my game and finally add code for my enemy and add a few more things in the scene. The first thing i wanted to do was add a "Box" to my game, the reason for this is because i got an idea the Player could do something with an object that could help them get to higher places, block lazars or something. This makes sense because usually in stealth games because the player isn't just interacting with enemies and levels, the players also interacts with objects big or small that affect the world around them, it can distract the enemy or help them go to a secret place. That's why i wanted a simple box in my game, i even have some ideas in my head to improve my game.

So i made a 3D cube in my scene, named it to "Box", gave it a box collider 2D and rigidbody 2D so that Player can interact with it. I play tested it but i realized that i couldn't jump of the box if i'm on top of it, i understood the problem and knew how to fix it, i just had to add a "Ground" tag to the box and not the Player can jump off from the top of the box.

Later i wanted to add a material to my box so it wouldn't look like the wall or ground, so the Player can distinguish the box from other things and that they know they can move the box. I made a brown material for the box but then i made another material for the ground and wall, the black material, i added it to the ground and it didn't look very well in my opinion so i took it out but i'll leave the material incase i need it for the future.

The next thing i wanted to do was follow a tutorial by called "STEALTH ENEMY AI WITH UNITY AND C# - EASY TUTORIAL" on YouTube that will help me make my enemy have a sort of Lazer that can kill the Player.

I watched the whole video so then i started applying it to my game. I first made two new C# scripts called "Enemy Rotations" and "Enemy Follow". After that i created a empty GameObject called "Line Of Sight" made it a child of the enemy and placed it in front of the enemy's gun with a purple label so it's easy to spot in the editor. I then gave the GameObject a Line Renderer component and i made some changes to it's colour, how long it is, how wide and more. For some reason the lazer wasn't in front of the enemy even with the Line Of Sight placed right, but i believe that the lazer will be placed correctly once i add the script to make the Lazer kill the player and other things.

I made a script called "Enemy Rotation" in this script i will have a simple code that will make a GameObject rotate and i will be able to control it's speed in the inspector. The reason i did this is because i want to have some enemies to spin and have a lazer that the Player has to avoid. Basically i want different types of enemy so i need multiple different scripts with different mechanics for each unique enemy.

I was thinking of having a enemy that goes up and down with a lazer, a enemy that rotates with a lazer, a enemy that follows you for a short time, a enemy that patrols a area and maybe some more.

After some thought i deleted the "Enemy AI" script because i was going to have enemies with different scripts doing different things and not a script that does a general thing that every enemy was going to have.

I the created more scripts that i going to do different things, i named them "Enemy Follow", "Enemy Rotation", "Lazer" and "Enemy Patrol". The ones with the Enemy name will do things that the name suggest, but the Lazer script will be the script for a lazer that a enemy or object shoots that kills the Player.

After all that i decided to finally add code in a C# script that will make a enemy shoot a lazer and kill the Player. I started copying the code from the video i was using on YouTube. I copied most of the code i just didn't copy the code about rotating the enemy and making the lazer change colour when hitting another object or not.

The code i did add will make my enemy shoot a lazer at a certain distance and it will destroy the Player it comes into contact with it. Not only that but the Lazer can be blocked by anything that isn't a Player, so basically the Player can protect itself with the Box for example.

Now that i thing about it more i could have added the rotation code into this C# script and if i didn't want a specific enemy to rotate, i could make the rotation speed to zero. But what's done is done and i don't want to waste time changing things and possibly complicating things.

This here are the images and assets i imported from google images and itch.io, but what all these things have in common is that i can get them to work in my game. For the images i can't get rid of the white background even though the background is supposedly transparent, meaning the images have no background, but i tried to do a few things and i even did a bit of research but for some reason i can't have just the image of a robot or spaceship without a background.

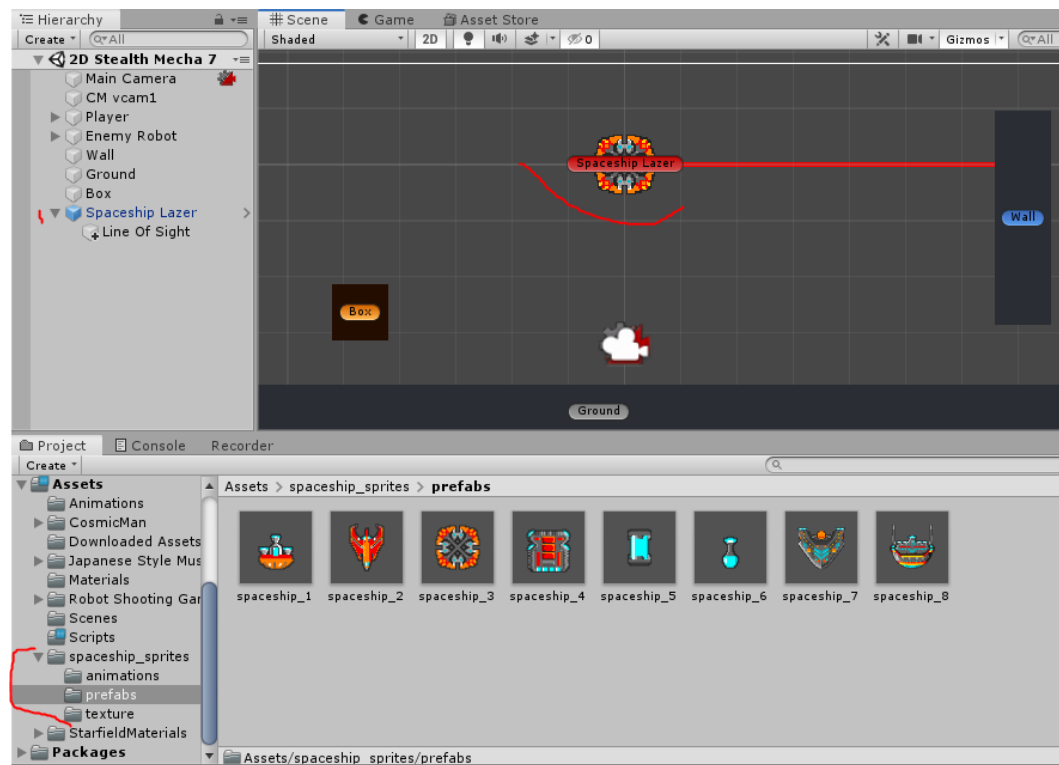
I also tried to download a asset of a robot that has animations and such, a very simple robot, but i couldn't get it to work it won't even appear in my scene or anything in my Unity editor.

I don't know if i should continue researching to find a solution about this problem or just do something else. I'm more inclined to just do something else like downloading some simple 2D assets from Unity's asset store, just to save time and not worry about things not working.

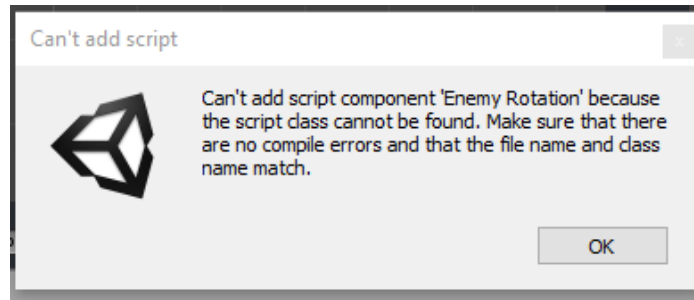
After everything i finally decided to properly test my game, the Box, the lazer and all. What i did first was test how the Player moves the box, i also tested if the lazer kill the Player and it does which is good. Everything works as intended, the animations, the mechanics and such.

I later wanted to do another test to see if the box blocks the lazer and saves the Player. After doing the test i'm glad that the lazer can be prevented with walls and boxes other wise it would be very hard for the Player to survive.

What i intend to do next is make a new enemy that rotates and has a lazer like the one enemy i have now, i believe that doing that will be simple, i even have a new enemy sprite to go with it. Then i going to make a script that will make a enemy move up and down or left and right or maybe both, if i don't i'll probably start making a main menu and the mechanics for it. I'll also want a mechanic where if the Player dies they can just press a button and restart the level. Even though i have these ideas and thing i'm going to do, nothing matters until i actually do and who know i might do something completely different.



The assets i downloaded and the new enemy i added to my scene.



The error i kept getting involving not being able to add a script to my gameObjects



Video of me testing the new enemy, the rotation speed, direction, lazer length and more.

At 27/10/2020 is when i started to add a asset pack with 2D pixel space ships so i can add to my game as a specific enemy, one that rotates with a lazer, you can see the assets and it's sprites i have downloaded here to the left.

The reason i downloaded this asset is because i wanted a small enemy of sort to rotate with a lazer so that the Player would need to wait and time it's movement right to not get killed. Now that i think about it i probably didn't need to download all of the assets just one sprite

and it's animations.

When i added a look i liked for my enemy i added it to my scene and i noticed it was already animating when i tested it in play mode, which is great as it saves me a ton of time since i don't have to make any animations myself. After that i added the Line Of Sight gameObject to this new Spaceship Lazer by duplicating the old one and making it a child of the Spaceship so that the enemy could have a visual red lazer so Players know what to avoid.

Later i wanted to add the Enemy Rotation C# script to my new enemy but when i dragged and drop it to the enemy it didn't work, a error would appear that said "Can't add script" and i don't know why this happened. I tried this with my other script and the same thing happened, the only script that did work was the Lazer script but nothing else. I looked at the scripts that didn't work and i could find nothing wrong.

I later decided to delete the "Enemy Rotation" script and created a new one called just "Rotation", i then added it to my Spaceship Lazer and that worked for some reason, i don't know for sure why this new script work but i believe that it worked because my old scripts had very little to no code in it and when i relaunched my unity project Unity didn't like that my scripts were basically empty and did something to them that would let me add them to my objects, but that's just my opinion.

After i solve the problem i was having i added the Rotation and Lazer script to my new enemy. I then tested my game to see if everything work and it does, while i was in play mode i tested the range, rotation speed of my enemy to see what feels right. I then remembered that this new Spaceship needs a collider so i added a Circle Collider 2D so that the Player doesn't go through it when touching it.

What i am going to do next i believe is either make a pause menu or make a script that will make my enemies and platforms move in one



```
Platform.cs
Assembly-CSharp Platform OnDrawGizmos()

5 public class Platform : MonoBehaviour
6 {
7     public Transform pos1;
8     public Transform pos2;
9     public float speed;
10    public Transform startPos;
11
12    Vector3 nextPos;
13
14    // Start is called before the first frame update
15    void Start()
16    {
17        nextPos = startPos.position;
18    }
19
20    // Update is called once per frame
21    void FixedUpdate()
22    {
23        if (transform.position == pos1.position)
24        {
25            nextPos = pos2.position;
26        }
27        if (transform.position == pos1.position)
28        {
29            nextPos = pos2.position;
30        }
31
32        transform.position = Vector3.MoveTowards(transform.position, nextPos, speed * Time.deltaTime);
33    }
34
35    private void OnDrawGizmos()
36    {
37        Gizmos.DrawLine(pos1.position, pos2.position);
38    }
39
```

The code i wrote in the Platform C# script.

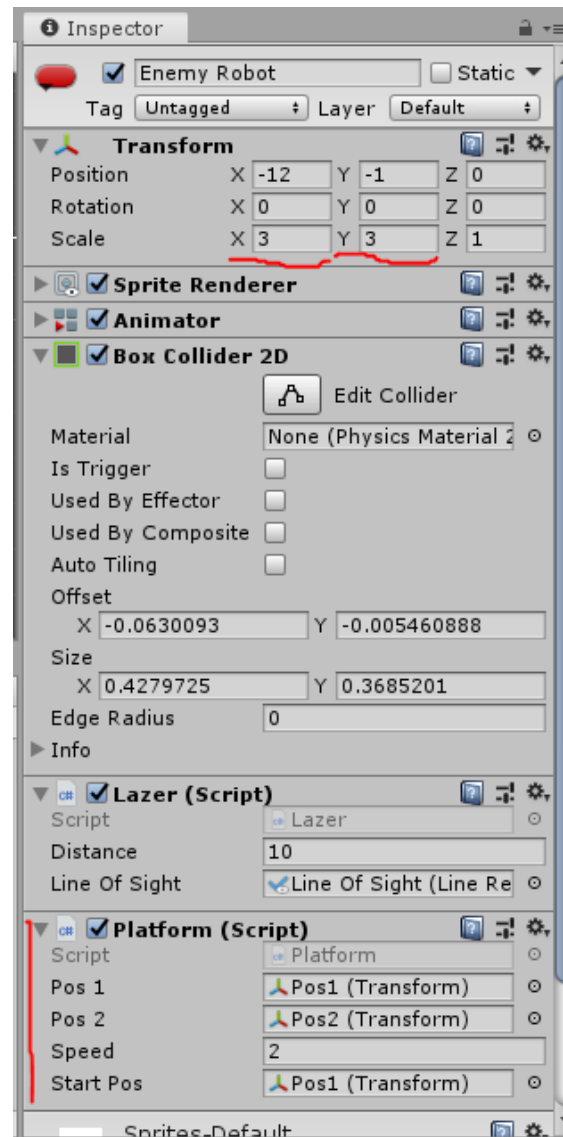
```

// Update is called once per frame
void Update()
{
    if (transform.position == pos1.position)
    {
        nextPos = pos2.position;
    }
    if (transform.position == pos2.position)
    {
        nextPos = pos1.position;
    }

    transform.position = Vector3.MoveTowards(transform.position, nextPos, speed * Time.deltaTime);
}

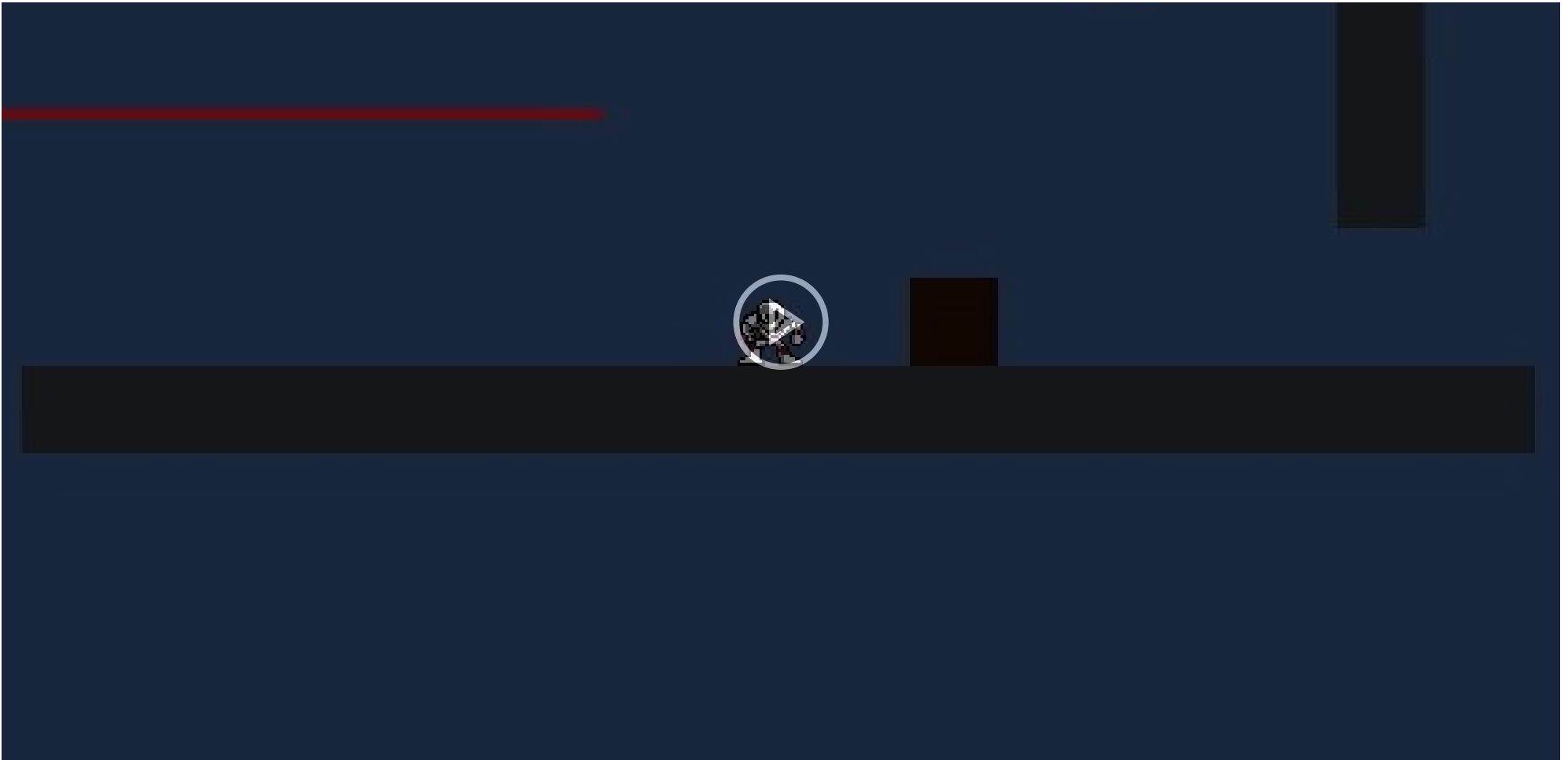
```

The fix i did to my Platform script in order for the enemy to loop it movement.



The changes i did to make my enemy bigger and ho...
my platform script looked in the inspector.





The final test i did to see if the enemy moves well and loop up and down.

On 28/10/2020 i made more small changes and additions to my 2D stealth game. What i mainly did was add a new script called "Platform", make two empty gameobjects called "Pos2" and "Pos1" and change the enemy and objects position.

What i basically wanted was a way for my enemy to be able to move up and down or left and right like it's protecting something, giving the Player a more challenging game.

I researched some things on how to make my objects move up and down and I found videos showing how to make a platform move up and down on YouTube. I can use those videos since I can probably just add the platform script to an enemy and they will move the same as well. I'm confident that this will work because I have done this before in my FMP last year, which is also a 2D platformer like this one I'm making.

After searching some videos I decided to follow a video called "Unity 2D Moving Platform Tutorial", I will follow this video and copy its script and add it to my game and then drag it to my enemy to make it move up and down.

The image to the left is the code I copied from the video I watched, from the empty game objects I created and positioned this code will make any object that has the Platform script move between the empty game objects with different positions.

After adding the new script, new objects and making some changes I finally started testing my new mechanic. What I found was that I gained a few problems, while my enemy moves to the Pos1 object and then to the Pos2 it will stop at the second position and I don't know why. Not only that but for some reason my enemy is very small and I don't know what I did.

I looked more closely at my Platform script to see what I did wrong and then I realized that when I copied the if statement I forgot to change the positions to be the opposite of the first if statement. The reason I copied the if statement to begin with was to save time since it would be a waste of time to just write the code again with slight differences from square zero. I need to be more careful next time and actually look at the code again after I completed it to see if there are any errors or mistakes.

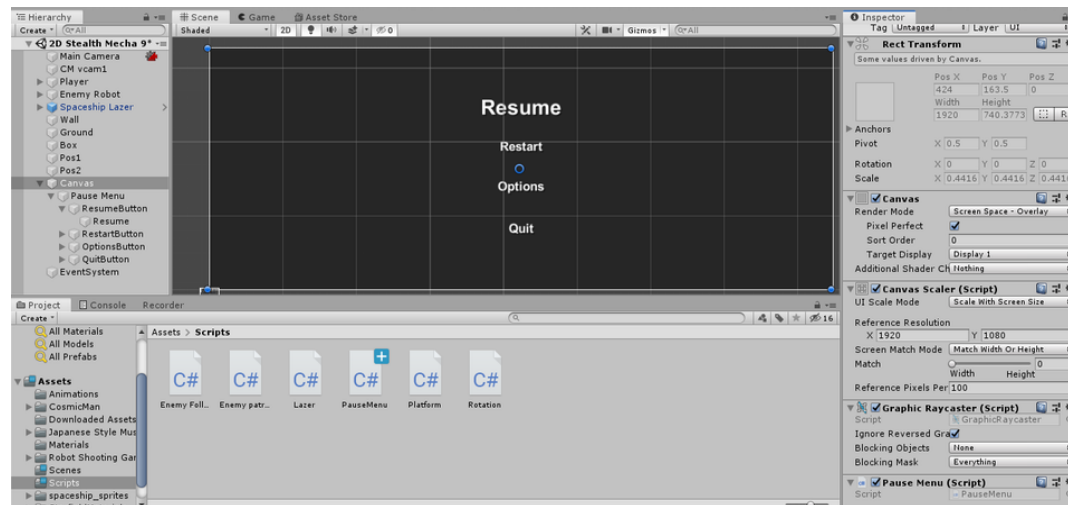
Later, i went back to my editor to look into why my enemy was so small. Then, after looking into it i realized what i did wrong. When i reseted my enemy's position on the Transform component on the gear icon, it not only reset it's Position but also it's Scale and Rotation. After i changed the enemy's scale to 3 it looked normal again and everything was fixed. I later looked at the enemy's Platform script and see if i did everything right just to make sure.

I did a final play test on the enemy and i'm glad to say that it actually works, everything is in order and then are no errors or problems. The enemy will loop forever going up and down between the two positions i set up.

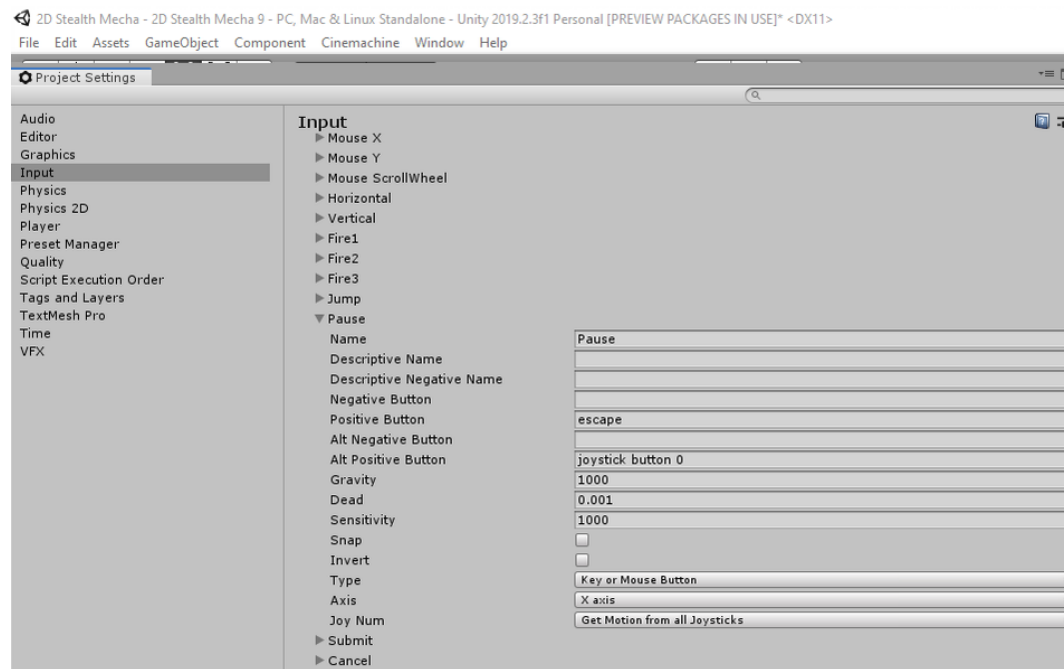
I may have not done a lot but i am happy with the progress i made to day, i learned a few things that i mustn't do and that lesson will make me a better programmer.

The research of how to make a object or platform move up and down:

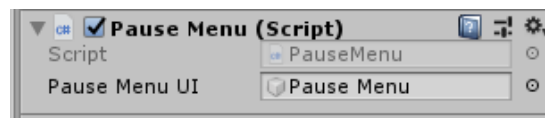
- (https://www.youtube.com/watch?v=4R_AdDK25kQ);
- (<https://www.youtube.com/watch?v=42sbsNOa5tY>);
- (<https://www.youtube.com/watch?v=8aSzWGKiDAM>).



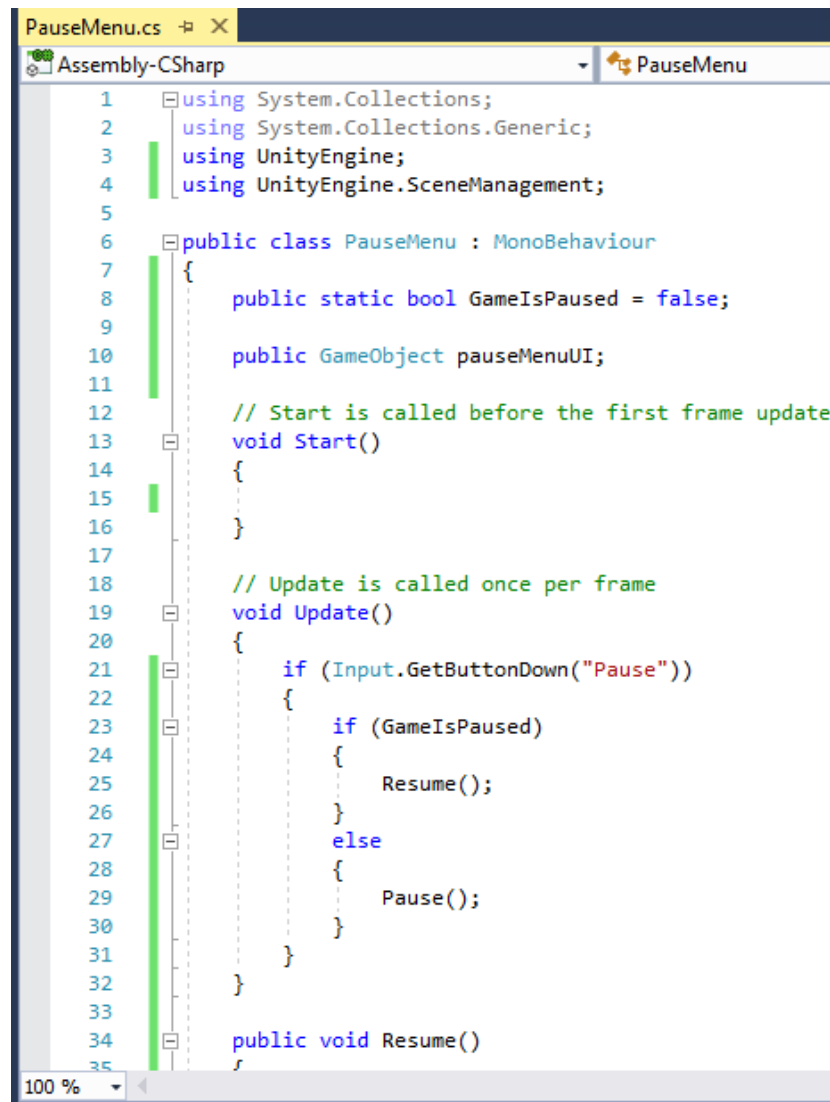
The new "PauseMenu" script and UI game objects i created and modifications made.



The Pause input button i created.



The Pause Menu object i forgot to drag to the Men...
UI in order for everything to work.



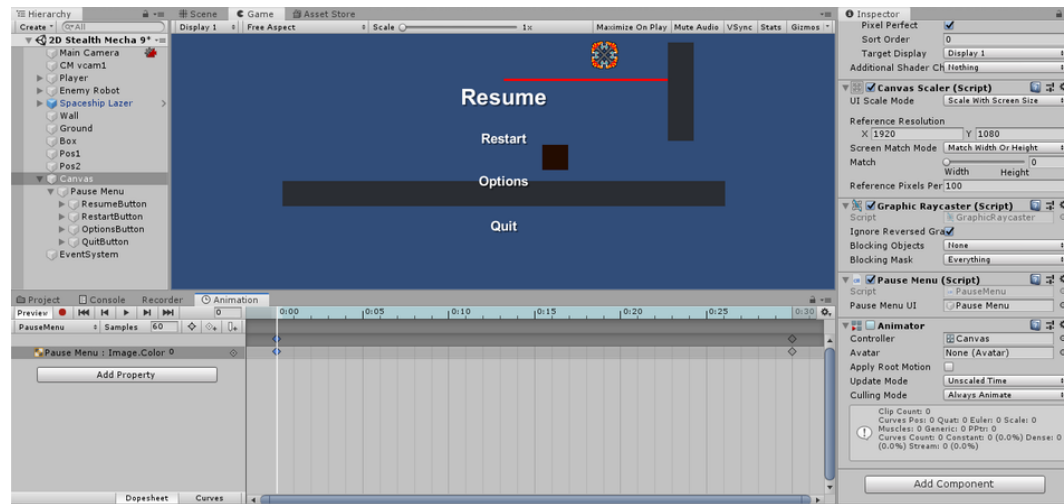
```
1 using System.Collections;
2 using System.Collections.Generic;
3 using UnityEngine;
4 using UnityEngine.SceneManagement;
5
6 public class PauseMenu : MonoBehaviour
7 {
8     public static bool GameIsPaused = false;
9
10    public GameObject pauseMenuUI;
11
12    // Start is called before the first frame update
13    void Start()
14    {
15
16    }
17
18    // Update is called once per frame
19    void Update()
20    {
21        if (Input.GetButtonDown("Pause"))
22        {
23            if (GameIsPaused)
24            {
25                Resume();
26            }
27            else
28            {
29                Pause();
30            }
31        }
32    }
33
34    public void Resume()
35    {
```

The code i copied from the "PAUSE MENU in Unity" tutorial i watched.

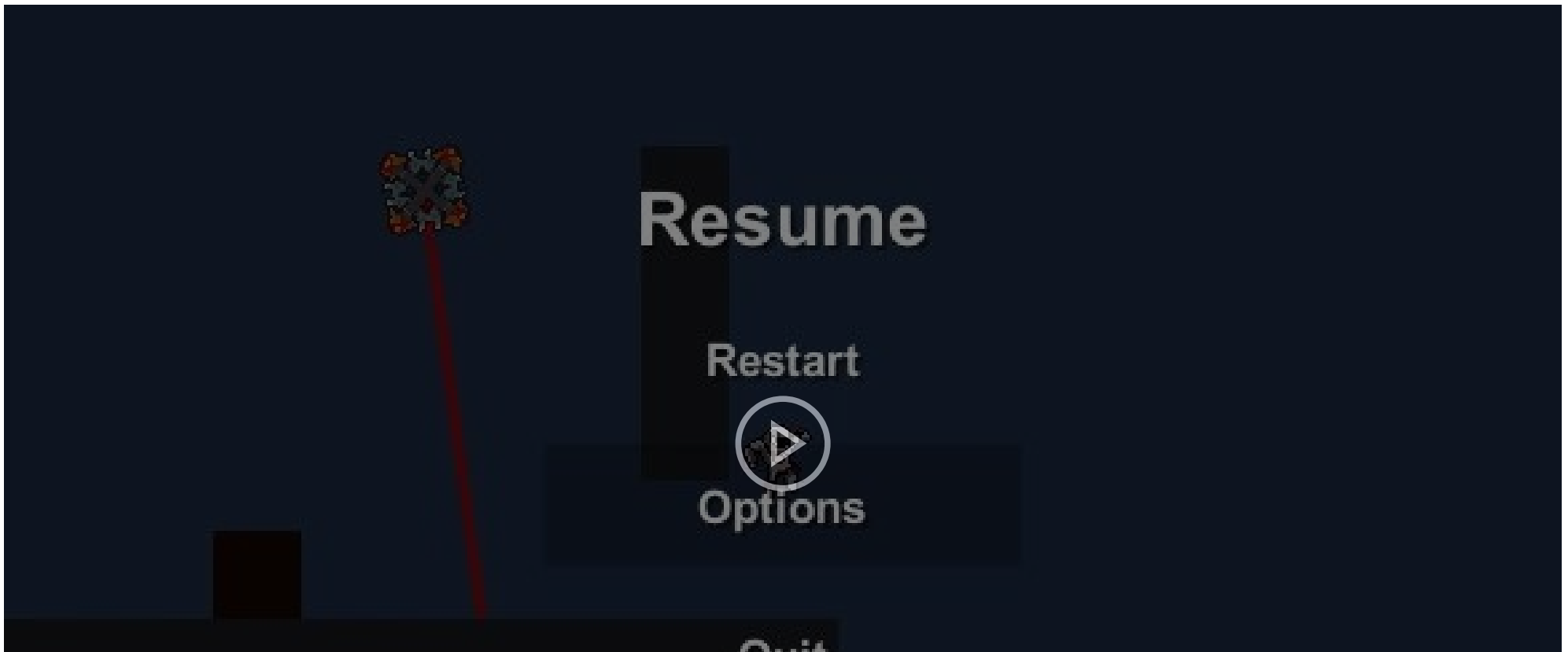
```
PauseMenu.cs - [X]
Assembly-CSharp [v] PauseMenu

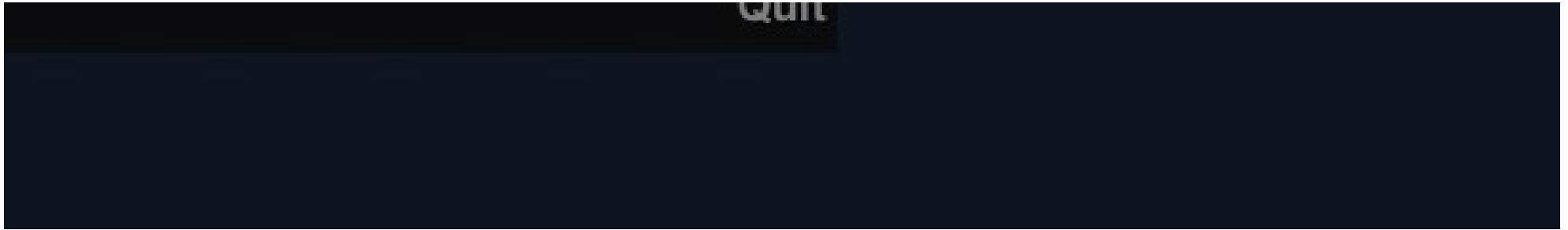
31     }
32 }
33
34 public void Resume()
35 {
36     pauseMenuUI.SetActive(false);
37     Time.timeScale = 1f;
38     GameIsPaused = false;
39 }
40
41 void Pause()
42 {
43     pauseMenuUI.SetActive(true);
44     Time.timeScale = 0f;
45     GameIsPaused = true;
46 }
47
48 public void Restart()
49 {
50     Time.timeScale = 1f;
51     SceneManager.LoadScene("2D Stealth Mecha Game");
52 }
53
54 public void Options()
55 {
56 }
57
58
59 public void QuitGame()
60 {
61     Application.Quit();
62 }
63
64 }
65
```

The code i copied from the "PAUSE MENU in Unity" tutorial i watched and the changes i made for my game specifically.



The animation i made of the alpha of the pause menu.





The test i did to see how the Pause Menu works and any problems with it and with it interacting with everything else.

On 31/10/2020 i decided to make a pause menu for my 2D stealth game, with a resume, restart, options and quit button. I did all of this thanks to a video on YouTube called "PAUSE MENU in Unity", which i researched before and was interested in using it to help me make a simple pause screen.

After watching the whole video i started following it, what i basically did was make a UI canvas in my hierarchy window, make four buttons in that canvas each with it's texts, i gave them a specific size and font and made sure the buttons were highlighted so people can know if the button works, i did all that and other stuff that the video i watched told me to do.

I also made a new C# script called "PauseMenu" that will contain the code to make the buttons functional and do specific things.

I later started testing my game and it's pause mechanic after adding the code to the script. There was a problem right away, the button were highlighted when my mouse was near the buttons but the resume button did nothing, not only that but the escape key wasn't even working nor any other key or button.

In order to solve this problem i though about making a new button or input in the project settings that is called "Pause", and you need to use the escape key to activate it. I also made sure that in my new script that i have in the void update to check the input of the button called "Pause" and not the specific keycode.

After that i tested my game again and the problem still persisted, i looked at my canvas, it's buttons and such more closely and that's when i realized what the real problem was.

The real reason i couldn't pause and unpause my game with the escape key was because i didn't place the Pause Menu game object in the new script Pause Menu UI slot, with nothing in it nothing works, but now everything is okay and my pause menu works fine now.

Here is the code i added to my "PauseMenu" C# script, the code isn't very complicated but it does the job. This part of the code will make sure that if the player hits the escape key, the game will pause and unpause if pressed again.

It also has the "using UnityEngine.SceneManagement" so that the script can make the game go to different scenes, restart the same scene and quit the game.

Here is the other part of the code i added to the new script, i practically copied what the video had but with a few differences. In my script i have the the restart and options button, it will make the player be able to restart the level and go to the options and change some things, sound, graphics and more. I intend the have a option to change some colour for colour blind people in the options menu, it's what i'm aiming for in terms of accessibility, that and some visual cues.

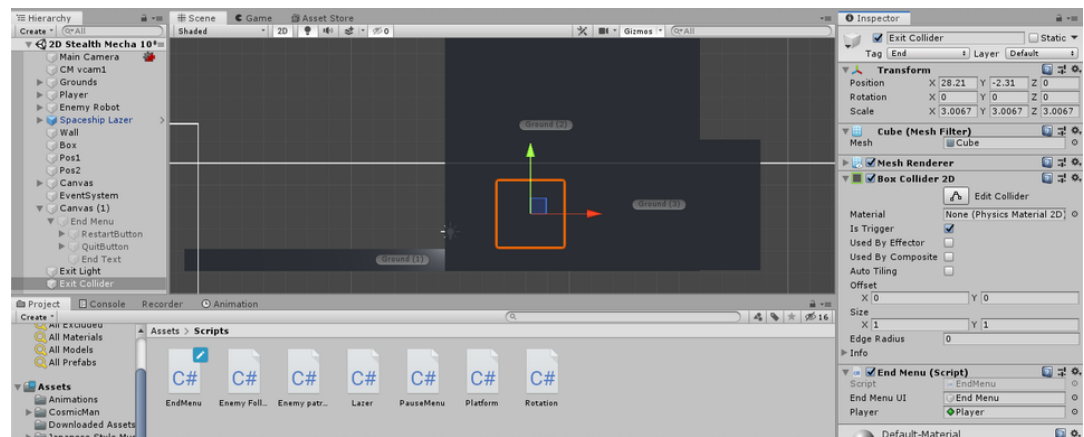
After all that i wanted to add a simple animation so that going to the pause menu is more smooth, as shown in the video of the tutorial i'm using. The animation will simply increase the alpha of the dark background of the pause menu, it may not be a lot but it's a nice simple touch and it wasn't too hard to do in my opinion.

Later i did the final tests to see if everything was working and if there are no more problems. Throughout the test the pause menu does stop time and everything in my game from doing anything and time moves again when the game is unpaused, but for some reason my character can still turn left and right as seen in the video to the left. The Player won't be able to jump, fall or even move but the Player can make the character sprite flip by trying to move left or right which is weird and i don't know why this happens or how to solve it, i don't think i will try to solve it since this isn't a major issue nor does it impact the gameplay in anyway so i'm not going to waste time fixing a small problem.

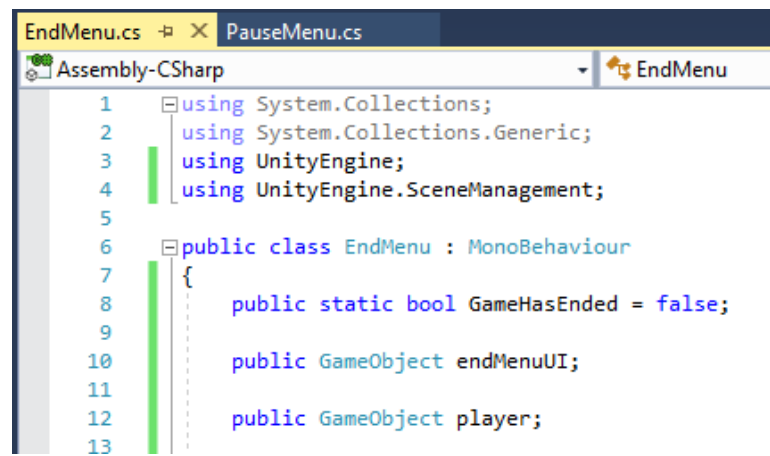
The other thing that work are the button, which i'm glad, the Resume button unpauses the game, the Quit button will quit the game if i build the game first of course, it won't work in edit mode. The Restart and Options button don't work yet mainly because i haven added any code or UI for it but i will in the future.

Overall i believe i did a good job today, slowly but surly i'm making progress for my game, i just need to make probably one new enemy, a working options menu, restart button working, death menu, end menu, start menu, a good level and probably some more stuff.

What i did today wasn't very hard but there were problems that appeared that i understood, then fixed, then learned from. All of this will help me be a better game developer and designer.



The new area i created with more Grounds and Walls. Also the new Exit Light and Exit Collider and some other adjustments i made.



The image shows a screenshot of a Unity script editor. At the top, there are two tabs: 'EndMenu.cs' (active) and 'PauseMenu.cs'. Below the tabs, the assembly is set to 'Assembly-CSharp' and the script is named 'EndMenu'. The script content is as follows:

```
1 using System.Collections;
2 using System.Collections.Generic;
3 using UnityEngine;
4 using UnityEngine.SceneManagement;
5
6 public class EndMenu : MonoBehaviour
7 {
8     public static bool GameHasEnded = false;
9
10    public GameObject endMenuUI;
11
12    public GameObject player;
13
```

The top part of the EndMenu script is coded.

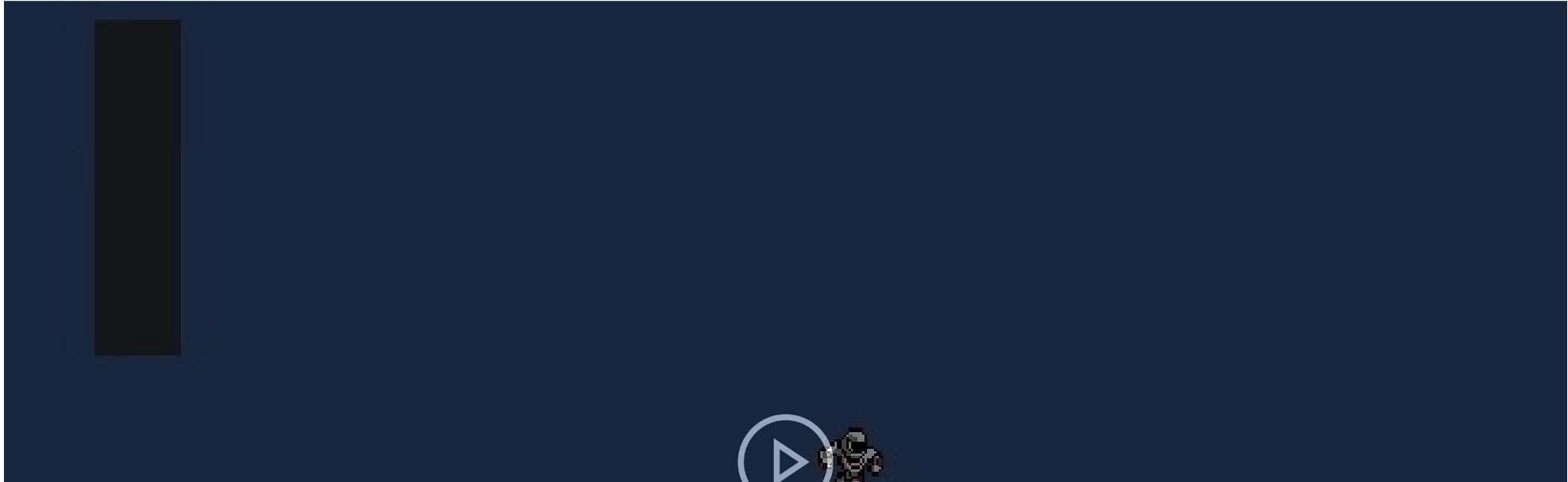
```

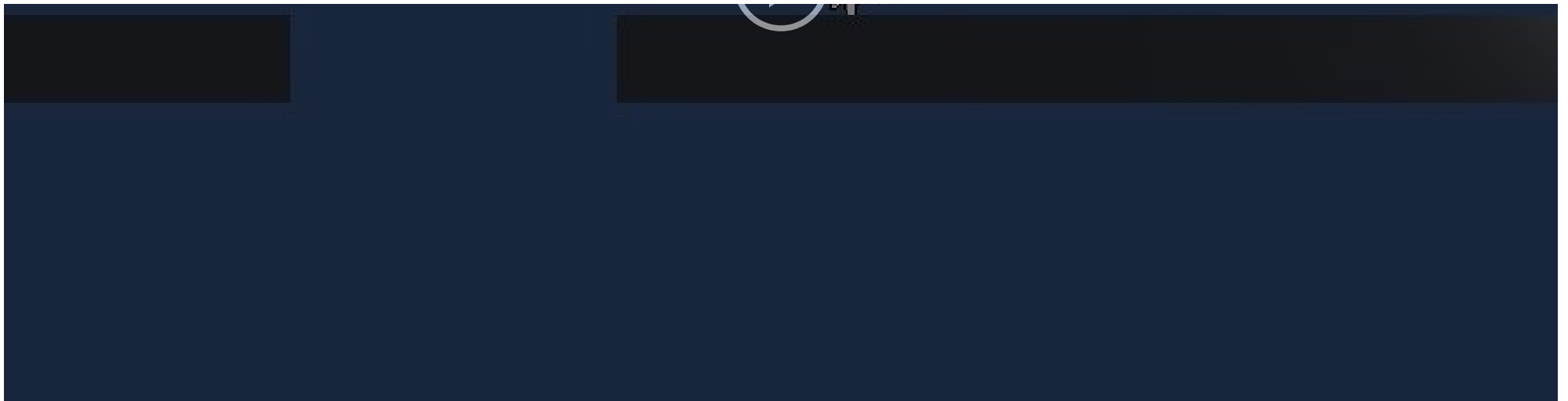
// Update is called once per frame
void Update()
{
    /*
    if (player.CompareTag("End") && GameHasEnded)
    {
        End();
    }
    else
    {
        Resume();
    }
    */

    /*
    void OnTriggerEnter2D(Collider2D other)
    {
        if (other.CompareTag("End") && GameHasEnded)
        {
            End();
        }
        else
        {
            Resume();
        }
    }
    */
}

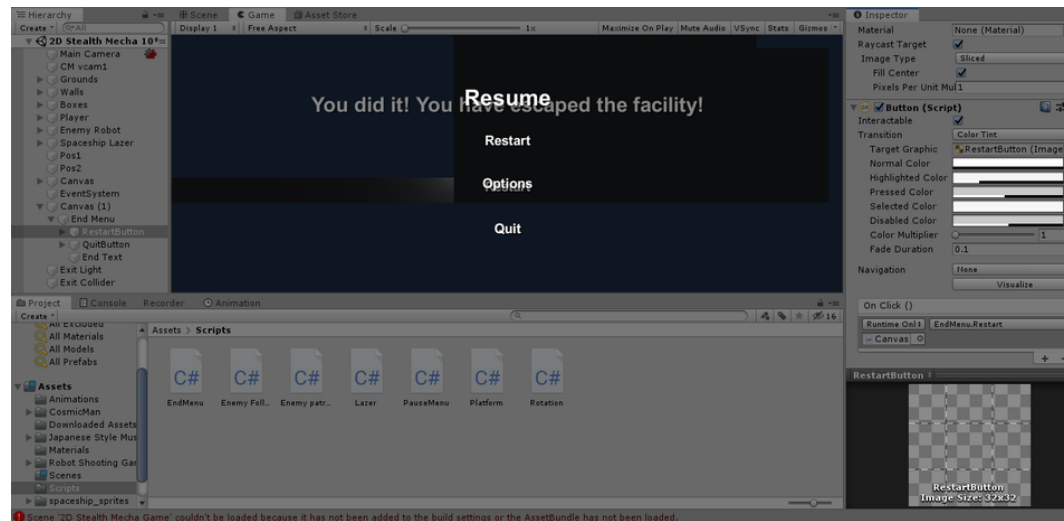
```

The middle part of the script in void Update i coded and then commented out since it is no longer necessary but good to know what i tried.





The new area i made so i can test how the light looks and if the colliders work in order to bring a End scene.



The problem i found when you press escape when the End screen appears.

On 03/11/2020 i wanted to add a sort of end screen to my 2D stealth mecha game, when the Player touches a Trigger collider. I even came up with a scenario to motivate the Player a bit, the Player is a robot or mecha of sort and you have to escape a lab or facility and be free,

you'll have to sneak your way out to an exit with a light showing you where your freedom is, after that transparent dark screen will appear with a Restart and Quit button, in case you want to play again or quit the game.

I believed that this would be easy since I want the screen to be practically the same as the pause menu, the only difference is that the end screen will have a title, restart button, quit button and that's it. And for this to appear I want the Player to touch an invisibly collider at the end of the level.

I started by making a new C# script called "EndMenu", I then made a copy of the original Canvas with its panel, buttons and texts. I deleted extra buttons that the End Menu didn't need, renamed a few things and made some adjustments and changes.

After that I wanted a new area so that my Player can go and touch a collider and making it look like the Player got out of an indoor building. I basically duplicated more Grounds and Walls so I can make this new area, I even made an "invisible" or "passable" wall so that the player can't see the character, making it look like the player just went outside. I created a Point light so that I can make it look more believable that the Player went outside and is now free, like an open door that light goes in. I then added the Exit Collider that the Player is going to touch and that will make the end screen pop up. This Exit Collider will have a simple Box Collider 2D, an End tag and the EndMenu script.

Originally I had the new script in the new canvas but then I realized that the canvas won't have any colliders nor will it interact with the player, so I instead gave the script to the Exit Collider.

What I added in the EndMenu script was practically the same as the PauseMenu, just with some differences and name changes. I originally thought that copying the PauseMenu code and making a few changes was simple but it wasn't.

Here I have the GameHasEnded and endMenuUI variable which didn't give me too much hassle, but I was still having trouble with the end screen appear when the player touched the Exit Collider Trigger, so I came up with a few ideas to solve this problem, I even added a new variable where you need the player but turns out I did need that, that's why there is a public GameObject player in the script. I later found out that I didn't need all of this complicated programming ideas and solutions.

Here is what i tried to do in order to make everything work, the code that was suppose to make the end menu appear, but it didn't work, in fact it didn't even needed to be in the void Update nor did i need the "End" tag or the GameHasEnded in the if statement. Since none of this work i commented all of it, but i didn't delete it because i want people to see what i tried to do and what went wrong.

The reason i think i did this was because i didn't quite understand the OnTrigger2D(Collider2D other) method, i didn't know that you don't need to have it in the void Update or if it should be inside or outside of the if statement.

I guess it shows you how important it is to understand what code does what, what it's used for, where you should put it and more, or else your gonna have a hard time programming. This is important for me since i want to be a good programmer and knowing everything about code and programming languages if important for me.

I believed that i needed to know the tag of the Exit collider but i now know that that doesn't make any sense unless if the EndMenu script was in the Player and i didn't want that, i wanted it in the Exit collider.

Here to the left is what really makes the end screen work when the Player enters the Exit Collider. Some things here are practically the same as the PauseMenu C# script, with the Restart, QuitGame, Resume and such, the only difference are some things are renamed for this script. But there is one thing that is quite different, and that is the OnTriggerEnter2D with it's if statement inside it. The OnTriggerEnter2D will make sure that anything that has the EndMenu script and a collider that is a Trigger collide with something else something will happen.

Originally i had `other.tag == "End"` but then i remembered that there was a line of code that was better, so i did research and found that `other.CompareTag("End")` was better, the improvement may not be major but it's still better and i will keep using this code instead of the other. After some thought i realized that this script on the Exit Collider should look for the "Player" tag which the GameObject Player has.

Later, after doing all that i tested my game and now everything was working, the truth was that less code is better and understanding code is better then copying it.

I have learned a lot from this experience, what i need to look out for, how colliders work, what objects need certain scripts and much more. A great way to learn is through failure, experiments, tests and results, doing all of this and failing in fixing my problems has improved my problem solving skill and awareness of potential problems.

After everything i went to test my game and see if the end screen works when the Player touches the exit collider. I'm happy to say that it works perfectly, the Player looks like it's going through a door and going into the light or outside towards freedom.

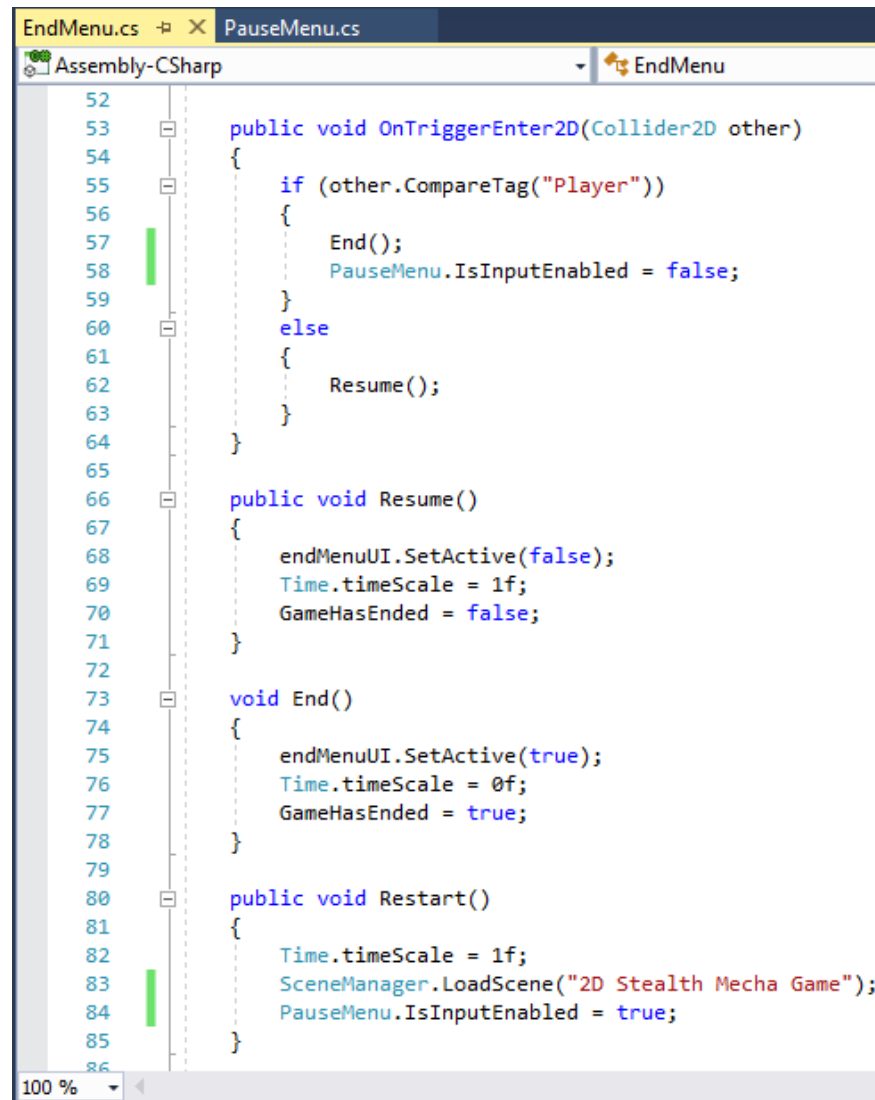
When i touched the collider the end screen would appear along with it's title saying i escaped the facility, the restart and quit button. But the restart button did nothing, usually it would make the time of the game move again because of the code and the trying to accesses a scene i haven't created yet. So maybe it's because when i made changes and such, the On Click events became empty when they should have the canvas in them and do the things that the buttons should do. In order to fix this i would need to have the EndMenu script in the Exit Collider and in the End Menu Panel so that the end screen appears and the buttons work properly.

Later after fixing some more small issues i tested my game but now i remembered something that can happen. I moved my Player to the end and the end screen appeared but now i tried to press the escape key and the pause menu appeared and having two menus, the End Menu and Pause Menu, overlapping each other is not good.

I don't know if i should try to fix this problem as it might be rare that people press escape in the end screen, but i might try to solve the problem depending if the solution is not too hard, if it's too hard and i know it's going to waste multiple days of my time i might not try to fix it and move into something else.

Sites that i used to help me understand CompareTags better, how to have a end screen using colliders and understand colliders better:

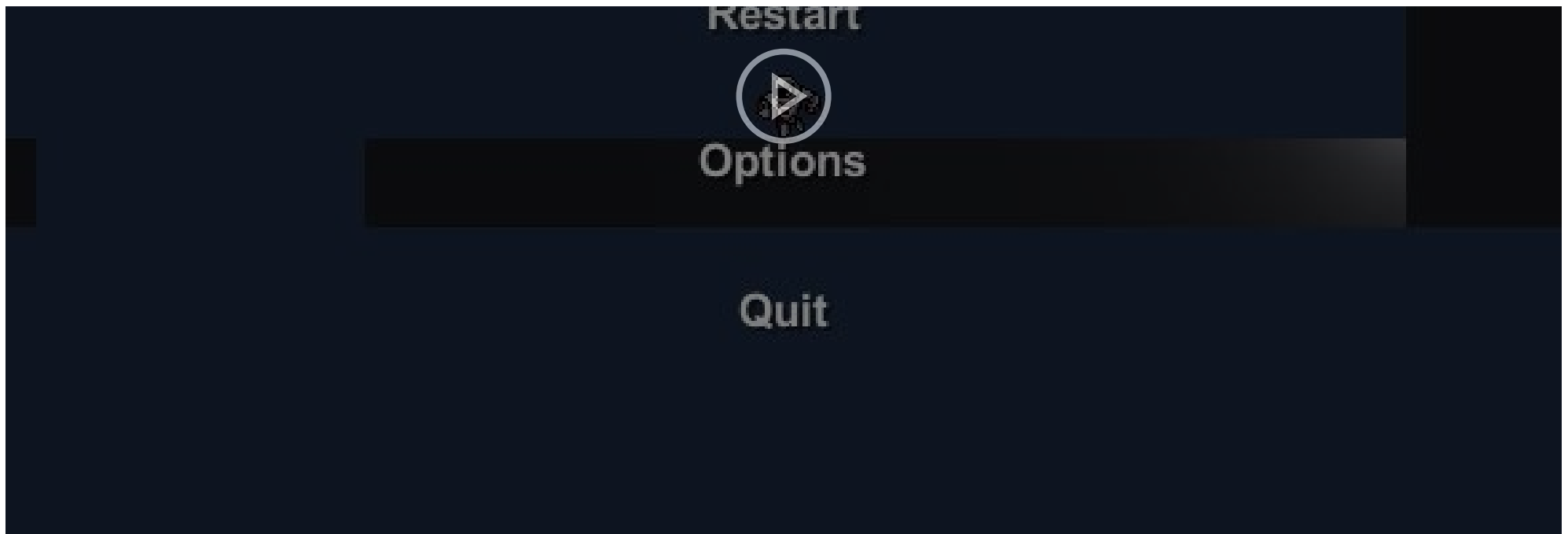
- (<https://answers.unity.com/questions/200820/is-comparetag-better-than-gameobjecttag-performanc.html>);
 - (<https://stackoverflow.com/questions/63050608/how-to-end-a-game-in-c-sharp-from-a-collision>);
 - (<https://docs.unity3d.com/ScriptReference/Collider2D.OnTriggerEnter2D.html>);
 - (<https://www.youtube.com/watch?v=Bc9lmHjqLZc>).
-



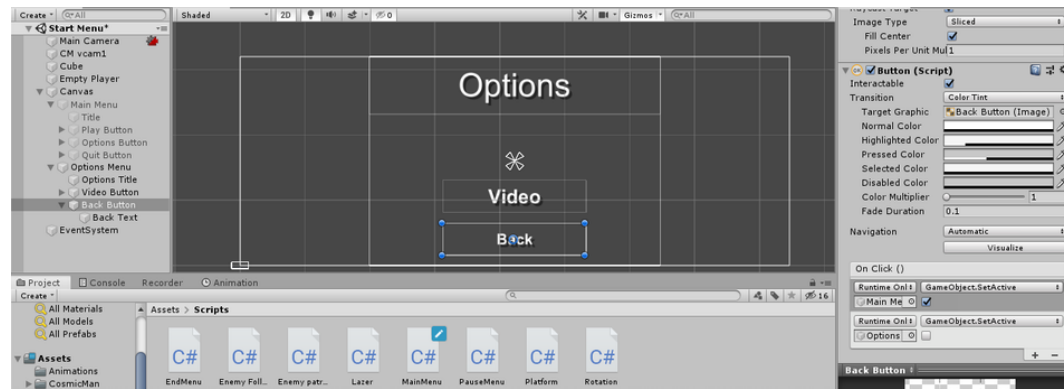
```
52
53 public void OnTriggerEnter2D(Collider2D other)
54 {
55     if (other.CompareTag("Player"))
56     {
57         End();
58         PauseMenu.IsInputEnabled = false;
59     }
60     else
61     {
62         Resume();
63     }
64 }
65
66 public void Resume()
67 {
68     endMenuUI.SetActive(false);
69     Time.timeScale = 1f;
70     GameHasEnded = false;
71 }
72
73 void End()
74 {
75     endMenuUI.SetActive(true);
76     Time.timeScale = 0f;
77     GameHasEnded = true;
78 }
79
80 public void Restart()
81 {
82     Time.timeScale = 1f;
83     SceneManager.LoadScene("2D Stealth Mecha Game");
84     PauseMenu.IsInputEnabled = true;
85 }
86
```

The additional changes i added to my EndMenu C# script.

Resume



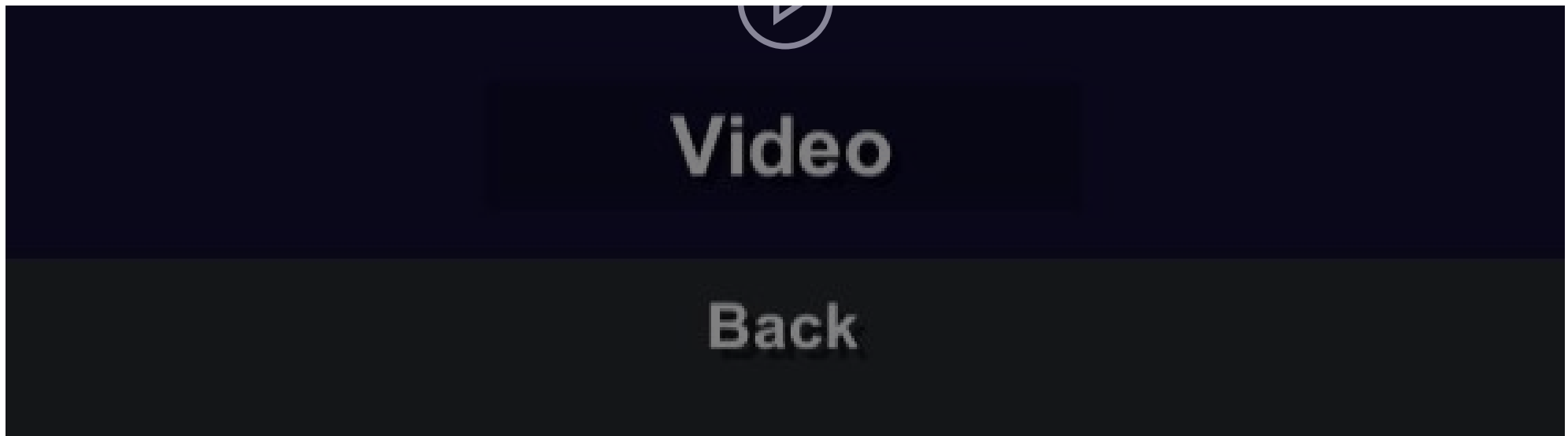
The test i did about the Pause and End menus, one interesting things i found out about the Player when Paused and the end screen and pause menu overlapping fixed.



The new MainMenu script i created, the On Click() event making one button go to another UI and more.

Options





The test i did on the new Start Menu scene, it's UI, the buttons and if everything works.

On the 06/11/2020 is when i decided to try to make the pause menu not overlap with the end menu/panel/screen when the Player touches the Exit Collider and presses the escape key.

I first started researching and looking on the internet for solutions to my problem. It was a bit hard at first because i couldn't find videos or even sites talking about two menus overlapping each other, so instead of finding things about my problem, i'll look for solutions to my problem and see if it's easy and not too time wasteful. I thought about how to fix the pause menu problem and i thought that maybe i should disable the escape input itself when the Player has the End screen on and enabled again when it's off.

I research how to disable inputs and i found some interesting sites with good knowledge. After knowing that this is possible and looking at the sites isn't too difficult, i decided to try it in my game.

What i first try to do was add a variable to my EndMenu script called: "public static bool IsInputEnabled" and make it originally true, from i site i researched, then i started to add "GameManager.IsInputEnabled = false;" to my methods that needed it but there was a error with the GameManager i then realized that the GameManager is a script from the site i was using so i replaced that with EndMenu.

Everything seemed right, there where no errors so with all that i tested my game and it didn't work. I looked at my code again and i realized that this needs to involve the PauseMenu script, so i thought about a solution, i then replaced the "EndMenu.IsInputEnabled" with "PauseMenu.IsInputEnabled" after this there was a error with "IsInputEnabled" saying that the PauseMenu script doesn't have this so to solve this issue i did the following. I added "public static bool IsInputEnabled = true;" to my PauseMenu and deleted the one in EndMenu because i believed there is no need to have multiple of the same code in two scripts, after that there was no more errors in the EndMenu C# script.

On the left is what i have right now on my my EndMenu script, this script will make sure that when the Player enter the Exit Collider the Player no longer can press the escape key to pause the gameand only allow that to happen when the Player presses the Restart button.

There was still some thing that i needed to do in my PauseMenu in order for the Player to not be able to pause the game in the end menu. I needed to add a way that only the escape button is disabled then the Player is in the Exit Collider or the IsInputEnabled = true and that was easy thanks to the site i was using a s a example. All i had to do was add a if statement that makes the Player be able to press the "Pause" input if the IsInputEnabled is true and that will only be true as long as the Player is outside of the Exit Collider.

With all of that i tested my game to see if i fixed the problem i was having. I did fixed the problem and it wasn't too hard or time consuming to do, which surprised me a bit, i guess i should at least research if a problem is easy to fix or not before deciding to do anything about it.

When i was testing my game i found out some things, for example i found out that if the Player is standing still and pauses the game but presses the jump button, when the game is unpaused the Player will jump. I think that even though time is stopped when the game is paused the Player can still do things like move left and right, turning the Player's sprite, jump and more. In order to fix this very small issue i could make sure that the Player can only do these things if the game is unpaused, this could be fairly simple to code, i just need a if statement in the Player's script. I, however won't fix this issue since it isn't a very high priority, my game will be fine if i don't fix this small problem.

Another problem i noticed was that when i press the restart button on the end menu the end menu won't disappear, i don't know why it took me this long to realize it but what's matter is that i know how to fix this small issue. I looked at the EndMenu script and i just have to Remove "public void Resume()" in the EndMenu and add "GameHasEnded = false;" and "endMenuUI.SetActive(false);" to the "public void Restart()" , simple enough.

Here are the sites and videos i Researched to figure out how to solve the Pause menu and End screen overlapping:

- (<https://www.youtube.com/watch?v=7mVgOZCJR8M>)
- (<https://www.youtube.com/watch?v=aN11LnIF89I>)
- (<https://answers.unity.com/questions/1230216/a-proper-way-to-pause-a-game.html>)
- (<https://answers.unity.com/questions/1275232/disable-all-inputs.html>)
- (<https://forum.unity.com/threads/disable-enable-player-input.398964/>).

Later on i decided that i didn't do a lot so i wanted to make a Start Menu with the help of a video called "START MENU in Unity" (https://www.youtube.com/watch?v=zc8ac_qUXQY), i will be making a very simple Start menu with a play, options and quit button. I believe that this menu won't have a very fleshed out options menu nor have the colour blind options i want yet. Maybe next time work on my project.

What i did was make a new scene called "Start Menu" since a new scene is empty i decided to add a few things to improve it. I first wanted a cool facility, lab, future prison or mecha background that would suit my game. But nothing was what i wanted or liked, i even downloaded a few assets from itch.io but nothing worked, the tilemap or anything. So i decided to make my Games background and the ground and walls a different colour that would match each other, at least i hope so i'm not a artist nor do i know colour theory. I decided to add a Ground and my Player to the scene to not make it look too empty, but when i did that a played my game to see what it looked like, the objects wouldn't appear for some reason. I looked at my camera, made some adjustments to the camera and other objects but nothing was working, until i decided to add a new virtual camera with cinemachine and that made everything work, i can finally see my objects in the scene in play mode, i don't know why mu Player and ground weren't appearing in the beginning but as long as everything is working properly that's what matters.

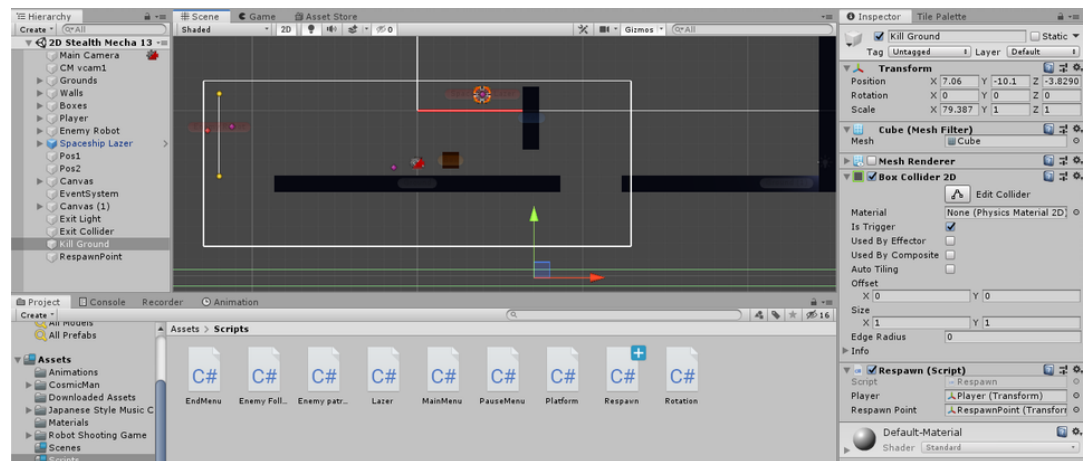
I then started adding the canvas, the title, buttons and such for my Main Menu, it's a very simple one but it works. I also made another UI that will be activated once the Payer presses the options menu.

In the new Options menu it will have, if possible, a video, sound, controller customization and a colour blind options. I don't have all of this right now but if i have time i intend to have it all.

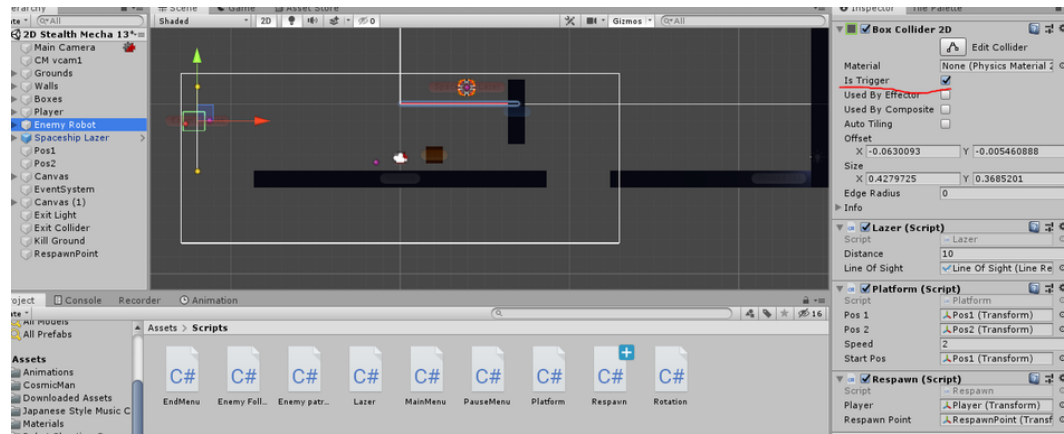
In order for the Play, quit and other buttons to do what needs to do i created a new C# script called "MainMenu", this script will simply have the code to make the Player go to the main game and be able to quit the game. I also made the Player be able to go between menus without code, all thanks to the help of the video i used to help me.

Then i did a full test to see if everything was working, and it does the menus switch to different menus back and forth easily there is no problems what so every. But the background could look better and there is this thing where when you hover your mouse to a button it's highlighted, but if you click on it and the buttons does nothing the button is no longer highlighted which is weird because in my main game scene that problem doesn't exist, but it's alright since it isn't a very big or noticeable problem once the game is finished.

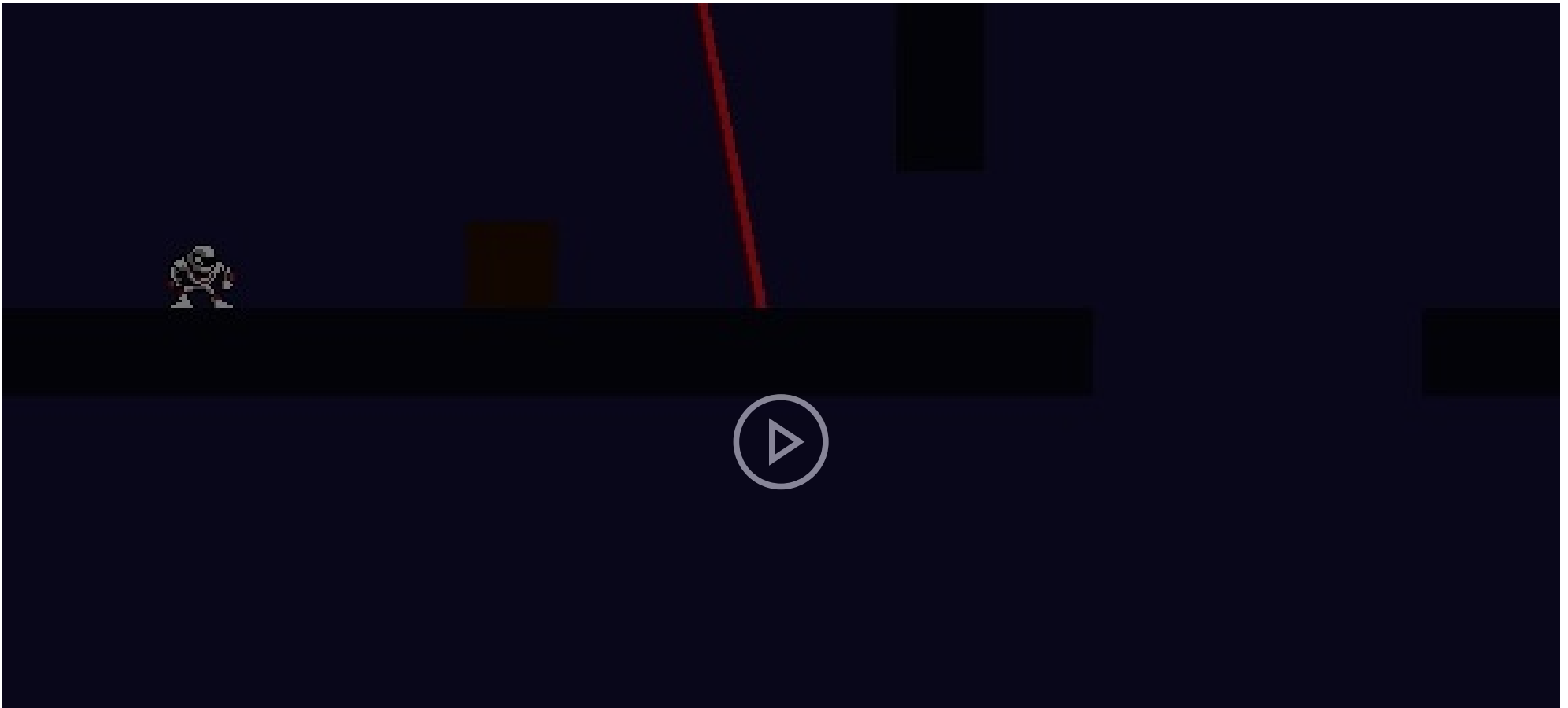
What i intend to do next is add a menu or screen for when the Player has died, and then make a functional Main Menu with at least the colour blind accessibility. Then a new patrol/follow enemy and after that a level. With about one week and some more days left until the Culture Project deadline i'm feeling a bit stressed but i believe i will make it even if it's just barely and i will learn a lot about enemies, menus and such.



The new GameObjects i created, the changes i made to them and the scene, and GameObjects that have the Respawn script.



The changes i made to my enemies to the collider and the new script i added to them.





The test i did to see if the new mechanics works and the new issue i found involving the lazars and the Player.

I decided that at 10/11/2020 i would try to add a very simple respawn system that my player would activate it hits a certain Trigger collider with a Respawn script. The main reason i decided to do a very simple respawn system instead of a death menu when the player dies with a restart and quite button, is because i am worried that i will be wasting precious time that i could use or other things more important, like accessibility and feedback from other people. Yes, if i went full on the death menu respawn system i would have learned a lot and fixed problems that would be good for my SharePoint, i would better myself and such, but i want to focus on what is important in my opinion and on what i like.

I first started researching how to make a respawn system in my game as i don't know how to do it. The video i used to help me is called: "Dying and Respawning in Unity" and this will help me get at least the basics of respawning the Player.

I then basically copied the small lines of code from the video i was watching to my new C# script i created called "Respawn", which i intend to add this script to the objects i want my Player to die from.

Later i went to Unity and began creating two new gameobjects called "Kill Ground" and "RespawnPoint". The first will be a invisible zone below the level that will make the Player respawn from that "Kill Ground" to the respawn point that i have placed in a certain place. The "RespawnPoint" is a empty gameobject that will be the position that the player will spawn from.

After that i went to my "Kill Ground" and all of my enemies colliders and made them a Trigger so that the script works on them. But now that i think about it i could have just made the OnTriggerEnter2D into a OnCollisionEnter2D with this one i wouldn't have to change all of the colliders into a Trigger, but what's done is done and now i know better, i learn from this experience thus making me a better game programmer.

I also added the Respawn script to all of the objects that would have a Trigger collider so that the script actually works. Another thing i needed to do was drag the Player and Respawn Point to their respective slot in the Respawn Script component , So that my game know who to respawn(the Player) and where(RespawnPoint), i did this to all objects with the new script.

My Enemy Robot has a few scripts which worry's me a bit but that's alright, i even had to make it's collider into a Trigger as well.

After all that i fully tested my game to see how the new respawn mechanic works. Everything works except for one thing i have not realize until now, when the Player touches the Kill Ground or any of the enemies itself the Player will respawn, but if the Player touches the lazer the Player will be destroyed and not be respawn, which isn't something i want to happen to my Player.

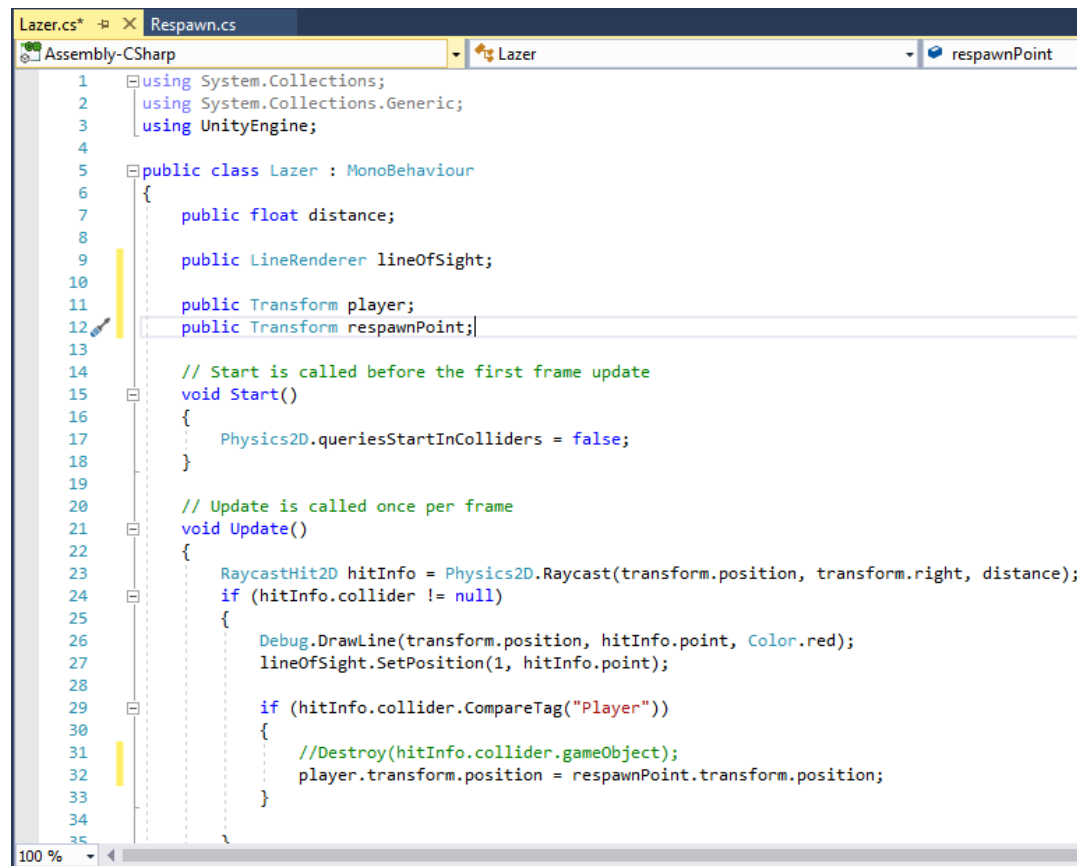
I believe i know how to fix this issue, i just have to remove the line of code that destroys the Player from the lazer script and make it so that a lazer ray cast can also respawn the Player. I could do this solution or i could make it so that if the Player is destroyed of has a health and it reaches zero the Player will respawn.

I'm more inclined to make the Lazer script be able to respawn the Player and not destroy it. So that's what i'm going to do in the future.

Overall i'm happy that i choose to do this type of respawn for when my Player dies as now i have more time for other stuff i want to focus on.

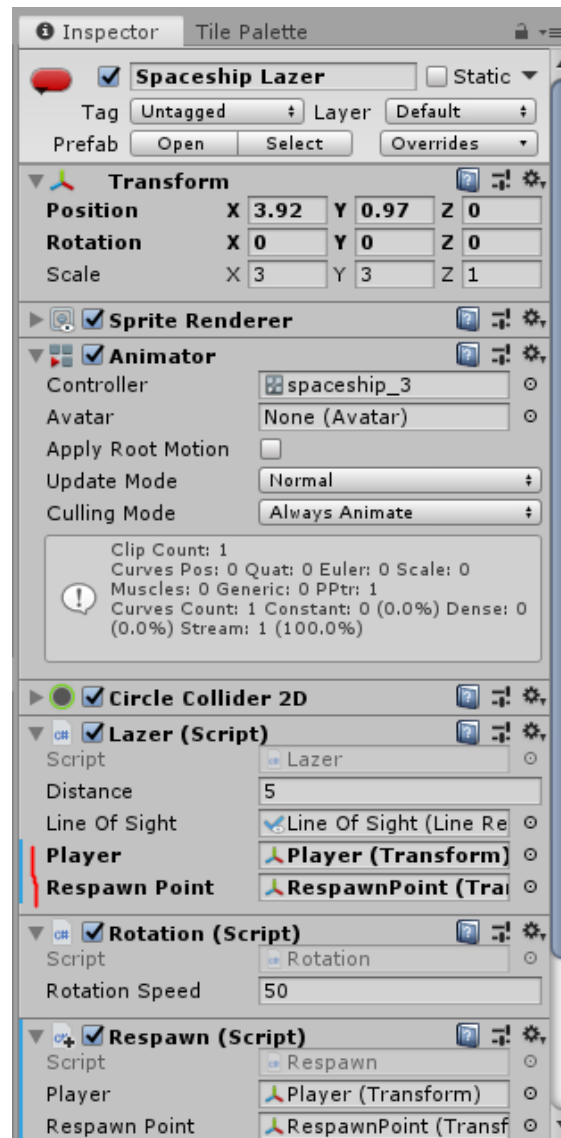
The videos i watched that would help me make a simple Respawn system for my Player:

- (<https://www.youtube.com/watch?v=nBgCeJBMT0k>);
- (<https://www.youtube.com/watch?v=icKfFnnHHIY>);
- (https://www.youtube.com/watch?v=VbZ9_C4-Qbo).



```
1 using System.Collections;
2 using System.Collections.Generic;
3 using UnityEngine;
4
5 public class Lazer : MonoBehaviour
6 {
7     public float distance;
8
9     public LineRenderer lineOfSight;
10
11     public Transform player;
12     public Transform respawnPoint;
13
14     // Start is called before the first frame update
15     void Start()
16     {
17         Physics2D.queriesStartInColliders = false;
18     }
19
20     // Update is called once per frame
21     void Update()
22     {
23         RaycastHit2D hitInfo = Physics2D.Raycast(transform.position, transform.right, distance);
24         if (hitInfo.collider != null)
25         {
26             Debug.DrawLine(transform.position, hitInfo.point, Color.red);
27             lineOfSight.SetPosition(1, hitInfo.point);
28
29             if (hitInfo.collider.CompareTag("Player"))
30             {
31                 //Destroy(hitInfo.collider.gameObject);
32                 player.transform.position = respawnPoint.transform.position;
33             }
34         }
35     }
36 }
```

The modifications i made to my Lazer script to be able to respawn the Player.



What the Lazer (Script) component looks like now.

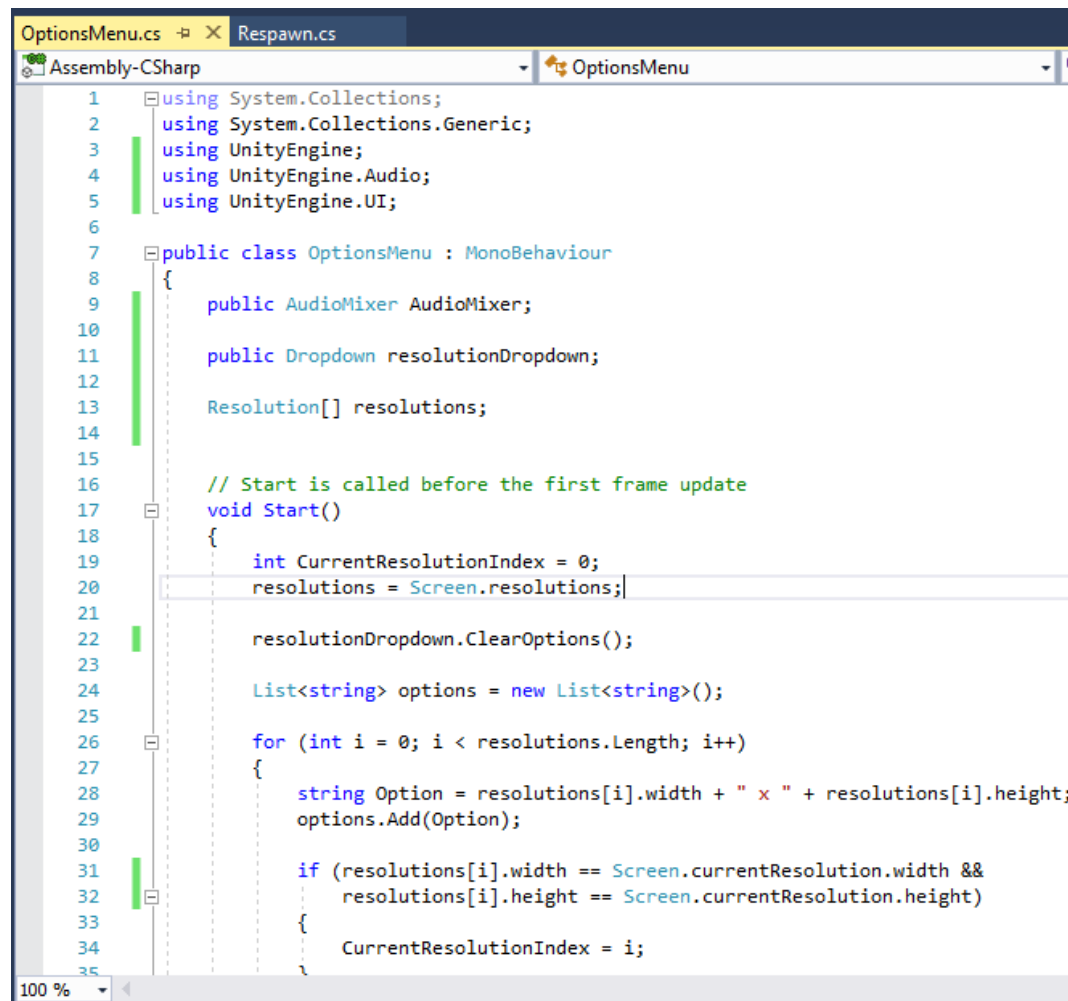
On 11/11/2020 i went to my unity 2D stealth then i went to my Lazer C# script and made some changes that i thought would make it so that when the lazer touches the Player it will make the Player respawn to a certain location instead of destroying the Player.

I tried to simply remove the line of code that destroys the Player and replace it with the same code that the Respawn script has to move the Player to the RespawnPoint. Then i also added the two public Transform variables for the player and respawnPoint, this is so the Lazer script knows who the Player and RespawnPoint is and where it is.

After the changes i made in the Lazer script, i then had to go back to unity and drag the The Player and RespawnPoint to their respective slots in order for everything to work.

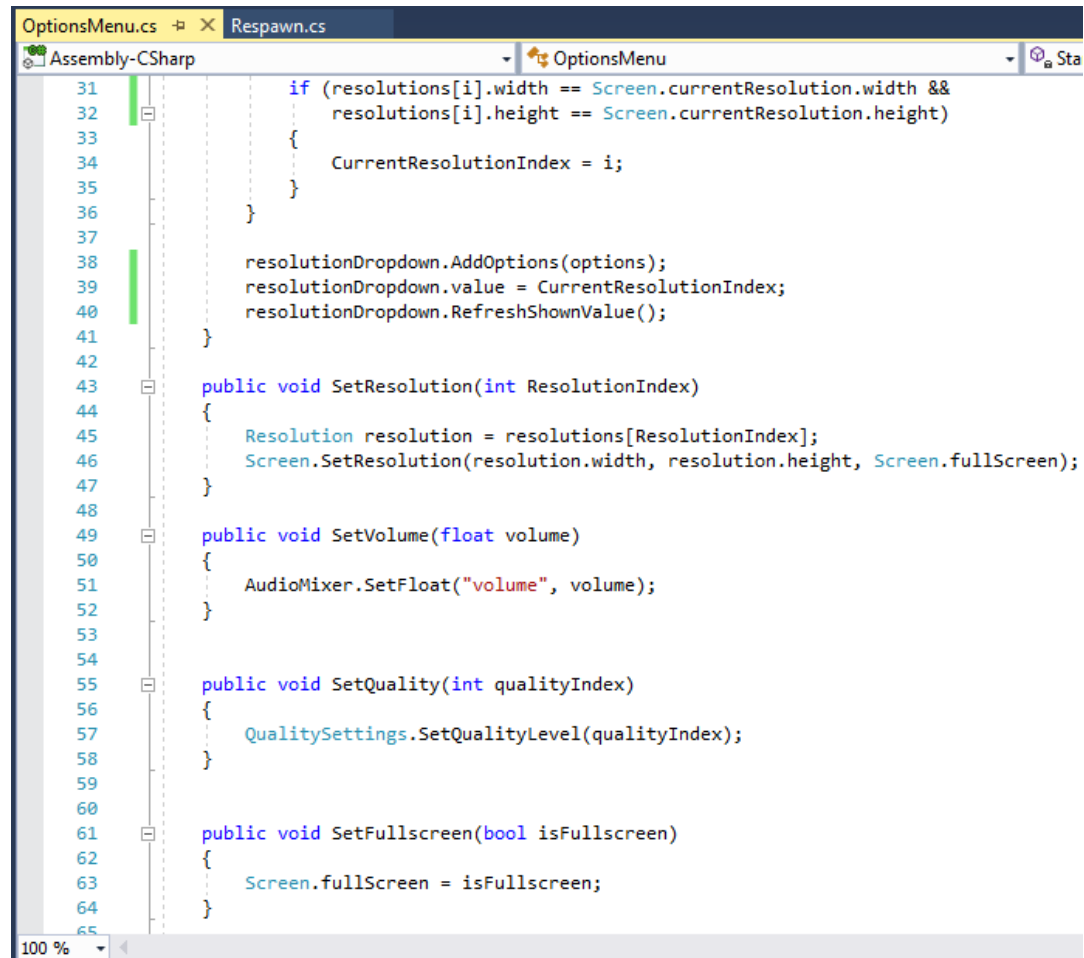
Later after all i did, i went into play mode in unity to test if the lasers now respawn the Player instead of destroying it. After some tests i'm happy to say that everything works as intended, the Player will respawn from where they were to the RespawnPoint position. This will happen if the Player goes into contact with the Kill Ground, the enemies themselves or the lasers.

I'm quite surprised that the solution i did was quite easy, i guess my programming logic in my mind is quite good, since i thought about what code in the Lazer script made something whenever the lazer collided with the Player and then i made modifications to the results of that.



```
1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4  using UnityEngine.Audio;
5  using UnityEngine.UI;
6
7  public class OptionsMenu : MonoBehaviour
8  {
9      public AudioMixer AudioMixer;
10
11     public Dropdown resolutionDropdown;
12
13     Resolution[] resolutions;
14
15     // Start is called before the first frame update
16     void Start()
17     {
18         int CurrentResolutionIndex = 0;
19         resolutions = Screen.resolutions;
20
21         resolutionDropdown.ClearOptions();
22
23         List<string> options = new List<string>();
24
25         for (int i = 0; i < resolutions.Length; i++)
26         {
27             string Option = resolutions[i].width + " x " + resolutions[i].height;
28             options.Add(Option);
29
30             if (resolutions[i].width == Screen.currentResolution.width &&
31                 resolutions[i].height == Screen.currentResolution.height)
32             {
33                 CurrentResolutionIndex = i;
34             }
35         }
36     }
37 }
```

The first part of the "OptionsMenu" script with it's code.



```
OptionsMenu.cs x Respawn.cs
Assembly-CSharp OptionsMenu Sta
31 if (resolutions[i].width == Screen.currentResolution.width &&
32     resolutions[i].height == Screen.currentResolution.height)
33 {
34     CurrentResolutionIndex = i;
35 }
36 }
37
38 resolutionDropdown.AddOptions(options);
39 resolutionDropdown.value = CurrentResolutionIndex;
40 resolutionDropdown.RefreshShownValue();
41 }
42
43 public void SetResolution(int ResolutionIndex)
44 {
45     Resolution resolution = resolutions[ResolutionIndex];
46     Screen.SetResolution(resolution.width, resolution.height, Screen.fullScreen);
47 }
48
49 public void SetVolume(float volume)
50 {
51     AudioManager.SetFloat("volume", volume);
52 }
53
54
55 public void SetQuality(int qualityIndex)
56 {
57     QualitySettings.SetQualityLevel(qualityIndex);
58 }
59
60
61 public void SetFullscreen(bool isFullscreen)
62 {
63     Screen.fullScreen = isFullscreen;
64 }
65
```

The second bottom part of my new "OptionsMenu" script with it's methods, variables and such.

On 13/11/2020 was when i Started adding more things in my options menu, for the volume, video and colour options. What i basically did was copy old menus, rename them, remove and add a few things, like a toggle, dropdown and more. This took quite some time but it wasn't that hard to do, in order to do all of this i used the videos called "SETTINGS MENU in Unity" and "START MENU in Unity" on YouTube so i know what i'm doing and remember stuff that i may have forgotten, in order to get a good main menu with a good options menu with many options to help the Player with accessibility.

I made a new C# script called OptionsMenu so i can have the code that will change the volume, graphics, resolution and the fullscreen of the game. But not the colour options of my objects i will use a different script for that in the future.

I also made all of the menus, volume, video and more be able to go back and in-between menus, for example you can click the on the Options menu, go to colour options, choose a object make some fake changes then you can go all the way back to the Main Menu. I had a few issues here and there involving that but it was my fault by making a few mistakes, but with a few test i realized the problems and fix the issues with no problem at all.

After making all of the UI with it's buttons and such i made a test to see if everything works. I tested it and all of the buttons, sliders, toggle and dropdowns work as intended. Nothing happens when i change these sliders, toggle and dropdowns because i haven't added the code from the video i'm watching because i want everything setup before i added the "OptionsMenu" script for things to actually work.

I later started to really follow the "SETTINGS MENU in Unity" video on YouTube, i first added a Audio Mixer into my Unity and then i right clicked the Volume under Attenuation and made it exposed to any script , then i renamed the the Exposed Parameter to "volume" so my script can know what to look for in order to change the Master volume.

I practically just did all of the things that the video did plus some changes since my game is more fleshed out and different then just the example scene the video has.

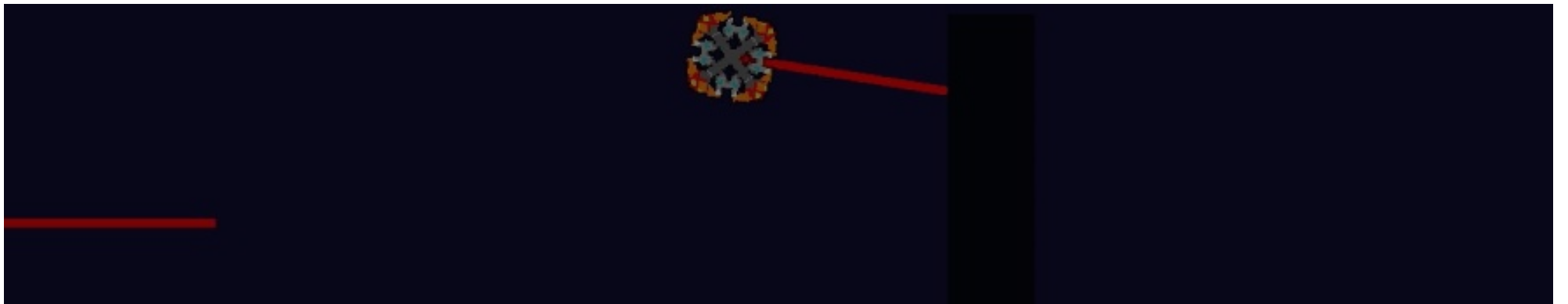
After the things i did in my scene i started moving to adding code to my script. Luckily there was a comment below the video i was watching, that had the code written out in case anyone wanted to copy and paste it. This is great as it saves me a lot of time because without it, i would have written everything letter by letter and word by word which isn't bad but isn't very effective and takes some time.

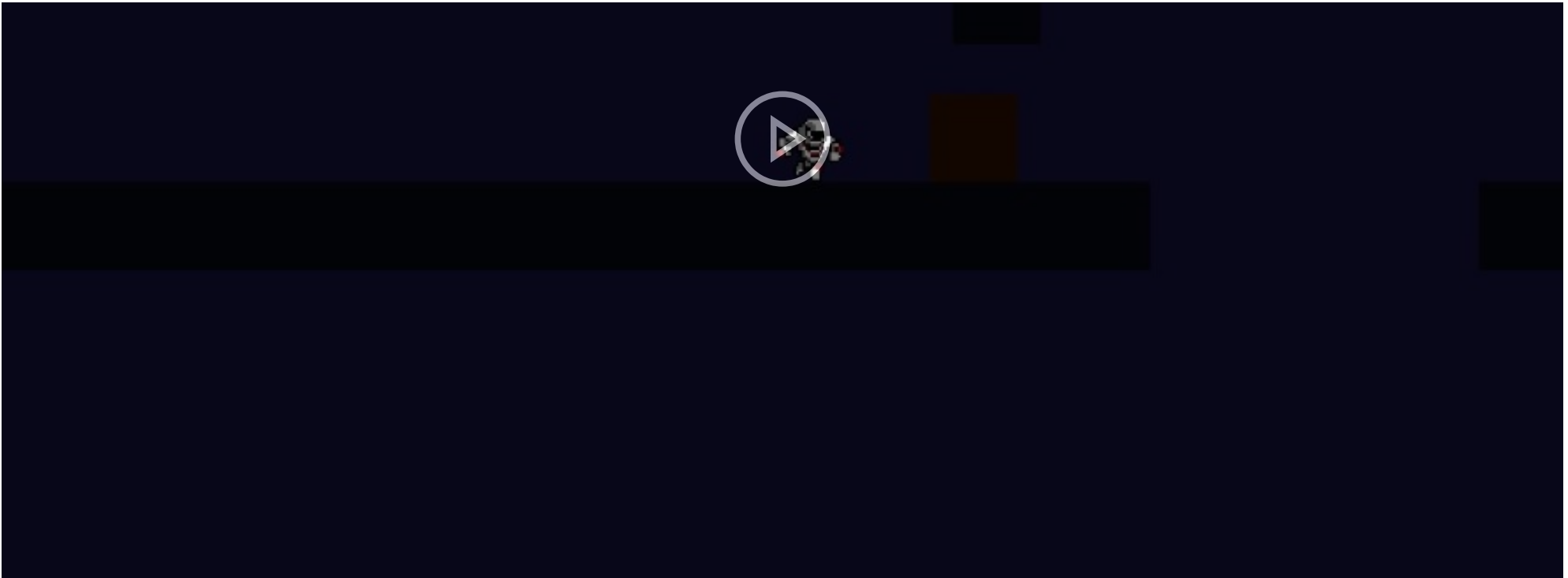
Here is the other part of the script from the "OptionsMenu" since this script is a bit big i had to do two screen shots instead of just one. What this script will do is basically, make it possible for changes to actually happen when i build my game and play it, i will be able to change the volume, make the game fullscreen or not, change the graphics and resolution of the game.

I then went to my Unity editor and went to all of my UI objects On event change() systems to make sure the code works, i went to my objects inspector dragged the Canvas, because the Canvas has the "OptionsMenu" script, and made sure it has the right method selected in order for it to the the specific of the code, volume changes the volume of the game, graphics changes the graphics of the game, etc.

There was a small things i forgot to do and that was and that was changing the min and max value of the music slider since the Master Audio Mixer is a bit different, it goes to 20 and -80, so to be the same as the Audio Mixer i change the values of the music slider to 0 and -80 in order for everything to work.

After adding the code and making some changes i tested my game and realized a few things, that i need to add music to my game, a simple stealth one, so i know if the music slider works. Also that the Graphics dropdown may not work, the reason for this is because nothing changes visually or in the quality settings i don't really know since my game doesn't have a lot of graphics or maybe it only works when the game is build, i'll have to check it out later.



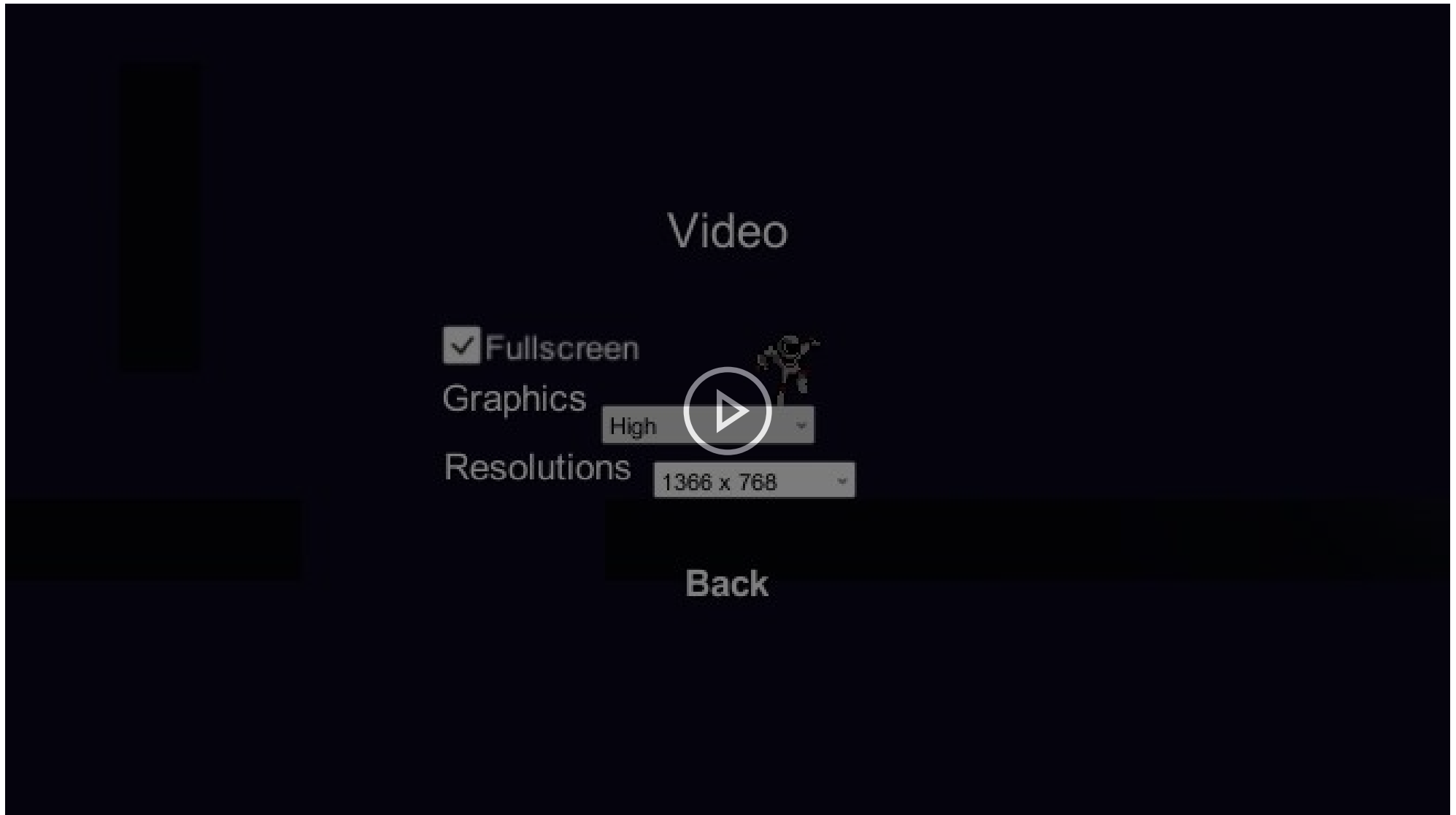


The test that show the box forcing the Player to respawn when it touches the Kill Ground.

```
Respawn.cs  -  X
Assembly-CSharp  ▾  Respawn

1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class Respawn : MonoBehaviour
6  {
7      public Transform player;
8      public Transform respawnPoint;
9
10     private void OnTriggerEnter2D(Collider2D collision)
11     {
12         if (collision.CompareTag("Player"))
13         {
14             player.transform.position = respawnPoint.transform.position;
15         }
16     }
17 }
```

The small changes i made to the Respawn C# script.



The test i did to my game and seeing the how the pause and options menu work.

```
PauseMenu.cs
Assembly-CSharp
PauseMenu

1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4  using UnityEngine.SceneManagement;
5
6  public class PauseMenu : MonoBehaviour
7  {
8      public static bool GameIsPaused = false;
9      /*
10     public GameObject[] menusUI;
11     */
12     public GameObject pauseMenuUI;
13     public GameObject optionsMenuUI;
14     public GameObject volumeMenuUI;
15     public GameObject videoMenuUI;
16     public GameObject colourMenuUI;
17     public GameObject playerMenuUI;
18     public GameObject enemyMenuUI;
19     public GameObject groundMenuUI;
20
21     public static bool IsInputEnabled = true;
22
23     // Start is called before the first frame update
24     void Start()
25     {
26
27     }
28
29     // Update is called once per frame
30     void Update()
31     {
32         if (IsInputEnabled)
33         {
34             if (Input.GetButtonDown("Pause"))
35             {

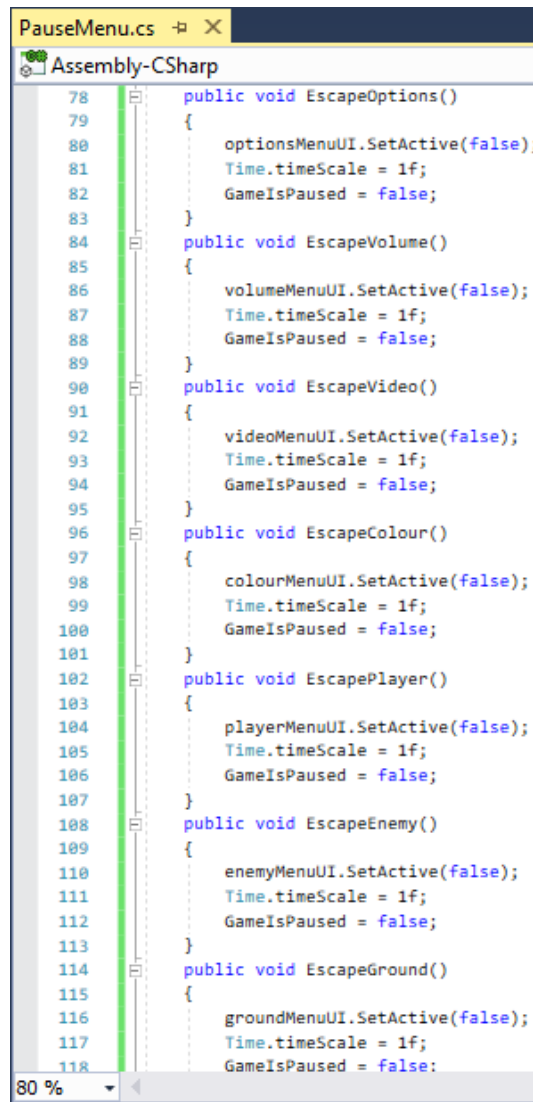
```

The top part of the PauseMenu i changed.

```
PauseMenu.cs
Assembly-CSharp
PauseMenu

28
29 // Update is called once per frame
30 void Update()
31 {
32     if (IsInputEnabled)
33     {
34         if (Input.GetButtonDown("Pause"))
35         {
36             if (GameIsPaused)
37             {
38                 Resume();
39                 EscapeOptions();
40                 EscapeVolume();
41                 EscapeVideo();
42                 EscapeColour();
43                 EscapePlayer();
44                 EscapeEnemy();
45                 EscapeGround();
46             }
47             else
48             {
49                 Pause();
50             }
51         }
52     }
53 }
54
```

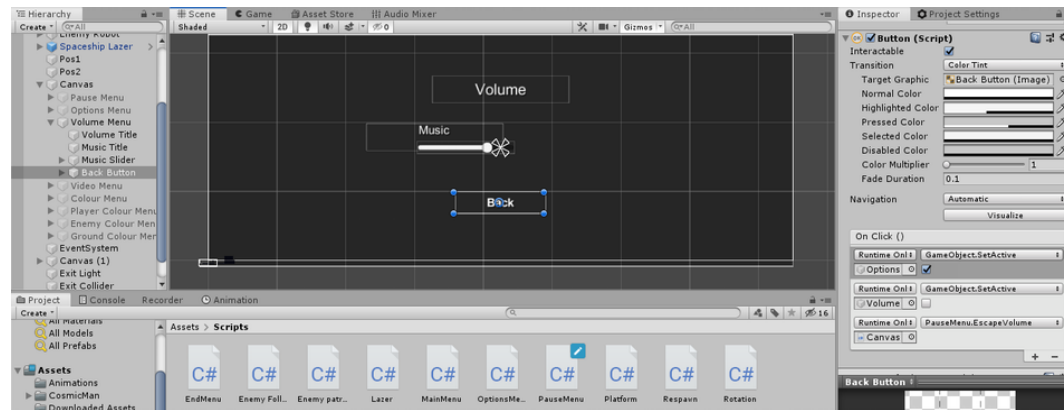
The middle part of the PauseMenu i changed.



```
PauseMenu.cs
Assembly-CSharp

78 public void EscapeOptions()
79 {
80     optionsMenuUI.SetActive(false);
81     Time.timeScale = 1f;
82     GameIsPaused = false;
83 }
84 public void EscapeVolume()
85 {
86     volumeMenuUI.SetActive(false);
87     Time.timeScale = 1f;
88     GameIsPaused = false;
89 }
90 public void EscapeVideo()
91 {
92     videoMenuUI.SetActive(false);
93     Time.timeScale = 1f;
94     GameIsPaused = false;
95 }
96 public void EscapeColour()
97 {
98     colourMenuUI.SetActive(false);
99     Time.timeScale = 1f;
100     GameIsPaused = false;
101 }
102 public void EscapePlayer()
103 {
104     playerMenuUI.SetActive(false);
105     Time.timeScale = 1f;
106     GameIsPaused = false;
107 }
108 public void EscapeEnemy()
109 {
110     enemyMenuUI.SetActive(false);
111     Time.timeScale = 1f;
112     GameIsPaused = false;
113 }
114 public void EscapeGround()
115 {
116     groundMenuUI.SetActive(false);
117     Time.timeScale = 1f;
118     GameIsPaused = false;
```

The bottom part of the PauseMenu i changed.



The changes i made to my menus in order for the Player be able to escape from any menu.

At 17/11/2020 i wanted to basically copy the options i have in the Start menu and add them to my main game, but before i do anything i want to make sure my main menu can transition to the main 2D Stealth Mecha Game where the gameplay resides.

I made a new saved scene and renamed it to "2D Stealth Mecha Game" because that's the name i had in the scripts that transition from scene to scene. I then made a test but nothing happened and there was a error saying that i need to add the scenes the the build setting, so that's what i did and after that the main menu could transfer the Player to the main scene of the game. Good thing there was that error to remind me what to do because i completely forgot about it.

The image the the left shows you what i did to make the scene transfer possible and to be honest it's quite simple to do, i just simply forgot about it.

After that i tested my game to see how everything looks so far, how the game plays and if there are any more problem i need to fix. To the left is the video of me testing my game to see how everything plays so far.

Later i went to my Start Menu and just copied my UI gameobjects, all of them except the Main Menu UI, and pasted them to the main game. Immediately when i did that the UI i copied looked blurry, i today still don't know the reason for this. But to be honest i could have just left it like that but i wanted the UI to look clean.

So i started messing around to see how to fix this issue, i made some changes here and there and even did a little bit of research about it.

Nothing was working until when i looked at the research i did and was talking about scale, and so i looked at my UI's scale and that's when i realized the problem. The problem was that, for some reason my UI had it's scale increased by more then twice it's size when i copied it from the Start Menu. The good thing about this realization is that now fixing the UI and making it look clean was easy, i just had to scale everything to a value of 1.

After fixing the issue i had, i gained a new problem because the UI might look clean now, it looked very small and i need to scale it up without ruining it's looks.

I figured how to make the words bigger in the UI and that was to make the font size much bigger to all of the copied UI. It's a simple solution but not a very easy one since i need to do this to all of the new UI, i also need to make changes outside of that, make more

adjustments to buttons, colour, what each button goes to what and more. It's will take some time but it will be worth it in my opinion, it my not be perfect of close to the pause menu but it's good enough for me.

After quite some time adjusting, changing and improving all of the UI, i tested it out to see how it looks and i'm glad to say that it looks fairly good in my opinion, it's not my best work but it'll do.

But one thing i noticed while testing my game was that if the Player moves the box to the kill ground the Player will be forced to respawn. I believe this happens because the respawn activates independent if it's the player touching the collider that forces that or it's any other thing. Luckily i know a easy simple solution to fix this small problem.

To fix the problem of the Player being forced to respawn independent if it's the player, box or anything else touching the Kill Ground, i would need to make the Respawn script be specific in what GameObject will make the Player respawn. The solution was simple i just needed a if statement saying that the Player will only respawn if a collision with an object with a "Player" tag happens and only that, anything else will not make the Player respawn, as seen from the image to the left.

Here is where I did more tests involving the options menu and its buttons and other menus. At first it all looks good and works well until you press escape move to the options and then press escape again. When that happens the game will move again but the options menu will still be in the screen, and if the Player presses the escape key again the pause menu will appear behind the options menu, pausing the game again and nothing moves.

I would like to fix this issue and I already have a few ideas in how to fix these issues involving the UI.

I believed that to solve this problem with the Options menu UI not disappearing when I press escape is to make it so that my script can get the specific menus to be disabled just like the pauseMenuUI GameObject. In order to do this I thought that I need to create multiple variables that will be public and will contain the other menus like, Options menu, Volume menu, Video menu and more, then I'll have to just drag and drop the menus to their place in the inspector window under the PauseMenu script component.

I started doing a little bit of research on how to make an array or list of sort in the script, because it didn't look very pretty to have just multiple lines of variable GameObjects with different names. But I was having trouble with it not working and so I decided to just leave it and just comment out the array, I don't have time to try new things and fix new problems just to make my script look nice.

In order for all of this to work i would need new methods for each of the menus, to then place them in the if statement like i did in the image to the left. It's quite long but all of this isn't hard to do, it may not be the best solution for my problem but it my way and it's easy for me, i also don't have a lot of time to try a different solution.

The new methods i made are practically all the same just with the difference of having a different menu to deactivate, it's pretty long but that's alright as long as the code works then it fine by me.

Each method represents one menu and if the Player is on a specific menu and presses escape then that specific method will activate and make the menu the Player is on go away and then the Player is able to play the game normally.

I started testing my game after doing the changes in my script, but in order to test properly and for the change to work i needed to make changes to the menus back button in the editor. The reason for the back button is because i need a button for the script to work so i can put my canvas in the on Click () event and make the menu disappear. I Just need to drag the canvas in a empty On Click () slot and make it have the right method for the right menu and that was that, then it was on to testing it.

While i was testing my game's UI and escaping the menus, which works, i encountered a problem where if you press the back button it wouldn't go to the previous menu but instead exit the menu all itself, the reason for this was because the button that makes the Player go back to past menu is also the button to make the Player exit the menu it's on. I understood the problem and i know how to solve the issue, i just need to make a invisible, none touchable button where i can place just the On Click () with the Canvas and make it connect to the menu it is on. I also had to remove the On Click () with the Canvas on the back button, i had to do this to all of the menus, with the exception of the pause menu. It took quite a while but it was necessary, also the invisible button was going to be extremely small, almost invisible and it's going to be outside of the screen just to make sure the Player doesn't interact with it.

I later did the final test of my game and it's options menu to see how everything works and it works perfectly, when i press the back button the menu doesn't exit it just goes to the previous menu. But when i pressed the escape button independent of what menu the player is on the menu will disappear and the game will resume which is exactly what i want and how everything should work.

Sites i used to figure out how to make text not blurry and how to use arrays:

-(<https://answers.unity.com/questions/990559/fix-blurry-ui-text.html>);

-(<https://hub.packtpub.com/arrays-lists-dictionaries-unity-3d-game-development/>).

Colour Options

Player Colour



Enemy Colour

Ground Colour

Back

The test i did to the Start Menu to see how the sound and colour of the Player change with the options menu.

19/11/2020 was the date i decided to get my menus to be able to make the gameobjects be able to change colour with a slider in the colour menu.

I did some research on how to do that, i watched some videos went to some websites but before i used any of them, i remembered that one of my teachers had made a example of how to make sliders change the colour and alpha(transparency) of an object or image i don't quite remember but, i do have the code on my phone because i took a image of it.

With that, i decided to copy the code in my phone and add them to my own C# script called "Colour" and make modifications if necessary.

I started with just the original code but i was having problems with it, since the public image[] colour; only works for panels and images and my Player and enemies aren't images, so i'll need to change that to something else. I began experimenting a bit, i tried using GameObject, material, MeshRenderer and more, some wouldn't allow me to add my object to the script component and some won't allow my script to have gamobject[i].color.

But nothing worked until i tried SpriteRenderer, that's when i could add my Player and enemies to my Colour Script component, the only problem with this is that only my Player, Enemy Robot and Enemy spaceship will be able to change colour and not my Ground objects. It's not what i originally wanted but it's enough and it's works for me.

In order for all of this to work i'll have to add the new script to my canvas and make the On Click () do something with the canvas on all of my sliders, which was quite easy.

I then tested my game out, at first my Player was invisible but after going to the options i realized that the colour and the transparency were set to zero, so to fix this all i needed to do was set all of my sliders to 1 or their max value and with that i was able to see my object. Everything works, i could change the red, green and blue colours and even the transparency of an object. The only problem is that when i go to any colour options and change something all of my sprite, enemies and Player change colour and i just want my Player Colour option to change the Player and my enemy robot colour option to change the enemy robot and etc.

In order for me to be able to have one colour option menu change just one object i believe i need another colour script which will be the same as the original, it just will have different names and this script will only be activated on the other sliders on the On Click () event in a different to the Player, just like the image to the left.

After that i tested my game to see if everything works as intended. And it does, i can change the colour and alpha of each of my enemies and Player for people with colour blindness. The only slight problem is that that if you restart the level the colour changes won't remain, you will have to do the changes again, which can be annoying.

Later, i decided to go to my Start Menu and add music to my game since believe that it should be simple to do, and it should be simple to change the volume since i have to code and Audio Mixer for it.

I first added a Audio Source for sound to play to my Main Camera, i made to the music could loop and then i added a Japanese music to it. I later wanted a way for the AudioManager to influence the volume of the music, i tried drag and drop the Master Mixer to the Output in the Audio Source but that didn't work, turns out i just needed the Mixer for that, which was inside the Master mixer.

I later made it possible for the Main Menu to also change the the Players colour but if you change the colour in the main menu it won't change it for the Player in the main game, for that i need a script that will make it possible for data and variables to transfer to one scene to another one, i even did some research on that but i later decided to not do anything involving that because it would be too time consuming.

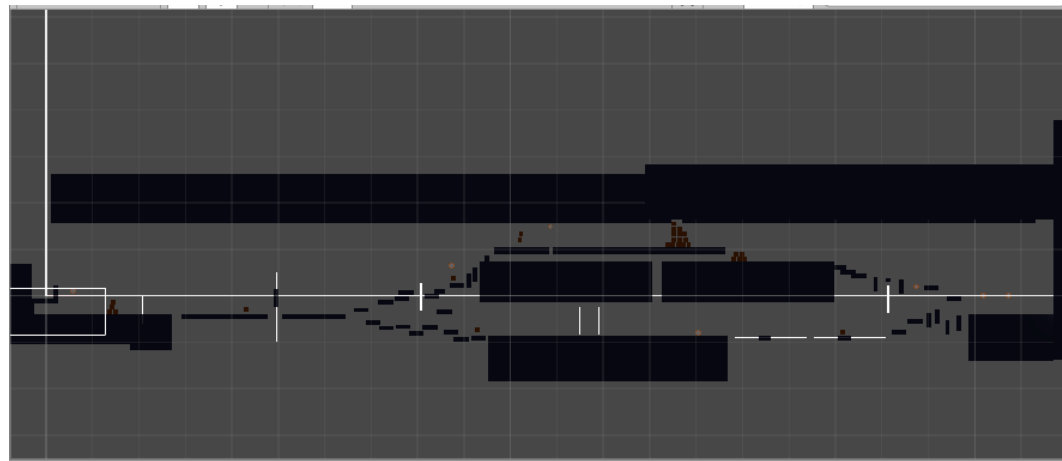
The after doing all that, i decided to test my Start Menu to see if the colour change works properly and if i can change the volume of the music i have in my game and i'm happy to say that it does work fine. But there is one thing that may be a issue and that is that the volume is a bit weird because if you move the volume slider a bit to the left, like 25% it'll make the music almost inaudible, even though i just moved the slider only a little bit. The reason for this is probably because of the Audio Mixer, since it's values go to 20 to -80 which is a bit weird but i won't try to fix it since it's not that big of a deal. Everything else seems alright and working properly. After the music working fine i did the same thing with the music but to the main game level.

Here are some videos and websites i looked into to know how to change colour for my gameobjects, how to transfer that and other things from one scene to another. All that and more:

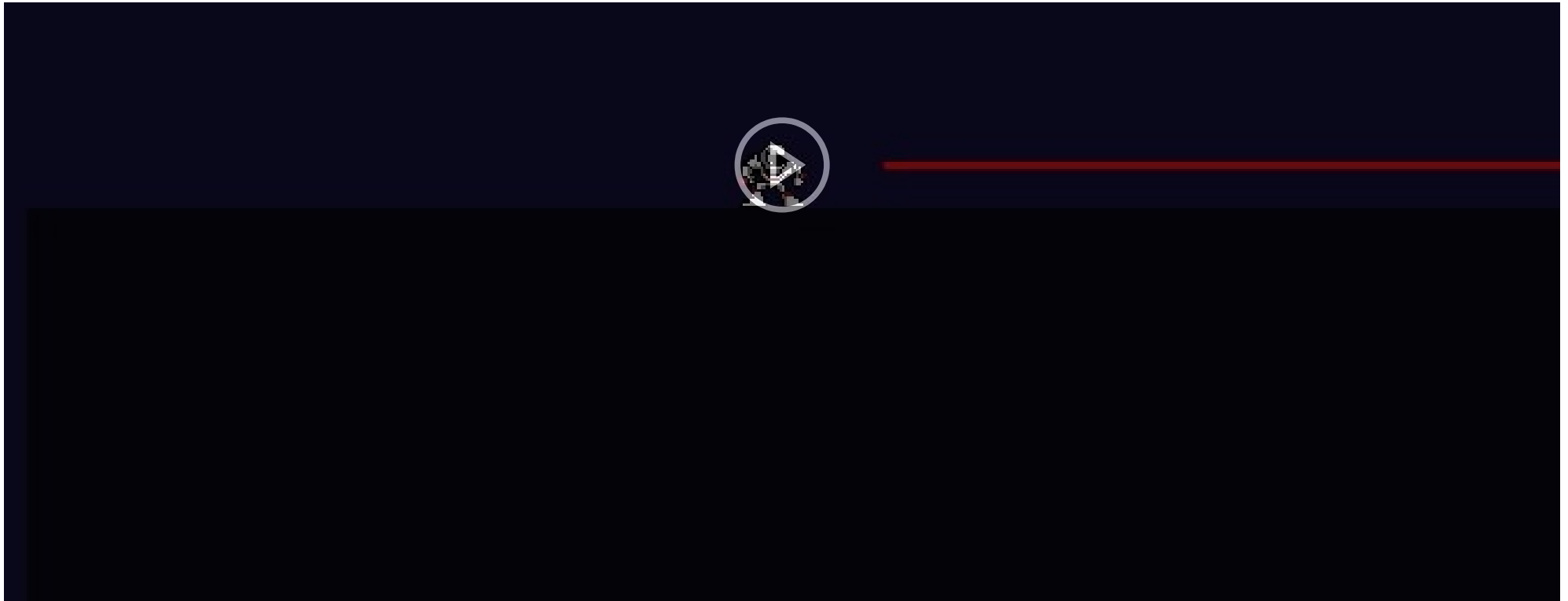
- (<https://www.youtube.com/watch?v=VEAU95v5MO8>);
 - (<https://www.youtube.com/watch?v=Uw6XcLImDVk>);
 - (<https://www.youtube.com/watch?v=dkJtPqDJ-Cg>);
 - (<https://www.youtube.com/watch?v=hlxs69h2fpQ>);
 - (<https://www.youtube.com/watch?v=9ROolmPSC70>);
 - (<https://www.youtube.com/watch?v=scrzEyalQQk>);
 - (<https://docs.unity3d.com/ScriptReference/SpriteRenderer-color.html>).
-



The small problem i had not being able to collab my game.



The level i made.



The final test i did to see how my game plays,

20/11/2020 was when i decided to make a level and complete everything and have my game build, send it to itch.io and then have it in my SharePoint.

First i started copying some ground and walls and placing them in a position where i think would make a interesting platforming level for the Player. Then i saved my scene and tried to collab it but for some reason Unity wouldn't let me, it kept saying "Cannot get revision from server", i tried finding a solution on the internet but nothing concrete and easy so not to waste my time, so i decided to just leave it, i don't necessarily need a collabed game to build my game and send it to SharePoint and itch.io.

Making a level took some quite a while to do, since i didn't have a particular idea in what kind of level i wanted to do, i'm also not very good at level design or making a level out of nothing, i even did some research on how to design a good level, the research i found wasn't extremely useful to me now but it had good information for later projects.

The image to the left is my whole level, it may not be a good one but it's what i could do with the time limit i had.

I tested my game multiple times and when it came with testing the colour options the colour change only happens with one enemy, i believe the reason for this is because the script component only has or knows that one enemy because it's the only one i added to the component. To fix this i made the size of the array bigger to fit all of the enemies and dragged and dropped.

And with that, everything works now i just need to make a few more adjustments here and there after some tests and then my game will be ready for a build.

Since it's been quite a while since i last build a game and add to itch.io the have it to my SharePoint i watched a video about how to have your game in itch.io and it was quite useful and it was a short video so my time wasn't wasted.

I finally build my game, which took a long time to do, i now have it in itch.io and you can go to my game through a link on my SharePoint in the Final Product page. But i couldn't get it to have my actual game in the SharePoint, i probably missed something or i forgot how to do it properly but what matters is that people can play my game and that's fine.

Here to the left is my game, it's not everything in it but most of it. The level has a few problems here and there but it's what i made and it's relatively completed, that's fine by me i just need to a better job next time and i will because what i did here will give me knowledge and experience to do a better job next time.

Sites and videos i used to help me understand and help me design a good level, also one video to help me know how to add a game to itch.io:

- (<https://www.pinterest.com/pin/70509550396502687/>);
- (<https://www.pinterest.com/pin/541909767646594105/>);
- (<https://www.pinterest.com/pin/209417451401285533/>);
- (<https://www.youtube.com/watch?v=fNLpZVNDQqc>);
- (<https://www.youtube.com/watch?v=HyLL0W4mHnc&t=482s>).