IT32043 – Computer Animation

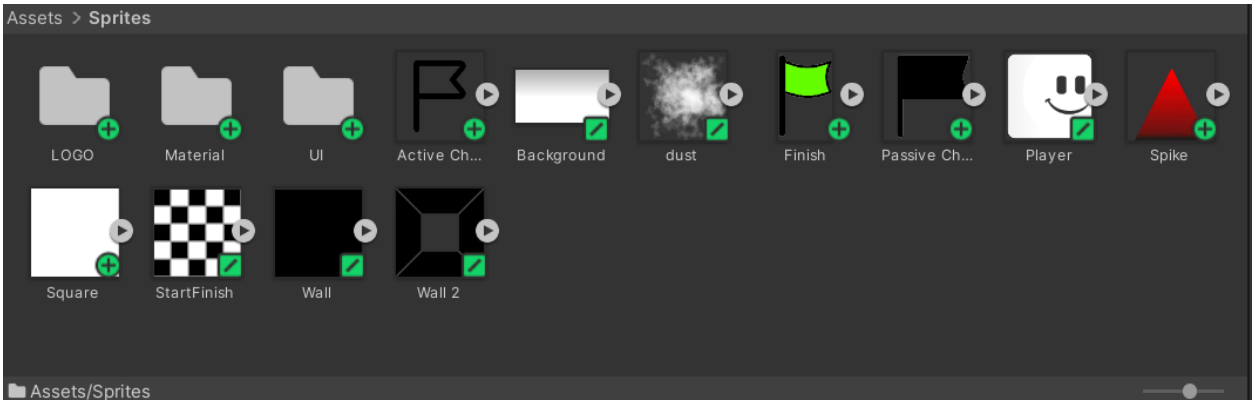
Assignment 02

Computer Game

- I created a simple 3-level 2D game called HAPPY BLOCK using Unity.
- Its function is also simple you just need to press the Space bar to play.
- I used the simple 5 steps to create the game, you can see each step following.

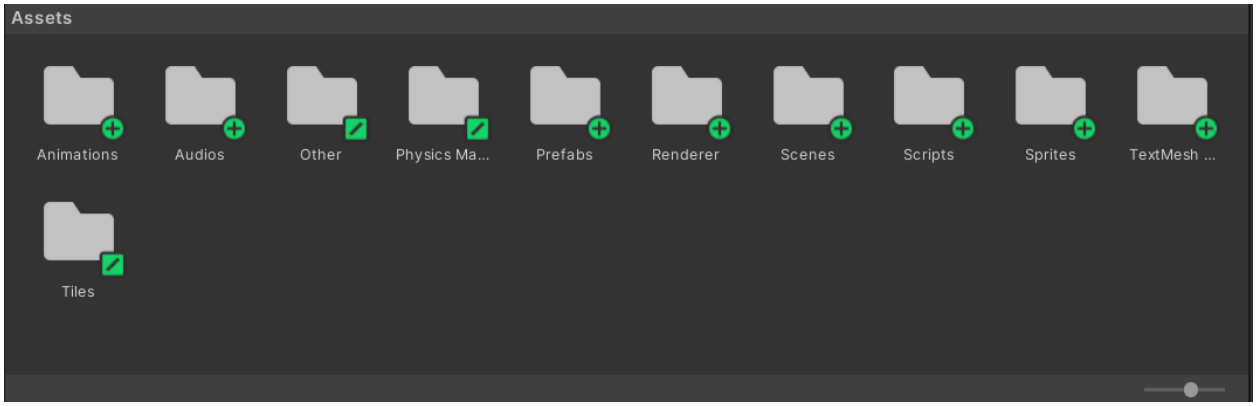
Step #1

- First, I collect the images to create the 2D game and I move all of the images to a folder called sprites.



Step #2

- Then, I created different folders for each asset.

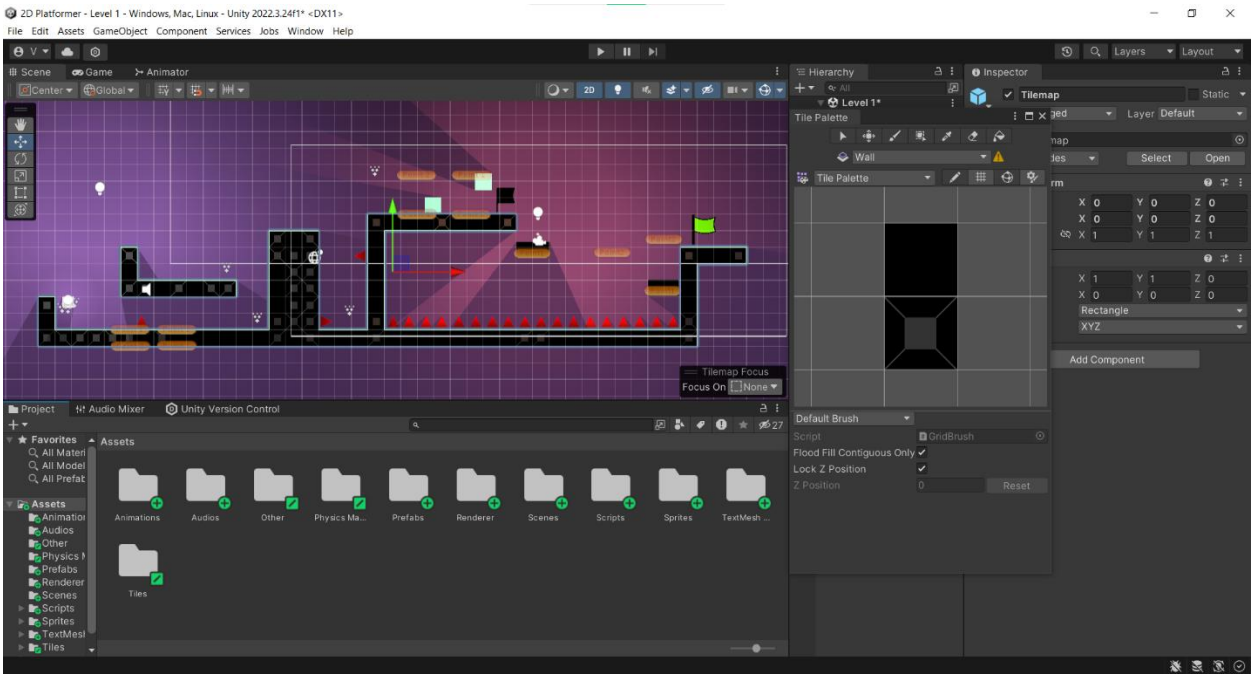


Step #3

- After I started to create the main objects of the player, ground, area effecter, portal, moving platforms, moving squares, moving spikes, obstacles (spikes), checkpoint, and, finish point.
- Now let's see how I created each part one by one.

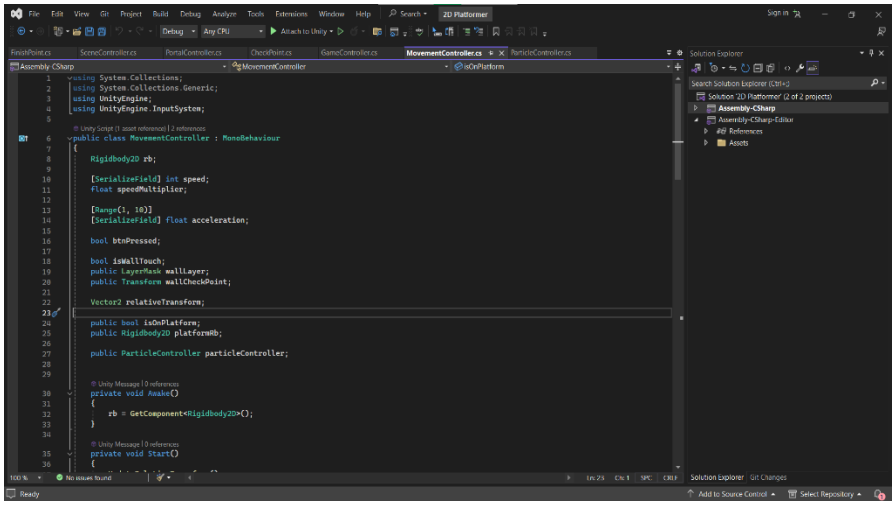
Ground:

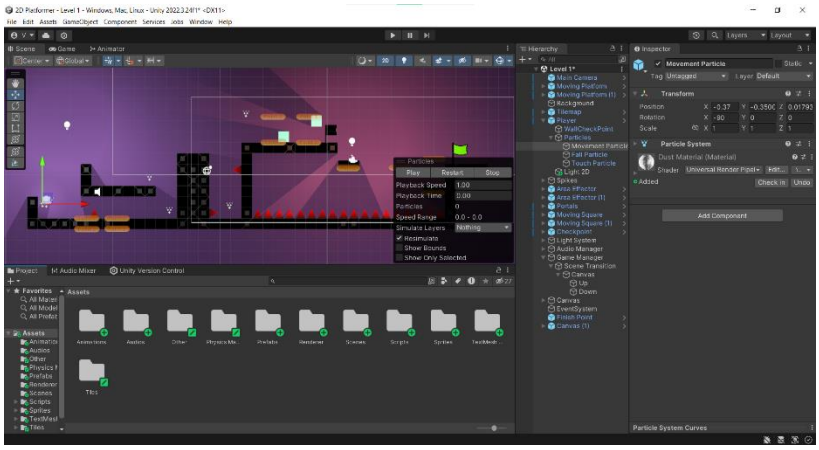
- I created the game ground using Tilemap, which helps to create the ground easily.



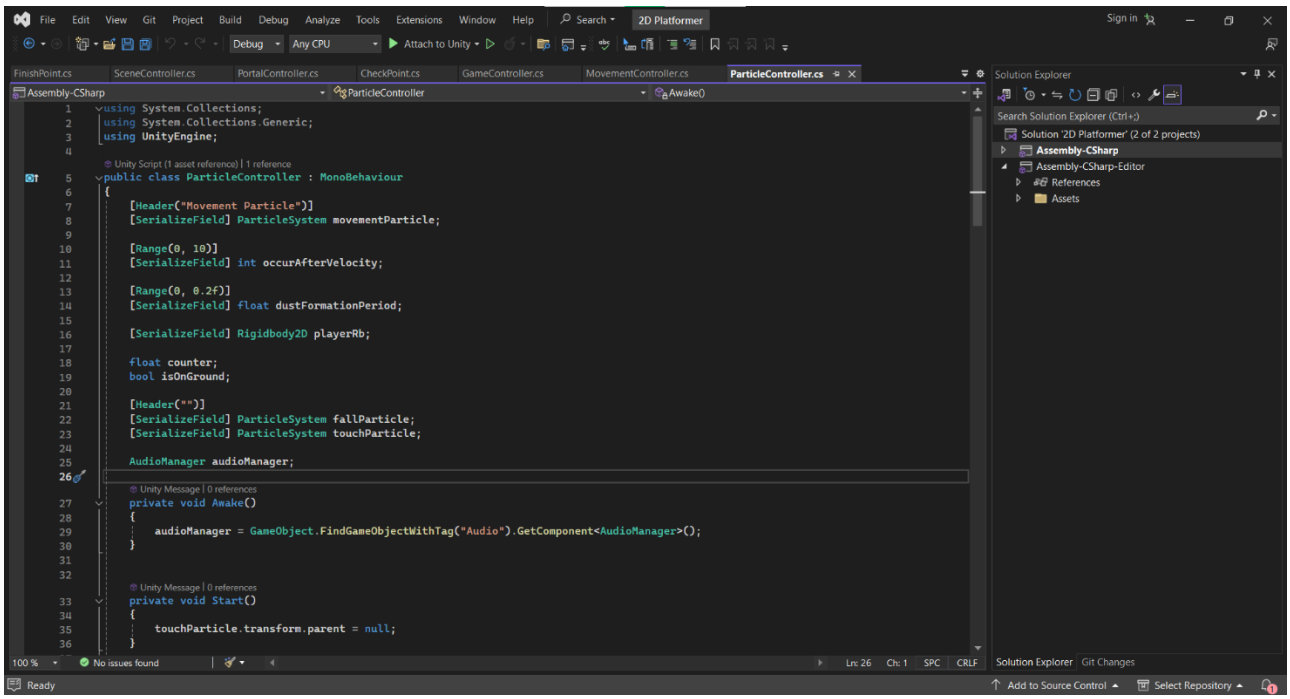
Player:

- I simply drag and drop the player image from the sprites folder to the scene and I create a script called MovementController.cs to move the object when press the Space bar.





- If the player hits the ground the player turns to the other side (right to left and left to right).
- Also, I add some dust effects to the player when moving, falling, and hitting the ground.
- To that, I created a material called dust material and I moved it to the material folder in the sprites folder.
- After, I used the particle system to create the dust effecter and dragged and dropped the dust material into the particle system I created 3 different particles movement particle, fall particle, and touch particle.
- And, I created a script called ParticleController to function the above particles.



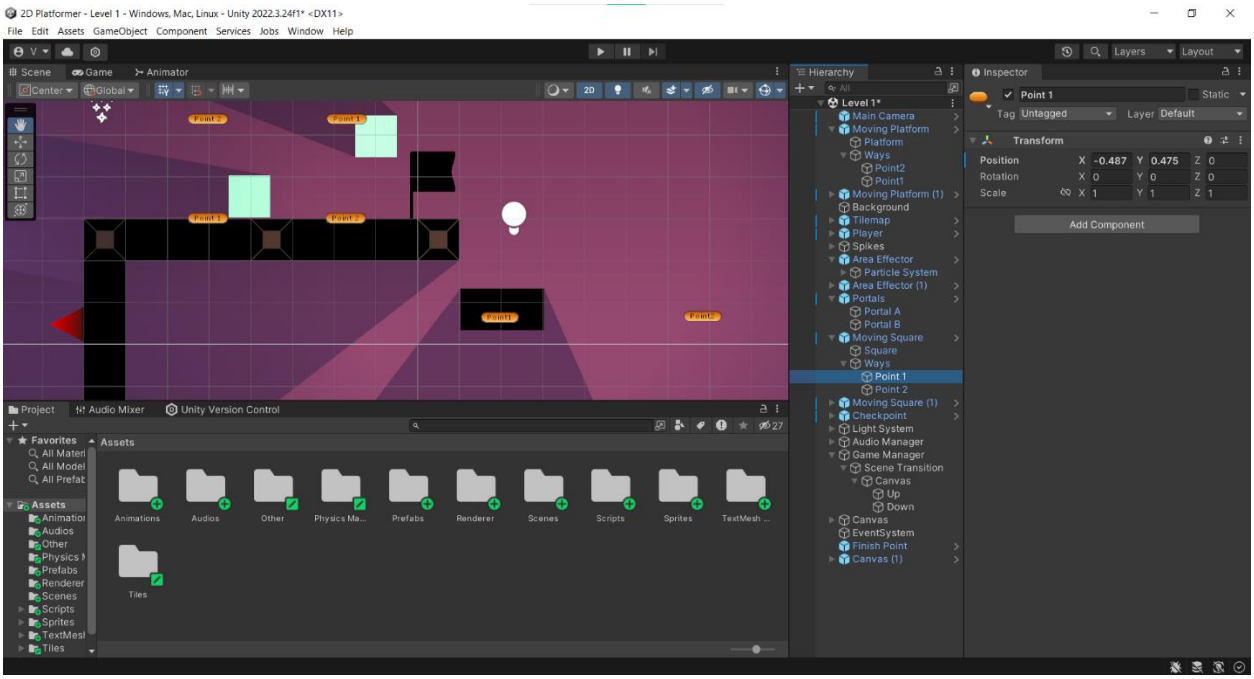
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

Unity Script (1 asset reference) | 1 reference
public class ParticleController : MonoBehaviour
{
    [Header("Movement Particle")]
    [SerializeField] ParticleSystem movementParticle;

    [Range(0, 10)]
    [SerializeField] int occurAfterVelocity;

    [Range(0, 0.2f)]
    [SerializeField] float dustFormationPeriod;

    [SerializeField] Rigidbody2D playerRb;

    float counter;
    bool isOnGround;

    [Header("")]
    [SerializeField] ParticleSystem fallParticle;
    [SerializeField] ParticleSystem touchParticle;

    AudioManager audioManager;

    Unity Message | 0 references
    private void Awake()
    {
        audioManager = GameObject.FindGameObjectWithTag("Audio").GetComponent<AudioManager>();
    }


    Unity Message | 0 references
    private void Start()
    {
        touchParticle.transform.parent = null;
    }
```

Area Effector & Portals:

- To the area effecter and portals also, I created using the particle systems by adding the dust material.

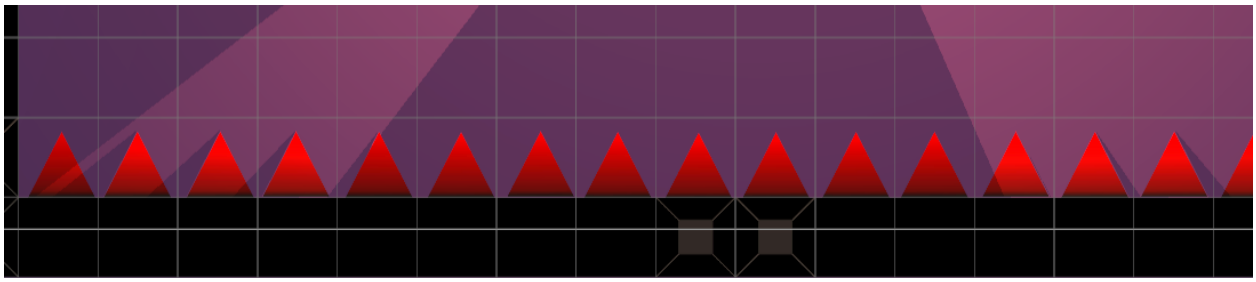
Moving Squares, Moving Spikes & Moving Platforms:

- To create the moving squares, moving spikes, and moving platforms I used the square and tile map, and I created two points to move between those two points.
- The moving square and moving spikes are kind of obstacles and the moving platform helps to player to reach one point to another point by protecting from the obstacles.
- The moving platform is similar to the portals.



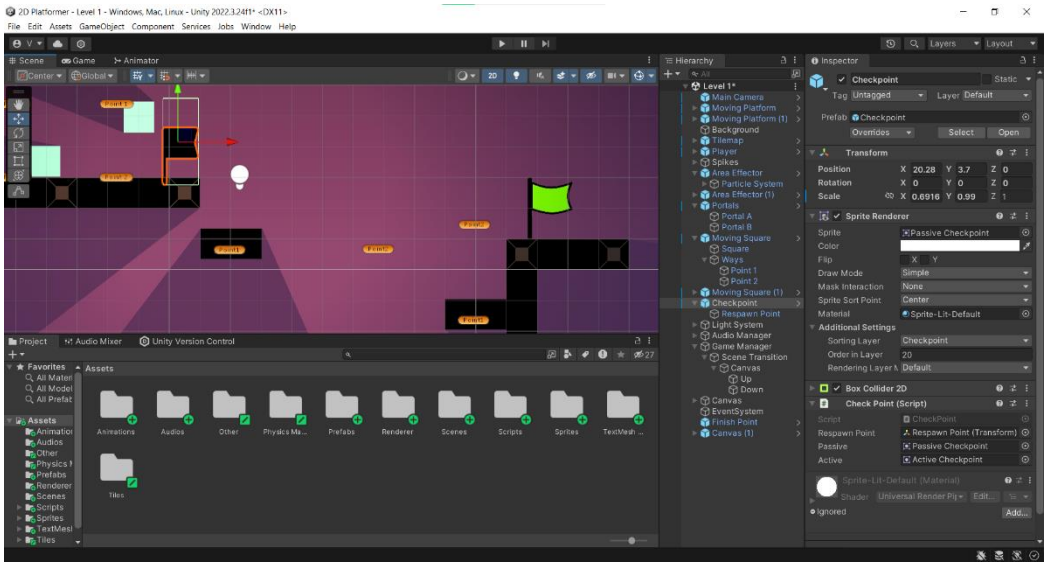
Spikes:

- It is a triangle-shaped obstacle when the player hits that the player will die.



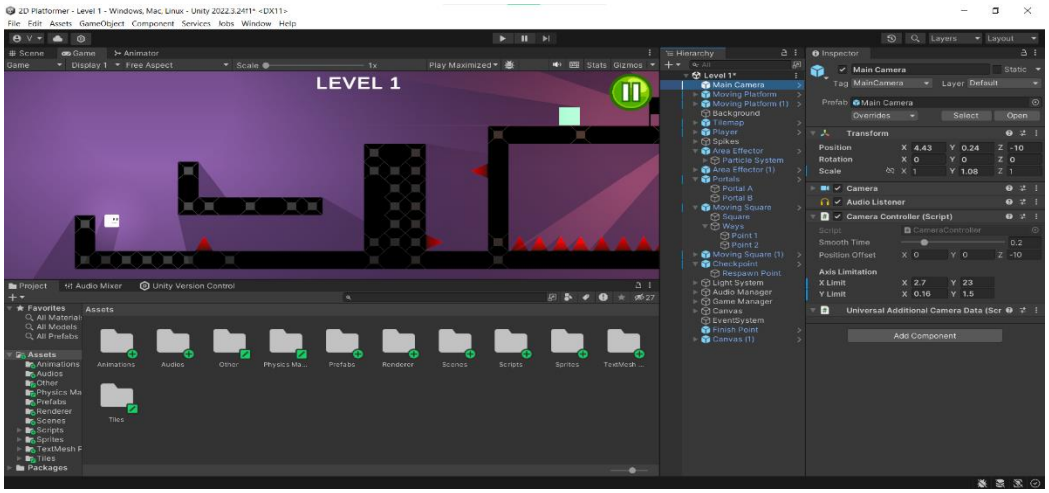
Checkpoint & Finish Point:

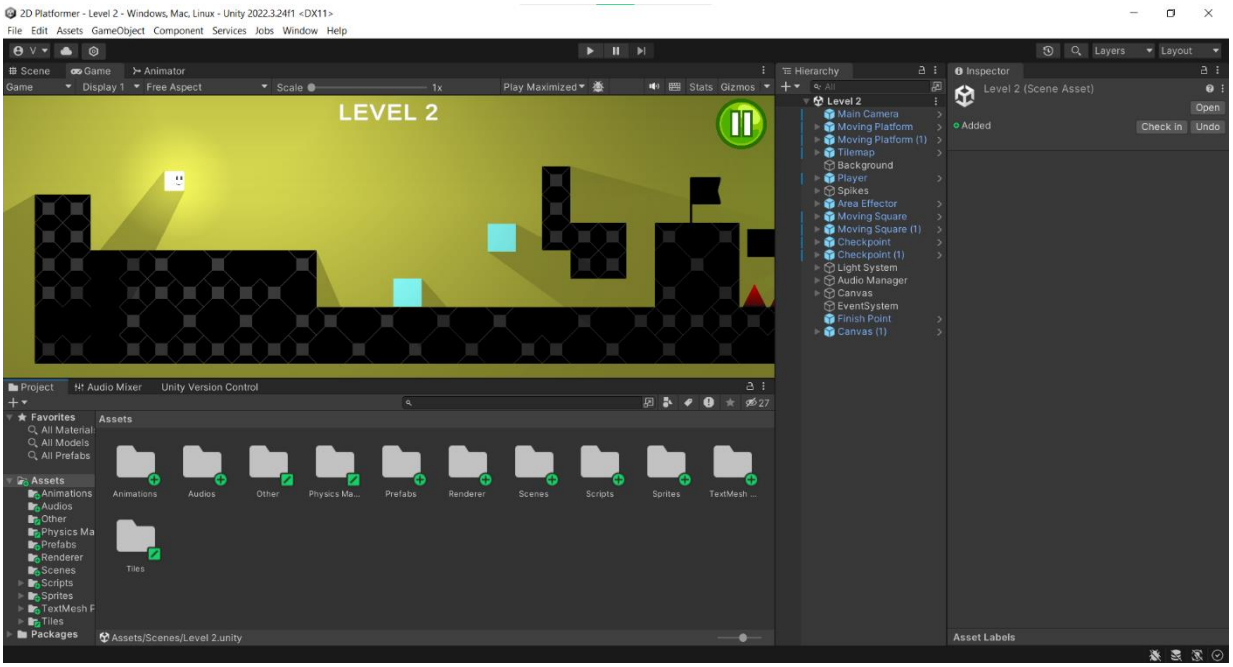
- In checkpoint, when a player reaches one checkpoint and after the player dies, the player can play the game from that checkpoint without going to the start point.
- At the finish point, the player can move to the next level of the game.

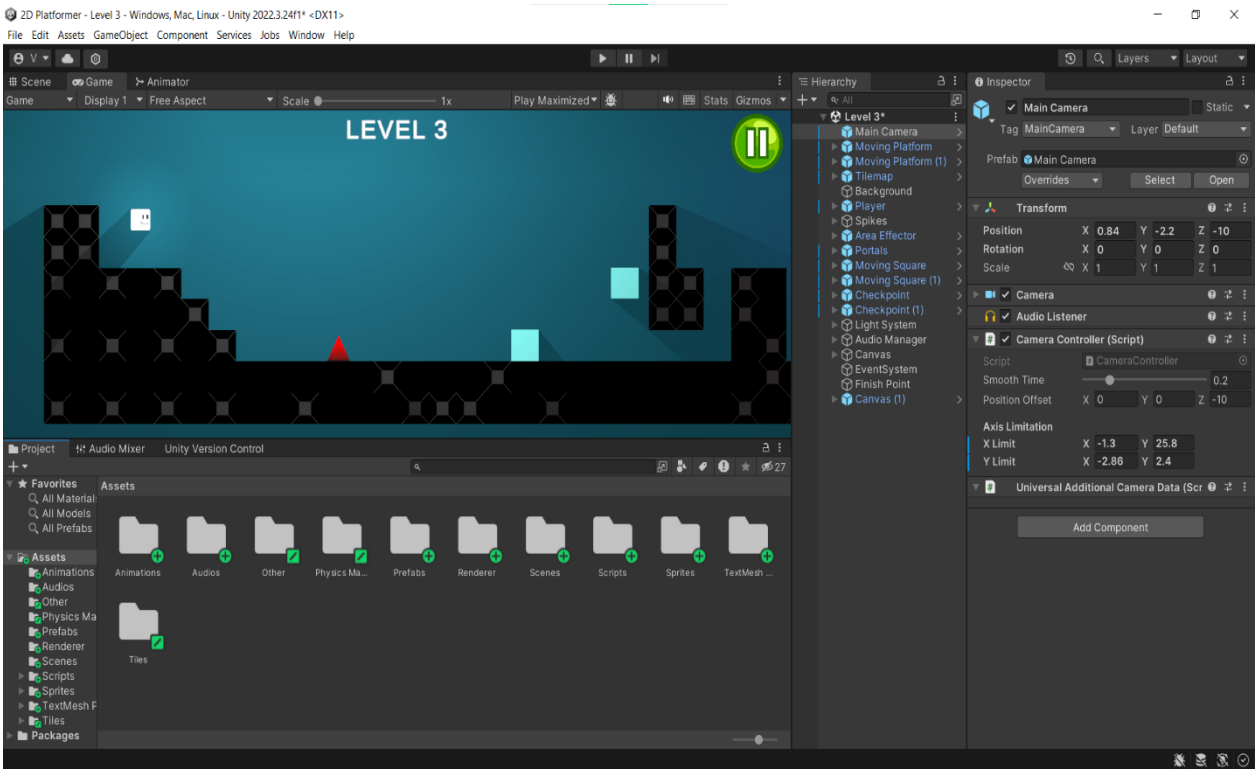


Step #4

- After that, I added the shadow caster 2D and created a script called Shadow Caster 2D Creator.
- After creating the all objects I moved them into the prefabs folder, which helps to use those objects easily without creating them again from the beginning.
- Then I created the 3 different levels (scenes) using those objects, and you can see each level one by one following.

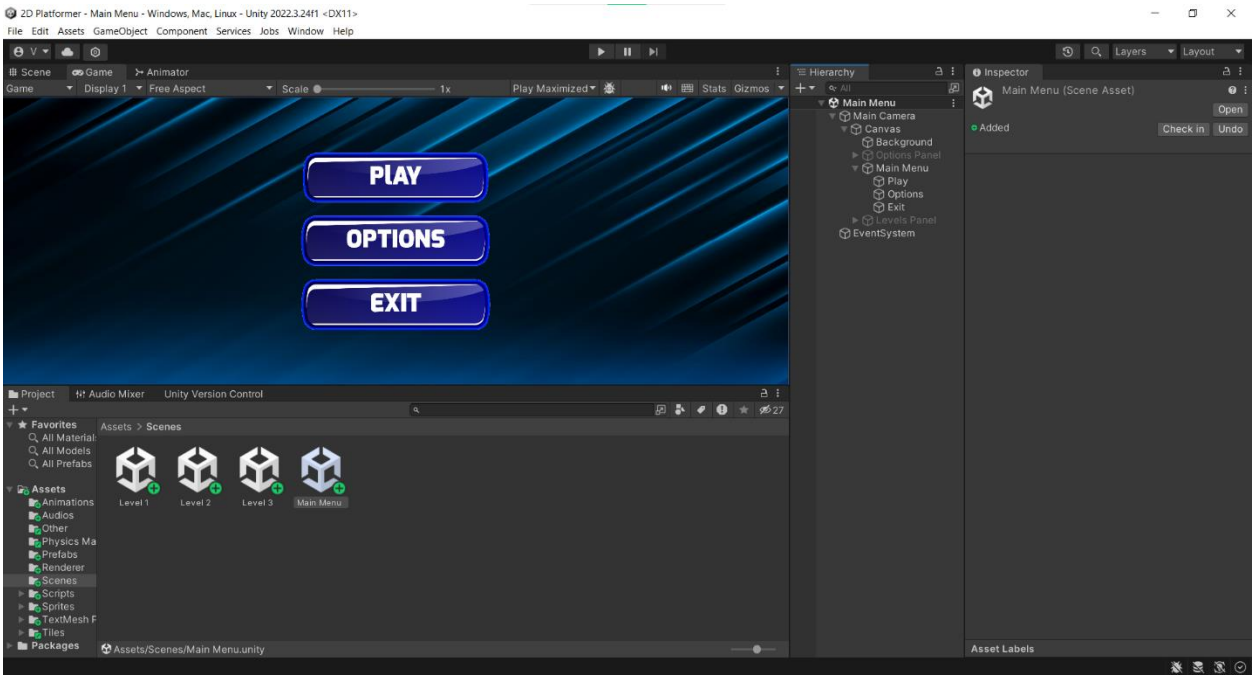



2D Platformer - Level 2 - Windows, Mac, Linux - Unity 2022.3.24f1 <DX11>
File Edit Assets GameObject Component Services Jobs Window Help
LEVEL 2
Hierarchy
Level 2
Main Camera
Moving Platform
Moving Platform (1)
Tilemap
Background
Player
Spikes
Area Effector
Moving Square
Moving Square (1)
Checkpoint
Checkpoint (1)
Light System
Audio Manager
Canvas
EventSystem
Finish Point
Canvas (1)
Inspector
Level 2 (Scene Asset)
Open
Added
Check in
Undo
Project
Audio Mixer
Unity Version Control
Assets
Animations
Audios
Other
Physics Ma...
Prefabs
Renderer
Scenes
Scripts
Sprites
TextMesh ...
Tiles
Packages
Assets/Scenes/Level 2.unity
Asset Labels

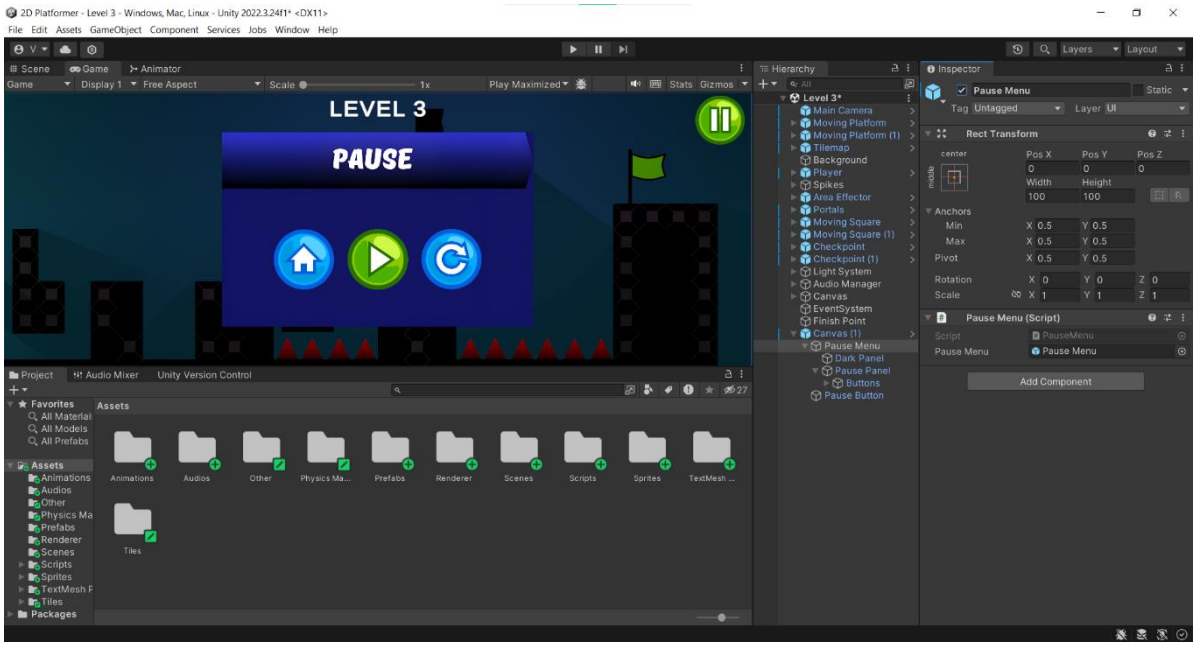

2D Platformer - Level 3 - Windows, Mac, Linux - Unity 2022.3.24f1* <DX11>
File Edit Assets GameObject Component Services Jobs Window Help
LEVEL 3
Hierarchy
Level 3*
Main Camera
Moving Platform
Moving Platform (1)
Tilemap
Background
Player
Spikes
Area Effector
Portals
Moving Square
Moving Square (1)
Checkpoint
Checkpoint (1)
Light System
Audio Manager
Canvas
EventSystem
Finish Point
Canvas (1)
Inspector
Main Camera
Static
Tag MainCamera
Layer Default
Prefab Main Camera
Overrides
Select
Open
Transform
Position X 0.84 Y -2.2 Z -10
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1
Camera
Audio Listener
Camera Controller (Script)
Script CameraController
Smooth Time 0.2
Position Offset X 0 Y 0 Z -10
Axis Limitation
X Limit X -1.3 Y 25.8
Y Limit X -2.86 Y 2.4
Universal Additional Camera Data (Scr
Add Component
Project
Audio Mixer
Unity Version Control
Assets
Animations
Audios
Other
Physics Ma...
Prefabs
Renderer
Scenes
Scripts
Sprites
TextMesh ...
Tiles
Packages

Step #5

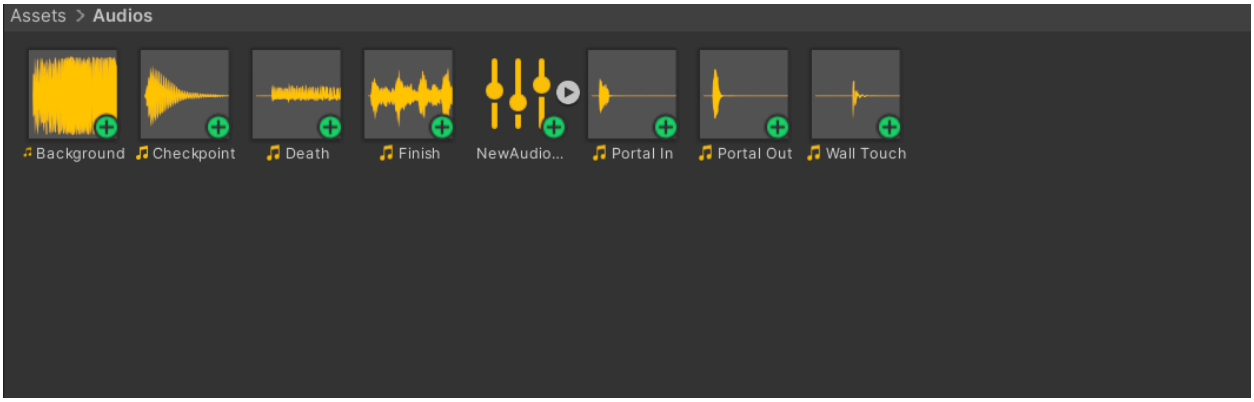
- I created a new scene called Main Menu, which can help to player select the levels, go to the options, and exit the game.



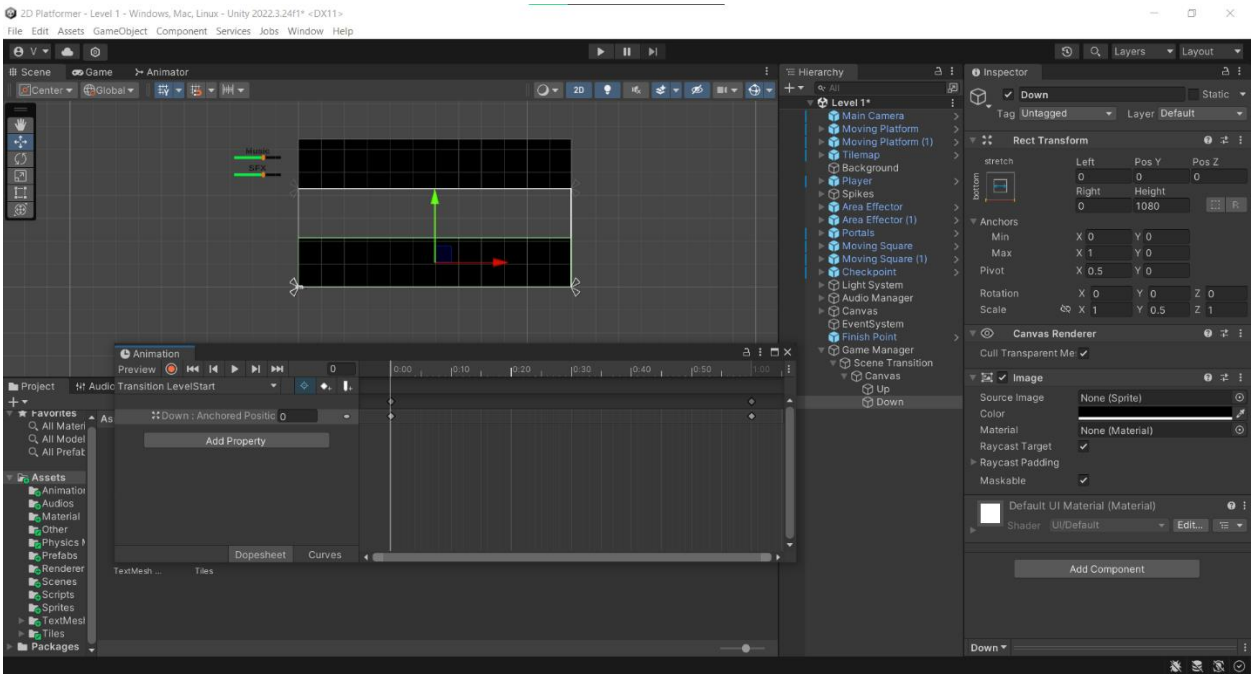
- Also, I added the pause button to each level, which helps to player pause and restart the game and, go to the home (Main menu).



- I added the music and SFX to the portals, background, death, checkpoints, finish, and wall touch.



- Finally, I added a scene transition which gives a smooth transition when the player moves to the next level.



- OneDrive main folder link: Intake 10 - Computer Animation Assignment - ITBIN-2110-0041