CSE3122 - GAME PROGRAMMING LAB FAT

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QUESTION

SET – 2

Create **a 3D game** using UNITY game engine by incorporating the game rules and building the game mechanics as mentioned.

Game Play: Player needs to survive by avoiding colliding with the auto-movable obstacles and should able to reach the goal point.

Rule:
- Player should be within a fixed game environment; otherwise he should lose his life.
- Only 3 lives should be permitted, after that display "Game Over"

Mechanics:
- Player should be able to move left, right and up
- Minimum one obstacle is needed.
- Two levels should be provided
- Variation in obstacles should be in 2nd level
- Once player completes the game, Player won caption should be provided
- Proper light effects which suits the game environment
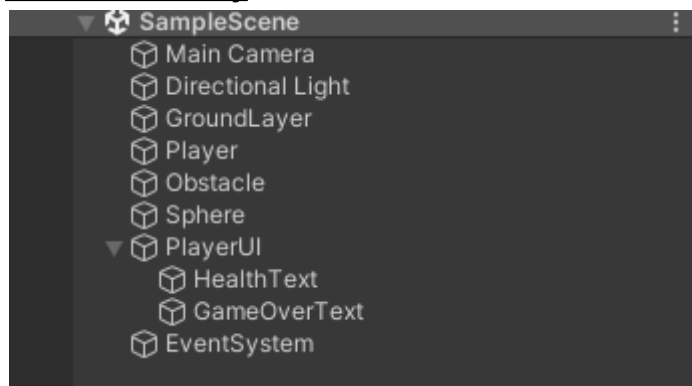- Proper audio/music/sound effects which suits the game environment
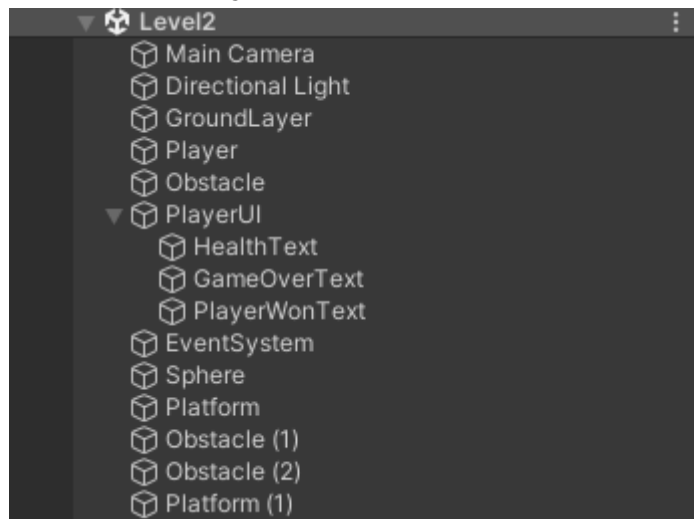
SCREENSHOTS
Level 1
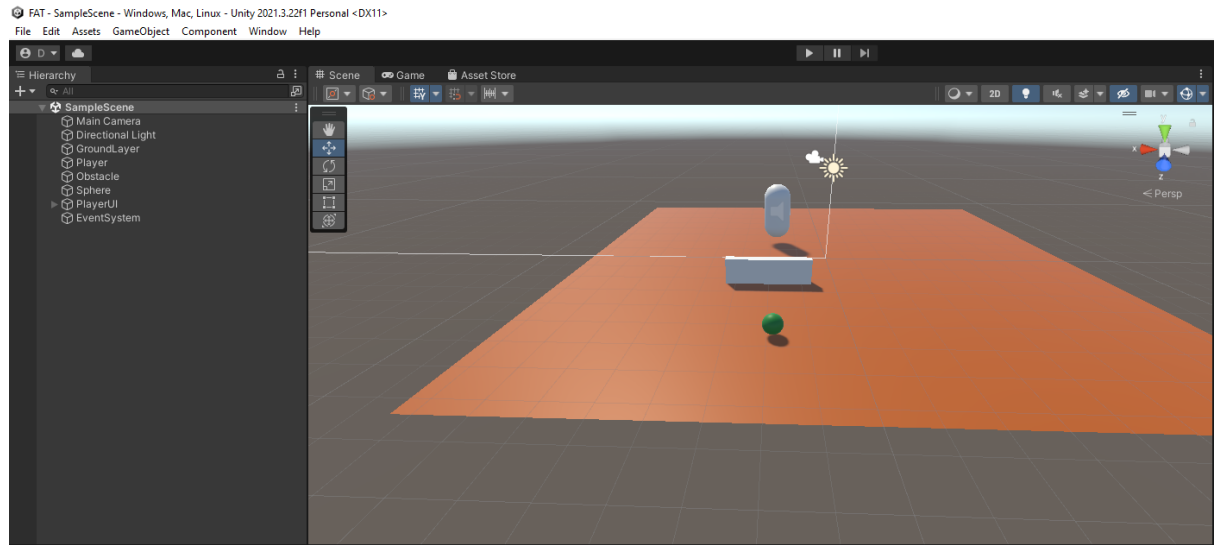
Level 2
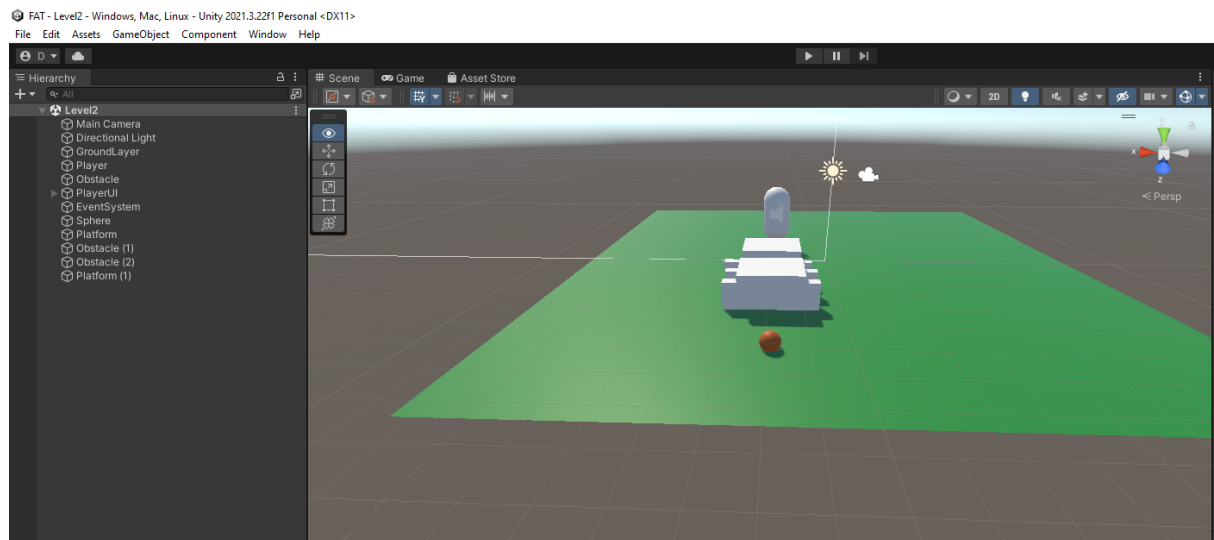
Level 1 Hierarchy

Level 2 Hierarchy

CollectableController Script

```csharp
1    using System.Collections;
2    using System.Collections.Generic;
3    using UnityEngine;
4    using UnityEngine.SceneManagement;
5    using TMPro;
6
7    public class CollectableController : MonoBehaviour
8    {
9        [SerializeField] private TextMeshProUGUI finalText;
10       // Start is called before the first frame update
11       void Start()
12       {
13
14       }
15
16       // Update is called once per frame
17       void Update()
18       {
19
20       }
21       private void OnTriggerEnter(Collider coll) {
22           if(coll.tag == "Collectable") {
23               SceneManager.LoadScene("Level2");
24           }
25           else if(coll.tag == "Final") {
26               Destroy(coll.gameObject);
27               finalText.enabled = true;
28           }
29       }
30   }
31
```

PlayerController Script

```csharp
1    using System.Collections;
2    using System.Collections.Generic;
3    using UnityEngine;
4
5    public class PlayerController : MonoBehaviour
6    {
7        private Rigidbody rb;
8        private float speed = 5f;
9        [SerializeField] private AudioSource jumpSound;
10       // Start is called before the first frame update
11       void Start()
12       {
13           rb = GetComponent<Rigidbody>();
14       }
15
16       // Update is called once per frame
17       void Update()
18       {
19           if(Input.GetKey(KeyCode.A)) {
20               rb.velocity = new Vector3(-speed, 0, 0);
21           }
22           if(Input.GetKey(KeyCode.D)) {
23               rb.velocity = new Vector3(speed, 0, 0);
24           }
25           if(Input.GetKey(KeyCode.W)) {
26               rb.velocity = new Vector3(0, 0, speed);
27           }
28           if(Input.GetKey(KeyCode.S)) {
29               rb.velocity = new Vector3(0, 0, -speed);
30           }
31           if(Input.GetKey(KeyCode.Space)) {
32               rb.velocity = new Vector3(0, speed, 0);
33               jumpSound.Play();
34           }
35       }
```

CameraController Script

```csharp
1    using System.Collections;
2    using System.Collections.Generic;
3    using UnityEngine;
4
5    public class CameraController : MonoBehaviour
6    {
7        [SerializeField] private Transform target;
8        // Start is called before the first frame update
9        void Start()
10       {
11
12       }
13
14       // Update is called once per frame
15       void Update()
16       {
17           transform.position = new Vector3(target.position.x - 2f, transform.position.y, target.position.z - 6f);
18       }
19   }
20
```

Health Script

```
C: > Users > admin > Desktop > 20BAI1131 > FAT > Assets > Scripts > C# HealthScript.cs
  1    using System.Collections;
  2    using System.Collections.Generic;
  3    using UnityEngine;
  4    using TMPro;
  5
  6    public class HealthScript : MonoBehaviour
  7  ∨ {
  8        [SerializeField] private TextMeshProUGUI healthText;
  9        [SerializeField] private TextMeshProUGUI gameoverText;
 10        private int health = 3;
 11        // Start is called before the first frame update
 12        void Start()
 13  ∨     {
 14            healthText.text = "Health: " + health.ToString();
 15        }
 16
 17        // Update is called once per frame
 18        void Update()
 19        {
 20
 21        }
 22  ∨     private void OnTriggerEnter(Collider coll) {
 23  ∨         if(coll.tag == "Obstacle") {
 24                health -= 1;
 25                healthText.text = "Health: " + health.ToString();
 26  ∨             if(health == 0) {
 27                    gameoverText.enabled = true;
 28                }
 29            }
 30        }
 31    }
 32
```
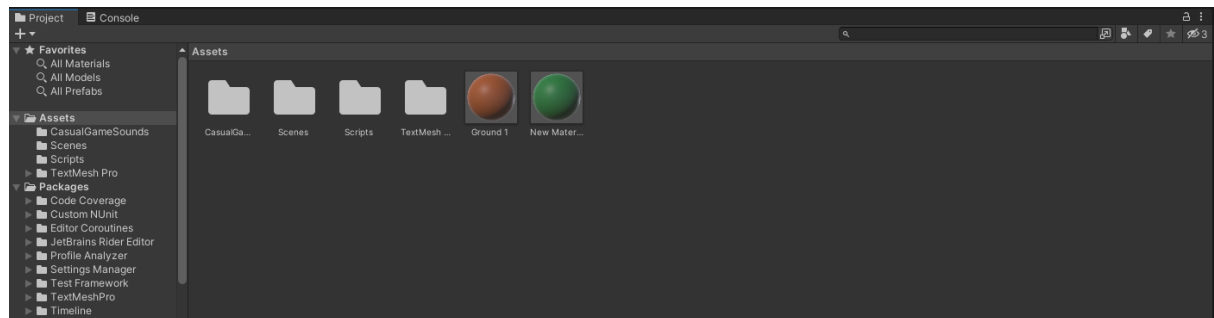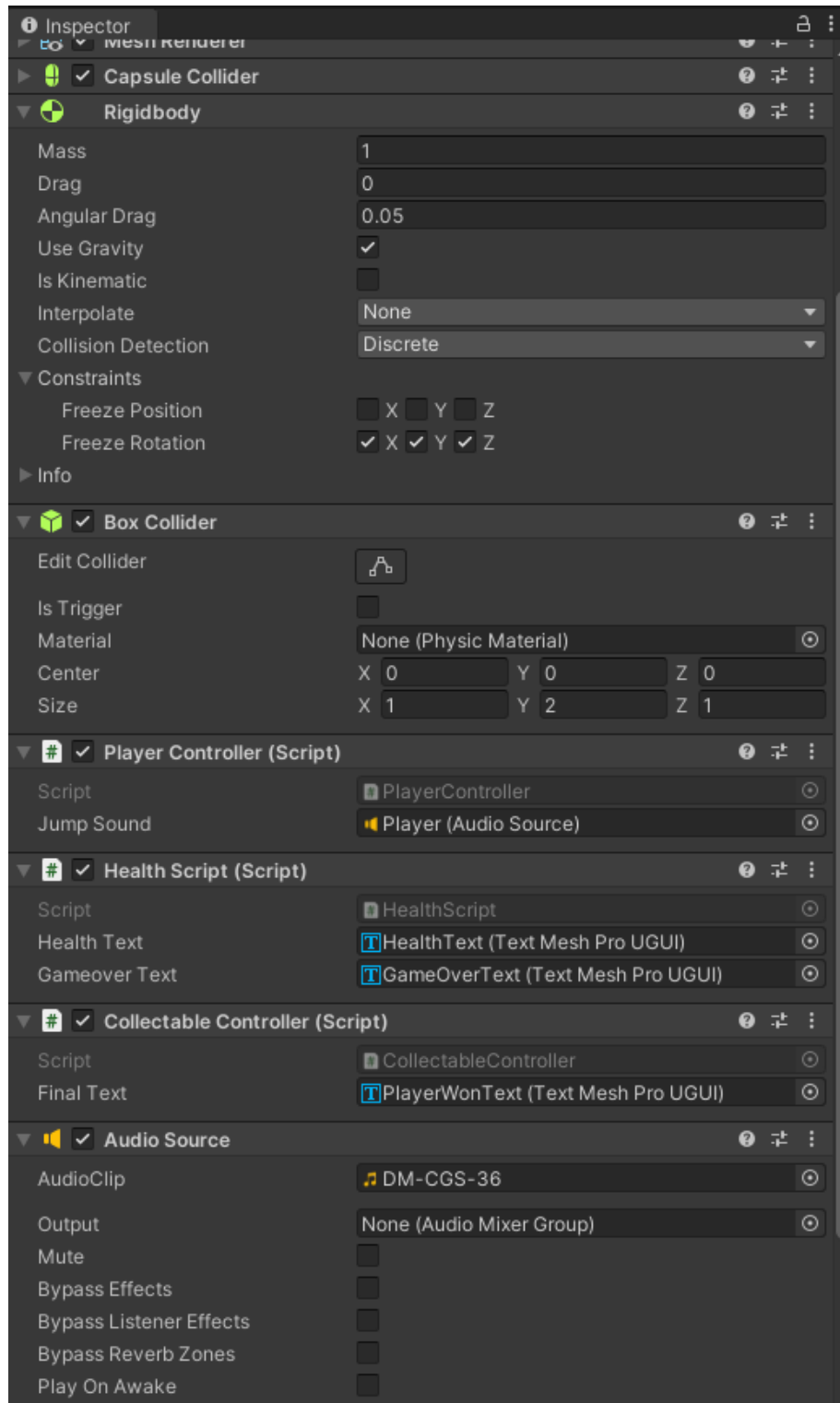
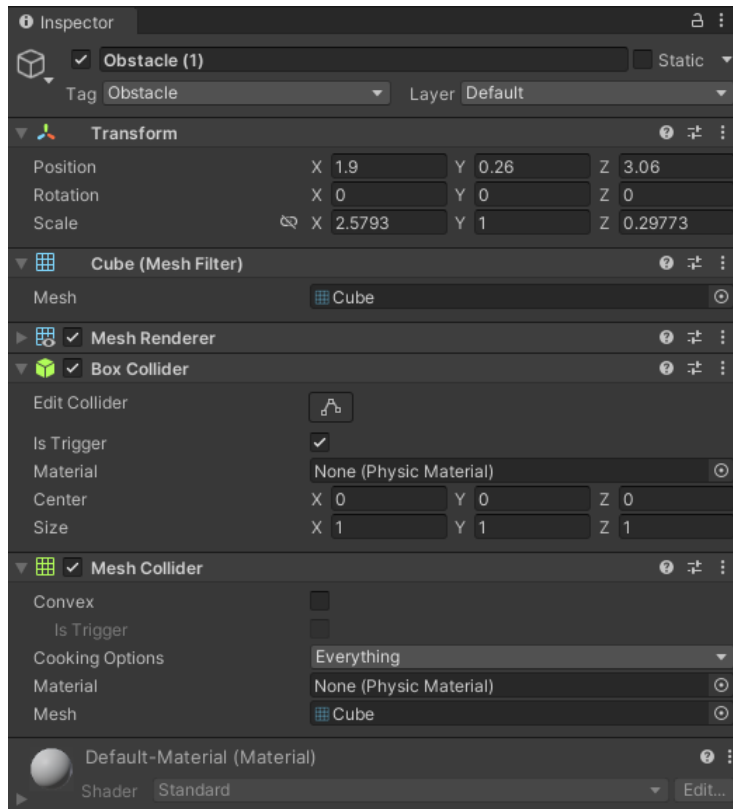## Game Over Scene
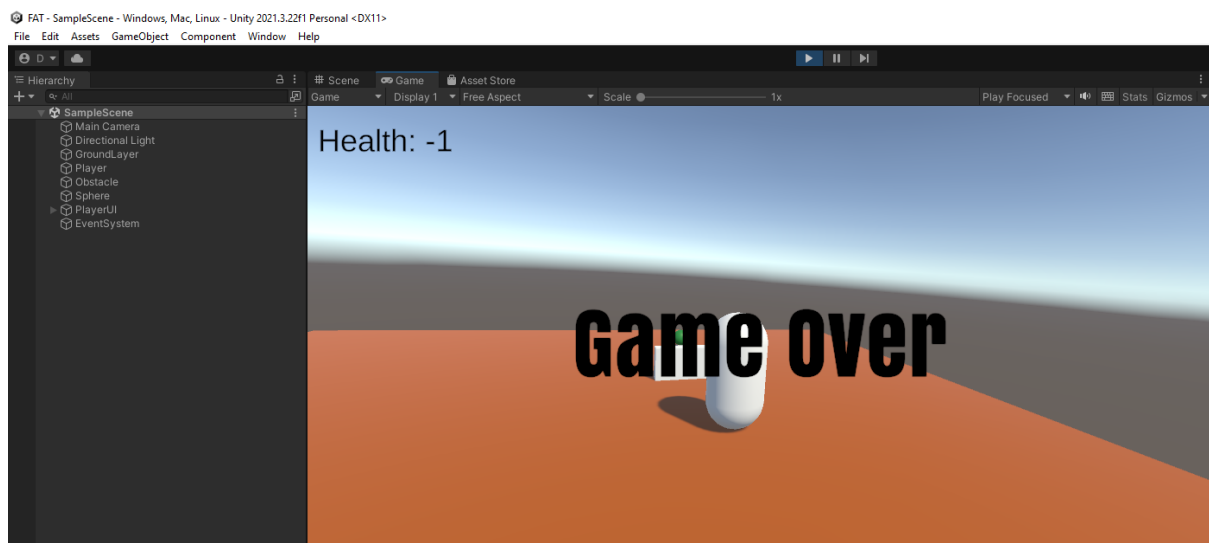
Player Winning Scene

Assets

Player Inspector

Obstacle Inspector

Collectable Inspector