COMSATS University Islamabad (Lahore Campus)

<Lab Assignment 1> – SPRING 2024

Course Title:	Game Development	Course Code:	CSC495	Credit Hours:	3
Course Instructor/s:	Saira Aslam	Program	BSE		
Submission Deadline	**11:55 pm, 22-3-2024**	**Maximum Marks:**	**50**		

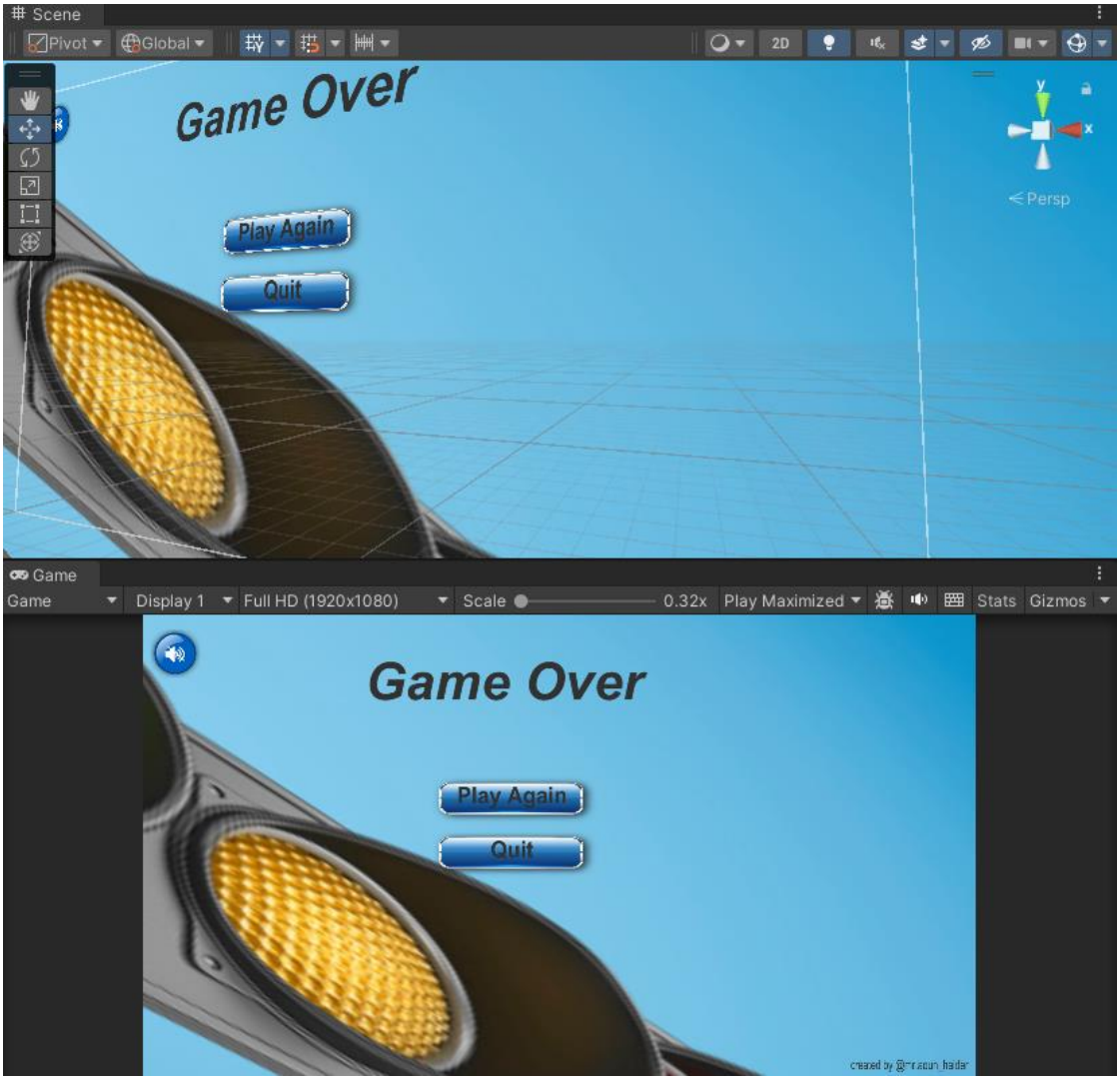
Important Instructions / Guidelines:

- Submit a 10 seconds video, 4 screenshots, and all your scripts in Lab Assignment 1 submission at google classroom
- Paste your screenshots and scripts inside Lab Assignment-1 submission file provided

Question No 1.

CLO: <3>; Bloom Taxonomy Level: *<Apply>* **[80]**


Scene
Pivot
Global
2D
Persp


Scene
Pivot
Global
2D
Game Over
Play Again
Quit
Persp
Game
Game
Display 1
Full HD (1920x1080)
Scale
0.32x
Play Maximized
Stats
Gizmos
Game Over
Play Again
Quit


Scene
Pivot
Global
2D
Persp
Game
Game
Display 1
Full HD (1920x1080)
Scale
0.32x
Play Maximized
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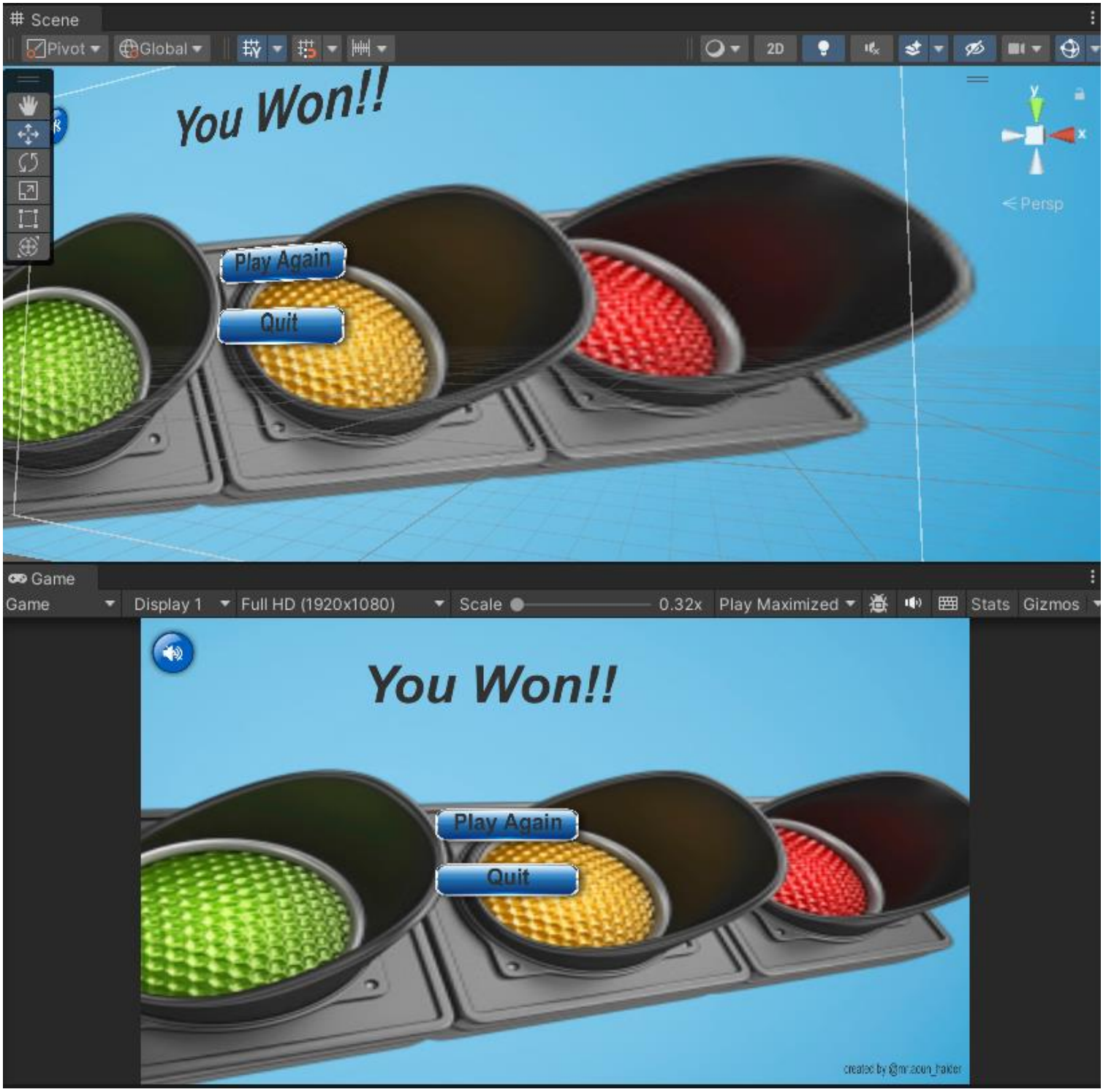
Scene
Pivot
Global
2D
You Won!!
Play Again
Quit
Persp
Game
Game
Display 1
Full HD (1920x1080)
Scale
0.32x
Play Maximized
Stats
Gizmos
You Won!!
Play Again
Quit

busScript.cs

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

public class BusScript : MonoBehaviour
{
    public Text busHealth;
    public float health = 50;
    public float speedStrength;
    public bool insideObject = false;
    private int numOfStudents = 0;
    public GameObject[] students;

    public int leftStudentCount = 3,rightStudentCount = 0;

    public AudioSource hornSound;

    // Start is called before the first frame update
    void Start()
    {
        students = new GameObject[6];

        //Extract all the game object and store in array
        for(int i=1;i<7;i++)
        students[i-1] = GameObject.Find("School_Childrens_"+i.ToString());

        busHealth.text = "Student: " + numOfStudents.ToString() + "\nBus Health: " +
health.ToString();
        hornSound = GetComponent<AudioSource>();
    }

    // Update is called once per frame
    void Update()
    {
        // Move the bus based on user input
        if (Input.GetKey(KeyCode.UpArrow)) //move forward
        {
            transform.Translate(0, 0, speedStrength);
        }
        if (Input.GetKey(KeyCode.DownArrow)) //move backward
        {
            transform.Translate(0, 0, -speedStrength);
        }
        if (Input.GetKey(KeyCode.LeftArrow)) //move left
        {
            transform.Rotate(0, -speedStrength, 0);
```

```
        }
        if (Input.GetKey(KeyCode.RightArrow)) //move right
        {
            transform.Rotate(0, speedStrength, 0);
        }
        if (Input.GetKeyDown(KeyCode.H))
        {
            hornSound.Play();
        }

        // Check if the bus health is zero
        if (health <= 0)
        {
            SceneManager.LoadScene("GameOver_Scene");
        }
        if(numOfStudents == 30)
        {
            SceneManager.LoadScene("GameWin");
        }

        if(insideObject && Input.GetKey(KeyCode.Space))
        {
             if(transform.position.z > -60 && rightStudentCount < 3) //right side
             {
                Destroy(students[rightStudentCount]);
                numOfStudents += 5;
                rightStudentCount++;
                busHealth.text = "Student: " + numOfStudents.ToString() + "\nBus Health: " +
health.ToString();
             }
            else if(transform.position.z < -60 && (leftStudentCount > 2 && leftStudentCount < 6))
//left side
            {
                Destroy(students[leftStudentCount]);
                numOfStudents += 5;
                leftStudentCount++;
                busHealth.text = "Student: " + numOfStudents.ToString() + "\nBus Health: " +
health.ToString();
            }
            insideObject = false;
        }
    }

    private void OnCollisionEnter(Collision col)
    {
        if (col.gameObject.name.StartsWith("Car") || col.gameObject.name.StartsWith("Truck"))
        {
            health -= 10;
```

```
            busHealth.text = "Student: " + numOfStudents.ToString() + "\nBus Health: " +
health.ToString();
        }
        if(col.gameObject.name.StartsWith("Pickup_boundary"))
        {
                insideObject = true;
        }
    }
    private void OnCollisionExit(Collision col)
    {
        if(col.gameObject.name.StartsWith("Pickup_boundary"))
        {
            insideObject = false;
        }
    }
}
```

buttonScript.cs

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

public class buttonScript : MonoBehaviour
{
    public Button btn;

    public void Start()
    {
        btn.onClick.AddListener(clickHandler);
    }
    public void clickHandler()
    {
        SceneManager.LoadScene("Main_Scene");
    }
}
```

collisionScript.cs

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

public class CollisionScript : MonoBehaviour
{
    public GameObject student;
    // Start is called before the first frame update
    void Start()
    {
```

```
    }

    // Update is called once per frame
    void Update()
    {

    }
    // private void OnCollisionEnter(Collision col)
    // {
    //     if(col.gameObject.name.StartsWith("Bus"))
    //     {
    //         Debug.Log("Entered!");
    //         if(Input.GetKey(KeyCode.Space))
    //         {
    //         Debug.Log("Space Pressed!");
    //             Destroy(student);
    //         }

    //     }
    // }
}
```

mainMenuButtonScript.cs

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

public class mainMenuButtonScript : MonoBehaviour
{
    public AudioSource audioSound;
    void Start()
    {
        audioSound = GetComponent<AudioSource>();
        audioSound.Play();
    }
    public void LoadLevel_1()
    {
        SceneManager.LoadScene("Main_Scene");
        audioSound.mute = true;
    }
    public void QuitGame()
    {
        Application.Quit();
    }
}
```

soundControllerScript.cs

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

public class soundControllerScript : MonoBehaviour
{
    public GameObject mute,unmute;

    private bool muteFlag = false;
    void Start()
    {
        if(muteFlag)
        {
            mute.SetActive(false);
            unmute.SetActive(true);
            AudioListener.volume = 0;
        }
        else
        {
            mute.SetActive(true);
            unmute.SetActive(false);
            AudioListener.volume = 1;
        }
    }

    // Update is called once per frame
    public void muteGame()
    {
        mute.SetActive(false);
        unmute.SetActive(true);
        AudioListener.volume = 0;
        muteFlag = false;
    }
    public void unmuteGame()
    {
        muteFlag = true;
        mute.SetActive(true);
        unmute.SetActive(false);
        AudioListener.volume = 1;
    }
}
```

trafficScript.cs

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

```
public class trafficScript : MonoBehaviour
{
    // Start is called before the first frame update
    void Start()
    {

    }

    // Update is called once per frame
    void Update()
    {
        transform.Translate(-0.3f,0,0);
        Vector3 trafficPosition = transform.position;
        if(trafficPosition.x < -2170)
        {
            trafficPosition.x = -1325;
            transform.position = trafficPosition;
        }
    }
}
```