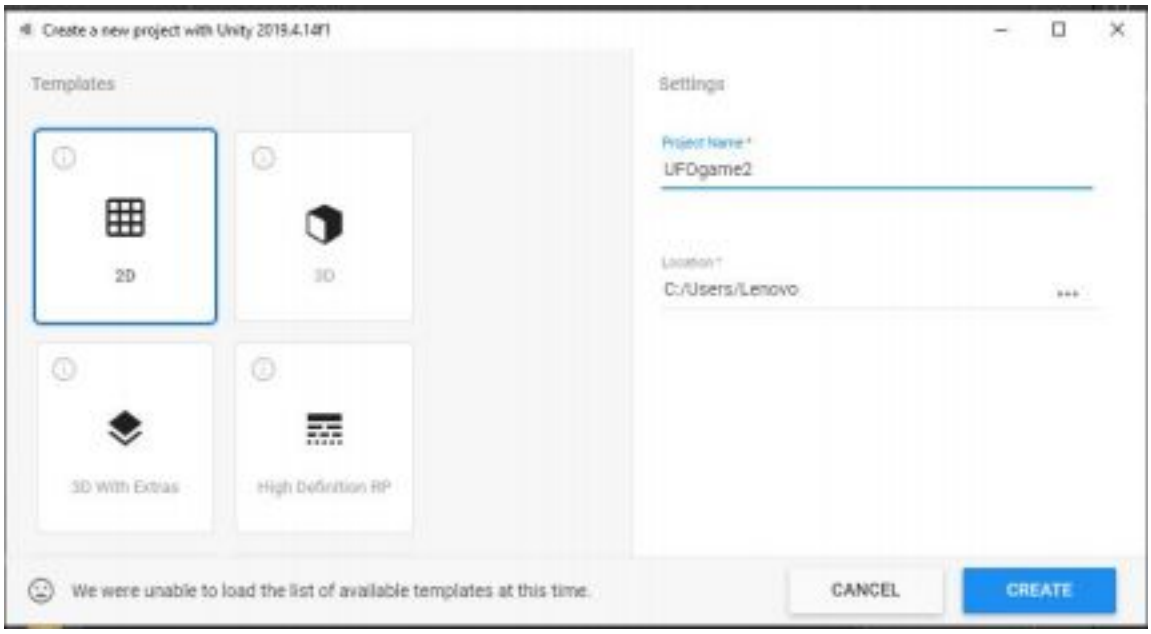
Practical 6:

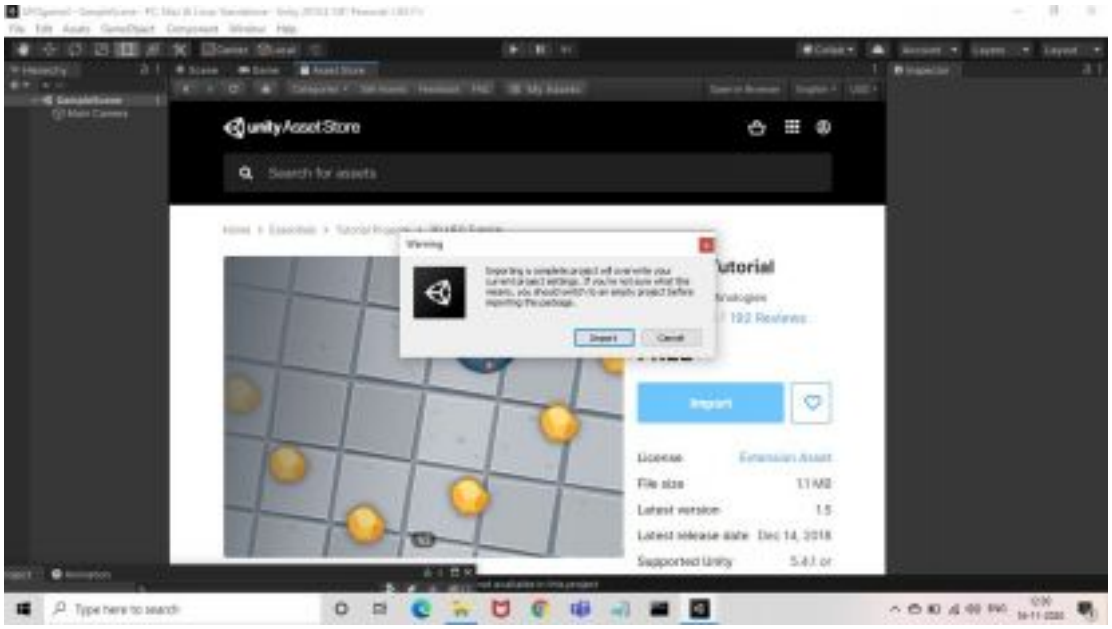
Aim:Using unity Create 2D UFO game by downloading asset from asset store

Codes:

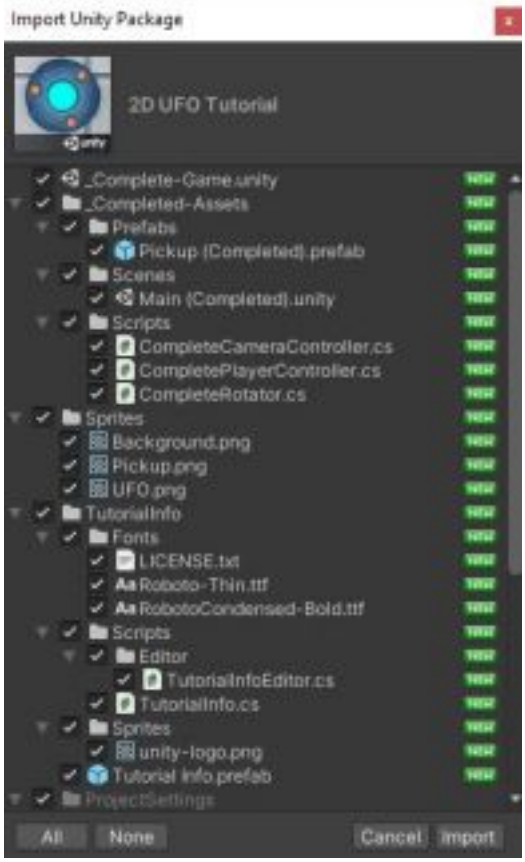
1)After logging in:Select 2D template Give project name click project.



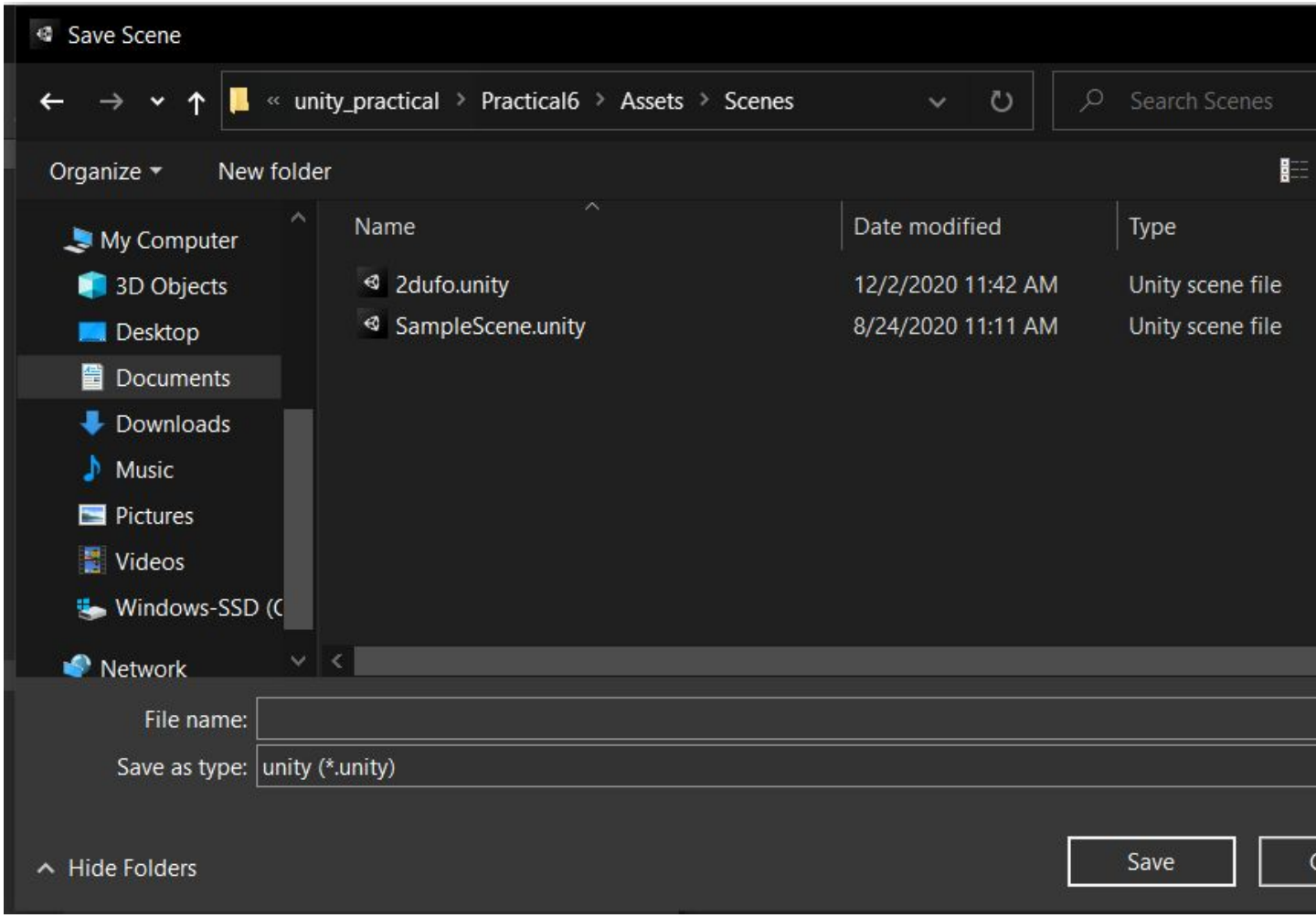
2)To add UFO assets:Windows-general-asset store or Window-asset store.



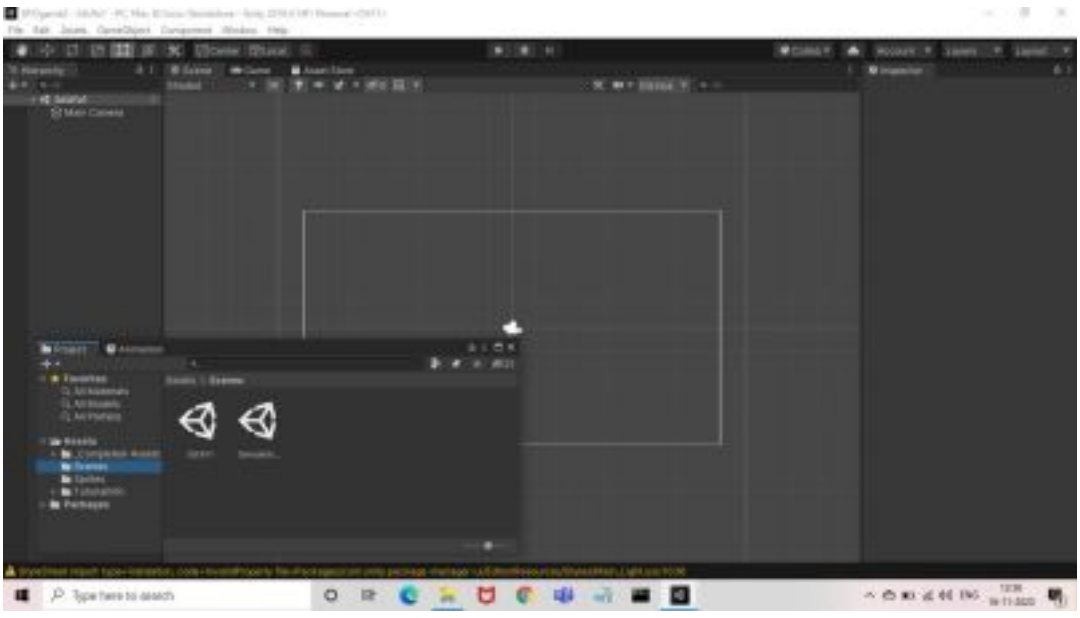
3)Search and download “2d ufo tutorial” on the search bar of the asset store. Download and import the following asset-> select all the checkboxes



4)After that save the scene-File-saveSceneAs-asset Folder-Name(2dufo)



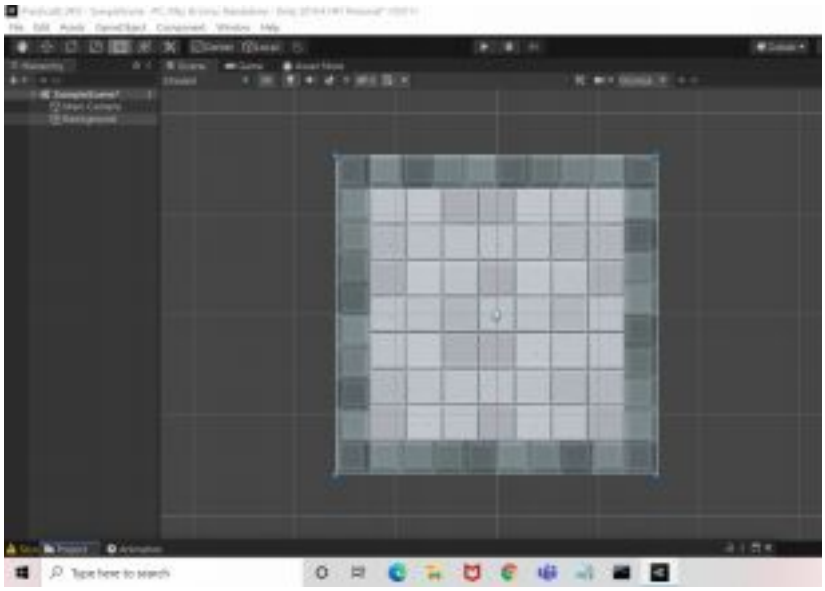
We can see our scene in the scene folder at bottom



<u>Step 2:Setting the field</u>

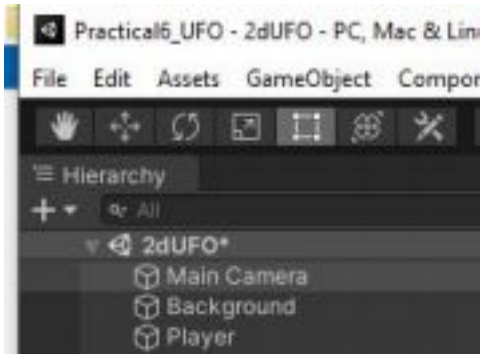
1)Add background:

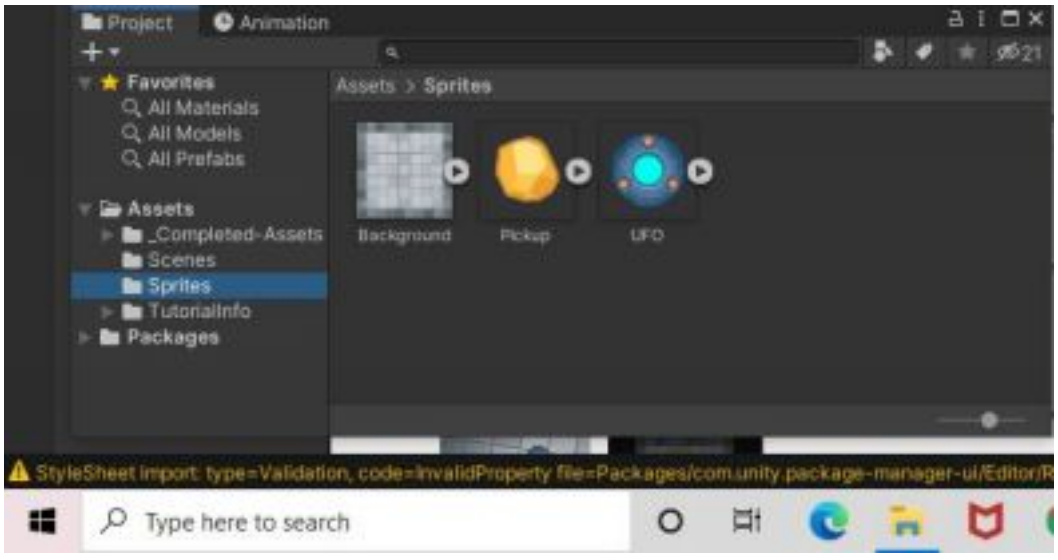
Goto Bottom Assets-sprite folder-Drag the background image-to the

hierarchy. 

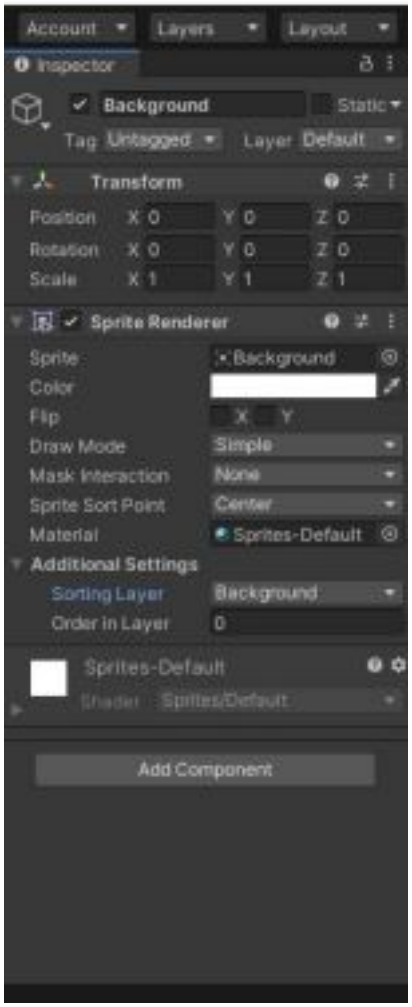
2)Press f and turn off gridlines from gizmos->(uncheck “show gridlines”)if option visible

3)Drag and drop ufo image from sprite folder to hierarchy.

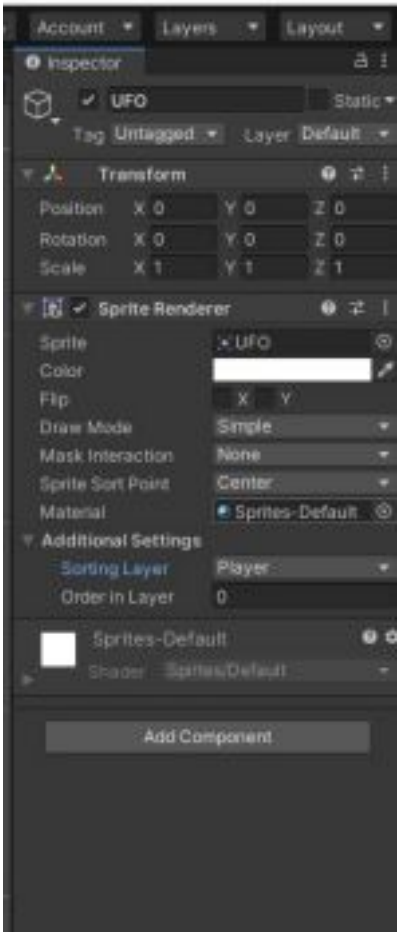




4)Select background-Inspector Sprite Render sorting layer-select background

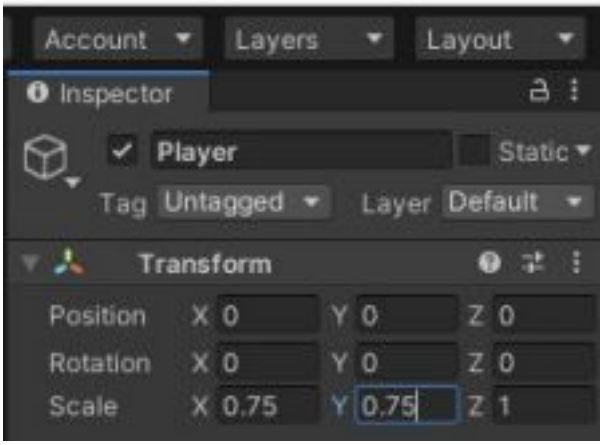


5)Select UFO-Inspector Sprite Render sorting layer-select Player



6)Select player and set scale values to

0.75,0.75,1

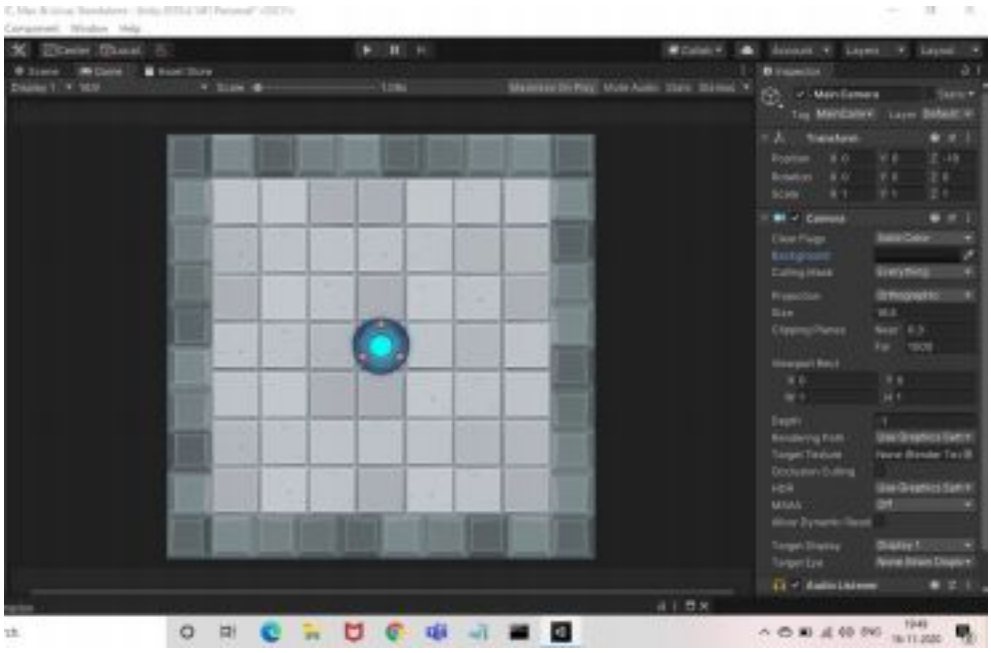


7)Setting up the camera

Select main camera-select projection=orthographic(The object will not appear larger or

smaller)

Switch to Game Mode and set size=16.5.

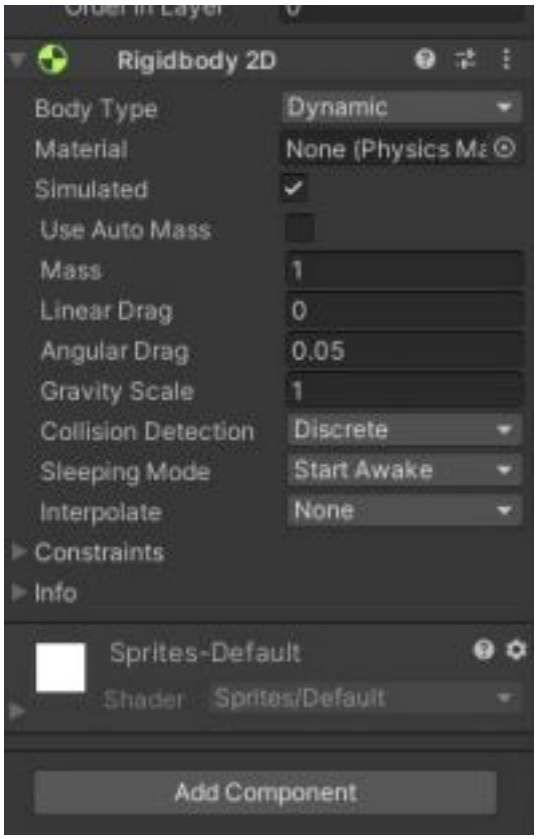


9)Select background color and put values

<u>Step 3: Controlling the player</u>

Click on ufo and add component:

- **Click 2d physics**
- **Click on rigidbody2D**
- **Then you see in inspector rigidbody box created**



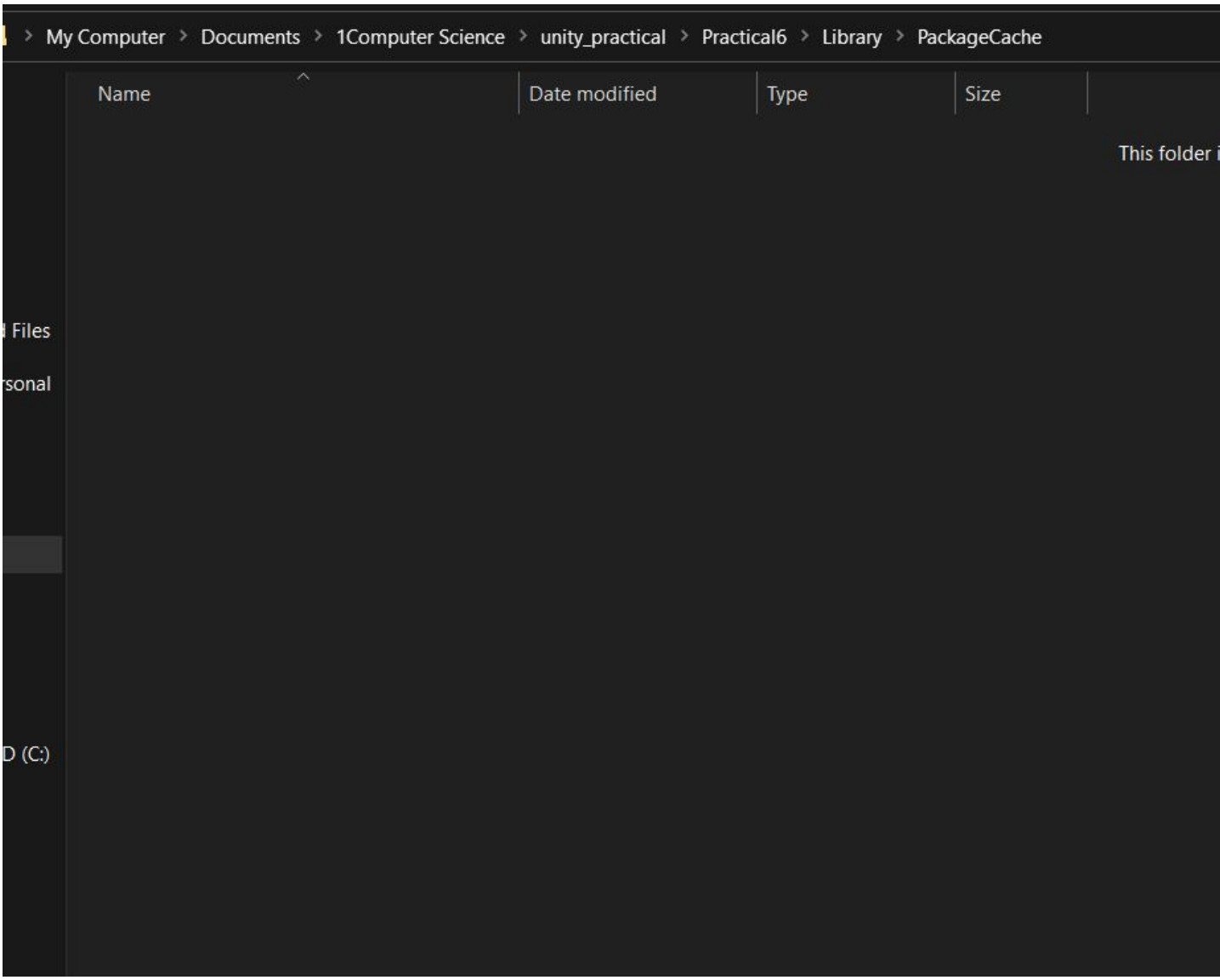
- **Click on add component and add new script**
- **Name the new script PlayerController**

- **Open the script**
- **Write full code in it:**

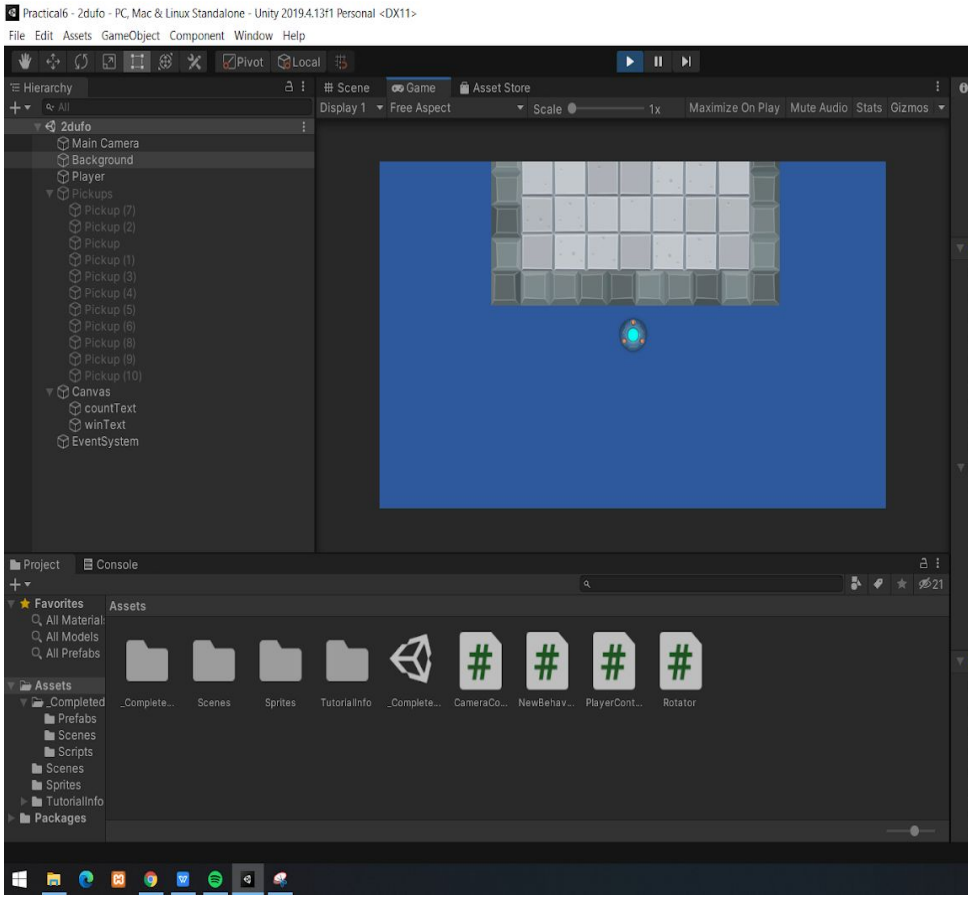
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;
using UnityEngine.UI;
```

```
public class PlayerController : MonoBehaviour
{
        private Rigidbody2D rbd;

        void Start()
  {
        rbd = GetComponent<Rigidbody2D>();
  }


        void FixedUpdate()
  {
    float moveHorizontal = Input.GetAxis("Horizontal");
    float moveVertical = Input.GetAxis("Vertical");
    Vector2 movement = new Vector2(moveHorizontal, moveVertical);
    rbd.AddForce(movement );


  }
```

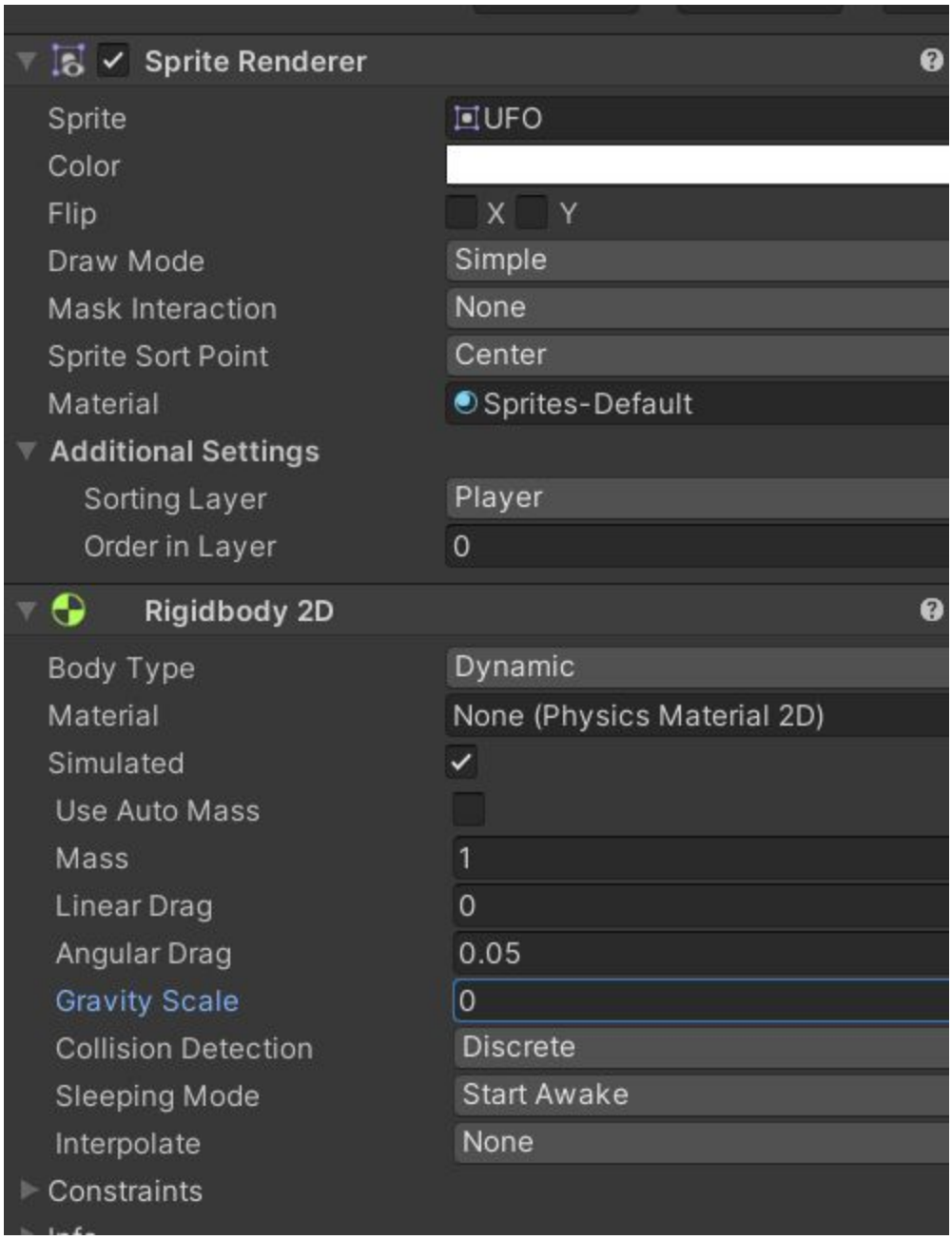
- **We will get error of inconsistent line ending:For this go to->users->Practical6_UFO->library->package cache->delete all files of folder**



- **Test the game**
- **Then your UFO fall down because of gravity scale**



- **Click UFO-go to rigidbody2D and gravity scale 1 to change 0.**



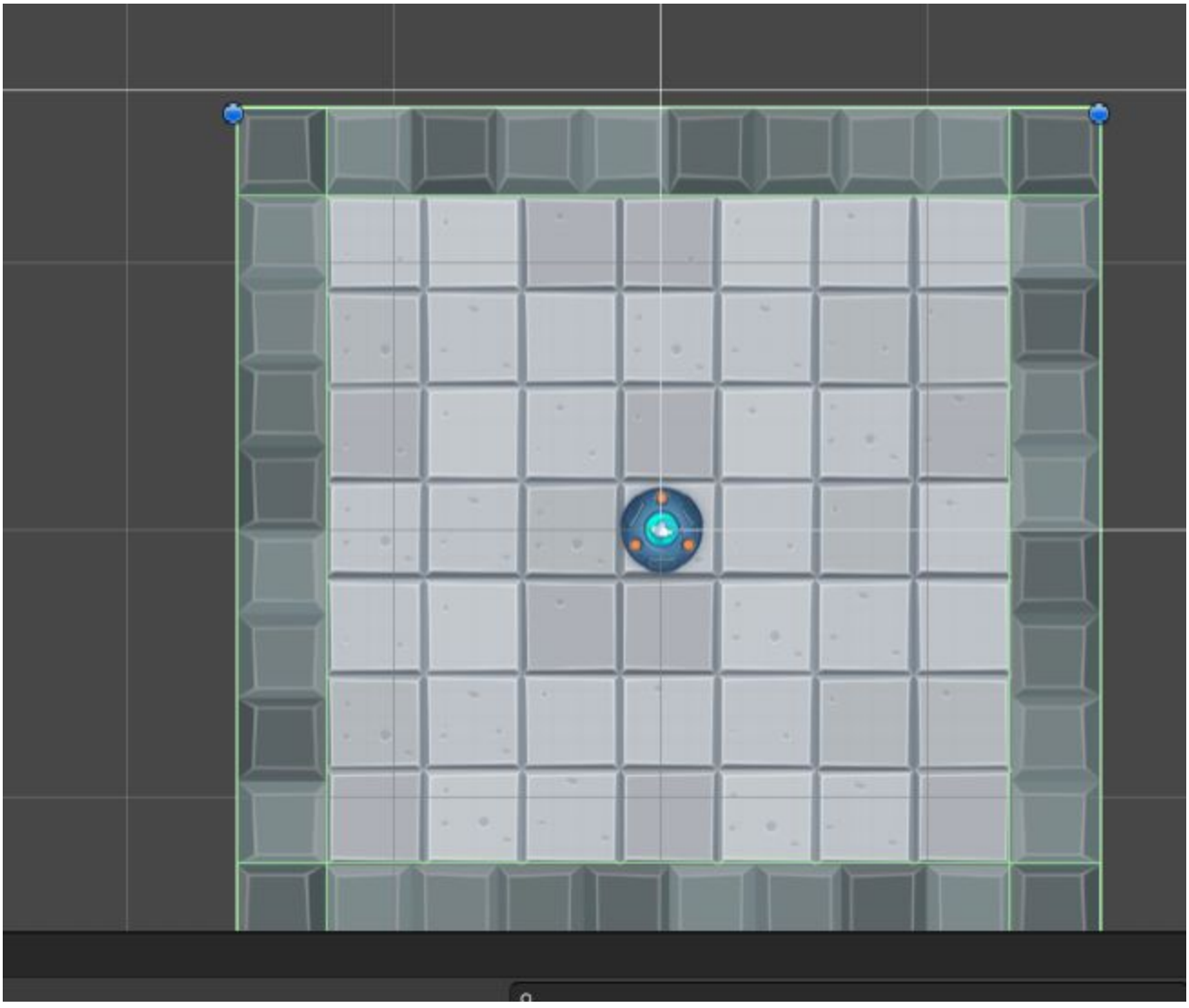
- **Test the game**
    - **Now we see the ufo speed is very slow we add two lines to our player controller script:**

      public float speed;
      rbd.AddForce(movement * speed);
- **Go to the inspector and see your rigidbody 2d is updated with a speed parameter enter value 10 here for speed:**

Test The game:The ufo leaves background and goes outside

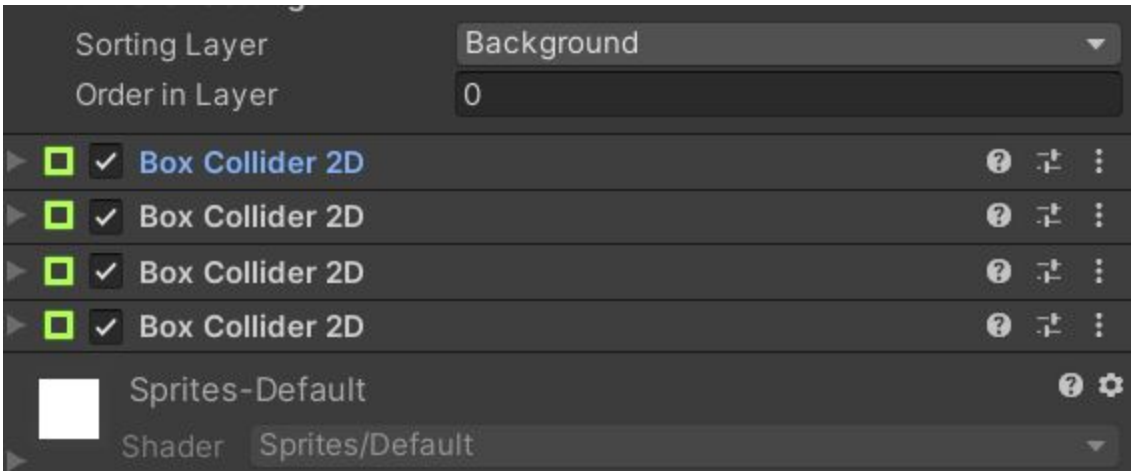
<u>Step4: Adding Collision</u>

- **Click on ufo**
- **Go to add component and type circle collider**
- **Set the radius for the ufo collider=2.15**

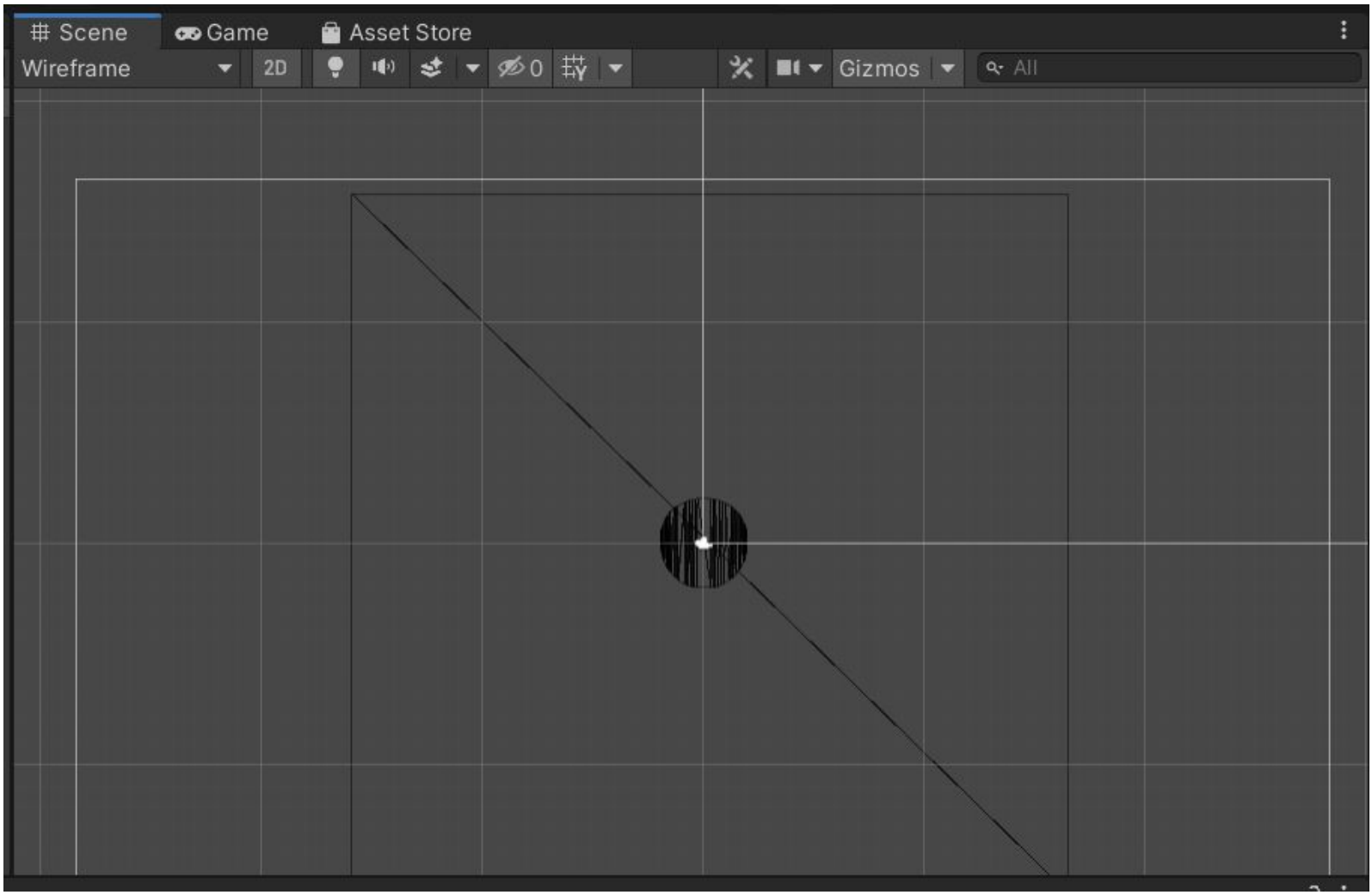


- **Click Background**

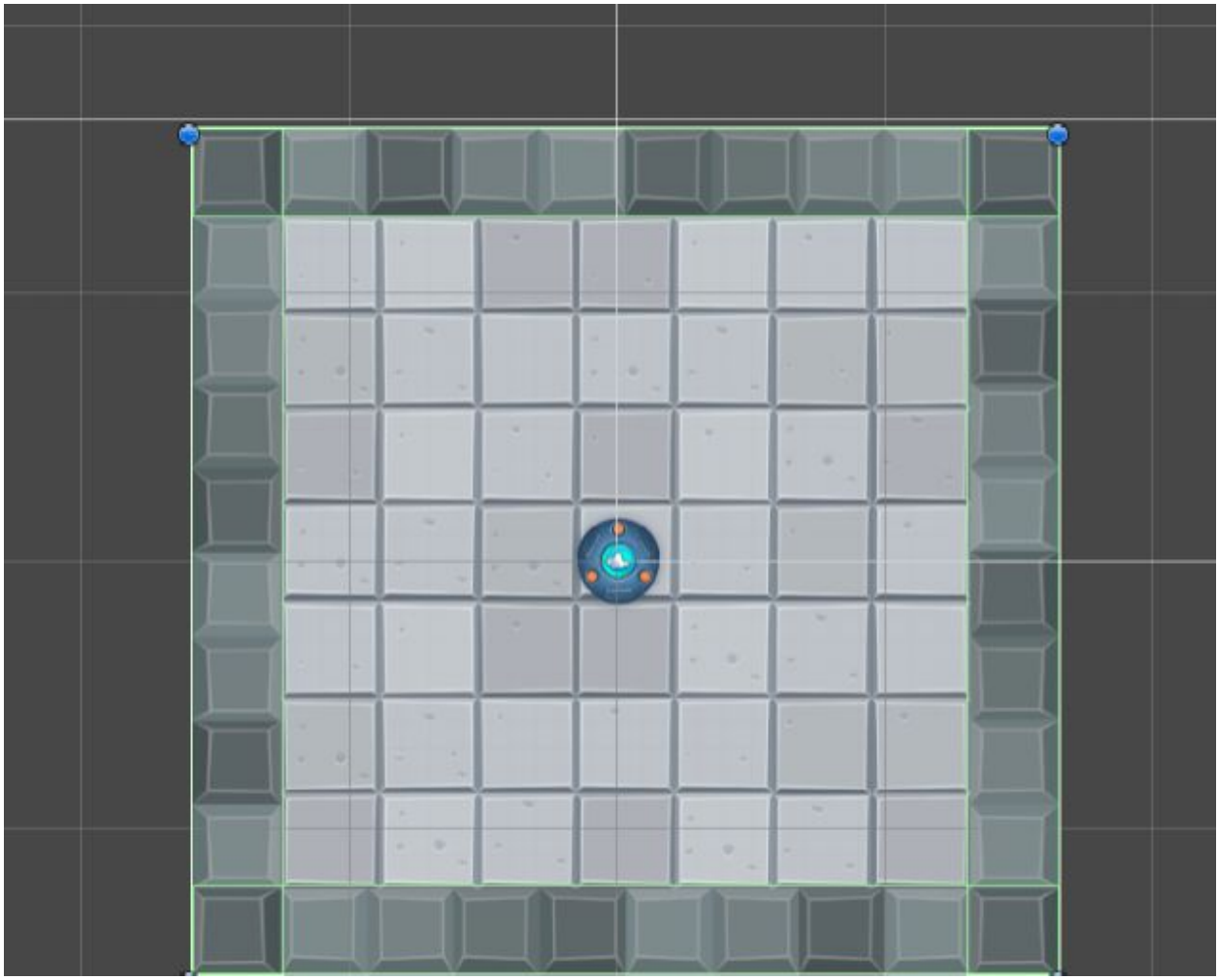
- **Go to add component and go to 2d physics and choose box Collider**
- **Then we set x axis offset size,y axis offset size also size of x and y axis in the box collider:**
- **Then copy that component and paste component(total 4 collider we need)**
- **Set values of x and y for offset size for remaining colliders**



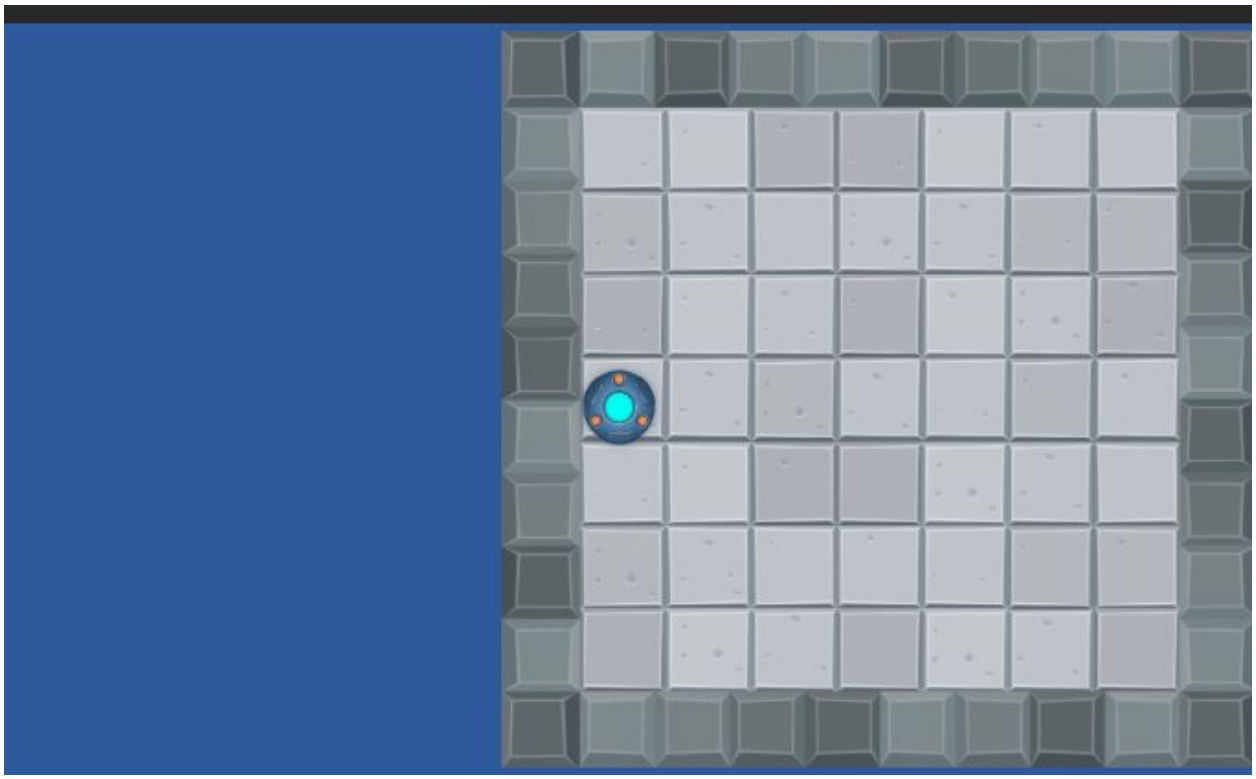
- **Scene:Shaded selected from Drop down-Select Wireframe now the shading mode is wireframe**



- **After this we get this kind of box colliders in scene:**



- **Now the ufo collides with the boundaries and doesn't go outside**



- **<u>Step 5:Following the player with camera:</u>**

    - **That is simple for camera**
    - **We need to create script for the camera control**
    - **Click on the camera-addcomponent-new Script-Name(Camera Control)**
    - **Open the Script**
    - **Write the foll code:**

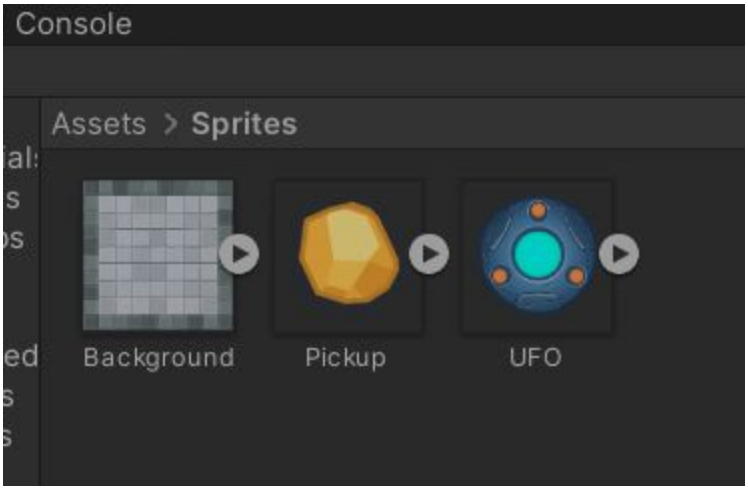
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class CameraController : MonoBehaviour
{
    public GameObject player;
    private Vector3 offset;
    // Start is called before the first frame update
    void Start()
    {
        offset = transform.position - player.transform.position;

    }

    // Update is called once per frame
```

```
    void LateUpdate()
    {
        transform.position = player.transform.position + offset
    }
}
```

- **Click on camera-drag the player object into the player field of camera**

Step 6: Creating a collectables objects

- **Deactivate the player object by unchecking the player checkbox**
- **Scene:wireframe selected from Drop down-Select shaded now the shading mode is shaded**
- **Asset-Sprite-Pickup-Drag and drop to hierarchy**



- **Set the Sorting layer to pickup**
- **Then go to add component and add again circle collider box for our pick objects**
- **Set radius=0.94**
- **We need to rotate our object or animate,then create a new script**
- **Click pickup-add component-new Script Rotator**

- **Write the foll code in the file:**

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

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

    }
```

```
    // Update is called once per frame
    void Update()
    {
        transform.Rotate(new Vector3(0, 0, 45) * Time.deltaTime);

    }
}
```

- **Test it: The pickup rotates**

- **Pickup the object from hierarchy and drag into the prefabs**

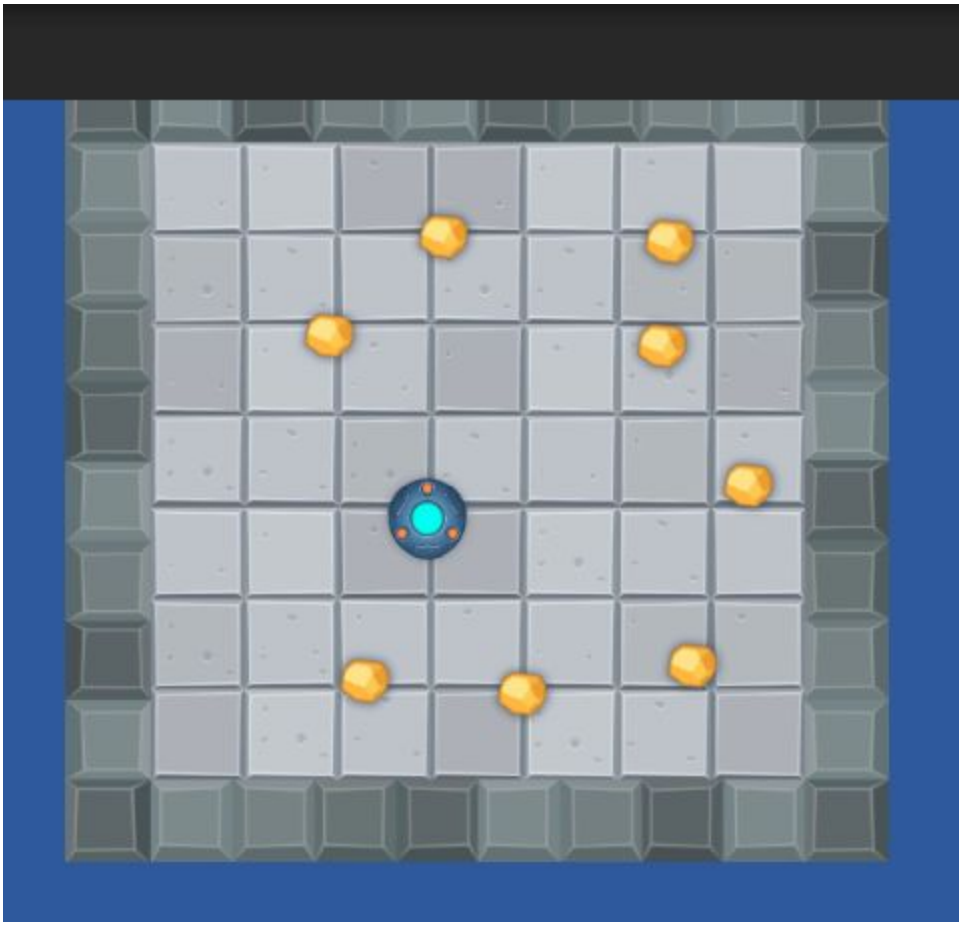
- **Create a game object:click on Create-Create empty-game Object is created**
- **Rename it to Pickups..**
- **Select Pickups-see the value of transform is 0,0,0.**
- **If not click on mark setting button and click reset**
- **Drag 1st pickup in new game object..**
- **Goto scene mode and reposition the pickup by dragging to new position**
- **Select pickup-right click-Go to edit and duplicate it**
- **Reposition all these pickups**
- **Set the tag for pickup..click on prefab**
- **Highlight the pickup**
- **See inspector - Set tag = pickup**
- **Then automatically all the tags of all pickups would be set to pickup**
- **If not then set the tags for each pickup manually**
- **Select player object in hierarchy-Inspector-activate the player by checking the player checkbox..Test the Game:The UFO collides with the pickups..**

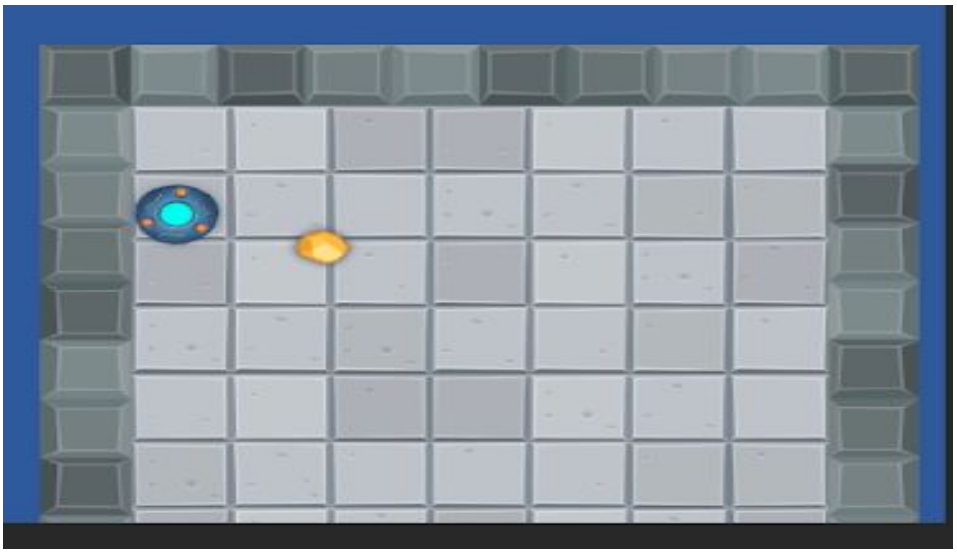
<u>Step 7:Picking the Collectable objects:</u>

- **Write this code in the playercontroller script:**

```
void OnTriggerEnter2D(Collider2D other)
    {
        if (other.tag == "PickUp")
        {
            other.gameObject.SetActive(false);
        }
}
```

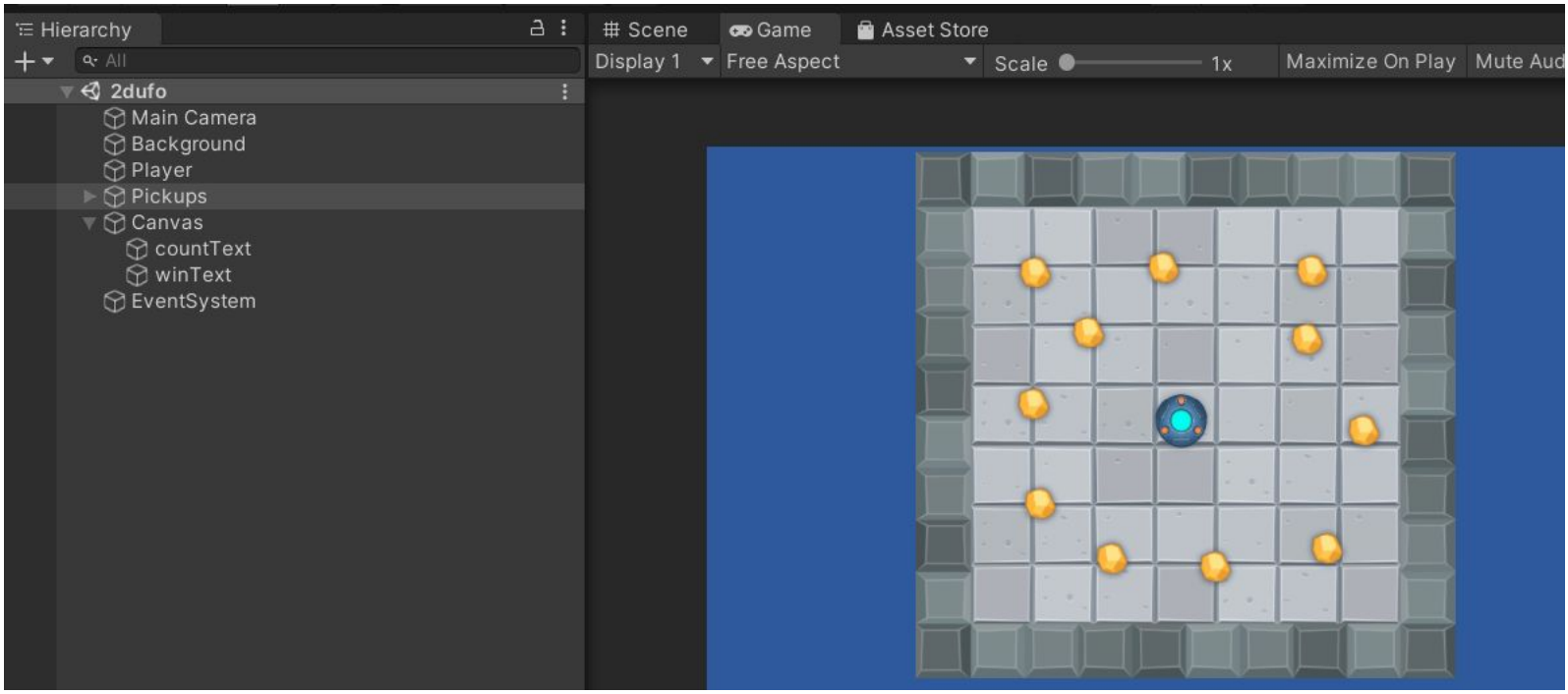
- **Click on prefab-pickup-2d collider-select isTrigger checkbox should be checked**
- **Test it: Now the UFO picks up the pickup objects**





Step 8:Displaying the score

- **Select '+' in hierarchy-UI-Text to create first countText**
- **Rename it to Countext set its text value as context**
- **Reposition the text in scene mode or by setting the values numerically**
- **Create another Text in similar way name it to winText set its Text value as "winText" and also position it in scene mode or numerically above our ufo**

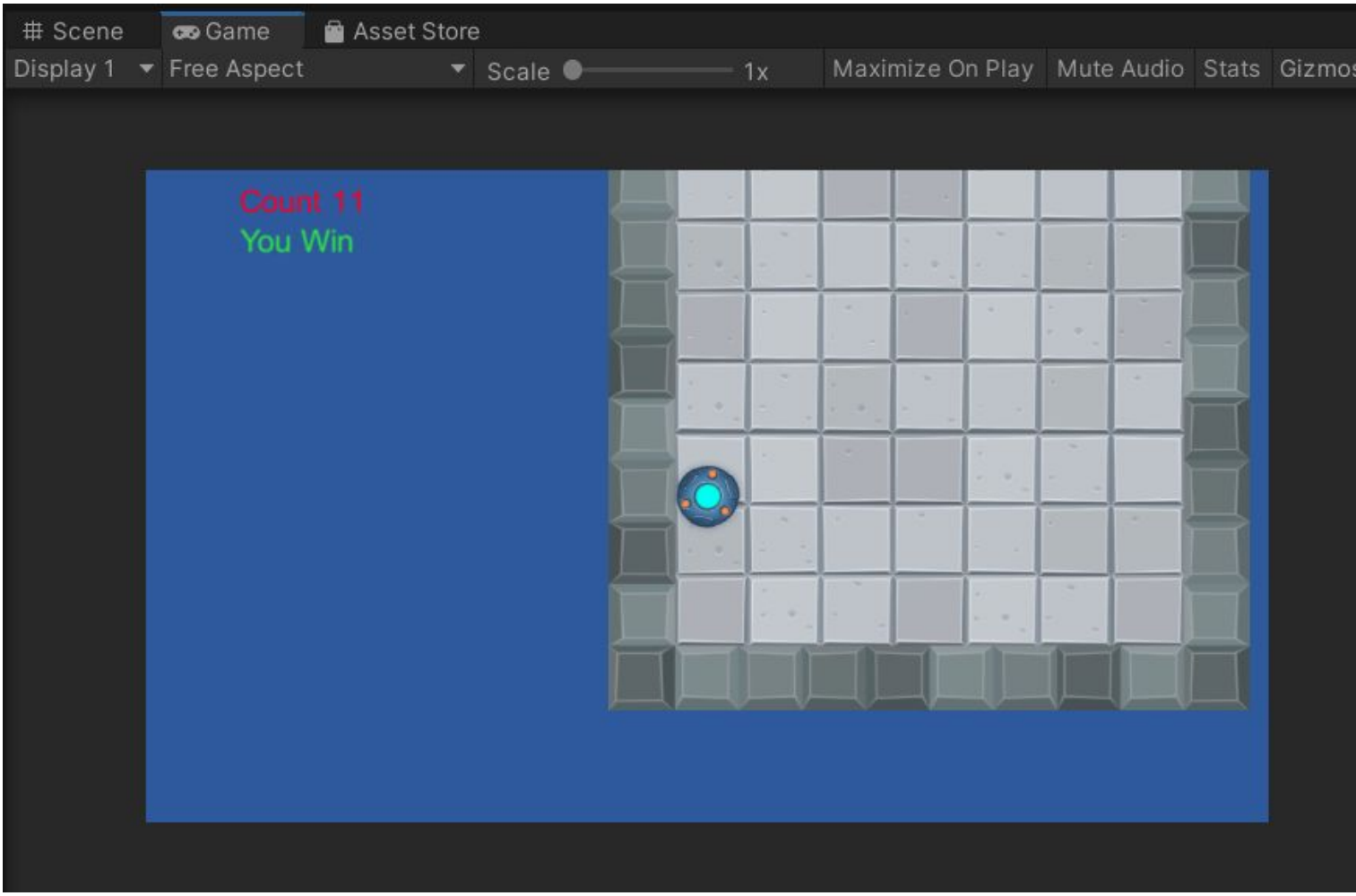


- **Edit the player script as follows:**

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

public class PlayerController : MonoBehaviour
{
 public Text winText;
 public Text countText;
 public int count=0;
 private Rigidbody2D rbd;
 public float speed;
 // Start is called before the first frame update
 void Start()
 {


 rbd = GetComponent<Rigidbody2D>();


 }

 // Update is called once per frame
```

```
 void FixedUpdate()
 {
 float moveHorizontal = Input.GetAxis("Horizontal");
float moveVertical = Input.GetAxis("Vertical");
 Vector2 movement = new Vector2(moveHorizontal, moveVertical);
rbd.AddForce(movement * speed);


 }

 void OnTriggerEnter2D(Collider2D other)
 {
 if (other.tag == "PickUp")
 {
 other.gameObject.SetActive(false);
 count++;
 SetCountText();

 }
 }
 void SetCountText()
 {

 countText.text = "Count" + count.ToString();
 if (count == 11)
 {
 winText.text = "You Win";
 }
 }


}
```

● Goto Unity-Select Player then drag Countext from the hierarchy into the Countext field and wintext from the hierarchy into the field for winText:
Now Test the game:


Scene
Game
Asset Store
Display 1
Free Aspect
Scale
1x
Maximize On Play
Mute Audio
Stats
Gizmos
Count 11
You Win