CUBE RUNNER

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AIM: *The following is a writeup for Cube Runner game.*

ABOUT THE GAME:

Cube Runner is a fun to play fast moving cube block runner that runs automatically forward and your goal is to quickly dodge the obstacles. As you rush through a level, you need to avoid obstacles and collect coins to get the highest score.

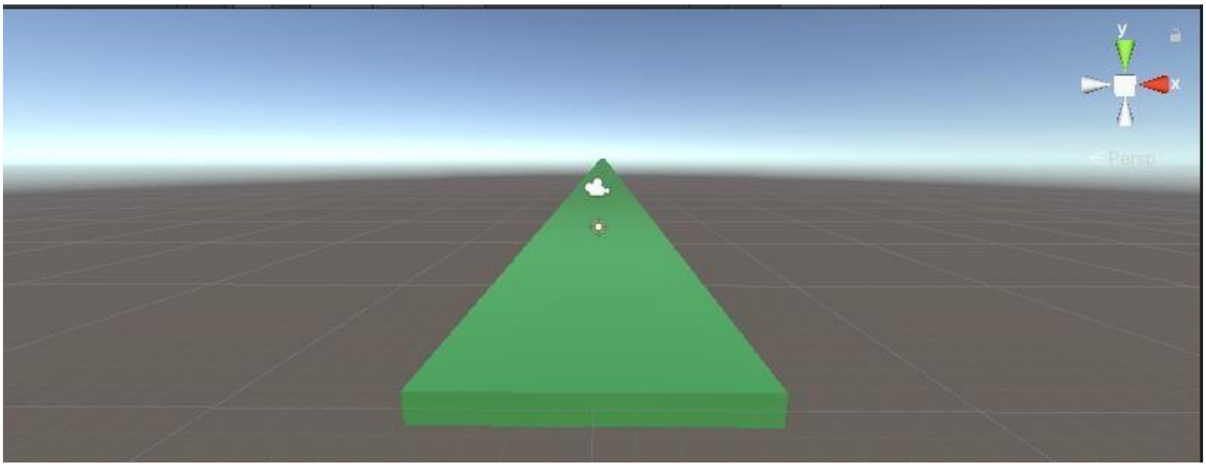
PLATFORM ON WHICH GAME IS CREATED:

- *Unity is a cross-platform game engine developed by Unity Technologies*
- *It is considered easy to use for beginner developers and is popular for indie game development*
- *Engine has been adopted by industries outside video gaming, such as film, automotive, architecture, engineering, construction, and the United States Armed Forces.*
- *Unity was initially released for Mac OS X, later adding support for Microsoft Windows and Web browsers.*

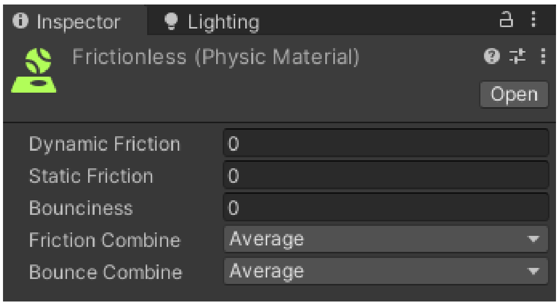
STEPS TO CREATE CUBE RUNNER GAME:

1. *For the ground create a cube and adjust its dimensions as showed in below figure andrename the cube as Ground.*
2. *Then add Box collider component on the ground as shown below*

3. *Create a material for the ground and apply it to the ground.*

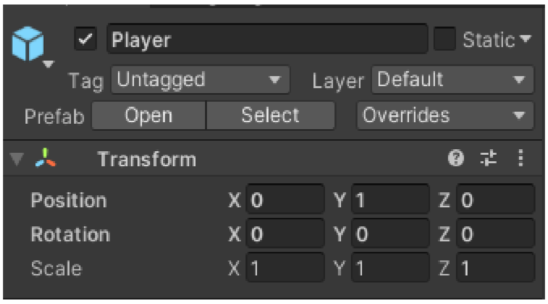


4. *Then create a physics material for the ground with all the friction values set to 0.*
5. *Now it's about time we create a Player, so for the player create a Cube and adjust its dimensions as below and rename the cube as Player.*



Frictionless (Physic Material)

Dynamic Friction	0
Static Friction	0
Bounciness	0
Friction Combine	Average
Bounce Combine	Average



☑ Player

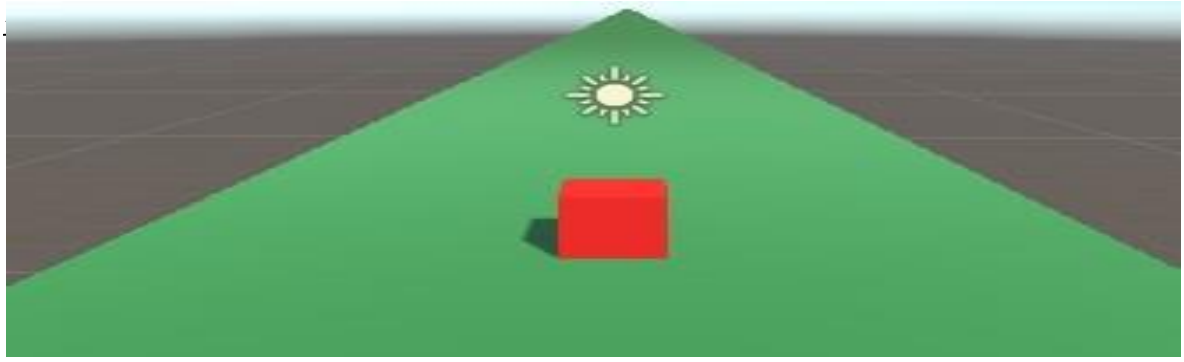
Tag Untagged Layer Default

Prefab

Transform

Position	X	0	Y	1	Z	0
Rotation	X	0	Y	0	Z	0
Scale	X	1	Y	1	Z	1

6. *Create a material for the Player and apply that material to player*

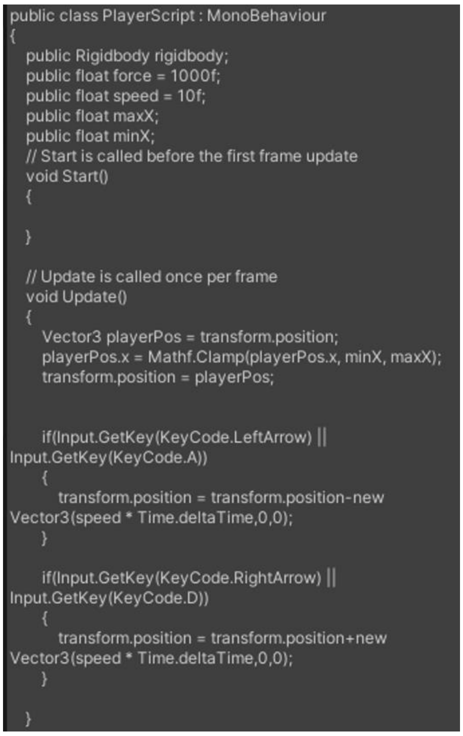


7. *After creating the player apply physics components to it*
   A)Box Collider. B) Rigidbody (3D).

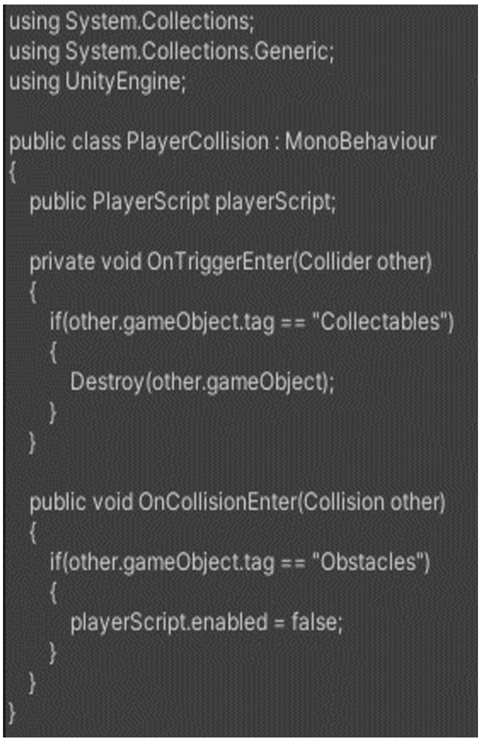
8. *Now create and apply two Scripts for the player object behaviour and name them as below:*

a. PlayerScript.
b. PlayerCollision.

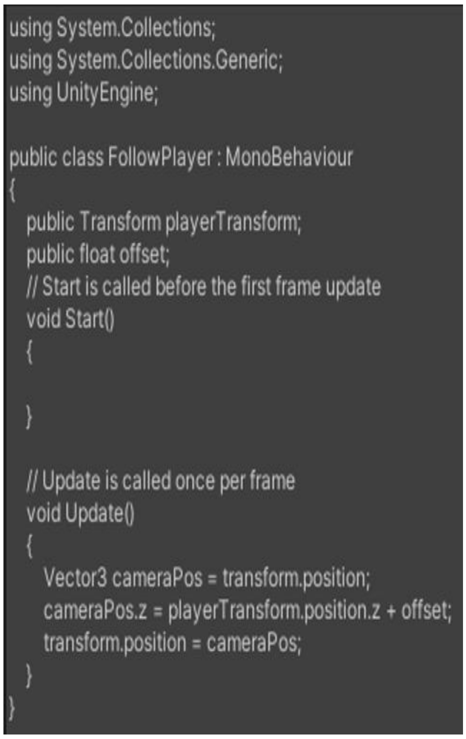
After this create another script named (FollowPlayer) for the scene camera to follow theplayer in the screen.



```
public class PlayerScript : MonoBehaviour
{
   public Rigidbody rigidbody;
   public float force = 1000f;
   public float speed = 10f;
   public float maxX;
   public float minX;
   // Start is called before the first frame update
   void Start()
   {

   }

   // Update is called once per frame
   void Update()
   {
      Vector3 playerPos = transform.position;
      playerPos.x = Mathf.Clamp(playerPos.x, minX, maxX);
      transform.position = playerPos;


      if(Input.GetKey(KeyCode.LeftArrow) ||
Input.GetKey(KeyCode.A))
      {
         transform.position = transform.position-new
Vector3(speed * Time.deltaTime,0,0);
      }

      if(Input.GetKey(KeyCode.RightArrow) ||
Input.GetKey(KeyCode.D))
      {
         transform.position = transform.position+new
Vector3(speed * Time.deltaTime,0,0);
      }

   }
```

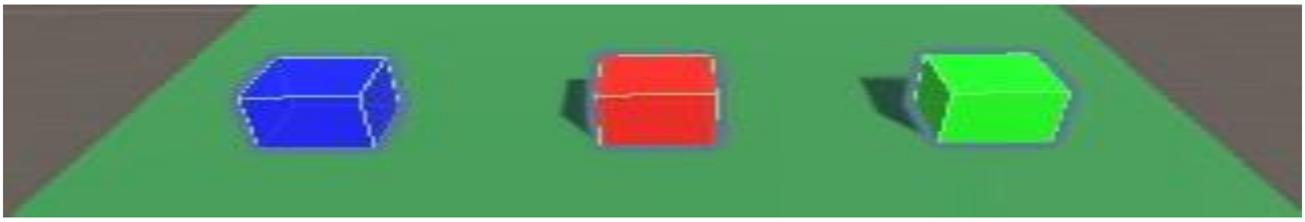


```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class PlayerCollision : MonoBehaviour
{
   public PlayerScript playerScript;

   private void OnTriggerEnter(Collider other)
   {
      if(other.gameObject.tag == "Collectables")
      {
         Destroy(other.gameObject);
      }
   }

   public void OnCollisionEnter(Collision other)
   {
      if(other.gameObject.tag == "Obstacles")
      {
         playerScript.enabled = false;
      }
   }
}
```



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

public class FollowPlayer : MonoBehaviour
{
   public Transform playerTransform;
   public float offset;
   // Start is called before the first frame update
   void Start()
   {

   }

   // Update is called once per frame
   void Update()
   {
      Vector3 cameraPos = transform.position;
      cameraPos.z = playerTransform.position.z + offset;
      transform.position = cameraPos;
   }
}
```

10. Now Create cubes as shown below with materials applied to it.



11.Now Apply the physics component to these cubes:

a. Box Collider
b. Rigid body

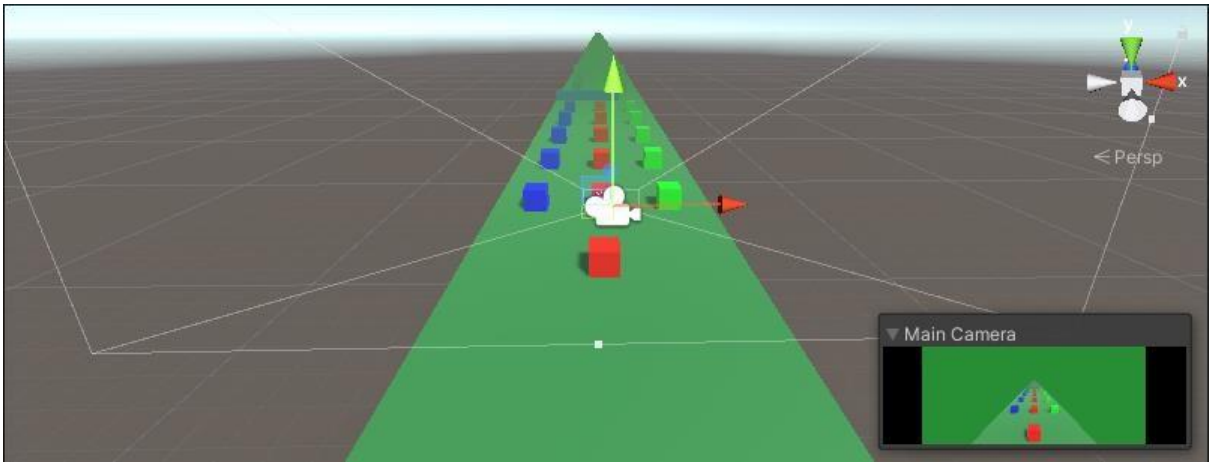
12) Now Create two tags namely (Obstacle) and (Collectable).

1. *Apply Obstacle tag to the cubes which have colour other than the player's colour.*
2. *Apply Collectable tag to the cubes which are having the same colour as player.*
3. *Now Create a prefab of every gameobject in the hierarchy by simply creating a new folder inAssets named (Prefabs) and then drag every object from the hierarchy to this folder.*
4. *Then just drag and drop the cubes in the scene to create a bunch of cubes on the ground.*

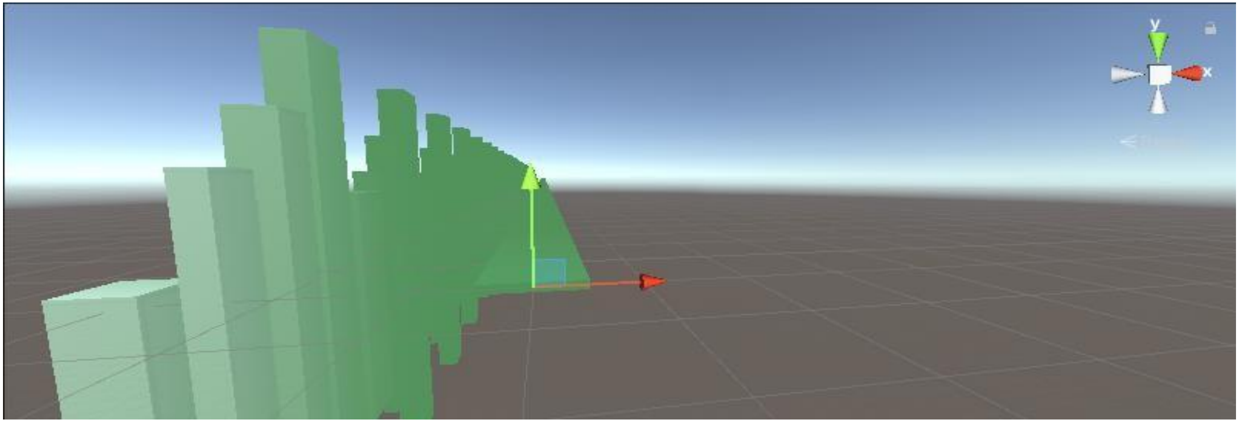
Now Organize the files and folders in assets, create the following folders in the asset:

   a. *Materials*
   b. *Physics Material*
   c. *Scenes*
   d. *Scripts*

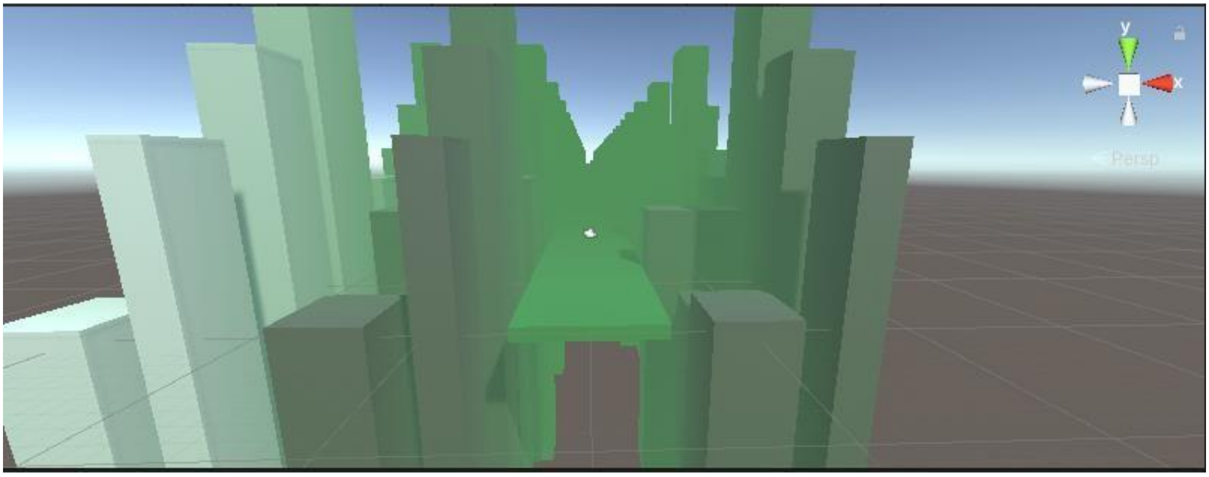
2. *Now keep the respective files in respective folders.*
3. *Adjust the main camera in the scene.*



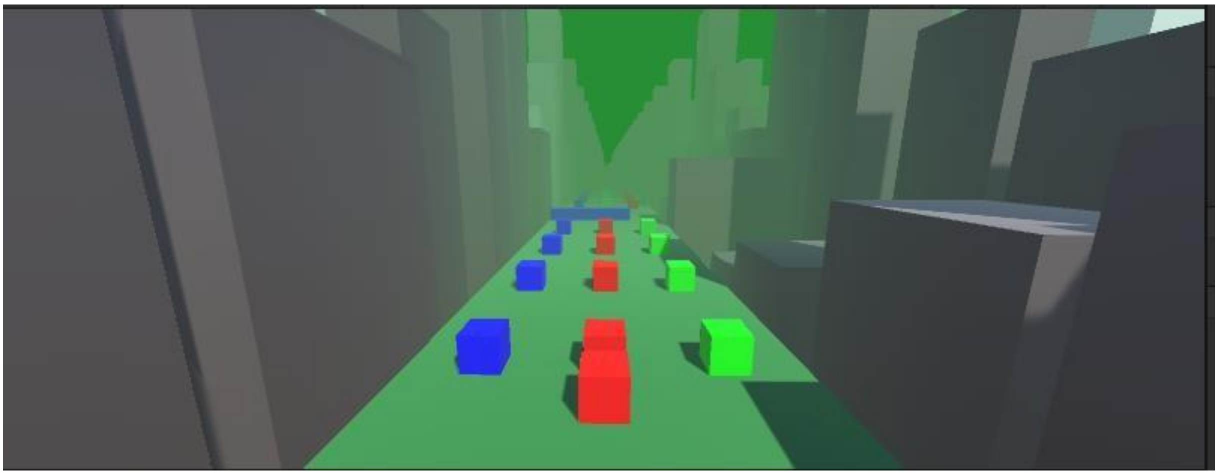
Now create random sized cubes on both sides of the ground platform. Apply any materialyou want.



Create a dozen of cubes and the select all of them and duplicate them as many times as you see fit. Do this to both the sides.



Last step is just tap play button.



Conclusion*: With the help of Unity Game Engine, we were able to create Cube Runne*