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CLASS: FYMCA-B

SUBJECT: AR-VR

ROLLNO: 30

Assignment-5

**Assignment Title -** Develop a scene in Unity that includes a cube, plane and sphere. Create a new material and texture separately for three Game objects. Change the colour, material and texture of each Game object separately in the scene. Write a C# program in visual studio to change the colour and material/texture of the game objects dynamically on button click.

**Solution-**

create a simple Unity scene with a sphere and a plane, apply rigid body components and materials to them, and then write a C# script to grab and throw the sphere using a VR controller.

Step 1: Setting up the Scene

* Open Unity and create a new 3D project.
* Create a sphere and a plane:
* Right-click in the Hierarchy panel.
* Choose "3D Object" > "Sphere" to create a sphere.
* Choose "3D Object" > "Plane" to create a plane.
* Position the objects as desired.

Step 2: Add Components

* Select the sphere GameObject in the Hierarchy.
* Add a Rigidbody component:
* Click "Add Component" in the Inspector panel.
* Search for "Rigidbody" and add it.
* Add a Box Collider to the sphere:
* Click "Add Component".
* Search for "Box Collider" and add it.
* Repeat steps 1-3 for the plane.

Step 3: Apply Materials

* Create materials for the sphere and the plane:
* Right-click in the Project panel.
* Choose "Create" > "Material".
* Name the materials appropriately .
* Select the materials and adjust their properties as desired .
* Drag the materials onto their respective GameObjects in the Scene or the Inspector panel.

Step 4: Write C# Script

Create a new C# script named SphereController:

using UnityEngine;

public class SphereController : MonoBehaviour

{

    private bool isGrabbed = false;

    private Transform controllerTransform;

    private Rigidbody rb;

    private void OnTriggerEnter(Collider other)

    {

        if (other.CompareTag("VRController"))

        {

            isGrabbed = true;

            controllerTransform = other.transform;

            rb = GetComponent<Rigidbody>();

            rb.useGravity = false;

            rb.isKinematic = true;

        }

    }

    private void OnTriggerExit(Collider other)

    {

        if (other.CompareTag("VRController"))

        {

            isGrabbed = false;

            rb.useGravity = true;

            rb.isKinematic = false;

        }

    }

    private void Update()

    {

        if (isGrabbed)

        {

            transform.position = controllerTransform.position;

        }

        if (isGrabbed && Input.GetMouseButtonUp(0))

        {

            rb.isKinematic = false;

            rb.useGravity = true;

            rb.velocity = (transform.position - controllerTransform.position) \* 5f;

            isGrabbed = false;

        }

    }

}

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