

Touch Detection Activity

The aim of this activity is to learn how we can detect touches on our screen for when we create mobile games for touch phones.

In this activity, we will create a 3D object (a ball) which will change color to a random color when it is touched. We will create the game to be built for an Android device, so first you need to make sure the Android SDK is installed, then, follow the steps below:

1. Open a new Unity 3D project.
2. Create a new 3D object, in this activity we created a sphere to represent a ball.
3. Create a new C# script name it ColorChanger.
4. Attach the script to the main camera.
5. Open your script and let's start with the code below

```
void Update()
{
    if(Input.touchCount > 0 && Input.touches[0].phase == TouchPhase.Began)
    {
        Ray ray = Camera.main.ScreenPointToRay(Input.touches[0].position);
        RaycastHit hit;
        if(Physics.Raycast(ray, out hit))
        {
            if(hit.collider != null)
            {
                Color newColor = new Color(Random.Range(0.0f, 1.0f),
Random.Range(0.0f, 1.0f), Random.Range(0.0f, 1.0f), 1.0f);
                hit.collider.GetComponent<MeshRenderer>().material.color = newColor;
            }
        }
    }
}
```

Now let us have another look at the code to understand what is going on.

1. We added our lines on code in the Update() method.
2. `if(Input.touchCount > 0 && Input.touches[0].phase == TouchPhase.Began)`

This line acts as an input touch listener and watches out for the number of touches that occur, in our case we want to make sure that it is > 0 which means at least one touch has happened.

3. `Ray ray = Camera.main.ScreenPointToRay(Input.touches[0].position);
RaycastHit hit;`

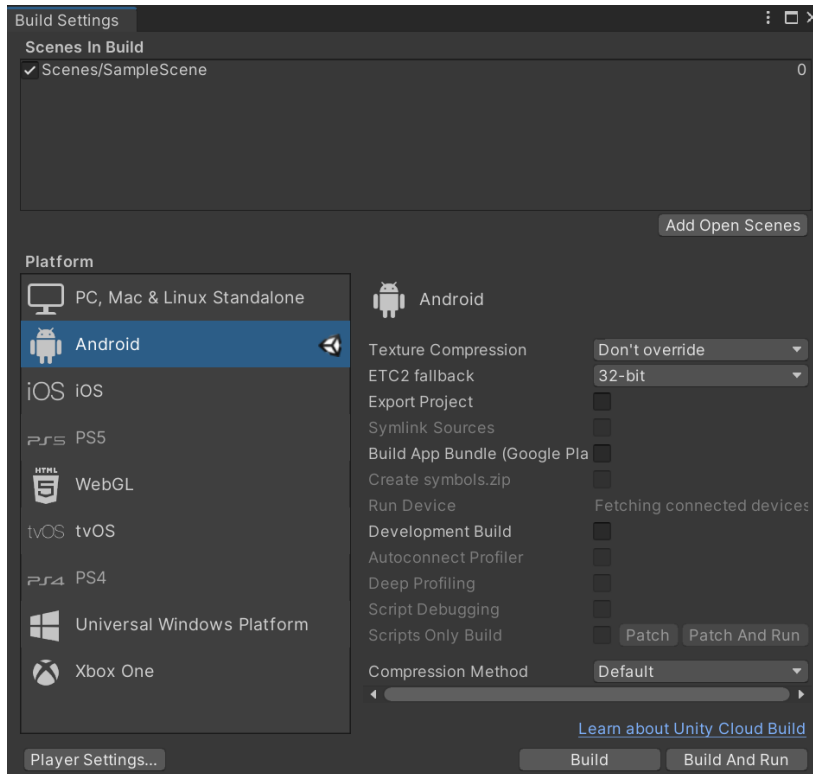
Once our touch has been detected we set out a Ray to catch the detected object.

4.

```
if(Physics.Raycast(ray, out hit))
{
    if(hit.collider != null)
    {
        Color newColor = new Color(Random.Range(0.0f, 1.0f),
Random.Range(0.0f, 1.0f), Random.Range(0.0f, 1.0f), 1.0f);
        hit.collider.GetComponent<MeshRenderer>().material.color =
newColor;
    }
}
```

Once we detected an object, we retrieved the object and performed the action we wanted. In this case, we created a new object from the Color class and used it to change the color of our ball.

Next, Go to file - > Build Settings -> Add Open Scenes -> Build (this will build your project, and you will be able to download the project APK).



1. Copy the build file to your phone (Android).
2. From your phone install the app, and it should be ready to go.