School of Systems Engineering

Help for A Simple World in Unity

Unity is a game engine which can be used to produce virtual worlds. It is fairly intuitive, but as ever for a complex package, there are idiosyncrasies. The best way to learn such a package is to play around, guided by an online tutorial and/or the unity manual.

The manual is at http://docs.unity3d.com/Manual/index.html

The best introductory video I found is https://www.youtube.com/watch?v=G9BdFZ2MCXc
The world shown on the assignment brief is an extension on that generated there.

It tells you about the commands – so how to move around in the world.

It shows you how you create simple 3D objects, reposition them, scale them, rotate them.

FirstPersonViewer is discussed here.

Useful tips

Position any new object at 0,0,0.

When forming an object from different objects, so they are adjacent, defining integer Snap Settings (at the bottom of the Edit command list) and when you reposition them hold the Ctrl-Button as you move the pull arrows – or in the object inspector, manually type in suitable position numbers.

If you are making an object from identical objects, select an object, press Control D and the object is duplicated – you can then move the duplicate one.

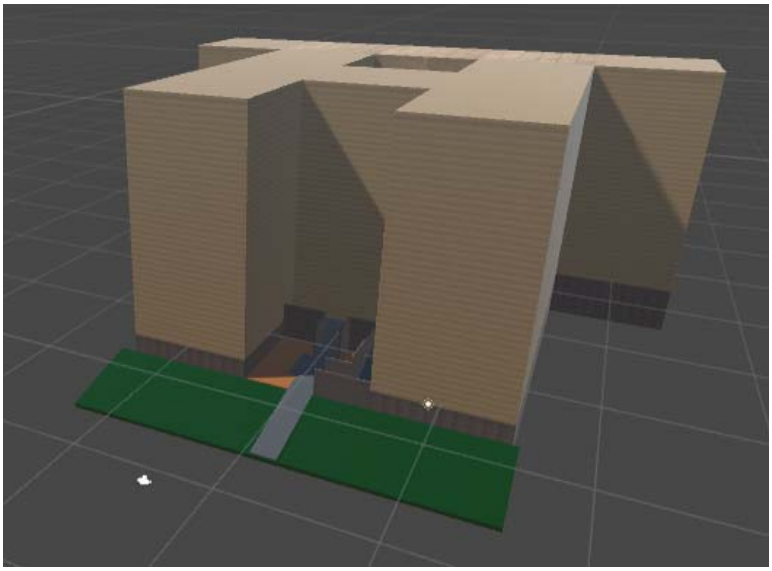
You can make a flight of steps by having a cuboid for the bottom step, copying it, moving it up and making smaller; then copy the second cuboid, move it and make it smaller etc.

For making the wall of a building to appear as bricks – you need to create a material for bricks and apply it to the wall. For this you will need an image of bricks – can get from the internet and save as a JPEG – you have to save the JPEG as a square image. When you apply it to the wall then that image is repeated – and you specify the 'tile' size.

If you have any ideas, let me know and I will extend the document.

Another Example

See below, my attempt at the SSE building – I defined boxes of 10*10*20 for each 'wing' of the building – snapped at 10 units with light bricks. Then shorter blocks underneath with dark bricks. Then added slopes – by cuboids rotated, and walls … Doing the roof is beyond Unity – as you need triangular / trapezoidal shapes - so you would need to define the roof with another package and import.



On **Scripting**
If you want to write your own code to move around an environment, you can define some C# code (other languages also). Unity will link with Visual Studio, say, to allow you to write code, which you build, and then associate with an object in your virtual world. The following moves a cube object called MyCube in the Z axis each time you press W and rotates it when you press L. In Unity you need to associate MyCube with Move1 in the Inspector window.

```
using UnityEngine;
using System.Collections;

public class NewBehaviourScript : MonoBehaviour
{

    public Transform Move1;           // defines a movement
    public GameObject MyCube;         // an object

    // Use this for initialization
    void Start()
    {
        Debug.Log("Started");
    }

    // Update is called once per frame
    void Update()
    {
               if (Input.GetKey(KeyCode.W))
            {
                Move1.transform.Translate(0, 0, 10*Time.deltaTime);
            }
            if (Input.GetKey(KeyCode.L))
            {
                Move1.transform.Rotate(0, -20 * Time.deltaTime, 0);
            }
    }
}
```