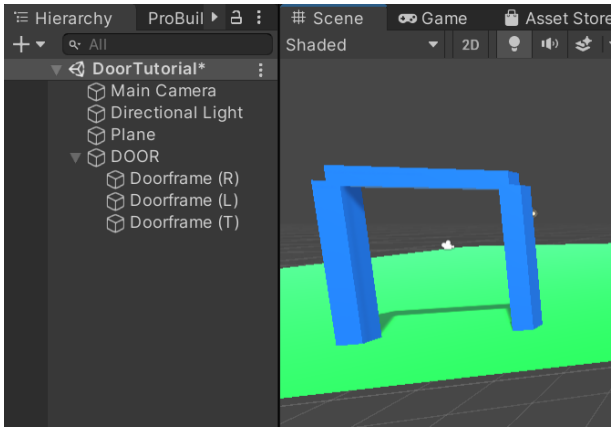
Unity Opening a door (Using the Animator) tutorial

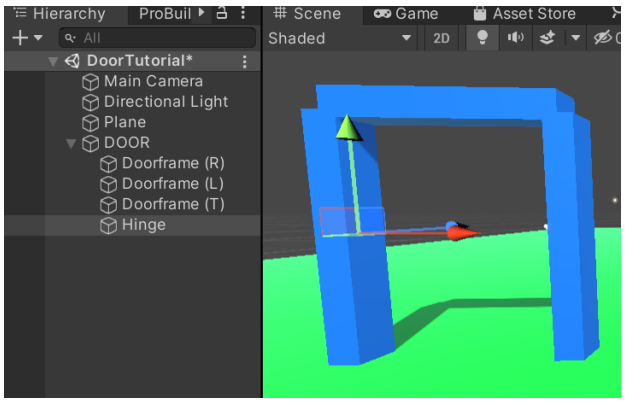
This tutorial is to help you create a moving door that you can duplicate and use multiple times however the steps taken can apply to many objects such as creating falling platforms or making animated UI to get them to animate after a trigger.

Set up your door

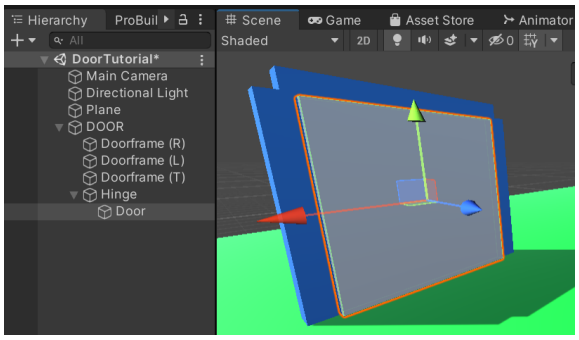
1. Open your Unity project
2. Create an empty gameobject and rename it to DOOR
3. Create the frame of your door using cubes and make it a child of the DOOR



4. Create an empty gameobject called Hinge as a child of DOOR and move it near either the left or right doorframe



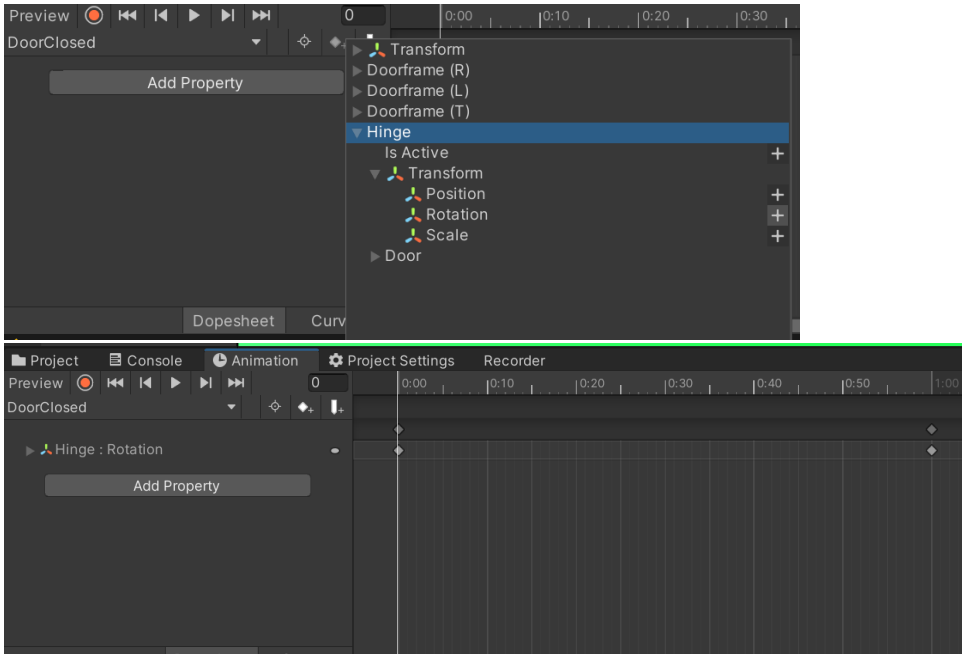
5. Make a door using a cube that fits the doorway and lines up with the hinge
6. Make this door a child on the hinge by dragging it onto the hinge in the hierarchy



We are doing this so that when we animate the door we can just rotate the hinge to move the door exactly how we want.

Creating the door shut animation

1. Open the Animation window by clicking Window > Animation > Animation at the top
2. While DOOR is selected click Create and save your animation as ‘DoorClosed’
3. Now in the animation window click Add Property > Hinge > Transform > Rotation



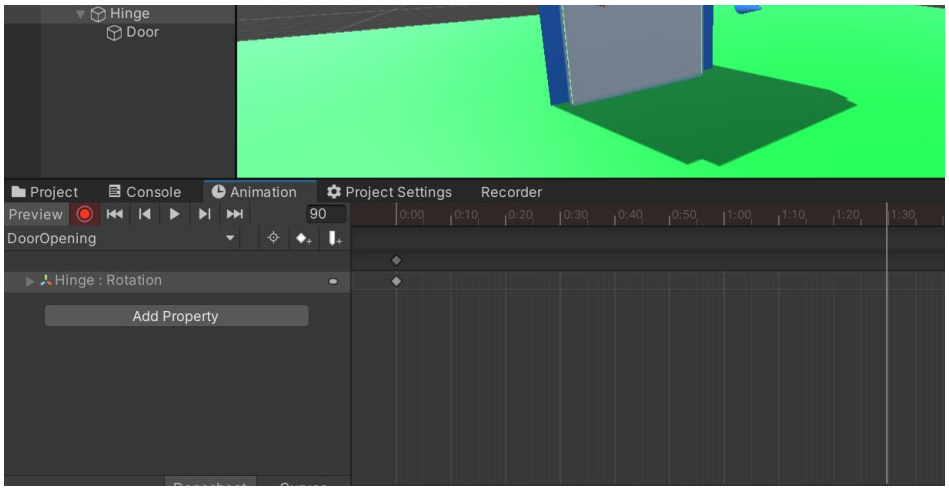
When making animations we need idle animations where the object is not moving so that the door does not repeatedly open.

Another thing to keep in mind is that these animations are on the DOOR but the things being animated is not the DOOR, this makes sense for what we are doing but anyhow Animating the object that has the animation usually makes the object not work properly when making it a prefab so it is best to create an empty gameobject to hold the animator.

4. Click the drop arrow next to DoorClose in the animation window and select Create new clip, Name this DoorOpening
5. Repeat step 9
6. Select the hinge in the hierarchy
7. Delete the second set of squares that are at the 1:00 in the animation

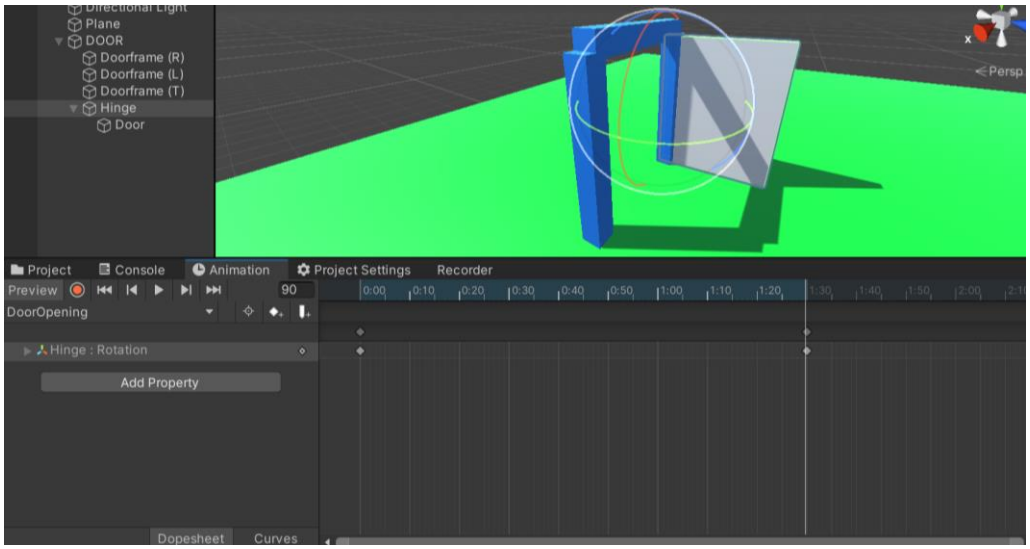
Animating the door to open

1. Select the hinge in the hierarchy
2. With the DoorOpening animation set click the red circle in the top left of the animation window (The timeline in the animation window should go red)
3. Drag the grey time bar to the time you would like the door opening to take (roughly 1:30)



While the timeline is red do not do anything else as Unity will record what you have done and add it to the animation. Do not click other objects and always use Add Property if you want to add something

4. Rotate the hinge so that the door is open how you would like it (more squares will appear in the timeline but that's fine)
5. Click the red circle again and the timeline will go back to grey

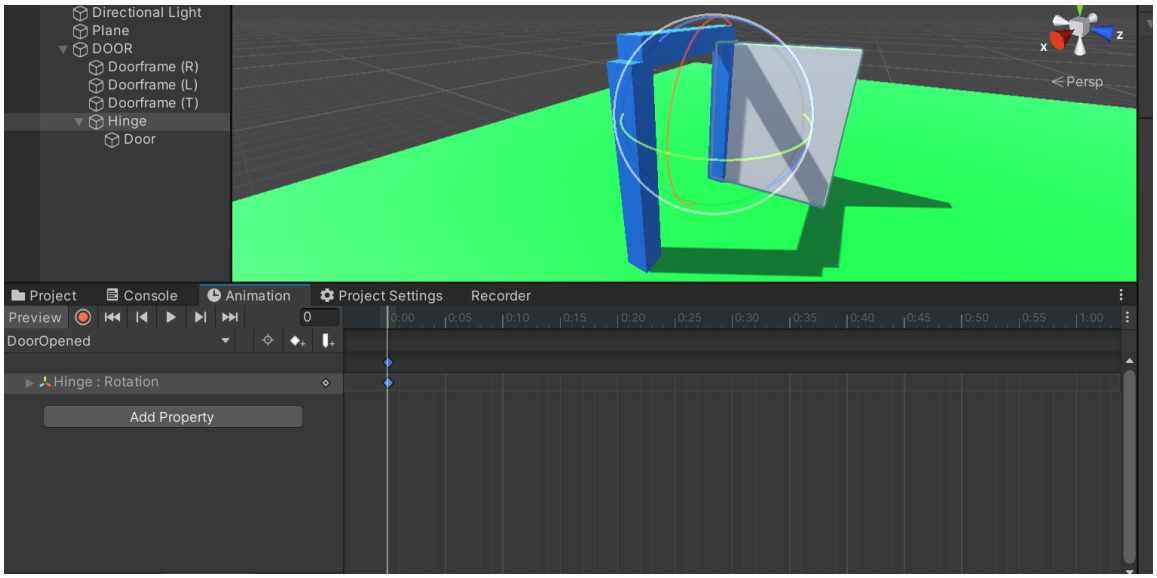


6. Click play to see if the animation looks how you want it

To redo the animation just click the red circle again to re-record, if you want to make the animation longer or shorter move the new set of squares right or left respectively

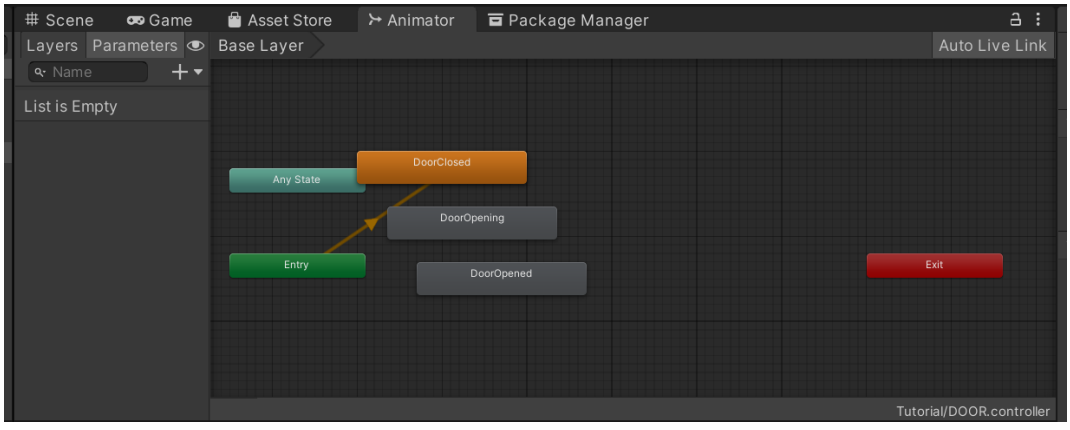
Keeping the door open

1. Highlight the second set of squares in the timeline and hit CTRL + C
2. Create a new animation called DoorOpened (The door should go back to where it originally was)
3. Hit CTRL + V (If you hit play door should go back to its opened position)

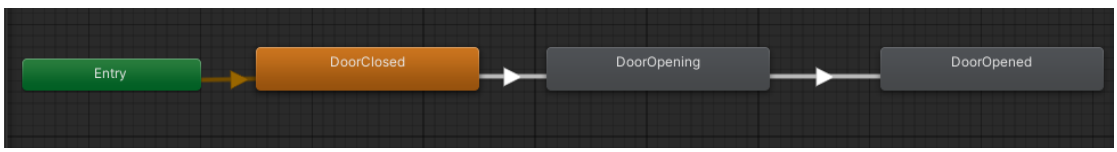


Setting up the Animator

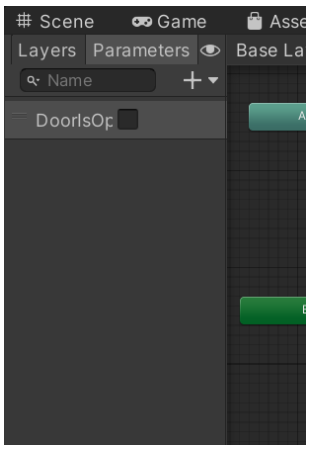
1. Go to Window > Animation > Animator (You should see the animations we have made)



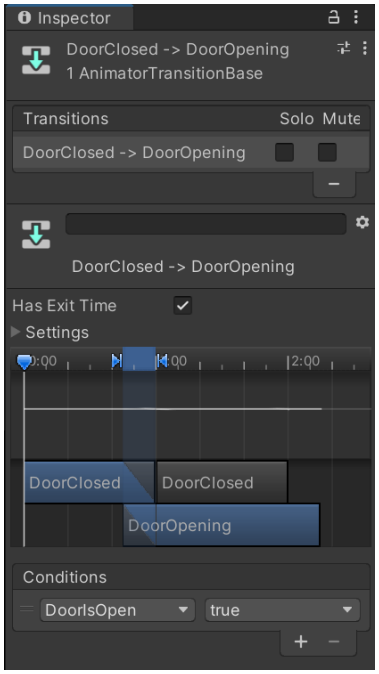
2. Rearrange the nodes so animations so the go in a straight line going in the order DoorClosed, DoorOpening, DoorOpened
3. Right click on DoorClosed, click Make transition and click on DoorOpening
4. Now right click on DoorOpening, Make transition and click on DoorOpening



5. Now in the top left of the animator click parameters and then click the +, select Bool and name it DoorIsOpen



6. Click on the arrow that connects DoorClosed and DoorOpening and scroll down in the Inspector to where it says 'List is Empty'
7. Click the + (The conditions should automatically fill to DoorIsOpen = True which is what we want)



The conditions should automatically fill to DoorIsOpen = True which is what we want. If we were to have multiple parameters we may need to select the correct one.

Altogether what this means is that our door will stay shut until DoorIsOpen is set to true.

You can now test your door by going into play mode and then in the animator window ticking the box next to DoorIsOpen. The door should open and stay open however we want to make the door open when we approach it so we need to program it to do so.

Getting the door to animate

1. Click the DOOR and click Add Component then write DoorStayOpen and create a new script
2. Copy this code

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

Unity Script | 0 references
public class DoorStayOpen : MonoBehaviour
{
    public Animator DoorAnimator;

    // Start is called before the first frame update
    Unity Message | 0 references
    void Start()
    {
        DoorAnimator = GetComponent<Animator>();
    }



    0 references
    void OnTriggeEnter(Collider other)
    {
        if (other.tag == "Player")
        {
            Debug.Log("Open the door");
            DoorAnimator.SetBool("DoorIsOpen", true);
        }

    }
}
```

At the start we are making the animator that is on the door known to the script so it can interact with it.

The script is going to find the animator by checking if it is attached to the DOOR (if it was attached to something inside the door we would use GetComponentInChild).

Here we are saying that if an object tagged with as a player enters the trigger then the parameter that controls the door should change to open the doors. **Make sure your player character is tagged with "Player"**
We still need to add the triggers to the object to make it work.

3. Save the script and return to Unity
4. Click on the DOOR in the hierarchy and click Add component in the inspector
5. Add a box collider and resize it with 'Edit Collider' so it goes around the whole door (Keep in mind the door opening too and give some extra room for that)
6. Tick the Is Trigger box on the collider