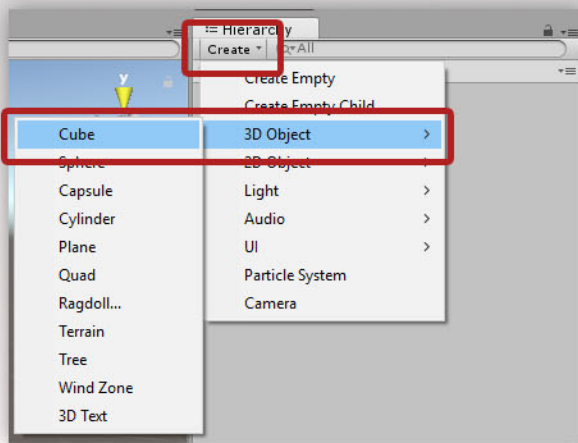


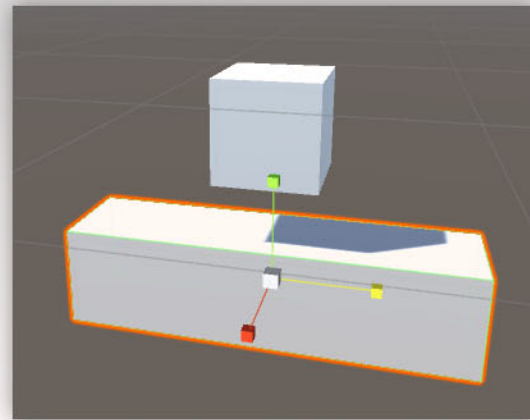
# Make a Cube Jump Pt.1

## Infinite Runner Part 01

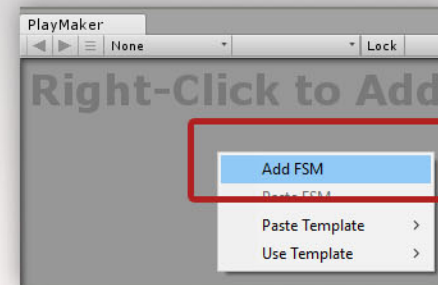
**Step 1:** Create 2 Cubes. One that will be our player, the other that will act as our platform.



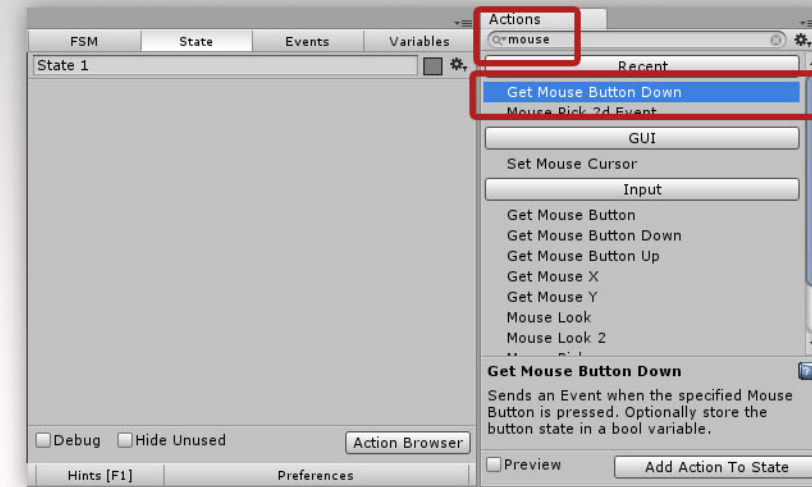
**Step 2:** Move 1 cube above the other. Scale the bottom cube along the Z axis to make it longer.



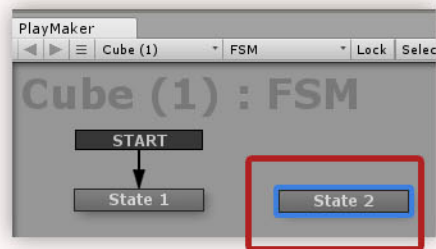
**Step 3:** Select the top cube and add an FSM to it.



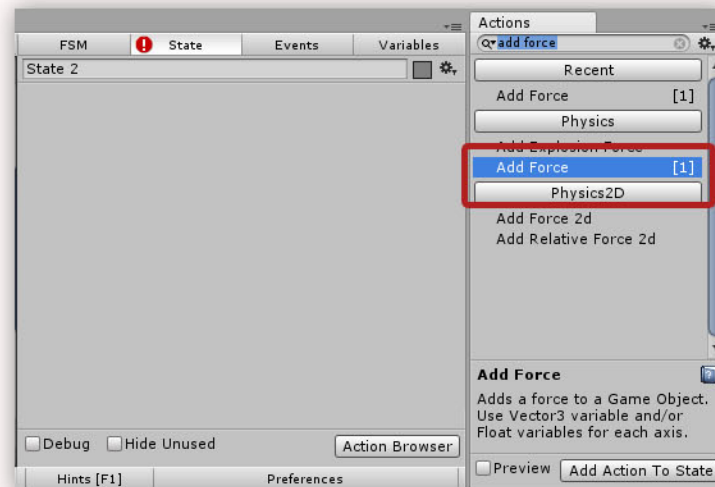
**Step 4:** On state 1 open the action browser, search for Mouse and add **Get Mouse Button Down**.



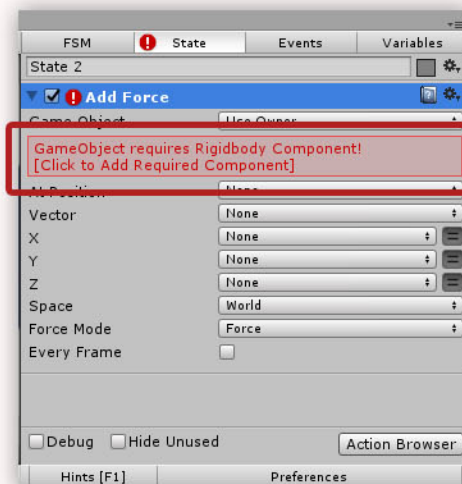
**Step 5:** Press Ctrl+Right Click in the Playmaker Editor to add a second state.



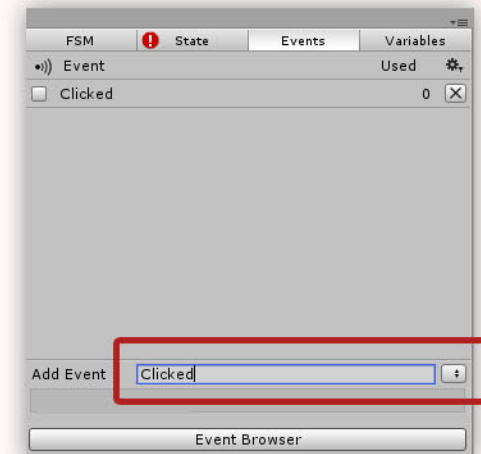
**Step 6:** On state 2 open the action browser and search for "Add Force" and add it to your state.



**Step 7:** Click on the red warning to add a Rigidbody Component to your cube.



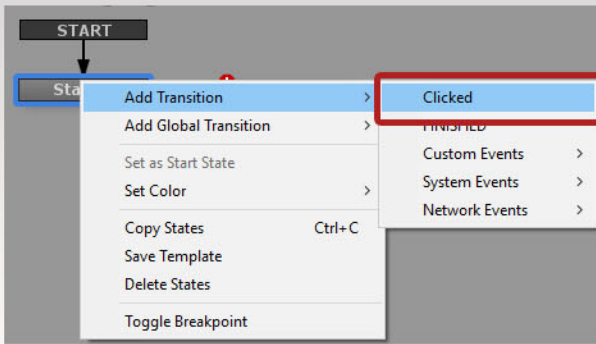
**Step 8:** Click on the Events tab and add a new event. Name it Clicked & press Enter. (This will help you know what you're trying to do with it.)



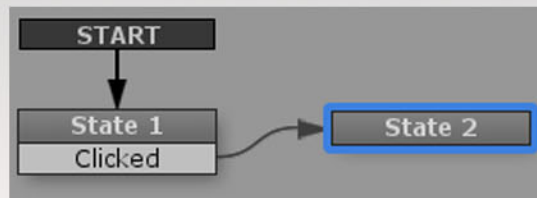
# Make a Cube Jump Pt.2

## Infinite Runner Part 02

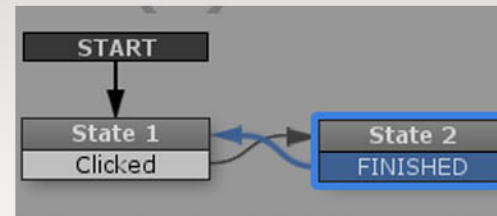
**Step 1:** Right click on State 1 and add a transition. Select the event you created "Clicked".



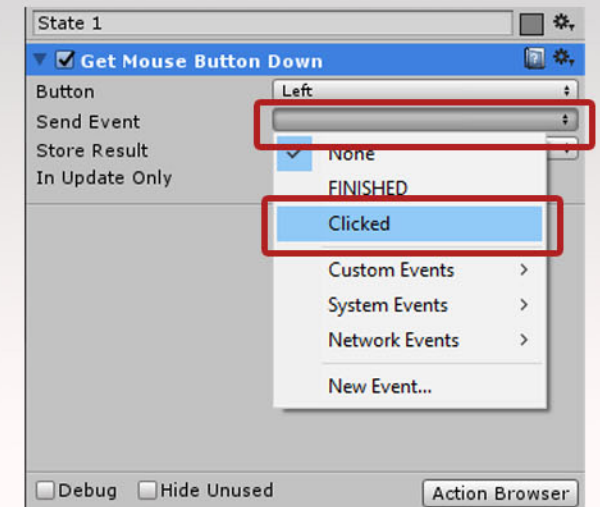
**Step 2:** Click and drag from the transition to State 2 to connect state 1 to State 2.



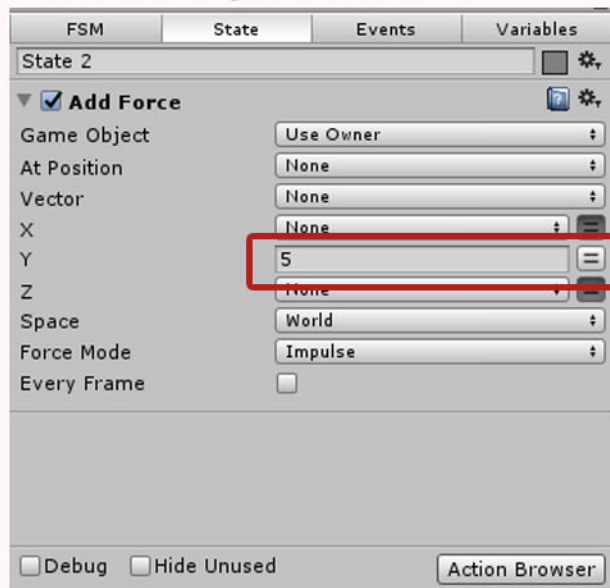
**Step 3:** Press Ctrl+Left click on state 2 to add a finished transition. Then connect it to State 1. (This will make it transition when state to has finished the instructions.)



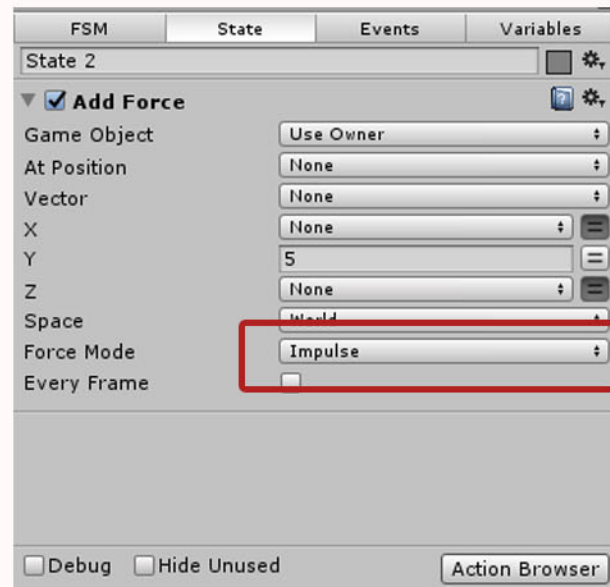
**Step 4:** On State 1, click on the dropdown for Send Even and select the "Clicked" event transition that you created.



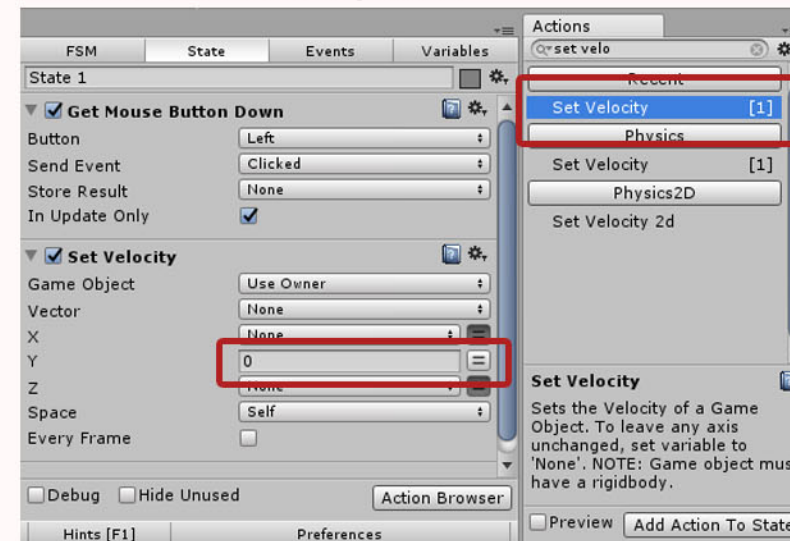
**Step 5:** On State 2, click the box with two lines so you can add a number manually to the Y axis. Change the value to 10.



**Step 6:** Change the "Force Mode" to impulse. This gives the force a burst of momentum. (Perfect for a jump.)



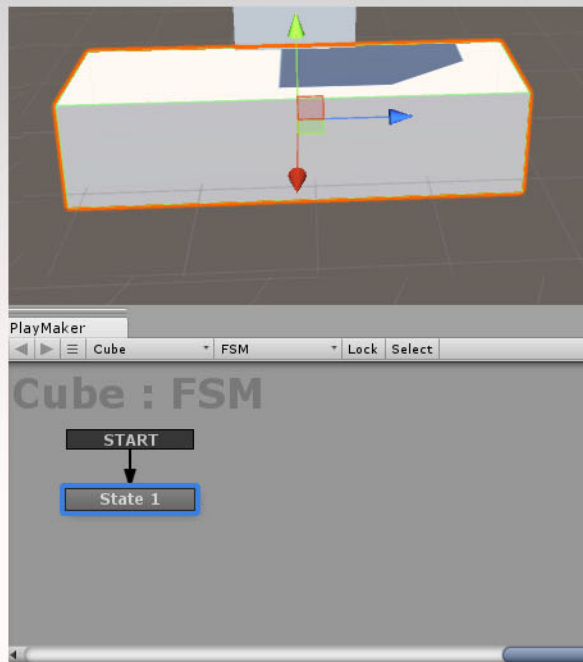
**Step 7:** On State 1 using the Action Browser, do a search for Set Velocity and set the Y value to 0. (This will override the force on the player so you can jump with the same force every click.)



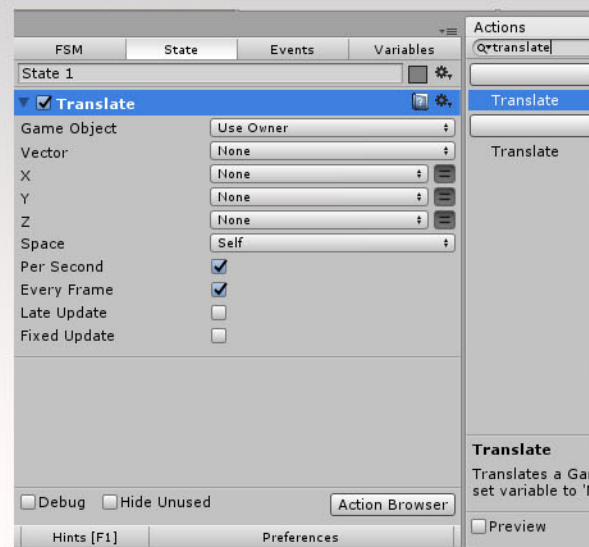
# Make Moving Platforms

## Infinite Runner Part 03

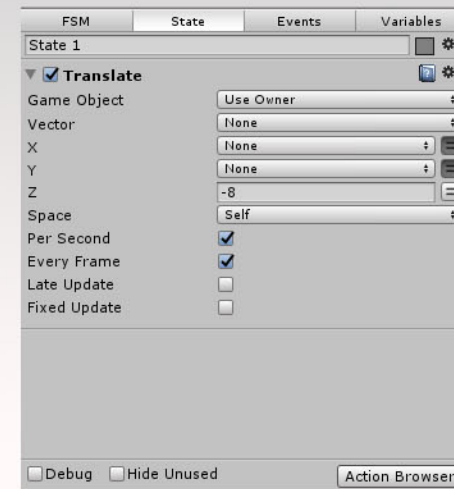
**Step 1:** Select your platform cube. Add an FSM to it.



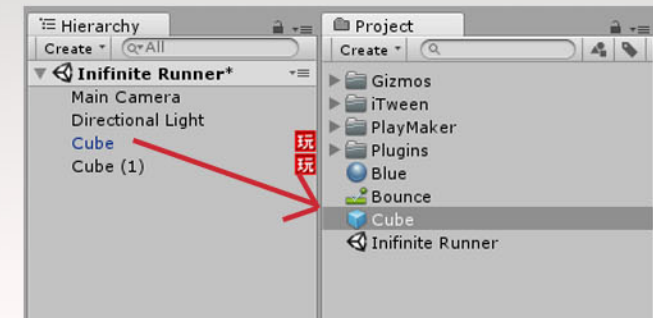
**Step 2:** Open the “Action Browser” on State 1 and add the “Translate Action”.



**Step 3:** Click on the little box with two lines next to the Z axis. Give it a value you like.



**Step 4:** Select the Platform cube in the Hierarchy and drag it over to the Project window. (This creates a prefab object which we can use later.)

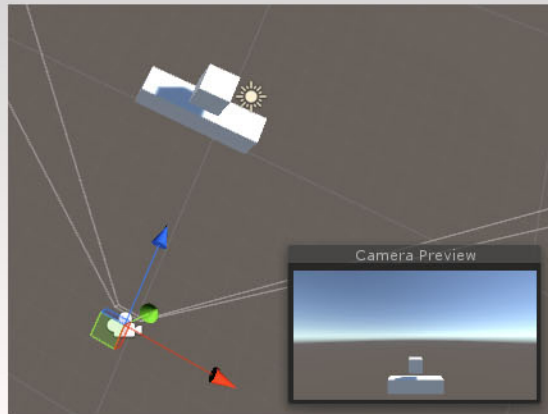


**Note:** You may have to change the value of Z later. Or if Z is the wrong direction for you use the correct axis.

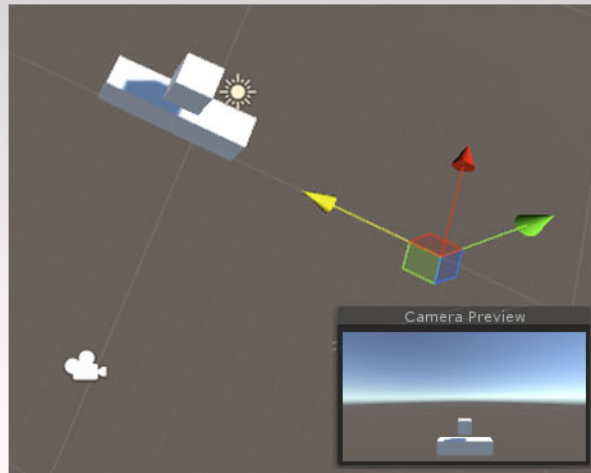
# Spawn Moving Platforms

## Infinite Runner Part 04

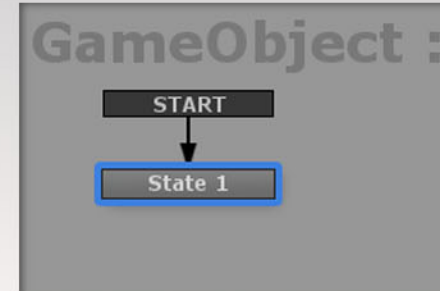
**Step 1:** Move your camera to a location that best suits the game.



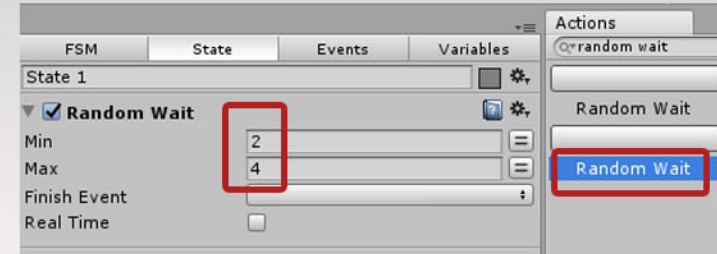
**Step 2:** Create an “Empty Game Object” and place it just outside of the camera’s view.



**Step 3:** Add an FSM to the Empty Game Object.



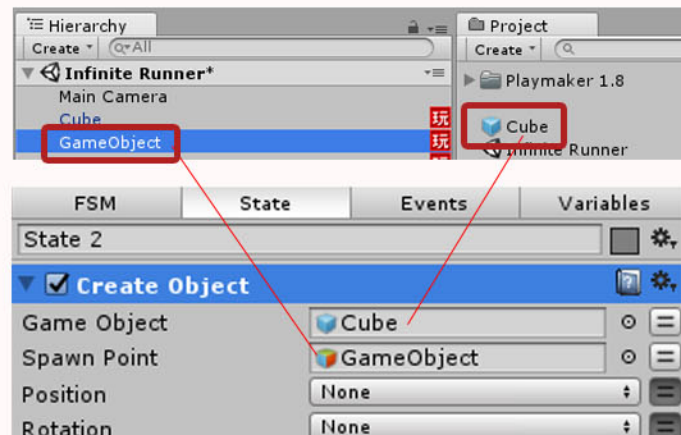
**Step 4:** Select State 1 & add a “Random Wait” action from the Action Browser. Change the Min & Max to a value of your choice.



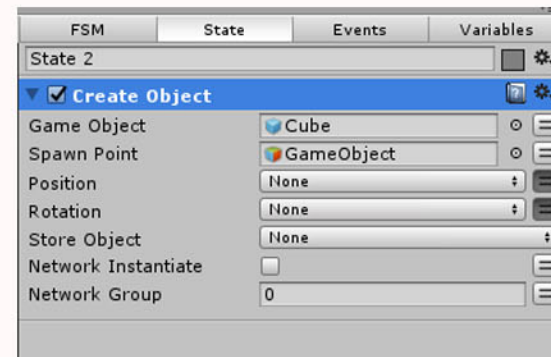
**Step 5:** Create a second State & add a “Create Object” action from the action browser.



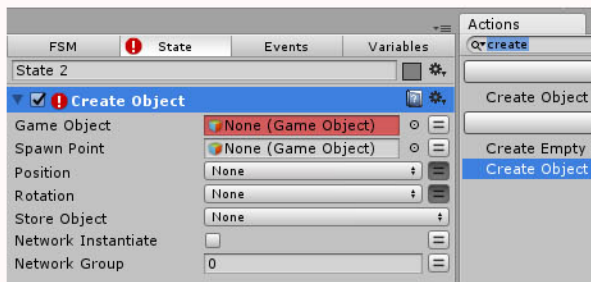
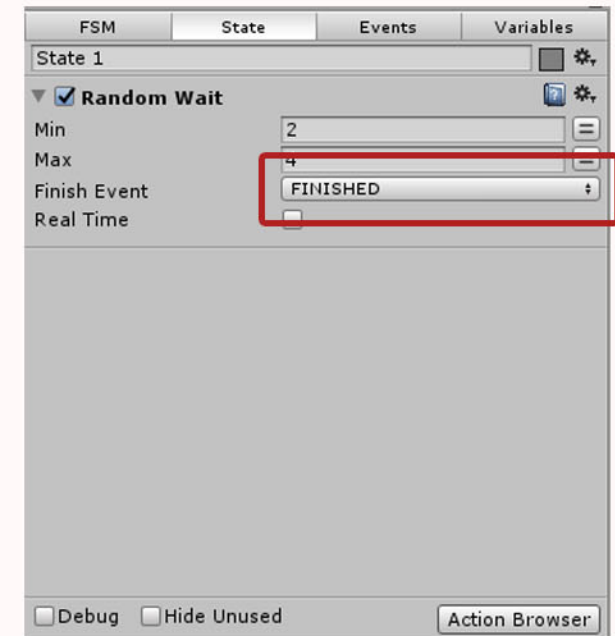
**Step 6:** Drag the Platform prefab to the the Game Object line and drag the “Empty Game Object” to the Spawn Point line.



**Step 7:** Add the “FINISHED” event transition to both states and connect both states together.



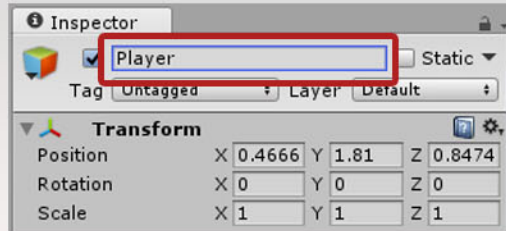
**Step 8:** On state 1 & select FINISHED from the “Finish Event” dropdown.



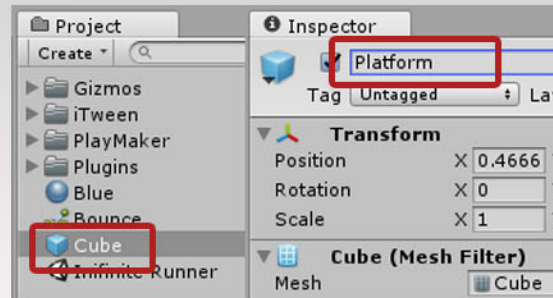
# Name Your Assets

## Infinite Runner Part 05

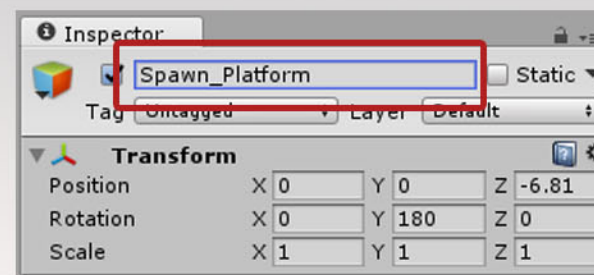
**Step 1:** Before you continue it is important you name everything. Start with the Jumping Cube. Name it "Player".



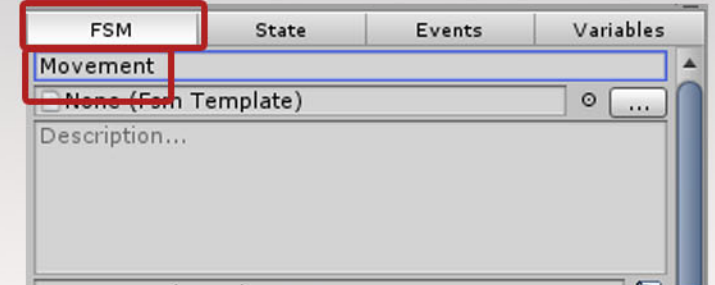
**Step 2:** Select your Platform prefab in the project window. Name it "Platform".



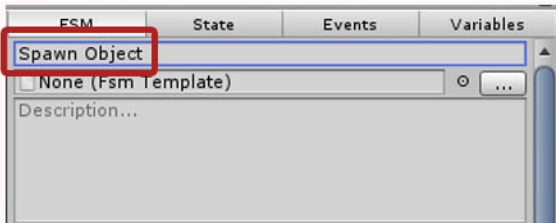
**Step 3:** Select your "Empty Game Object". Name it "Spawn\_Platform".



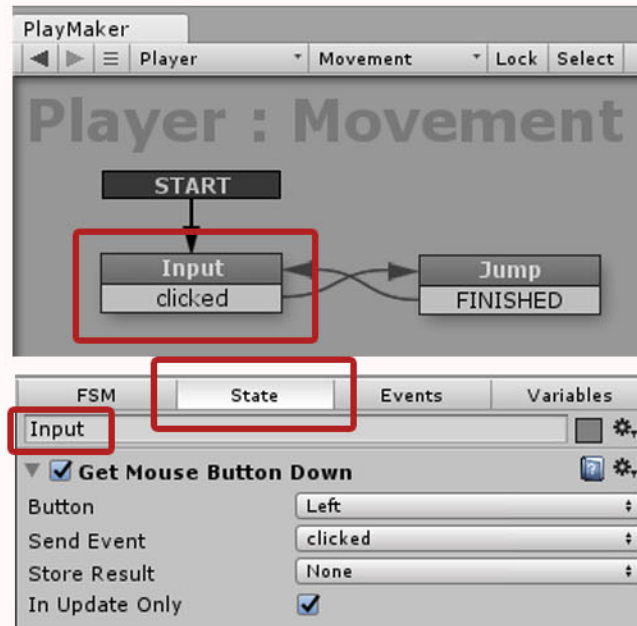
**Step 4:** Select the "Player" and name the FSM and name it "Movement" in the FSM tab.



**Step 5:** Select the "Spawn\_Platform". Name the FSM "Spawn Object".



**Step 6:** Go ahead and rename the states in all of your FSMs. For the Player I named them Input and Jump.



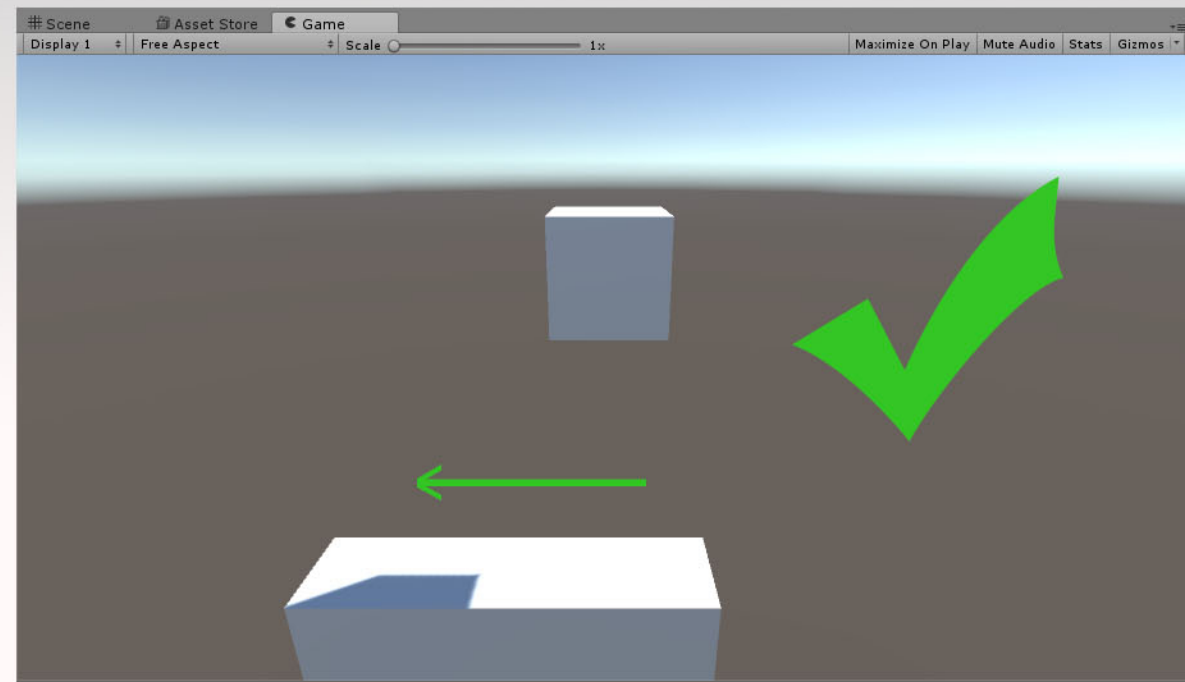
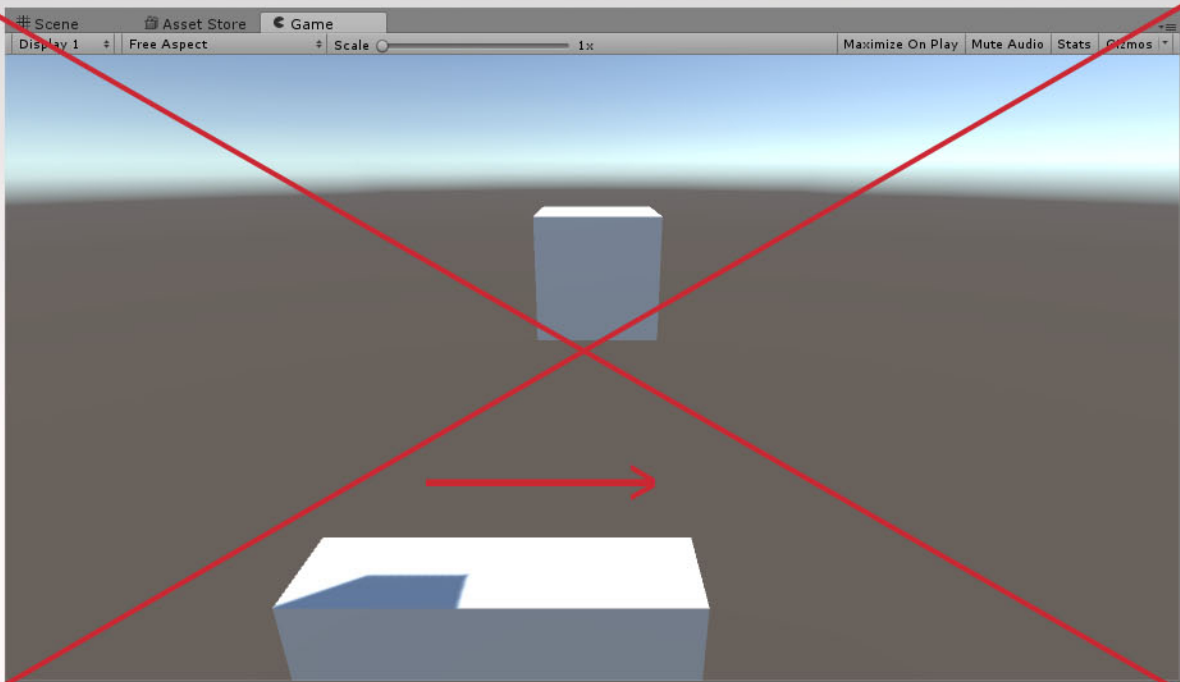
**Bonus:** What your assets are named is ultimately up to you but make the name something that will help you remember it does.

# Problem Solving Exercise 1

## Infinite Runner Part 06

**Step 1:** If the platforms you've spawned are not coming in from the right you'll need to make the platforms move to the left.

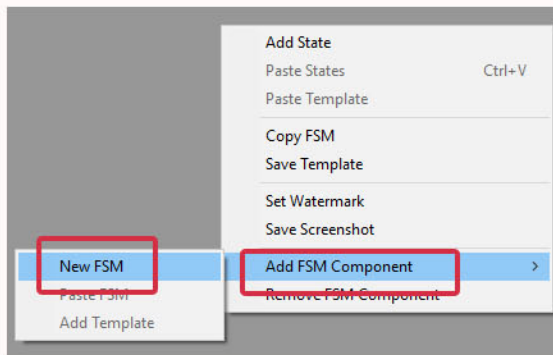
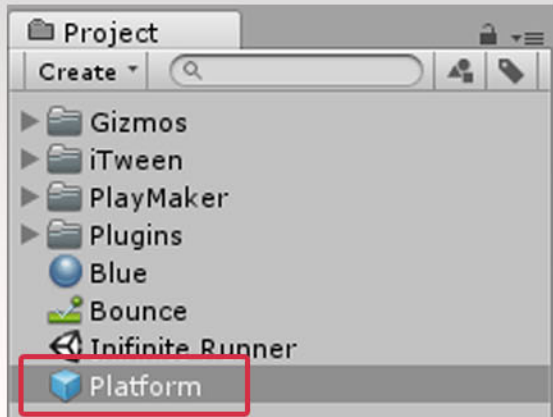
Hint: Try different options. Maybe the value of your Translate, or maybe the rotation of the "spawn\_platform".



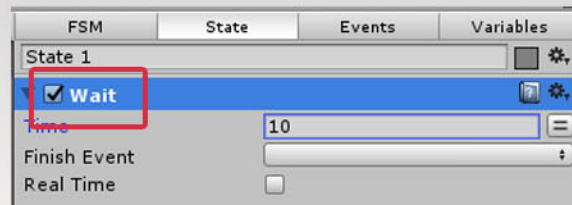
# Destroy Platforms

## Infinite Runner Part 07

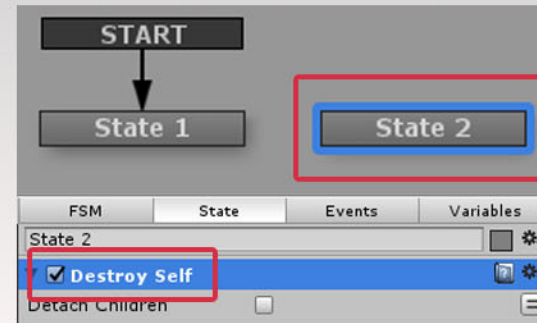
**Step 1:** Select the “Platform Prefab”, Right-Click in the FSM it already has and click “Add FSM Component” then “New FSM”.



**Step 2:** Put a “Wait Action” on State 1. Give it enough time so that that platform moves out of view.



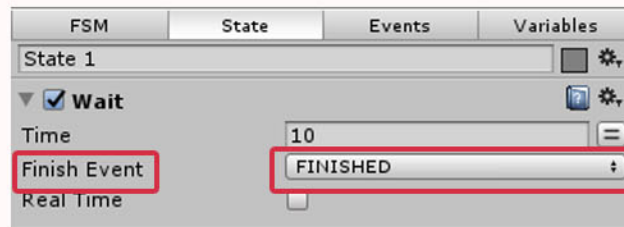
**Step 3:** Create a State 2. Add a “Destroy Self” action to it.



**Step 4:** Add the “FINISHED” transition to state 1 and connect it to State 2.



**Step 4:** Don't forget to set the “Finish Even” on State 1.



Your platforms will now destroy themselves after a set amount of time.

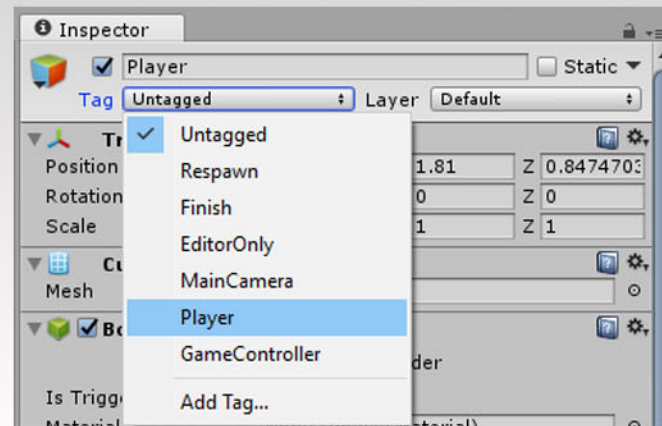
# Jump Not Fly

## Infinite Runner Part 08

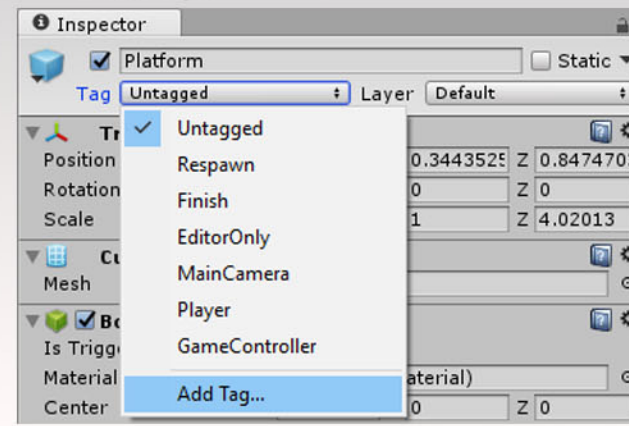
You don't want the player to be able to fly. We're making an infinite runner. Not a flappy bird game.

This lesson focuses on "tagging" your objects and how to make them detect collision with each other.

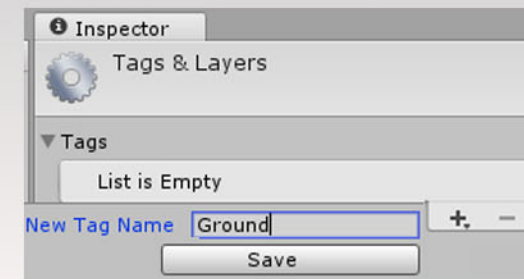
**Step 1:** Select the Player & set the tag in the inspector to player.



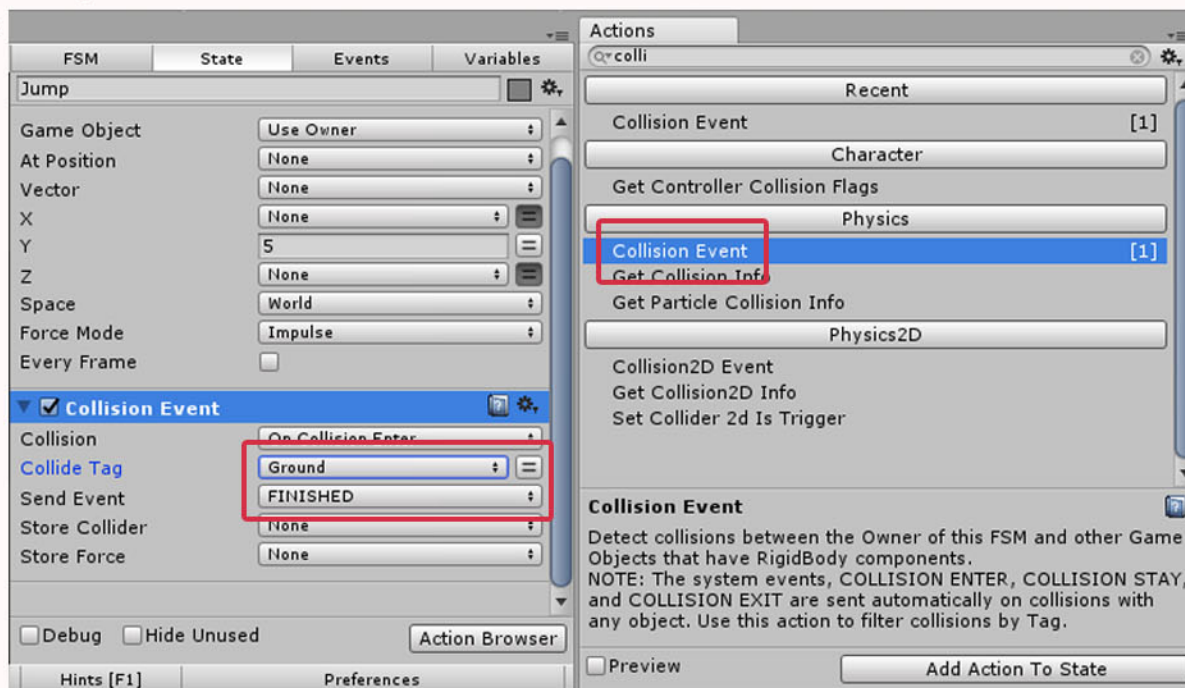
**Step 2:** Select the "Platform" prefab, open the Tag dropdown and click "Add Tag..."



**Step 3:** Click the + button and name the new tag "Ground". Then click save.



**Step 4:** Select the Player and select the Jump state. Add the action "Collision Event". Set the "Collide Tag" to "Ground" and send the "FINISHED" Event.



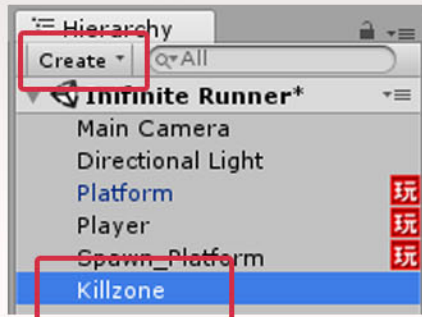


# The KILL Zone

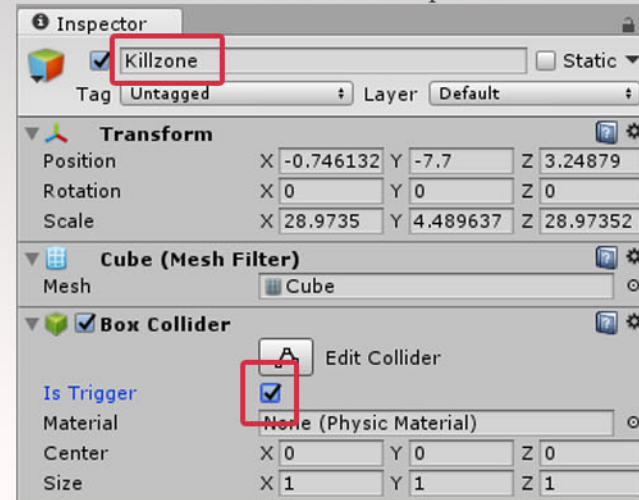
## Infinite Runner Part 09

Ahhhh! My player fell off the map and it won't stop!  
The kill zone will reload the level when you die.

**Step 1:** Create a cube, Name it "Killzone". Scale it outward to cover any area that the player would hit. Move it below the camera view.



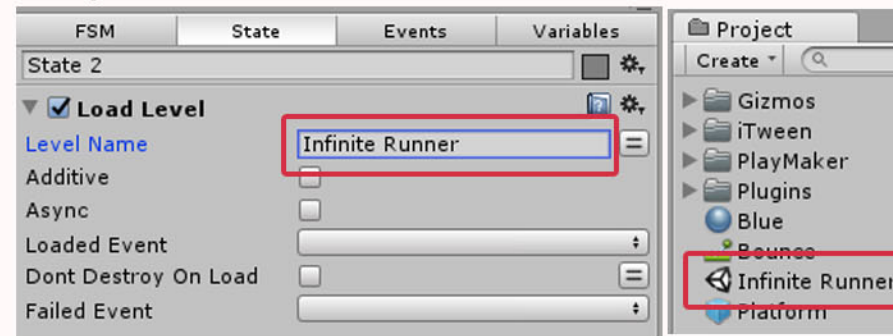
**Step 2:** Click the "Is Trigger" box under the Box Collider section of the Inspector.



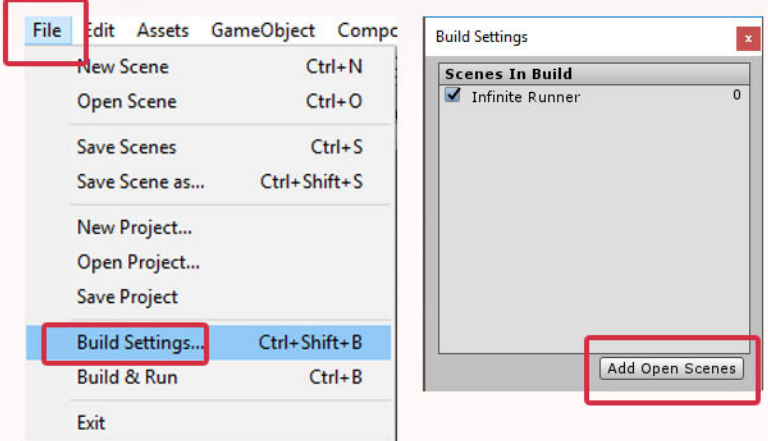
**Step 3:** Add an FSM to Killzone. On State 1, add a "Trigger Event" action. Set the Collide Tag to "Player".



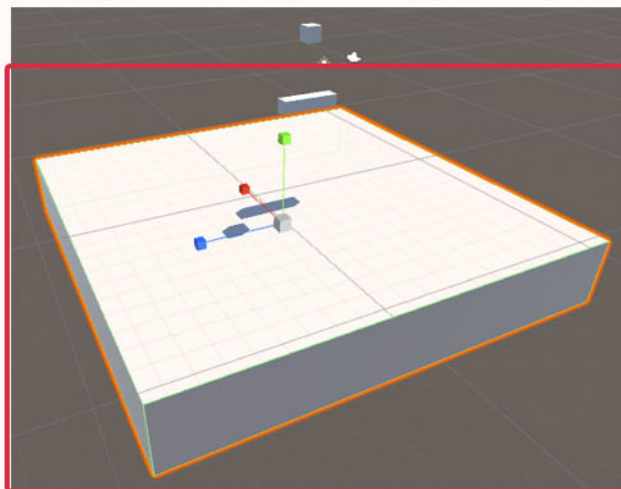
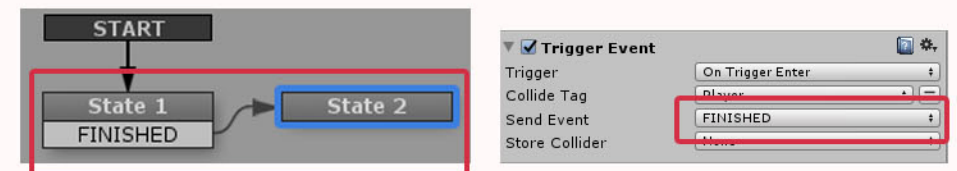
**Step 4:** Create a State 2 and add a "Load Level" action to it. The "Level Name" has to be EXACTLY what your scene is named.



**Step 5:** Click File > Build Settings. Then Click "Add Open Scenes".



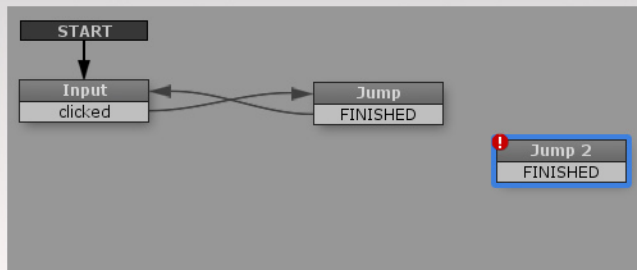
**Remember:** You need to connect State 1 to State 2 and set the Send Even to "FINISHED" on State 1.



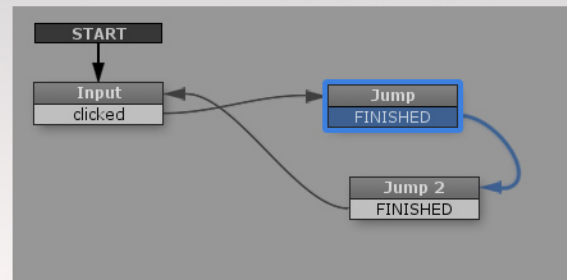
# Double Jump

## Infinite Runner Part 10

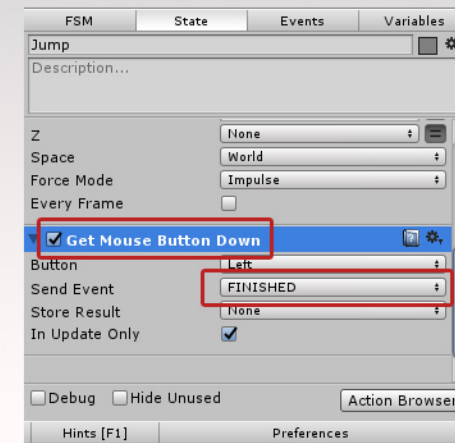
**Step 1:** Select your player in the Hierarchy. Then Select the “Jump State”. Copy(Ctrl+C) then Paste(Ctrl+V)



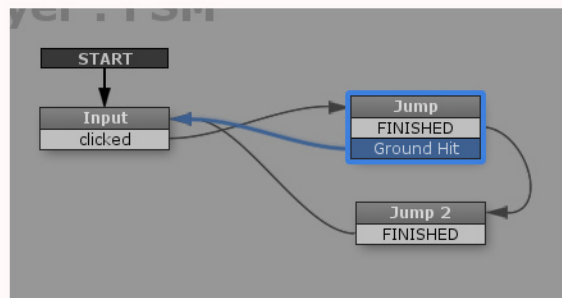
**Step 2:** Connect “Jump” to “Jump 2”. Connect “Jump 2” to “Input”.



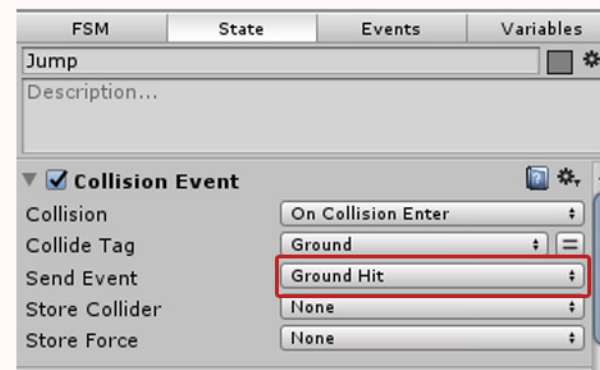
**Step 3:** Select the “Jump” state and add a “Get Mouse Button Down” action to it. (Don’t forget to Send Event as FINISHED)



**Step 4:** Add a second event to the “Jump” State. Name it “Ground Hit”. Then Connect “Ground Hit” to the “Input” state. (Refer to the Playmaker Guide if you’ve forgotten how to make transitions and events).



**Step 5:** On the “Jump” state you need to change the “Send Event” from FINISHED to “Ground Hit”.

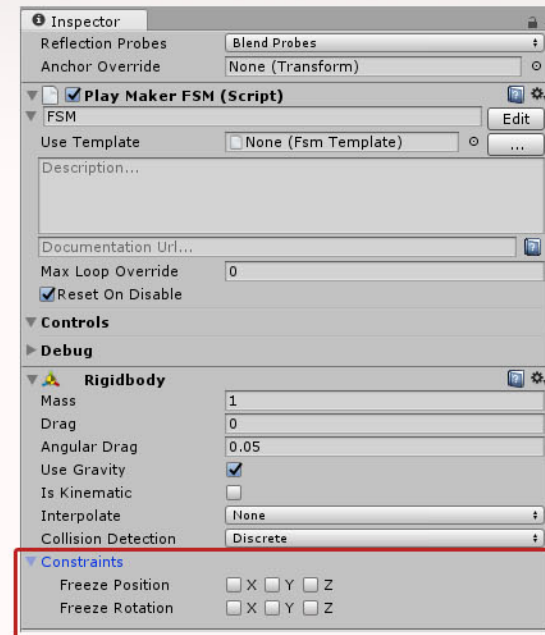


# Lock Player Movement

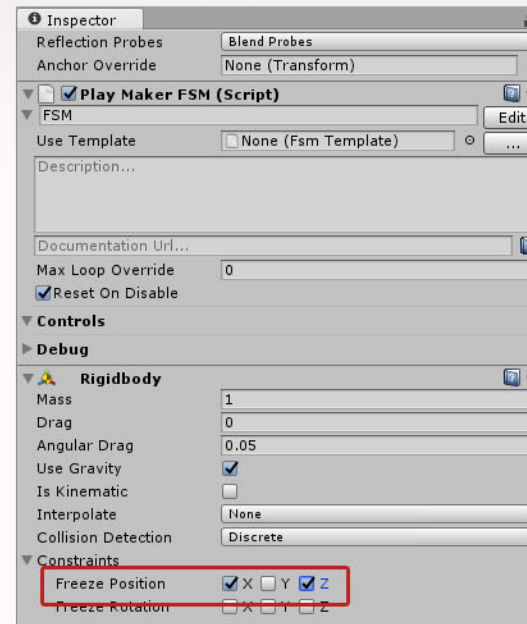
## Infinite Runner Part 11

This will stop the player from moving in areas you don't want it to.

**Step 1:** Select the Player from the “Hierarchy”. Then move over to the “Inspector”. Under rigidbody open the “constraints” dropdown.



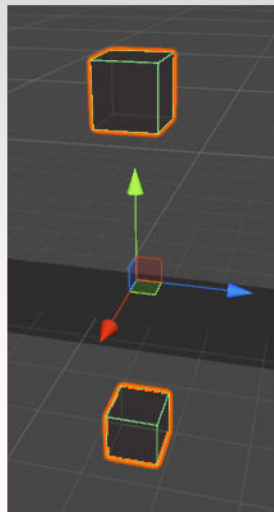
**Step 2:** Check the X and Z boxes next to “Freeze Position”.



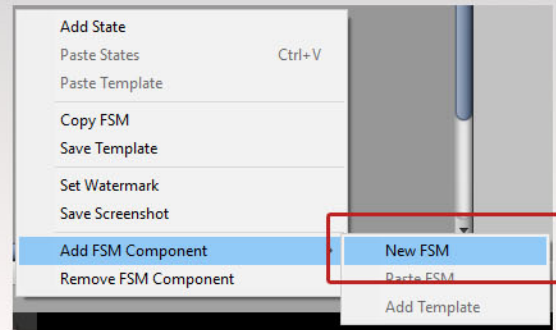
# Random Platform Height

## Infinite Runner Part 12

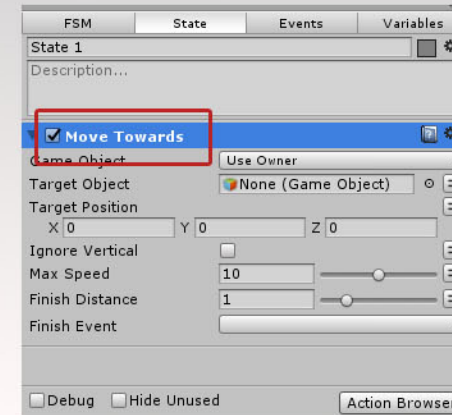
**Step 1:** Create 2 cubes. Move them directly above and directly below the “Spawn platform” in the 3D Viewport.



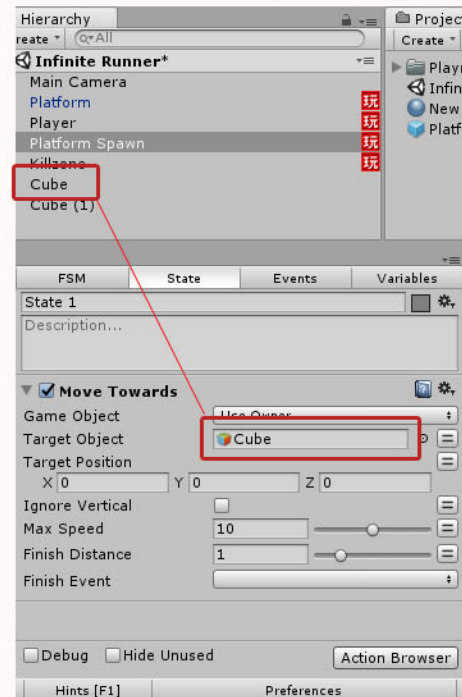
**Step 2:** Select the “Platform Spawn” and add a new FSM.



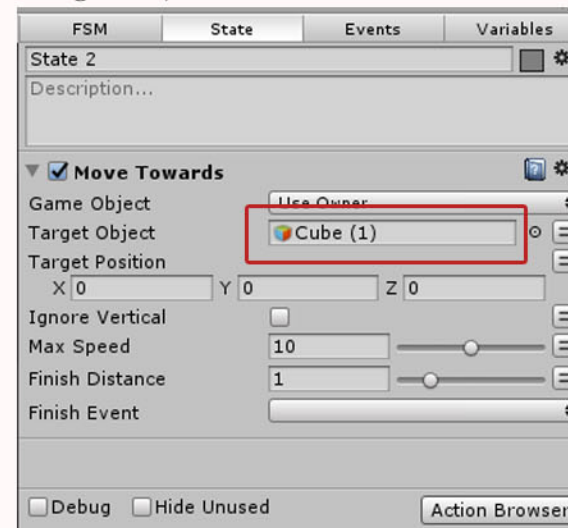
**Step 3:** On State 1, add the “Move Towards” action.



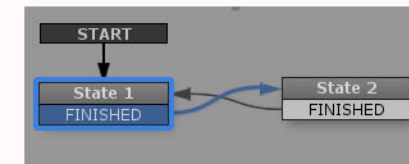
**Step 4:** Drag the top Cube you just created to the Target Object.



**Step 5:** Copy (Ctrl+C) and Paste (Ctrl+V) State 1. Then drag the bottom cube to the “Target Object” on State 2.



**Step 6:** Add the “FINISHED” transition event to State 1 and State 2 by holding “Ctrl” and clicking on each state. Then connect the states to each other.



# Problem Exercise 02

## Infinite Runner Part 13

You need to create an object that randomly spawns that will destroy the player if you touch it. Look at my screenshot as a reference to figure out what you need.

