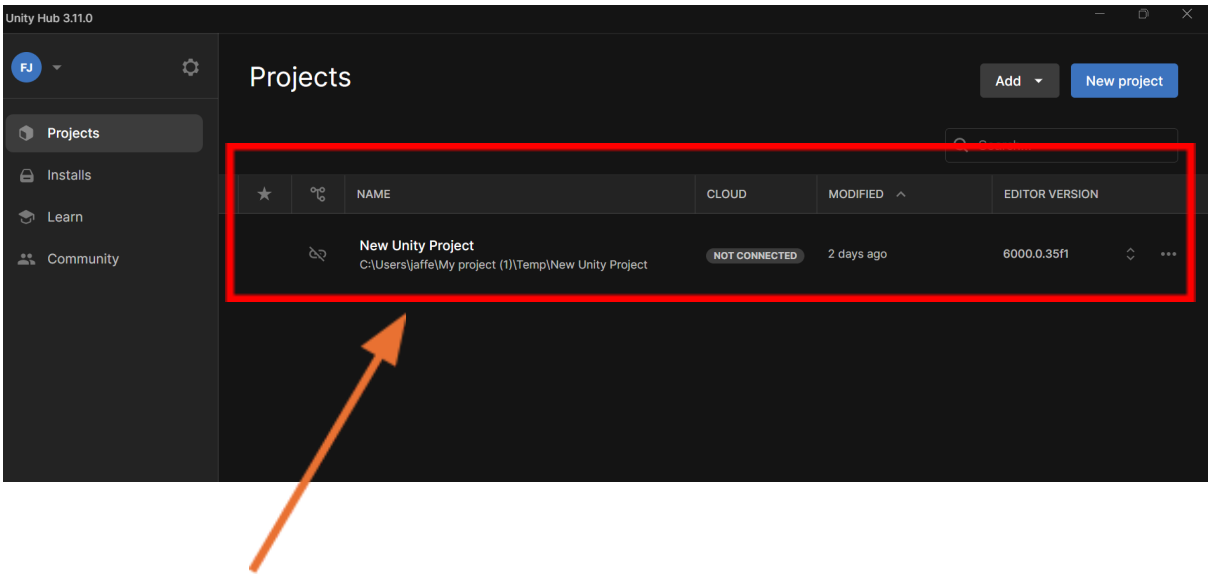
Aror University of Art, Architecture, Design and Heritage
SUKKUR,Sindh
Department of Multimedia and Gaming
Course: Game Programming CSC-221 (Practical)
Instructor: Engr. Fatima Jaffar

Lab No. 02

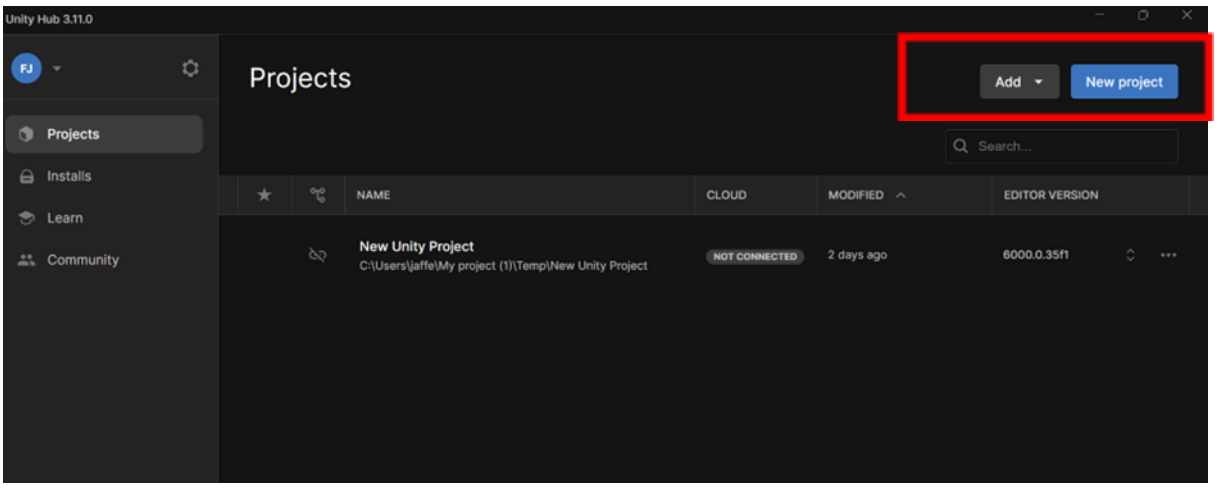
Objective: Exploring the interface of Unity 3D

After Installation of both the software, open Unity Hub, the following interface will be shown:

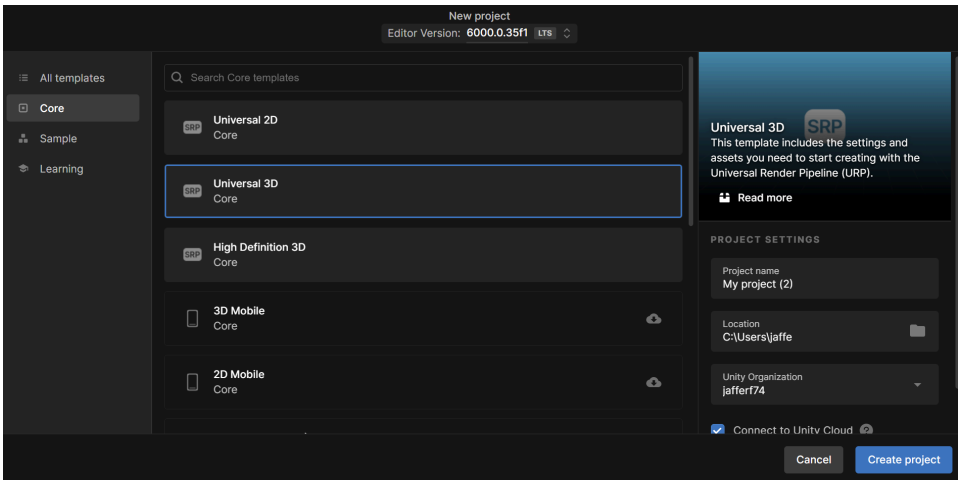


This is where all the created projects list will be shown.

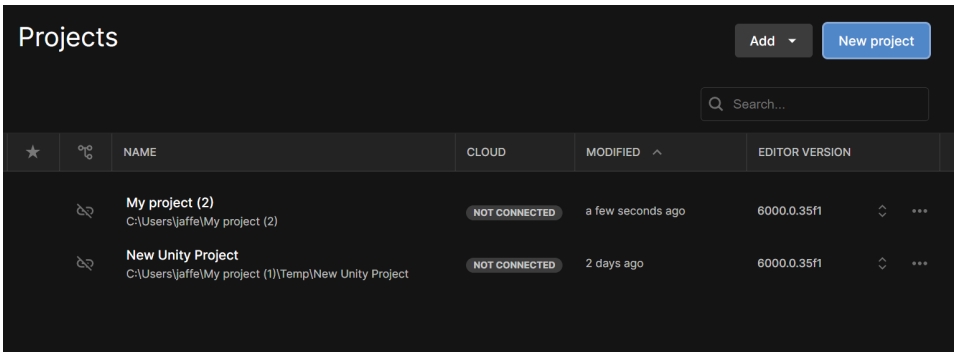
- To create a new Project ,you need to click on new Project:



- You will see multiple templates, if you want to create a 3D project, you will select **universal 3D** and then click **create project**

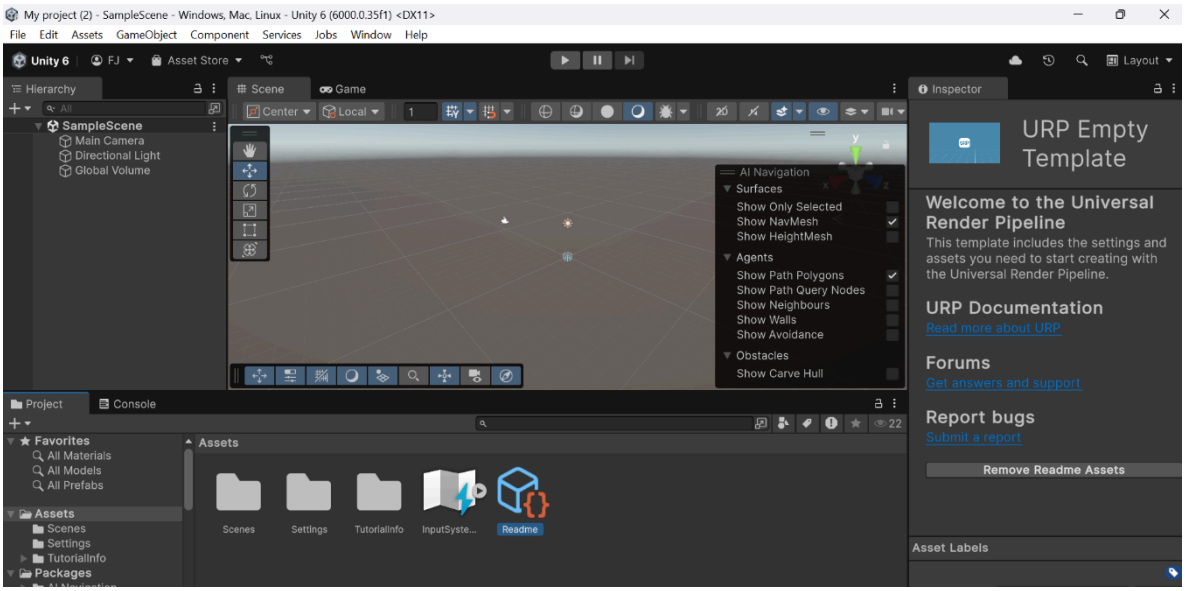


- Your project will be listed in the previous projects

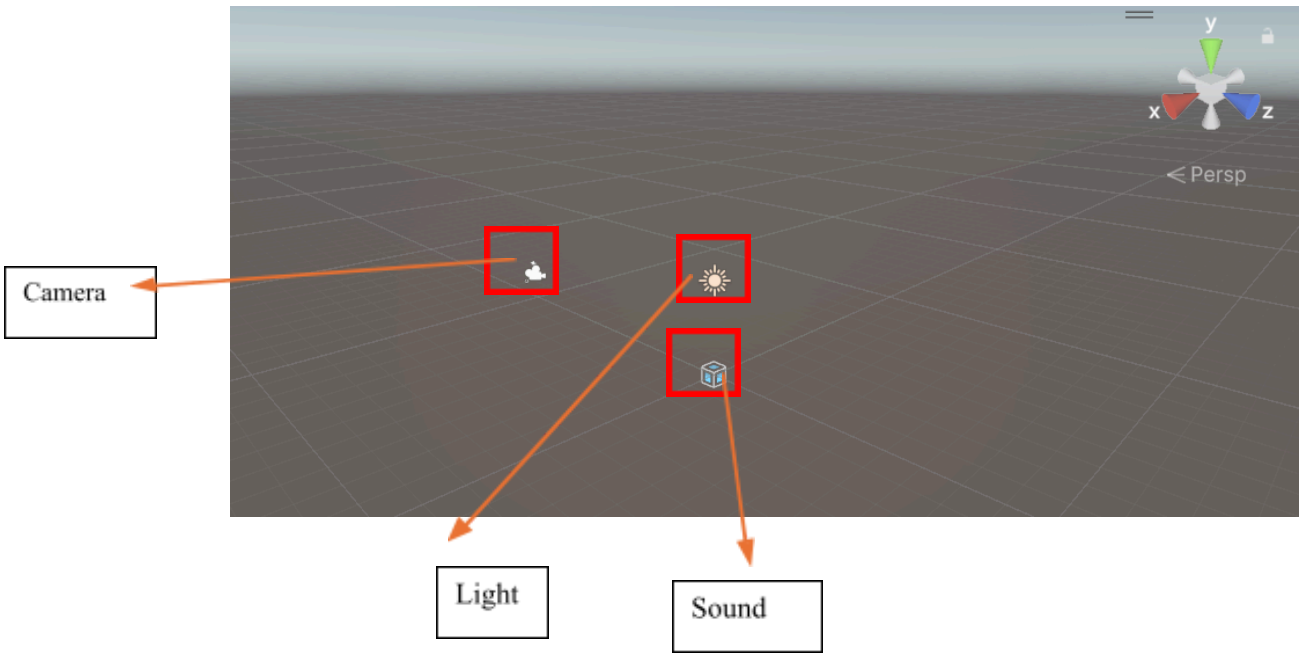


- Your unity editor will start loading, will install the packages required

- After loading, the editor interface will be opened



- The main editor is adjustable in size, you can adjust it by just dragging.

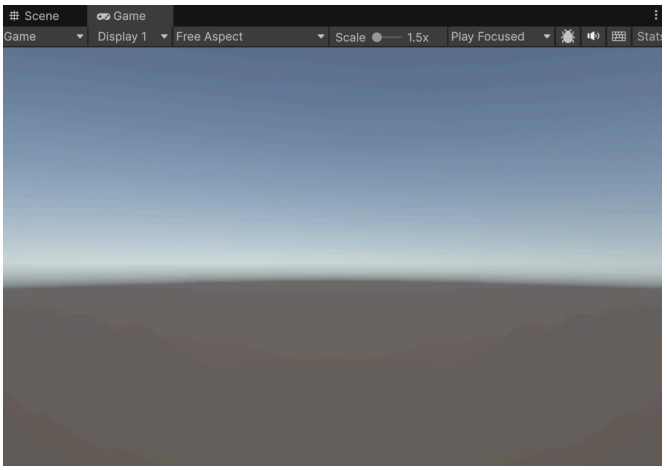


- This is the basic scene, where complete environment will be added, these are basic things added in the scence

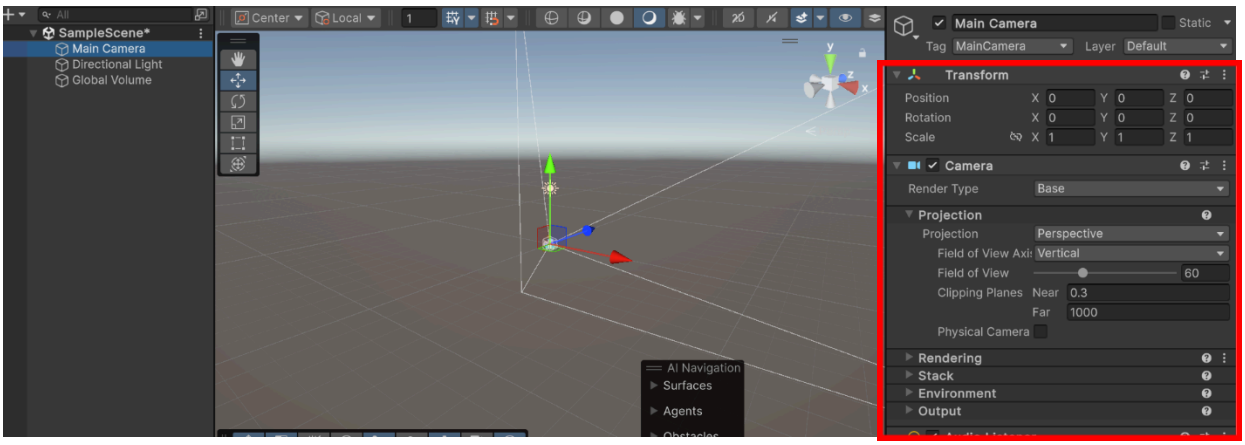
1. Camera:

The camera in Unity defines what the player sees. It's like the eye of your game, determining the viewport, rendering the scene, and creating different perspectives for gameplay or cinematic effects. Without a camera, there's no game view.

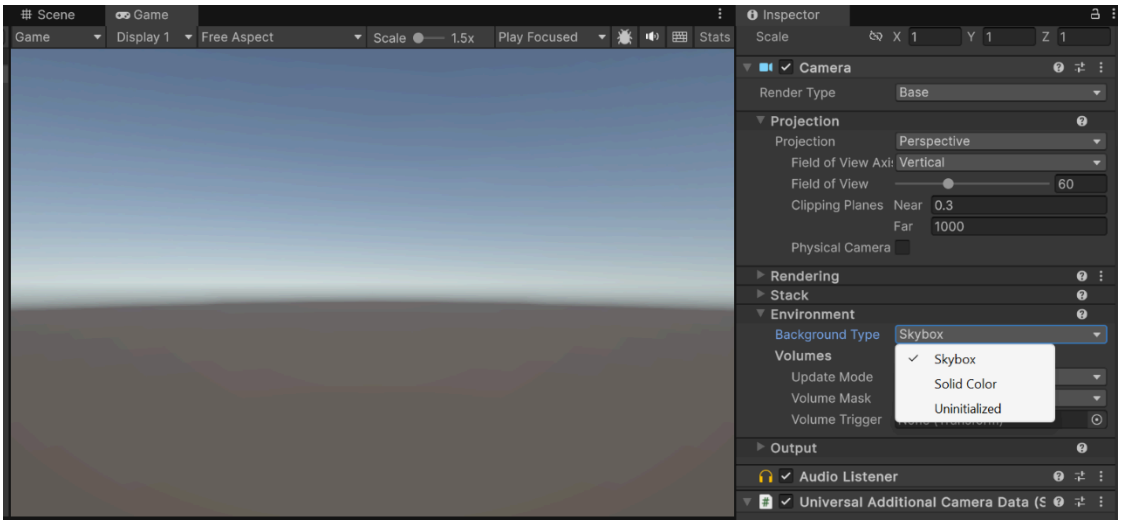
- You can view the scene from different viewpoints using **alt** key in windows and dragging the camera with cursor
- When you click on game option, this window will be opened, which is the game actually, initially there is nothing in the game, so you just see the brown ground and sky.



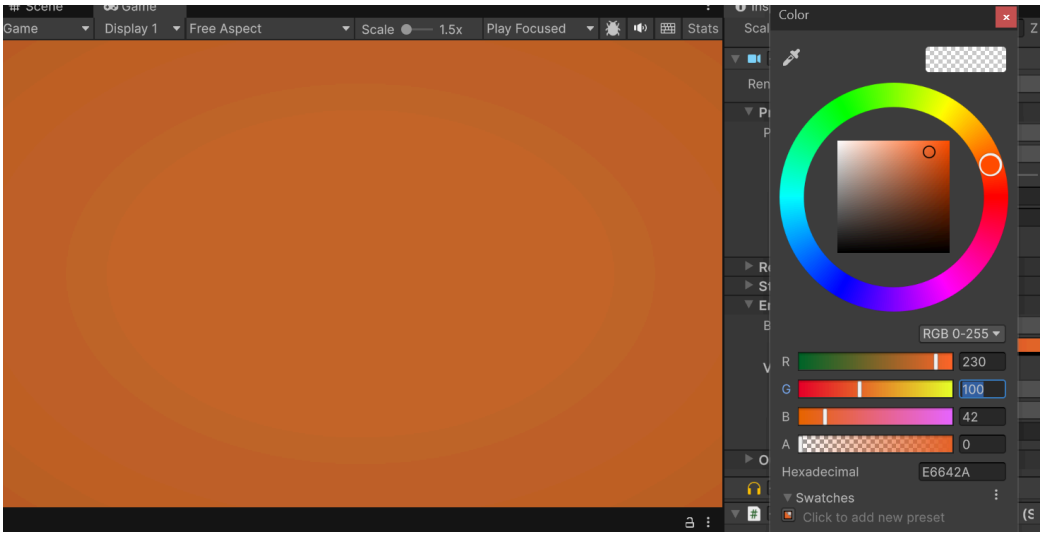
- Camera Properties



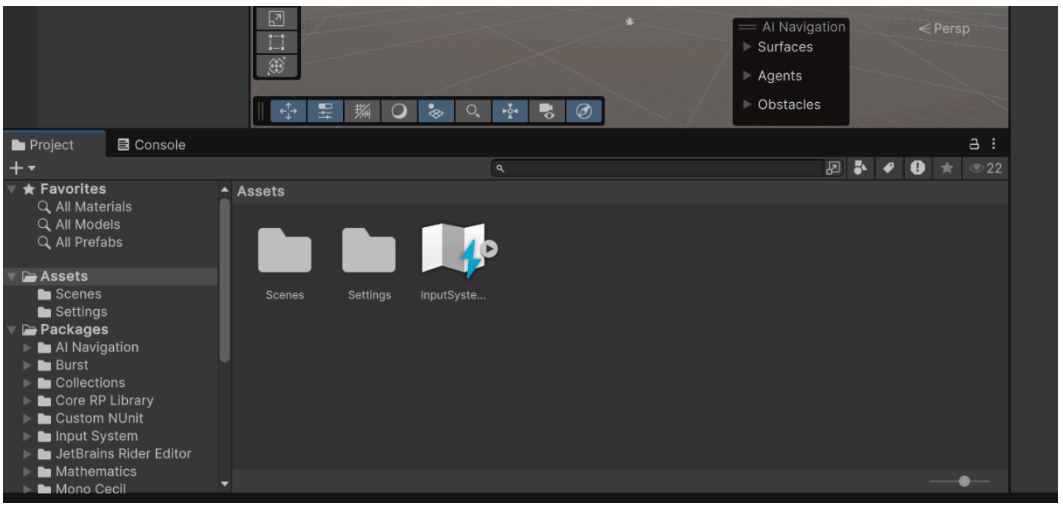
- By default, the environment type is skybox, but you can change it into solid color



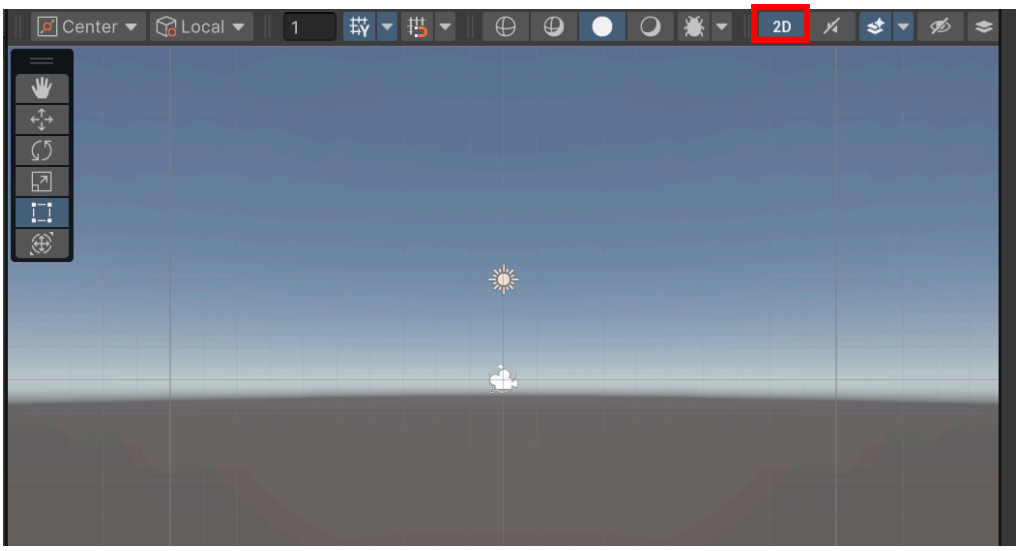
- If you change it into solid color, it will look like this, you can choose color of your choice.



- The explorer below the scene shows the properties about scene like what assets this scene contains

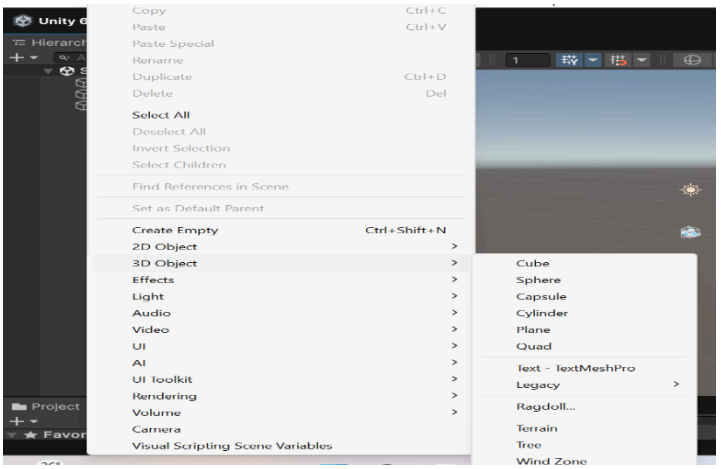


- There are other properties of the editor like 2D, gridview etc, you should explore and see how this work, like if you want to work in 2D mode, you can enable 2D, the scene will be converted into 2 dimensions.

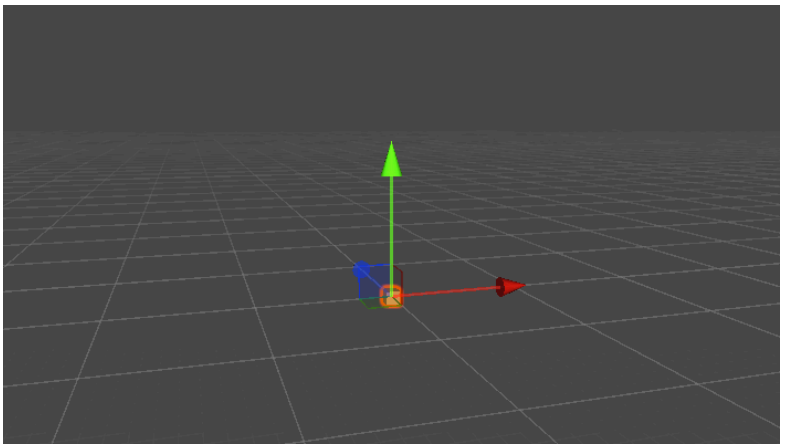


Creating a new Object in the editor

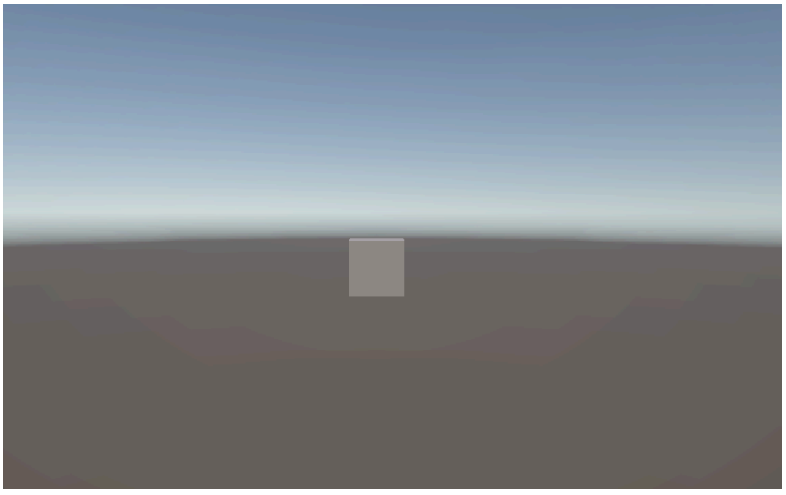
- Right click on the side of your scene name, it will show multiple options
- Click on 3D object, a list of objects will be shown, you select any of them



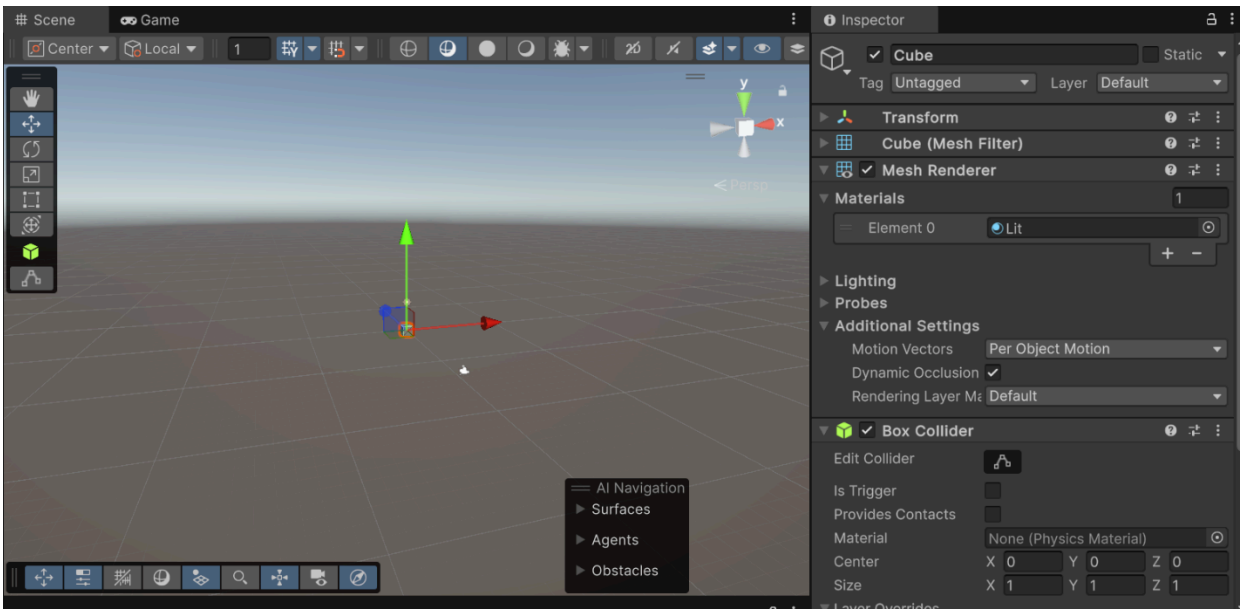
- We select cube , it will generate a cube in the scene



- In game it, will show the object as well

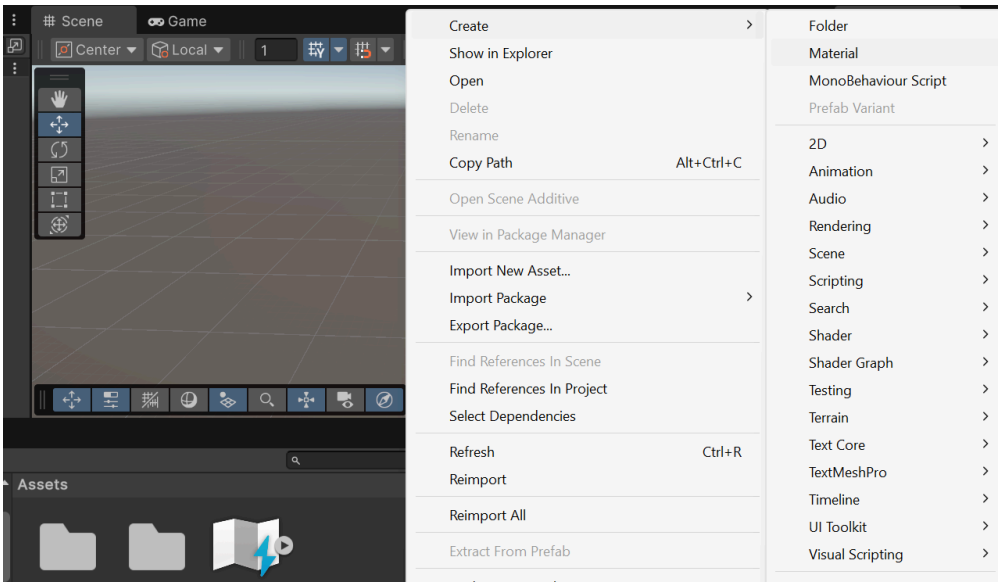


- If you click on the cube, it show its properties at right side

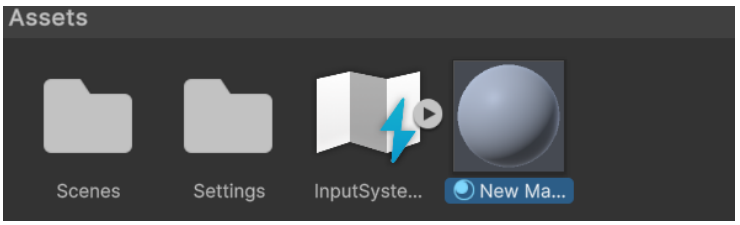


Colouring the Object

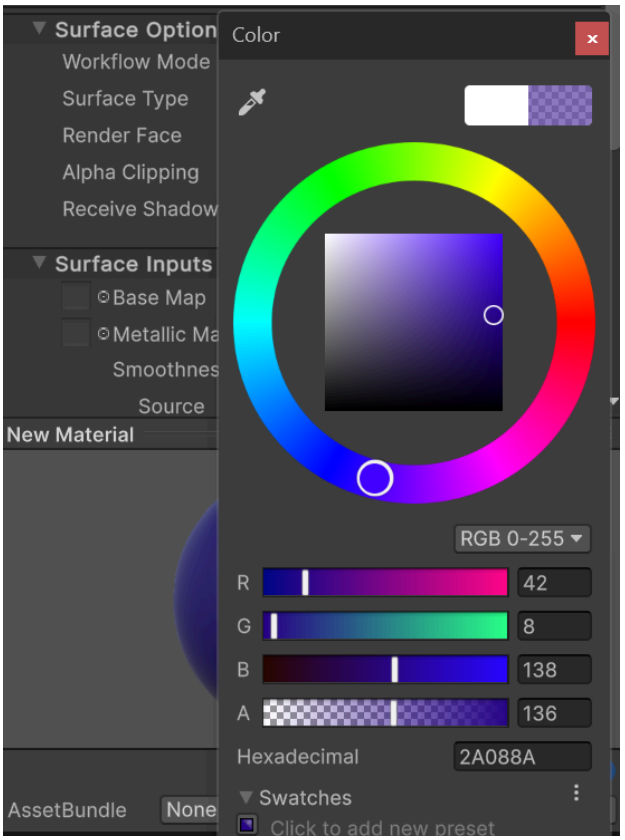
- Goto assets
- Right click and select Create Material
- A new material will be created
- You have to change the color of the material be going to its properties



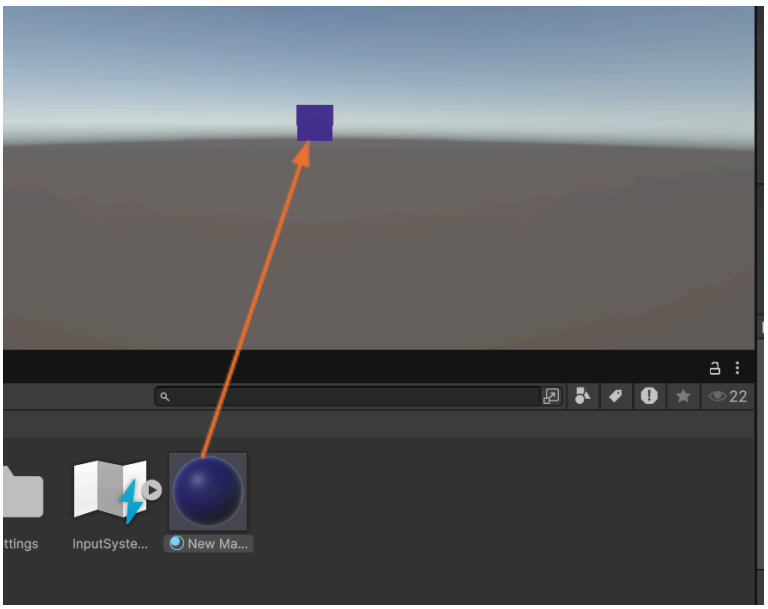
- A new Material will be created And shown in the assets



- Now change the color of the material by going to its properties:
- Base Map Select color of your choice



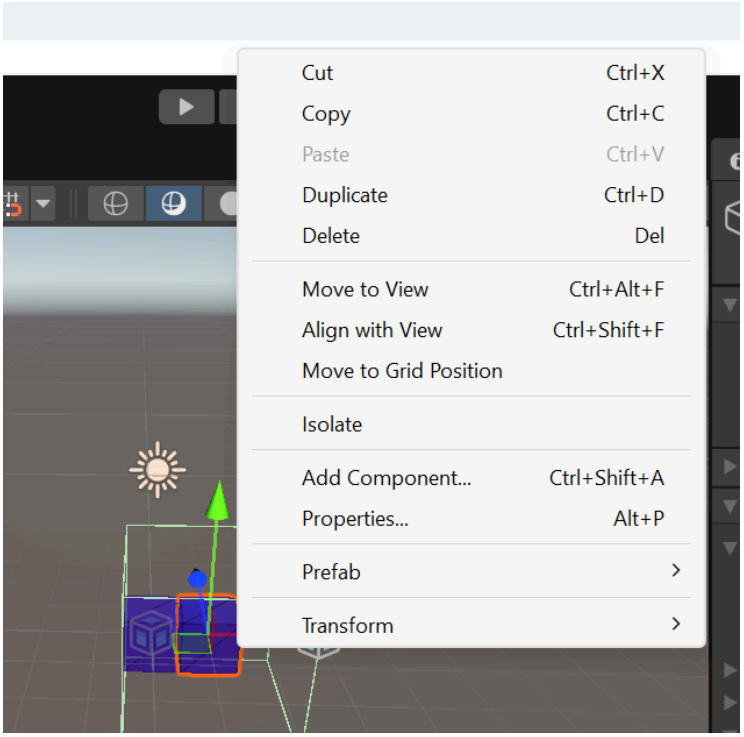
- Material color will be changed
- Now drag that material and drop it on the object



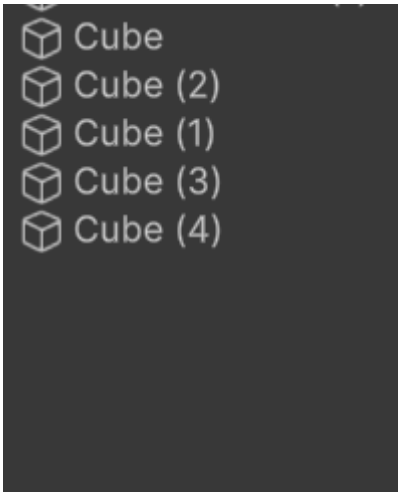
- The colour on cube will be applied

Creating Duplicate objects and merging them together

- Either right click on the object and select duplicate or use the key **Ctrl+d.** It will create the duplicate object.

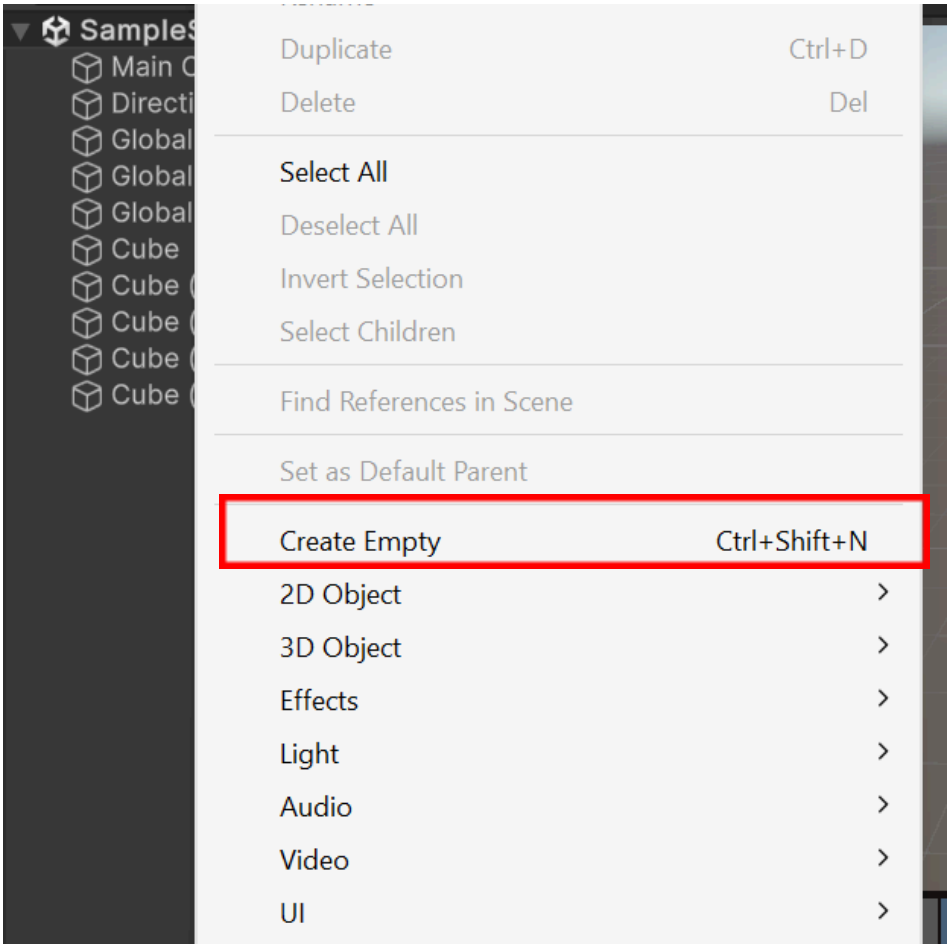


- **You can select multiple objects and create duplicates of all together**
- **So multiple objects will be created, if these are of same type, yoy can group these together.**

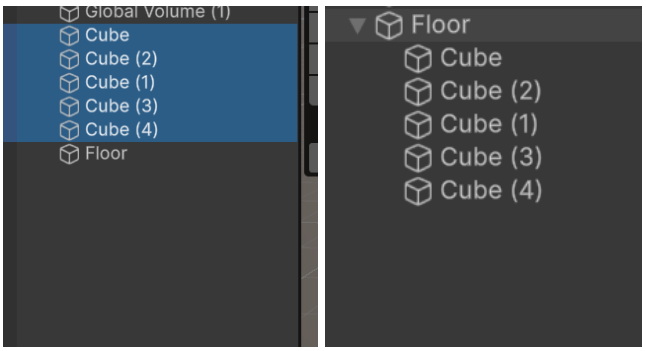


Grouping the objects together

- **Right click in the scence menu □ select create empty**

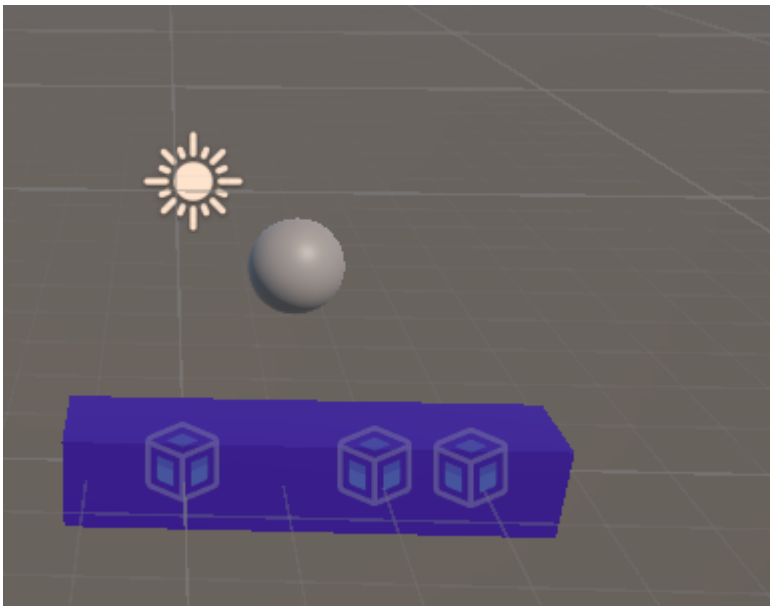


- An empty object will be created, you can rename it based on your context
- You have select the objects together and drop into the new object, now these are grouped together.



We have created a bar of cubes.

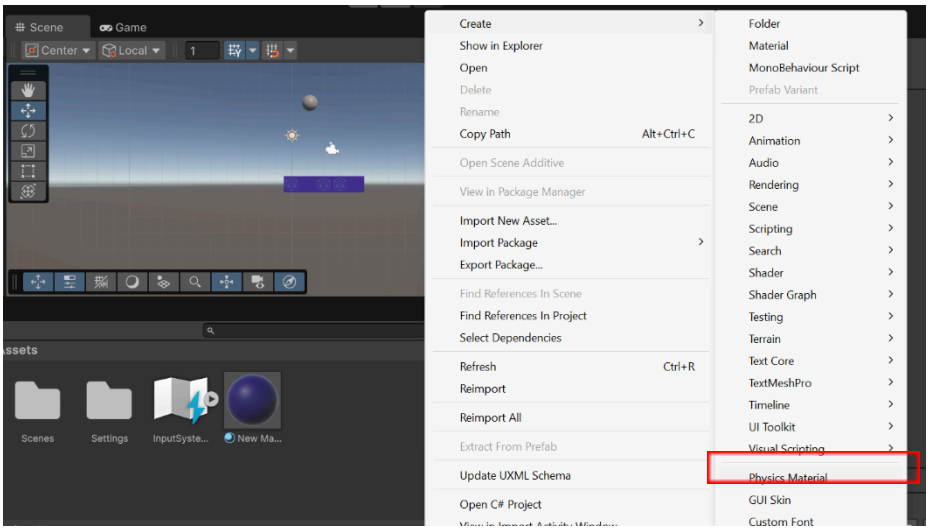
- Now we are creating an other object
- We will create a sphere



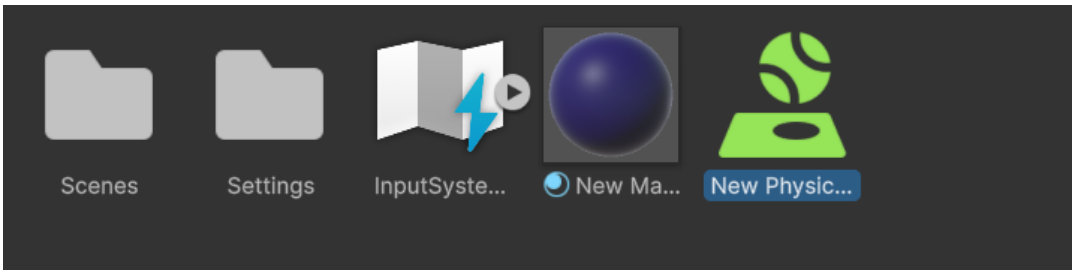
- We will add a property named **rigidbody** to the sphere
  - This property will give some mass, gravity and other attributes to the sphere
  - Now what happens if we play the game?
  - It sticks with the bar

Adding bounciness into the ball

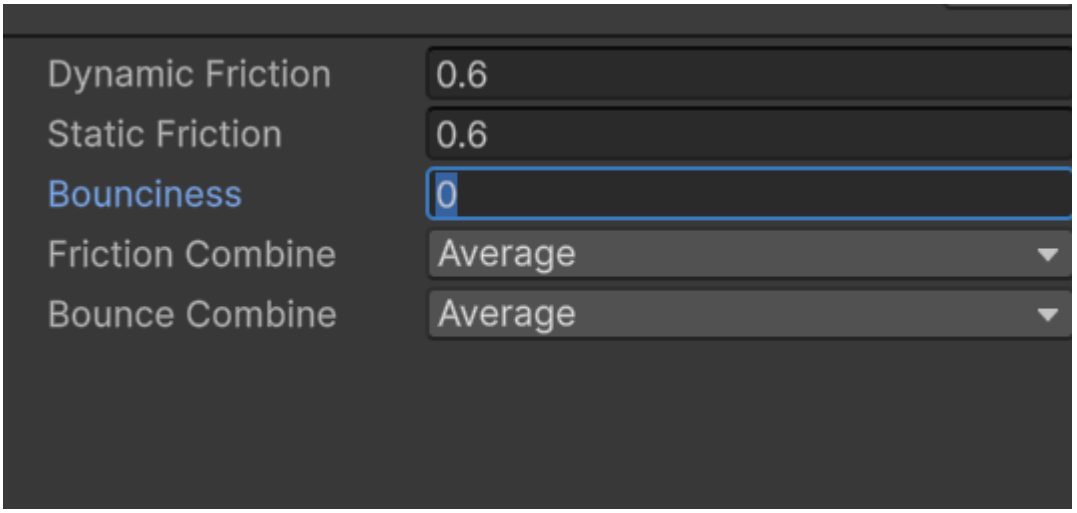
- Goto Assets Create Physics Material



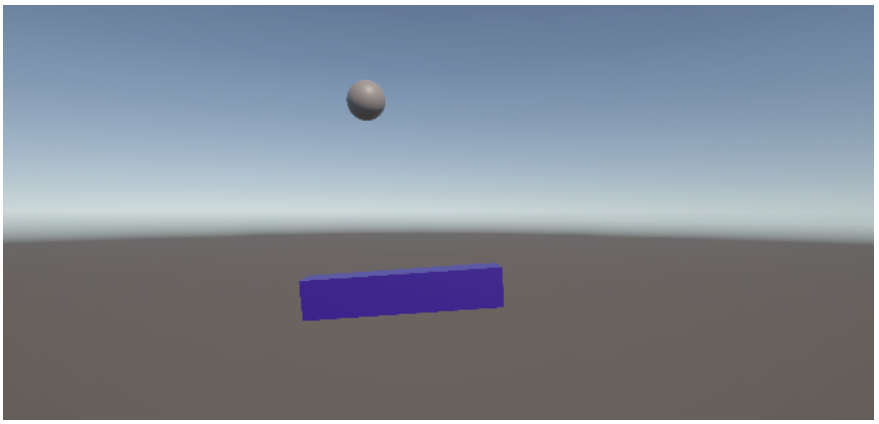
- A new Asset will be created



- In its properties, make bounciness=1



- Now apply the the asset to the sphere and play the game
- Now if we rotate the bar a little bit:



- The environment becomes a bit tilted
- Now play the game and see the results