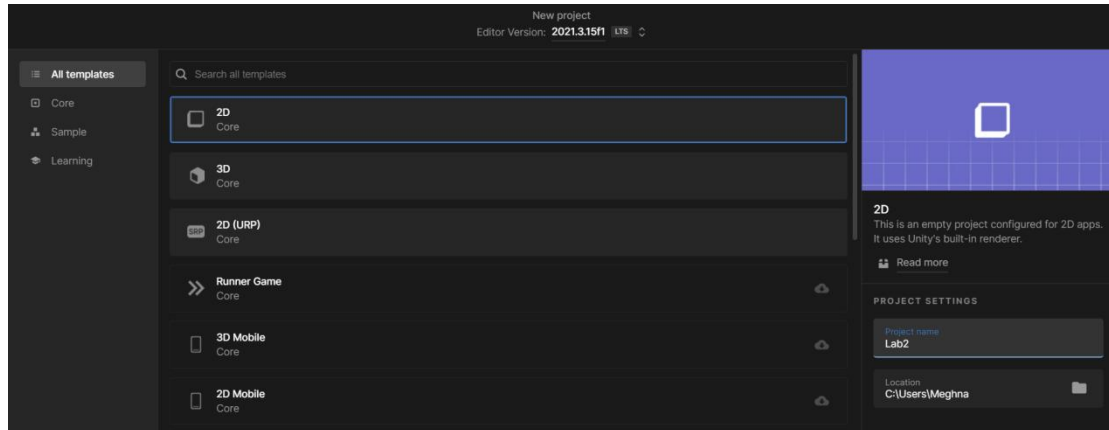


GAME PROGRAMMING LAB 3

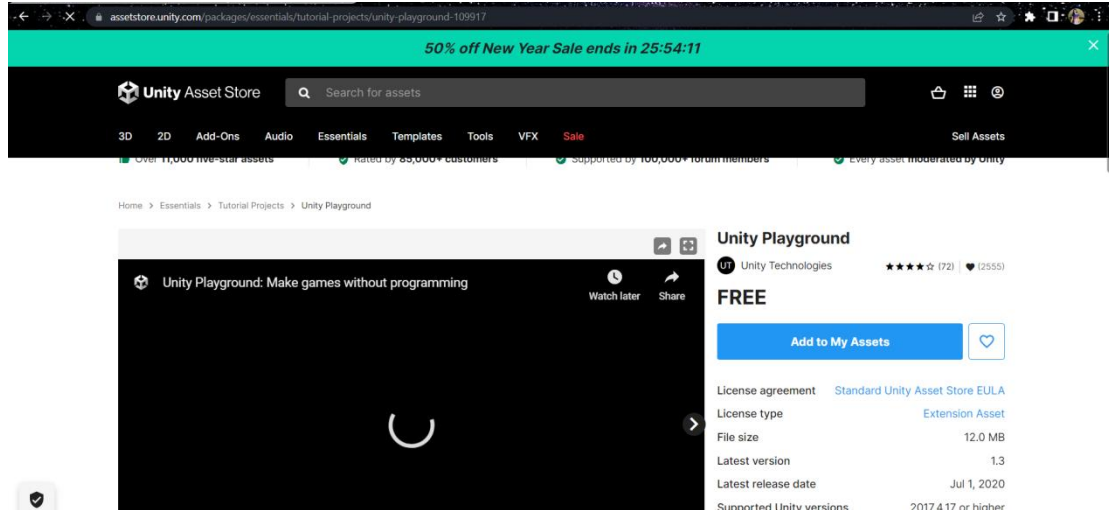
- Meghna Sinha, 20BAI1133

Creating a Spaceship Game

Create a project in Unity with the 2D Template

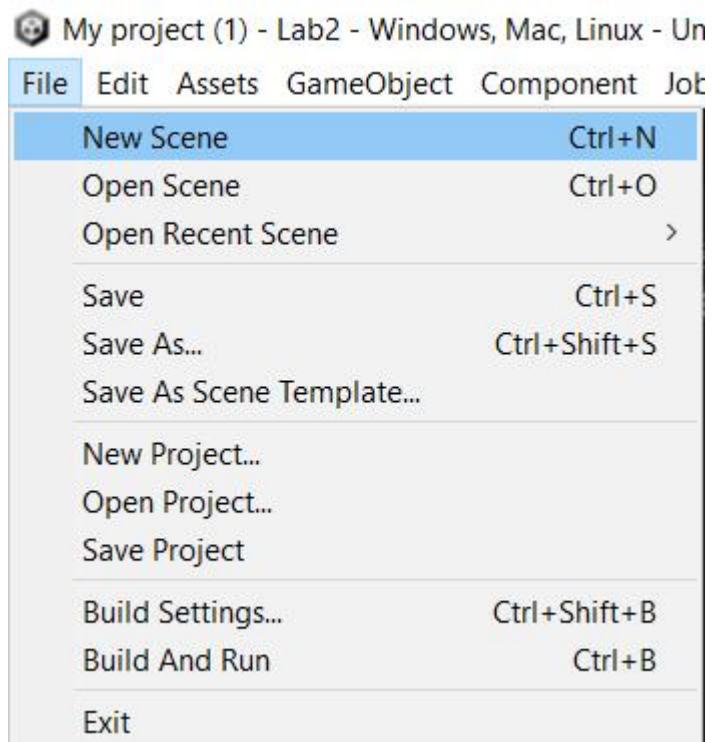


Add Unity Playground by going to the Asset Store. Download and import files to the current project.

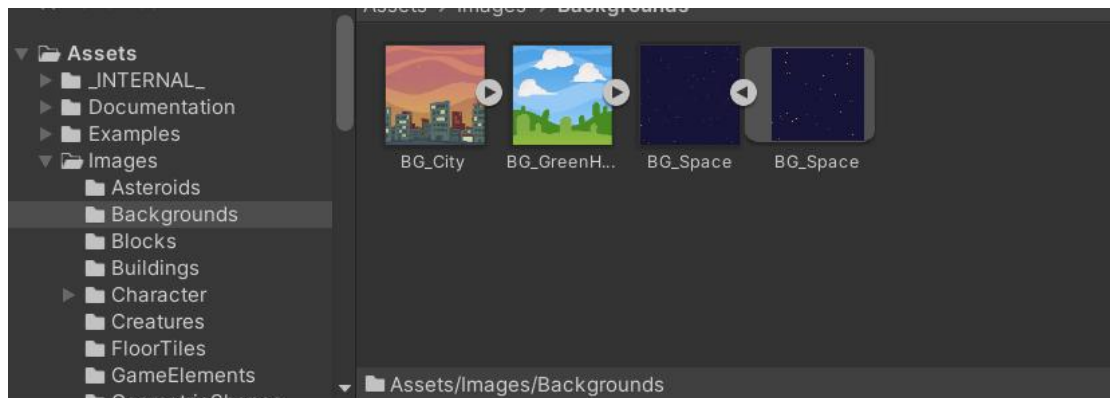


To create a new Scene

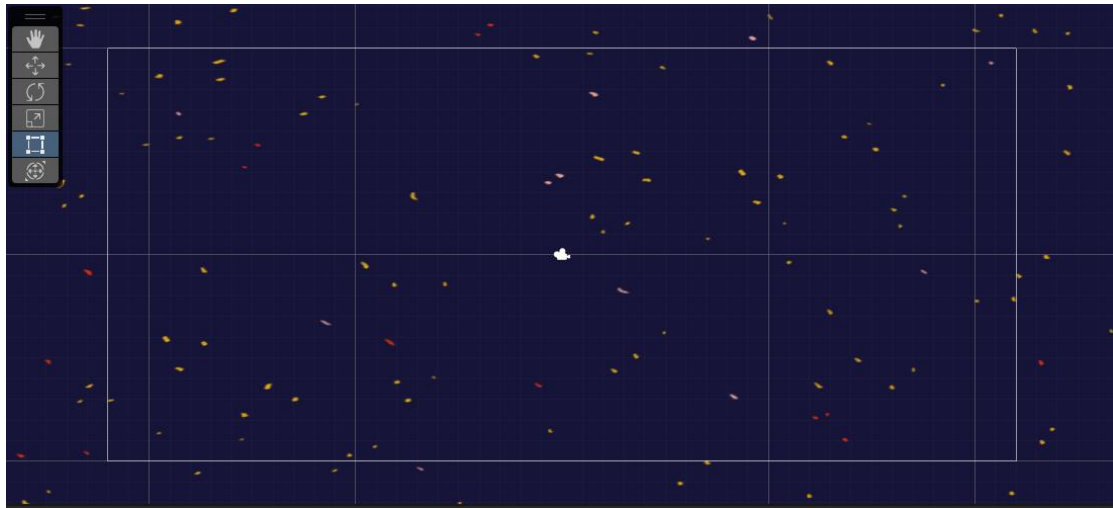
We will go for File-> New Scene



Project window -> Assets -> Images -> Background

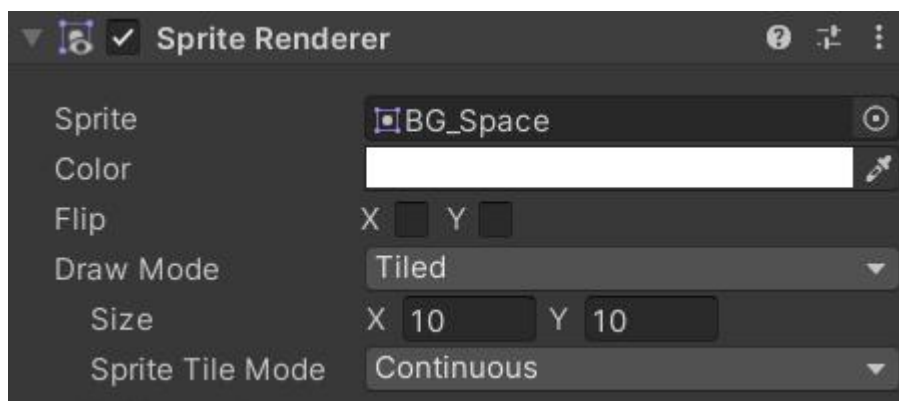


To start with our 2D scene, we will first select a background and drag it into hierarchy

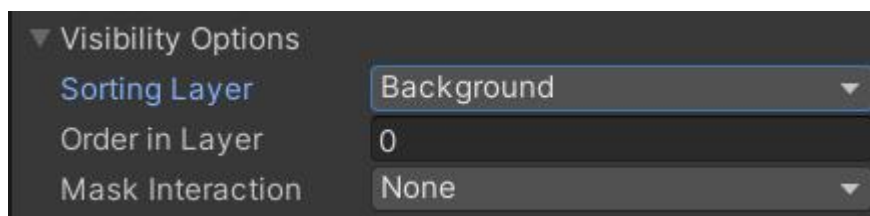


After the background is chosen we make some changes in the settings.

Change draw mode to 'Tiled' from 'Simple' as many graphics support tiling.

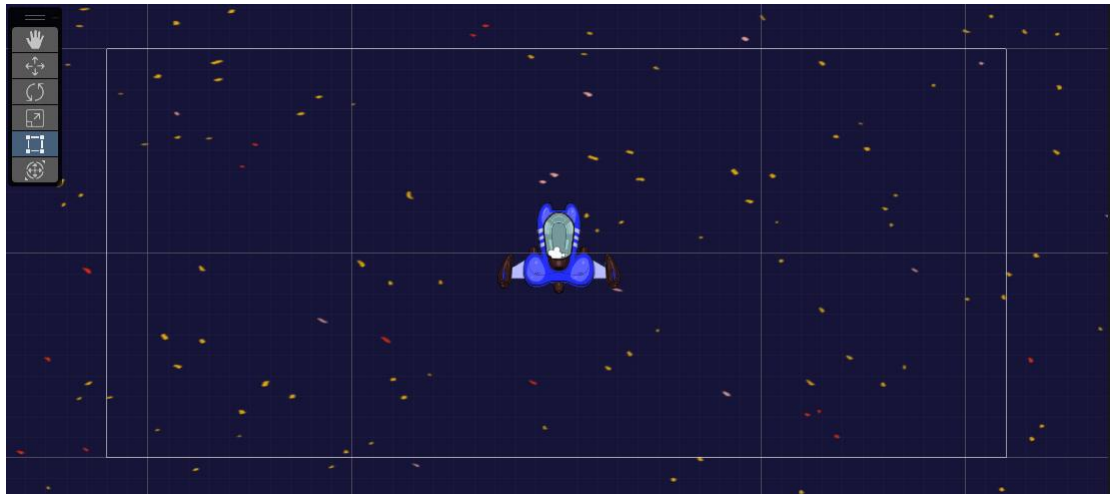


We will also change the visibility settings for the background from 'Default' to 'Background' so that all game objects are visible when placed on it.



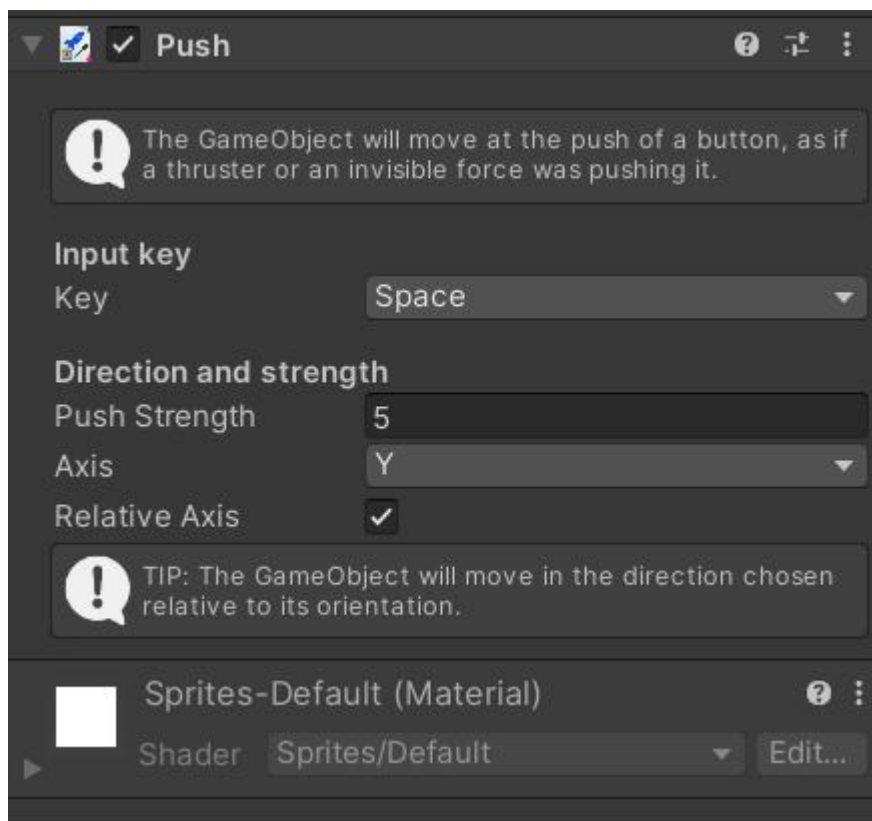
Now we will proceed with adding objects to our scene.

The first object we will add is the Spaceship.



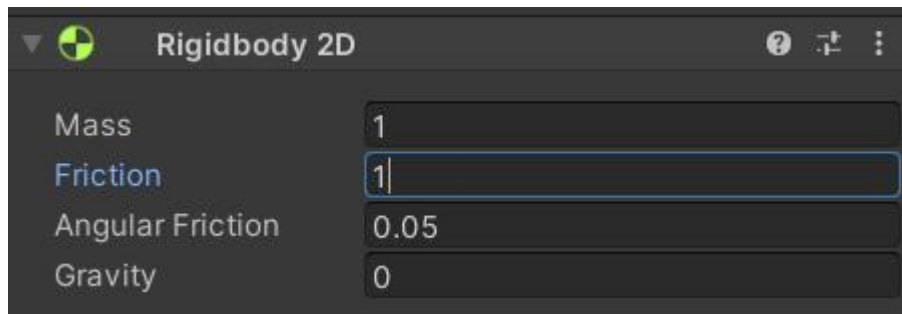
Now we will add some components to the spaceship to facilitate it to move

Spaceship -> Add Component -> Push.



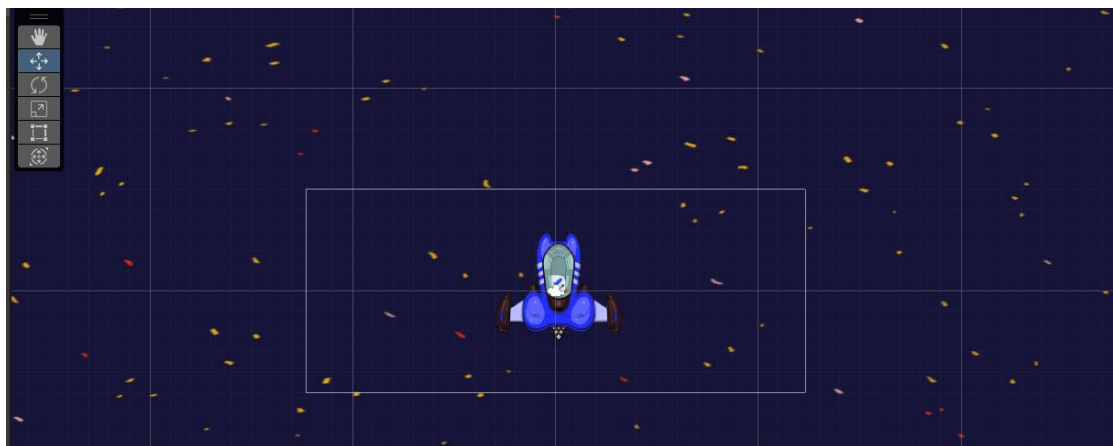
This automatically adds a Rigid Body component.

Changing the values of gravity to 0 and friction to 1

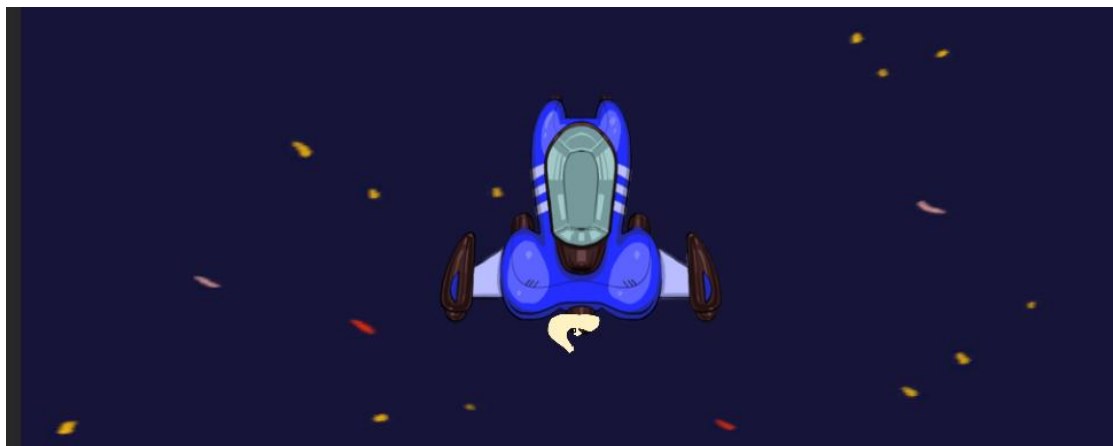


Adding flame to the spaceship

Project window -> Assets -> Prefabs -> Particles -> P_Flame -> Drag it under the ship

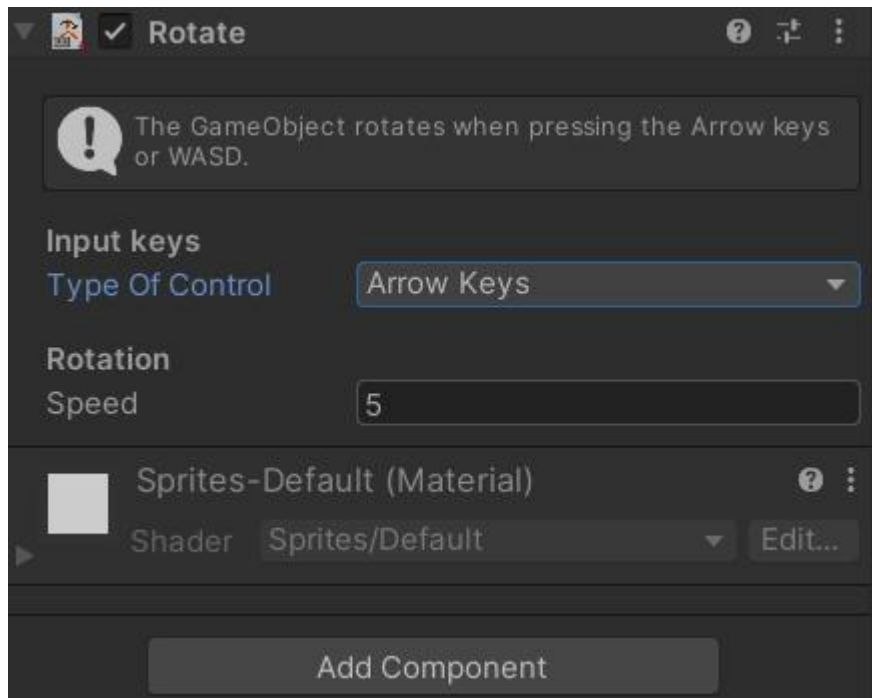


Initial game scene

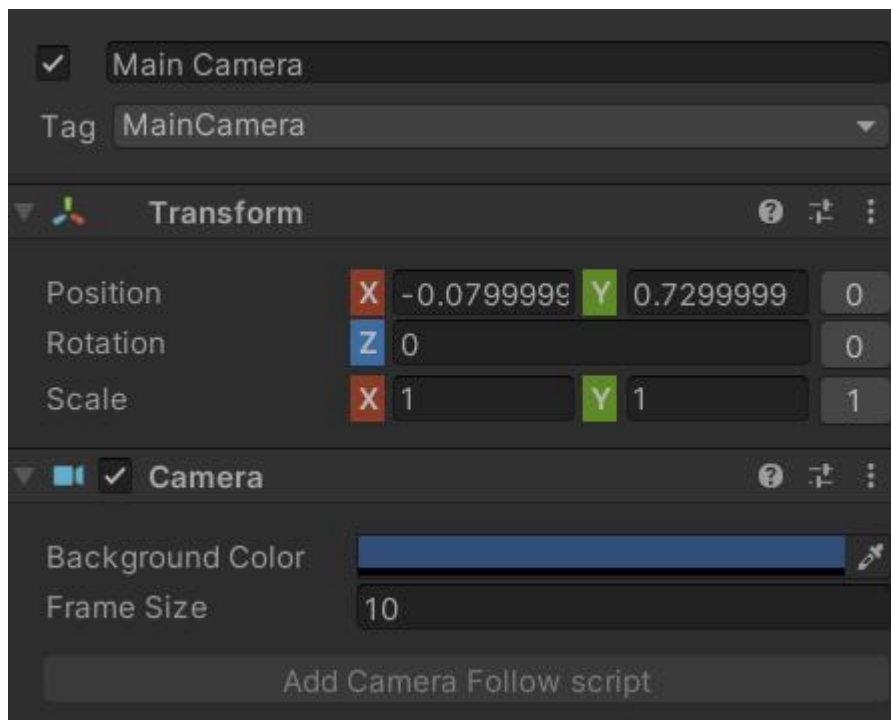


We also add the rotate component to the spaceship.

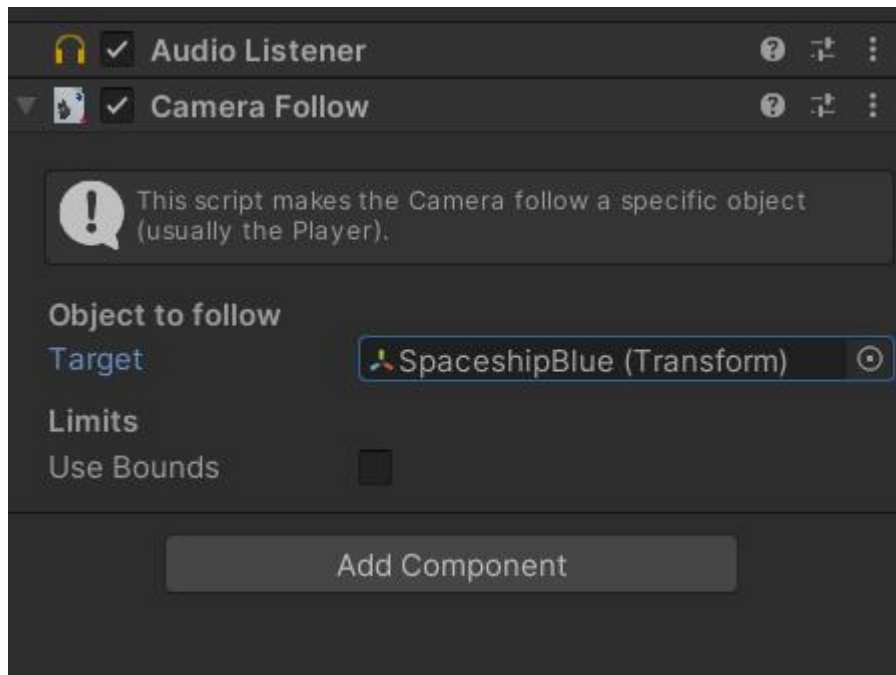
We then proceed to fix values for attributes type of control, angular friction and rotation speed.



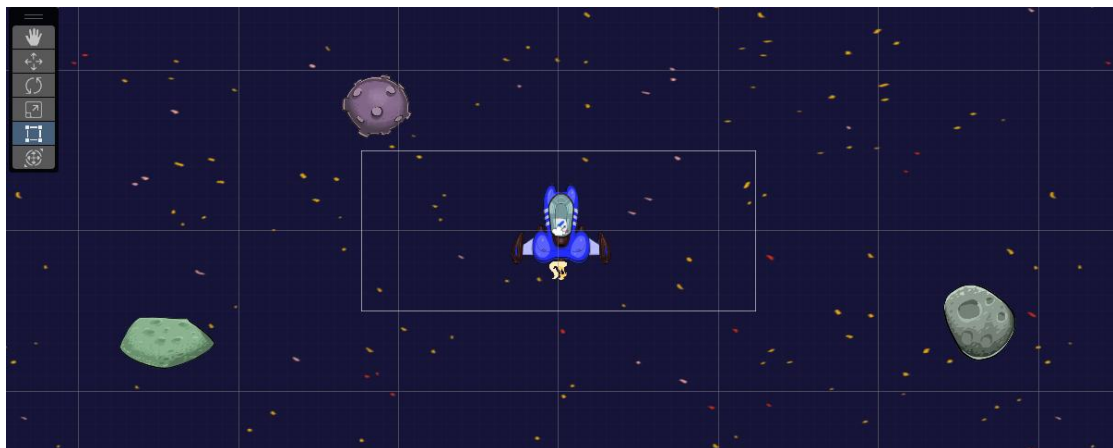
Now we will proceed with the main camera settings



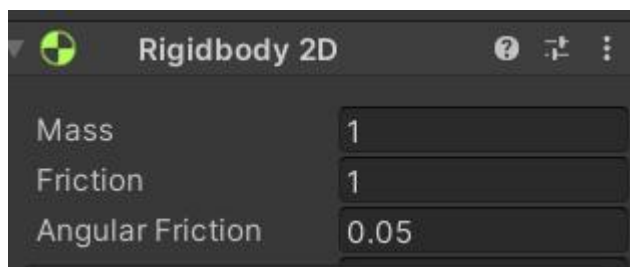
To add the camera follow, we must select an object. In our case it would be the spaceship



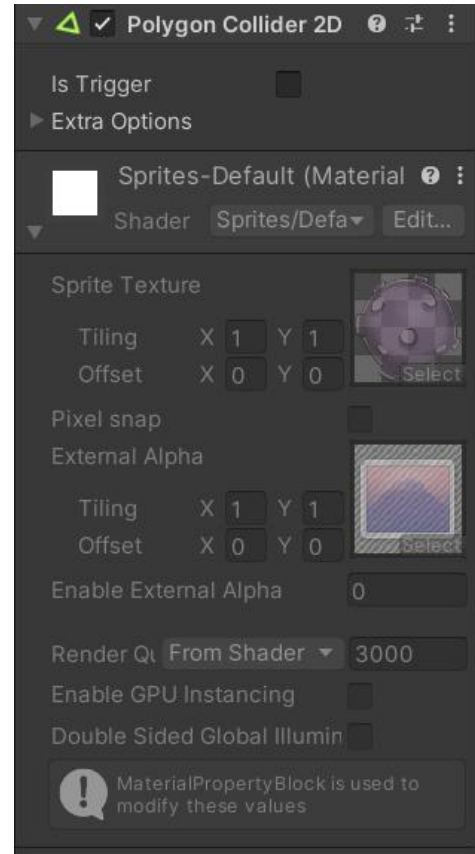
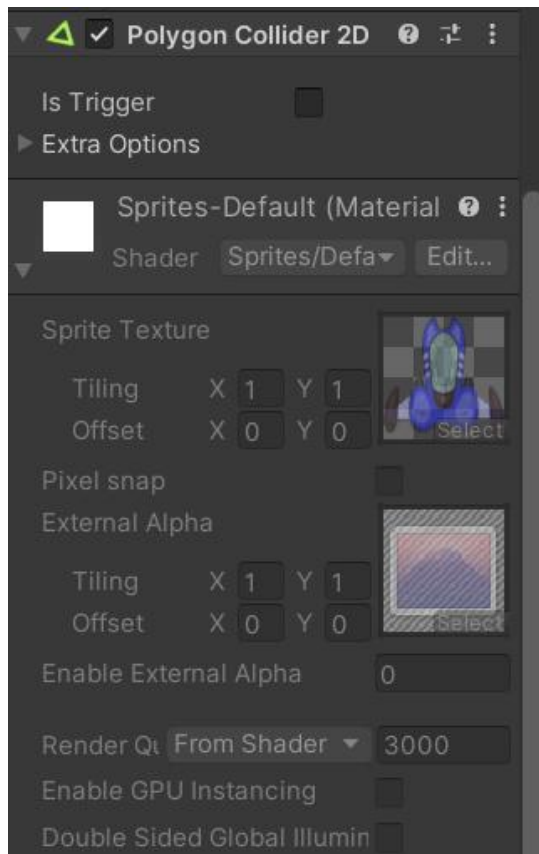
We will now add asteroids to the environment to act like obstacles



We will also add rigid body settings to the asteroids to fit the environment.



Now we will add the Polygon Collider to the spaceship and asteroid to create impact when they collide.



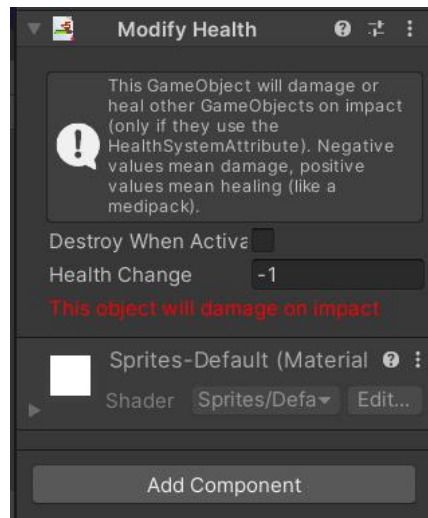
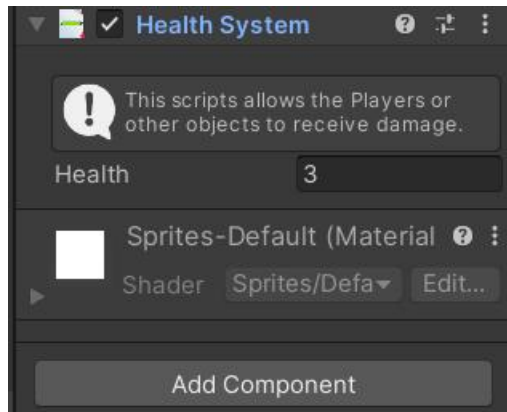
Current game scene:



As we can see the spaceship and asteroid are able to collide with each other.

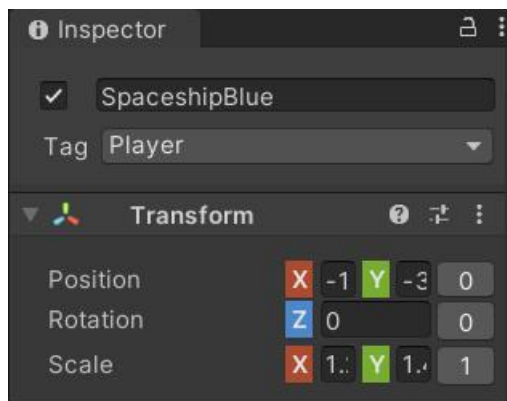
Now let us add game mechanics to this scene.

We will add health attribute to the spaceship and modify attribute to the asteroids. This will result in a deduction of points on collision



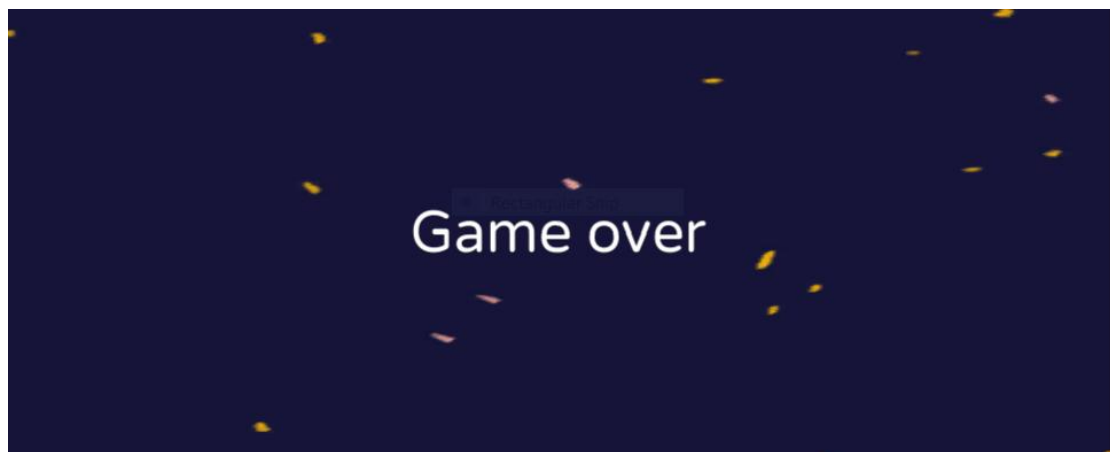
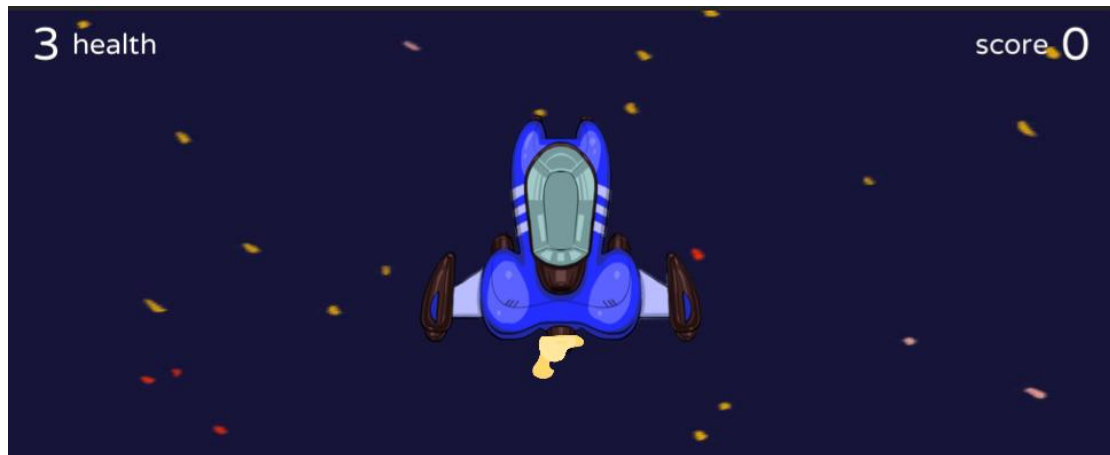
We further also add a user interface to the game. This can be done by Assets -> PreFabs -> User Interface

We also change the tag of the spaceship object to make it the player



Now the game will display spaceship health and score. It will also display 'Game Over' if health becomes 0 or 'Player 1 Wins' if the score reaches 5 (default values).

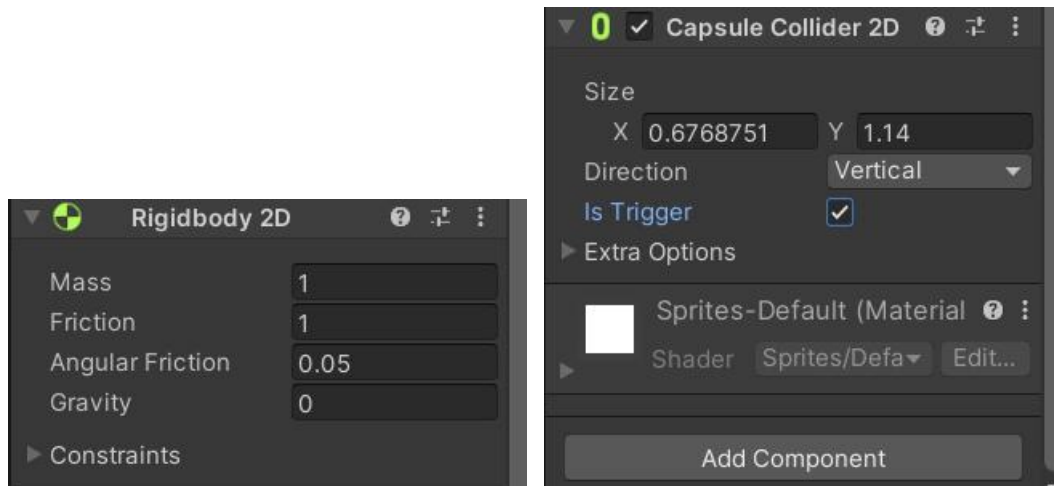
Current Game Scene :



Let's give the spaceship a way to get rid of the obstacles. We can do so by providing it with a laser projectile.

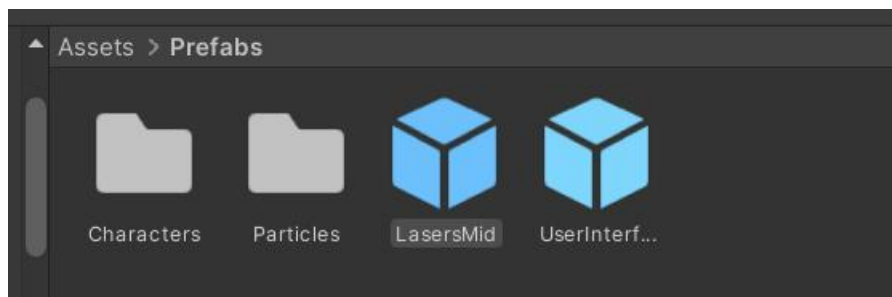
Images -> Projectiles -> LaserMid

Add a capsule collider to the component. Choose vertical. We will also add a Rigidbody component to it like other objects. We choose to select Trigger here as we do not want the laser to push objects.



Now we will add the Bullet attribute to keep track of who it laser belongs to (in a two player game).

We will now make the laser into a Prefab by dragging it into the file.

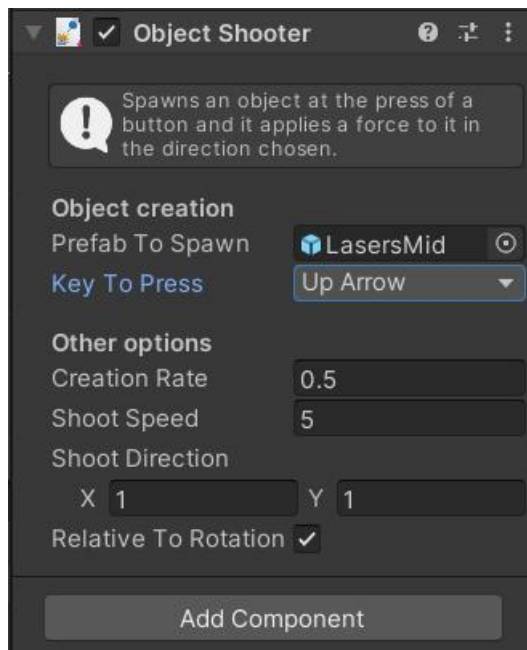


As we have created the prefab we can delete the instance in the scene.

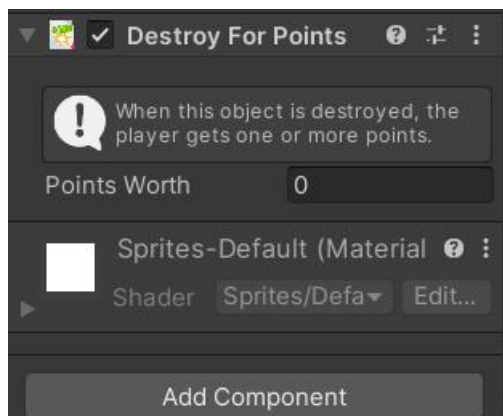
To spawn the laser projectile, we will create an empty object in the spaceship. To this we will add the Object shooter script. To this we will add our laser shooter.



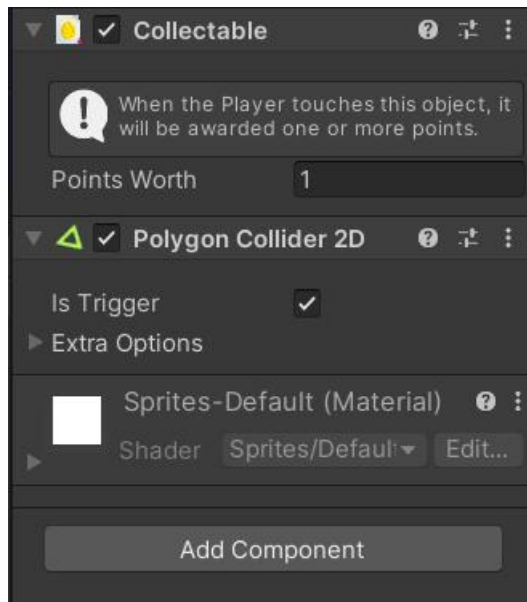
Add the LaserMid prefab to values to spawn for it to be added to the gameobject.



Now we will add the destroy for points attribute to the asteroid to help the player win. Setting the value as 0 as the objective of the asteroids is to act like obstacles and not the winning objective.



Now for the player to actually win points we will add stars as collectibles.



Final Game Scene :



Making modifications to the User Interface. To win a player needs 3 points, that is they must collect all stars.

When we collect enough points we can see the message 'Player 1 Wins'



Game Video :

The following video demonstrates both the scenarios.

1 : Player wins due to collecting all stars (3 pts)

2 : Player loses due to low health (0 health)

https://drive.google.com/file/d/18cJ1xG4SDCl1wpmcHikdGH1jzH_Slyps/view?usp=sharing