Lab 2
2D Unity & User Interface

Lab Goals

In this lab we will test your ability to make a Menu Scene and then to create a level that uses the tilemap system and effectors.

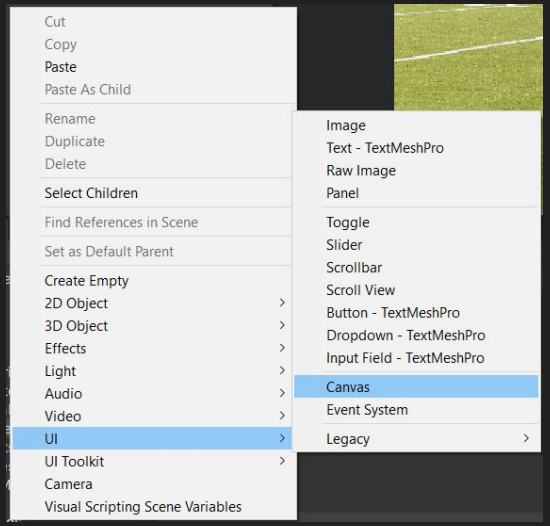
Menu Screen - Canvas

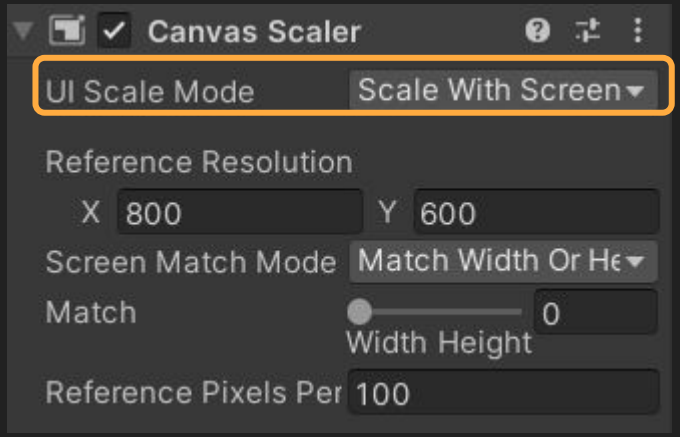
Open the Menu_Scene scene.

Here we will start by creating a canvas game object in the hierarchy window.

Once you've created it check the inspector and set the Canvas Scaler UI Scale Mode to be Scale With Screen.

That way regardless of the size of the screen the UI will match it.





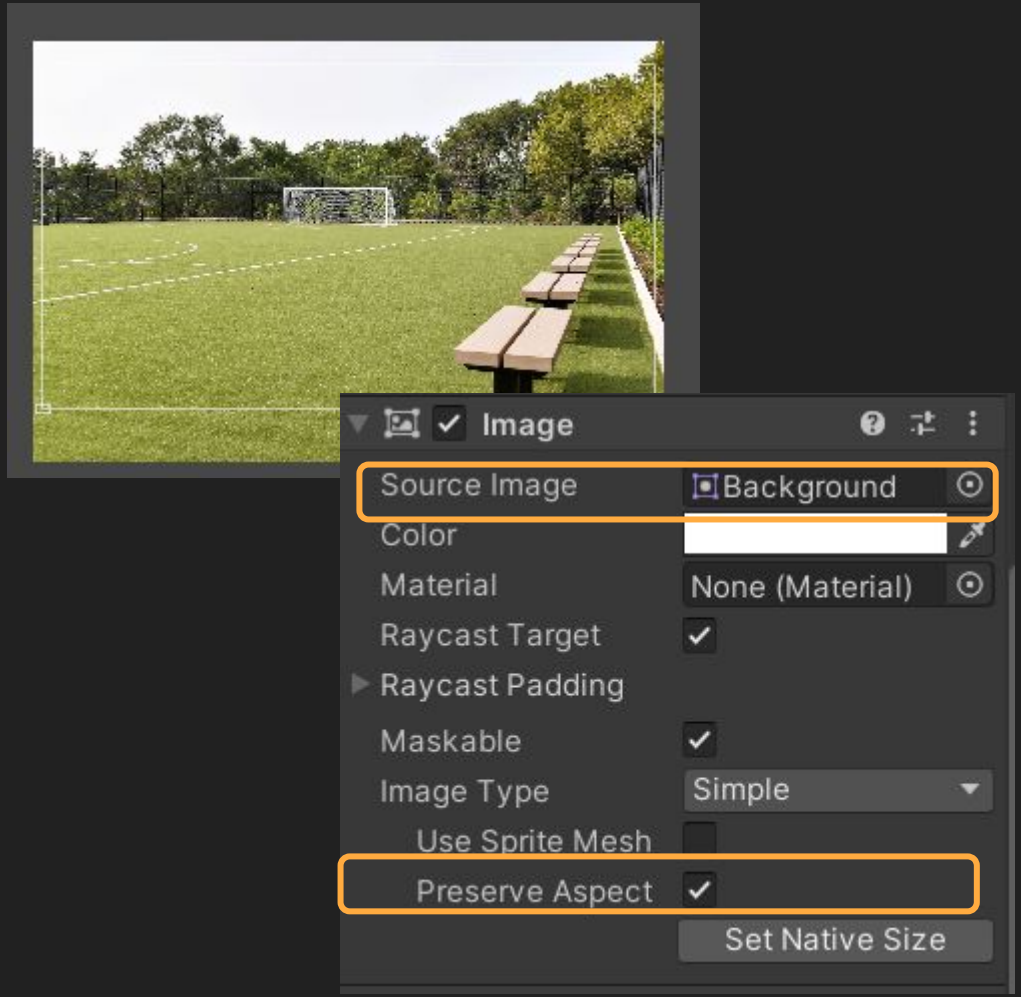
Background

Create a image inside the canvas.

Change the source Image to use the Background Sprite and make sure the Preserve Aspect is checked so the image isn't scaled incorrectly.

Once you have the image scale it to cover all of the camera.

You should see a faint white line that defines the canvas with the image poking outside of it.



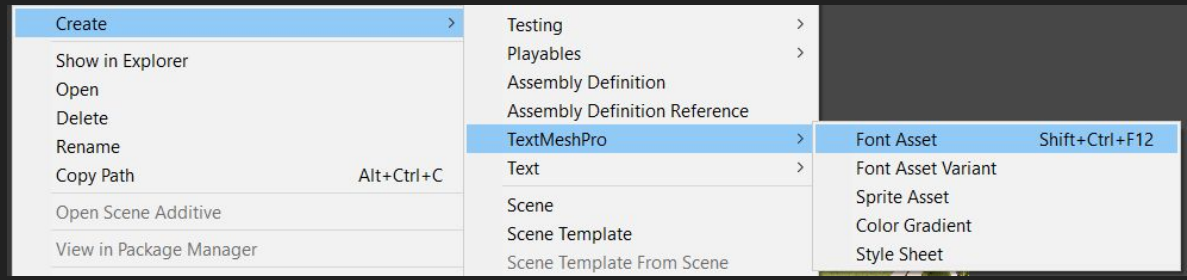
Title - Font

Before we make the title we have to prepare the font.

Go to the Font folder and you will find Game Asset called Font.

Right click on it and create TextMeshPro - Font Asset.

Once you've created it you should have a new Game Asset, click on arrow to expand it and click on the atlas.



Title - Font Atlas

When you click on the font altas the inspect will show you how you can modify the font to look different.

We’re going to make sure that it always starts as white.

We’re also going to give it an outline, so make the thickness 0.2 and change the color to blue.

Title

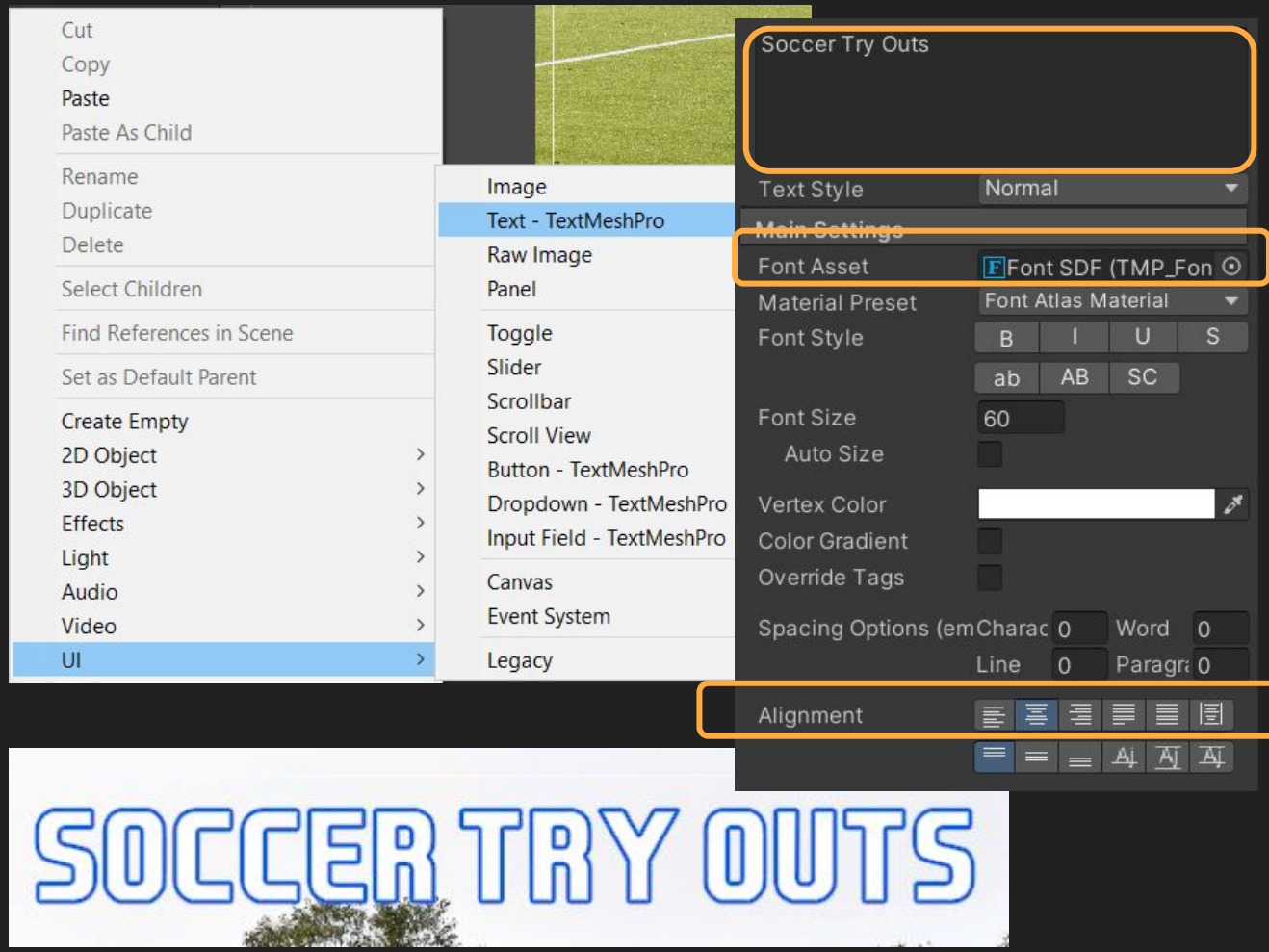
Now we're ready to create the title.

Create a UI - Text - TextMeshPro game object.

Make sure it's under the background image otherwise you won't see it.

Next type in "Soccer Try Outs"

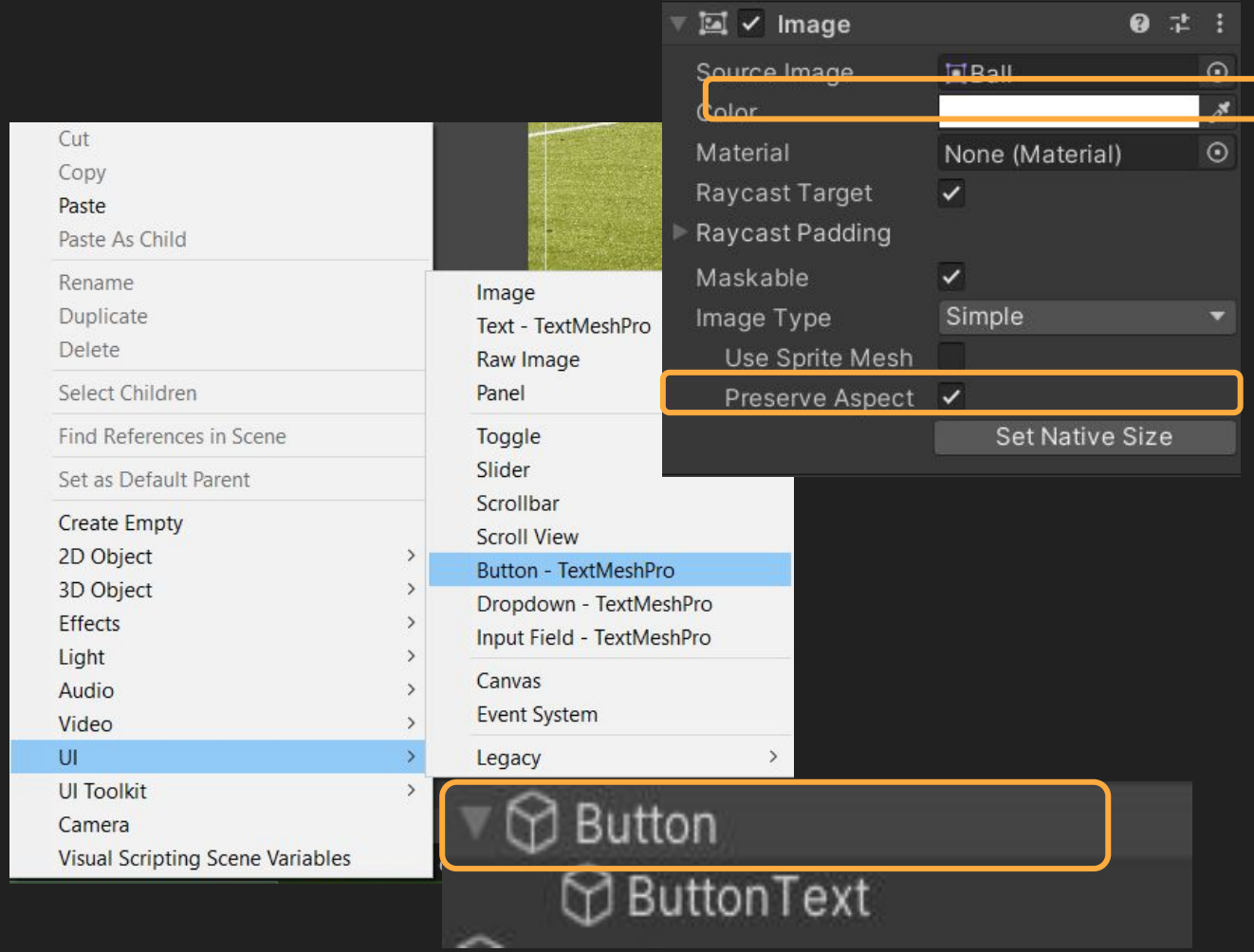
Set the Font to use the Font we created and center the text.



Button - Image

Create a Button by clicking UI -> Button - TextMeshPro.
When you do that you will have create 2 Game Object, the Button and the TextMeshPro that's on top of it.

Go to the Button and change the Image to A Ball and make sure to check the Preserve Aspect .



Button - Action

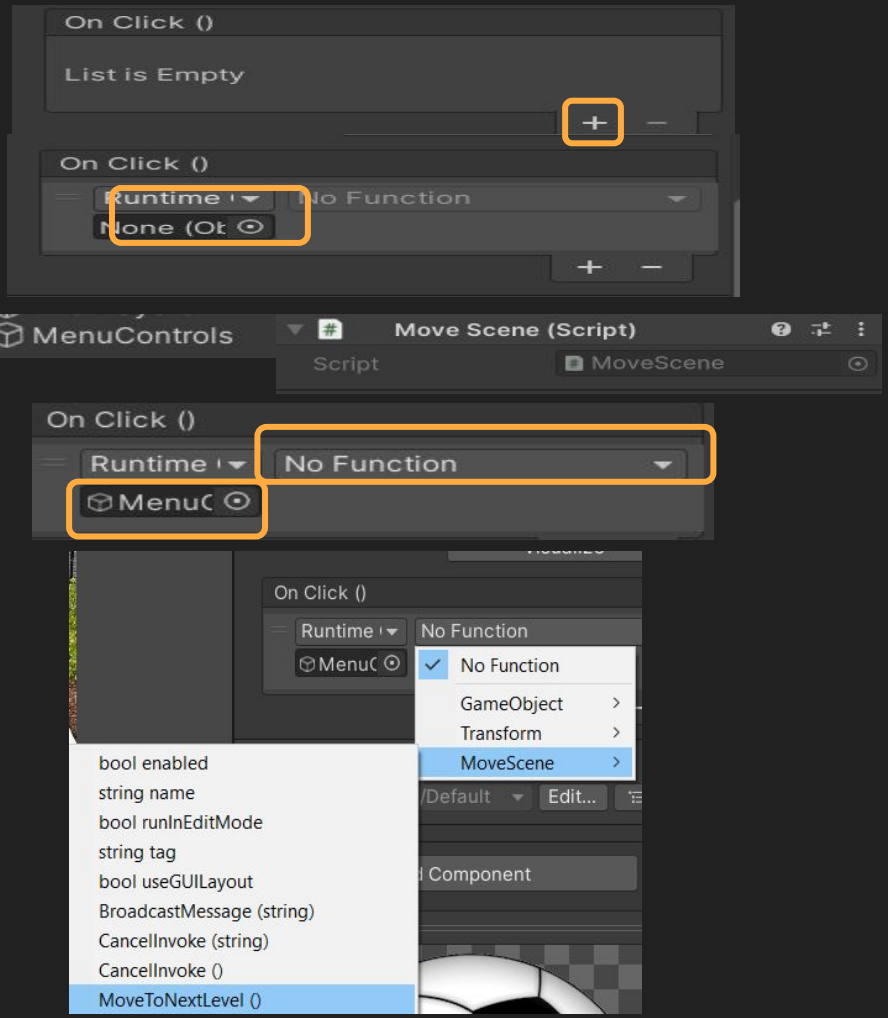
When you scroll in the inspector you will see a section that say On Click() this will perform whatever action is connect to it when clicked on.

Click the plus button.

You will see that there's no object connected. You will drag the MenuControls Object which holds the Move Scene Script.

Once it's connected you will be able to select a function, go to MoveScene -> MovetoNextLevel().

This will make the button move you to Game_Scene when clicked on.



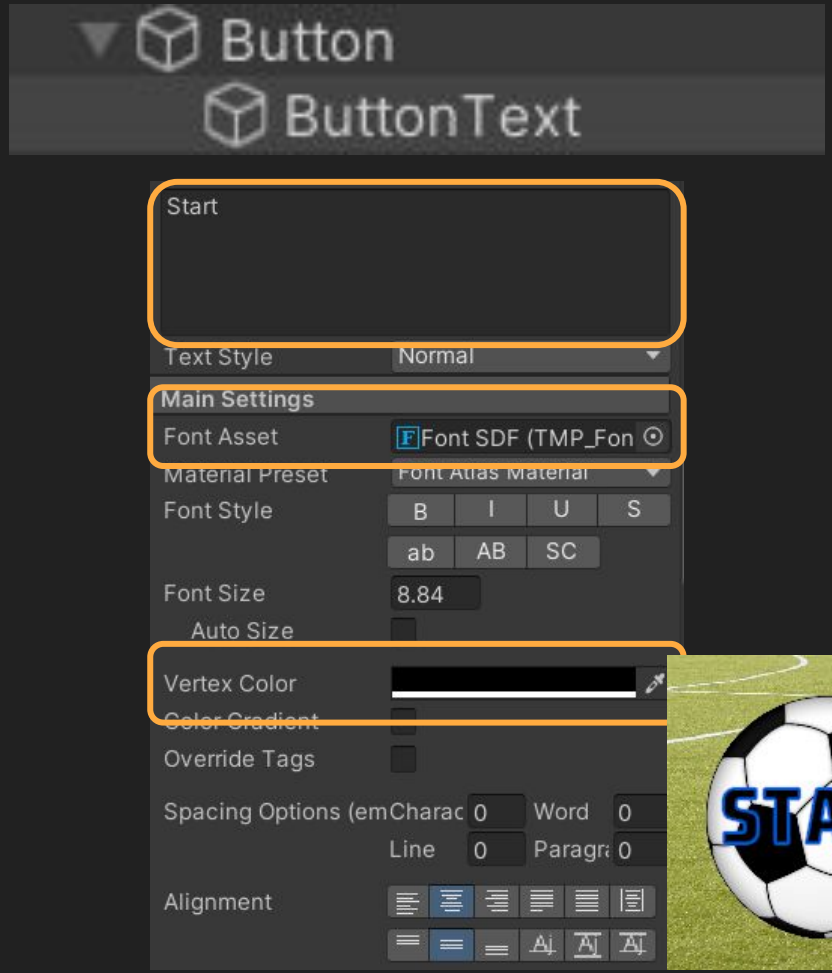
Button Text

Last thing we need to do is change the text.

Go to ButtonText and change the text to say start, make sure we're using the same font we created.

Change the color to be black and make sure the text is aligned in the center.

With that you should have the menu scene completed. Make sure you save your changes.

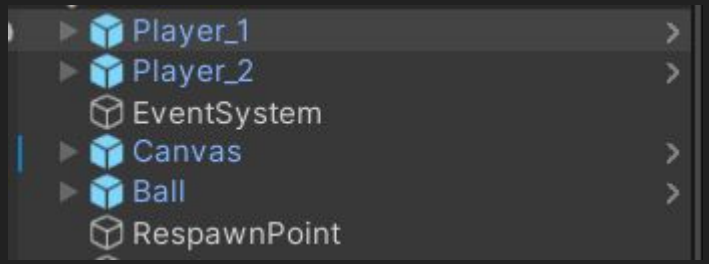


Game Scene

In the Game Scene you will notice there are few object there already.

Two Player Objects, one Ball Object, Respawn Point for the Ball, and a Canvas Object with the Event System to connect to.

We will edit the Players but the rest of them can remain untouched.



Players

In the game scene you will find two prefabs, Player_1 and Player_2.

We're trying to make this a split screen game, so each of them has a camera attached to them.

Make sure that Player_1 has a yellow background, and a 0.5 x 0, 0.5 x 1 Viewport

And Player_2has an orange background and a 0 x 0, 0.5 x 1 Viewport.

This will split the screen vertically in half.

Players - Effector

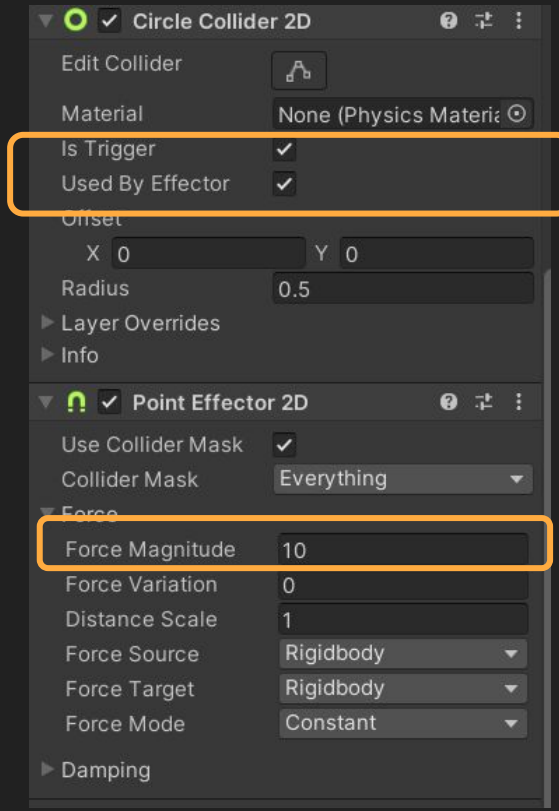
Both of the players have 2D Box Collider and a 2D Rigidbody attached to them but it not enough to make the ball “kicked” when approached.

So we’re going to add a 2D Circle Collider and a Point Effector so that the ball is repelled by the approaching player.

Make sure to do this for both of the players.

The circle collider should have trigger and used by effector.

And the effector should have power of 10.

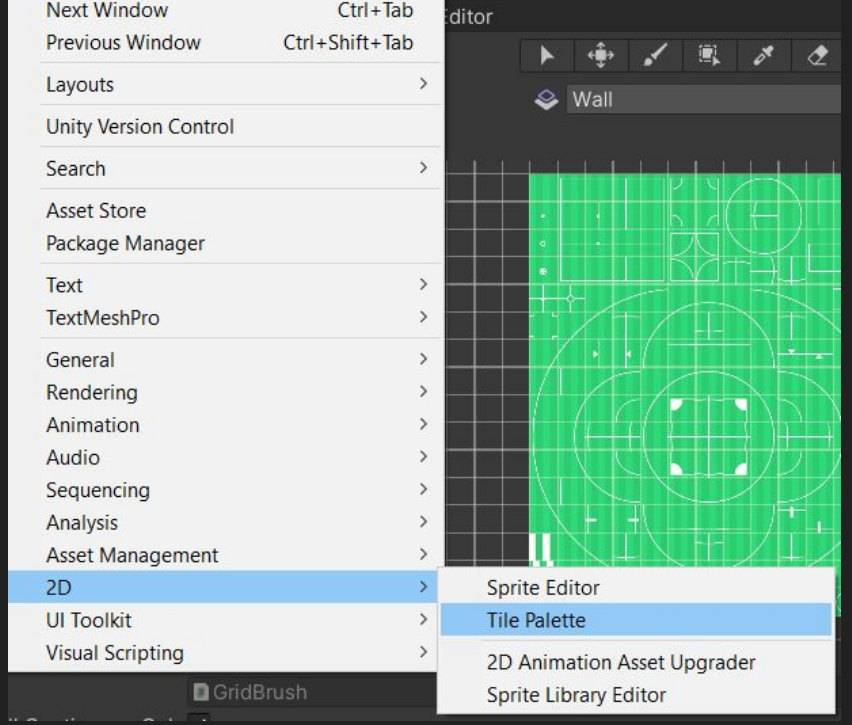


Stage

You already have premade Tile Palette so go to Window -> 2D -> Tile Palette.

This should open up a tile palette with a soccer field tiles on it.

Select the X tile as we're going to use it to draw.



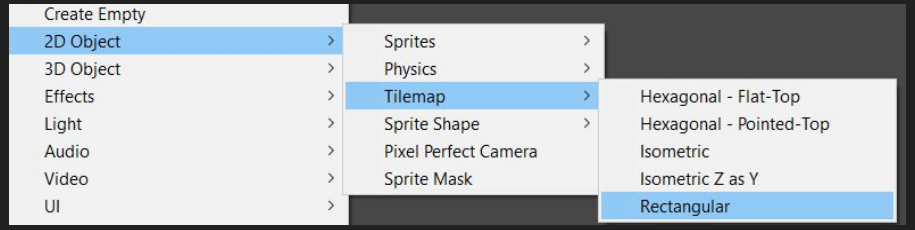
Stage - Grid

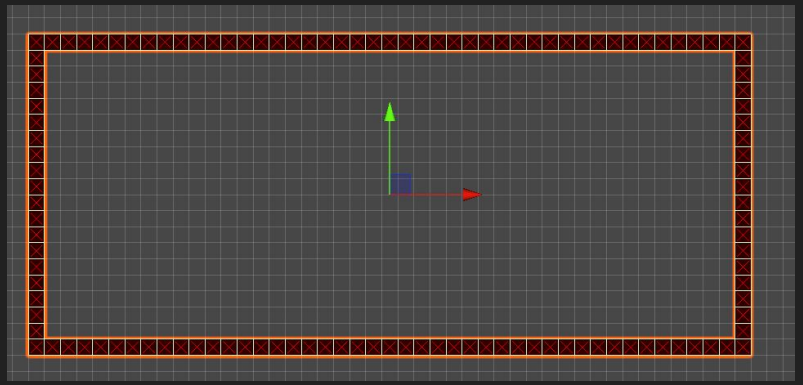
Create a Rectangle Tilemap.

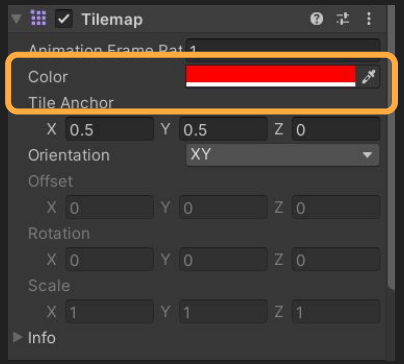
Name that Tilemap Wall and using the X tile you've select from the Palette draw a big rectangle.

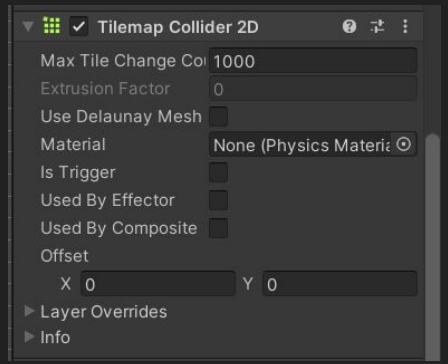
Once you're done look in the inspector and change the color of that wall to be red so it's more distinct as border of the level.

Lastly add a Tilemap Collider component so thing can interact with it.







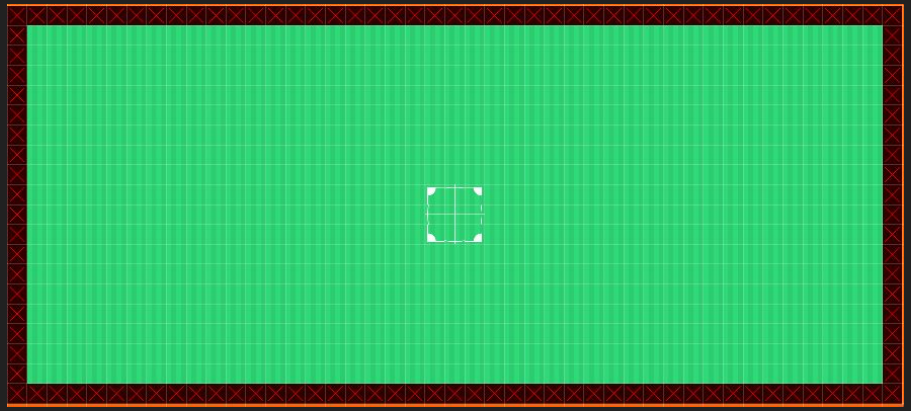


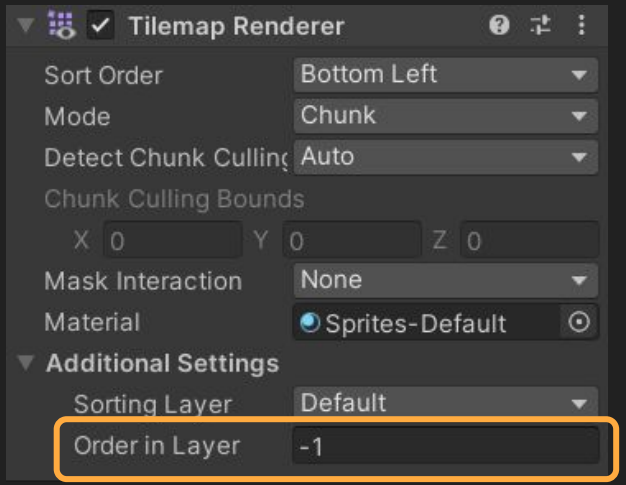
Background

Next create another tilemap this one will act as the background of your level.

Make it look as nice as you want.

Make sure that the Order in Layer is -1 so it's behind everything in the game.





Goals

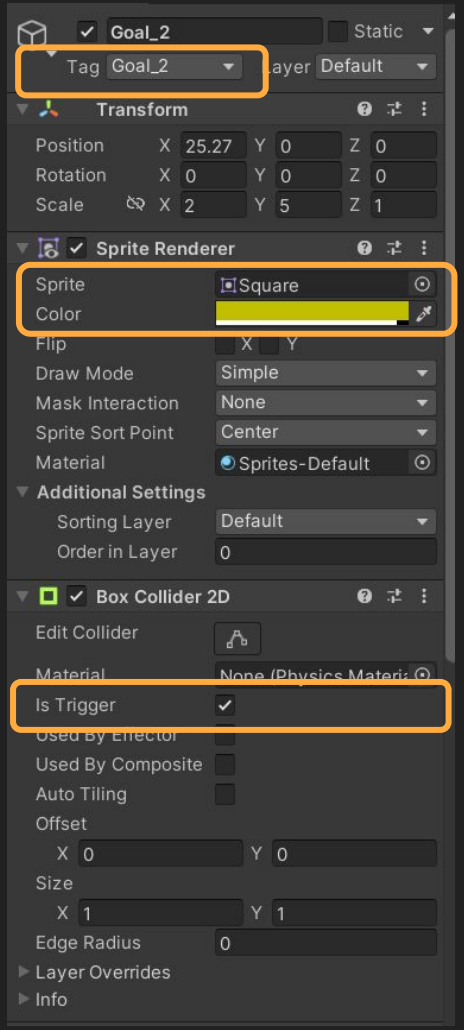
You will create two goals, of for each player. When a ball hits a goal the opposing player should get a point.

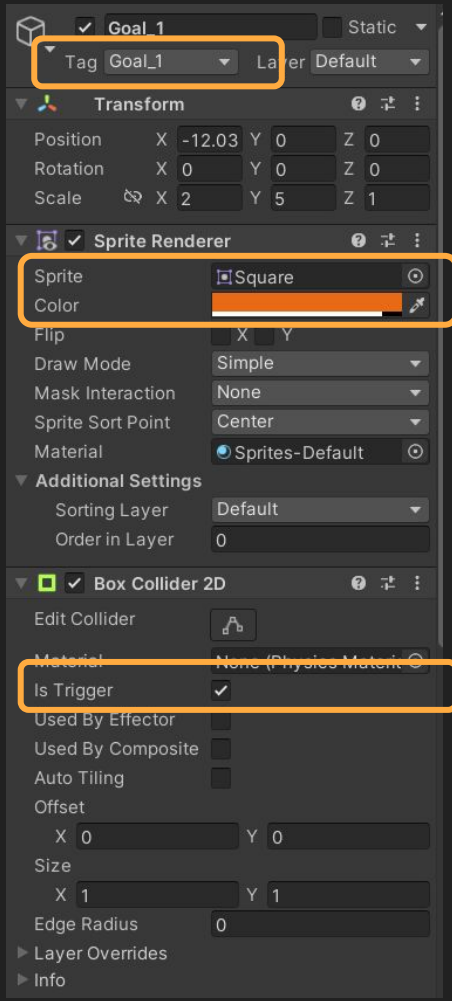
Start off by create a 2D Sprite with a box shape.

Then edit the color to be yellow/orange respectively.

The Yellow box should have Goal_2 in the tag and Orange one should have Goal_1. That's how we'll know who scored.

Lastly add a box collider to both and make sure it's set to triggered.





Obstacles

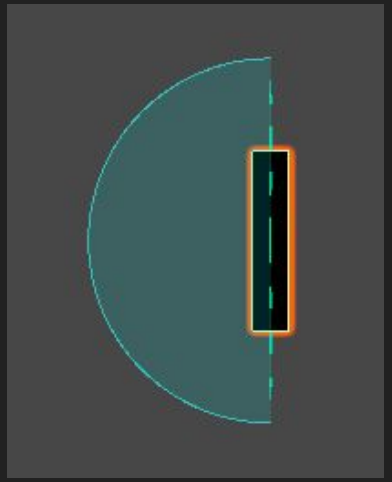
Lastly we will create an obstacle that can make the game a bit more difficult.

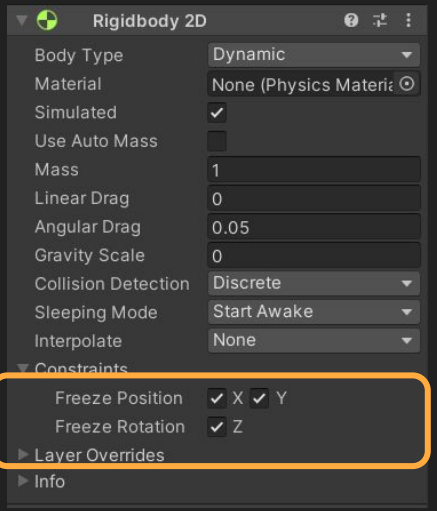
We will create a moving block that will allow the ball to pass through one side but not the other.

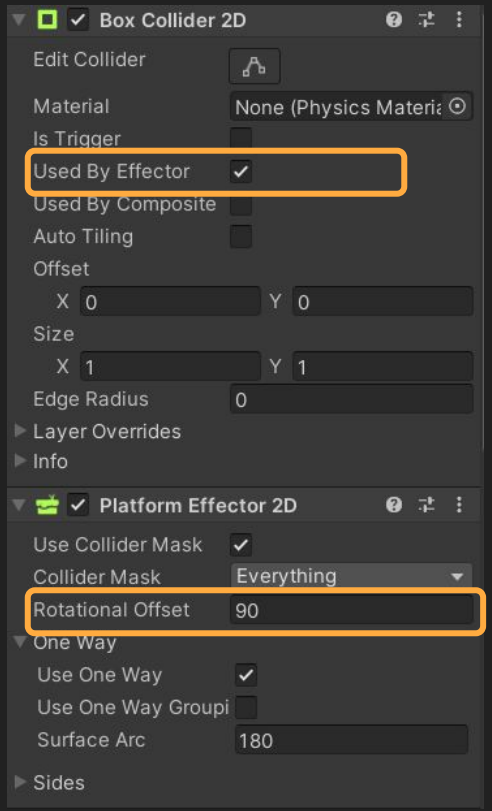
Start by creating a 2D square sprite and add a Box Collider 2D that uses an Effector, that's the Platform Effector.

Make sure the Platform Effector is roasted 90 so it faces Right.

Once that's done add a RigidBody and make sure to check all of the constraints.







Obstacles

Lastly add a script called Block to the game object this will make it move up and down and if anything touches it it will change the direction.

You can change the way the wall is facing by modifying the x value of the scale, by making it -1 or 1.