

How to create a Chess App using Unity

Workshop 1



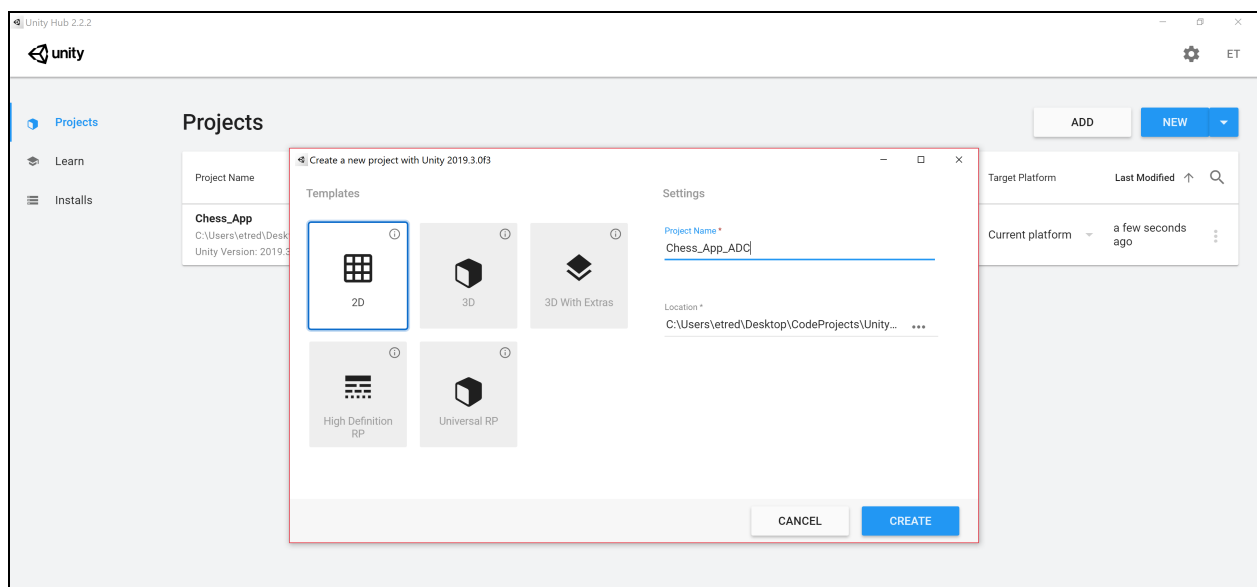
Prerequisites

- Unity installed (preferably version 2019.3 or newer)
- An IDE (code editor) that is attached to Unity
 - When installing Unity also install Visual Studio with it for it to work automatically
- The completed version is available here: https://github.com/etredal/Chess_App

Let's Get Started

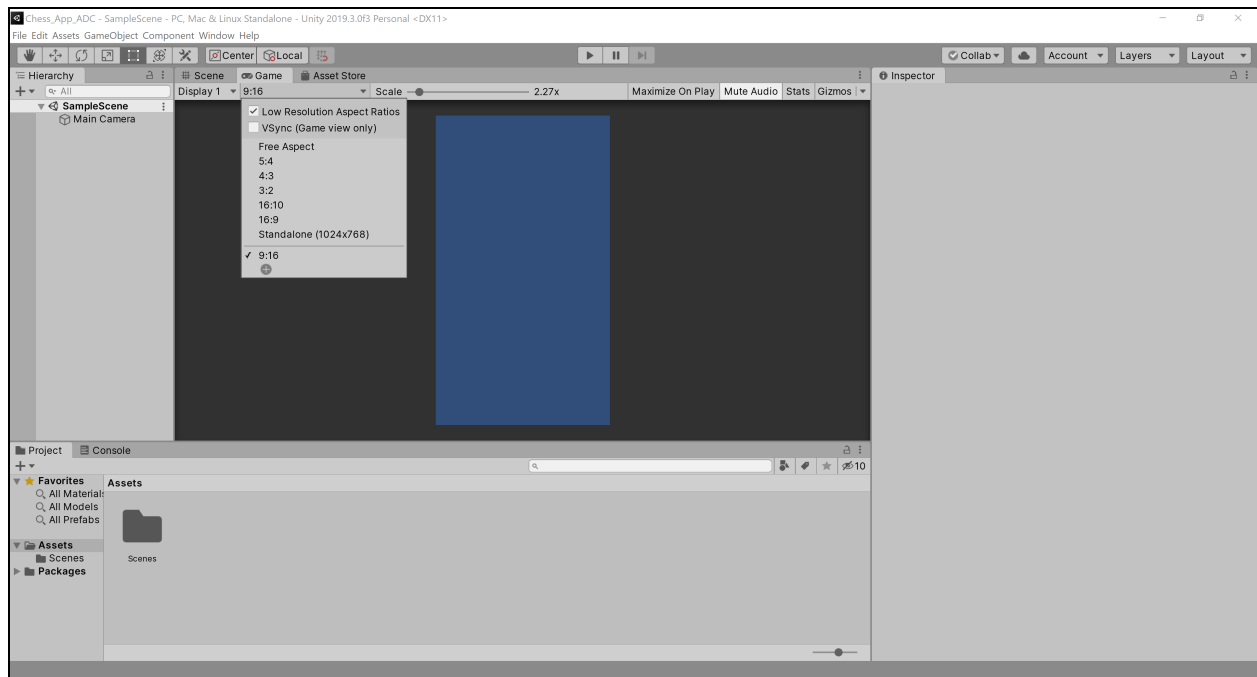
Open Unity Hub or Unity and create a new project:

- Select 2D
- Name it Chess_App_ADC
- Place it in a folder of your choosing, somewhere that's convenient to access and store
- Select "Create"



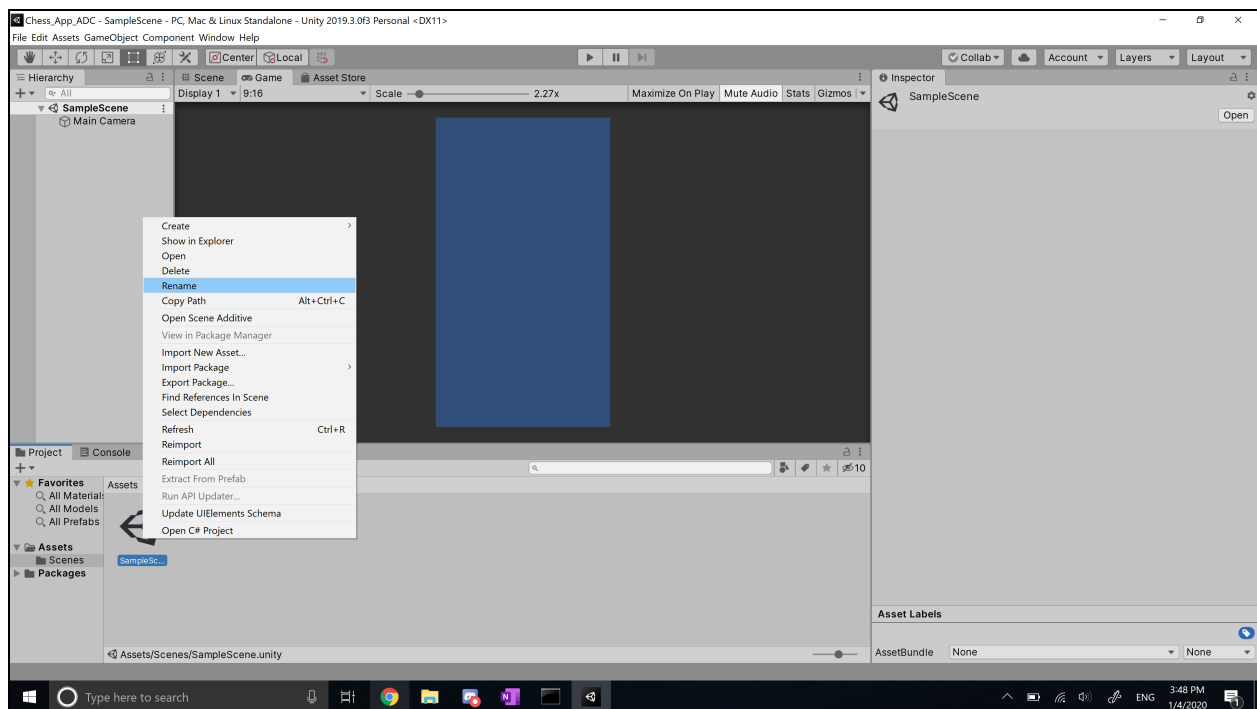
Once it loads change the aspect ratio:

- Click on the “Game” tab
- Click on the aspect ratio drop down menu
- Set it to 9:16, this is standard for apps on phones



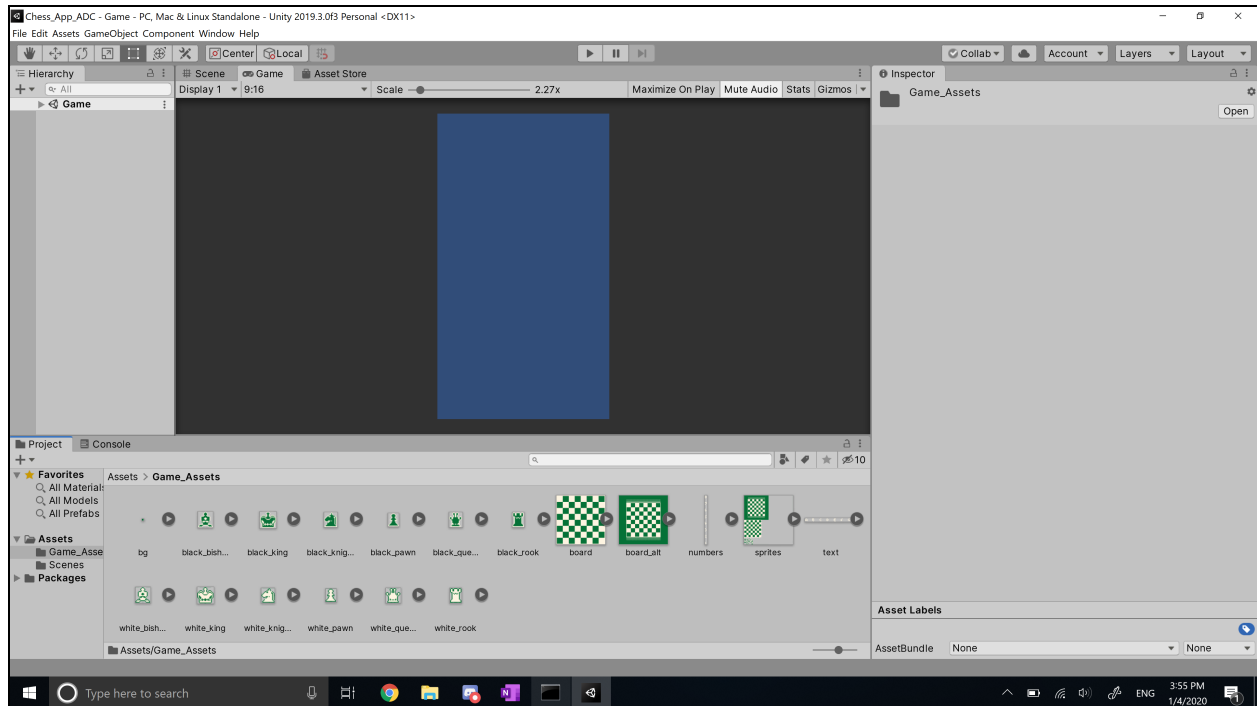
Now rename the scene to “Game”:

- Open the “Scenes” folder
- Right click and rename it to “Game”
- Click reload screen



Now navigate back to the assets folder and create a “Game_Assets” folder and put the sprites in there:

- Click on “Assets”
- Right click and select “create” then select “folder”
- Click on the folder
- Download the assets here: <https://devilsworkshop.itch.io/pixel-art-chess-asset-pack>
 - This contains almost every image or sprite that will be used in this game
- Unzip the folder chess_green (or chess / chess_pink if you prefer) somewhere on your computer
- Drag all the images into the “Game_Assets” folder
- Once this is done they have all been imported in
- Select all the assets in the Game_Assets folder (CTRL + CLICK)
- Set filter mode to: Point (no filter)
 - This will make sure the sprites do not look pixelated when scaled
- Click somewhere else and select apply



Add the chess board to the scene:

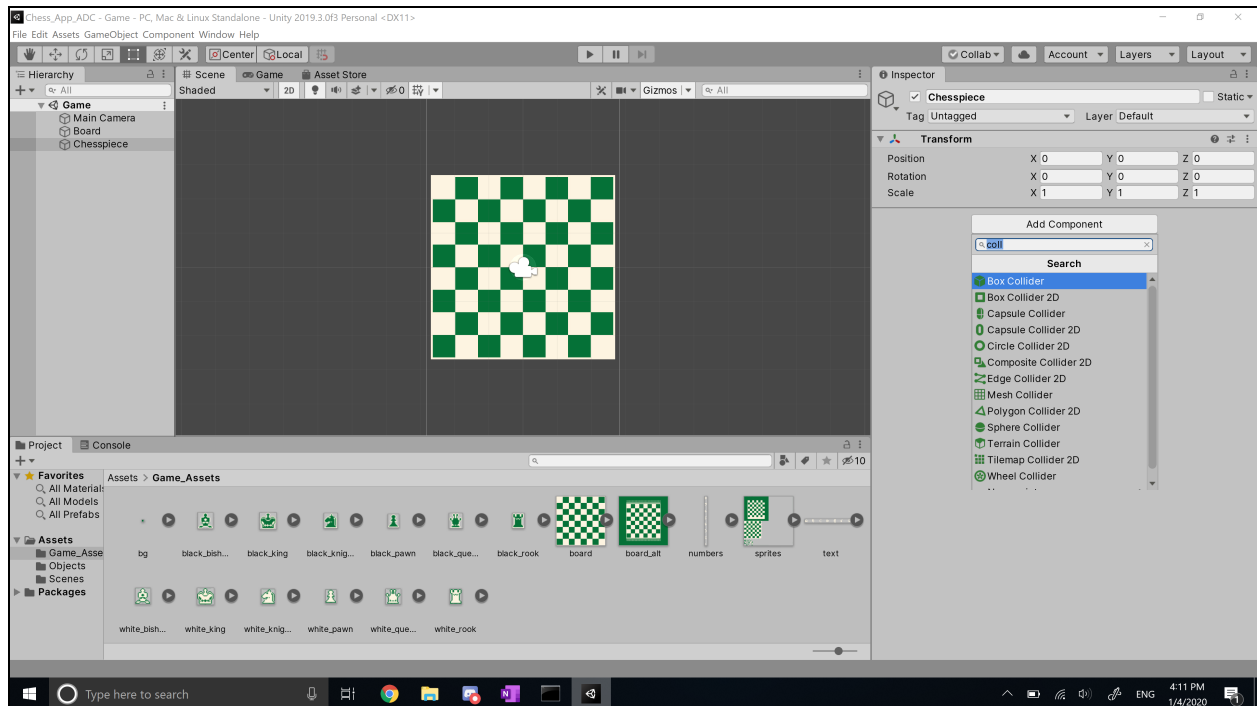
- Click on the “Scene” button to get out of the “Game” view
- Drag the picture of “board” into the scene (the gray grid part)
- On the right side information now appears
- Rename the asset to “Board” as our game objects should have capital names
- Set the X and Y positions to 0
- Set the X and Y scales to 3

Change the background color:

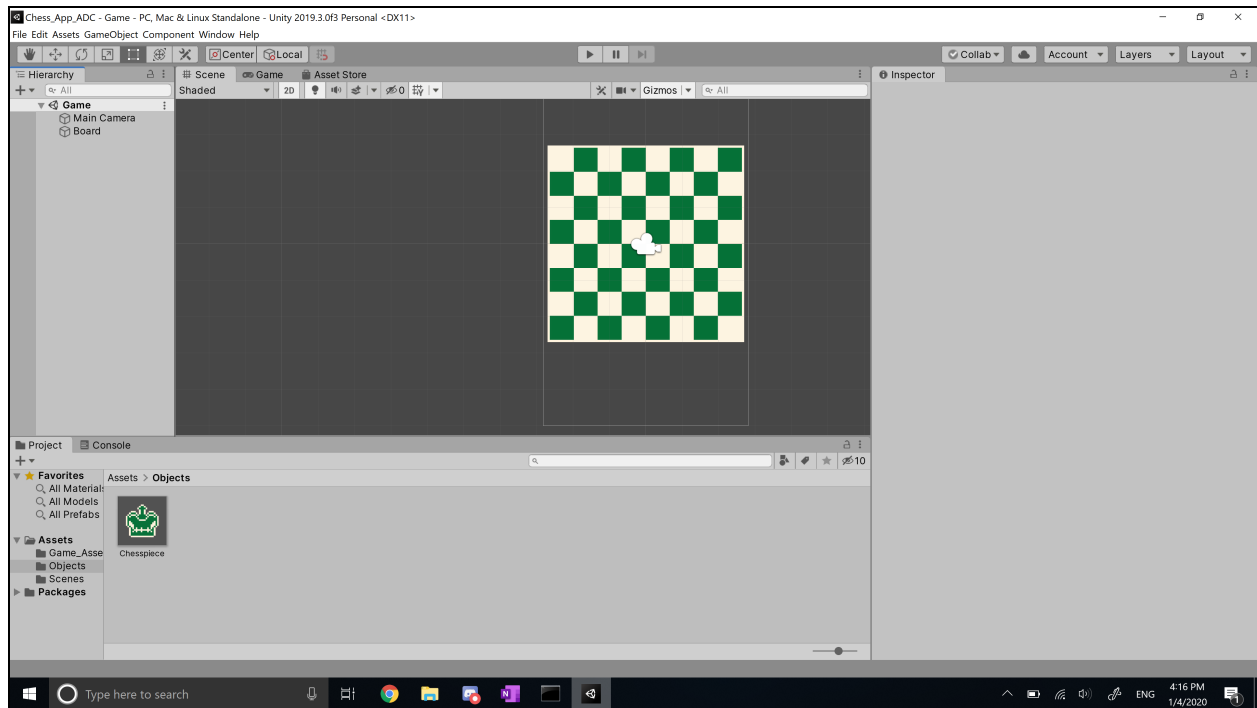
- Click on “Main Camera” from the “Game” selection
- Click on the section: Background
- Make it Black (or whatever color you prefer)

Creating the Chesspiece game object:

- Navigate back to the “Assets” folder
- Create a new folder named “Objects”
- Click on this folder
- On the top of the screen select the “GameObject” drop down menu
- Select create empty
- Rename it “Chesspiece”
- Click Add Component and select “Sprite Renderer”

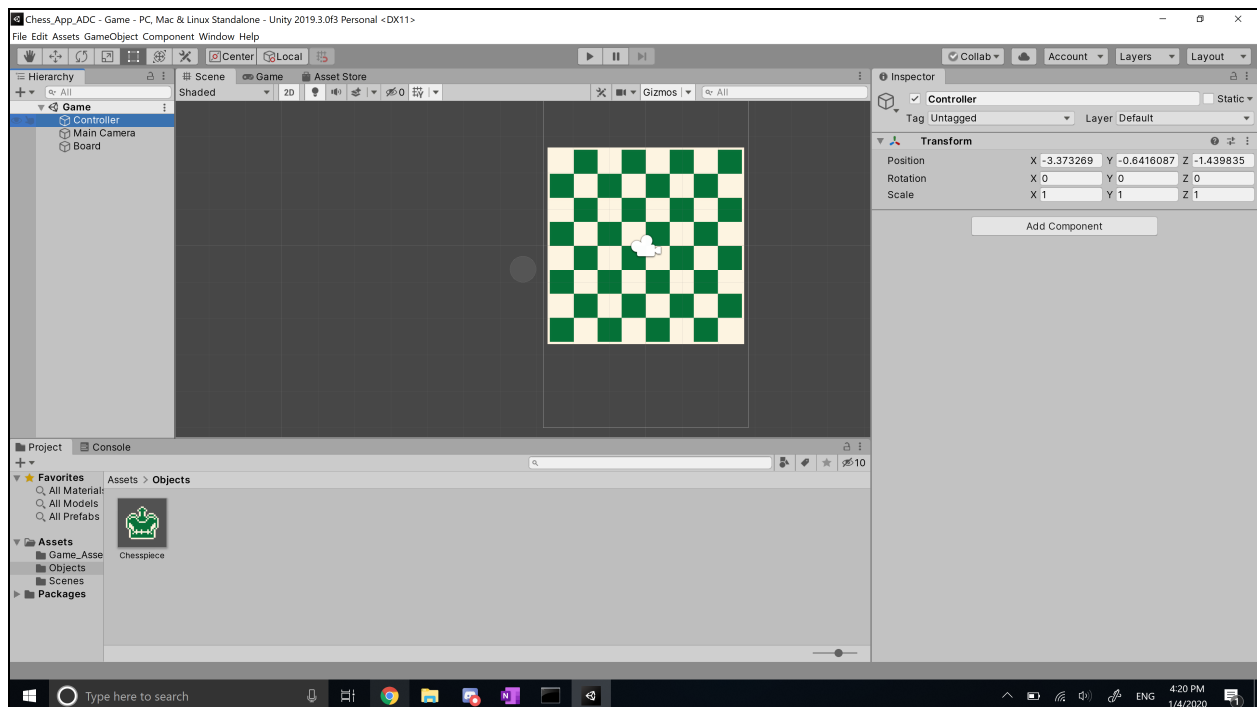


- Select a sprite such as “black_king” and drag it into the “Sprite” section of the sprite renderer
- Again, set the scale for this object (the X and Y) to 3
- Open the Objects folder
- On the left tab, drag “Chesspiece” down to the “Objects” folder
- This has created a prefab for us to use
- Now delete the object from the left tab, which will remove it from the screen
 - We will spawn these chess pieces in ourselves through code, trust me it will be easier than setting the positions one by one



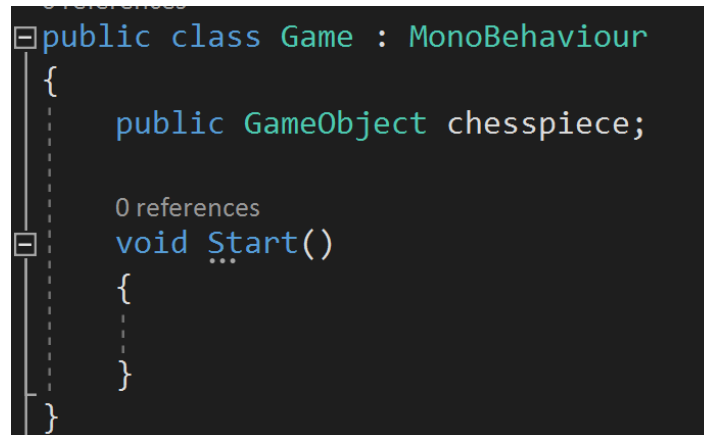
Create a controller:

- This is the most important object for this and most games!!!!
- Navigate to “GameObject” from the top drop down menu and create another empty object
- Rename it to “Controller”
- Drag it above “Main Camera” in the Hierarchy menu as it is the most important GameObject



Spawn the Chesspiece:

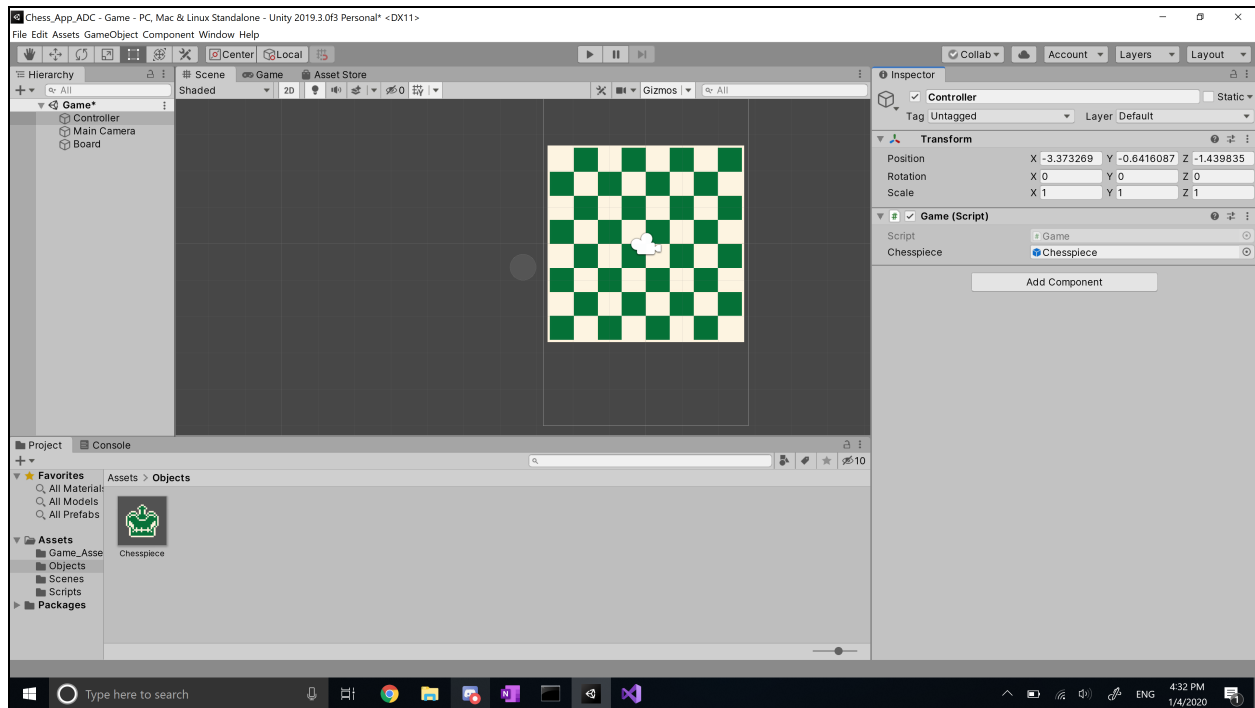
- Navigate back to “Assets” and create a “Scripts” folder
- Click on the folder
- Right click and create a “C# Script”
 - C# is the programming language used by Unity
 - Don’t worry if you have never programmed with it as it is similar to Java
- Rename this script to “Game”
 - Make sure the Class in the code itself is the same name
- Click on the controller asset
- Drag the “Game” script into the controller
- Double click on the “Game” script
- It should now be open with either Visual Studio Code or an IDE that you commonly use
- Inside here there are already Start() and Update() functions
 - Start(): run once at the Start of the game
 - Update(): run every frame
 - There are many more built-in functions provided by Unity and of course you can create your own
- Delete the Update() function
- Above the Start() function type the following code:



```
public class Game : MonoBehaviour
{
    public GameObject chesspiece;

    0 references
    void Start()
    {
    }
}
```

- This is a variable (attribute) that Controller will contain
- It will allow us to reference the Chesspiece asset we have created in Unity
- Click back on Unity, click on the Controller in the Hierarchy again
- Click on the Objects folder
- Drag the Chesspiece object to the “Chesspiece” section in the “Game” script that has now appeared
- Once that is complete, there is now a reference in the script to the Chesspiece, it will be possible to create this object through code now



Instantiating the object:

- Inside the start function write the following code
 - `Instantiate(chesspiece, new Vector3(0, 0, 0), Quaternion.identity);`
 - `Instantiate` is used to create an object in the game
 - The second argument is for a location, in the form of a `Vector3`
 - We need to set up its rotation which is not so important in 2D games so just setting it to `Quaternion.identity` is good enough
- This is all that's needed to spawn the chess piece into the game
- Go back to unity and press the play button that is on the middle on top
- You can now see the game working

