



Romel Cabiling ▾



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## Lesson Proper for Week 17

ENDLESS RUNNER



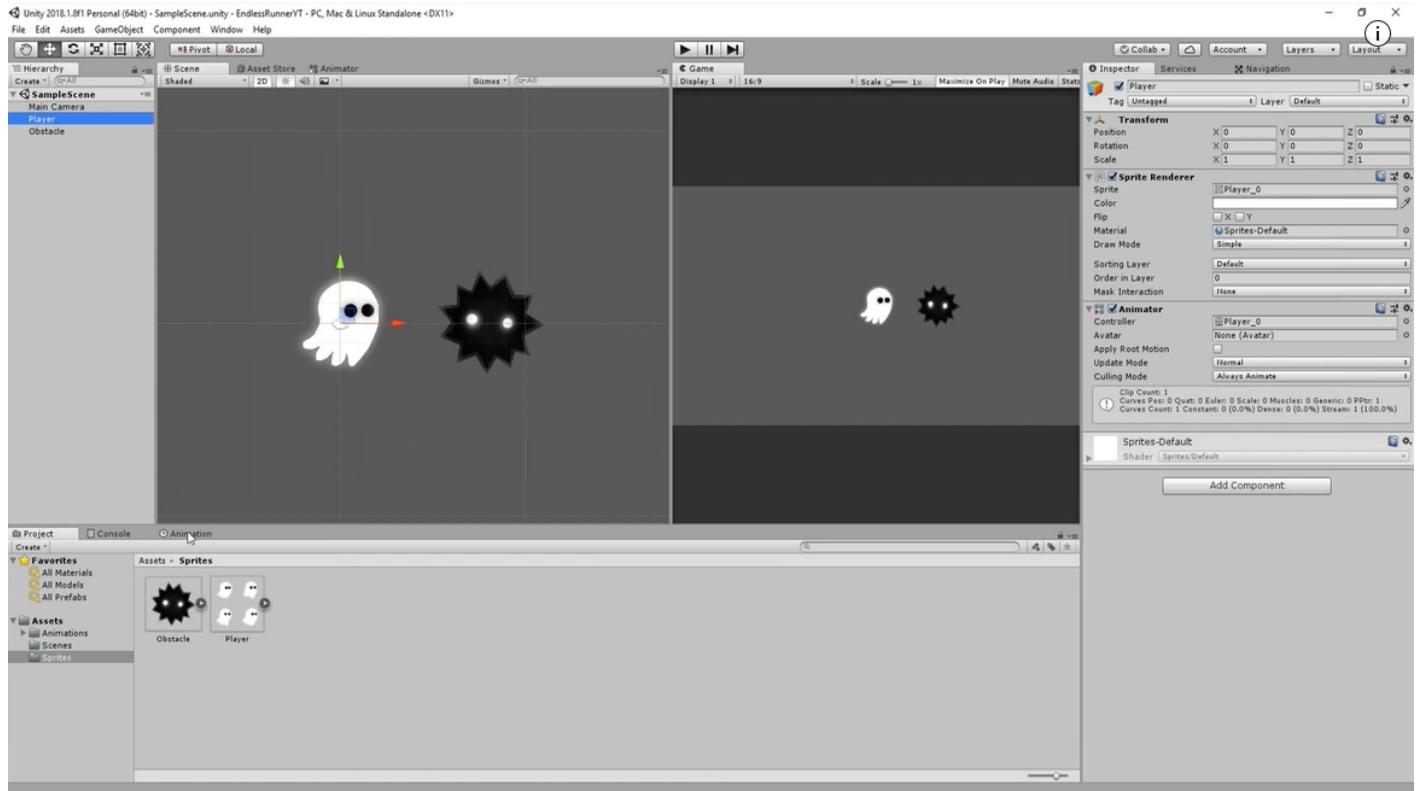
First things first let's take a look at my unity project which currently has this ghost-like Player character with this floating animation as well as a spiky obstacle sprite so I drew in Photoshop.

You can download these assets bank github or you can create your own unique assets which I highly recommend just grab Thor shop or some other free to the application like or Inkscape and have fun making a player character and an obstacle.



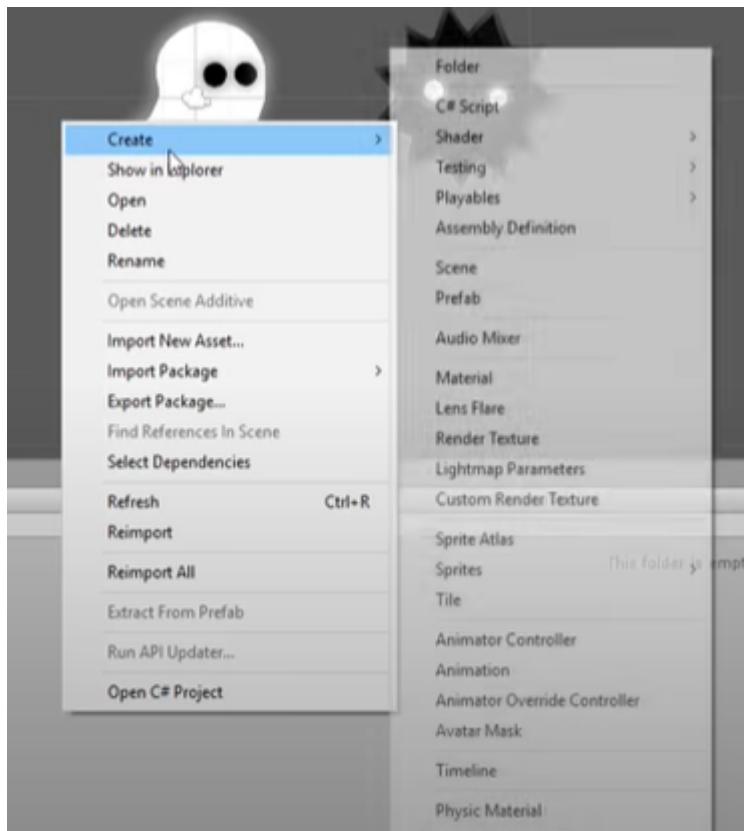
Once that's done we can create the blur controller which as you've probably noticed is very straight forwards the character simply hops up or down depending on what arrow key the player presses notice that the character isn't moving forwards if the obstacles that actually moved towards hidden that as well as the moving background give the impression that the character is charging forwards.

## PLAYER



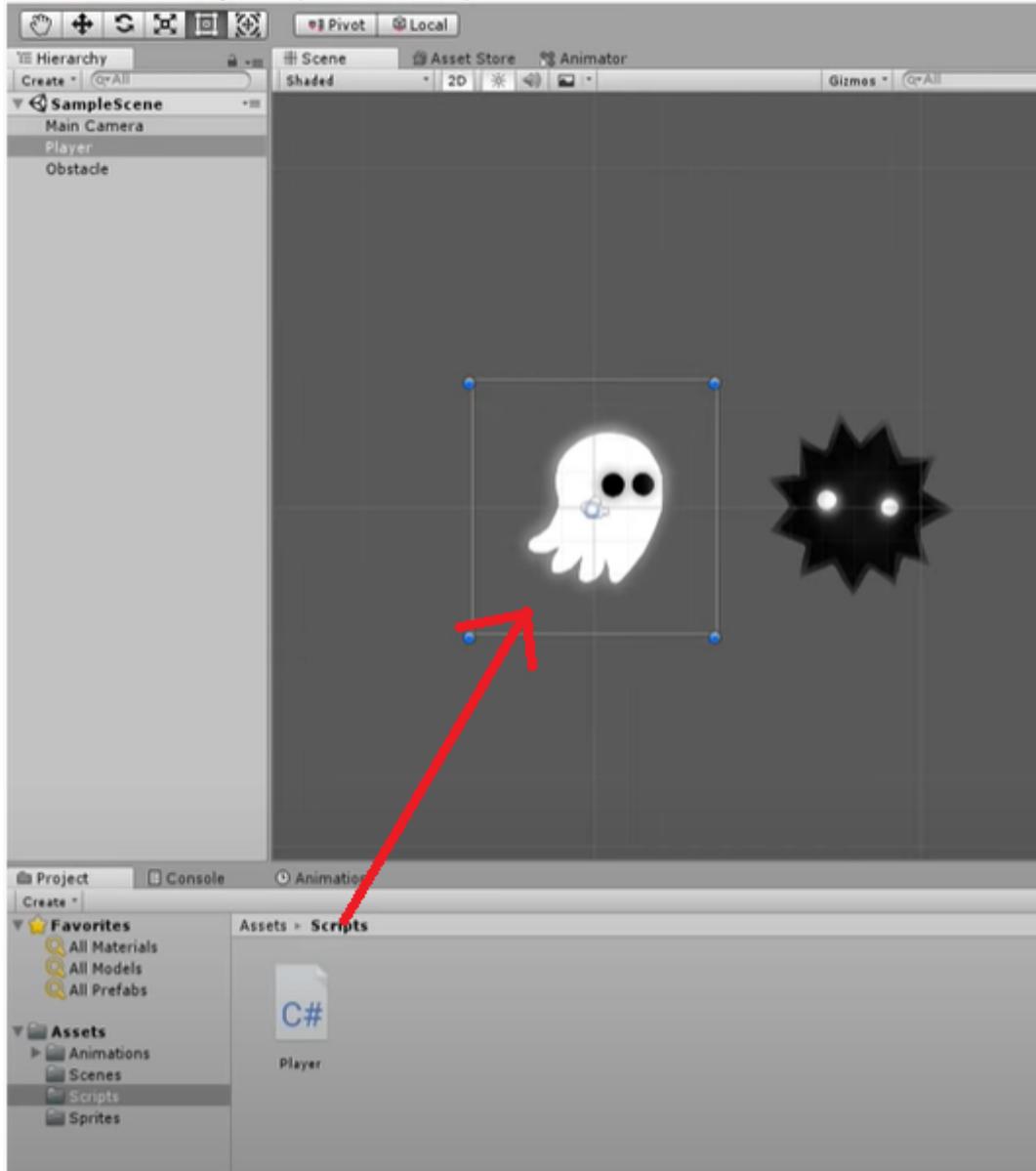
okay so create a new C# script





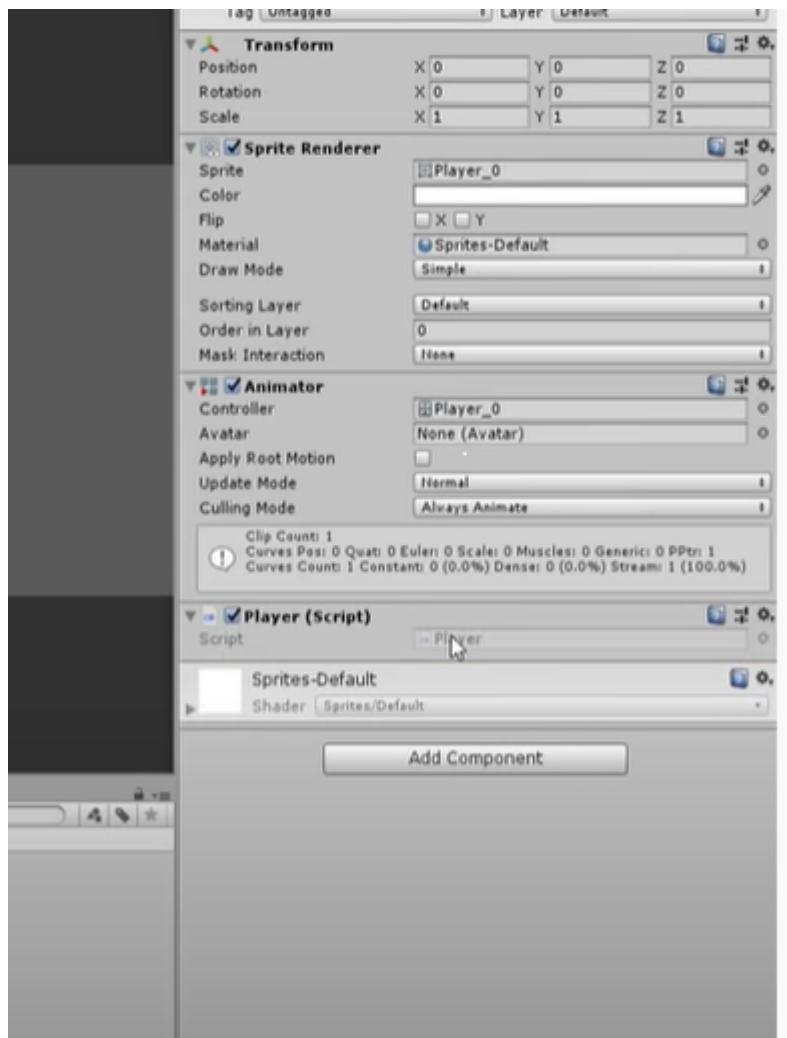
**drag and drop it onto my little ghost**





open it up in my update function I'll check whether the player has hits the up arrow





```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Player : MonoBehaviour {

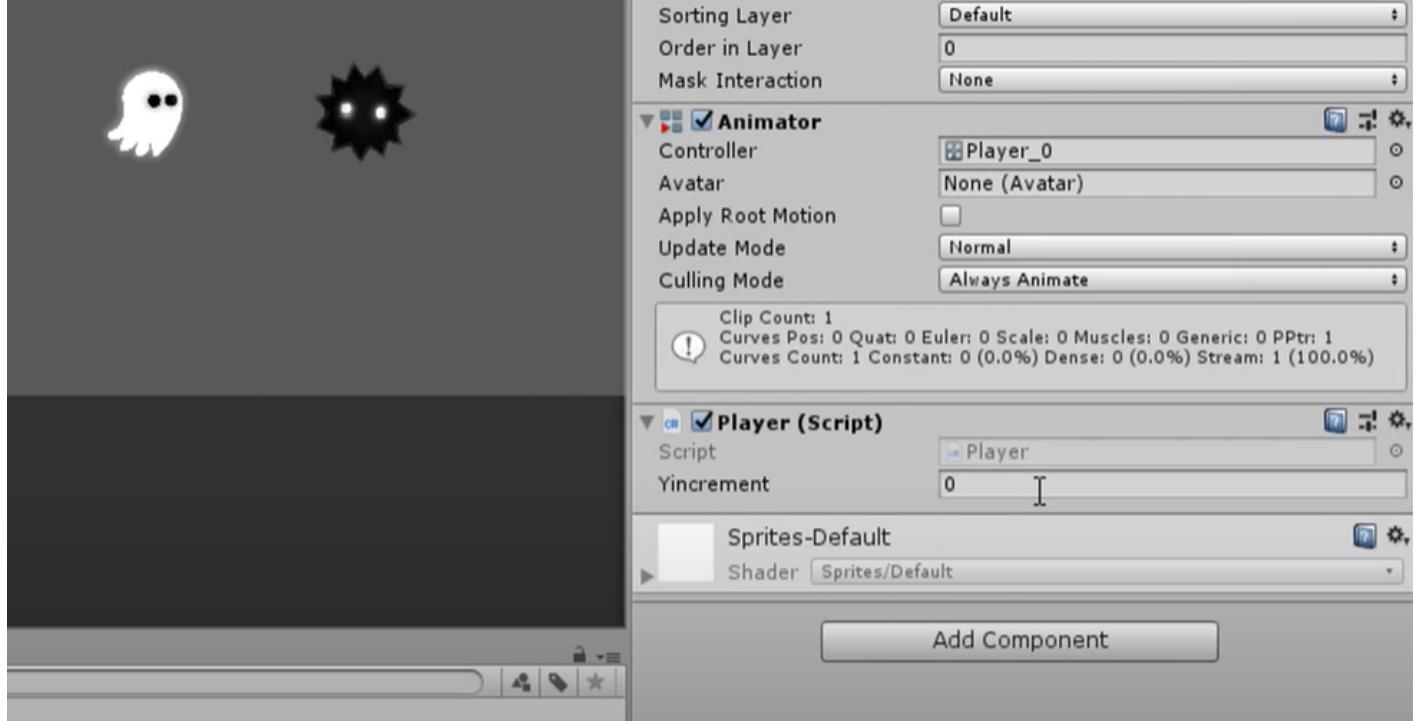
    private Vector2 targetPos;
    public float Yincrement;

    private void Update()
    {
        if (Input.GetKeyDown(KeyCode.UpArrow)) {
            targetPos = new Vector2(transform.position.x, transform.position.y + Yincrement);
            transform.position = targetPos;
        } else if (Input.GetKeyDown(KeyCode.DownArrow)) {
            targetPos = new Vector2(transform.position.x, transform.position.y - Yincrement);
            transform.position = targetPos;
        }
    }
}
```



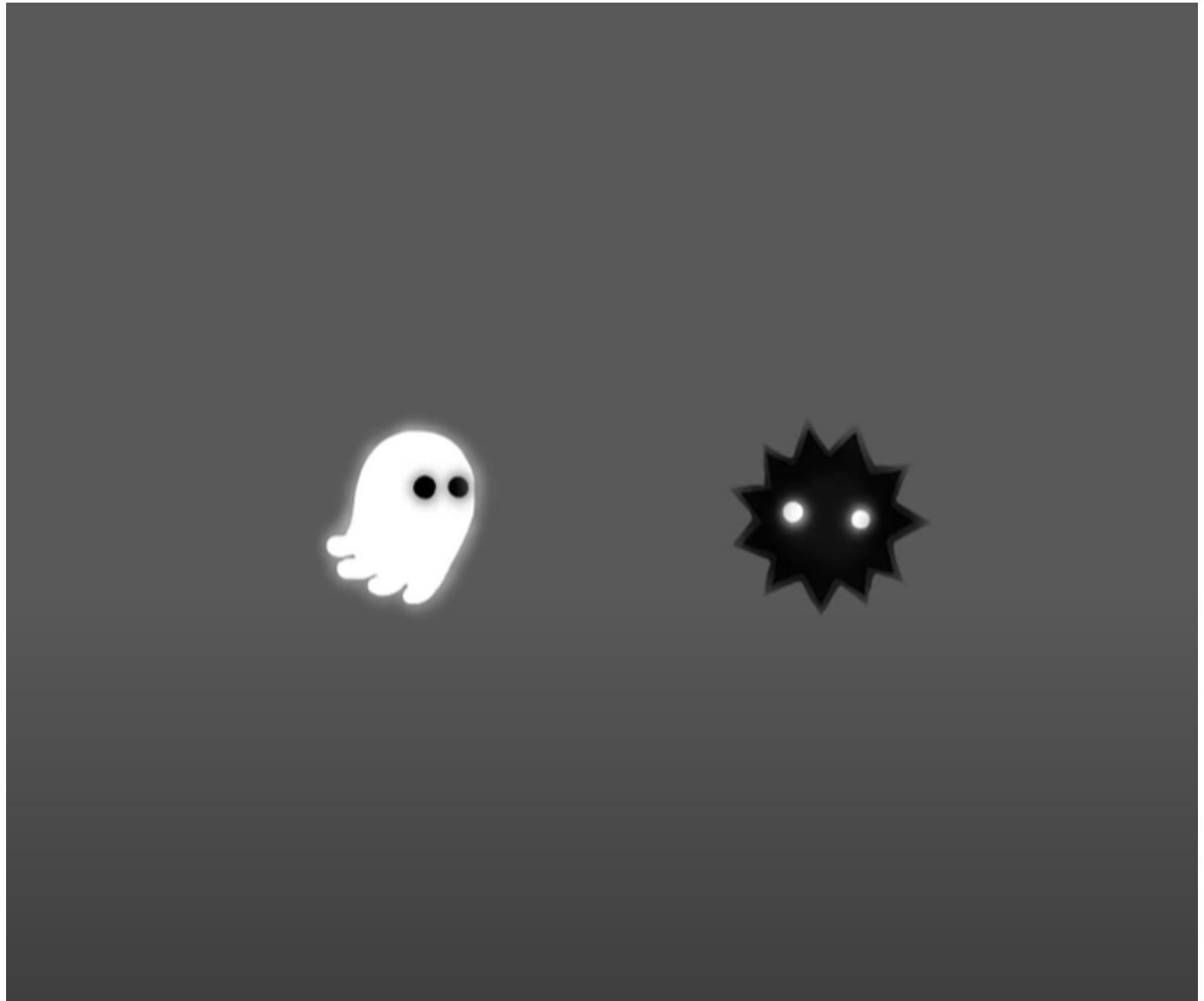
using his simple if statements if he has I want to move them up of a certain amount on the y axis to do so making vector two variable called target pulls up here and set that equal to a new vector two in if statements again we don't want to change the contras x position we simply want to increase his Y position so type transform position dot y plus five because I would like your character moving up of five on the y axis this value may be very different for you and you might very well want to tweak it so it's a good idea to make a public float variable called Y increment and replace that hard-coded value with this float variable instead which we can set in the inspector

the player obviously going down and so replace that plus with a minus



in unity can now set a value for y increments 5 is good and then I'll hit play



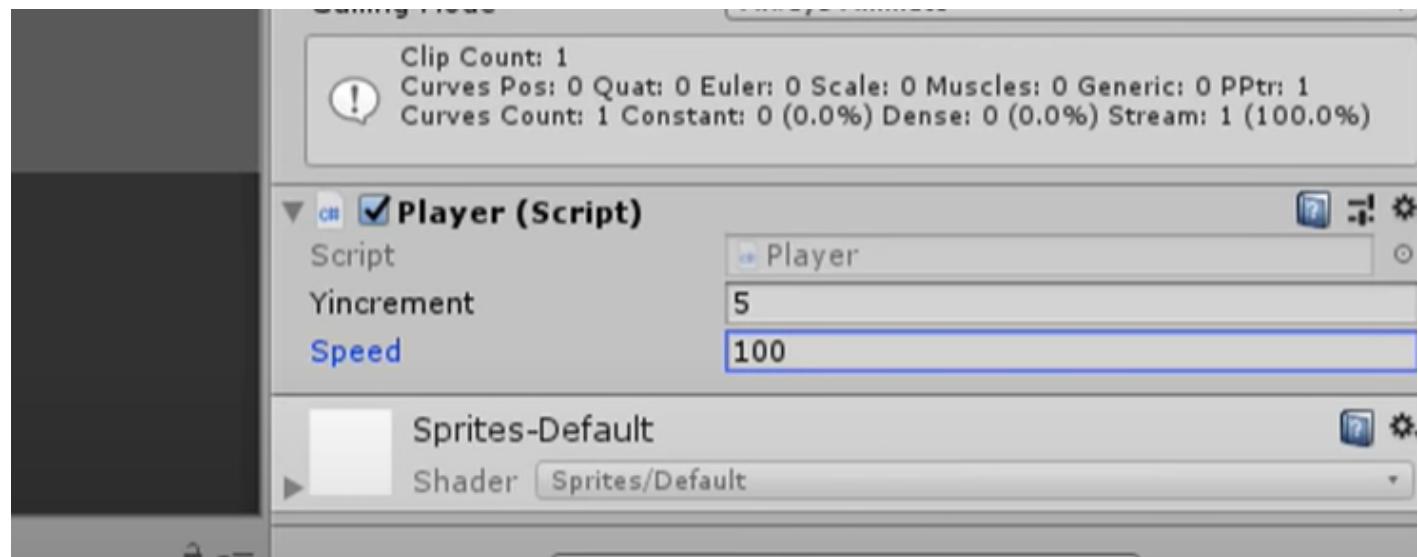


**Now cursor can move up and down brilliantly. now you may not want this extremely snappy movement slowed rather the character transitions smoothly from one position to the other doing so is also very easy.**



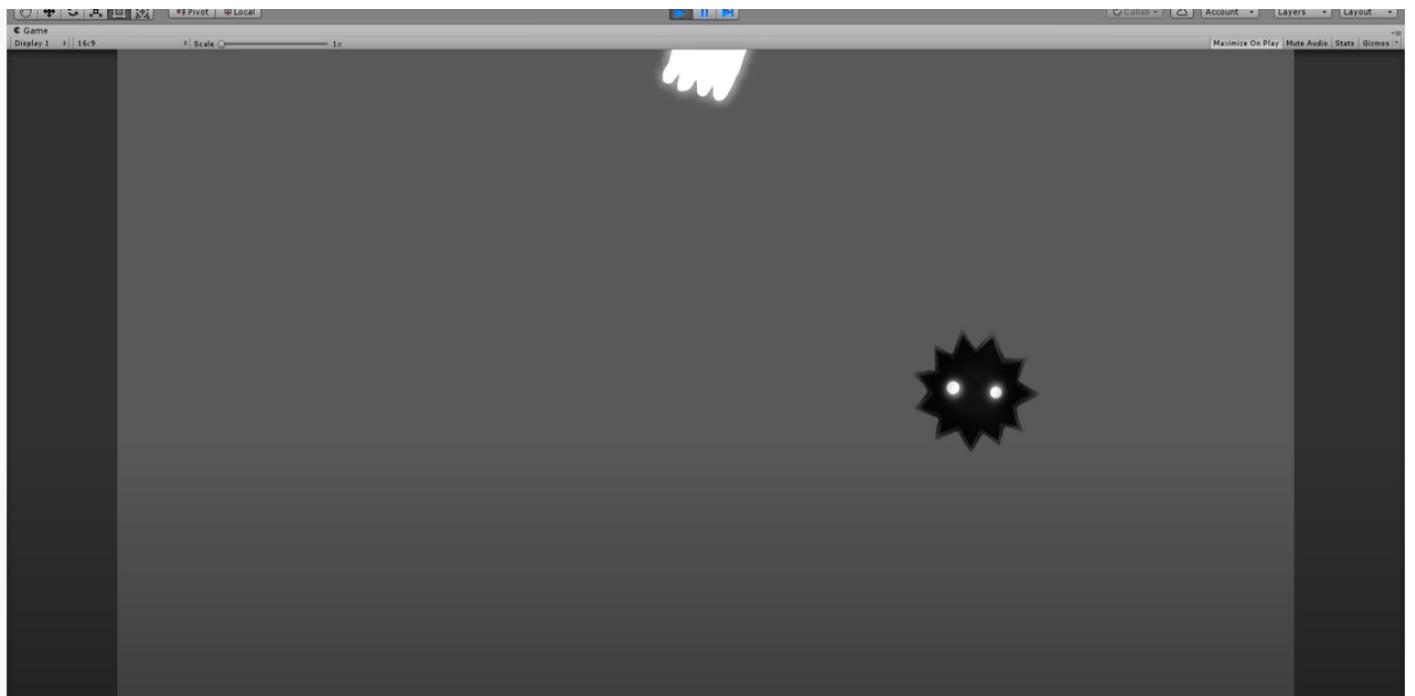
```
1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class Player : MonoBehaviour {
6
7      private Vector2 targetPos;
8      public float Yincrement;
9
10     public float speed;
11
12     private void Update()
13     {
14         transform.position = Vector2.MoveTowards(transform.position, targetPos, speed * Time.deltaTime);
15
16         if (Input.GetKeyDown(KeyCode.UpArrow)) {
17             targetPos = new Vector2(transform.position.x, transform.position.y + Yincrement);
18
19         } else if (Input.GetKeyDown(KeyCode.DownArrow)) {
20             targetPos = new Vector2(transform.position.x, transform.position.y - Yincrement);
21
22         }
23     }
24 }
```

Then add this code.



can set a value for speed in the inspector





however you've probably noticed that the player can for now continuously move up and down and even go off-screen

make two new floor variables one called max height the other min Heights

```
4
5  public class Player : MonoBehaviour {
6
7      private Vector2 targetPos;
8      public float Yincrement;
9
10     public float speed;
11     public float maxHeight;
12     public float minHeight;
13
14     private void Update()
15 }
```

then check in the if statements

add the code for max height and min height

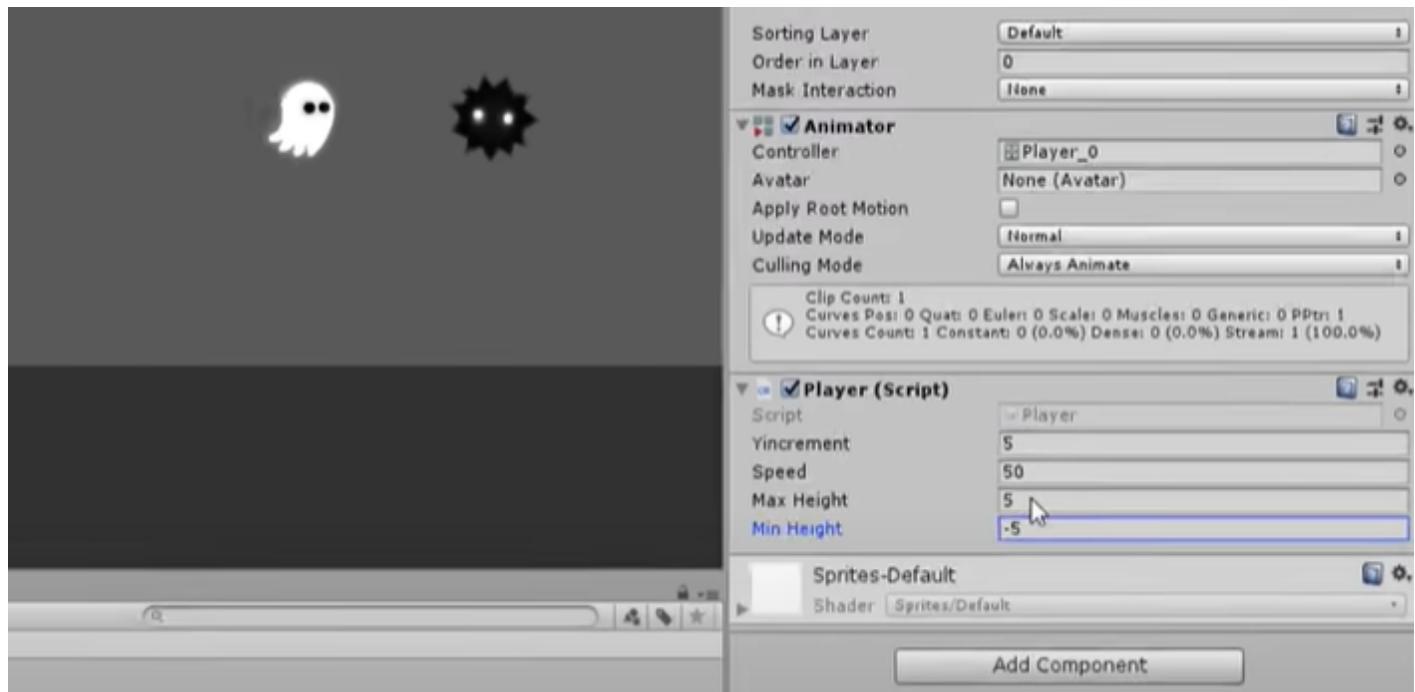


```

1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class Player : MonoBehaviour {
6
7      private Vector2 targetPos;
8      public float Yincrement;
9
10     public float speed;
11     public float maxHeight;
12     public float minHeight;
13
14     private void Update()
15     {
16         transform.position = Vector2.MoveTowards(transform.position, targetPos, speed * Time.deltaTime);
17
18         if (Input.GetKeyDown(KeyCode.UpArrow) && transform.position.y < maxHeight) {
19             targetPos = new Vector2(transform.position.x, transform.position.y + Yincrement);
20
21         } else if (Input.GetKeyDown(KeyCode.DownArrow) && transform.position.y > minHeight) {
22             targetPos = new Vector2(transform.position.x, transform.position.y - Yincrement);
23
24         }
25     }
26 }
27

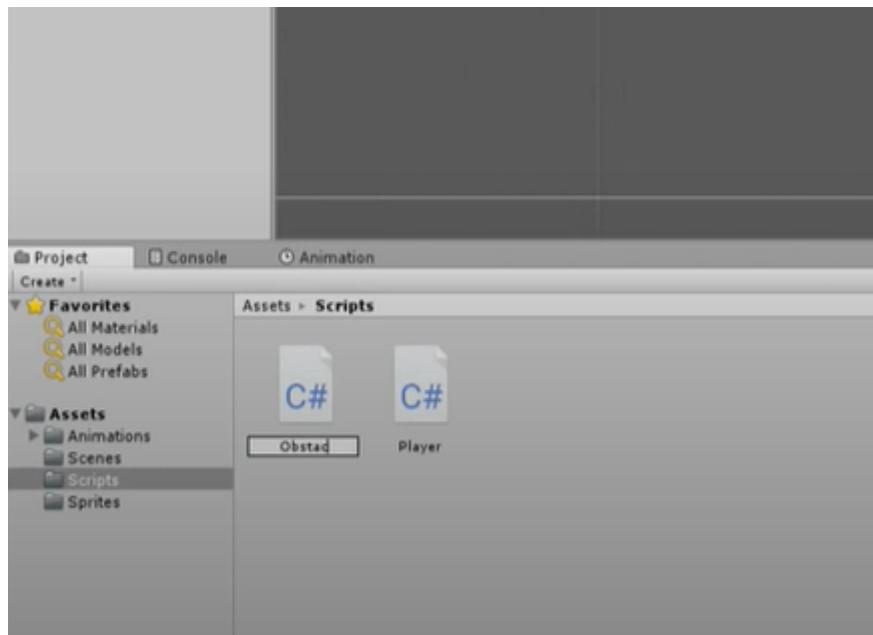
```

After that set the max and min to 5 and -5.

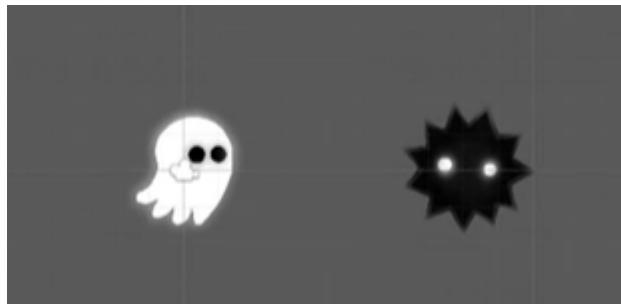


## OBSTACLES





**Go to your editor do this script**



**Create a new obstacle script**

**right click > create > C# script**

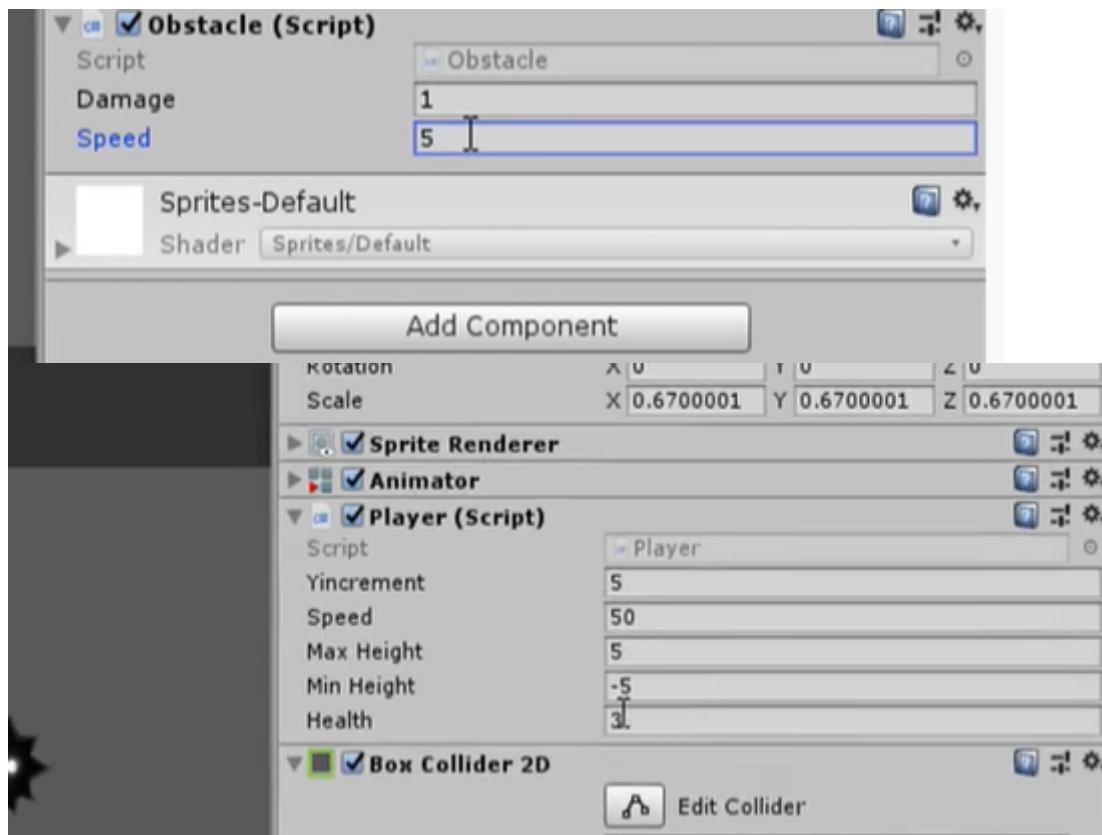


```
1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class Obstacle : MonoBehaviour {
6
7      public int damage = 1;
8      public float speed;
9
10     private void Update()
11     {
12         transform.Translate(Vector2.left * speed * Time.deltaTime);
13     }
14
15     void OnTriggerEnter2D(Collider2D other)
16     {
17         if (other.CompareTag("Player")) {
18             // player takes damage !
19             other.GetComponent<Player>().health -= damage;
20             Debug.Log(other.GetComponent<Player>().health);
21             Destroy(gameObject);
22         }
23     }
24 }
25
```

Type a speed value and damage value

Then check the player Health to add value





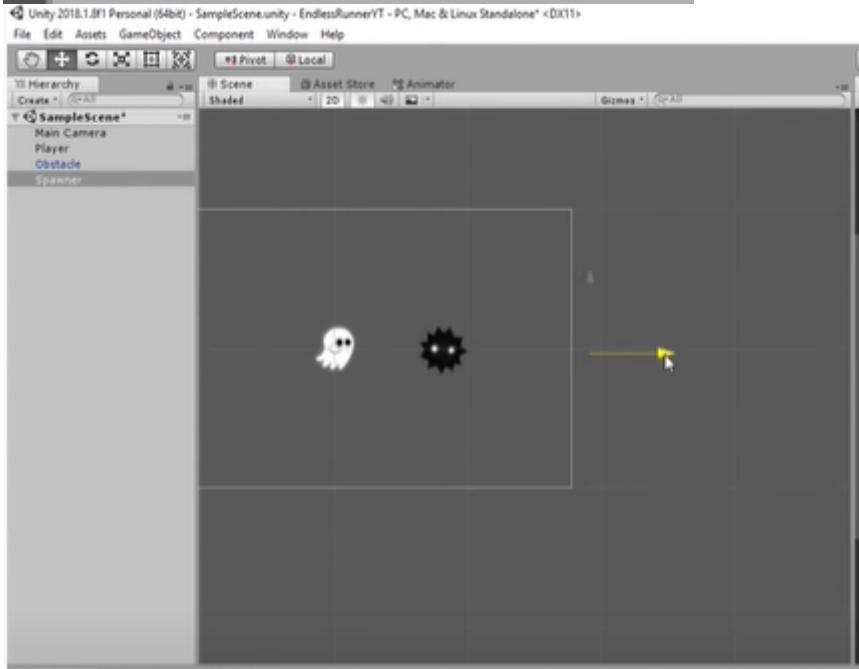
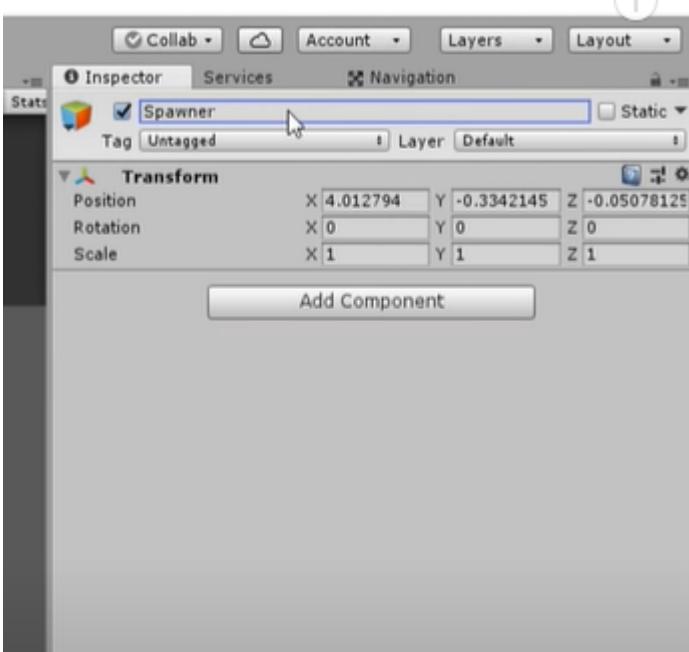
## OBSTACLES SPAWNING



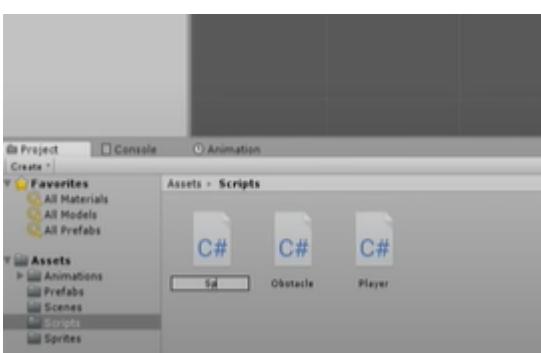
Begin by making an empty game object called spawner.

Drag over to the screen out of view from the camera





Then add a new c# script called spawner and open the editor



Use this code for spawner

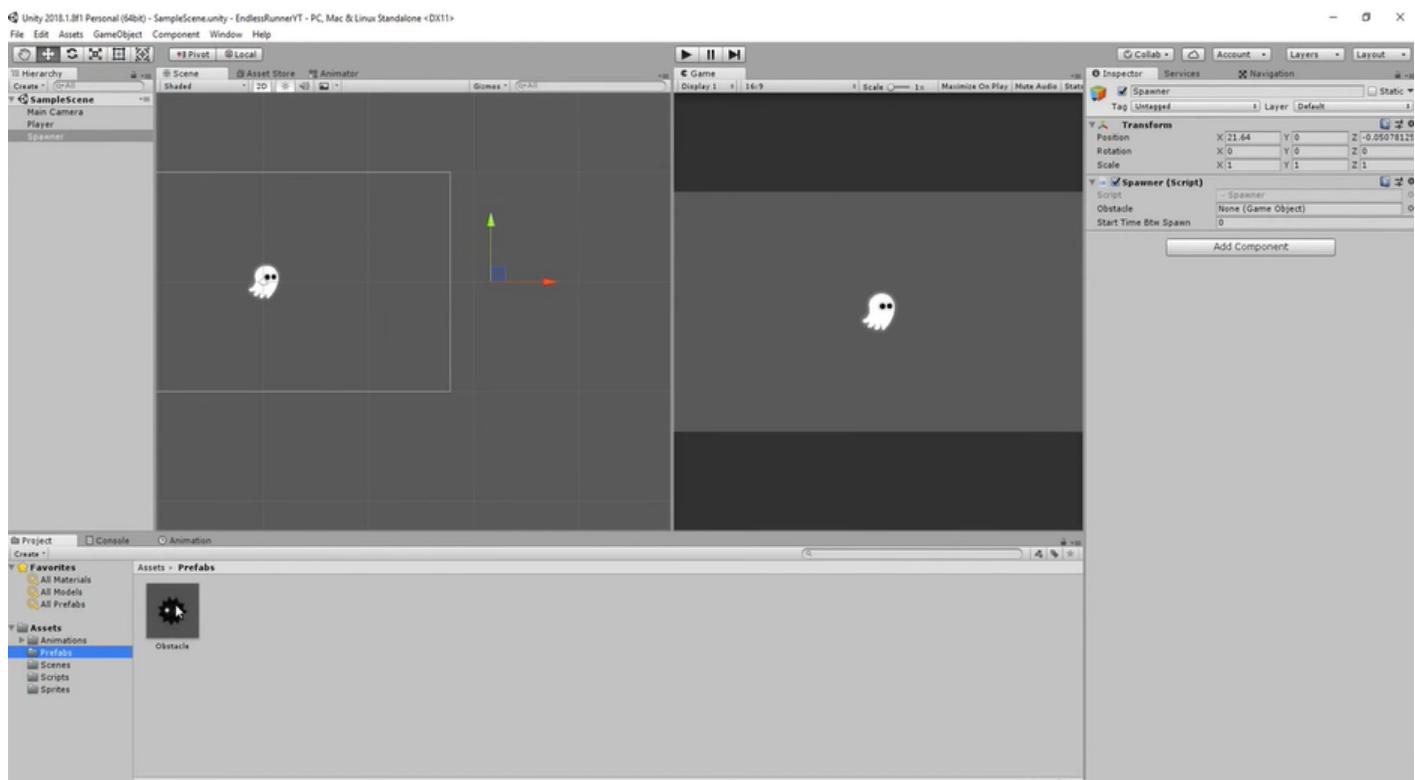


```

1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class Spawner : MonoBehaviour {
6
7      public GameObject obstacle;
8
9      private float timeBtwSpawn;
10     public float startTimeBtwSpawn;
11
12     private void Update()
13     {
14         if (timeBtwSpawn <= 0)
15         {
16             Instantiate(obstacle, transform.position, Quaternion.identity);
17             timeBtwSpawn = startTimeBtwSpawn;
18         }
19         else
20         {
21             timeBtwSpawn -= Time.deltaTime;
22         }
23     }
24 }
25

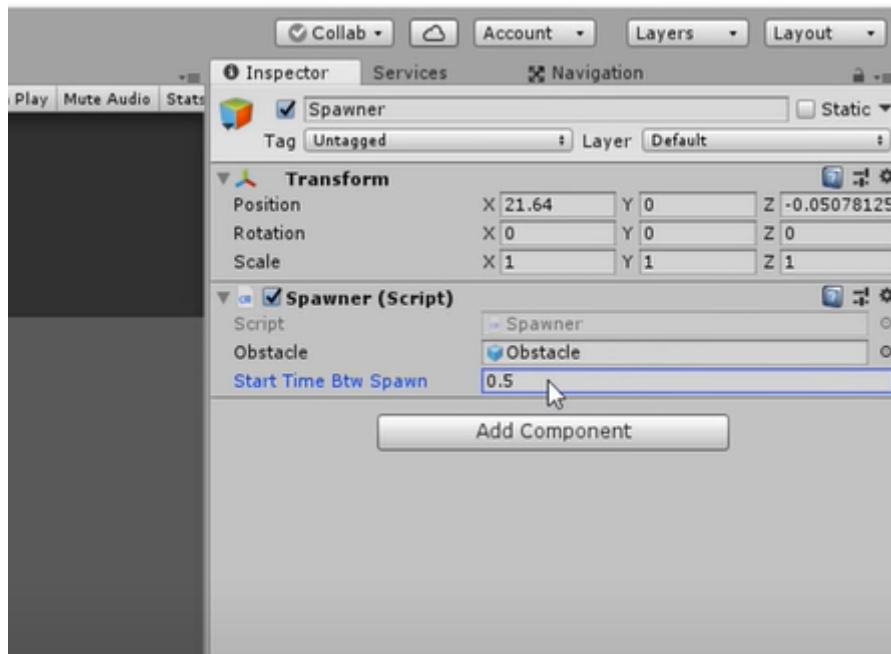
```

Drag and drop obstacle to the empty slot

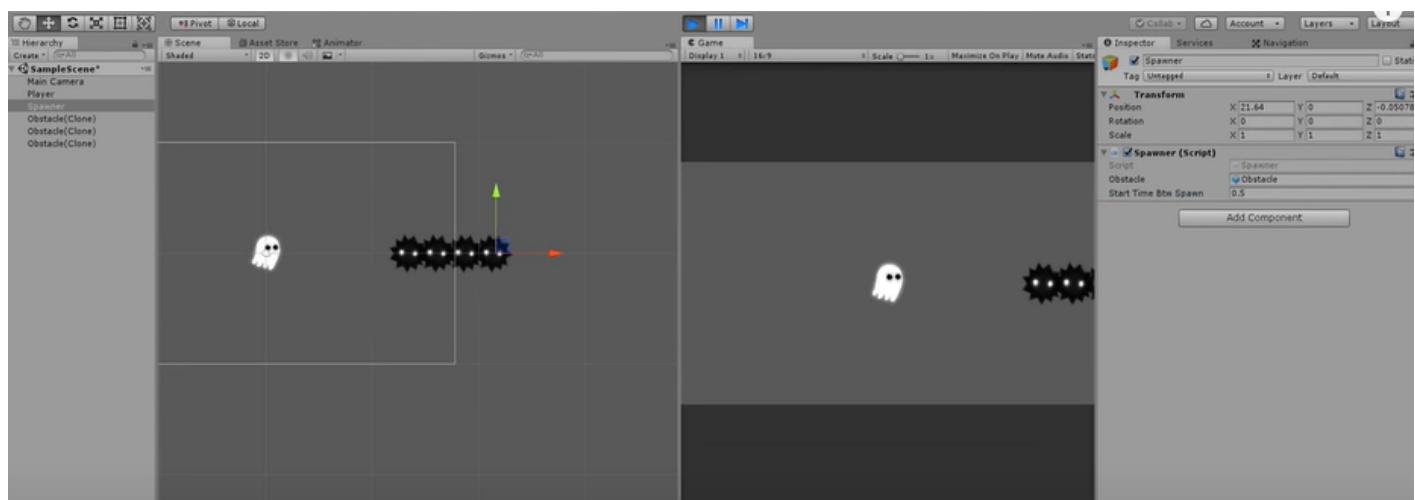


Change the obstacle spawning every 0.5 in start time spawn





**Click play to see the result.**



**You change this to 1.25**

**And check what's the difference**

**To decrease the time you can add another public float decreaseTime and minTime**

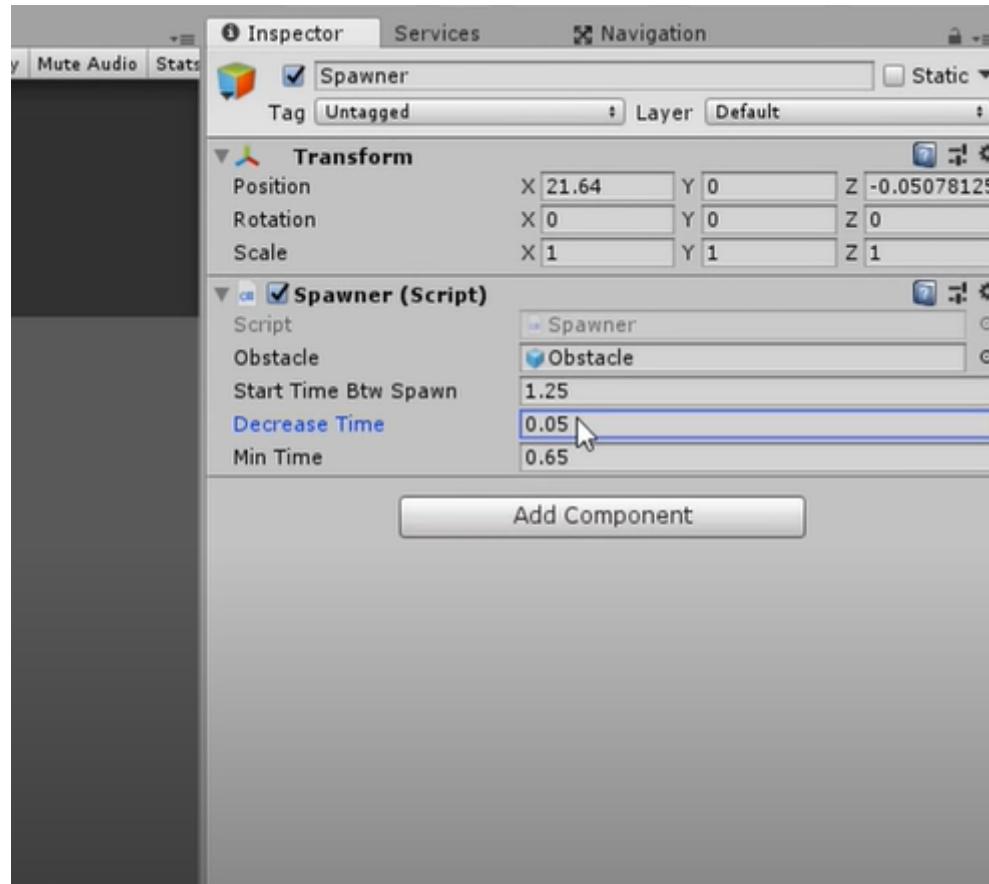


```

1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class Spawner : MonoBehaviour {
6
7      public GameObject obstacle;
8
9      private float timeBtwSpawn;
10     public float startTimeBtwSpawn;
11     public float decreaseTime;
12     public float minTime = 0.65f;
13
14     private void Update()
15     {
16         if (timeBtwSpawn <= 0)
17         {
18             Instantiate(obstacle, transform.position, Quaternion.identity);
19             timeBtwSpawn = startTimeBtwSpawn;
20             if (startTimeBtwSpawn > minTime) {
21                 startTimeBtwSpawn -= decreaseTime;
22             }
23         }
24     }

```

Back to unity and set the decrease time 0.05



Then add the Obstacle Pattern



```

1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class Spawner : MonoBehaviour {
6
7      public GameObject[] obstaclePatterns;
8
9      private float timeBtwSpawn;
10     public float startTimeBtwSpawn;
11     public float decreaseTime;
12     public float minTime = 0.65f;
13
14     private void Update()
15     {
16         if (timeBtwSpawn <= 0)
17         {
18             int rand = Random.Range(0, obstaclePatterns.Length);
19             Instantiate(obstaclePatterns[rand], transform.position, Quaternion.identity);
20             timeBtwSpawn = startTimeBtwSpawn;
21             if (startTimeBtwSpawn > minTime) {
22                 startTimeBtwSpawn -= decreaseTime;
23             }
24         }
25     }
26     else {

```

**Drag and drop the three obstacle pattern into array**

**Then hit the play button.**

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