

Unity LAB 1

2D Basic

INTERACTIVE
MEDIA

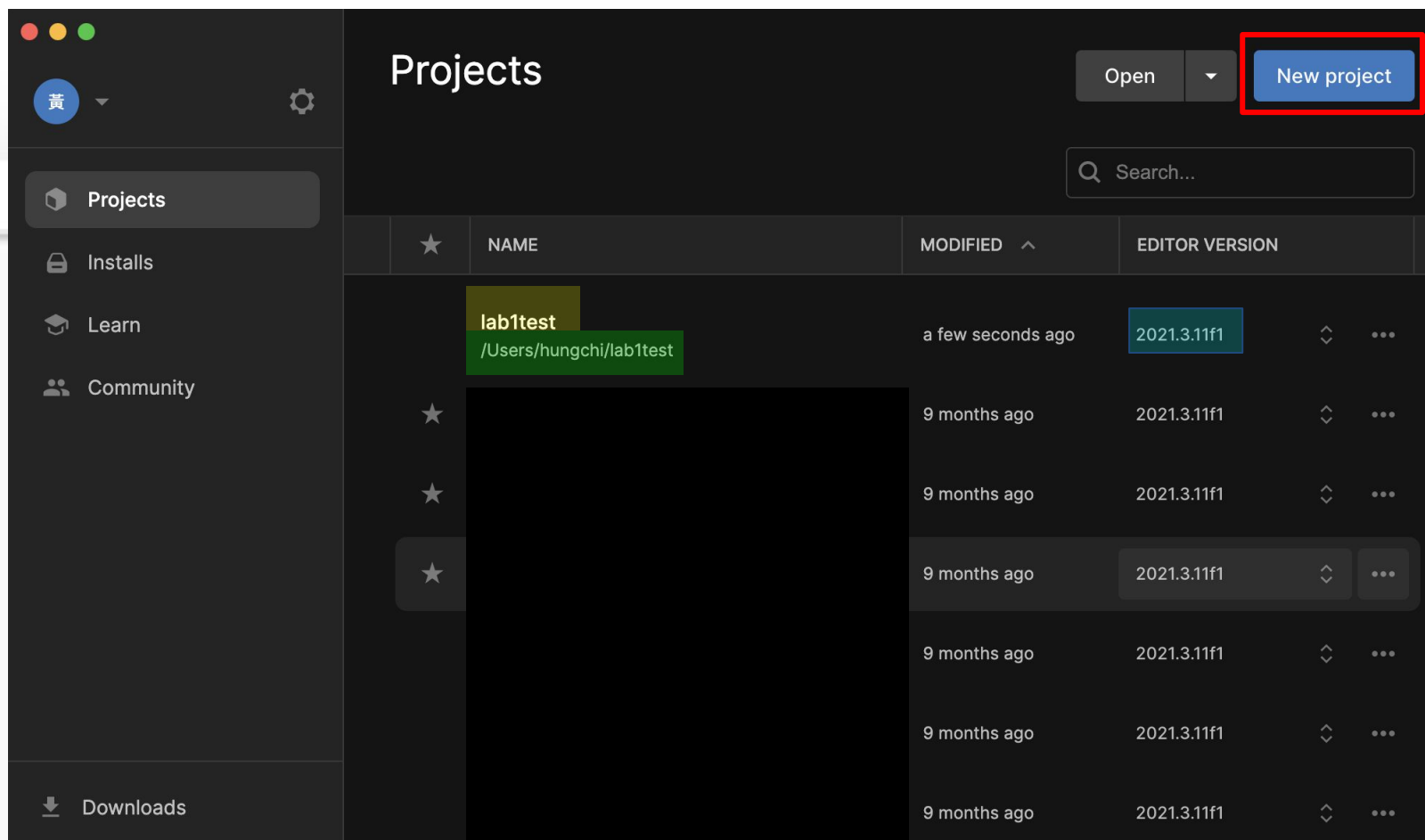


outline

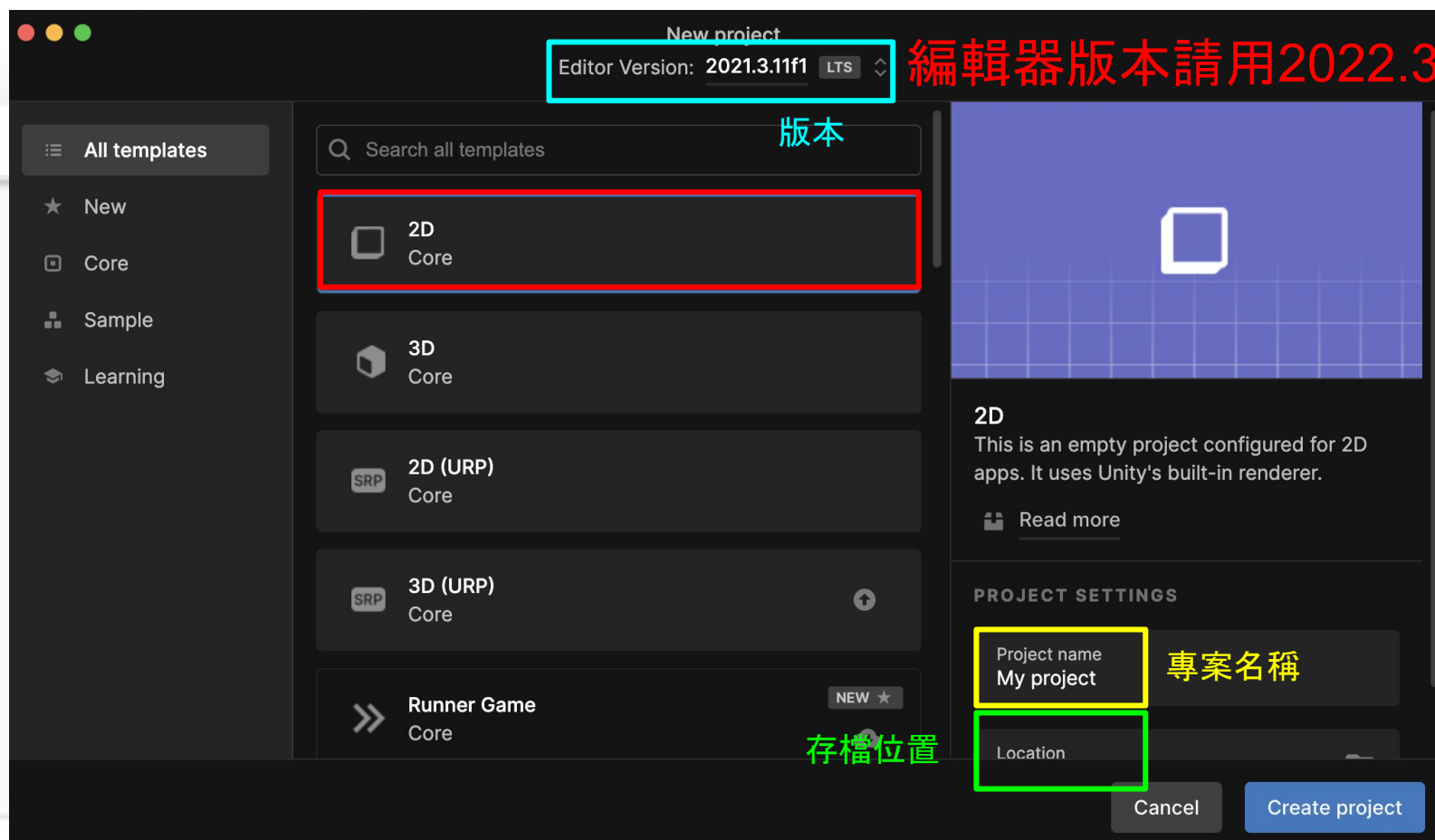
- 2D project
- import assets
- obj move
- user jump&move
- collide
- score: UI-test



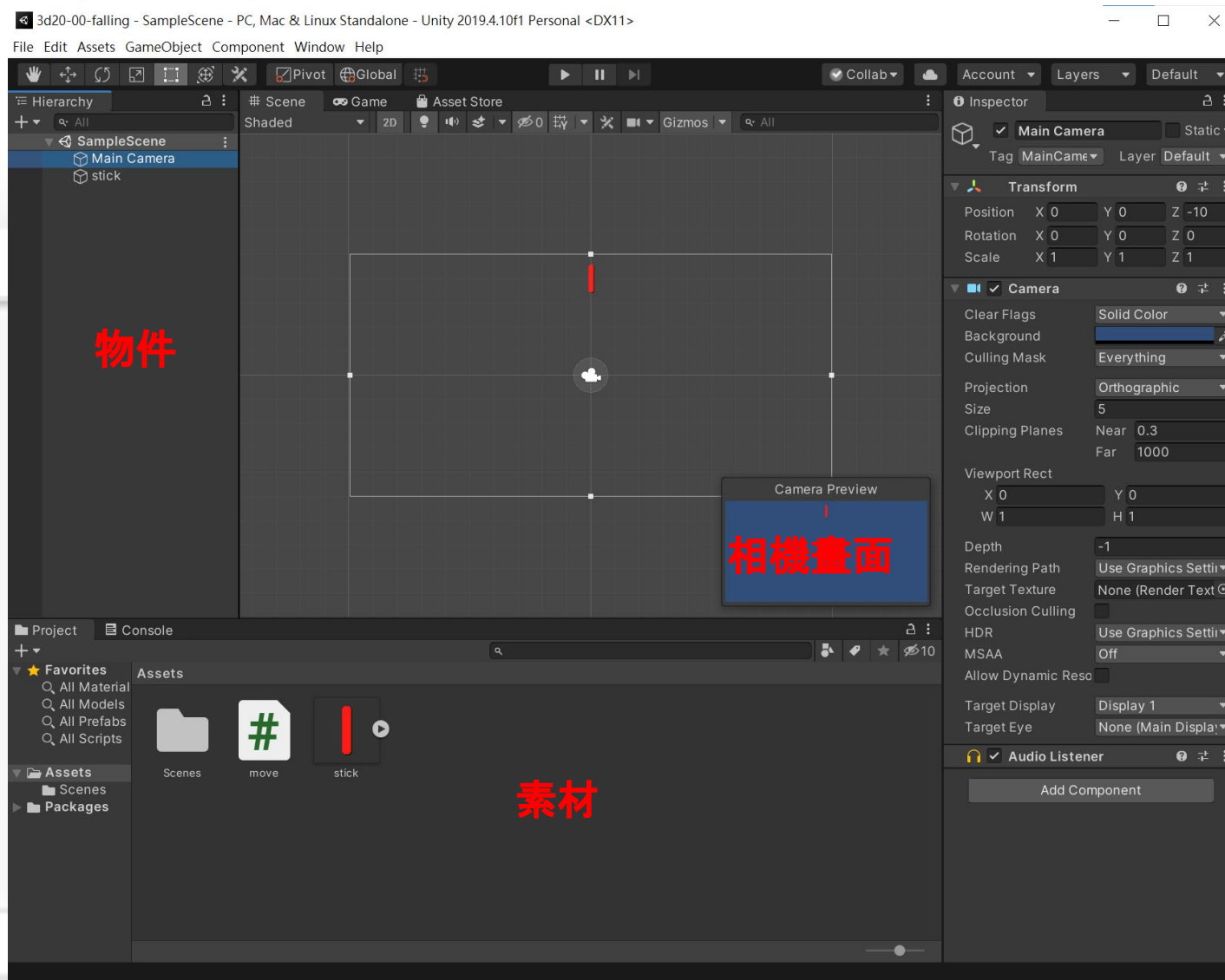
建立Unity的2D專案



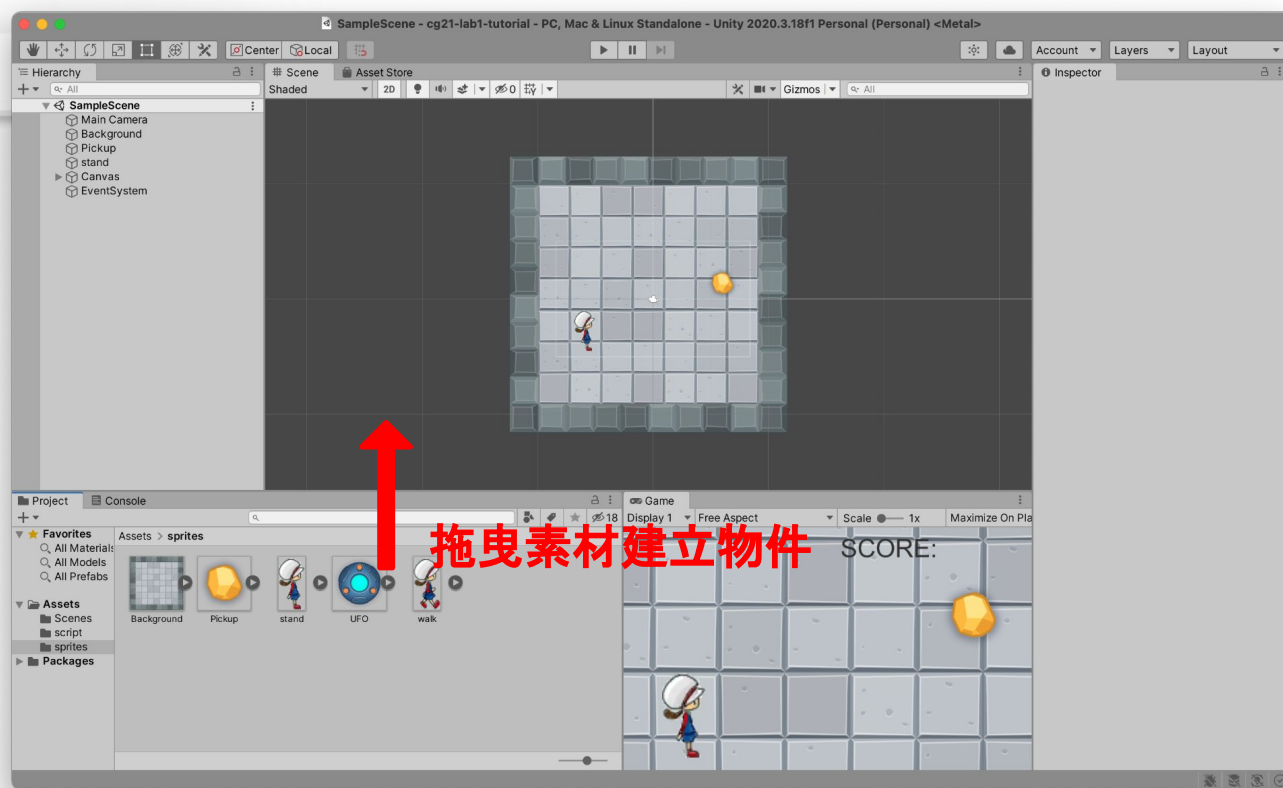
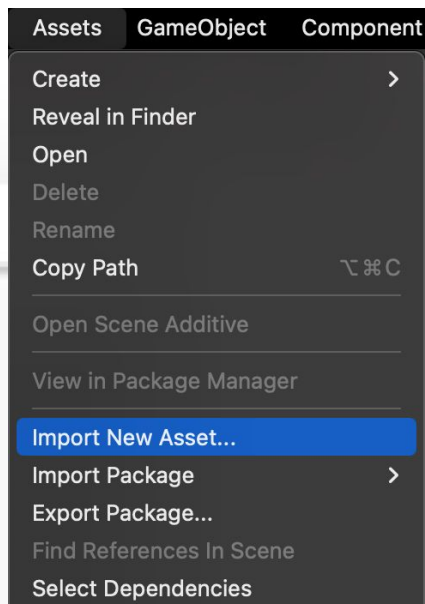
建立Unity的2D專案



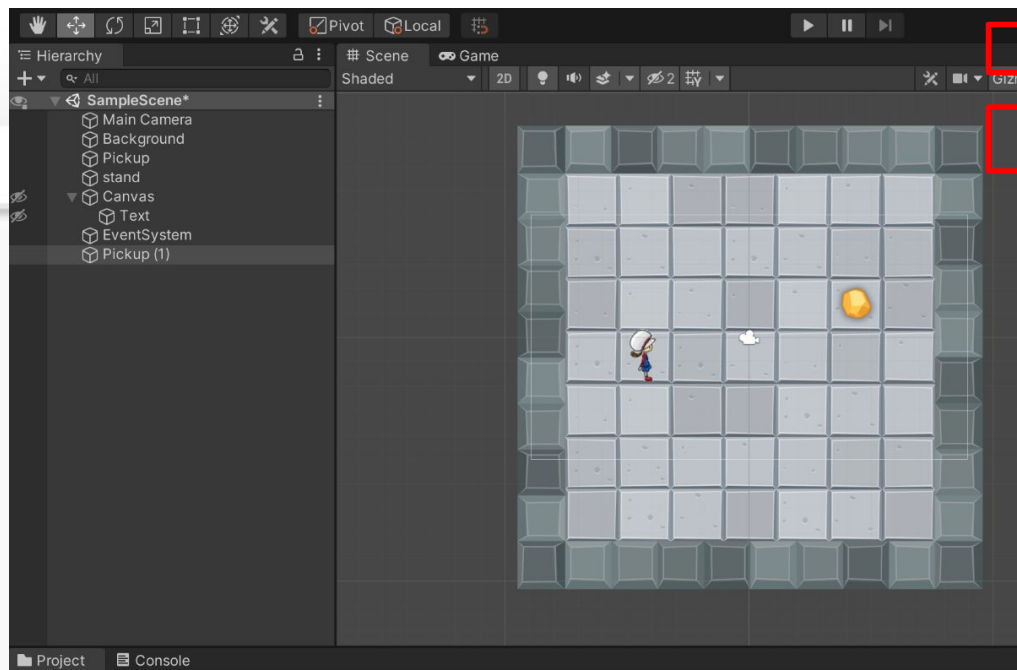
初始畫面



匯入素材



物件基本概念



位置

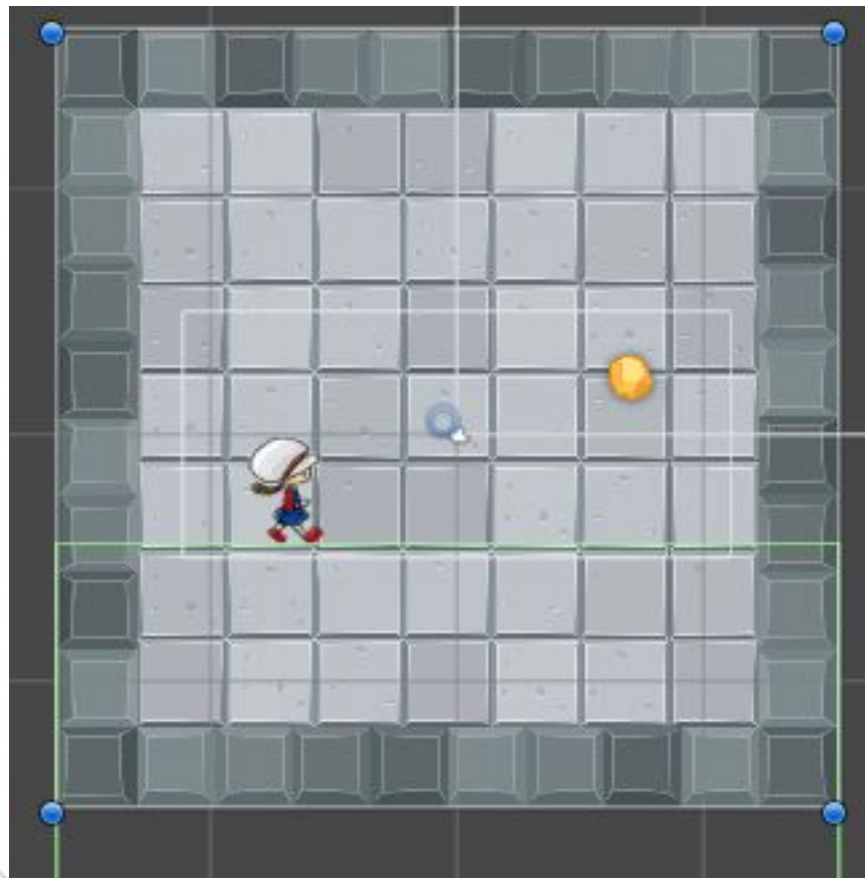
大小

前後

INTERACTIVE
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建立人物、物件、背景

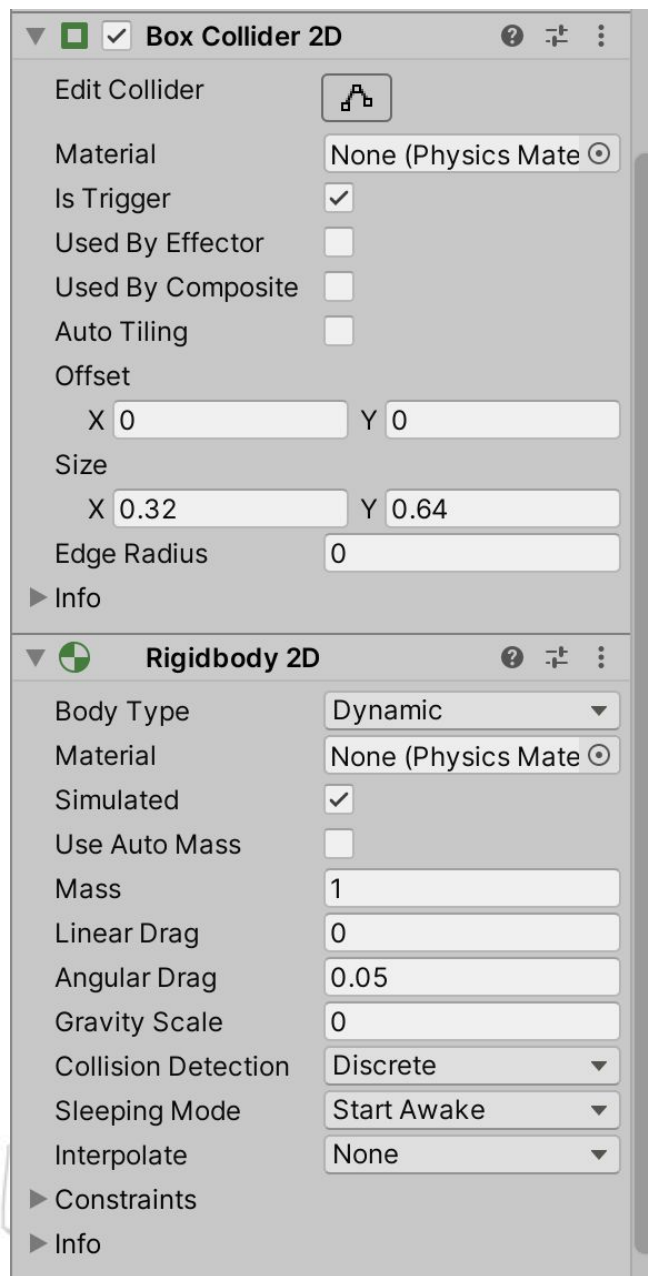
- 建立遊戲的基本要素，調整大小和位置



物體性質調整

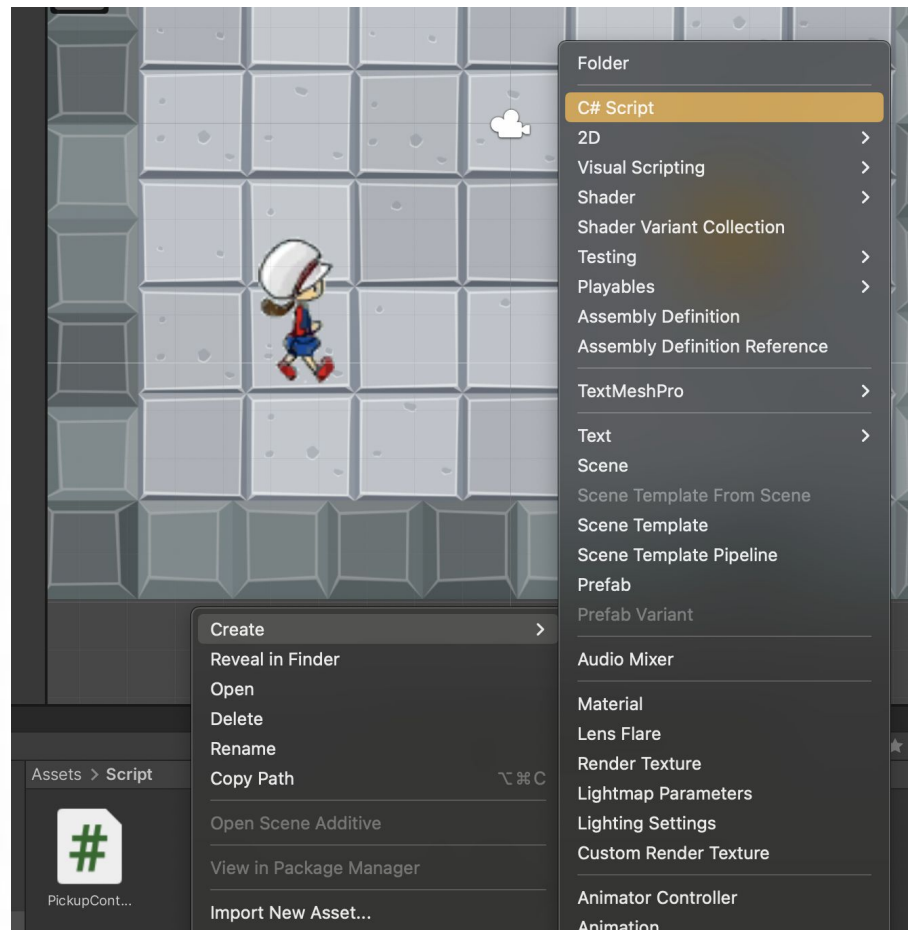
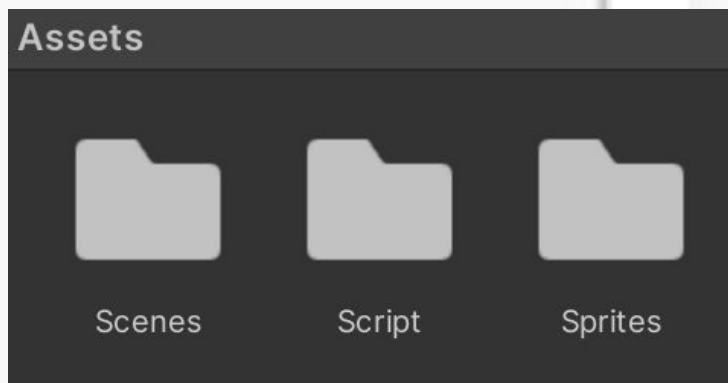
找到右邊的Add Component

- **Box Collider 2D**: 決定物體屬於可以碰撞的性質
 - Is Trigger: 讓物體只偵測碰撞, 不產生物理反應
- **Rigidbody 2D**: 使物體變成實體, 可以設定一些物理屬性。像是質量、摩擦力、受到重力影響等等, 使其趨近於真實情況
 - Gravity Scale: 表示受重力影響的程度

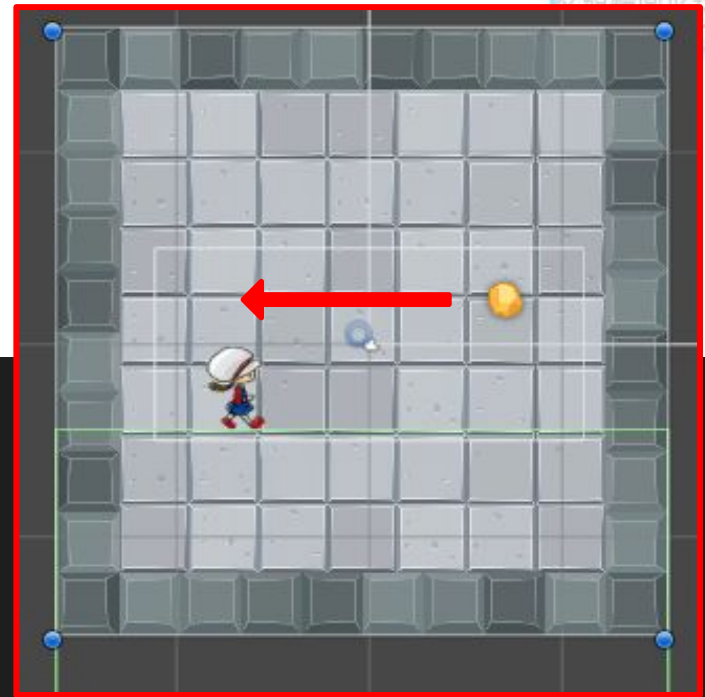


新增Script

- 新增放腳本的資料夾
- 在資料夾中新增腳本
右鍵 > Create > C# Script



金塊移動與旋轉



```
1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class PickupController : MonoBehaviour
6  {
7      public float speed = 10; //定義變數設定金塊的速度
8      //有加上public的值就可以在UNITY的UI介面上看到與編輯
9
10     // Start is called before the first frame update
11     void Start()
12     {
13
14     }
15
16     // Update is called once per frame
17     void Update()
18     {
19         this.transform.position -= new Vector3(speed * Time.fixedDeltaTime, 0f, 0f); //設定物件的位置，每次update就扣多少位移。
20         //fixedDeltaTime為unity中定義的每次更新所花的時間
21
22         this.transform.Rotate(new Vector3(0f, 0f, 1f), 5); //設定物件的旋轉
23         //Rotate函式需要兩個參數：旋轉中心、旋轉角度
24     }
25 }
26
```

▼ # [x] Pickup Controller (Script) ? [x] [x]

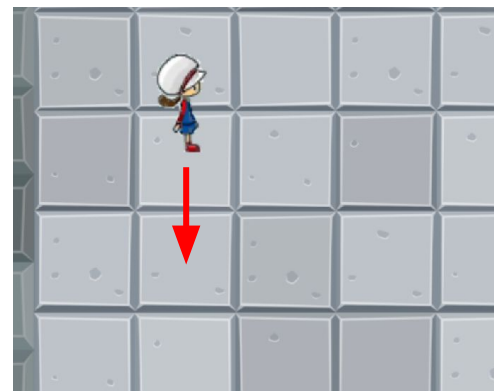
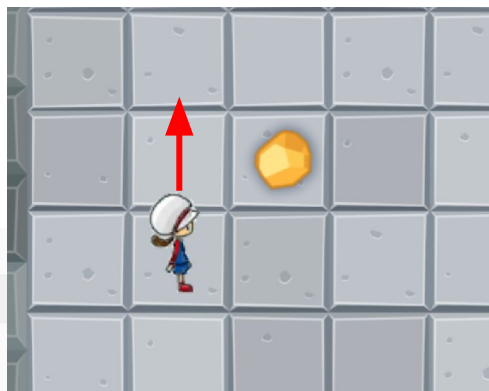
Script	# PickupController
Speed	10

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玩家跳躍

```
void Update() {  
    if (Input.GetKey(KeyCode.Space)) {  
        if (!IsJump) {  
            JumpCount = 0;  
            IsJump = true;  
        }  
    }  
}
```



```
if (JumpCount >= 0) {  
    if (JumpCount < 20) {  
        this.transform.position += new Vector3(0f, speed * Time.fixedDeltaTime, 0f);  
    } else {  
        this.transform.position += new Vector3(0f, -speed * Time.fixedDeltaTime, 0f);  
    }  
    JumpCount++;  
    if (JumpCount > 39) {  
        IsJump = false;  
        JumpCount = -1;  
    }  
}
```

玩家前進後退



```
if (Input.GetKey(KeyCode.D)) {  
    this.transform.position += new Vector3(speed * Time.fixedDeltaTime, 0f, 0f);  
}  
  
if (Input.GetKey(KeyCode.A)) {  
    this.transform.position += new Vector3(-speed * Time.fixedDeltaTime, 0f, 0f);  
}
```

碰撞消失



```
public void OnTriggerEnter2D(Collider2D other) {  
    other.gameObject.SetActive(false);  
}
```

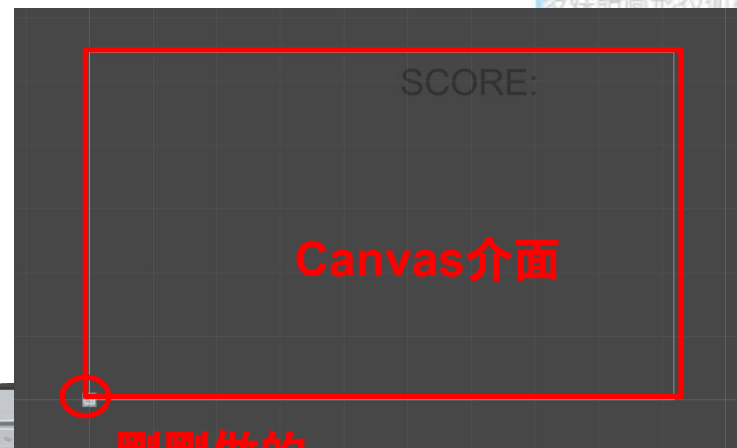

Canvas

- 遊戲UI介面

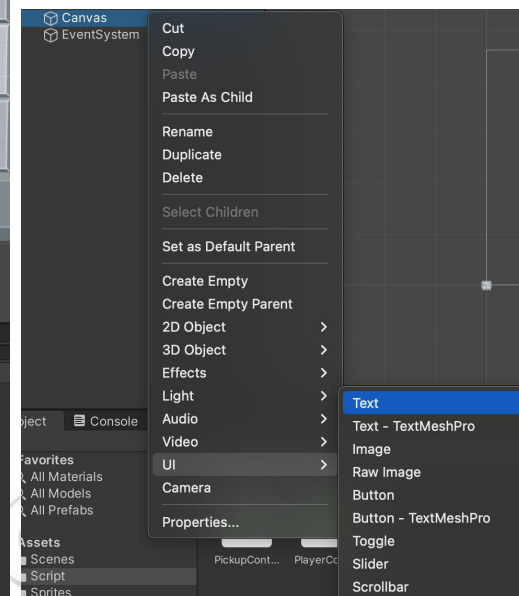
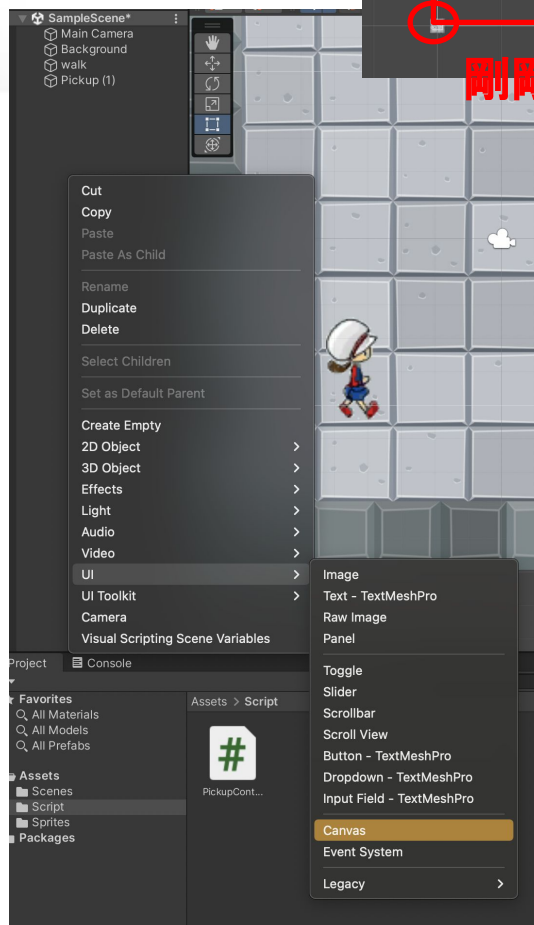
右鍵 > UI > Canvas

- 新增文字

右鍵 > UI > Text

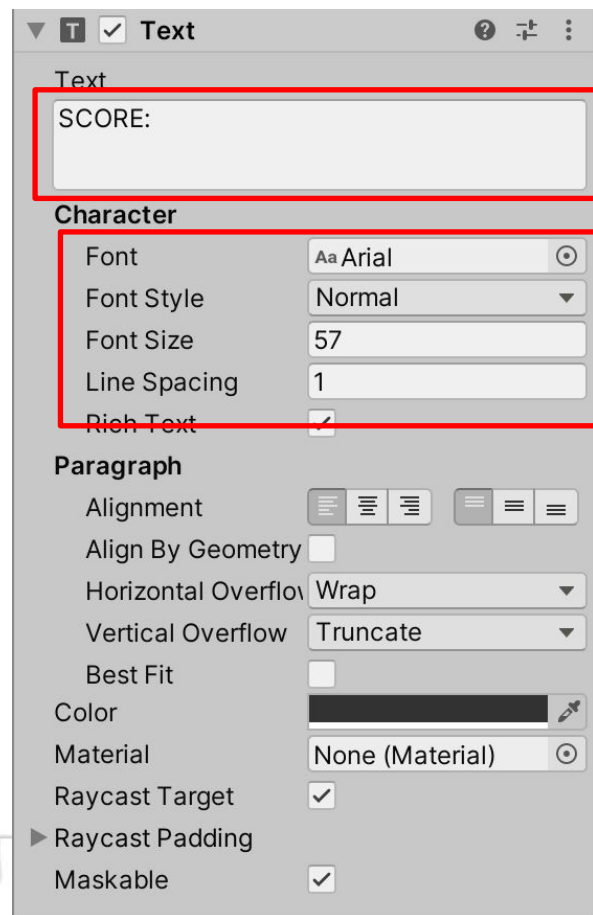
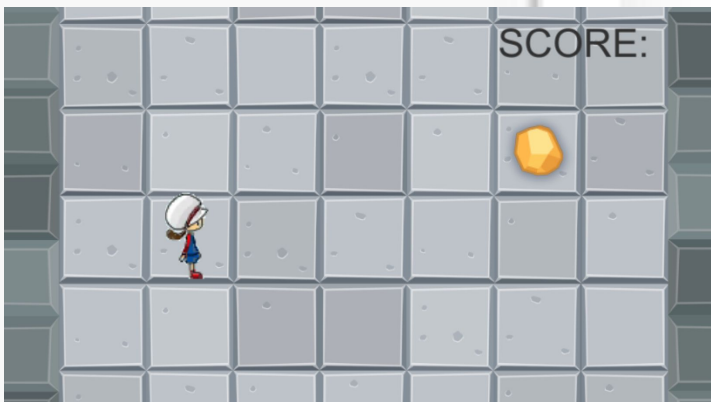
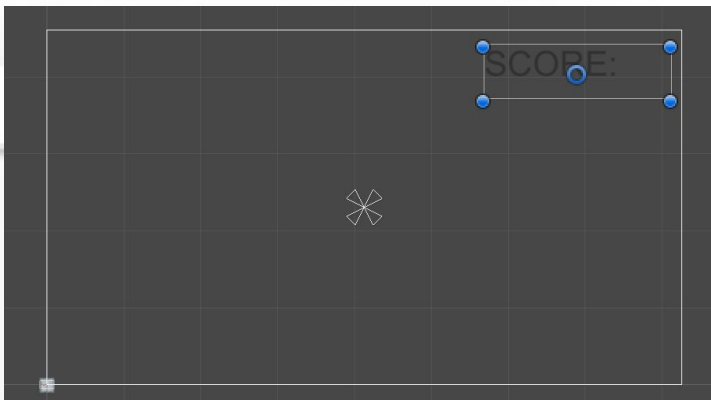


剛剛做的



Text 功能

- 在GameObject中找UI的Text物件

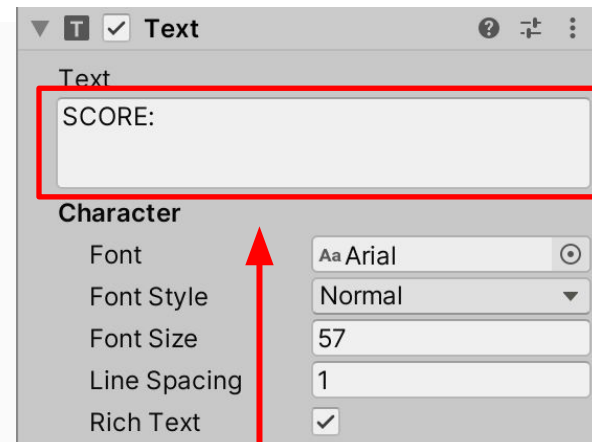


內容

字型
字體粗細
行距大小

計分功能

```
public class ScoreTextController : MonoBehaviour {  
    1 reference  
    public int initialScore;  
    4 references  
    int currScore;  
    3 references  
    Text _text;  
    // Start is called before the first frame update  
    0 references  
    void Start() {  
        currScore = initialScore;  
        _text = this.GetComponent<Text>();  
        _text.text = "SCORE: " + currScore.ToString();  
    }  
}
```



內容

直接改變文字內容

```
public void AddScoreAndDisplay() {  
    currScore += 100;  
    _text.text = "SCORE: " + currScore.ToString();  
}
```

加分函式

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No UI->Text

unity 2021Its only **UI-> Text - TextMeshPro**

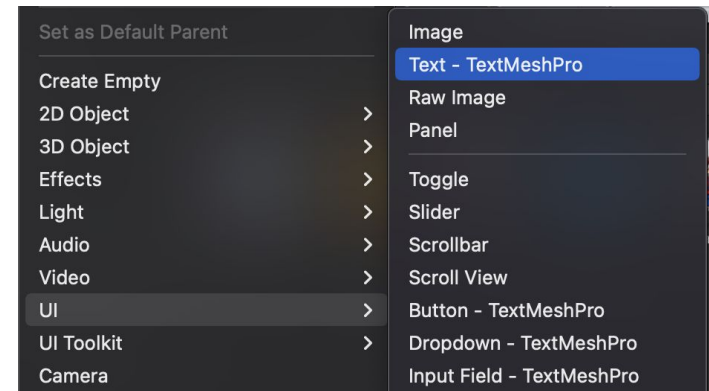
* simple solution
add

```
using UnityEngine;
```

```
using UnityEngine.UI;
```

```
using Text = TMPro.TextMeshProUGUI;
```

```
public class ScoreTextController : MonoBehaviour {  
    public int initialScore = 0;
```



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碰撞改變得分(放在碰撞物體上)

```
public class PlayerController : MonoBehaviour {  
    4 references  
    public float speed = 10f;  
    1 reference  
    public ScoreTextController scoreTextController;
```

建立別的script物件

```
public void OnTriggerEnter2D(Collider2D other) {  
    //other.gameObject.SetActive(false);  
    other.transform.position = new Vector3(10, other.transform.position.y, other.transform.position.z);  
    scoreTextController.AddScoreAndDisplay();  
}
```

呼叫別的script的函式



記得把script放入物件內

INTERACTIVE
MEDIA

練習

- 加入不同背景
- 建立人物並且可以前進、跳躍
- 有物體滾動且和人物碰撞後消失
- 加入分數功能
- 做完後將練習錄影交至moodle
- moodle只能50MB 只要錄關鍵5-10秒
- 或壓成mp4或降低解析度

