TUGAS PERTEMUAN: 8

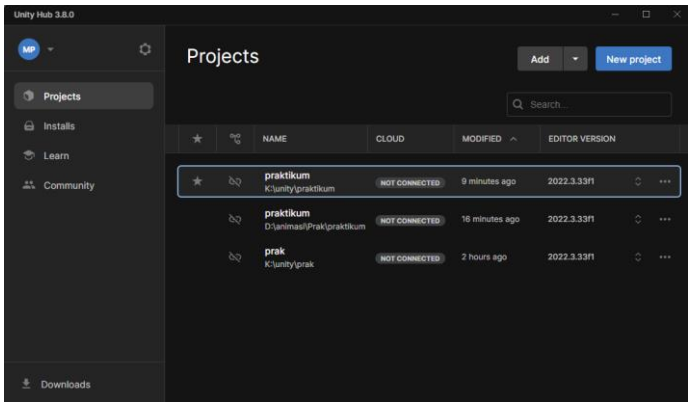
MOVEMENT

NIM	:	2118031
Nama	:	Muhammad Firman Prayogi
Kelas	:	A
Asisten Lab	:	APRILLIA DWI DYAH S. (2118143)
Referensi	:	Free Platform Game Assets | 2D Environments | Unity Asset Store

8.1 Tugas 1 : MOVEMENT

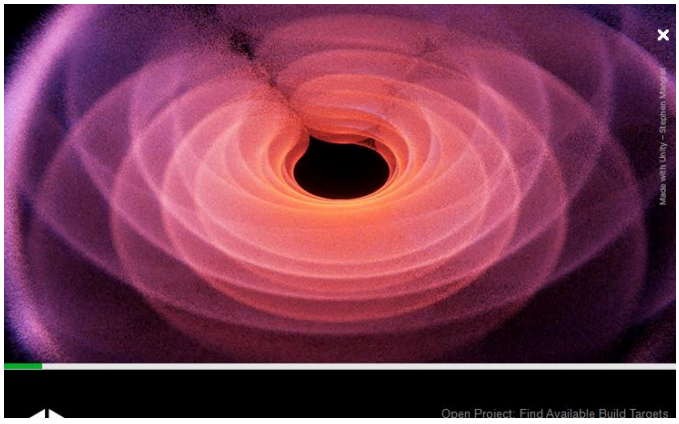
A. Movement

1. Masuk ke dalam aplikasi unity



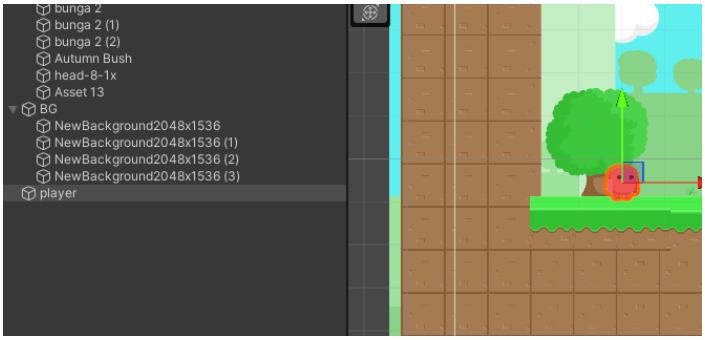
Gambar 8.1 Membuka Unity

2. Pilih folder yang ingin dibuka atau yang sudah diunduh property



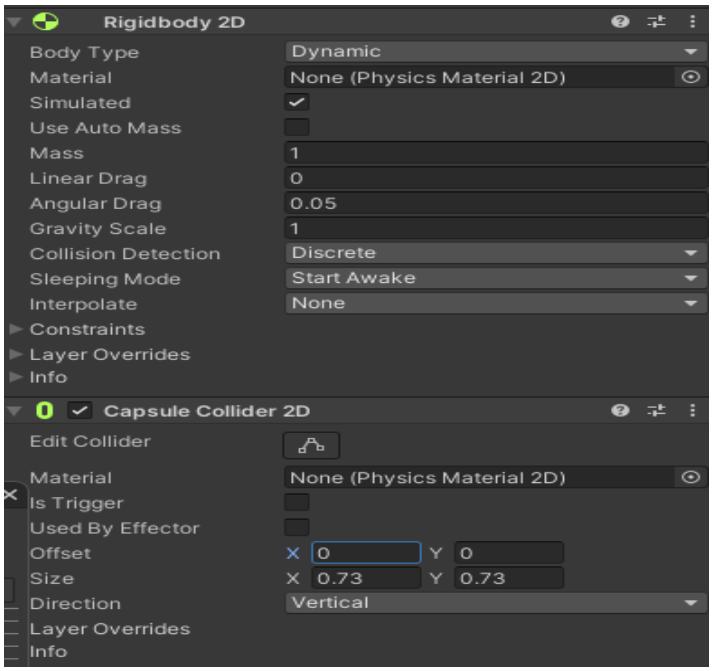
Gambar 8.2 mebuat akun unity

3. Masukkan karakter idle pada hirarki



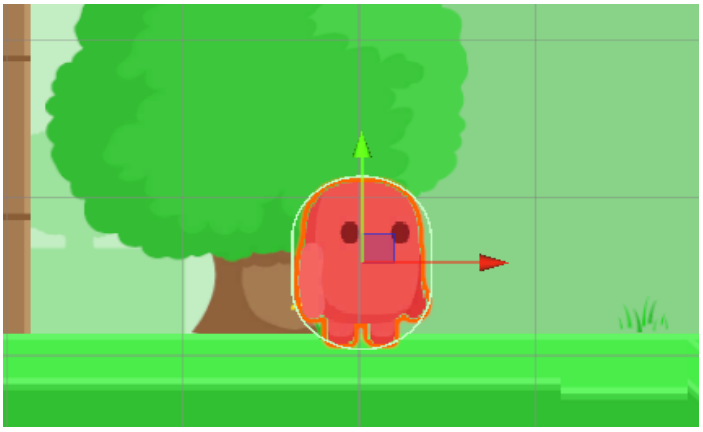
Gambar 8.3 Menambahkan karakter idle

4. Buat folder baru Bernama Tiles dalam folder praktikum



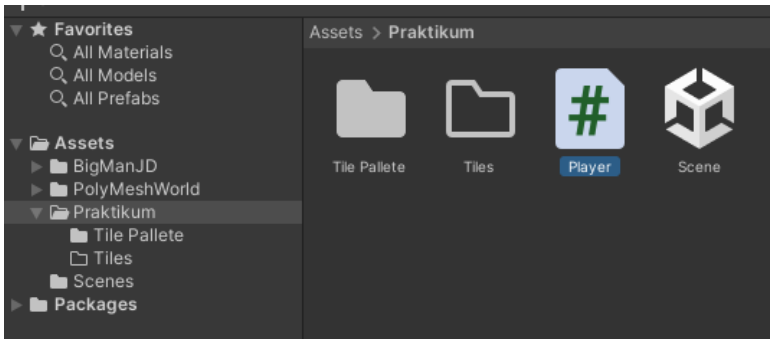
Gambar 8.4 menambahkan komponen pada karakter

5. Sesuaikan kapsul collidernya dengan karakter



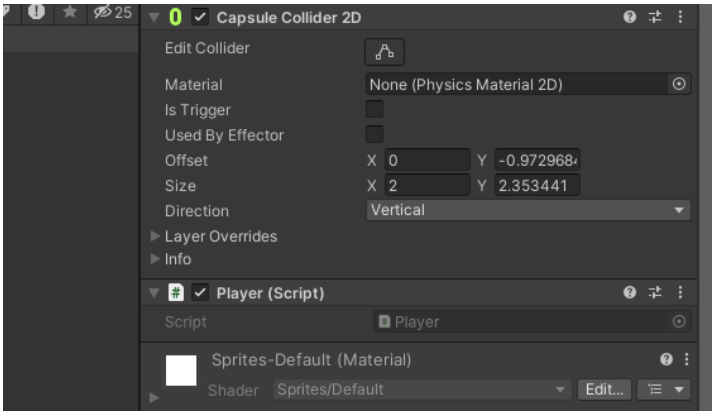
Gambar 8.5 menyesuaikan kapsul collider

6. Tambahkan script pada folder praktikum



Gambar 8.6 menambahkan script pada folder

7. Drag and drop script pada komponen player



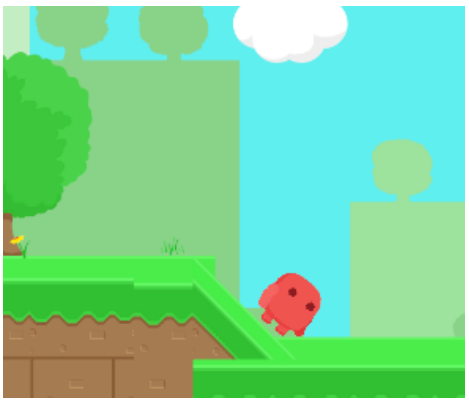
Gambar 8.7 menambahkan script pada player

8. Tambahkan kode pada script player

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

public class Player : MonoBehaviour
{
  Rigidbody2D rb;

  [SerializeField] float speed = 1;
  float horizontalValue;
  bool facingRight;

  private void Awake()
  {
    rb = GetComponent<Rigidbody2D>();
  }

  void Update ()
  {
    horizontalValue = Input.GetAxisRaw("Horizontal");
  }
```

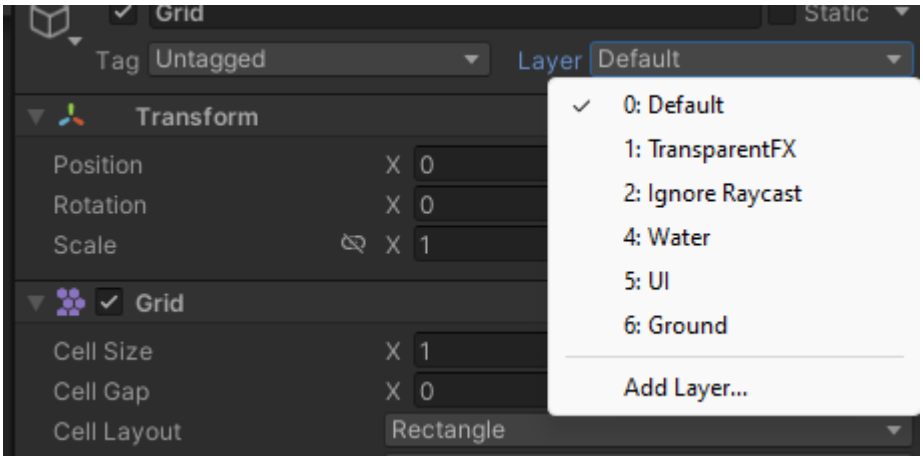
```
  void FixedUpdate()
  {
    Move(horizontalValue);
  }

  void Move(float dir)
  {
    #region gerak kanan kiri
    float xVal = dir * speed * 100 * Time.fixedDeltaTime;
    Vector2    targetVelocity    =    new    Vector2(xVal,
rb.velocity.y);
    rb.velocity = targetVelocity;

    if (facingRight && dir < 0)
    {
      // ukuran player
      transform.localScale = new Vector3(-1, 1, 1);
      facingRight = false;
    }

    else if (!facingRight && dir > 0)
    {
      // ukuran player
      transform.localScale = new Vector3(1, 1, 1);
      facingRight = true;
    }

    #endregion
  }
}
```

9. Setelah menambahkan kode maka karakter dapat bergerak kanan dan kiri melalui tombol a atau d



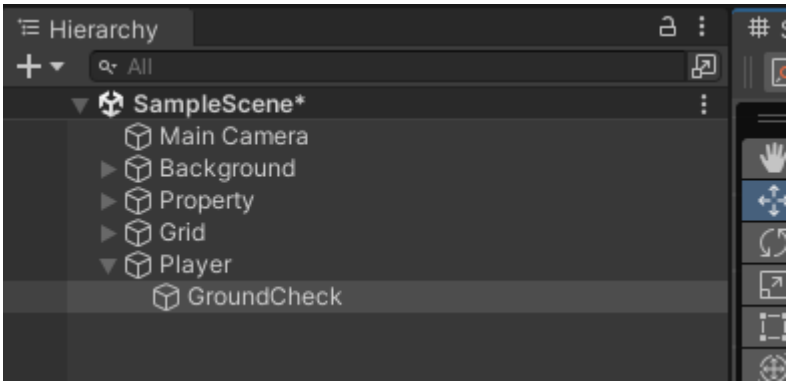
Gambar 8.8 penerapan movement

10. Pada grid untuk tile map, tambahkan layer sendiri Bernama ground, pilih kemudian klik yes pada bagian inspector



Gambar 8.9 Menambahkan ground layer

11. Create empty dan rename menjadi groundcheck pada player



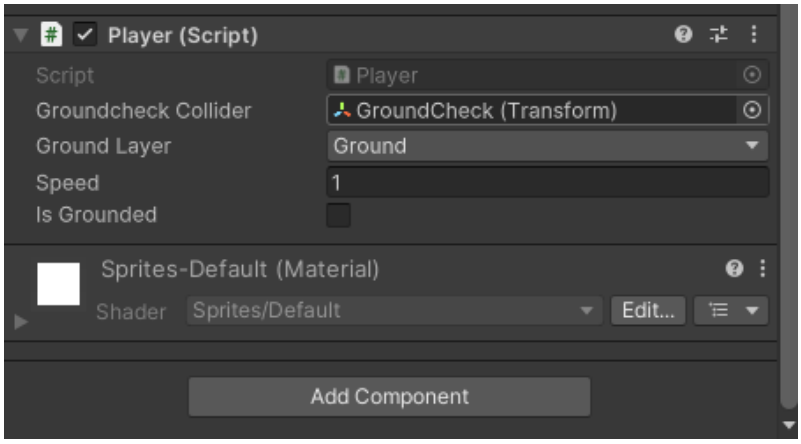
Gambar 8.10 Menambahkan ground check

12. Drag and drop tile map yang ada pada window tile map yang sudah dibuat

```
[SerializeField] Transform groundcheckCollider;
[SerializeField] LayerMask groundLayer;

const float groundCheckRadius = 0.2f; // +
[SerializeField] float speed = 1;
float horizontalValue;

[SerializeField] bool isGrounded; // +
bool facingRight;
void FixedUpdate()
{
GroundCheck();
Move(horizontalValue);
}

void GroundCheck()
{
```

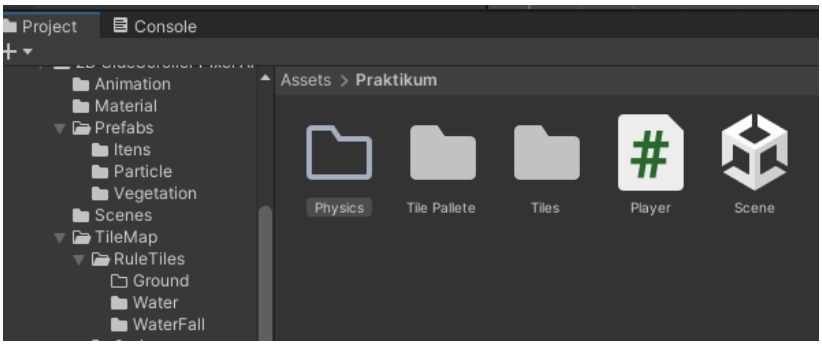
```
  isGrounded = false;
  Collider2D[]                colliders                =
Physics2D.OverlapCircleAll(groundcheckCollider.position,
groundCheckRadius, groundLayer);
  if (colliders.Length > 0)
  isGrounded = true;
  }

  [SerializeField] float jumpPower = 100;

  bool jump;

bool jumpflag

if(isGrounded && jumpflag)
 {
  isGrounded = false;
  jumpflag = false;
  rb.AddForce(new Vector2(0f, jumpPower));
 }
```

13. Ubah bagian pada inspector dan cocokan groundchecknya



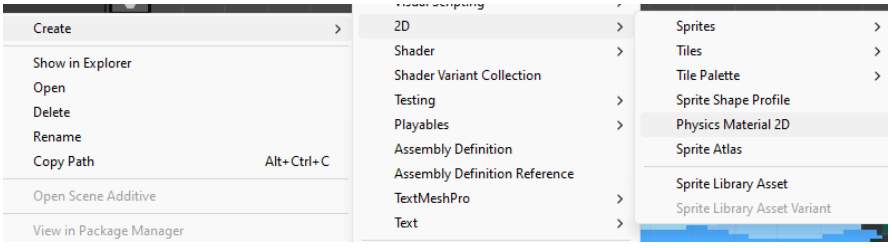
Gambar 8.11 Ubah inspector script

14. Buat layout platform tilemap sesuai yang diinginkan



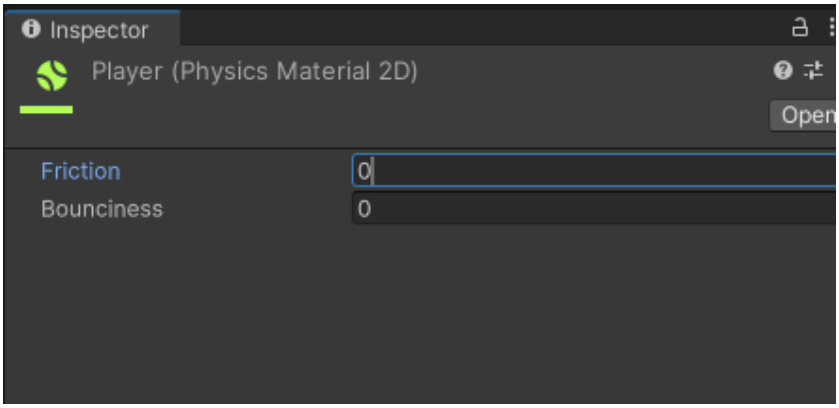
Gambar 8.12 Membuat folder physics

15. Pada folder physics buat 2d physics material



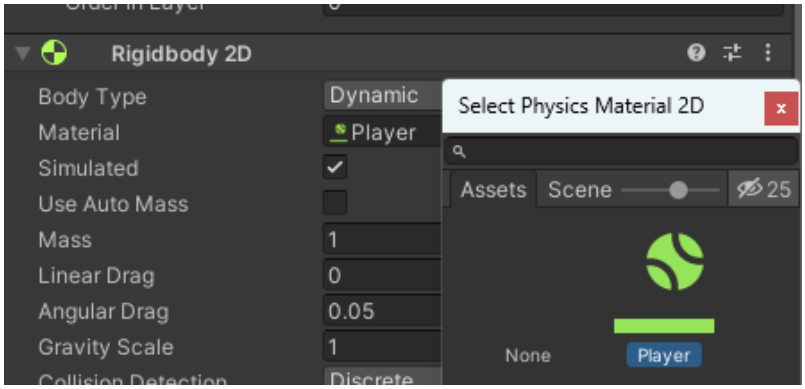
Gambar 8.13 membuat physics material 2d

16. Rename menjadi player dan ubah friction menjadi 0 pada inspector



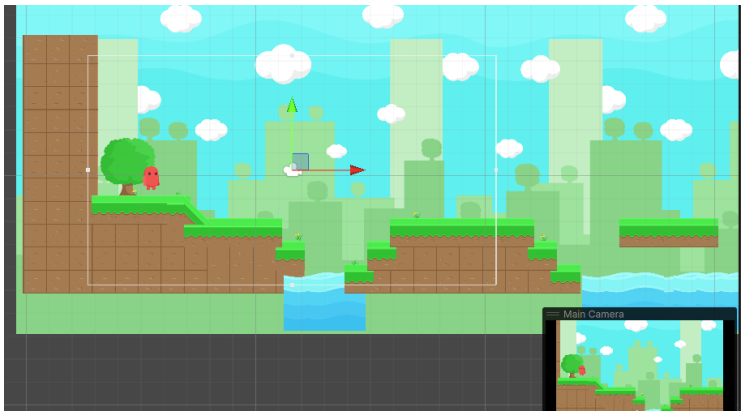
Gambar 8.14 Mengubah friction

17. Pada bagian hirarki player inspector rigidbody, ubah material ke material physics tadi



Gambar 8.15 menambahkan physics material 2d

18. Pada bagian hirarki main camera, bagian inspector ubah setting seperlunya agar kamera dapat bekerja optimal



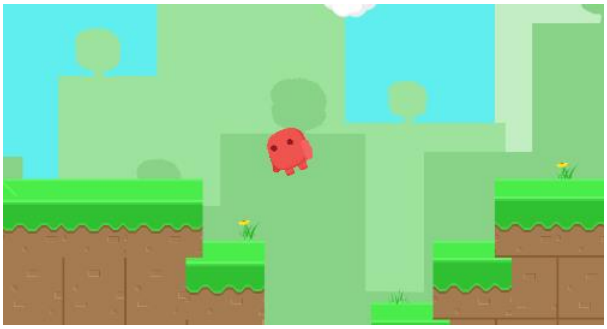
Gambar 8.16 mengubah setting inspector camera

19. Masukkan background sesuai asset yang sudah didownload kemudian ubak layer agar background tidak bertumpuk

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

public class CameraFollow : MonoBehaviour{

    public float xMargin = 0.5f;
    public float yMargin = 0.5f;
    public float xSmooth = 4f;
    public float ySmooth = 4f;
    public Vector2 maxXAndY;
    public Vector2 minXAndY;
    private Transform player;

    void Awake()
    {
        player                                                  =
GameObject.FindGameObjectWithTag("Player").transform;
    }

    bool CheckXMargin()
    {
        return      Mathf.Abs(transform.position.x      -
player.position.x) > xMargin;
    }

    bool CheckYMargin()
    {
        return      Mathf.Abs(transform.position.y      -
player.position.y) > yMargin;
    }

    void FixedUpdate()
    {
        TrackPlayer();
    }
```

```
    void TrackPlayer()
    {
        float targetX = transform.position.x;
        float targetY = transform.position.y;
        if (CheckXMargin())
            targetX  =  Mathf.Lerp(transform.position.x,
player.position.x,
            xSmooth * Time.deltaTime);
        if (CheckYMargin())
            targetY  =  Mathf.Lerp(transform.position.y,
player.position.y,
            ySmooth * Time.deltaTime);
            targetX  =  Mathf.Clamp(targetX,  minXAndY.x,
maxXAndY.x); targetY =
            Mathf.Clamp(targetY,              minXAndY.y,
maxXAndY.y); transform.position = new
            Vector3(targetX,                     targetY,
transform.position.z);}}
```

20. Menambahkan script camera follow ke dalam komponen main kamera pada hirarki, sehingga kamera akan mengikuti player, kemudian render



Gambar 8.17 Camera mengikuti karakter