01 Player Controller

–Player
–Player Sprite(Rigidbody 2D for controlling physics)

C# Scripts – Player

```csharp
public class Player : MonoBehaviour
{
    public float playerSpeed;
    private Rigidbody2D rb;
    private Vector2 playerDirection;


    // Start is called before the first frame update
    void Start()
    {
        rb = GetComponent<Rigidbody2D>();
    }


    // Update is called once per frame
    void Update()
    {
        float directionY = Input.GetAxisRaw("Vertical");
        playerDirection = new Vector2(0, directionY).normalized;
    }

    void FixedUpdate()
    {
        rb.velocity = new Vector2(0, playerDirection.y * playerSpeed);
    }
}
```

C# Scripts – Camera Movement

```
public class CameraMovement : MonoBehaviour
{

    public float cameraSpeed;


      // Update is called once per frame
    void Update()
    {
        transform.position += new Vector3(cameraSpeed * Time.deltaTime, 0, 0);
    }
}
```

– Game Manager
Make the "Main Camera" and "Player" game object to be the children of the "Game Manager"

03. Looping Background
- **Create a new quad name background**
- **Remove the mesh collider**
- **Background to be the child of Game Manager**
- **C# Scripts – Camera Movement**

```
public class LoopingBackground : MonoBehaviour
{

    public float backgroundSpeed;
    public Renderer backgroundRenderer;
    // Update is called once per frame
    void Update()
    {
        backgroundRenderer.material.mainTextureOffset += new
            Vector2(backgroundSpeed * Time.deltaTime, 0f);
    }
}
```

04. Spawning Obstacles

- **Obstacle sprite**
- **Obstacle**
- **Obsatcle Game Object Image and drag it to 'Prefabes'**

Prefab

Unity's Prefab system allows you to create, configure, and store a GameObject complete with all its componenets, property values, and child GameObjects as reusable asset

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- C# Scripts – Spawn Obstacles

```csharp
public class SpawnObstacles : MonoBehaviour
{

    public GameObject obstacle;
    public float maxX;
    public float minX;
    public float maxY;
    public float minY;
    public float timeBetweenSpawn;
    private float spawnTime;



    // Update is called once per frame
```

```
    void Update()
    {
        if(Time.time > spawnTime)
        {
            Spawn();
            spawnTime = Time.time + timeBetweenSpawn;


        }
    }


    void Spawn()
    {
        float randomX = Random.Range(minX,maxX);
        float randomY = Random.Range(minY,maxY);


        Instantiate(obstacle,transform.position + new
Vector3(randomX,randomY,0),transform.rotation);
    }


}
```

-
- Spawn point is the child of Game Manager

05. Creating Box Colliders
- **New game object Borders**
- **Top border**
- **Bottom Border**
- **Select Player , add Box Collider 2D component**
- Border is the child of Game Manager

06. Destroying Obstacle
- **Create new tag Border**
- **Circle Collider 2D**
- **C# Scripts – Obstacle**

```csharp
public class Obstacle : MonoBehaviour
{
    private GameObject player;

    // Start is called before the first frame update
    void Start()
    {
        player = GameObject.FindGameObjectWithTag("Player");
    }

    private void OnTriggerEnter2D(Collider2D collision)
    {
        if(collision.tag == "Border")
        {
            Destroy(this.gameObject);
        }

        else if(collision.tag == "Player")
        {
            Destroy(player.gameObject);
        }
    }
}
```

07. Game Over Panel
   - **New panel game over panel**
   - **Open Obstacle Script Again**

```csharp
public class Obstacle : MonoBehaviour
{
    private GameObject player;

    // Start is called before the first frame update
```

```csharp
    void Start()
    {
        player = GameObject.FindGameObjectWithTag("Player");
    }


    private void OnTriggerEnter2D(Collider2D collision)
    {
        if(collision.tag == "Border")
        {
            Destroy(this.gameObject);
        }


        else if(collision.tag == "Player")
        {
            Destroy(player.gameObject);
        }
    }
}
```

Create c# - Game Over

```csharp
using UnityEngine.SceneManagement;

public class GameOver : MonoBehaviour
{

    public GameObject gameOverPanel;


    // Update is called once per frame
    void Update()
    {
```

```
        if(GameObject.FindGameObjectWithTag("Player") == null)
        {
            gameOverPanel.SetActive(true);
        }
    }


    public void Restart()
    {
        SceneManager.LoadScene(SceneManager.GetActiveScene().name);
    }
}
```

08. Score Function
- ### Create Score text
- ### Create c# - Score Management

```
public class ScoreManager : MonoBehaviour
{

    public Text scoreText;
    private float score;

    // Update is called once per frame
    void Update()
    {
        if(GameObject.FindGameObjectWithTag("Player") != null)
        {
            score += 1 * Time.deltaTime;
            scoreText.text = ((int)score).ToString();
        }
    }
}
```

- **Create c# - Background Music**

```csharp
public class BackgroundMusic : MonoBehaviour
{
    private static BackgroundMusic backgroundMusic;

    void Awake()
    {
        if(backgroundMusic == null)
        {
            backgroundMusic = this;
            DontDestroyOnLoad(backgroundMusic);
        }

        else
        {
            Destroy(gameObject);
        }
    }
}
```

Particle Effect