



Welcome to issue 10 Happy new year all.

Welcome to a new issue of Create Games. When you download the assets of this issue you will get the full open resource project that you can open in Unity. This way you can start right away and change/add things to your own likings. If you're new to Unity and C-Script I advise you to read and experiment with all previous issues.

In this Issue we will create a full retro games of 2D Tanks. You can see this all in action right here : <https://youtu.be/mnDkHgOH5o0>

I will tell you what each script does so you will understands this example game mechanics. I am sure things could be scripted better but hey it works so go nuts and make it better when needed.

For the scores in game I created 2 scripts so each player will have its own scores. Since we use UI Text elements it's important that the library lines have the part using UnityEngine.UI. You can drag the score text elements to the inspector's view. If you have done previous issues you should be familiar with how to create scores. Each script is the same accept the class name.

Score Player 1 and 2 scripts.

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

public class Scorep11 : MonoBehaviour
{
    /// Tankies Create Games Issue January 2022////
    /// René Pol 01-01-2022///

    public static float Scorevalue1;
    public Text ScorevalueT;

    void Start()
    {
        ScorevalueT = GetComponent<Text>();
    }

    void Update()
    {
        ScorevalueT.text = Scorevalue1.ToString("00");
    }
}
```



Tank Movement Player 1 and 2 Script

Each tank gets a similar movement script but uses different keys to move and uses it's own bullet. When the enemy bullet hits the tank hitmode is set to 1 which will activate the rotating of the tank. When hitmode is set to 0 the tank can freely move. The tank engine is played in a loop for as long as the drive bool is set to true. When hit the score (Depending which tank is hit) will be adding one point.

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

public class TanksMovement : MonoBehaviour
{
    /// Tankies Create Games Issue January 2022///
    /// René Pol 01-01-2022///

    public float TankSpeed;
    public float Rotspeed;
    public GameObject TankBullet;
    public bool Driving;
    public int Activate = 0;
    public int Ammo = 1;
    public int hitmode = 0;
    public Transform Barrel;
    Rigidbody2D rb;
    AudioSource TankEngine;
    private Tank2Movement TM;
    public float hittime = 5f;
    public AudioClip Explode;
    public void OnCollisionEnter2D(Collision2D collision)
    {
        if (collision.gameObject.tag == ("Bullet"))
        {
            Scorepl2.Scorevalue2 += 1;
            this.gameObject.GetComponent<BoxCollider2D>().enabled = false;
            AudioSource.PlayClipAtPoint(Explode, new Vector3(0, 0, -10));
            Destroy(collision.gameObject);
            TM.Ammo = 1;

            rb.isKinematic = true;
            hitmode = 1;
        }
    }

    void Start()
    {
        TM = FindObjectOfType<Tank2Movement>();
        rb = GetComponent<Rigidbody2D>();
        Driving = false;
        TankEngine = GetComponent<AudioSource>();
    }
}
```



```
void Update()
{
if (hitmode == 1)
{
transform.Rotate(0, 0, 100 * 5 * Time.deltaTime);
hittime -= Time.deltaTime;
if (hittime <= 0)
{
hitmode = 0;
hittime = 5;
rb.isKinematic = false;
this.gameObject.GetComponent<BoxCollider2D>().enabled = true;
}
}
if (hitmode == 0)
{
if (Input.GetKey(KeyCode.Space) && Ammo == 1)
{
Ammo = 0;
Instantiate(TankBullet, Barrel.position, transform.rotation);
}
if (Driving == true && Activate == 0)
{
TankEngine.Play();
Activate = 1;
}
if (Driving == false)
{
TankEngine.Stop();
Activate = 0;
}
if (Input.GetKeyUp(KeyCode.Z))
{

Driving = false;
}
if (Input.GetKey(KeyCode.Z))
{
transform.Translate(Vector2.up * TankSpeed * Time.deltaTime);
Driving = true;
}
if (Input.GetKey(KeyCode.RightArrow))
{
transform.Rotate(0, 0, -50 * Rotspeed * Time.deltaTime);
}
if (Input.GetKey(KeyCode.LeftArrow))
{
transform.Rotate(0, 0, 50 * Rotspeed * Time.deltaTime);
}
}
}
}
```



Each tank uses its own bullet. So both bullet objects have a similar script. The bullet gets destroyed when it hits a tank or after a few seconds that can be set. The tank can fire one bullet at a time and as soon as the bullet gets destroyed it will set the tank's ammo back to one.

Tank Bullet Script Player 1 and Player 2.

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

public class TankBullet : MonoBehaviour
{
    /// Tankies Create Games Issue January 2022////
    /// René Pol 01-01-2022///

    public float BulletSpeed;
    public float BulletTime = 5f;
    private TanksMovement TM;
    public AudioClip Shoot;

    public void OnCollisionEnter2D(Collision2D collision)
    {
        if (collision.gameObject.tag == ("Wall"))
        {
            TM.Ammo = 1;
            Destroy(this.gameObject);
        }
    }

    void Start()
    {
        TM = FindObjectOfType<TanksMovement>();
        AudioSource.PlayClipAtPoint(Shoot, new Vector3(0, 0, -10));
    }

    void Update()
    {
        BulletTime -= Time.deltaTime;
        transform.Translate(Vector2.up * BulletSpeed * Time.deltaTime);
        if (BulletTime <= 0)
        {
            TM.Ammo = 1;
            Destroy(this.gameObject);
        }
    }
}
```



Since the bullet rotates I wanted to hold the square straight. So I Made the main bullet object invisible and gave it this child object sprite. This sprite gets this script so it will always stay horizontal and does not rotate although the bullet itself does.

Stay Straight Script

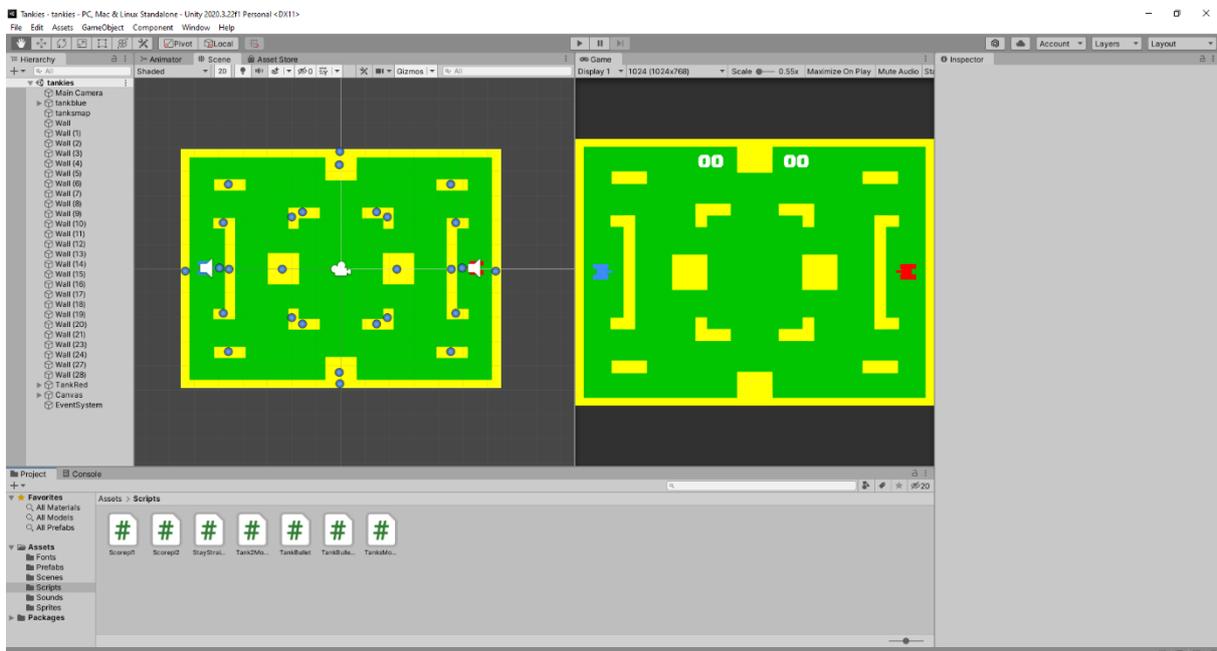
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class StayStraight : MonoBehaviour
{

    /// Tankies Create Games Issue January 2022////
    /// René Pol 01-01-2022///

    void Update()
    {
        transform.eulerAngles = new Vector3(0, 0, 0);
    }
}
```

All of this is a Tank battle game. These scripts are giving you a good start so happy game making !





HOW TO

A question asked many times is How do you throw a 3D dice model and make the outcome appear on screen as a text.

It is a simple set up. Create a dice model and add child objects to the middle of every side. Give these child objects corresponding tag names like One,two,three till six. Make the objects have each a collider box with is Trigger selected. Create a plane and give it the name tag Ground.

You can see this all working at : <https://youtu.be/uwTJ8PSD8IA>

This script handles the throwing of the dice on the press of the spacebar key. It uses add force and add torque to make it go up and rotate randomly using the variables dirX,dirY,dirZ. When the dice does not move anymore it will show the Diceoutcome float variable. When thrown this variable is set to 0.

The Dice Script.

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

public class Dice : MonoBehaviour
{
    /// Create Games Magazine Dice 3D by René Pol 01-01-20220 ///

    private Rigidbody RB;
    public float ThrowForce = 300;
    public static float DiceOutcome;
    public Text DiceOutcomeT;
    float dirX;
    float dirY;
    float dirZ;

    void Start()
    {
        RB = GetComponent<Rigidbody>();
        dirX = Random.Range(0, 300);
        dirY = Random.Range(0, 300);
        dirZ = Random.Range(0, 300);
        RB.AddForce(Vector3.up * ThrowForce, ForceMode.Impulse);
        RB.AddTorque(dirX, dirY, dirZ);
    }
}
```



```
void Update()
{
if (RB.velocity == Vector3.zero)
{
DiceOutcomeT.text = DiceOutcome.ToString("0");
}
if (Input.GetKeyDown(KeyCode.Space))
{
DiceOutcome = 0;
dirX = Random.Range(0, 300);
dirY = Random.Range(0, 300);
dirZ = Random.Range(0, 300);
RB.AddForce(Vector3.up * ThrowForce, ForceMode.Impulse);
RB.AddTorque(dirX, dirY, dirZ);
}
}
}
```

Each created child object gets this script. It gets the trigger that connects to the ground and then sends the opposite side number to the Dice scripts Diceoutcome variable.

DiceSide Script.

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

public class DiceSide : MonoBehaviour
{

/// Create Games Magazine Dice 3D by René Pol 01-01-20220 ///

public void OnTriggerEnter(Collider other)
{
if (other.gameObject.tag == ("Ground"))
{
if (this.gameObject.tag == ("One"))
{
Dice.DiceOutcome = 5;
}
if (this.gameObject.tag == ("Five"))
{
Dice.DiceOutcome = 1;
}
if (this.gameObject.tag == ("Two"))
{
Dice.DiceOutcome = 6;
}
if (this.gameObject.tag == ("Six"))
{
```



```
Dice.DiceOutcome = 2;
}
if (this.gameObject.tag == ("Four"))
{
Dice.DiceOutcome = 3;
}
if (this.gameObject.tag == ("Three"))
{
Dice.DiceOutcome = 4;
}
}
}
}
```

You can use as much dices if you want by giving each dice it's own text element to show it's outcome. Have fun using all this.

