

# Project 1: Pseudocode

## **Player Movement:**

Start:

- Initialise variables

Update:

- If player is not alive, exit

- Call Run()

- Call FlipSprite()

- Call Die()

OnMove:

- If the player is not alive, exit

- Get the input from the player (joystick/keys) and update moveInput

OnFire:

- If player is not alive, exit

- Instantiate the weapon prefab at the firePoint

OnJump:

- If player is not alive, exit

- If player is not touching the platform, exit

- If the jump button /key is pressed:

- Apply jump speed to the player's Rigidbody

Run:

- Calculate the player velocity

- Set player's Rigidbody velocity to playerVelocity

- Update the Animator's 'isRunning' parameter

FlipSprite:

- Check if the player is moving

- If yes, access the local scale and flip the player's sprite direction

Die:

- If player touches enemy or hazard:

- Set isAlive bool to false

- Trigger dying animation

- Apply deathKick to player's Rigidbody

- Disable the player controls

- Call ProcessPlayerDeath() from GameSession

ProcessPlayerDeath:

    If playerLives > 1:

        TakeLife()

    Else:

        ResetGameSession()

TakeLife:

    Decrease playerLives by 1

    Reload current scene

    Update UI with remaining lives

ResetGameSession:

    Load the first scene

    Destroy GameSession object

### **Enemy Movement:**

Start:

    Initialise variables

    Set initial velocity

Update:

    Set velocity to move the enemy

    Call FlipEnemyFacing

OnTriggerExit2D:

    Change the movement direction of the enemy

    Call FlipEnemyFacing method

FlipEnemyFacing:

    Flip enemy's sprite direction

Die:

    Trigger death animation

    Start DestroyAfterAnimation coroutine

DestroyAfterAnimation:

    Wait for 0.1 seconds

    Destroy the enemy object

## **Enemy Wave Spawner**

Start:

- Start the SpawnWaves coroutine

SpawnWaves:

- While true:

  - Wait for a set time before spawning the next wave

  - Call SpawnWave

SpawnWave:

- For each enemy to be spawned:

  - Choose a random spawn point

  - Instantiate the enemyPrefab at the spawn point

StopSpawning:

- Stop all spawning coroutines

## **Weapon**

Start:

- Initialise variables

- Calculate the xSpeed (speed the weapon's ammo fires horizontally)

Update:

- Set weapon's Rigidbody velocity in x-direction

OnTriggerEnter2D:

- If the weapon collides with an enemy:

  - Add points for weapon damage to the score

  - Call Die() of the enemy

  - Destroy enemy after 1 second

OnCollisionEnter2D(Collision2D other):

- Destroy weapon object

## **Finish Line**

Start:

- Check if enemyWaveSpawner is assigned
- Check if audioSource is assigned

OnTriggerEnter2D:

- If the player collides with the finish line
  - Play the finish visual effect (VFX)
  - Stop enemy spawning from the enemyWaveSpawner
  - Destroy all enemies with DestroyAllEnemies()

DestroyAllEnemies:

- Find all enemies
- For each enemy:
  - Instantiate the VFX - enemy explosion effect at the enemy's position
  - Play the sound effect (SFX) explosionSound
  - Destroy the enemy object

## **Game Session**

Awake:

- Implement a singleton pattern to ensure there is only one GameSession object

Start:

- Update UI with initial lives and score

ProcessPlayerDeath:

- If player has more than 1 life:
  - TakeLife()
- Else:
  - ResetGameSession()

AddToScore:

- Add points to the score
- Update UI with the new score

TakeLife:

- Decrease playerLives by 1
- Reload current scene
- Update UI with remaining lives

ResetGameSession:

Load the first scene  
Destroy GameSession object