

## Project 1 Implementation

### **World Camera Settings**

- Set to 100 in the Main Camera's size property.

### **Hero**

- Size 5x5 set in Hero Prefab's scale property
- Keyboard-Mouse toggle implemented in GameManager.cs in the Update function. Pressing the M key toggles.
- Mouse control implemented in HeroBehavior.cs in the Update function. Hero follows the mouse position.
- Keyboard control implemented in HeroBehavior.cs in the Update function. W increases the hero speed in the Transform.up direction, and S decreases the speed.
- Initial speed set to 20 units per second in HeroBehavior.cs.
- Left/Right keys rotate the hero by 45 degrees per second. Property set in HeroBehavior.cs.
- Space-bar spawns an egg every 0.2 seconds. Implemented in HeroBehavior.cs in the Update function.

### **Spawned Egg**

- Size 1x1 set in Egg Prefab's scale property.
- Aligned with the Transform.up direction at spawn time. This is set in HeroBehavior.cs in the SpawnAnEgg function.
- Spawned eggs travel towards their Transform.up direction at 40.0 units per second. This is set in EggBehavior.cs.
- Spawned eggs expire when:
  - It reaches the world boundary. This is set in EggBehavior.cs in the Update function.
  - It collides with an enemy. This is set in EggBehavior.cs in the OnCollisionEnter2D function.

### **Enemy and Spawning**

- Enemy size 5x5 set in Enemy Prefab's scale property.

- There are always 10 enemies in the world. This is done in GameManager.cs in the AddEnemy function. The enemy count is increased when less than 10.
- Enemies are within 90% of the world's boundaries. This is done in GameManager.cs in the AddEnemy function.
- When an enemy comes in contact:
  - With the hero, it is destroyed. This is performed in EnemyBehavior.cs in the OnCollisionEnter2D function.
  - With the egg, it loses 80% of its current energy. This is performed in EnemyBehavior.cs in the OnCollisionEnter2D function.
- The 4th collision with an egg destroys an enemy. This is performed in EnemyBehavior.cs in the OnCollisionEnter2D function.
- As soon as an enemy is destroyed, a new one is spawned within 90% of the world boundaries. This is done in GameManager.cs in the Update function.

## Application Status

The application prints out:

- Hero
  - Control mode: mouse / keyboard. This is done in GameManager.cs in the UpdateHeroInfoText function. This text is passed into the canvas.
  - Number of times the hero has touched an enemy. This is done in GameManager.cs in the UpdateHeroInfoText function. This text is passed into the canvas.
- Egg
  - Number of eggs currently in the world. This is done in GameManager.cs in the UpdateEggCountText function. This text is passed into the canvas.
- Enemy
  - Total enemy count (always 10). This is done in GameManager.cs in the UpdateEnemyCountText function. This text is passed into the canvas.
  - Total number of enemies destroyed. This is done in GameManager.cs in the UpdateEnemyCountText function. This text is passed into the canvas.
- Q-key quits the application. This is done in GameManager.cs in the Update function.

## Extra Credit

- Key to enable hero destruction if the hero hits 5 enemies. HeroBehavior.cs has the method HasLives, which returns true if hero destruction is disabled or if the number of lives is greater than 0. If there are no lives, the hero is destroyed. This is done in the Update function of HeroBehavior.cs.