**Due Date**

This assignment must be completed *prior to the start of the lab during Week 3*. This assignment will be graded during the lab so be prepared to demonstrate your work to the instructor and/or TA.

### Description

This assignment involves building a simple “shooter” that demonstrates your understanding of the concepts covered in Snippets 1 through 12, including sprite animations, scripting, movement and shooting. Possible options include a vertical or horizontal shooter, or an “asteroids”-style shooter.

Your grade will be determined by how well your project meets the requirements specified below.

***Player:***

* Create an image file to represent the player.
  + This image file must contain two or more frames of animation.
  + The type of object represented by this image is at the discretion of the student.
  + For the purposes of this assignment, the artistic quality of the image is not important. However, the image should clearly communicate a “front” and each frame of animation should be distinct.
* Implement a sprite using the image file as a SpriteSource.
* Implement a PlayerController for controlling movement using one of the following:
  + 4-direction movement
  + 8-direction movement
  + “Asteroids”-style movement (forward, reverse, rotate)
* The camera must follow the player

***Environment:***

* Create a simple environment to constrain the player’s movement. These constraints can be a simple rectangle or simple lines along the vertical or horizontal edges of the environment.

***Spawning Objects:***

* Create two or more types of objects using the archetype concept covered in Lesson 09
* Use archetypes to spawn multiple objects within the world. Examples include:
  + Bullets spawned by the player
  + Hazards to be avoided by the player
  + Collectibles to be gathered by the player
* Use random values for at least one category of spawning objects. Examples include:
  + Minor random variations in bullet trajectories
  + Spawning hazards or collectibles with random positions or velocity

***Object Interactions:***

* Implement two unique types of interaction between objects using collision events. Examples include:
  + Bullets destroying other objects
  + Player colliding with hazards resets the level
  + Player colliding with collectibles increases the scale of the player

**Build Requirements**

The project must build cleanly, with no errors or warnings.

**Assignment Grading Guidelines**

* Projects will be graded in class on the day that they are due.
* Projects that are modified ***after the start of class*** will be considered late and automatically receive a grade penalty of -25%.
* Projects that have not been graded within one week after they are due will automatically receive a grade of 0% (F).