CS 4730: Computer Game Design
Engine Team: Particle System

Overview
For this assignment, your team will create a simple particle system for your game. Your particles will be customizable to allow for a wide array of particle types.

Particle Emitters
Note that particle systems are fairly simple. Emitter objects are invisible Sprites that can be placed on your display tree. The emitter creates particles, which are small Sprites that are placed as children of the emitter. These particle Sprites move a bit according to some parameters. Once they are done, the emitter removes them from the display tree and cleans them up.

Your particle system must support the features in the list below:

- Developers should be able to construct Emitter objects. The emitters are invisible objects in your display tree that create and manage particles.
- Emitters can be tuned by developers in the following ways:
    o Emitters can be started and stopped, to control when particles are being emitted.
    o The rate at which emitters create particles can be adjusted.
    o The range of the area in which particles can be created is adjustable (e.g., maybe a large rectangle at the top of the screen to create rain particles.
    o The image / color / appearance of the particles themselves can be adjusted.
    o The range of directions in which particles are emitted can be adjusted.
- Particles themselves can be additionally adjusted in the following ways.
    o The path of particles can be adjusted. For example, How long is it on the screen? Does it fade out? Does it move in a straight line?
        ▪ Note: Your Tweening engine is very useful here.
- Some bookkeeping needs to happen:
    o Make sure particles have an "end", and that they are removed from the display true, destroyed, etc. when they are complete. If this is not done, then particles will cause your game to slow down significantly.

Demo
Create a simple demo to show off your particle engine working. The scene itself can be anything. The scene should include snowfall. A simple effect in which snow particles are floating down throughout the scene. In addition, the scene should contain a fire somewhere (torch, campfire, etc.) that emits small fire particles from the flame.

Turn In
As always, submit your code on Collab. Include a ReadMe.txt file with any information that will help the grader.