CMSC141: Object-Oriented Programming

Lab 9: ARainDrops

due: November 16th or 17th, 2017

This assignment asks you to build upon the rain drop game in Chapter 10; specifically, you will add images to the game.

Warm-Up: Getting to know the game

1. Download the completed rain drop game from github[1].
2. Change the number of falling rain drops and the size of the catcher.
3. Answer the following questions about the code:
    a. What are the attributes in the `Timer` class?
    b. When does the `Timer`'s `isFinished()` method return `true`?
    c. List all the methods in `Drop` used in the class. Are they all used in the game?

Adding Images

Using either the webcam (`Capture`) or static images (`PImage`) change the game so that it uses images. For example, you might:

1. use an image of a raindrop rather than series of ellipses;
2. use an image of a bucket for the catcher;
3. use a background image and have the objects react to it (via `get()` or `pixels`), for example:
    a. Prevent the catcher from running through walls.
    b. The raindrops speed up or slow down when they pass through specific regions.
4. use the webcam as a sensor to control the `Catcher` or `Drop` objects (ex. 16-11).
5. add another kind of object to the game.

Feel free to change the game in other ways, for example, by keeping score, making levels, or change the game mechanics (e.g., avoid the rain).

Learning Objectives

- ❏ More practice with classes
- ❏ Understand circle intersection
- ❏ Build-upon already written classes
- ❏ Use the camera as a sensor

Deliverables

- ❏ Your program should start with a comment that includes your name, email, date, assignment description, collaboration statement, and reflection.
- ❏ Bring a hardcopy of your program (the source code, not the graphics) to your next lab period.
- ❏ Also turn-in the original textual design document.
- ❏ Be prepared to run the Processing sketch and demonstrate your "Theory of the Program."

[1] https://github.com/shiffman/LearningProcessing/tree/master/chp10_algorithms/example_10_10_rain_catcher_game