02-201 Homework 10:
Java & Processing & Fun
Due: Dec. 11 at 11:59pm

1.   Set up (do this today)

- Install Processing3: https://processing.org/download/

- Read the following tutorials on the Processing website:

    - Getting Started: https://processing.org/tutorials/gettingstarted/

    - Processing Overview: https://processing.org/tutorials/overview/

    - Coordinate System and Shapes: https://processing.org/tutorials/drawing/

- In Processing, select File → Examples... and read through some that seem interesting.

2.   Assignment

Write a cool visual application in Processing (Java).

2.1   What you can use

You can use any resources on the web, in Processing, from classmates, from code we've already written, etc. If you use any more than a couple of lines of code from someplace else, you MUST clearly cite the source you are using and which lines of code came from it. Failing to cite significant code use will result in a 0 on the assignment.

2.2   How will you be graded

You will be graded on: (1) what new ideas / code you add (i.e. if you take a Processing example, and change a few lines, you will probably get a low grade), and (2) the admittedly vague notion of how "cool" (neat, impressive, cute) your program is: if someone outside this class saw your program, — knowing that you wrote it in a week — how impressed would they be?
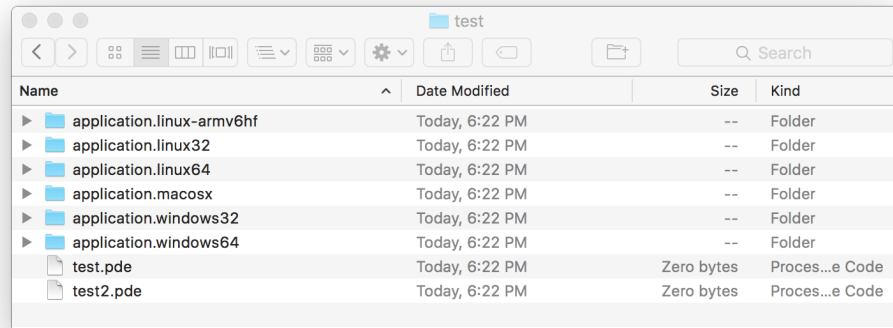
(With your permission, I would like to put the assignments on the web for everyone to see your work.)

2.3   How to submit

When you are ready to submit:

1. In Processing, select File → Export as Application... and select at least Mac OS X and Linux (select Windows if you must...).

2. Create a .zip file of the entire directory containing your code and the exported applications. On Mac OS X, you can create a ZIP file by selecting the folder in Finder and choosing File → Compress. On Linux, you can use the `zip` command. If you are using Windows, see a TA for how to create a ZIP file, if you have trouble.

3. Submit this zip file to Autolab. Note: Autolab won't grade your submission at all this time; we will grade your submissions by hand. Your zip file should contain at least one `.pde` (Processing source code) file as well as several directories starting with "`application.`". For example:

Name	Date Modified	Size	Kind
▶ application.linux-armv6hf	Today, 6:22 PM	--	Folder
▶ application.linux32	Today, 6:22 PM	--	Folder
▶ application.linux64	Today, 6:22 PM	--	Folder
▶ application.macosx	Today, 6:22 PM	--	Folder
▶ application.windows32	Today, 6:22 PM	--	Folder
▶ application.windows64	Today, 6:22 PM	--	Folder
test.pde	Today, 6:22 PM	Zero bytes	Proces...e Code
test2.pde	Today, 6:22 PM	Zero bytes	Proces...e Code

2.4 Tips

You only have a week. So try to think of something neat to do that doesn't require building a Cathedral. Some ideas:

- A visualization of something we've done in class: TASEP, L-systems, Sandpile, spatial games, perhaps with some controls to change parameters, etc.

- A simple game, where you move around a grid (PacMan)

- A simulation of interacting particles under some conditions: for example, big (grey) particles and small (red) particles in a container that is constantly shaking. Where do the red particles end up?

- A cool music "video": play some sounds accompanied by interesting visuals.

- A simulation of small galaxies colliding.

- An educational visualization of something you've learned in another class, or are interested in. Could you write a program to explain the Goldbach conjecture to 3rd graders?

You can do the above, or simplified versions of above, complexified versions of above, or anything else you think would be fun.

2.5 Tips on how to start

First, sketch some ideas and be sure they are reasonable in scope. If you need help deciding on a project, talk to me or the TA.

Get something working before you add bells and whistles.

Use the Processing tutorials and examples extensively. Look for examples that do something like what you want to do to get ideas about how to code it.

3.   Learning outcomes

After completing this homework, you should

- have experience writing Java code

- practiced picking up a new language

- produced an application you can show to friends, family, interviewers, enemies to impress them.