257 / 757 **Programming in the Arts with Processing** **Homework 2**	**Start:** **Thur 1.16.14** **Due: in class Tue 1.21.14** **Goal:** **Adding Versatility**

Course Web Site:
http://www.andrew.cmu.edu/course/60-257/

Reading:
Posted on the calendar web page available from the link shown above.

Assignment:
You will draw a figure that embeds one or more of your initials using curves that are made with the combination of the beginShape( ) – curveVertex( ) – endShape( ). You will code this using variables and arithmetic expressions so your initials can be drawn at any location in the graphics window and at any size by editing only three variables: the (x, y) anchor point of your initials and their size. In doing this homework, you will explore the stuff that can make programming useful. You will also continue to explore the functions that Processing provides for graphics.

Specifications:
1. _____Put the following information as comments at the top of your program:
   - homework number- section or time
   - a copyright statement
2. _____The figure must be a caricature of Jim that uses your one or more of your initials as part of the caricature. Your initial(s) (and other parts) must be drawn using a different set of Processing functions: **curve( )**, the **vertex( )** or the **curveVertex()** functions coupled with the **beginShape( )** and **endShape( )** functions. You may use functions from the shape-2d set and others, but the majority of the shapes forming your initials must be curves and polygons.
3. _____ The anchor point of your initials must be the center of a circle that will "bound" your initials. The values of this anchor point must be stored in two variables of type float. The diameter of the bounding circle must be stored in a variable of type float.
4. _____ The initials must be designed to fit within the bounding circle. _This circle does not have to be displayed – that decision is yours_. The initials must take up much of the area within the circle and come reasonably close to the edge of the circle where reasonable. Parts of your initials may extend beyond the bounding circle – it is only a guideline.
5. _____The coordinates of all points needed to draw the polygons and curves that form the initials must composed of arithmetic expressions using the anchor point variables and some percentage of the diameter of the bounding circle. "Magic

numbers" to locate coordinates or set sizes are not allowed.   Refer to the class code and board notes for examples.

6. _____The initials must move when the **x** and/or **y** values of the anchor point are altered.

7. _____The initials must grow/shrink when the diameter of the bounding circle is altered.

8. _____The width of the lines(**strokeWeight**) that form the curves may be a fixed width or vary in some way. If the stroke size is fixed, it must be at least three pixels wide. To do this, you will need to explore the Processing function **strokeWeight( )**.

9. _____If a letter of the initials is repeated, each letter must have a unique shape.

10. _____The initials must have at least three colors other than black, white, or shades of gray. These three colors **<u>must</u>** be colors that are not pure red or blue or green.   The use of pure red, blue, or green and black, white, and gray is fine, but they will not count towards the requirement of "using three colors." You can use the *Tools* menu's *Color Selector* option of Processing to get the **rgb** values for any color you select.

Advice:

- You may choose to use this set of initials or a similar design for future programs so do it right the first time to avoid having a do-over.
- The use of the center of the bounding circle in which the initials fit as the anchor point is mandatory. Jim's class code and board notes use the upper right corner of a rectangle.
- ***Do not*** use the names, **width**, **height**, or **size** as variables.   These names are used by Processing.
- This continues the exploratory nature of programming where you are asked to do a great deal with little or no help. You are ***strongly*** encouraged to work within a small group for these assignments.

Grading:
Put your program in the OpenProcessing.org classroom in the homework 2 subcollection.

Handin of the files:
This will be explained next week. Do not lose your program files.

Sample:
The next page has Jim's somewhat simplistic attempt of being artistic of last term's assignment. That one did not require the caricature. It shows four different runs of his code. The size of the window for all four runs is 400x400. The initials are in different locations and have different sizes because the values of the three variables **x**, **y**, and **diameter** are changed.