In this project you will write an interactive processing program drawing shapes and colors that both (1) depend on user input like mouse, mouse buttons or keyboard, and (2) display some autonomous changes through the use of variables which change values from one frame to the next independently of user input. This program will use active mode, so you must include definitions for functions `setup()` and `draw()`. A possible starting point would be your code for pa2. This is not a requirement however. You may start from scratch and create an original interactive program for this project.

One or more shapes in this program must have its position and/or color depend on user input. This can be accomplished by using one or more of the system variables: `mouseX`, `mouseY`, `pmouseX`, `pmouseY`, `mouseButton`, `mousePressed`, `keyPressed`, `key`, or `keyCode`. You can also establish interactive behavior by including one or more of the built-in functions: `mousePressed()`, `mouseReleased()`, `mouseClicked()`, `mouseMoved()`, `mouseDragged()`, `keyTyped()`, `keyReleased()`, or `keyPressed()`. Most of these features were discussed in class (albeit some very briefly), and all are documented on the Processing Reference page (in Processing go to Help→Reference.)

In addition, one or more shapes must have its position and/or color depend on the values of variables that you declare, and whose values change during program execution. These changes may be deterministic, or they may be random.

See the following examples posted on the webpage for ideas on how to accomplish all of this: ContinuousCurve1, ContinuousCurve2, LittleSquares, MovingCircle1, MovingCircle2, MovingLine, RandomCircles, SystemVariables, TrackingCircle, and VariableZoog. The general form of your program should be

```java
// Name
// cruzID
// cmps 5J
// pa3

// variable declarations

void setup(){
    // statements to be executed once, before the first frame
}

void draw(){
    // statements to be executed once per frame
}

// implementations of other built-in functions
// like mousePressed(), keyPressed(), etc.
```

Call your program `active`. Submit the file `active.pde` to assignment pa3 on eCommons.