Make a directory called "skillsCheck" in your sketchbook directory. Inside this directory make a new sketch for each problem below. Compress the "skillsCheck" directory and e-mail it to me.

1. ForLoop1: Write a for loop that prints numbers from 0 up to (and including) 10.

2. ForLoop2: Copy the previous sketch and change it so that the counting starts at 10 and goes down to 0.

3. Array: Create an array of size 20 that holds random integers between 0 and 255. Use that array inside the draw() function to color 20 circles arranged in a row across the middle of the screen

4. ArrayList: Create an ArrayList that will hold positions of circles placed on the screen with mouse clicks. The screen should start empty, allowing the user to place a circle by clicking with the mouse. The center of each circle should be at the click location and stored as a PVector in the ArrayList.

5. Animation: Start by copying the previous sketch. Use the sin() function to animate the size of each circle. The diameter should range between 20 and 40. (hint: use the map function to change the values that come out of the sine function) Use "frameCount*0.01" as the argument to the sin() function. All the circles should be pulsing in unison.

6. Encapsulation: Create a class for your pulsing circles. It should have the following properties:
   a. position - where it's located on the screen
   b. diameter - the current size of the circle
   c. color - the color of the circle's fill
   d. pulseFreq - the frequency of the pulsing motion
   The class should have three functions:
   a. Circle() - the constructor which takes parameters: position and generates a random color and a random pulseFreq between 0.01 and 0.06.
   b. update() - this function updates the diameter using the sin() function like this:
                    sin(frameCount*pulseFreq)
      You will need to use the map() function like before to map the values.
   c. display() - draw the circle on the screen using the properties
   You will need to create a separate tab for this sketch that will call the Circle() constructor when the mouse is pressed. All circles should be stored in an ArrayList.