Homework assignment 04

Complete the following program for this week's homework. Please remember to use Processing in eclipse, not in the Processing IDE.

Programming assignments

Gifs are Great! (15 points)

Processing can be used to create nice little animations - perfect for gifs! Animating is just changing a property over time. For example, you could animate a ball dropping by increasing the y-coordinate every frame.

For this assignment, I'd like you to create an animation with the following parameters:

- Create an animation that has at least 2 animated properties (think about size, shape, rotation, color, position, etc)
- The animation should run for at least 3 seconds (or loop. Don't just drop a ball out of the frame and have an empty screen for 3 seconds)
- Have the sketch be 500x500 for this project
- If you'd like, create a gif of your sketch and email it to me! The program I use to make gifs is called LICEcap.

Array visualization in Processing! (35 points)

- Write a program using processing that creates a 5x5 two-dimensional array and populates it with random integers 0 or 1
- The program should display a 500x500 pixel window
- For each element of the arrays, draw a circle (ellipse) if the value of the element is 0, and a square (rect) if the value of the element is 1.
- the circles and squares should be spaced out evenly, as shown below
- When the user clicks the mouse, the program should repopulate the array again with random 0's and 1's. (this should be a method)
Some tips:
- remember that instance variables (like the matrix, for example) can be declared outside of all the methods but within the class. Then those variables can be accessed from each method.
- populating the array should be done in a method - remember to clear the window on each draw loop by adding background(0) at the start of the draw() method - to draw rectangles from a center point instead of a
corner, add this to the setup method:

```java
rectMode(CENTER);
```

**Extra Credit** - For 2 points extra credit, allow the user to transpose (rows become columns, columns become rows) the matrix by pressing the 'T' key