Homework assignment 04

Complete the following program for this week's homework. Have a great break!

Programming assignments

Array visualization in Processing! (50 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 5 points extra credit, allow the user to transpose (rows become columns, columns become rows) the matrix by pressing the 'T' key