

## Lab 6: File Output and For Loops

20 pts

*Monday Lab***Start Date:** 10-19-2015**Due:** 10-22-2015*Wednesday Lab***Start Date:** 10-21-2015**Due:** 10-24-2015**Learning Outcomes**

- Utilize Java Syntax in fundamental programming algorithms (a)
- Recognize and apply the various input and output devices in programming (c)
- Recognize and apply the various control structures (b)
- Recognize and apply the basic debugging strategies in programming (c)

**Requirements**

This is our second lab with loops, focusing on For Loops controlled with user input. We will also work with file output.

***Preliminaries***

- 1) Create a project submission folder, in the form Lab#FirstNameLastName. For example, mine would be Lab6MaxFowler
- 2) Create an Eclipse Java Project.
- 3) Add a Java class named PatternMaker to your project

**Exercises**

Part 1) – For Loop and Pattern Set up – 14 points

The majority of the points come from setting up the lab to print patterns appropriately based on user input.

- (a) Declare variables to store the following information
  - (a.1) The type of pattern the user wants (a String)
  - (a.2) The amount of lines the user wants in the pattern (an int), numLines
- (b) Ask the user the pattern they want. It should be either “square” or “rectangle” (no quotes)
- (c) Ask the user for the amount of lines they want.

- (d) Use the method of your choice (if-elseif-else block or a switch statement) to determine which pattern the user chose. If neither square or rectangle was entered, tell the user to buzz off and end the program.
- (e) If the pattern input is rectangle, print out a three wide rectangle of a symbol of your choice (such as \*, #, or \$) that is numLines lines long using a for loop to print that number of lines. (That is, run the loop from 0 to numLines).
- (f) If the pattern input is for square, print out a numLines by numLines square of a symbol of your choice. This will required the use of print and nested for loops (a for loop for square width and a for loop for square height). Note that the outermost loop (the one that controls height) should print the newlines and the innermost loop (the one that controls width for each new row) should print symbols.

Sample input and output follows:

```
What pattern: rectangle
How many lines: 5
$$$
$$$
$$$
$$$
$$$
$$$

---

What pattern: square
How many lines: 2
**
**

---

What pattern: fish
How many lines: 25
You offend me, sir! The program is now done.
```

## Part 2) File Time – 6 points

This part of the lab changes Part 1 to use output files

- (a) Make a new object, a PrintWriter object that opens the output file “Pattern.txt”.
- (b) For the square and rectangle inputs, write the output to the file using PrintWriter rather than using console output
- (c) For the third case, where the program is offended, do not change the results
- (d) At the very end of the code, before the end of the main method, close the PrintWriter (and while you’re at it, close the Scanner too!) with the .close() method.

**Submission Guidelines:** Copy all the source code (the .java files) into the submission folder made during the preliminaries step. Then zip this folder and submit it onto blackboard. Remember to click on the assignment's name when submitting, as the blue link is just the pdf! And be sure to double check your submission, in case blackboard eats it.