Faculty of Arts & Sciences
Department of Computer Science
CMPS 200
Friday, June 19, 2015
Lab Quiz 1

Important Instructions

- Your are NOT allowed to have your book and notes with you during this exam.
- Any communication with a neighbor will be interpreted as a cheating attempt and will be dealt with accordingly: at least a zero on the exam.
- There are 4 questions totaling 100 points.
- Answer the questions by creating a Java class for each. The name will be given in the question.
- Duration: 75 minutes (1:30 pm $\rightarrow$ 2:45 pm)
- **For all problems, think about how you can subdivide them into methods**
- Please turn-off your cell-phones.

Good Luck!

Question 1: Meta (25 points)

Write a complete Java program called $Meta$ whose output is the text that would be the source code of a Java program named Hello that prints "Hello, world!" as its output. The below is the output of your program:

```
public class Hello {
    public static void main(String[] args) {
        System.out.println("Hello, world!");
    }
}
```

Your program must produce exactly the output shown (using exactly four spaces for each increment of indentation in the output).

Question 2: StutterCount (25 points)

Write a program $StutterCount$ that takes **3** input parameters from the command-line: n $freq$ and $lines$.

It then prints each number repeated $freq$ times from 1 to n inclusive. This process is repeated $lines$ amounts of time. Example: *java StutterCount 4 2 5* produces the followint output:

```
11223344
11223344
11223344
11223344
11223344
```

Example: *java StutterCount 9 3 4* produces the following output:

```
111222333444555666777888999
111222333444555666777888999
111222333444555666777888999
111222333444555666777888999
```

Hint: Thinking about the problem in methods makes it a lot easier!

Question 3: SpectrumAnalyzer (25 points)

Write a program $SpectrumAnalyzer$ that reads **1** parameters from the command-line n.

To start you are expected to write a method $printWave$ which takes as input a number $size$ and prints as many) as $size$: Example:

$printWave(3)$ will output the following line:

```
)))
```

You will then print all waves of even size, followed by waves of odd size, for numbers from 1 to n (inclusive). Example:

java SpectrumAnalyzer 8 will output:

```
))
))))
))))))
)))))))))
)
)))
)))))
)))))))
```

Notice the waves: *2, 4, 6, 8, 1, 3 ,5, 7.*

Question 4: MultiplicationTable (25 points)

Write a program $MultiplicationTable$ that reads **1** parameters from the command-line n. It then prints the multiplication table of all numbers from 2 to n. Example: *java MultiplicationTable 3* outputs:

```
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
```

Hint: Think about the problem using methods, it makes it a lot more easier!