Chapter 2 Programming Project #7:

If you've done well on the problems so far then you should do well on our final project this week. You are going to build your own Space Needle! You must use nested for loops to print the image one character at a time. You may not just have a bunch of repeated Println statements.

Programming Project #7 - Space Needle

Here is a .TXT file of the desired output for a size of 4, as well as 6 and 2.

SpaceNeedle.txt

Space Needle Walk-through:

You should approach this problem incrementally. This is a walkthrough of how to do the Space Needle based upon a book example.

- Break up the picture into sub-pictures, taking advantage of any repeated images
- Analyze how each sub-picture is constructed
  - For each progressing line, devise an expression for how many chars are needed
  - e.g. how many ":::" in each of the 4 rows of the form a + b * (row + c)
- Open up Eclipse and create a blank java project
- Create a static final int for the size of 4
- First create (blank) static methods to draw each sub-picture, with the content to be filled in later.
- Call the (blank) static methods from main, to ensure the logic is working correctly
- do
  - add to a sub-picture function
  - test
- repeat til it's right
- Give each method a header comment that clearly shows your expression for each character such as the following:

```
// <Method Name> - draw the <...> part
//    you may want to include a sample drawing here for your own help
// for size 4
//        character        expression           comment
// <spaces> - 9,6,3,0   3*SIZE - row           not...
// : - 0, 3, 6, 9       5 + (SIZE+row-1)*10    obviously not right...
// /\ - 11, 9, 7, 5     SIZE-row*3             just a sample
//
```

What to submit:

Here's how to find where Eclipse has put your .JAVA file

How to submit your Java Files.pptx

Submit the following two files

- .JAVA source file with comments
- .TXT output file showing size 4 (copy/paste from Eclipse)

Tips to avoid frustration

Once again, this assignment should be fun. I want you to get the sense that you have learned enough skills to control this digital art world. The initial problems should be straightforward and completed in a relatively short amount of time (1-2 hours). Following those steps, the project for SpaceNeedle should take a few more hours. If you're finding the entire Needle too much you should plan on attending office hours as soon as possible to get help starting.

(See separate grading rubric for point distribution for Project 1)

```
      ||
      ||
   __/||\__
__/:::||:::\__
|""""""""""""|
\_/\/\/\/\/\_/
  \_/\/\/\_/
      ||
      ||
     ||||
     ||||
     ||||
     ||||
     ||||
     ||||
     ||||
   __/||\__
__/:::||:::\__
|""""""""""""|
(size = 2)
```

HW#1 Rubric

Criteria	Ratings		Pts
Calculated expressions for number of chars based on row	**5.0 pts Full Marks**	**0.0 pts No Marks**	5.0 pts
use multiple nested loops to print the chars and eliminated redundancy through static methods	**5.0 pts Full Marks**	**0.0 pts No Marks**	5.0 pts
Intelligently named the loop variables and used good form for loops	**5.0 pts Full Marks**	**0.0 pts No Marks**	5.0 pts
Correctly printed out the entire needle for size 4 by whatever means	**5.0 pts Full Marks**	**0.0 pts No Marks**	5.0 pts
Comments in method headers explain purpose and calcs used and generally helpful	**5.0 pts Full Marks**	**0.0 pts No Marks**	5.0 pts
			Total Points: 25.0