Lab 3: Loops Exercises (Part Two)

This lab will be to solve a variety of problems using loops. Some will require the use of the printf method for formatting the output. You will write methods to solve each of the loops problems below. Please make these methods static and have them all contained in one class called LabThree.

Write a method that:

1. Prints a pyramid of stars with some specified number of rows. [Hint: figure out the relationship between the row number and the number of spaces and the number of stars in that row. No need to use printf for this one.]
   Example: `starPyramid(5)`

```
        *
       ***
      *****
     *******
    *********
```

2. Prints the number n, n*n and n*log(n) for the values of n from 1 to some specified value of n. Please line up these values in columns and round the logarithms to 4 decimal places. The table needs to print in nice columns with the characters right aligned.
   Example: `quadAndLog(4)`

```
n           n*n      n*log(n)
-           ---      --------
1             1        0.0000
2             4        1.3863
3             9        3.2958
4            16        5.5452
```

3. Prints a multiplication table with the given number of rows and columns. Be sure that the table lines up appropriately.
   Example: `multiplicationTable(4, 6)`

```
            1      2      3      4      5      6
    1       1      2      3      4      5      6
    2       2      4      6      8     10     12
    3       3      6      9     12     15     18
    4       4      8     12     16     20     24
```

4. Finds and prints all 3- and 4-digit Armstrong Numbers. A 3-digit Armstrong Number is a number that equals the sum of each of its digits cubed. A 4-digit Armstrong Number is a number that equals the sum of each of its digits raised to the 4th power.

   153 is an Armstrong Number because $1^3 + 5^3 + 3^3 = 153$.

To complete this lab, write a console program in the main method that accepts user input to call each of these methods. The main method must contain a fully functional console program that will continually ask the user for a "selection" (i.e. which method to complete) until the user decides to quit (designated by a key entry). The main method needs to work intuitively, under the assumption that the user has never used the program before.

Grading (10 total points):

2 points for each correct method
2 points for adequate programming style (naming, your name @ top, indentation, etc.)

Dropbox the project file zipped and named according to the naming convention:

<div align="center">

Period_LastName_FirstName_AssignmentName.zip
ex) 3_Nguyen_Jocelyn_Lab3Loops.zip

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