Java for Non Majors

CGS 3416: Spring 2020 Department of Computer Science, Florida State University

Homework 3: 100 points

Due date: 11:59 PM 02/27/2020

1 Objective

This assignment will consist of writing two small programs that involve practice writing loops and methods.

2 Requirements

- The required tasks must be performed with the methods specified (not just with a single main() routine)
 - Note that each program requires the writing of a method, and a main routine to test that method.
 - Note that there is NO keyboard-input/screen-output specified in the methods themselves this means you should NOT have any print statements or Scanner usage inside these named methods. Any printing and/or keyboard input is done by main() in each exercise
- Please add your name and FSUID as comments on top of your programs.

3 Task

Write the following programs, each in a separate file. Filenames should be:

- Triangle.java
- PalPrimes.java

You will upload these files through Canvas.

4 Program 1

This program is called Triangle.java.

Write a program that accepts an integer from the user and prints out a triangle with those many lines of '*'. The first line has one '*', the second has 2 '*' and so on. Make sure your program conforms to the following requirements:

- 1. Accept the number of lines from the user (as an integer).
- 2. Check if the number of lines is positive. If it happens to be negative, print an error message and terminate the program.
- 3. If the number is positive, pass this number as a parameter to a method called printTriangle().
- 4. In the printTriangle() method use a loop to print the triangle of '*'.

Sample Runs

There are 2 sample runs here:

Enter the number of lines : 5
 *
 **
 **
 **

Enter the number of lines : -4 Number of lines is negative. Exiting.

5 Program 2, Palindromic Prime

For this problem, you need to adapt your prime number program that your wrote in homework 2 to check for palindromic primes. Palindromic primes are defined as prime numbers that are the same if read forwards or backwards. For example, 757 is a palindromic prime, but 59 is not. You need to print all the palindromic primes below a certain upper limit.

Specifications

- This program is worth 50 points, and is called PalPrimes.java.
- Create a class with the appropriate name. Then create a method called isPalin which accepts an integer and returns true or false based on if number is palindrome or not.
- Accept the upper limit from the user.
- In the main() method, generate a prime number and then check if it is a palindrome or not by calling the isPalin method. If it is, print it. If not, move on to the next number.
- Please include comments wherever appropriate.

Sample Runs

Regular text is what's printed by your program. Underlined text is user input, shown here as a sample. You will not be printing the underlined parts in your program.

Sample Run

```
Please enter the upper limit: 250
The palindrome primes are:
2
3
5
7
11
101
131
151
181
191
```

6 Generic Grading Guidelines

- 1. Please make sure you're only using the concepts already discussed in class. That is, please try and restrict yourself to loops, selection statements, calls to library methods, and your own written methods.
- 2. Both the programs are 50 points each.
- 3. You do not need to perform any form of error checks.
- 4. Please make sure that you're conforming to specifications (program name, print statements, expected inputs and outputs etc.).
- 5. Please make sure your code is readable.
- 6. Please make sure you've compiled and run your program before you turn it in. A grade 0 will be awarded for if your program does not compile.