CMSC 131 Quiz 2 Worksheet

The next quiz for the course will be on Thu, Feb 20. The following list provides additional information about the quiz.

- The quiz will be a written quiz (no computer).
- Closed book, closed notes quiz.
- The quiz will be in lab (at the end) with a maximum duration of 20 minutes.
- Answers must be neat and legible.
- Quiz instructions can be found at http://www.cs.umd.edu/~nelson/classes/utilities/examRules.html.
- Regarding Piazza - Feel free to post questions in Piazza regarding the worksheet and possible solutions to problems.
- You must take your quiz in your assigned lab/discussion session and not show up to a random discussion session. We will not grade quizzes taken in the incorrect session.
- You don't need to write **public static void main(String[] args) { };** when we ask you to write code. You will provide the code that goes inside of the method. Also, you don't need to know any import statements.
- We use the Gradescope system to grades your quizzes after they have been scanned. For the system to recognize your work, you **need to print your name (uppercase) and student id.** The following is an example of the information you need to provide in your quiz:

FIRSTNAME, LASTNAME (PRINT IN UPPERCASE):   MARY, SMITH

STUDENT ID (e.g. 123456789):   123456789

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TAs or instructor during office hours. It is recommended that you try these exercises on paper first (without using the computer). For input and output use the Scanner class. For this quiz you are not responsible for methods associated with the JOptionPane class (e.g., showInputDialog, showMessageDialog).

Exercises

1. When do we use a do while?
2. When do we use a for loop?
3. Write a program that reads two integer values and prints the even numbers in that range.
4. Write a program that computes the factorial of a number. For example, factorial of 4 (4!) is 24.
5. Write a program that prints the sum of odd numbers between min (inclusive) and max (inclusive). The program will read the values min and max and display the sum. You can assume min and max are integer values. Use the Scanner class to read values.

6. Write a program that reads (using the Scanner class) an integer value representing the number of rows associated with a triangular diagram. After reading the value, your program will generate a triangular diagram with the specified number of rows. For example, if the user enters 4 your program will print:

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

7. Write a program that prints a triangle where each row has twice as many characters as the preceding one. The first row will have 2 characters. The program will read the size (an integer value) of the triangle and a character. It will then generate a triangle with a number of rows that corresponds to size and where the character provided is used for odd-numbered rows. Even-numbered rows will always use a *. We use the message "Enter size:" and "Enter character:" to read data. Use the Scanner class to read data. Below we have provided two examples of running the program. Notice your program must work for other values. Underlined text represent input provided by the user.

```
Enter size: 3                          Enter size: 4
Enter character: $                     Enter character: #
$$                                     ##
****                                   ****
$$$$$$$$                               ########
                                       ****************
```

8. Previous quiz (and solution):
   a. http://www.cs.umd.edu/class/spring2020/cmsc131/quizzes/Quiz2_Fall_2019.pdf
   b. http://www.cs.umd.edu/class/spring2020/cmsc131/quizzes/Quiz2_Fall_2019_Soln.pdf