CSE 1141 - COMPUTER PROGRAMMING I
Programming Assignment # 3
DUE DATE: 19/11/2018 - 23:00 (No extension)

In this assignment, you will write the following programs by using loops.

1. Write a program which takes a sequence of characters and draws the image they represent. The '**b**'s in the sequence are for printing a *blank character*, '**s**'s for printing '*' and '**n**'s for newline. A digit before any of these characters shows how many times the character should be printed, if the digit is missing, the character should be printed only once.

   Example:
   ```
   Welcome to image printer program.
   Please enter your sequence: 1b2sn2sn3b3snnbs
    **
   **
      ***


    *
   ```

2. In this question, you will write a program to print the letters W, X, Y and Z using the character of '*' with the given size. You have to use nested loops for this question. Make sure your program conforms to the following requirements:

   a. Accept the size of the letter (in the number of lines) from the user. This number should be an odd number greater than or equal to 5. If the value entered is invalid, tell the user so, and ask for another one. Repeat until you get a valid size.

   b. Accept the letter to be printed from the user. If the letter is W, X, Y or Z, go to the next step. If not, tell the user that the letter is invalid, and ask for another one. Repeat until you get a valid letter.

   c. Print the letter by using '*' character with the given size. The sample run gives examples for each letter.

   d. Repeat the entire process if the user indicates they wish to continue.

<u>Example:</u>

```
Welcome to letter printer program.
Enter the size: 3
Invalid size. Enter the size again: -4
Invalid size. Enter the size again: 7
Enter the letter: C
Invalid letter: Enter the letter again: #
Invalid letter: Enter the letter again: X

*       *
 *     *
  *   *
   *
  *   *
 *     *
*       *


Would you like to continue? (Y or N): Y
Enter the size: 8
Invalid size. Enter the size again: 11
Enter the letter: Z

***********
         *
        *
       *
      *
     *
    *
   *
  *
 *
***********


Would you like to continue? (Y or N): Y
Enter the size: 5
Enter the letter: Y

*   *
 * *
  *
  *
  *
```

```
Would you like to continue? (Y or N): Y
Enter the size: 9
Enter the letter: W

*                  *                     *
  *               *  *                 *
   *                *    *            *
    *             *        *         *
     *           *          *       *
      *        *              *     *
       *     *                 *   *
        * *                     * *
         *                       *


Would you like to continue? (Y or N): N
```

Submission Instructions

Please zip and submit your files using filename YourNumberHW3.zip
(ex: 150713852HW3.zip) to Canvas system (under Assignments tab).
Your zip file should contain the following 6 files:
1. Java source code for Q1 (Pro3_1_150713852.java)
2. Java class file for Q1 (Pro3_1_150713852.class)
3. Java source code for Q2 (Pro3_2_150713852.java)
4. Java class file for Q2 (Pro3_2_150713852.class)

Your program *must include necessary comments with your own words to explain your actions!*

Notes:
1. Write a comment at the beginning of each program to explain the purpose of the program.
2. Write your name and student ID as a comment.
3. Include necessary comments to explain your actions.
4. Select meaningful names for your variables and class names.
5. You are allowed to use the materials that you have learned in lectures & labs.
6. Do not use things that you did not learn in the course.

7. **Program submissions** should be done through the Canvas class page, under the assignments tab. Do not send program submissions through e-mail. E-mail attachments will not be accepted as valid submissions.

8. You are responsible for making sure you are turning in the right file, and that it is not corrupted in anyway. We will not allow resubmissions if you turn in the wrong file, even if you can prove that you have not modified the file after the deadline.

9. In case of any form of **copying and cheating** on solutions, all parts will get **ZERO** grade. You should submit your own work. In case of any forms of cheating or copying, both giver and receiver are equally culpable and suffer equal penalties. **All types of plagiarism will result in zero grade from the homework.**

10. No late submission will be accepted.

Grading:

Question 1 → 40 points
- Taking input and processing it (10 points)
- Printing blank character (10 points)
- Printing stars (10 points)
- Printing newlines (10 points)

Question 2 → 50 points
- Step 2.a (5 points)
- Step 2.b (5 points)
- Step 2.c (36 points, 9 points per letter)
- Step 2.d (4 points)

Submission Format → 10 points
- 2 java files + 2 class files
- Comments are necessary
- Make sure that your class files can be executed on another computer.
- Make sure that the input/output of your program must be the same with the examples above (all informative strings & spaces).