Lab 09

**Rules:**

* Always create a separate Java file for each program you write in the lab (e.g., problem1.java, problem2.java, etc.)
* Do not forget to take your work with you when you leave the lab by either copying your work files to your own USB flash disk, or by e-mailing them to yourselves.

1. Write a Java program that does the following:
2. Create a Java file with the name **problem1.java**.
3. Prompt the user for an odd positive integer n, terminating the program if the user enters an invalid integer.
4. Print an n x n grid displaying a line running from the top left corner to the bottom right corner with the following properties:
   1. The top left half of the line using the character +
   2. The bottom right half of the line using the character x
   3. The middle line using the character \*

Sample run of the program:

Enter value for n: 7

+

+

+

\*

x

x

x

1. Write a Java program that does the following:
2. Create a Java file with the name **problem2.java**.
3. Prompt the user for an odd positive integer n, terminating the program if the user enters an invalid integer.
4. Print an n x n grid displaying a large letter X with the following properties:
   1. The left half of the X using the character +
   2. The right half of the X using the character x
   3. The middle line using the character \*

Sample run of the program:

Enter value for n: 7

+ x

+ x

+ x

\*

+ x

+ x

+ x

1. Write a Java program that does the following:
2. Create a Java file with the name **problem3.java**.
3. Prompt the user to enter an integer from the range 1 to 20, validating the input until the user enters an integer from the range 1 to 20. But, if the user has not entered a correct integer after 10 attempts, then the program chooses 10 as the user's integer.
4. Print the cube of the user's integer.

Sample run of the program:

Enter an integer between 1 and 20: 100

Out of range. Enter an integer between 1 and 20: -1

Out of range. Enter an integer between 1 and 20: 5

The cube of your integer is 125.

1. Write a Java program that does the following:
2. Create a Java file with the name **problem4.java**.
3. Print all the integers from 28 to 387 with ten integers (separated by spaces) per line using only a single loop, no nested loops.

Sample partial run of the program:

28 29 30 31 32 33 34 35 36 37

38 39 40 41 42 43 44 45 46 47

…

1. Write a Java program that does the following:
2. Create a Java file with the name **problem5.java**.
3. Prompt the user for an odd integer from the range 5 to 25, validating the input until the user enters an integer from the range 5 to 25.
4. Print a table with n lines of output, where n is the number of odd integers between 1 and the user’s integer.
5. On output line number i, print each value of: i multiplied by one of the odd integers from 1 to n.

Sample run of the program:

Enter an odd integer from 5 to 25: 3

Invalid input! Enter an odd integer from 5 to 25: 5

1 3 5

3 9 15

5 15 25

Lab Work Submission:

* You can continue to work on this lab after our lab class, on your own, at home.
* Submit your lab work via Blackboard on or before: **Wednesday, October 4, 2023, 11:59pm**.
* The only accepted submission method!
* Once you submit your assignment you will not be able to resubmit it!
* Make absolutely sure the Java files you want to submit are the Java files you want graded.
* You will not be able to submit your lab work under any circumstances once **Lab09** disappears at **12:00 a.m.** on **Thursday, October 5, 2023**.
* There will be **NO** exceptions to these rules!
* To submit your lab work, upload the 5 Java files (**with .java extension**) you did for this lab to the **Lab09** assignment in the **Labs** tab in your Lab section’s presence in Blackboard.
* Then, make sure you click the **Submit** button to submit your lab work.