Lab 07

**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 a positive integer, validating the input until the user enters a positive integer.
4. If the number contains the digit 5 at any position, then print **The number contains the digit 5.** else print **The number does not contain the digit 5.**

Sample run of the program:

Enter a positive integer: –21

Bad input! Try again: 1576

The number contains the digit 5.

Sample run of the program:

Enter a positive integer: 172

The number does not contain the digit 5.

1. Write a Java program that does the following:
2. Create a Java file with the name **problem2.java**.
3. Prompt the user to enter an integer in the range from 1 to 100, validating the input until the user enters an integer from the range.
4. Print the first 20 multiples of the entered integer.

Sample run of the program:

Enter a number between 1 and 100: 102

Invalid input!

Enter a number between 1 and 100: 3

The first 20 multiples of 3 are 3 6 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60.

1. Write a Java program that does the following:
2. Create a Java file with the name **problem3.java**.
3. Prompt the user for an integer greater than 100, validating the input until the user enters an integer greater than 100.
4. Print all positive integers whose square is less than the entered integer as a table with the left-hand column being the integer and the right-hand column being the square of the integer.

Sample run of the program:

Enter a number greater than 100: 2

Invalid input!

Enter a number greater than 100: 150

1 1

2 4

3 9

4 16

5 25

6 36

7 49

8 64

9 81

10 100

11 121

12 144

1. Write a Java program that does the following:
2. Create a Java file with the name **problem4.java**.
3. Prompt the user to enter a sequence of numeric grades until the user enters a negative grade.
4. Compute and print the average grade.

Sample run of the program:

Enter a numeric grade: 78

Enter a numeric grade: 89

Enter a numeric grade: 77

Enter a numeric grade: 90

Enter a numeric grade: 97

Enter a numeric grade: 92

Enter a numeric grade: -1

The average grade is 87.1667

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 integer in the range from 10 to 20.
4. If the user enters an integer outside that range, then terminate the program.
5. Print a row of alternating characters (^ and \*) of length equal to the entered integer.

Sample run of the program:

Enter a number between 10 and 20: 17

^\*^\*^\*^\*^\*^\*^\*^\*^

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, September 27, 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 **Lab07** disappears at **12:00 a.m.** on **Thursday, September 28, 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 **Lab07** 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.