Lab 06

**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. Calculates and prints how much a person earns over a period of time if his/her salary is one penny the first day, two pennies the second day, and continues to double each day.
4. How many days will it take for the person's daily salary to exceed $10,000?
5. Print a table showing the day number and the salary per day in dollars.
6. Use a tab to separate the two columns. You type **\t** for a tab character inside a string.
7. The sample run below shows just the first nine days but your program prints all days until the salary exceeds $10,000.

Sample run of the program:

Day Salary:

1. 0.01
2. 0.02
3. 0.04
4. 0.08
5. 0.16
6. 0.32
7. 0.64
8. 1.28
9. 2.56

…

1. Write a Java program that does the following:
2. Create a Java file with the name **problem2.java**.
3. Prompt the user for a positive integer, validating the input until the user enters a positive integer.
4. Print the positive integer in binary backwards as follows:

While the number is greater than zero, print the number % 2, followed by replacing the number by number / 2.

Sample run of the program:

Enter a positive integer: –2

Invalid input! Try again: 20

Your number in binary in reverse order is: 0 0 1 0 1

1. Write a Java program that does the following:
2. Create a Java file with the name **problem3.java**.
3. Prompt the user for a positive integer, validating the input until the user enters a positive integer.
4. Print all the factors of the positive integer.
5. Number x is a factor of number y, when the remainder of y divided by x is 0.

Sample run of the program:

Enter a positive integer: –71

Invalid input! Try again: 42

The factors of 42 are: 1 2 3 6 7 14 21 42

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 the price of his/her items.
4. The user can enter as many items as he/she wants until the user enters the integer 0.
5. Print out the total of his/her checkout.
6. If the sum is greater than $100, print out **That's expensive!**

Sample run of the program:

Enter the price of an item: 27

Enter the price of an item: 80

Enter the price of an item: 0

Your checkout total is $107. That's expensive!

1. Write a Java program that does the following:
2. Create a Java file with the name **problem5.java**.
3. Prompt the user for a positive integer, validating the input until the user enters a positive integer.
4. Use a while loop to compute the sum of all odd digits of the number.

Sample run of the program:

Enter a positive integer: –237

Invalid input! Try again: 237

The sum of the odd digits in the number is 10.

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 20, 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 **Lab06** disappears at **12:00 a.m.** on **Thursday, September 21, 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 **Lab06** 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.