Programming 1: Lab 4 : Conditions and Loops

Write the python code for the following questions. Handle all the valid and invalid test cases. Write down relevant comments in your code:

1. Take a positive integer N as input and print its table as follows:

   N x 1 = N
   N x 2 = 2N
   ……
   N x 20 = 20N

2. Take 2 numbers as input (X and Y) and a third number N. Display all the numbers between X and Y (X < i <= Y) that are divisible by N.

3. Take a positive integer as input and display the sum of its digits. The number can be of any length.

4. Take a positive integer N as input followed by repeatedly taking numbers from the user till the time user entered -999. At the end display the count of input numbers that are divisible by N and the count of input numbers that are not divisible by N.

5. Take a positive integer N as input and find its Factorial using a while loop. Handle invalid cases as well.

6. Take a positive integer as input. It may be of any length. Check if it is palindrome or not. Do not use any inbuilt reverse functions.

7. Display the first N terms of the Fibonacci sequence starting from 1.

   1, 1, 2, 3, 5, ….. till N terms

8. Take an integer as input and check if it is prime or not. Handle invalid conditions and make your code efficient by minimizing the number of loop iterations.

9. Take a sentence as input and using while loop count of capital letters, small letters, digits, and special characters in the sentence. Do not use any inbuilt function.

10. Enter the coefficients of a quadratic equation and display its solutions. Handle all the cases for invalid input and display the solutions till exactly 2 decimal places. You need not calculate the complex solutions.