SE 1105 PROGRAMMING AND PROBLEM SOLVING I

Week 4

Task 1: Print Divisors of an Integer

In this task, you will create a C program that takes an integer as input from the user and then uses a function find and print all of its divisors. Divisors of a number are those integers that can divide the given number without leaving a remainder.

- Create a function called **findDivisors** to find and print the divisors of the given number.
- In main ask the user to enter an integer.
- Call the **findDivisors** function, passing the user's integer as a parameter.

Expected Output:

```
Enter a positive integer:12
Divisors of 12 are: 1 2 3 4 6 12
```

Task 2: Collatz Sequence Calculation

Your task is to write a C program to calculate and display the Collatz sequence for a given positive integer without being provided with any code.

Write a function called **collatzSequence** that takes a positive integer as an argument and calculates and displays the Collatz sequence for the given integer. Follow these rules:

- If the current number is even, divide it by 2.
- If the current number is odd, multiply it by 3 and add 1.
- Continue the loop until the current number reaches 1.
- Display each number in the Collatz sequence and the total number of steps taken to reach 1.

In the **main** function:

- Prompt the user to enter a positive integer (N) to start the Collatz sequence.
- Call the **collatzSequence** function with the user's input as an argument.

Expected Output:

```
Enter a positive integer to start the Collatz sequence:6
Collatz sequence for 6:
 3 -> 10 -> 5 -> 16 -> 8 -> 4 -> 2 -> 1
Number of steps: 8
```