Objectives:
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- Iterative and recursive algorithm

Question 1.A: A program to display a countdown using for loop and find complexity**.**

Example output:

Enter the n: 10

10 9 8 7 6 5 4 3 2 1 0

Question 1.B: A program to determine the sum of first n consecutive positive integers using for a while loop and find complexity.

Example output:

Enter the number of consecutive positive integers (starting from 1): 9

The sum is: 45

Question 1.C: A program to determine the sum of first n consecutive positive integers using for a do while loop and find complexity.

Enter the number of consecutive positive integers (starting from 1): 9

The sum is: 45

Question 2.A: Write a program to print first 50 natural numbers using recursion and find complexity.

Example output:

The natural numbers are: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Question 2.B: Write a program to calculate the sum of numbers from 1 to n using recursion and find complexity.

Example output:

The sum of numbers from 1 to 5: 15

1

Question 3: Write a program to find the Factorial of a number using recursion and find complexity. Hint: For example, the factorial of 5 (5!) is equal to 5x4x3x2x1 = 120.

Example output:

Input a number: 5

The Factorial of 5 is: 120

Question 4: Write a program to Print Fibonacci Series using recursion and find complexity. Hint: Fibonacci number series is the sequence of numbers such that each number is the sum of the two preceding ones starting from zero (0) and one (1).

Example output:

Enter the number of terms of series: 15

Fibonnaci Series: 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377