# Data Structures COC - 2073
# Lab Plan – 7
# (Recursion)

## Exercise-1:

Write a function *CalculateFactorial* which will calculate the factorial of a number. Ask user to input a number and call the *CalculateFactorial* to calculate the factorial of the number. Use repetition method in the *CalculateFactorial* function to calculate the factorial.

## Exercise-2:

Now write a function *FactorialRecursion* which will calculate the factorial of the number using recursion.

## Exercise-3:

Write a function *RaiseToPower* which will calculate the power of a number up to given limit. Ask the user to get number and power and calculate the power of the number. Use iteration method in the *RaiseToPower* function to calculate the power.

## Exercise-4:

Now write another function *PowerUsingRecursion* which will calculate the power of a number up to given limit. Now use recursion method in the *PowerUsingRecursion* function to calculate the power.

## Exercise-5:

Write a function *FibonacciSequence* which will generate up to the nth term of the Fibonacci sequence. Ask the user to enter a number and display the series up to that number. Use iteration method in the *FibonacciSequence* function to calculate the series.

## Exercise-6:

Now write another function *FibonacciUsingRecursion* which will generate up to the nth term of the Fibonacci sequence. Ask the user to enter a number and display the series up to that number. Use recursion method in the *FibonacciUsingRecursion* function to calculate the series.

## Exercise-7:

Write a function *SumofDigits* which will calculate the sum of numbers up to given limit. Ask the user to enter a number and calculate the sum of the numbers up to that number. Use iteration method in the *SumofDigits* function to calculate the sum.

## Exercise-8:

Now write another function *SumUsingRecursion* which will calculate the sum of numbers up to given limit. Ask the user to enter a number and calculate the sum of the numbers up to that number. Use recursion method in the *SumUsingRecursion* function to calculate the sum.