**DAY – 01**

**Assignment 3 :-**

**Function Design and Modularization :-** Create a document that describes the design of two modular functions: one that returns the factorial of a number, and another that calculates the nth Fibonacci number. Include pseudocode and a brief explanation of how modularity in programming helps with code reuse and organization.

**Solution :-**

**Function Design and Modularization :-**

**1. Function to Calculate Factorial.**

**This function calculates the factorial of a given number.**

**Pseudocode :-**

Function factorial(number)

result = 1

FOR i from 1 to number DO

result = result \* i

ENDFOR

return result

EndFunction

**Explanation:**

The factorial of a number is the product of all positive integers less than or equal to that number. This function takes a number as input and calculates its factorial using a loop. It then returns the result.

**2. Function to Calculate Fibonacci Number:**

**This function calculates the nth Fibonacci number.**

**Pseudocode:**

Function fibonacci(n)

IF n = 0 THEN

return 0

ELSE IF n = 1 THEN

return 1

ELSE

Initialize variables a and b to 0 and 1 respectively

FOR i from 2 to n DO

temp = a + b

a = b

b = temp

ENDFOR

return b

ENDIF

EndFunction