**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.

Solutions :

Create 2 functions

1 function to calculate factorial: start Function factorial(num)

fact=1

for i in the range of 1 to limit

fact=fact\*i;

end for

print fact

end

Explanation: factorial means product of all positive integers from 1 to given limit 2 function to calculate Fibonacci start function Fibonacci(a) if a=0 print 0 else if a=1 print 1 else int fib1=0,fib2=0,feb3 for i in range of 2 to n feb3=fib1+fib2; fib1=fib2; fib2=fib3; end for print fib3 end function

explanation: Fibonacci sequence means sequence of numbers in which each number is the sequence is equal to the sum of two numbers before it. modularity in programming :in modularity programs are divided into small parts or modules. Each module performs a specific task.so we can re-use our code easily. we create different functions in every module we have different types of functions if we want that function it will reuse by us.

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

Function Fibonacci(n)

If n = 0

return 0

else if n = 1

return 1

else

Initialize variables a and b to 0 and 1 respectively.

for i from 2 to n

temp = a + b

a = b

b = temp

end for

return b

End