# 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 explanation of how modularity in programming helps with code reuse and organization.

Solution : -

## Function calculates the factorial of a number :

Function factorial(x):

    if(x==1):

        return 1

    else:

        return x * factorial(x-1)

Explanation:

1.The factorial function takes a single parameter x.

2. It represents the number whose factorial is to be calculated.

3. It uses recursion to calculate the factorial value.

4. If x is equals to 1, it returns 1.

5. Else, it recursively calls itself with x-1 until x becomes 1.

**Function calculate the nth Fibonacci number :**

function Fibonacci(x):

if(x==0):

    return 0

else if(x==1):

    return 1

else:

    return Fibonacci(x-1) + Fibonacci(x-2)

Explanation:

1.The Fibonacci function also takes a single parameter x.

2.if x is equals to 0 , it returns 0.

3.else if, x is equals to 1 , it returns 1.

4. else, it recursively calls itself with x-1 and x-2 untill it reaches the base case.