Function Design and Modularization

1. Function to Calculate Factorial:

Purpose: This function calculates the factorial of a given number.

Input: An integer number n.

Output: The factorial of n.

**Pseudocode for Factoial:**

function factorial(n)

if n equals 0 then

return 1

else

result = 1

for i from 1 to n do

result = result \* i

endfor

return result

endif

end function

**Explanation:**

* The factorial function takes an integer n as input.
* If n is 0, the function returns 1, as the factorial of 0 is defined as 1.
* Otherwise, it iteratively multiplies the numbers from 1 to n to calculate the factorial.

**Pseudocode for Fibonacci :**

funtion fibonacci(n)

if n equals 0 then

return 0

else if n equals 1 then

return 1

else

a = 0

b = 1

for i from 2 to n do

temp = b

b = a + b

a = temp

endfor

return b

endif

endfunction

Explanation:

* The fibonacci function takes an integer n as input.
* If n is 0, the function returns 0, as the 0th Fibonacci number is defined as 0.
* If n is 1, the function returns 1, as the 1st Fibonacci number is defined as 1.
* Otherwise, it iteratively calculates the Fibonacci sequence up to the nth term using a loop and returns the nth Fibonacci number.