**ASSIGNMENT 3:**

**Module 4: Functions & Modules in Python**

**Task 1: Calculate Factorial Using a Function**

**Problem Statement:** Write a Python program that:

1.   Defines a function named factorial that takes a number as an argument and calculates its factorial using a loop or recursion.

2.   Returns the calculated factorial.

3.   Calls the function with a sample number and prints the output.

def factorial(n):

if n < 0:

return

result = 1

for i in range(1, n + 1):

result \*= i

return result

sample\_number = 5

output = factorial(sample\_number)

print(f"The factorial of {sample\_number} is: {output}")

Output



**Task 2: Using the Math Module for Calculations**

**Problem Statement:** Write a Python program that:

1.   Asks the user for a number as input.

2.   Uses the math module to calculate the:

o   Square root of the number

o   Natural logarithm (log base e) of the number

o   Sine of the number (in radians)

3.   Displays the calculated results.

import math

number = float(input("Enter a number: "))

if number <= 0:

print("Natural logarithm is not defined for zero or negative numbers.")

else:

square\_root = math.sqrt(number)

natural\_log = math.log(number)

sine\_value = math.sin(number)

print(f"\nResults for the number {number}:")

print(f"Square root: {square\_root}")

print(f"Natural logarithm (base e): {natural\_log}")

print(f"Sine (in radians): {sine\_value}")

Output

