

Assignment 3

Module 4 – Functions & Modules In Python

Task 1 : Calculate Factorial Using a Function –

In this task, a number is accepted from the user as input using the input () function. After accepting input, the value is type casted to int. Then, this value is passed to a function which calculates the factorial of this passed value and return the result and accordingly the result is displayed.

Code -

```
#Task 1 of Assignment 3 -Calculate Factorial using a Function

def factorial(num):    #non-recursive function calculating factorial
    f = 1
    for i in range(1,num+1):
        f *= i
    return f

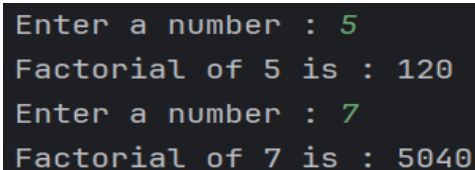
def rec_factorial(num):    #recursive function calculating factorial
    if num == 1:
        return 1
    else:
        return num * rec_factorial(num-1)

n1 = int(input("Enter a number : "))
fact1 = factorial(n1)
print(f"Factorial of {n1} is : {fact1}")

n2 = int(input("Enter a number : "))
fact2 = rec_factorial(n2)
print(f"Factorial of {n2} is : {fact2}")

#end of program
```

Output -

A screenshot of a terminal window showing the output of the program. It displays two instances of user input and the corresponding factorial results. The first instance shows input 5 and output 120. The second instance shows input 7 and output 5040. The text is displayed in a monospaced font on a dark background.

```
Enter a number : 5
Factorial of 5 is : 120
Enter a number : 7
Factorial of 7 is : 5040
```

Task 2 : Using the Math Module for Calculations –

In this task, a number is accepted from the user as input using the input () function. After accepting input, the value is type casted to int. Then, using the math module square root, natural logarithm and sine of this value is calculated and the results are displayed accordingly.

Code –

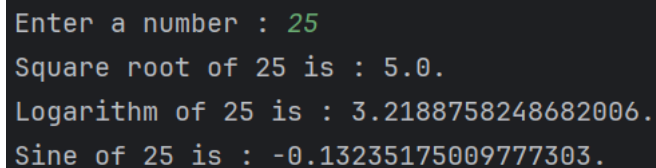
```
#Task 2 of Assignment 3 - Using the Math Module for Calculations
import math    #importing math module in program

num = int(input("Enter a number : "))
sq_root = math.sqrt(num)
log = math.log(num)
sine = math.sin(num)

print(f"Square root of {num} is : {sq_root}.")
print(f"Logarithm of {num} is : {log}.")
print(f"Sine of {num} is : {sine}.")

#end of program
```

Output -

A screenshot of a terminal window showing the output of the Python program. The input '25' is shown in green. The output lines are: 'Square root of 25 is : 5.0.', 'Logarithm of 25 is : 3.2188758248682006.', and 'Sine of 25 is : -0.13235175009777303.'

```
Enter a number : 25
Square root of 25 is : 5.0.
Logarithm of 25 is : 3.2188758248682006.
Sine of 25 is : -0.13235175009777303.
```
