FUNCTIONS

PRESENTED BY:
NITISH VIG

Agenda

Function Basics

Programs

Local and Global Variables

Formal and Actual Arguments

Lambda, Map, Filter, Reduce

FUNCTIONS

Basics

- It is used to process data, make calculations, or perform any task.
- It can be reused again and again.
- Provides modularity for programming.
- Code maintenance is easy.
- If error found, corresponding function can be corrected.
- Use of function reduce the length of the program.

Basics

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Syntax :

```
def functionName(arg1, arg2, ...) :
    task performed..
    ...
    ...
    output  = ...
    return output


functionName(parameter1, parameter2, ...)
```

PROGRAMS

Programs

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Function that accepts 2 values and find their sum

```
def sum(a,b):
    c = a + b
    print('Sum = ',c)

sum(10,15)
sum(1.5,12.7)
sum('Hello ','Nitish')

a = int(input('Enter operand 1 : '))
b = int(input('Enter operand 2 : '))
print('Sum is : ',end='')
sum(a,b)
```

```
Sum =  25
Sum =  14.2
Sum =  Hello Nitish
Enter operand 1 : 5
Enter operand 2 : 4
Sum is : Sum =  9
```

Programs

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Function to test if a number is even or odd

```
def even_odd(num):
    if num%2 == 0:
        print('Number is even')
    else :
        print('Number is odd')

n = int(input('Enter a number : '))
even_odd(n)
```

```
Enter a number : 9
Number is odd
```

Programs

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Function to calculate factorial value of number

```
def factorial(n):
    prod = 1
    while n >= 1:
        prod *= n
        n = n - 1
    return prod
print('Taking pre-fed values--')
number = int(input('Enter a number : '))
print("factorial(number) : ",factorial(number))
```

```
Output :

Taking pre-fed values--
Enter a number : 19
factorial(number) :  121645100408832000
```

Programs

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Function to test if a number is prime or not

```
def prime(n):
    flag = 1
    for i in range(2,n):
        if n%i == 0:
            flag = 0
            break
        else :
            flag = 1
    return flag
num = int(input('Enter a number : '))
result = prime(num)
if result == 1:
    print(num," is prime")
else :
    print(num," is not prime")
```

Output :

```
Enter a number : 12
12  is not prime
```

```
Enter a number : 17
17  is prime
```

FORMAL AND ACTUAL ARGUMENTS

Formal and Actual arguments

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Formal arguments are identifiers used in function definition to represent actual arguments.

Actual arguments are values(or variables)/expressions that are used inside the parentheses of a function call.

Formal Argument

```
def functionName(arg1, arg2) :
        task performed..
        ...
        ...
        output  = ...
        return output

functionName(
```

Actual Argument

```
def sum(num1, num2) :
    result = num1 + num2 ...
    return result

num1 = input('Enter 1st number : ')
num2 = input('Enter 2nd number : ')
sum(num)
```

Programs

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Positional Arguments

```
print("Python program to understand the postional arguments of a function----")
def attach(s1,s2):
    s3 = s1 + s2
    print('Total string : ',s3)
str1 = input('Enter string 1 : ')
str2 = input('Enter string 2 : ')
attach(str1,str2)
```

```
Python program to understand the postional arguments of a function----
Enter string 1 : hello
Enter string 2 : world
Total string :  helloworld
```

Programs

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Positional Arguments

```
print("Python program to understand the postional arguments of a function----")
def attach(s1,s2):
    s3 = s1 + s2
    print('Total string : ',s3)
str1 = input('Enter string 1 : ')
str2 = input('Enter string 2 : ')
attach(str2,str1)
```

```
Python program to understand the postional arguments of a function----
Enter string 1 : hello
Enter string 2 : world
Total string :  worldhello
```

Programs

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Keyword Arguments

```
print("Python program to understand the keyword arguments of a function----")
def grocery1(item,price):
    print('Item = %s'%item)
    print("Price is %.2f"%price)
grocery1(item = 'Sugar',price = 50.75)
grocery1(price = 82.68, item = 'Ghee')
```

```
Python program to understand the keyword arguments of a function----
Item = Sugar
Price is 50.75
Item = Ghee
Price is 82.68
```

Programs

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Default Arguments

```
print("Python program to understand the default arguments of a function----")
def grocery2(item,price = 40.0):
    print('Item = %s'%item)
    print("Price is %.2f"%price)
grocery2(item = 'Sugar',price = 50.75)
grocery2(item = 'Ghee')
```

```
Python program to understand the default arguments of a function----
Item = Sugar
Price is 50.75
Item = Ghee
Price is 40.00
```

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THANK YOU

Reach out to me at: **nitish@ictacademy.in**