FUNCTION AND MODULES

1

```python
# function syntax
def greet(name):
  print("hello,"+ name +"!")

greet("john")

hello,john!
```

Functional arguments

1 positional arguments

```python
def add(a,b):
    return a + b

print(add(5,6))

11
```

2 keyword arguments

```python
def greet(name,message):
  print(message + "," + name + "!")

greet(name="john",message="good morning")

good morning,john!
```

3 default argument

```python
def greet(name, message = "hello"):
  print(message + "," + name + "!")

greet("john")
greet("bob", "hi")

hello,john!
hi,bob!
```

4 variable length argument

positional argument

```python
def sum_numbers(*numbers):
  return sum(numbers)
print(sum_numbers(1,2,3,4))
```

```
10
```

keyword argument

```python
def person(**numbers):
    for key,value in numbers.items():
        print(f"{key}:{value}")
person(name="john",age=30,city="new york")

name:john
age:30
city:new york
```

return statement

```python
def square(num):
    return num * num
result = square(4)
print("square is:",result)

square is: 16

def square(num):
    return num * num

square(5)

25

result = square(4)
print("square is:",result)

square is: 16
```

modules

import math

```python
import math
print(math.sqrt(16))

4.0

from math import pi,sin
print(pi)
print(sin(math.radians(90)))

3.141592653589793
1.0
```

```python
def greet(name):
  print("hello," +name)

def add(a,b):
  return a + b

import my_module

my_module.greet("alice")
print(my_module.add(5,3))

hello,alice
8
hello,alice
8
```

prime number or not

```python
def is_prime(num):
  if num <= 1:
    return False

  for  i in range(2, int(num ** 0.5) + 1):
    if num % i == 0:
      return False
-   return True
number = int(input("enter a number:"))
if is_prime(number):
  print("the number is prime")
else:
  print("the number is not prime")

enter a number:8
the number is not prime
```

fibonacci sries with function

```python
def fibonacci(n):
  sequence=[]
  a,b = 0,1
  for i in range(n):
    sequence.append(a)
    a,b = b,a+b
  return sequence

terms = int(input("enter the number of terms:"))
print("fibonacci sequece:",fibonacci(terms))

enter the number of terms:10
fibonacci sequece: [0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
```

math module

```python
import math
angle = float(input("enter an angle in degrees:"))
radians = math.radians(angle)
print("sine of angle:",math.sin(radians))
print("cosine of angle:",math.cos(radians))
```

```
enter an angle in degrees:90
sine of angle: 1.0
cosine of angle: 6.123233995736766e-17
```

```python
def factorial(n):
    if n ==0:
        return 1
    else:
        return n*factorial(n-1)
```

```python
num = int(input("enter a number:"))
print("factorial:",factorial(num))
```

```
enter a number:6
factorial: 720
```

```python
def fibonacci(n):
    a,b = 0,1
    for i in range(n):
        print(a, end=" ")
        a,b = b, a+b
count = int(input("enter the number of terms:"))
fibonacci(count)
```

```
enter the number of terms:8
0 1 1 2 3 5 8 13
```

```python
def reverse_string(s):
    return s[::-1]
```

```python
text = input("enter a string:")
print("reversed string:",reverse_string(text))
```

```
enter a string:hello world
reversed string: dlrow olleh
```

```python
def gcd(a,b):
    while b:
        a,b = b,a % b
        return a
```

```python
num1 = int(input("enter the first number:"))
num2 = int(input("enter the second number:"))
print("greatest common divisor:",gcd(num1,num2))
```

```
enter the first number:23
enter the second number:5
greatest common divisor: 5
```