

## Functions and modules

```
def greet(name):  
    print('Hello,'+name+'!')  
greet('Alice')  
Hello,Alice!
```

### Function arguments

#### Positional argument

```
def add(a,b):  
    return a+b  
print(add(3,5))  
8
```

#### Keyword argument

```
def greet(name, message):  
    print('Hello,'+name+'! '+message)  
greet(name='alice',message='Good morning')  
Hello,alice! Good morning
```

#### Default argument

```
def greet(name, message='Hello'):  
    print(message + ', '+ name+ '!')  
greet('Alice')  
greet('Alice', 'Hi')  
Hello,Alice!  
Hi,Alice!
```

#### Variable len argument

```
##positional  
def sumnumbers(*numbers):  
    return sum(numbers)  
print(sumnumbers(1,2,3,4,))  
10  
  
##keyword  
def sumnumbers(**numbers):  
    for key, value in numbers.items():
```

```

        print(f"{key}: {value}")
sumnumbers(name='lohita', age=25, city='newyork')

name: lohita
age: 25
city: newyork

def print_info(**kwargs):
    for key, value in kwargs.items():
        print(f"{key}: {value}")

print_info(name="Alice", age=30, city="New York")

name: Alice
age: 30
city: New York

```

Return statement

```

def square(num):
    return num*num
square(5)

25

```

## Modules

Import module

```

import math
print(math.sqrt(16))

4.0

```

import specific functions

```

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

3.141592653589793
1.0

def greet(name):
    print('hello,' +name)

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

import mymodule

```

```
mymodule.greet('Alice')
print(mymodule.add(5,3))
```

```
-----
-----
ModuleNotFoundError                                Traceback (most recent call
last)
<ipython-input-1-8e835100b121> in <cell line: 7>()
      5     return a+b
      6
----> 7 import mymodule
      8
      9 mymodule.greet('Alice')
```

ModuleNotFoundError: No module named 'mymodule'

```
-----
-----
NOTE: If your import is failing due to a missing package, you can
manually install dependencies using either !pip or !apt.
```

To view examples of installing some common dependencies, click the  
"Open Examples" button below.

hands on practice

```
def isprime(num):
    if num<=1:
        return False
    for i in range(2,int(num**0.5)+1):
        if num%i==0:
            return False
    return True
num=int(input('enter a number:'))
if isprime(num):
    print(num,'is a prime number')
else:
    print(num,'is not a prime number')
```

```
enter a number:5
5 is a prime number
```

function to generate fibonacci numbers

```
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 sequence:',fibonacci(terms))

enter the number of terms:8
fibonacci sequence: [0, 1, 1, 2, 3, 5, 8, 13]

```

use the math module to solve a problem

```

import math
angle=float(input('enter the angle in degrees:'))
radian=math.radians(angle)
print('sine of angle:',math.sin(radian))
print('cosine of angle:',math.cos(radian))

enter the angle in degrees:30
sine of angle: 0.49999999999999994
cosine of angle: 0.8660254037844387

```

factorial using recursion

```

def factorial(n):
    if n==0:
        return 1
    else:
        return n*factorial(n-1)
num=int(input('enter a number:'))
print('factorial of',num,'is',factorial(num))

enter a number:10
factorial of 10 is 3628800

```

reverse a string

```

def reversestring(s):
    return s[::-1]
string=input('enter a string:')
print('reversed string:',reversestring(string))

enter a string:Preritha
reversed string: ahtirerP

```

find gcd of two numbers

```
def gcd(a,b):  
    while b:  
        a,b=b,a%b  
    return a  
num1=int(input('enter the first number'))  
num2=int(input('enter the second number'))  
print('gcd:',gcd(num1,num2))
```

```
enter the first number7  
enter the second number9  
gcd: 1
```