Function

- A function is a set of statements that take inputs,do specific computation and produces output.
- Functions are reusable

Parameters: A parameter is a variable used to define a particular value during a function definition.

Arguments: An argument is a value passed to a function at that time of function calling.

```
Syntax:   def function_name(define parameters):
              statement1
              statement2
              statement3
              .
              .
              statement n
          function_name(pass arguments)
```

In [3]:

```
n = 5
if(n%2 == 0):
        print(n,"is even")
else:
        print(n,"is odd")
```

```
5 is odd
```

In [1]:

```
def isEvenorOdd(n):
    if(n%2 == 0):
        print(n,"is even")
    else:
        print(n,"is odd")
```

In [2]:

```
isEvenorOdd(87)
```

```
87 is odd
```

In [7]:

```
def add(x,y):
    print(x+y)

add(21,30)
```

```
51
```

In [13]:

```
def fun_that_prints():
    print("I printed")
def fun_that_returns():
    return("I returned")

fun_that_prints()
print(fun_that_returns())
```

```
I printed
I returned
```

In [16]:

```
def floor():
    print(5)
def ceil():
    return 7

print(floor())
print(ceil())
```

```
5
None
7
```

In [17]:

```
def factorial(n):
    fact = 1
    if(n == 1):
        print(1)
    else:
        for i in range(1,n+1):
            fact *= i
        print("N factorial is:",fact)

m = int(input())
factorial(m)
```

```
7
N factorial is: 5040
```

Types of functions in python

1. Without arguments & without return values
2. Without arguments & with return values
3. With arguments & without return values
4. With arguments & with return values

In [18]:

```
# Without arguments & without return values

def Addition():
    a,b = 5,3
    print(a+b)

Addition()
```

```
8
```

In [20]:

```
# Without arguments & with return values

def multiplication():
    a,b = 5,3
    res = a*b
    return res

print(multiplication())
```

```
15
```

In [21]:

```
# With arguments & without return values

def multiplication(a,b):
    print(a*b)

multiplication(8,3)
```

```
24
```

In [22]:

```
# With arguments & with return values

def Mul(a,b):
    res = a*b
    return res

print(Mul(8,9))
```

```
72
```

Types of arguments

1. Actual arguments
    A. Position
    B. Keyword
    C. Default
    D. Variable length arguments
2. Formal arguments

In [23]:

```
def add(a,b):    # Formal arguments
    c = a+b
    print(c)

add(9,5)  # Actual arguments
```

```
14
```

In [24]:

```
# Positional arguments

def person(name,age):
    print("Person name:",name)
    print("Person age:",age)

person("devaki",21)
```

```
Person name: devaki
Person age: 21
```

In [25]:

```
def person(name,age):
    print("Person name:",name)
    print("Person age:",age)

person(13,"devi")
```

```
Person name: 13
Person age: devi
```

In [27]:

```
# Keyword arguments
def person(name,age):
    print("Person name:",name)
    print("Person age:",age-1)

person(age=13,name="devaki")
```

```
Person name: devaki
Person age: 12
```

In [30]:

```
# Default arguments
def person(name,age=21):
    print("Person name:",name)
    print("Person age:",age-1)

person("devaki")
```

```
Person name: devaki
Person age: 20
```

In [31]:

```
def person(name,age=21):
    print("Person name:",name)
    print("Person age:",age)

person("devaki",20)
```

```
Person name: devaki
Person age: 20
```

In [32]:

```
# variable length arguments
def add(a,*b):
    print("a=",a)
    print("b=",b)

add(5,3,7,2)
```

```
a= 5
b= (3, 7, 2)
```

In [33]:

```
def add(a,*b):
    s = a
    for i in b:
        s+= i
    print(s)

add(5,3,7,2)
```

```
17
```

In [ ]:

```

```