

Function with variable length or arbitrary arguments

A function with variable length parameter receives 0 or more values. Python allows defining two types of variable length arguments/parameters

1. Positional variable length arguments (OR) variable length positional arguments
2. Keyword variable length arguments (OR) variable length keyword arguments

Variable length positional arguments

If function is defined with variable length positional arguments it stores the value inside the argument using position. Variable length argument is prefix with *. A function is defined with one variable length argument. Variable length argument is of type tuple.

Syntax:

```
def <function-name>(*vargs):  
    statement-1  
    statement-2
```

Example:

```
def fun1(*vargs):  
    print(type(vargs),len(vargs),vargs)
```

```
fun1()  
fun1(10)  
fun1(10,20,30,40,50)  
fun1(1,"naresh",1+2j,True)
```

Output

```
<class 'tuple'> 0 ()  
<class 'tuple'> 1 (10,)  
<class 'tuple'> 5 (10, 20, 30, 40, 50)  
<class 'tuple'> 4 (1, 'naresh', (1+2j), True)
```

Example:

```
def sum_of_numbers(*vargs):  
    s=0  
    for value in vargs:  
        s=s+value  
    return s
```

```
res1=sum_of_numbers()  
print(res1)  
res2=sum_of_numbers(10,20)  
print(res2)  
res3=sum_of_numbers(10,20,30,40,50)  
print(res3)  
res4=sum_of_numbers(10,1.5,2.5,3.5,20,30)  
print(res4)
```

Output

```
0  
30  
150  
67.5
```

Example:

```
import sys  
def display(*vargs,sep=' ',end='\n',file=sys.stdout):  
    list_str=list(map(str,vargs))  
    str1=sep.join(list_str)  
    str1=str1+end  
    file.write(str1)
```

```
display("Hello Python")  
display(10,20,30)
```

```
display(10,20,30,sep=",")
display(10,20,30,sep="\n")
```

Output

```
Hello Python
10 20 30
10,20,30
10
20
30
```

Example:

```
def binary(num):
    s1=""
    while True:
        r=num%2
        s1=s1+str(r)
        num=num//2
        if num==1 or num==0:
            s1=s1+str(num)
            break
    s1='0b'+s1[::-1]
    return s1
```

```
res=binary(15)
print(res)
res=binary(10)
print(res)
```

Output

```
0b1111
0b1010
```

Variable length keyword arguments

Variable length keyword arguments receive key and values.

Variable length keyword arguments are of type dictionary.

This argument is prefix with **

A function is defined with one variable length keyword arguments.

Syntax:

```
def <function-name>(**kwargs):  
    statement-1  
    statement-2
```

Example:

```
def fun1(**kwargs):  
    print(kwargs,type(kwargs))
```

```
fun1(a=10,b=20)
```

```
fun1()
```

```
fun1(rollno=1,name='naresh',couse='python',fee=5000.0)
```

Output

```
{'a': 10, 'b': 20} <class 'dict'>
```

```
{ } <class 'dict'>
```

```
{'rollno': 1, 'name': 'naresh', 'couse': 'python', 'fee': 5000.0} <class  
'dict'>
```