

Variable-Length Arguments For Introduction to Programming Using Python By Y. Daniel Liang

You can invoke the print function by passing any number of arguments. Can you write a function with a variable number of parameters? Yes. This supplement introduces how to write a function with a variable number of parameters.

In Python, a variable-length parameter is declared with a prefix asterisk (*). Only one variable-length parameter may be specified in a method, and this parameter must be the last parameter. Any regular parameters must precede it.

Python treats a variable-length parameter as a tuple. When invoking a function with a variable-length number of arguments, Python creates a tuple for the arguments passed.

Listing 1 gives a function that prints the maximum value in a variable-length of arguments.

Listing 1 VarArgDemo.py

```
1 def printMax(*numbers):
2     if len(numbers) == 0:
3         print("No arguments passed")
4     else:
5         max = numbers[0]
6         for item in numbers[1 : ]:
7             if max < item:
8                 max = item
9
10        print("The maximum value is", max)
11
12 printMax(5)
13 printMax(1, 2, 4, 5, 1)
14 printMax(10, 1, -5, -2, -4, 15, 12)
```

Sample output

```
No arguments passed
The maximum value is 5
The maximum value is 15
```

Function printMax declares a variable-length parameter numbers. Python treats numbers as a tuple. The function tests whether the tuple is empty. If so, it reports that no arguments were passed to the function. If not, the function, finds the maximum value in the arguments and print it line 10.

The program invokes the function with no arguments (line 12), five arguments (line 13), and seven arguments (line 14).