

Python Programming

Positional or Keyword

Mostafa S. Ibrahim

Teaching, Training and Coaching since more than a decade!

Artificial Intelligence & Computer Vision Researcher

PhD from Simon Fraser University - Canada

Bachelor / Msc from Cairo University - Egypt

Ex-(Software Engineer / ICPC World Finalist)



Parameter Type

```
2
3 # The default type of parameter in python is positional or keyword
4 def f(a, b, c, d, e = 10):
5     print(a, b, c, d, e)
6
7 # positional arguments
8 f(1, 2, 3, 4, 5) # 1 2 3 4 5
9
10 # keyword arguments in order
11 f(a=1, b=2, c=3, d=4, e=5) # 1 2 3 4 5
12
13 # keyword arguments out of order
14 f(e=5, b=2, c=3, d=4, a=1) # 1 2 3 4 5
15
16 # 2 positionals, 3 keyword arguments
17 f(1, 2, c=3, d=4, e=5) # 1 2 3 4 5
18
19 # 2 positionals, 2 keyword arguments, 1 default
20 f(1, 2, d=4, c=3) # 1 2 3 4 10
21
22 #TypeError: f() got an unexpected keyword argument 'k'
23 #f(1, 2, d=4, k=3)
24
25 # positional arguments must all come before any keyword arguments
26 # SyntaxError: positional argument follows keyword argument
27 #f(d=4, c=3, 1, 2)
28
```

Positional only (Python 3.8)

```
3  # x: positional_or_keyword
4  def f1(x):
5      return x+1
6
7  f1(10)      # positional argument
8  f1(x = 10)  # positional argument
9
10 # all arguments before / must be specified by position
11 # x: positional ONLY (Python 3.8 and higher)
12 def f2(x, /):
13     return x+1
14
15 f2(10)      # positional argument
16 # TypeError: f2() got some positional-only arguments passed as keyword arguments: 'x'
17 #f2(x = 10) # positional argument
18
19 # x: positional_only
20 # y: positional_or_keyword
21 def f3(x, /, y):
22     return x * y
23
24 f3(1, 2)
25 f3(1, y=2)
26 #f3(x=1, y=2)
```

Keyword only (Python 3)

```
3 # all arguments after * must be specified by keyword (since python 3)
4 # x: positional_or_keyword
5 # y: keyword_only
6 def f3(x, *, y):
7     return x * y
8
9 # TypeError: f3() takes 1 positional argument but 2 were given
10 #f3(1, 2)
11
12     f3(1, y=2)
13     f3(x=1, y=2)
```

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”