Defining (Creating) a Function

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1 Main Principles of 'Defining'

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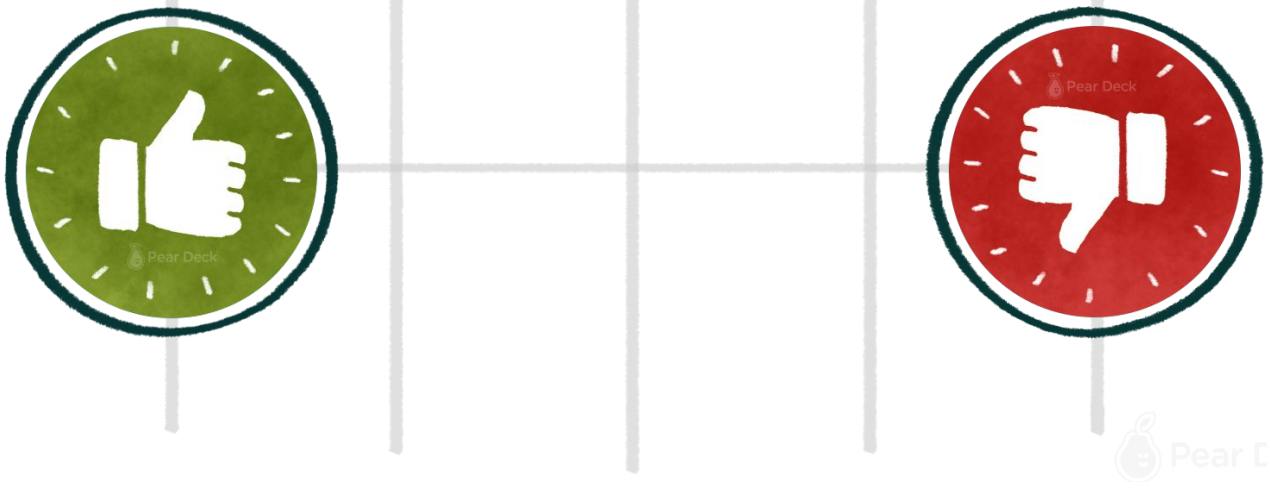
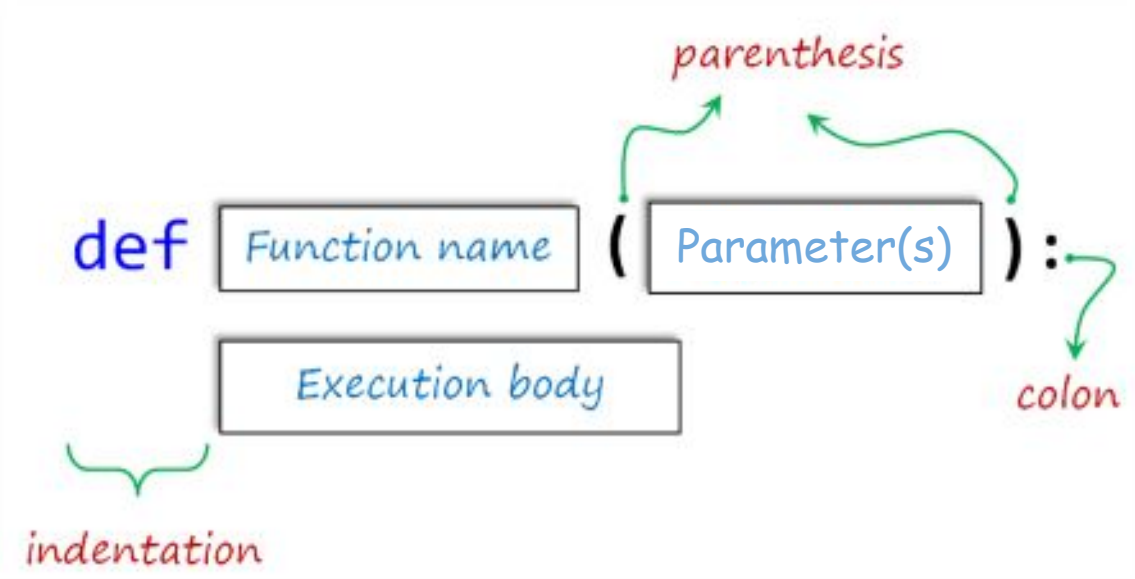
How was the **pre-class** content?



Students, drag the icon!

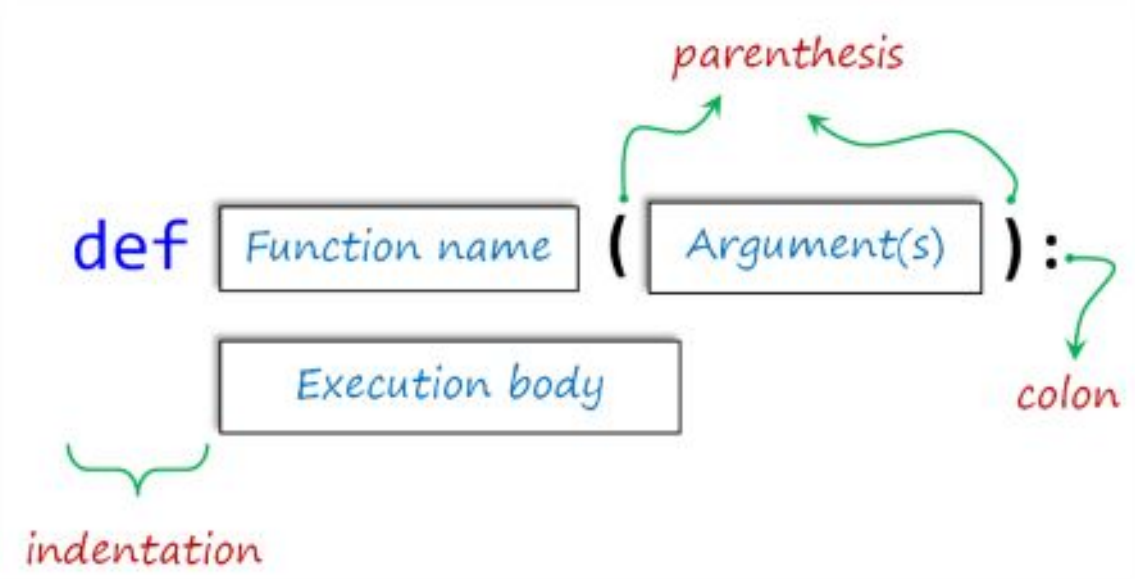
Main Principles of 'Defining' (review)

- The basic **formula syntax** of user-defined function is:



Main Principles of 'Defining' (review)

- The basic **formula syntax** of user-defined function is:



Main Principles of 'Defining' (review)

- Defining a simple function 👇

```
1 def first_function(argument_1, argument_2) :
2     print(argument_1**2 + argument_2**2)
```

$$\texttt{argument\_1}^{2} + \texttt{argument\_2}^{2}$$

Main Principles of 'Defining' (review)

- Let's call and use `first_function`.

```
1 first_function(2, 3)  # here, the values (2 and 3) are
      allocated to the arguments
```

Main Principles of 'Defining' (review)

- Let's call and use `first_function`.

```
1  first_function(2, 3)  # here, the values (2 and 3) are
       allocated to the arguments
```

```
1  13
```


Main Principles of 'Defining' (review)

- Let's define the multiplying function `multiply(a, b)`.

```
1  def multiply(a, b) :
2      print(a * b)
3
4  multiply(3, 5)
5  multiply(-1, 2.5)
6  multiply('amazing ', 3)  # it's really amazing, right?
```

What is the output? Try to figure out in your mind...

Main Principles of 'Defining'

- Let's define the multiplying function `multiply(a, b)`.

```
1  def multiply(a, b) :
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6  multiply('amazing ', 3)  # it's really amazing, right?
```

```
1  15
2  -2.5
3  amazing amazing amazing
```


Main Principles of 'Defining' (review)

- Let's give an example by leaving the parentheses empty.

```
1  def motto() :
2      print("Don't hesitate to reinvent yourself!")
3
4  motto()  # it takes no argument
```

What is the output? Try to figure out in your mind...

Main Principles of 'Defining' (review)

- Let's give an example by leaving the parentheses empty.

```
1 def motto() :
2     print("Don't hesitate to reinvent yourself!")
3
4 motto()  # it takes no argument
```

```
1 Don't hesitate to reinvent yourself!
```


Main Principles of 'Defining'

- **Task** :
  - Define a function named `add` to sum two numbers and print the result.

Main Principles of 'Defining' (review)

- **The code can be like :**

```
def add(a, b):
    print(a + b)

add(-3, 5)
```

Output

```
2
```


Main Principles of 'Defining'

- **Task** :
  - Define a function named `calculator` to calculate four math operations with two numbers and print the result.
  - Warn user in case of wrong entry : `"Enter valid arguments"`

```

calculator(88, 22, "+")

```

Output

```
110
```

Main Principles of 'Defining'

- **The code might be like :**

```
def calculator(x, y, opr):
    if opr == "+" :
        print(x + y)
    elif opr == "-" :
        print(x - y)
    elif opr == "*" :
        print(x * y)
    elif opr == "/" :
        print(x / y)
    else :
        print("enter valid arguments!")
```


2 Execution of a Function

Execution of a Function (review)

- The result of a function :

- print
- return

```
def multiply_1(a, b) :
    print(a * b)  # it prints something

multiply_1(10, 5)
```


Execution of a Function (review)

- The result of a function :

- print
- return

```
def multiply_1(a, b) :
    print(a * b)  # it prints something

multiply_1(10, 5)
```

```
50
```

Execution of a Function (review)

- The result of a function :

- print
- return

```
def multiply_2(a, b) :
    return(a * b)  # returns any numeric
data type value

print(multiply_2(10, 5))
```


Execution of a Function (review)

- The result of a function :

- print
- return

```
def multiply_2(a, b) :
    return(a * b)  # returns any numeric
data type value

print(multiply_2(10, 5))
```

```
50
```

Execution of a Function (review)

- Compare the usage options :

```
1  print(type(multiply_1(10, 5)))
2  print(type(multiply_2(10, 5)))
```


Execution of a Function (review)

- The outputs are :

```
1  print(type(multiply_1(10, 5)))
2  print(type(multiply_2(10, 5)))
```

```
1  50
2  <class 'NoneType'>
3  <class 'int'>
```

Main Principles of 'Defining'

- **Task** :
  - Define a function named `calculator` to calculate four math operations with two numbers and `return` the result.

```
1
2 print(calculator(-12, 2, "+"))
3
```

Output

```
-10
```


Main Principles of 'Defining'

- **The code might be like :**

```
1  def calculator(x, y, o):
2      if o == "+" :
3          return(x + y)
4      elif o == "-" :
5          return(x - y)
6      elif o == "*" :
7          return(x * y)
8      elif o == "/" :
9          return(x / y)
10     else : return ("enter valid arguments!")
11
```

Main Principles of 'Defining'

- **Task** :
  - Define a function named `absolute_value` to calculate and `return` absolute value of the entered number.
  - You can add docstring for an explanation.

```
1 print(absolute_value(3.3))
2 print(absolute_value(-4))
3
```

Output

```
3.3
4
```

Students, write your response!

Main Principles of 'Defining'

- **The code might be like :**

```
1  def absolute_value(num):
2      """This function returns the absolute
3      value of the entered number"""
4
5      if num >= 0:
6          return num
7      else:
8          return -num
9
10 print(absolute_value.__doc__)
11
```

By the way, we can display the **docstring** of this function

Output

```
This function returns the absolute
    value of the entered number
```

THANKS!

End of the Lesson

(Defining a Function)

next Lesson

The Matter of Arguments

click above