The Matter of Arguments

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1 Arguments vs Parameters

“What is the parameters?”

?

“What is the arguments?”

Students, write your response!

Arguments vs Parameters

- In fact, **arguments** are some kind of variable. So you can think of them as aliases for variables. This is exactly what we call the **parameters**. That is, the values you assign to the parameters defined in a function are arguments.
- If you look at the Python documentation on this topic, you will notice that the terms parameters and arguments are used almost the same way. But they are slightly different things.

Arguments vs Parameters (review)

- Let's take a look at this pre-class example :

```
1  def who(first, last) :  # 'first' and 'last' are the parameters(or variables
       )
2      print('Your first name is :', first)
3      print('Your last name is :', last)
4
5  who('Guido', 'van Rossum')  # 'Guido' and 'van Rossum' are the arguments
6  print()
7  who('Marry', 'Bold')  # 'Marry' and 'Bold' are also the arguments
```

Arguments vs Parameters (review)

- You will better understand this topic through an example

```
1  def who(first, last) :  # 'first' and 'last' are the parameters(or variables
       )
2      print('Your first name is :', first)
3      print('Your last name is :', last)
4
5  who('Guido', 'van Rossum')  # 'Guido' and 'van Rossum' are the arguments
6  print()
7  who('Marry', 'Bold')  # 'Marry' and 'Bold' are also the arguments
```

`first` *and* `last` *are the* ***parameters***

```
1  Your first name is : Guido
2  Your last name is : van Rossum
3
4  Your first name is : Marry
5  Your last name is : Bold
```

the **names** passed into the function are the arguments

Arguments vs Parameters (review)

- If you passed only one argument into the parameter of the `who()` function, it gives an error. Consider the following example :

```
1  who('Joseph')  # we passed only one argument into the function
```

Arguments vs Parameters (review)

- If you passed only one argument into the parameter of the `who()` function, it gives an error. Consider the following example :

```
1  who('Joseph')  # we passed only one argument into the function
```

```
1  Traceback (most recent call last):
2    File "code.py", line 5, in <module>
3      who('Joseph')
4  TypeError: who() missing 1 required positional argument: 'last'
```

Correct Use of Arguments

2

- Positional Arguments
- Keyword Arguments

Summarize what you've just learned about the usage and the differences of these parameters.

-Write in two sentences.

Students, write your response!

Positional Arguments (review)

- When calling a function with **positional arguments**, they **must** be passed **in order from left to right**.

```
1  def pos_args(a, b):
2      print(a, 'is the first argument')
3      print(b, 'is the second argument')
4
5  pos_args(3,4)
6  print()
7  pos_args(4,3)
```

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

Students, write your response!

Positional Arguments (review)

- When calling a function with **positional arguments**, they must be passed **in order from left to right**.

```
def pos_args(a, b):
    print(a, 'is the first argument')
    print(b, 'is the second argument')

pos_args(3,4)
print()
pos_args(4,3)
```

```
3 is the first argument
4 is the second argument

4 is the first argument
3 is the second argument

```

Positional Arguments (review)

- When calling a function with **positional arguments**, they must be passed **in order from left to right**.

```
1  pos_args('first','second')
2  print()
3  pos_args('second', 'first')
```

Positional Arguments (review)

- When calling a function with **positional arguments**, they must be passed **in order from left to right**.

```
1  pos_args('first','second')
2  print()
3  pos_args('second', 'first')
```

```
1  first is the first argument
2  second is the second argument
3
4  second is the first argument
5  first is the second argument
6
```

Positional Arguments

- **Task** :
  - Define a function named `texter` to print the following output in accordance with input .

```
a = "i"
b = "love"
c = "you"

texter(c, a, b)
```

Output

```
i love you
```

Positional Arguments

- **The function definition can be like :**

```
1  def texter(text1, text2, text3):
2      print(f"{text2} {text3} {text1}")
3
4
5
```

Keyword Arguments (review)

- If you do not want to allow the sequences/positions of the arguments to restrict you when you call a function, you can also call these arguments by keywords.
- Commonly and traditionally, **kwargs** is used as an abbreviation of **keyword arguments.**

```
The formula syntax is : kwargs=values.
```

Keyword Arguments (review)

- Consider the following example :

```
1  def who(first, last) :  # same structure as the previous one
2      print('Your first name is :', first)
3      print('Your last name is :', last)
4
5  who(first='Guido', last='van Rossum')  # calling the function is different
6  # we used kwargs to pass the values into the function
```

Keyword Arguments (review)

- Consider the following example :

```
1  def who(first, last) :  # same structure as the previous one
2      print('Your first name is :', first)
3      print('Your last name is :', last)
4
5  who(first='Guido', last='van Rossum')  # calling the function is different
6  # we used kwargs to pass the values into the function
```

```
1  Your first name is : Guido
2  Your last name is : van Rossum
3
```

Keyword Arguments

- **Task** :
  - Call the `texter` function using keyword arguments in order to get the same output as the previous one.

```
1  def texter(text1, text2, text3):
2      print(f"{text2} {text3} {text1}")
3
4
5
```

Students, write your response!

Keyword Arguments

- **The calling syntax can be like :**

```
1  def texter(text1, text2, text3):
2      print(f"{text2} {text3} {text1}")
3
4  texter(text1="you", text2="i", text3="love")
5  texter(text2="i", text3="love", text1="you")
6
```

kwargs saves us from positional restrictions.

Output

```
i love you
i love you
```

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
```

```
1  parrot(1000)                                         # 1 positional
       argument
2  parrot(voltage=1000)                                 # 1 keyword argument
3  parrot(voltage=1000000, action='VOOOOOM')            # 2 keyword arguments
4  parrot(action='VOOOOOM', voltage=1000000)            # 2 keyword arguments
5  parrot('a million', 'bereft of life', 'jump')        # 3 positional
       arguments
6  parrot('a thousand', state='pushing up the daisies')  # 1 positional, 1
       keyword
7
```

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(1000)                                    # 1 positional argument
8
```

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

Students, write your response!

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(1000)                                          # 1 positional argument
8
```

Output

```
-- This parrot wouldn't voom if you put 1000 volts through it.
-- Lovely plumage, the Norwegian Blue
-- It's a stiff !
```

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(voltage=1000)                                  # 1 keyword argument
8
```

Discuss in class! Try to figure out the output in your mind...

Students, write your response!

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
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4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(voltage=1000)                                  # 1 keyword argument
8
```

Output

```
-- This parrot wouldn't voom if you put 1000 volts through it.
-- Lovely plumage, the Norwegian Blue
-- It's a stiff !
```

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(voltage=1000000, action='VOOOOOM')           # 2 keyword arguments
8
```

Discuss in class! Try to figure out the output in your mind...

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(voltage=1000000, action='VOOOOOM')           # 2 keyword arguments
8
```

Output

```
-- This parrot wouldn't VOOOOOM if you put 1000000 volts through it.
-- Lovely plumage, the Norwegian Blue
-- It's a stiff !
```

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(action='VOOOOOM', voltage=1000000)            # 2 keyword arguments
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```

Discuss in class! Try to figure out the output in your mind...

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot(action='VOOOOOM', voltage=1000000)           # 2 keyword arguments
8
```

Output

```
-- This parrot wouldn't VOOOOOM if you put 1000000 volts through it.
-- Lovely plumage, the Norwegian Blue
-- It's a stiff !
```

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot('a million', 'bereft of life', 'jump')          # 3 positional arguments
8
```

Discuss in class! Try to figure out the output in your mind...

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot('a million', 'bereft of life', 'jump')          # 3 positional arguments
8
```

Output

```
-- This parrot wouldn't jump if you put a million volts through it.
-- Lovely plumage, the Norwegian Blue
-- It's bereft of life !
```

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
2      print("-- This parrot wouldn't", action, end=' ')
3      print("if you put", voltage, "volts through it.")
4      print("-- Lovely plumage, the", type)
5      print("-- It's", state, "!")
6
7  parrot('a thousand', state='pushing up the daisies')  # 1 positional, 1 keyword
8
```

Discuss in class! Try to figure out the output in your mind...

Keyword Arguments (review)

- Let's call the **parrot** function in several ways below one by one :

```
1  def parrot(voltage, state='a stiff', action='voom', type='Norwegian Blue'):
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5      print("-- It's", state, "!")
6
7  parrot('a thousand', state='pushing up the daisies')  # 1 positional, 1 keyword
8
```

Output

```
-- This parrot wouldn't voom if you put a thousand volts through it.
-- Lovely plumage, the Norwegian Blue
-- It's pushing up the daisies !
```

Keyword Arguments (review)

- Considering the defined functions, all the following calls would be invalid:

```
1  parrot()                      # required argument missing
2  parrot(voltage=5.0, 'dead')   # non-keyword argument after a keyword argument
3  parrot(110, voltage=220)      # duplicate value for the same argument
4  parrot(actor='John Cleese')   # unknown keyword argument
5
```

- In a function call, ***keyword arguments* must** follow ***positional arguments***.
- All the keyword arguments passed must match one of the arguments accepted by the function (e.g. **`actor`** is not a valid argument for the **`parrot`** function), and their ***order is not important.***

Keyword Arguments

- No argument may receive a value more than once.
- Here's an example that fails due to this restriction:

```
1  def function(a):
2      pass  # actually, 'pass' does nothing. it just moves to the next line of
           code
3
4  function(0, a=0)
5
```

Keyword Arguments

- No argument may receive a value more than once.
- Here's an example that fails due to this restriction:

```
1  def function(a):
2      pass  # actually, 'pass' does nothing. it just moves to the next line of
           code
3
4  function(0, a=0)
5
```

```
1  Traceback (most recent call last):
2    File "code.py", line 4, in
3      function(0, a=0)
4  TypeError: function() got multiple values for argument 'a'
```

3 Arbitrary Number of Arguments

Default Arguments

- When calling a function defined by parameters with default values, there is no obligation to pass any arguments into the function.
- Let's see how it works in an example :

```
1  def city(capital, continent='Europe'):
2      print(capital, 'in', continent)
3
4  city('Athens')  # we don't have to pass any arguments into 'continent'
5  city('Ulaanbaatar', continent='Asia')  # we can change the default value by kwargs
6  city('Cape Town', 'Africa')  # we can change the default value by positional args.
```

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

Default Arguments

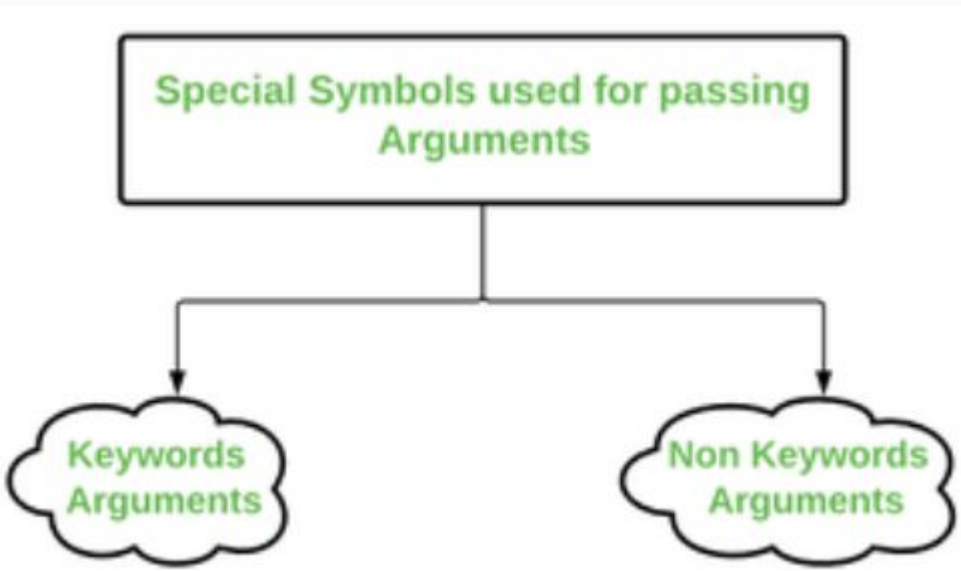
- When calling a function defined by parameters with default values, there is no obligation to pass any arguments into the function.
- Let's see how it works in an example :

```
1  def city(capital, continent='Europe'):
2      print(capital, 'in', continent)
3
4  city('Athens')  # we don't have to pass any arguments into 'continent'
5  city('Ulaanbaatar', continent='Asia')  # we can change the default value by kwargs
6  city('Cape Town', 'Africa')  # we can change the default value by positional args.
```

```
1  Athens in Europe
2  Ulaanbaatar in Asia
3  Cape Town in Africa
4
```

*args and **kwargs (review)

- In Python, we can pass a variable number of arguments to a function using special symbols.
-



*args and **kwargs (review)

- *Special Symbols Used for passing arguments:*
-
- *1.) *args (Non-Keyword Arguments)*
- *2.) **kwargs (Keyword Arguments)*

*args and **kwargs

- The logic of `*args` and `**kwargs`

```
def name(*args)

    name(multiple arguments)
```

```
def name(**kwargs )

    name(multiple key=value arguments)
```

*args and **kwargs (review)

```
The formula syntax is : *args
```

- Normally, these `variadic` arguments will be last in the list of formal parameters because they scoop up all remaining input arguments that are passed into the function.
- Any formal parameters which occur after the `*args` parameter are '**keyword-only**' arguments, meaning that they can only be used as keywords rather than positional arguments.

*args and **kwargs (review)

- For example, let's define a function which takes two kinds of fruit and prints them.

```
1  def fruiterer(fruit1, fruit2) :
2      print('I want to get', fruit1, 'and', fruit2)
3
4  fruiterer('orange', 'banana')
5
```

*args and **kwargs (review)

- For example, let's define a function which takes two kinds of fruit and prints them.

```
1  def fruiterer(fruit1, fruit2) :
2      print('I want to get', fruit1, 'and', fruit2)
3
4  fruiterer('orange', 'banana')
5
```

```
1  I want to get orange and banana
```

*args and **kwargs (review)

- What if the user wants to get more than two kinds of fruit? Since we don't know how many kinds of fruit each user will enter, using **'arbitrary numbers of arguments'** is the most intelligent method. Consider the following example :

```
1 def fruiterer(*fruit) :
2     print('I want to get :')
3     for i in fruit :
4         print('-', i)
5
6 fruiterer('orange', 'banana', 'melon', 'ananas')
7
```

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

*args and **kwargs (review)

- What if the user wants to get more than two kinds of fruit? Since we don't know how many kinds of fruit each user will enter, using **'arbitrary numbers of arguments'** is the most intelligent method. Consider the following example :

```
def fruiterer(*fruit) :
    print('I want to get :')
    for i in fruit :
        print('-', i)

fruiterer('orange', 'banana', 'melon', 'ananas')
```

```
I want to get :
- orange
- banana
- melon
- ananas
```

*args and **kwargs

- **Task** :
  - Define a function named `slicer` to collect even numbers into the `list` `evens`, odd numbers into the `list` `odds` from the given numbers by using `*args`.

```
1
2  slicer(1, 2, 3, 4, 5, 6, 7, 8, 9)
3
```

Output

```
even list :  [2, 4, 6, 8]
odd list :  [1, 3, 5, 7, 9]
```

*args and **kwargs

- **The defining of that function can be like :**

```
1  def slicer(*num) :
2      evens = []
3      odds = []
4      for i in num :
5          if i%2 == 0 :
6              evens.append(i)
7          else :
8              odds.append(i)
9      print("even list : ", evens)
10     print("odd list : ", odds)
11
```

*args and **kwargs (review)

- As you can see above, we passed a list of fruits (arguments) into one parameter (**fruit**). Isn't it very useful?
- If you need to prefer to use arbitrary keyword arguments (****kwargs**), you can use it in the same way.

```
The formula syntax is : **kwargs
```

the **kwargs works in accordance with the format of the dicts

*args and **kwargs (review)

- You can examine the following example :

```
1  def animals(**kwargs):
2      for key, value in kwargs.items():
3          print(value, "are", key)
4
5  animals(Carnivores="Lions", Omnivores="Bears", Herbivores
       ="Deers", Nomnivores="Human")
6
```

-Pay attention to the **key-value** pairs

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

Students, write your response!

*args and **kwargs (review)

- You can examine the following example :

```
def animals(**kwargs):
    for key, value in kwargs.items():
        print(value, "are", key)

animals(Carnivores="Lions", Omnivores="Bears", Herbivores
    ="Deers", Nomnivores="Human")

```

```
Lions are Carnivores
Bears are Omnivores
Deers are Herbivores
Human are Nomnivores

```

*args and **kwargs

- **Task** :
  - Define a function named `organizer` to collect the given names into the `list` `names`, ages into the `list` `ages` by using `*kwargs`.

```
1
2  organizer(Beth=26, Oscar=42, Justin=18, Frank=33)
3
```

Output

```
['Beth', 'Oscar', 'Justin', 'Frank']
[26, 42, 18, 33]
```

*args and **kwargs

- **The defining of that function can be like :**

```
1  def organizer(**people):
2      names = []
3      ages = []
4      for key, value in people.items():
5          names.append(key)
6          ages.append(value)
7      print(names, ages, sep="\n")
8
```

*args and **kwargs (review)

- As you can see in the example, in this type of argument (****kwargs**), we can determine the number of the arguments and their assigned value pairs by ourselves.
- In the next call of this function, we can use different arguments both in number and value from the above argument pairs.

Tips:

- Traditionally, people in the world of computer programming use `*args` for the arbitrary number of positional arguments and `**kwargs` for the arbitrary number of keyword arguments.

*args and **kwargs (review)

- When **calling a function** defined by multiple positional parameters, using `*arg` syntax in parentheses, we can pass all arguments into the function with a single variable.
- Likewise; When **calling a function** defined by multiple keyword arguments, using `**kwargs` syntax in parentheses, we can pass all arguments which are in a dictionary form into the function with a single variable.

*args and **kwargs

- This time it is used **reverse** but it **works** as the **same** logic.

```
def name(multiple parameters)

    name(*variable)
```

```
def name(multiple parameters)

    name(**variable)
```

*args and **kwargs (review)

- Carefully examine the following examples :

```
1  def brothers(bro1, bro2, bro3):
2      print('Here are the names of brothers :')
3      print(bro1, bro2, bro3, sep='\n')
4
5  family = ['tom', 'sue', 'tim']
6  brothers(*family)
7
```

Calling a function using ***args**

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

*args and **kwargs (review)

- Carefully examine the following examples :

```
1  def brothers(bro1, bro2, bro3):
2      print('Here are the names of brothers :')
3      print(bro1, bro2, bro3, sep='\n')
4
5  family = ['tom', 'sue', 'tim']
6  brothers(*family)
7
```

```
1  Here are the names of brothers :
2  tom
3  sue
4  tim
5
```

*args and **kwargs

- **Task** :
  - Define a function named `merger` to print the following output from the given tuple `genius`.
  - **Call** the function using variable `genius` as `*args`.

```
genius = ('Bill', 'Rossum', 'Guido van', "Gates")
```

Output

```
For me, Bill Gates and Guido van Rossum are geniuses
```

*args and **kwargs

- **The defined function and calling it can look like :**

```
1  def merger(arg1, arg2, arg3, arg4):
2      print(f"For me, {arg1} {arg4} and {arg3} {arg2} are geniuses.")
3
4  genius = ('Bill', 'Rossum', 'Guido van', "Gates")
5
6  merger(*genius)
7
```

*args and **kwargs (review)

- Carefully examine the following examples :

```
1  def gene(x, y):  # defined by positional args
2      print(x, "belongs to Generation X")
3      print(y, "belongs to Generation Y")
4
5  dict_gene = {'y' : "Marry", 'x' : "Fred"}
6  gene(**dict_gene)  # we call the function by a single
       argument(variable)
7
```

-Calling a function using ** **kwargs**
-Pay attention to the type of **kwarg**. Since it works with **keys**, the type is a **dict.**

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

*args and **kwargs (review)

- Carefully examine the following examples :

```
1  def gene(x, y):  # defined by positional args
2      print(x, "belongs to Generation X")
3      print(y, "belongs to Generation Y")
4
5  dict_gene = {'y' : "Marry", 'x' : "Fred"}
6  gene(**dict_gene)  # we call the function by a single
       argument(variable)
7
```

```
1  Fred belongs to Generation X
2  Marry belongs to Generation Y
3
```

*args and **kwargs

- **Task** :
  - Create a **dictionary** named `friends` with the **names** (as keys) and **ages** (as values) of your three friends.
  - Define a function named `meaner` to prints the average of your friends ages.
  - **Call** the function using variable `friends` as `**kwargs`.

*args and **kwargs

- **The defined function and calling it can look like :**

```
1  def meaner(Alfred, Joseph, Eric):
2      avg = (Alfred + Joseph + Eric) / 3
3      print("The average of their ages is :", avg)
4
5  friends = {'Alfred': 44, 'Joseph': 39, 'Eric': 55}
6
7  meaner(**friends)
8
```

Output

```
The average of their ages is : 46.0
```

*args and **kwargs (review)

- Carefully examine the following examples :

```
1  def gene(x='Solomon', y='David'):  # defined by kwargs
       (default values assigned to x and y)
2      print(x, "belongs to Generation X")
3      print(y, "belongs to Generation Y")
4
5  dict_gene = {'y' : "Marry", 'x' : "Fred"}
6  gene(**dict_gene)
7
```

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

Students, write your response!

*args and **kwargs (review)

- Carefully examine the following examples :

```
def gene(x='Solomon', y='David'):  # defined by kwargs
    (default values assigned to x and y)
    print(x, "belongs to Generation X")
    print(y, "belongs to Generation Y")

dict_gene = {'y' : "Marry", 'x' : "Fred"}
gene(**dict_gene)

```

```
Fred belongs to Generation X
Marry belongs to Generation Y

```

3 Special Arguments

Special Arguments

- According to the official related Python documents: By default, arguments may be passed to a Python function either by position or explicitly by keyword.

by position	by position or keyword	by keyword

```
def a_function(pos1, pos2, /, pos_or_kwd, *, kwd1, kwd2) :
```

Positional only

Positional or keyword

Keyword only

Special Arguments

01

Positional-or-Keyword Arguments

- If 👉/ and 👉* are not present in the function definition, arguments may be passed to a function by position or by keyword.
- These are the arguments that we have already mentioned in the previous lesson.

Special Arguments

01	Positional-or-Keyword Arguments	• If 👉/ and 👉* are not present in the function definition, arguments may be passed to a function by position or by keyword. • These are the arguments that we have already mentioned in the previous lesson.
02	Positional-Only Arguments	• If positional-only, the parameters' order matters and the parameters cannot be passed by keyword. • Positional-only parameters are placed before a 👉/ (forward-slash). • The 👉/ is used to logically separate the positional-only parameters from the rest of the parameters.

Special Arguments

01	Positional-or-Keyword Arguments	• If 👉/ and 👉* are not present in the function definition, arguments may be passed to a function by position or by keyword. • These are the arguments that we have already mentioned in the previous lesson.
02	Positional-Only Arguments	• If positional-only, the parameters' order matters and the parameters cannot be passed by keyword. • Positional-only parameters are placed before a 👉/ (forward-slash). • The 👉/ is used to logically separate the positional-only parameters from the rest of the parameters.
03	Keyword-Only Arguments	• To mark parameters as keyword-only, indicating the parameters must be passed by keyword argument, place an 👉* in the arguments list just before the first keyword-only parameter.

THANKS!

Any questions?

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