Arguments and Parameters in the context of **Functions**

In the context of **Functions**, there are two words that must be clearly understood.

- Arguments versus Parameters (*"two sides of a coin"*)
- The python documentation does not do enough justice to these two words. However, see this FAQ to start with

No	**Arguments**	**Parameters**	Remarks
0	Arguments are used when a function is ***called***	Parameters are used when function is to be ***defined***	Arguments ~= Actual parameters; Parameters ~= Formal parameters
1	**Definition**: An argument is a **value** passed to a function when calling the function.	**Definition**: A parameter is a **name**d entity in a function definition that specifies an argument that the function can accept.	*Prof Satish got this right! A "named entity" ~= a variable in Python*
2	Very often, there is a `1:1` mapping between arguments and...	...the parameters defined in the function.	Very *often*, for every argument, there is a corresponding parameter
3	Arguments can be constants, local variables or objects	Parameters cannot be a constant.	A parameter can be initialized by a default argument (value).
5	There are keyword arguments, and there are positional arguments. Anything that is not a keyword argument is a positional argument.	Keyword parameters and positional parameters	
6	Default value/argument (is part of defining functions) can only be a constant	There is ***no*** concept of a default parameter	When one or more arguments go missing, a default value can be assigned to the corresponding parameter
7	Variable length positional arguments and variable length keyword arguments	To handle this, the definition uses special symbols, ***args** and ****kwargs**	To make the function as *flexible* as possible
8	The scope of the arguments are relevant only in the called function	The scope of the parameters have valid scope only within the function where they occur	If the arguments are of **mutable** type, then their values can be changed within the scope of the function

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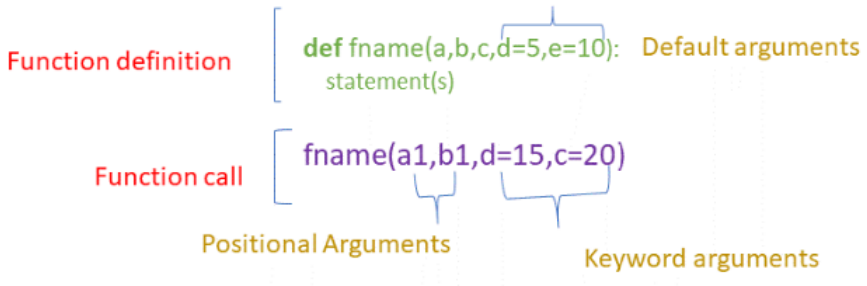
9	There are 5 types of arguments	There are 5 types of parameters.	Read http://j.mp/argumentThis Also see http://j.mp/parameterThis and http://j.mp/parameterThis2 and http://j.mp/parameterThis3

Types of Arguments and Parameters:

5 types of Arguments

- positional: Arguments without a name.
- keyword: Arguments with a name.
- packed positional: An iterator preceded by *.
- packed keyword: A mapping preceded by **.
- **default**: a value provided in a function declaration that is automatically assigned
    - *It is more precise to refer to this as "parameter with default value"*

default vs positional vs keyword arguments:



5 types of Parameters

- positional-or-keyword: parameters in a function definition, with or without default values.
- positional-only: Only found in builtin/extension functions.
- var-positional: This is the `*args`.
- keyword-only: parameters that come after a * or *args, with or without default values.
- var-keyword: This is the `**args`

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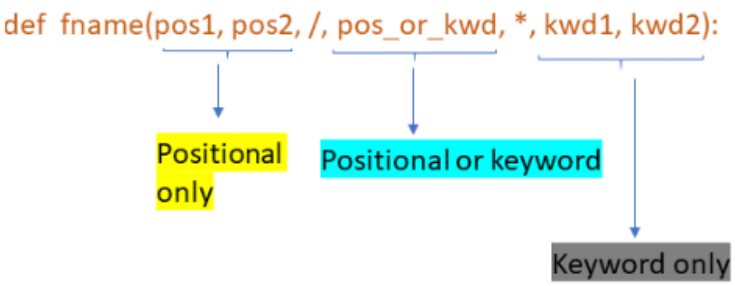

Photo by author