

Python Functions

- Function is a **group of related statements that perform a specific task.**
- i.e. a function is a set of statements that **take inputs, do some specific computation** and **produces output.**
- Functions provide better **modularity** for your application and a high degree of code reusing.

modularity is the degree to which a system's components may be separated and recombined, often with the benefit of flexibility and variety in use.

- Python gives you many built-in functions like `print()`, etc. but you can also create your own functions. These functions are called ***user-defined functions.***

Defining a Function

- In Python a function is defined using the **def** keyword.
- E.g.

```
def my_funtion():  
    print("Hello")
```

- **Syntax:**

```
def functionname (parameters):  
    "function_docstring"  
    function_statements  
    return [expression]
```

Defining a Function

- Function blocks **begin with the keyword `def`** followed by the function name and parentheses (()).
- Any input **parameters or arguments** should be placed within these parentheses. They are optional
- **A colon(`:`)** to mark the end of function header.
- The first statement of a function can be an optional statement - the documentation string of the function or *docstring to describe what the function does*.
- One or valid python statements that make up the function body. **Statements must have same indentation level**.
- An optional return statement to return a value from the function. A return statement with no arguments is the same as return None.

Python Functions

- To call a function, use the **function name followed by parenthesis.**

Difference between parameters and arguments

- A parameter is a **variable defined by a function that receives a value** when the function is called.
- An argument is a value that is **passed to a function when it is invoked**.

Arbitrary Arguments, *args

- If you do not know how many arguments that will be passed into your function, add a * before the parameter name in the function definition.
- Example:3

A little bit about strings

- Strings are Arrays like many other popular programming languages, strings in Python are arrays of bytes representing unicode characters.
- However, Python does not have a character data type, a single character is simply a string with a length of 1.
- Square brackets can be used to access elements of the string.

Default arguments in Python

- Python allows function arguments to have default values. If the function is called without the argument, the argument gets its default value.
- The default value is assigned by using assignment (=) operator.

Python Lambda Function or Anonymous Function

- A lambda function is a small anonymous function.
- A lambda function can **take any number of arguments**, but **can only have one expression**.

Syntax:

lambda arguments : expression

e.g. x = lambda a,b,c: a+b+c

Print (x(5,6,2))