

Data Visualization **EDU-BOOT**

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Content

- Python Functions
- Python Function Arguments
- Return by multiple values in Python Function
- Python Anonymous Function
- Python Lambda Function
- Python Namespace and Scope
- Some Mathematical Functions in Python
- Organizing code and import modules in Python program

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What is a function in Python?

- Function is a group of related statements that perform a specific task
- Functions help break our program into smaller and modular chunks. As our program grows larger and larger, functions make it more organized and manageable.
- Function
 - Syntax:

```
def function_name(parameters):
    """docstring"""
    statement(s)
```

- Overloading: not support
- Inline function: using lambda keyword
- Default value for parameters
- Optional parameters in function

High Cohesion
Low Coupling

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Example

- Function

```
def greet(name):
    """This function greets to
    the person passed in as
    parameter"""
    print("Hello, " + name + ". Good morning!")
```

- Call function

```
>>> greet('Paul')
Hello, Paul. Good morning!
```

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The return statement

```
def func_name (param_1, param_2, ...):
    """docstring"""
    # command ...
    return func_result
```

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Example

- Example: Find maximum in list of number

```
def max(a):
    max = a[0]
    for x in a:
        if x > max:
            max = x
    return max

data = [1, 5, 1, 12, 3, 4, 6]
print ("Data:", data)
print ("Maximum:", max(data))
```

Function Declaration
Function body
Return value
Call function

```
Data: [1, 5, 1, 12, 3, 4, 6]
Maximum: 12
```

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Scope and Lifetime of variables

- Scope of a variable is the portion of a program where the variable is recognized. Parameters and variables defined inside a function is not visible from outside. Hence, they have a local scope.

```
def my_func():
    x = 10
    print("Value inside function:",x)

x = 20
my_func()
print("Value outside function:",x)
```

Value inside function: 10
Value outside function: 20

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Types of Functions

- Basically, we can divide functions into the following two types:
 - Built-in functions - Functions that are built into Python.
 - User-defined functions - Functions defined by the users themselves.
- Module and package
 - Standard modules: sys (system) , math (mathematics) , re (regular expressions)
 - Load module by using keyword import
 - Custom module → store with filename .py
- Note:** You should store modules in particular file .py

```
import math
print math.sqrt(100)
```

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THANK YOU
Q & A

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