Functions

Introduction

A **function** is a block of instructions that performs an action and, once defined, can be reused. Functions make code more modular, allowing you to use the same code over and over again.

Types of functions

- Built-in
- User defined
- Anonymous

Built-in

- Already exists in environment.

User defined

Syntax:

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

function definition Components

- Keyword def marks the start of function header.
- A function name to uniquely identify it. Function naming follows the same rules of writing identifiers in Python.
- Parameters (arguments) through which we pass values to a function. They are optional.
- A colon (:) to mark the end of function header.
- Optional documentation string (docstring) to describe what the function does.
- One or more valid python statements that make up the function body. Statements must have same indentation level (usually 4 spaces).
- An optional return statement to return a value from the function.

Function Definition

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

Function call

greet('Paul')

Hello, Paul. Good morning!

Anonymous functions

- In Python, anonymous function means that a function is without a name. As we already know that def keyword is used to define the normal functions and the lambda keyword is used to create anonymous functions.

```
# Python code to illustrate cube of a number
# using labmda function
cube = lambda x: x*x*x
print(cube(7))
```

Docstring

- The first string after the function header is called the docstring and is short for documentation string. It is used to explain in brief, what a function does.
- Although optional, documentation is a good programming practice.
- In the above example, we have a docstring immediately below the function header. We generally use triple quotes so that docstring can extend up to multiple lines. This string is available to us as __doc__ attribute of the function.