



DAY 2

Instructor: Balu Mohandas Menon

Christian B. Wiberg
Philip Jess Teining

USER DEFINED FUNCTIONS



A function is a set of statements that take inputs, do some specific computation and produce output.

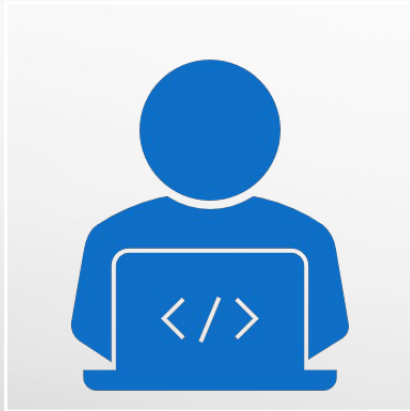


```
def function_name(parameter_1, parameter_2, ...) :  
    statements
```

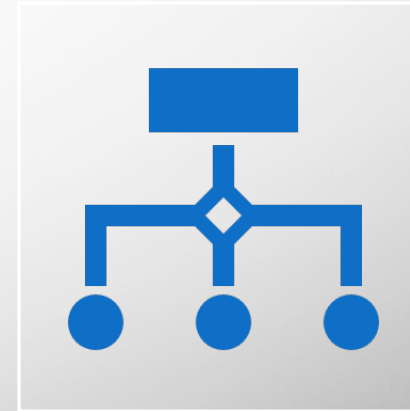


Calling a user defined function
`function_name(argument_1, argument_2)`

INPUT HANDLING IN PYTHON




Python provides a simple framework for getting user input in the form of the `input()` function.



Syntax:
`input([prompt])`

EXCEPTION HANDLING

Exceptions are raised when the program is syntactically correct, but the code resulted in an error.



This error does not stop the execution of the program, however, it changes the normal flow of the program.

OOPS



Programming paradigm that uses objects and classes in programming



It aims to implement real-world entities like inheritance, encapsulation etc in the programming



The main concept of OOPs is to bind the data and the functions that work on that together as a single unit so that no other part of the code can access this data.



The concept of OOP in Python focuses on creating reusable code. This concept is also known as DRY (Don't Repeat Yourself).

CLASS



Numbers, strings and data structures are designed to store simple piece of information.



such as the cost of an apple, the name of a poem, or your favorite colors, respectively.



What if you want to represent something more complex?

CLASS



Classes are used to create user-defined data structures



Classes define functions called methods



which identify the behaviors and actions that an object created from the class can perform with its data.



A class is a blueprint for how something should be defined.

OBJECT




While the class is the blueprint, an instance is an object that is built from a class and contains real data.



When class is defined, only the description for the object is defined. Therefore, no memory or storage is allocated.

INHERITANCE

Inheritance is a way of creating a new class for using details of an existing class without modifying it.



The newly formed class is a derived class (or child class). Similarly, the existing class is a base class (or parent class).

CONSTRUCTORS

In Python, the constructor method is invoked automatically whenever a new object of a class is

instantiated. Constructors are generally used for **instantiating an object**.

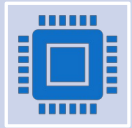
The task of constructors is to initialize(assign values) to the data members of the class when an object of the

class is created. In Python the `__init__()` method is called the constructor and is always called when an object is created.

INTRODUCTION TO NUMPY



NumPy is a **Python** library used for working with arrays.



NumPy, which stands for Numerical Python, is a library consisting of multidimensional array objects and a collection of routines for processing those arrays. Using NumPy, mathematical and logical operations on arrays can be performed.