

Python Training



Python is a powerful, compact, open source language focusing on artifacts. The course starts by easily reviewing the basic elements: variables, flow control, functions modules, packages and standard libraries. Python OO programming is provided by a first evaluation approach. Instead, the program explores in detail the concepts of knowledge and exception management.

Course Objective:

- Using REPL
- Writing your first Python script
- Use and manipulate variables
- Using lists, tuples, and dictionaries
- Creating custom function and invoking
- Creating classes
- Understanding standard library
- Using or importing modules and packages of user-defined or implicit
- Handling exceptions and creating a user-defined exception
- Performing CRUD operation
- Use iterators and be introduced to generators

Course Audience:

Anybody who is interested to learn python programming, and who wants to get into Artificial Intelligence, Machine learning, data science.

Course Prerequisites:

For this course, previous programming experience is optional. Having the understanding of OOP and basic syntax of any programming would good.

Using the Python Interpreter Python IDE :

Invoking the Interpreter

Argument Passing

Interactive Mode

The Interpreter and Its Environment

Source Code Encoding

An Informal Introduction to Python:

Using Python as a Calculator

Numbers

Strings

Lists

First Steps Towards Programming

More Control Flow Tools:

if Statements

for Statements

The range() Function

break and continue Statements, and else Clauses on Loops

pass Statements

Defining Functions

More on Defining Functions

Default Argument Values

Keyword Arguments

Arbitrary Argument Lists

Unpacking Argument Lists

Lambda Expressions

Documentation Strings

Function Annotations

Intermezzo: Coding Style

Data Structures:

More on Lists

Using Lists as Stacks

Using Lists as Queues

List Comprehensions

Nested List Comprehensions

The del statement

Tuples and Sequences

Sets

Dictionaries

Looping Techniques

More on Conditions

Comparing Sequences and Other Types

Modules:

More on Modules

Executing modules as scripts

The Module Search Path

“Compiled” Python files

Standard Modules

The dir() Function

Packages

Importing * From a Package

Intra-package References

Packages in Multiple Directories

Input and Output:

Fancier Output Formatting

Formatted String Literals

The String format() Method

Manual String Formatting

Old string formatting

Reading and Writing Files

Methods of File Objects

Saving structured data with json

Errors and Exceptions:

Syntax Errors

Exceptions

Handling Exceptions

Raising Exceptions

User-defined Exceptions

Defining Clean-up Actions

Predefined Clean-up Actions

Classes:

A Word About Names and Objects

Python Scopes and NamespacesScopes and Namespaces Example

A First Look at Classes

Class Definition Syntax

Class Objects

Instance Objects

Method Objects

Class and Instance Variables

Random Remarks

Inheritance

Multiple Inheritance

Private Variables

Odds and Ends

Iterators

Generators

Generator Expressions

Brief Tour of the Standard Library:

Operating System Interface

File Wildcards

Command Line Arguments

Error Output Redirection and Program Termination

String Pattern Matching

Mathematics

Internet Access

Dates and Times

Data Compression

Performance Measurement

Quality Control

Batteries Included

Brief Tour of the Standard Library — Part II:

Output Formatting

Templating

Working with Binary Data Record Layouts

Multi-threading

Logging

Weak References

Tools for Working with Lists

Decimal Floating Point Arithmetic

Virtual Environments and Packages:

Introduction

Creating Virtual Environments

Managing Packages with pip

Interactive Input Editing and History Substitution:

Tab Completion and History Editing

Alternatives to the Interactive Interpreter

Unit Tests (PyUnit):

- Why and Why Not Unit Tests
- Patterns for Unit Testing
- Mock Object Introduction

Database Programming:

- Introduction to Database Programming
- Processing Select Statements
- Executing Input and Update Statements

Plotting:

- Introduction to Matplotlib Artist Model
- Introduction to Bokeh