

Basic Python 3 Programming (Theory & Practical)

Length : 5 Days
Delivery Method : Instructor-led (Classroom)

Course Overview

This Python 3 Programming training leads the student from the basics of writing and running Python scripts to more advanced features such as file operations, regular expressions, working with binary data, and using the extensive functionality of Python modules. Extra emphasis is placed on features unique to Python, such as tuples, array slices, and output formatting. This is a hands-on programming class. Python Programming is a practical introduction to a working programming language, not an academic overview of syntax and grammar.

Audience Profile

Participant who wants to learn Python and use it for application development, system administration or just to automate tasks in a simple, yet powerful way.

Pre-Requisites

Working/user level knowledge of an operating system such as Linux, Windows or MacOS is the pre-requisites. Basic skill with at least one other programming language is desirable.

Course Outline

Module 1: Course Introduction

Lessons

- Course Objectives
- Course Overview
- Suggested References

Module 2: An Overview of Python

Lessons

- What is Python?
- The Birth of Python
- Python Timeline
- About Interpreted Languages
- Advantages of Python
- Disadvantages of Python
- How to Get Python
- The end of 2.x
- Getting Help
- Pydoc
- Using Pydoc

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Module 3: The Python Environment

Lessons

- Starting Python
- If the Interpreter is not in your Paths
- Using the Interpreter
- Trying out a Few Commands
- The help() Command
- Running a Python Script
- Python Scripts on Unix
- Python Scripts on Windows
- Python Editors and IDEs

Module 4: Getting Started

Lessons

- Using Variables
- Keywords
- Built-in Functions
- Variable Typing
- Strings
- Single-delimited String Literals
- Triple-delimited String Literals
- Raw String Literals
- Unicode Characters
- String Operators and Methods
- Numeric Literals
- Math Operators and Expressions
- Converting Among Types
- Writing to the Screen
- String Formatting
- Command Line Parameters
- Reading from the Keyboard

Module 5: Flow Control

Lessons

- About Flow Control
- What's with the White Space
- If and Elif
- Conditional Expressions
- Relational Operators
- Boolean Operators
- While Loops
- Alternate Ways to Exit a Loop

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Module 6: Sequences

Lessons

- About Sequences
- Lists
- Tuples
- Indexing and Slicing
- Iterating Through a Sequence
- Using Enumerate()
- Functions for all Sequences
- Keywords and Operators for All Sequences
- The Range() Function
- Nested sequences
- List Comprehensions
- Generator Expressions

Module 7: Working with files

Lessons

- Text File I/O
- Opening a Text File
- The With Block
- Reading a Text File
- Non-delimited (Raw) Data

Module 8: Dictionaries and Sets

Lessons

- About Dictionaries
- When to Use Dictionaries
- Creating Dictionaries
- Getting Dictionary Values
- Iterating Through a Dictionary
- Reading File Data into a Dictionary
- Counting with a Dictionary
- About Sets
- Creating Sets
- Working with Sets

Module 9: Functions

Lessons

- Defining a Function
- Function Parameters
- Returning Values
- Variable Scope

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Module 10: Sorting

Lessons

- Sorting
- The Sorted() Function
- Alternate Keys
- Lambda Functions
- Sorting Nested Data
- Sorting Dictionaries
- Sorting in Reverse
- Sorting Lists in Place

Module 11: Using Modules

Lessons

- Regular Expressions
- RE Syntax Overview
- RE Objects
- Searching for Patterns
- Matching without RE Objects
- Compilation Fags
- Grouping
- Special Groups
- Replacing Text
- Splitting a String

Module 12: Using the Standard Library

Lessons

- The Sys Module
- Interpreter Information
- STDIO
- Launching External Programs
- Paths, Directories, Filenames
- Walking Directory Trees
- Grabbing Web Pages
- Sending E-Mail
- Math Functions
- Random Values
- Dates and Times
- Zipped Archives

Module 13: An Introduction to Python Classes

Lessons

- About O-O Programming
- Defining Classes
- Initializers
- Instance Methods
- Properties

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- Class Methods and Data
- Static Methods
- Private Methods
- Inheritance
- Untangling the Nomenclature

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