Advance Python Training

Module 1: An Introduction to Python

- Introductory Remarks about Python
- Strengths and Weaknesses
- A Brief History of Python
- Python Versions
- Installing Python
- Environment Variables
- Executing Python from the Command Line
- IDLE
- Editing Python Files
- Getting Help
- Dynamic Types
- Python Reserved Words
- Naming Conventions

Module 2: Basic Python Syntax

- Introduction
- Basic Syntax
- Comments
- String Values
- String Operations
- The format Method
- String Slices
- String Operators
- Numeric Data Types
- Simple Input and Output
- The print Function

Module 3: Language Components

- Introduction
- Control Flow and Syntax
- Indenting
- The if Statement
- Relational Operators
- Logical Operators
- True or False
- Bit Wise Operators
- The while Loop
- break and continue
- The for Loop

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Module 4: Collections

- Introduction
- Lists
- Tuples
- Sets
- Dictionaries
- Sorting Dictionaries
- Copying Collections

Module 5: Functions

- Introduction
- Defining Your Own Functions
- Parameters
- Function Documentation
- Keyword and Optional Parameters
- Passing Collections to a Function
- Variable Number of Arguments
- Scope
- Functions - "First Class Citizens"
- Passing Functions to a Function
- Mapping Functions in a Dictionary
- Lambda
- Closures

Module 6: Modules

- Modules
- Standard Modules - sys
- Standard Modules - math
- Standard Modules - time
- The dir Function

Module 7: Exceptions

- Errors
- Run Time Errors
- The Exception Model
- Exception Hierarchy
- Handling Multiple Exceptions
- raise
- assert
- Writing Your Own Exception Classes

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Module 8: Input and Output

- Introduction
- Data Streams
- Creating Your Own Data Streams
- Access Modes
- Writing Data to a File
- Reading Data From a File
- Additional File Methods
- Using Pipes as Data Streams
- Handling IO Exceptions
- Working with Directories
- Metadata
- The pickle Module

Module 9: Classes in Python

- Classes in Python
- Principles of Object Orientation
- Creating Classes
- Instance Methods
- File Organization
- Special Methods
- Class Variables
- Inheritance
- Polymorphism
- Type Identification
- Custom Exception Classes
- Class Documentation - pydoc

Module 10: Regular Expressions

- Introduction
- Simple Character Matches
- Special Characters
- Character Classes
- Quantifiers
- The Dot Character
- Greedy Matches
- Grouping
- Matching at Beginning or End
- Match Objects
- Substituting
- Splitting a String
- Compiling Regular Expressions
- Flags

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Module 11: Accessing Database

- Using the dbm libraries to create persistent dictionaries
- About relational databases
- Setting up the Sqlite Database
- Setting up the MySQL database
- Working with the Python DB API
- Creating connections
- Accessing data with cursors
- Connecting to databases
- Querying and modifying data
- Working with transactions
- Handling errors
- Using other database tools

Module 12: Using Python for XML

- Create and Manipulate XML
- Validate XML
- Working with pre-defined Libraries

Module 13: Networking Programming

- Using predefined Libraries
- Compose, Send and Receive e-mail
- Programming for sending and receiving the data in custom formats
- Basics of socket programming

Module 14: An Introduction to Django

- Use of Django
- Installation of Framework
- MVC/MTV Architecture
- Create Views & Templates
- Incorporate Database into Django web applications
- Introduction to Pyramid, Bottle, Flask, etc.

Module 15: Python web programming

- Python CGI programming
- Using Python to generate HTML and XML pages
- Implementing simple HTTP servers using Python
- Overview of Web services
- Overview of Python based web services frameworks

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