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#### **Python Training Course Duration**

- 45 Days, Daily 1 Hours

## **Python Course Content**

### **Core Python**

#### **• Python Course Content**

- **2.1 Core Python**
  - 2.1.1 Introduction to Script
  - 2.1.2 Introduction to Python
  - 2.1.3 Different Modes in PYTHON
  - 2.1.4 PYTHON NEW IDEs
  - 2.1.5 Variables in Python
  - 2.1.6 String Handling
  - 2.1.7 Python Operators and Operands
  - 2.1.8 Python Conditional Statements
  - 2.1.9 Python LOOPS
  - 2.1.10 Learning Python Strings
  - 2.1.11 Sequence or Collections in PYTHON
  - 2.1.12 Python Lists
  - 2.1.13 Python TUPLE
  - 2.1.14 Python Sets
  - 2.1.15 Python Dictionary
  - 2.1.16 Python Functions
- **2.2 Advanced Python**
  - 2.2.1 Python Modules
  - 2.2.2 Packages in Python
  - 2.2.3 Python Date and Time
  - 2.2.4 File Handling
  - 2.2.5 Python OS Module
  - 2.2.6 Python Exception Handling
  - 2.2.7 More Advanced PYTHON
  - 2.2.8 Python Class and Objects
  - 2.2.9 Python Regular Expressions
  - 2.2.10 Python XML Parser
  - 2.2.11 Python-Data Base Communication
  - 2.2.12 Multi-Threading



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## **Introduction to Script**

- What is Script, program?
- Types of Scripts
- Difference between Script and Programming Languages
- Features and Limitation of Scripting
- Types of programming Language Paradigms

## **Introduction to Python**

- What is Python?
- Why Python?
- Who Uses Python?
- Characteristics of Python
- History of Python
- What is PSF?
- Python Versions
- How to Download and Install Python
- Install Python with Diff IDEs
- Features and Limitations of Python
- Python Applications
- Creating Your First Python Program
- Printing to the Screen
- Reading Keyboard Input
- Using Command Prompt and GUI or IDE
- Python Distributions

## **Different Modes in PYTHON**

- Execute the Script
- Interactive and Script Mode
- Python File Extensions
- SETTING PATH IN Windows
- Clear screen inside python
- Learn Python Main Function
- Python Comments
- Quit the Python Shell
- Shell as a Simple Calculator
- Order of operations
- Multiline Statements
- Quotations in Python
- Python Path Testing
- Joining two lines
- Python Implementation Alternatives
- Sub Packages in Python
- Uses of Python in Data Science, IoT
- Working with Python in Unix/Linux/Windows/Mac/Android...!!

## **PYTHON NEW IDEs**

- PyCharm IDE
- How to Work on PyCharm



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- PyCharm Components
  - Debugging process in PyCharm
  - PYTHON Install Anaconda
  - What is Anaconda?
  - Coding Environments
  - Spyder Components
  - General Spyder Features
  - Spyder Shortcut Keys
  - Jupyter Notebook
  - What is Conda? and Conda List?
  - Jupyter and Kernels
  - What is PIP?

### **Variables in Python**

- What is Variable?
- Variables and Constants in Python
- Variable, Variable names and Value
- Mnemonic Variable Names
- Values and Types
- What Does "Type" Mean?
- Multiple Assignment
- Python different numerical types
- Standard Data Types
- Operators and Operands
- Order of Operations
- Swap variables
- Python Mathematics
- Type Conversion
- Mutable Versus Immutable Objects

### **String Handling**

- What is string?
- String operations and indices
- Basic String Operations
- String Functions, Methods
- Delete a string
- String Multiplication and concatenation
- Python Keywords, Identifiers and Literals
- String Formatting Operator
- Structuring with indentation in Python
- Built-in String Methods
- Define Data Structure?
- Data Structures in PYTHON

### **Python Operators and Operands**

- Arithmetic, Relational Operators and Comparison Operators
- Python Assignment Operators
- Short hand Assignment Operators
- Logical Operators or Bitwise Operators



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- Membership Operators
  - Identity Operators
  - Operator precedence
  - Evaluating Expressions

### **Python Conditional Statements**

- How to use "if condition" in conditional structures
- if statement (One-Way Decisions)
- if .. else statement (Two-way Decisions)
- How to use "else condition"
- if .. elif .. else statement (Multi-way)
- When "else condition" does not work
- How to use "elif" condition
- How to execute conditional statement with minimal code
- Nested IF Statement

### **Python LOOPS**

- How to use "While Loop" and "For Loop"
- How to use For Loop for set of other things besides numbers
- Break statements, Continue statement, Enumerate function for For Loop
- Practical Example
- How to use for loop to repeat the same statement over and again
- Break, continue statements

### **Learning Python Strings**

- Accessing Values in Strings
- Various String Operators
- Some more examples
- Python String replace() Method
- Changing upper and lower case strings
- Using "join" function for the string
- Reversing String
- Split Strings

### **Sequence or Collections in PYTHON**

- Strings
- Unicode Strings
- Lists
- Tuples
- buffers
- xrange

### **Python Lists**

- Lists are mutable
- Getting to Lists
- List indices



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- Traversing a list
  - List operations, slices and methods
  - Map, filter and reduce
  - Deleting elements
  - Lists and strings

### **Python TUPLE**

- Advantages of Tuple over List
- Packing and Unpacking
- Comparing tuples
- Creating nested tuple
- Using tuples as keys in dictionaries
- Deleting Tuples
- Slicing of Tuple
- Tuple Membership Test
- Built-in functions with Tuple
- Dotted Charts

### **Python Sets**

- How to create a set?
- Iteration Over Sets
- Python Set Methods
- Python Set Operations
- Union of sets
- Built-in Functions with Set
- Python Frozenset

### **Python Dictionary**

- How to create a dictionary?
- PYTHON HASHING?
- Python Dictionary Methods
- Copying dictionary
- Updating Dictionary
- Delete Keys from the dictionary
- Dictionary items() Method
- Sorting the Dictionary
- Python Dictionary in-built Functions
- Dictionary len() Method
- Variable Types
- Python List cmp() Method
- Dictionary Str(dict)

### **Python Functions**

- What is a function?
- How to define and call a function in Python
- Types of Functions
- Significance of Indentation (Space) in Python
- How Function Return Value?



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- Types of Arguments in Functions
  - Default Arguments and Non-Default Arguments
  - Keyword Argument and Non-keyword Arguments
  - Arbitrary Arguments
  - Rules to define a function in Python
  - Various Forms of Function Arguments
  - Scope and Lifetime of variables
  - Nested Functions
  - Call By Value, Call by Reference
  - Anonymous Functions/Lambda functions
  - Passing functions to function
  - map(), filter(), reduce() functions
  - What is a Docstring?

## **Advanced Python**

### **Python Modules**

- What is a Module?
- Types of Modules
- The import Statement
- The from...import Statement
- ..import \* Statement
- Underscores in Python
- The dir() Function
- Creating User defined Modules
- Command line Arguments
- Python Module Search Path

### **Packages in Python**

- What is a Package?
- Introduction to Packages?
- py file
- Importing module from a package
- Creating a Package
- Creating Sub Package
- Importing from Sub-Packages
- Popular Python Packages

### **Python Date and Time**

- How to Use Date & DateTime Class
- How to Format Time Output
- How to use Timedelta Objects
- Calendar in Python



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- datetime classes in Python
  - How to Format Time Output?
  - The Time Module
  - Python Calendar Module
  - Python Text Calendar, HTML Calendar Class
  - Unix Date and Time Commands

### **File Handling**

- What is a data, Information File?
- File Objects
- File Different Modes and Object Attributes
- How to create a Text File and Append Data to a File and Read a File
- Closing a file
- Read, read line, read lines, write, write lines...!!
- Renaming and Deleting Files
- Directories in Python
- Working with CSV files and CSV Module
- Handling IO Exceptions

### **Python OS Module**

- Shell Script Commands
- Various OS operations in Python
- Python File System Shell Methods

### **Python Exception Handling**

- Python Errors
- Common RunTime Errors in PYTHON
- Abnormal termination
- Chain of importance Of Exception
- Exception Handling
- Try ... Except
- Try .. Except .. else
- Try ... finally
- Argument of an Exception
- Python Custom Exceptions
- Ignore Errors
- Assertions
- Using Assertions Effectively

### **More Advanced PYTHON**

- Python Iterators, Generators, Closures, Decorators and Python @property

### **Python Class and Objects**

- Introduction to OOPs Programming



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- Object Oriented Programming System
  - OOPS Principles
  - Define Classes
  - Creating Objects
  - Class variables and Instance Variables Constructors
  - Basic concept of Object and Classes
  - Access Modifiers
  - How to define Python classes
  - Python Namespace
  - Self-variable in python
  - Garbage Collection
  - What is Inheritance? Types of Inheritance?
  - How Inheritance works?
  - Python Multiple Inheritance
  - Overloading and Over Riding
  - Polymorphism
  - Abstraction
  - Encapsulation
  - Built-In Class Attributes

#### **Python Regular Expressions**

- What is Regular Expression?
- Regular Expression Syntax
- Understanding Regular Expressions
- Regular Expression Patterns
- Literal characters
- Repetition Cases
- Example of w+ and ^ Expression
- Example of \s expression in re.split function
- Using regular expression methods
- Using re.match()
- Finding Pattern in Text (re.search())
- Using re.findall for text
- Python Flags
- Methods of Regular Expressions

#### **Python XML Parser**

- What is XML?
- Difference between XML and HTML and XML, JSON, Gson
- How to Parse XML and Create XML Node
- Python vs JAVA
- XML and HTML

#### **Python-Data Base Communication**

- What is Database? Types of Databases?
- What is DBMS?, RDBMS?
- What is Big Data? Types of data?
- Oracle
- MySQL





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- SQL server
  - DB2
  - Postgre SQL
  - Executing the Queries
  - Bind Variables
  - Installing of Oracle Python Modules
  - Executing DML Operations..!!

### **Multi-Threading**

- What is Multi-Threading
- Threading Module
- Defining a Thread
- Thread Synchronization