

PYTHON

(Core & Advance Python Scripting)

CORE PYTHON

Introduction to Script

- ✓ What is SCRIPT
- ✓ What is a program?
- ✓ Types of Scripts
- ✓ Difference between Script & Programming Languages
- ✓ Features of Scripting
- ✓ 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
- ✓ How to Install Python
- ✓ Install Python with Diff IDEs
- ✓ Features of Python
- ✓ Limitations of Python
- ✓ Python Applications
- ✓ Creating Your First Python Program
- ✓ Printing to the Screen

Different Modes in PYTHON

- ✓ Execute the Script
- ✓ Interactive Mode
- ✓ Script Mode
- ✓ Python File Extensions

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- ✓ SETTING PATH IN Windows
- ✓ Clear screen inside python
- ✓ Learn Python Main Function
- ✓ Python Comments
- ✓ Quit the Python Shell
- ✓ Quotations in Python
- ✓ Python Path Testing
- ✓ Joining two lines
- ✓ Python Implementation Alternatives
- ✓ Python Sub Packages
- ✓ Uses of Python in Data Science
- ✓ USES OF PYTHON IN IOT

PYTHON NEW IDEs

- ✓ PyCharm IDE
- ✓ How to Work on PyCharm
- ✓ 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?
- ✓ Conda List?
- ✓ Jupyter and Kernels
- ✓ What is PIP?

Variables in Python

- ✓ What is Variable?
- ✓ Variables in Python
- ✓ Constants in Python
- ✓ Variable and Value
- ✓ Variable names
- ✓ Mnemonic Variable Names
- ✓ Values and Types
- ✓ What Does "Type" Mean?
- ✓ Multiple Assignment

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- ✓ 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
- ✓ String indices
- ✓ Basic String Operations
- ✓ String Functions, Methods
- ✓ Delete a string
- ✓ String Multiplication and concatenation
- ✓ Python Keywords
- ✓ Python Identifiers
- ✓ Python 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 Operators
- ✓ Relational Operators
- ✓ Comparison Operators
- ✓ Python Assignment Operators
- ✓ Short hand Assignment Operators
- ✓ Logical Operators or Bitwise Operators
- ✓ Membership Operators
- ✓ Identity Operators
- ✓ Operator precedence
- ✓ Evaluating Expressions

Python Conditional Statements:

- ✓ How to use "if condition" in conditional structures
- ✓ if statement (One-Way Decisions)

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- ✓ 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"
- ✓ How to use "For Loop"
- ✓ How to use For Loop for set of other things besides numbers
- ✓ Break statements in For Loop
- ✓ Continue statement in For Loop
- ✓ 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

Python Lists

- ✓ Lists are mutable
- ✓ Getting to Lists
- ✓ List indices
- ✓ Traversing a list
- ✓ List operations
- ✓ List slices
- ✓ List methods
- ✓ Map, filter and reduce
- ✓ Deleting elements
- ✓ Lists and strings

Python TUPLE

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- ✓ 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
 - Non-Default Arguments
 - Keyword Arguments
 - Non-keyword Arguments
 - Arbitrary Arguments
- ✓ Rules to define a function in Python
- ✓ Various Forms of Function Arguments
- ✓ Scope and Lifetime of variables
- ✓ Nested Functions
- ✓ 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
- ✓ from...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?
- ✓ __init__.py file
- ✓ Importing module from a package
- ✓ Creating a Package
- ✓ Creating Sub Package
- ✓ Importing from Sub-Packages
- ✓ Popular Python Packages

Python Date & Time

- ✓ How to Use Date & DateTime Class

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- ✓ How to Format Time Output
- ✓ How to use Timedelta Objects
- ✓ Calendar in Python
- ✓ datetime classes in Python
- ✓ How to Format Time Output?
- ✓ The time Module
- ✓ Python Calendar Module
- ✓ Python TextCalendar
- ✓ Python HTMLCalendar Class
- ✓ Unix Date and Time Commands

File Handling

- ✓ What is a data, Information File?
- ✓ File Objects
- ✓ File Different Modes
- ✓ file Object Attributes
- ✓ How to create a Text File
- ✓ How to Append Data to a File
- ✓ How to 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
- ✓ Working with CSV Module

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

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- ✓ Python Custom Exceptions
- ✓ Ignore Errors
- ✓ Assertions
- ✓ Using Assertions Effectively

More Advanced PYTHON

- ✓ Python Iterators
- ✓ Python Generators
- ✓ Python Closures
- ✓ Python Decorators
- ✓ Python @property

Python Class & Objects

- ✓ Introduction to OOPs Programming
- ✓ 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

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- ✓ 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 XML Parser

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

Python-Data Base Communication

- ✓ What is Database? Types of Databases?
- ✓ What is DBMS?
- ✓ What is RDBMS?
- ✓ What is Big Data? Types of data?
- ✓ Oracle
- ✓ MySQL
- ✓ SQL server
- ✓ DB2
- ✓ Postgre SQ-
- ✓ 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

Introduction to Web scrapping

- ✓ The components of a web page
- ✓ BeautifulSoup
- ✓ HTML,CSS,JS,jQuery

Introduction to Unit Testing with PyUnit

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- ✓ What is Testing?
- ✓ Types of Testings and Methods?
- ✓ What is Unit Testing?
- ✓ What is PyUnit?
- ✓ Test scenarios, Test Cases, Test suites

Introduction to PYTHON WEB Frameworks

- ✓ Django – Design
- ✓ Advantages of Django
- ✓ MVC and MVT
- ✓ Installing Django

GUI Programming-Tkinter

- ✓ Introduction
- ✓ Components and Events
- ✓ Adding Controls
- ✓ Entry Widget, Text Widget, Radio Button, Check Button

Data Analytics

- ✓ Introduction to data Big Data?
- ✓ Introduction to NumPY and SciPY
- ✓ Introduction to Pandas and MatPlotLib

Introduction to Machine Learning with PYTHON

- ✓ What is Machine learning?
- ✓ Machine Learning Methods
- ✓ Predictive Models
- ✓ Descriptive Models
- ✓ What are the steps used in Machine Learning?
- ✓ What is Deep Learning?

Introduction to Data Science

- ✓ What is Data Science?
- ✓ Data Science Life Cycle?
- ✓ What is Data Analysis
- ✓ What is Data Mining
- ✓ Analytics vs Data Science

Introduction to Internet of Things

- ✓ IMPACT OF THE INTERNET
- ✓ What is IOT
- ✓ History of IoT
- ✓ What is Network?
- ✓ What is Protocol?

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- ✓ What is smart?
- ✓ How IoT Works?
- ✓ The Future of IoT



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