

Python



Python

Duration: 2.5 Months

Introduction To Python

- Why Python
- Application areas of python
- Python implementations
 - Cpython
 - Jython
 - Ironpython
 - Pypy
- Python versions
- Installing python
- Python interpreter architecture
 - Python byte code compiler
 - Python virtual machine(pvm)

Writing and Executing First Python Program

- Using interactive mode
- Using script mode
 - General text editor and command window
 - Idle editor and idle shell
- Understanding print() function
- How to compile python program explicitly

Python Language Fundamentals

- Character set
- Keywords
- Comments
- Variables
- Literals
- Operators
- Reading input from console
- Parsing string to int, float

Python Conditional Statements

- If statement
- If else statement
- If elif statement
- If elif else statement
- Nested if statement

Looping Statements

- While loop
- For loop
- Nested loops
- Pass, break and continue keywords

Standard Data Types

- Int, float, complex, bool, nonetype
- Str, list, tuple, range
- Dict, set, frozenset

String Handling

- What is string
- String representations
- Unicode string
- String functions, methods
- String indexing and slicing
- String formatting

Python List

- Creating and accessing lists
- Indexing and slicing lists
- List methods
- Nested lists
- List comprehension

Python Tuple

- Creating tuple
- Accessing tuple
- Immutability of tuple

Python Set

- How to create a set
- Iteration over sets
- Python set methods
- Python frozenset

Python Dictionary

- Creating a dictionary
- Dictionary methods
- Accessing values from dictionary
- Updating dictionary
- Iterating dictionary
- Dictionary comprehension

Python Functions

- Defining a function
- Calling a function
- Types of functions
- Function arguments
 - Positional arguments, keyword arguments
 - Default arguments, non-default arguments
 - Arbitrary arguments, keyword arbitrary arguments
- Function return statement
- Nested function
- Function as argument
- Function as return statement
- Decorator function
- Closure
- Map(), filter(), reduce(), any() functions
- Anonymous or lambda function

Modules & Packages

- Why modules
- Script v/s module
- Importing module
- Standard v/s third party modules
- Why packages
- Understanding pip utility

File I/O

- Introduction to file handling
- File modes
- Functions and methods related to file handling
- Understanding with block

Regular Expressions(Regex)

- Need of regular expressions
- Re module
- Functions /methods related to regex
- Meta characters & special sequences

Object Oriented Programming

- Procedural v/s Object Oriented Programming
- OOP Principles
- Defining a Class & Object Creation
- Inheritance
- Encapsulation
- Polymorphism
- Abstraction
- Garbage Collection
- Iterator & Generator

Exception Handling

- Difference Between Syntax Errors and Exceptions
- Keywords used in Exception Handling
 - try , except , finally , raise , assert
- Types of Except Blocks
- User-defined Exceptions

GUI Programming

- Introduction to Tkinter Programming
- Tkinter Widgets
- Layout Managers
- Event handling
- Displaying image

Multi-Threading Programming

- Multi-processing v/s Multi-threading
- Need of threads
- Creating child threads
- Functions /methods related to threads
- Thread synchronization and locking

SQL Using MySQL

Introduction to RDBMS

- What is Relational Database Package
- Difference between SQL & Database
- Installing MySQL Server database

SQL Basic

- DDL: Create, Alter, Drop, etc.
- DML: Insert, Update, Delete ,etc.
- DQL : Select
- Autoincrement field
- SQL Comments
- SQL Aliases
- Savepoint & rollback

SQL Constraints

- Not NULL, Unique key
- Primary key, Check
- Default, Foreign key

SQL Operators

- Arithmetic operators
- Logical operators
- Conditional operators
- Like, between, in operators

SQL Clauses

- Order by
- Where
- Limit/top
- Group by
- having

SQL Joins

- Inner Join
- Left Join
- Right Join
- Full Join

SQL View

- creating view
- updating view
- fetching data from view

SQL Functions

- String functions
- Aggregate functions
- Date & time functions

Stored Procedures & Functions

- Understanding stored procedures and their key benefits
- Working with stored procedures
- Studying user-defined functions

Working with CSV Files:

- How to write result to csv file
- How to read csv file

Python Database Connectivity

- Database Drivers and connectors
- Creating connection object
- Understanding cursor object
- Executing SQL statements using cursor
- Fetching records from cursor
- Storing and retrieving Date and Time

MONGODB

Introduction To MongoDB

- Understanding NoSQL DB
- NoSQL vs. SQL DB
- Understanding Mongo DB
- Downloading & Installation
- Introduction of MongoDB shell and Compass
- Understanding database, collection & document

Crud Operations

- Insert Document
- Delete Document

- Update Document
- Query Document

Operators In MongoDB

- Query and Projection operators
- Update operator
- Aggregation Pipeline operators

Methods In MongoDB

- limit and sort
- bulk methods
- other methods

Indexing And Relationships

- Types of Indexes
- Creating an Indexes
- Dropping an Indexes
- Defining Relationships between Documents

Python Connectivity With MongoDB

- Introduction to pymongo
- Installing pymongo module
- MongoClient
- Getting database and collection
- CRUD operations
- Range Queries

Partners :



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