

CETPA INFOTECH PVT. LTD.

CURRICULUM OF PYTHON

INTRODUCTION

- Why do we need Python?
- Program structure
- Interactive Shell
- Executable or script files.
- User Interface or IDE

GETTING STARTED

- History & need of Python
- Application of Python
- Advantages of Python
- Disadvantages of Python
- Installing Python

PYTHON FUNDAMENTALS

- Working With Interactive Mode
- Working With Script Mode
- Python Character Set
- Python Tokens-
Keywords, Identifiers, Literals, Operators
- Variables and Assignments
- Input and Output Functions in Python

DATA HANDLING

- **Data Types**
 - Numbers
 - Strings
 - Lists
 - Tuples
 - Dictionary
 - Mutable and Immutable Data Types
- **Operators**
 - Arithmetic Operators
 - Relational Operators
 - Logical Operators
 - Operators Precedence
 - Evaluating Expression
 - Type Casting

CONDITIONAL AND LOOPING

CONSTRUCTS

If Statements of Python

- The if Statement
- The if-else Statement
- The if-elif Statement
- Nested if Statements

- **Looping and Iteration**

- The For Loop
- The While Loop
- Loop Else Statement
- Nested Loops
- Break and Continue

- **The Range Function**

INTRODUCTION TO FUNCTIONS AND

MODULES

- Using a Functions
- Python Function Types
- Structure of Python Modules
- Importing Modules in Python Programs
- Invoking Python's Built In Functions
- Working With Random Modules

USER DEFINED FUNCTIONS

- Structure of a Python Program w.r.t. UDF
- Invoking UDF
- Flow of Execution
- Arguments and Parameters
- Default Arguments, Named Arguments
- Scope of Variables

STRING MANIPULATION

- Introduction to Python String
- Accessing Individual Elements
- String Operators
- String Slices
- String Functions and Methods

LIST MANIPULATION

- Introduction to Python List
- Creating List
- Accessing List
- Joining List
- Replicating List
- List Slicing

TUPLES

- Introduction to Tuples
- Creating Tuples
- Accessing Tuples
- Joining Tuples
- Replicating Tuples
- Tuple Slicing

DICTIONARIES

- Introduction
- Accessing values in dictionaries
- Working with dictionaries
- Properties

OOP CONCEPTS

- Procedural Vs Modular Programming
- The Object Oriented Programming
- Data Abstraction
- Data Hiding
- Encapsulation
- Modularity
- Inheritance
- Polymorphism

CLASSES AND OBJECTS

- Classes As User Defined Data Type
- Objects as Instances of Classes
- Defining Class
- Creating Objects
- Creating Objects By Passing Values
- Variables & Methods in a Class

FILE OPERATIONS

- Opening a file
- Using Files
- Other File tools

EXCEPTION HANDLING

- Default Exception Handler
- Catching Exceptions
- Raise an exception
- User defined exception

DATABASE

- Introduction
- Connections
- Executing queries
- Transactions
- Handling error

MULTITHREADING

- Thread
- Starting a thread
- Threading module
- Synchronizing threads
- Multithreaded Priority Queue

GUI PROGRAMMING

- Introduction to-
- Tkinter programming
- Tkinter widgets

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