PYTHON CURRICULUM

CORE PYTHON

INTRODUCTION TO PYTHON

- ✓ What Is Python?

- ✓ History Of Python

- ✓ Features Of Python

- ✓ Applications Of Python

THE PYTHON ENVIRONMENT

- ✓ Downloading Of Python

- ✓ Installation Of Python

- ✓ Setting Path For Python

- ✓ Installation Of Python IDE ?

GETTING STARTED OF PYTHON

PYTHON SYNTAX:

- ✓ What Is PEP 8 ?

- ✓ Various Structures In Python :

    - o Line Structure

    - o Multi line Statements (Line Joining)

    - o Comments

    - o Doc Strings

    - o Indentation

    - o Multiple Statements in One Line

    - o Python Quotations

- ✓ Deleting and Updating from a string

- ✓ String Formatting

- ✓ String Repetition & Concatenation

- ✓ Escape Sequences

- ✓ String Methods

OPERATORS

- ✓ What Is An Operator ?

- ✓ Types Of Operators :

  - o Arithmetic Operators

  - o Assignment Operators

  - o Relational Operators

  - o Logical Operators

  - o Bitwise Operators

  - o Boolean Operators

  - o Membership Operators

  - o Identity Operators

CONDITIONAL STATEMENTS IN PYTHON

- ✓ Purpose Of Conditional Statements

- ✓ If statement

- ✓ If … else

- ✓ If….elf….

- ✓ Nested if statement

LOOPING STATEMENTS IN PYTHON

- ✓ Purpose of Looping statements
- ✓ While Loop
- ✓ For Loop
- ✓ What Is Range()
- ✓ Range() In For Loop
- ✓ Infinite & Nested Loops

CONTROL STATEMENTS IN PYTHON

- ✓ What is control statements
- ✓ Purpose of control statements
- ✓ Break Statement
- ✓ Continue Statement
- ✓ Pass Statement

FUNCTIONS

- ✓ What s Function
- ✓ Why Function
- ✓ Types Of Functions
    - o Built-In Functions
    - o User Defined Function
- ✓ How To Define UDF
- ✓ Calling UDF
- ✓ What Is Argument

- ✓ Types Of Arguments

- ✓ What Is Return?

- ✓ Global Variables & Local Variables

- ✓ Passing Collections To Function

- ✓ Passing Function To Function

- ✓ What Is Lambda Function

- ✓ Filter() , Map() & Reduce()

- ✓ What Is Recursive Function

COLLECTIONS

- ✓ Introduction To Collections

I. List

- ✓ Creation Of Lists

- ✓ List Indexing And Slicing

- ✓ Applying Iterations On List Objects

- ✓ Eliminating Duplicate Elements Of List

- ✓ Working With Methods Of List

II. Tuple:

- ✓ Creation Of Tuple

- ✓ Tuple Indexing And Slicing

- ✓ Applying Iterations On Tuple Objects

- ✓ Working With Methods Of Tuple

- ✓ Difference Between List And Tuple

III. Set :

- ✓ Normal & Frozen Sets

- ✓ Working With Methods Of Set

- ✓ Differences Between List, Tuple & Set

IV. Dictionary :

- ✓ Creation Of Dict

- ✓ Dictionary Keys and Values

- ✓ Applying Iterations On Dictionary Objects

- ✓ Methods Of Dictionary

EXCEPTION HANDLING

- ✓ What Is An Error

- ✓ Type Of Errors

- ✓ What Is An Exception?

- ✓ Types Of Exceptions

- ✓ Blocks Of An Exception

- ✓ Predefined Exceptions

- ✓ What Is Assert Statement

- ✓ How To Handle Multiple Exceptions

PACKAGES & MODULES

- ✓ What Is Package ?

- ✓ Create and Access a Python Package

- ✓ What Is Module?

- ✓ Types Of Modules

- ✓ What Is From…Import

- ✓ Properties Of Module

- ✓ Date & Time Module

- ✓ Calendar Module

- ✓ Math Module

- ✓ Random Module

- ✓ What Is User Defined Module

- ✓ How To Create & Import UDM

PYTHON DIRECTORIES

- ✓ What Is Directory?

- ✓ What Is Dir() & Os Module

- ✓ Getcwd(), Mkdir(), Makedirs() Listdir(),Chdir()

- ✓ Rename(), Rmdir(), Removedirs()

- ✓ What Is Path, Isfile()

Advance Python

OOPS

- ✓ Problems in procedural oriented approach

- ✓ Features of object-oriented programming system

- ✓ **Classes & Objects :**

  - o What is class & Creating class

  - o What is self ?

  - o What is constructor ?

  - o Types of variables

  - o Types of methods

  - o Defining methods

  - o What is object ?

  - o How to call properties of class

  - o Passing members of one class to another class

  - o Inner classes

- ✓ **INHERITENCE**

  - o What is Inheritance

  - o Types of Inheritance

      o   Overriding super class constructors & methods

      o   What is super( )

✓ **POLYMORPHISM**

      o   Operator Overloading

      o   Method Overloading

      o   Method Overriding

✓ **ENCAPSULATION**

✓ **ABSTRACT CLASS**

✓ Decorators & Generators

✓ Iterables , Iterators , Iterators

THREADS IN PYTHON / MULTITHREADING :

✓ What is threading

✓ Uses of threads

✓ Creating threads in python

✓ Creating a thread without using class

✓ Creating a thread by creating a subclass to Thread class

✓ Creating a thread without creating a subclass to Thread class

- ✓ Thread class methods

- ✓ Starting thread

- ✓ Single tasking using a thread

- ✓ Multitasking using multiple threads

USER DEFINED EXCEPTIONS

- ✓ What is user defined exception

- ✓ Why user defined exceptions

- ✓ How to create user defined exception

- ✓ What is raise

- ✓ Real time scenarios on user defined exceptions

REGULAR EXPRESSIONS

- ✓ What are regular expressions

- ✓ Forming Regular expressions

- ✓ Methods of regular expressions

- ✓ Sequence characters in regex

- ✓ Quantifiers in regex

- ✓ Special characters in regex