

Python with Django

Objective: To work with Windows and Web Based Application using Python Packages and Interacting with Database

Pre-requisites: Basic fundamentals of programming language and some web based languages HTML, CSS and JavaScript Fundamentals

Session 1 (Beginning with Python)

- Installing Python, Introduction to Python
- Data Types, Variables, Operators
- Basic Syntax of Python Programming
- Input/Output, Your First Python Program

Session 2 (Control Statements and Looping)

- Flow of Control (Modules, Branching)
- If, If-else, Nested of If-Else Statements
- Introduction to Looping in Python
- While and For Loop
- Nested Loops in Python, Control Structures
- Uses of Break and Continue

Session 3 (Working with Strings)

- Pass, Strings and Tuples, Accessing Strings
- Basic Operations, Formatting Strings
- Accessing Multiple Values at Once
- String Slicing Operations

Session 4 (Working with Dictionaries)

- Introduction to Dictionaries
- Defining and Modifying Dictionaries
- Introducing Dictionaries with Advanced Iteration
- Deleting Items from Dictionaries

Session 5 (Working with Lists)

- Working with Lists, Introducing Lists

- Adding Elements to Lists, Searching Lists
- Defining Lists, Declare, Assign and Retrieve Values from the List
- Deleting List Elements, Using List Operators
- Accessing Lists, Operation in Lists
- Mapping List, Joining Lists and Splitting Strings Historical Note on String Methods

Session 6 (Working with Functions)

- Function and Methods
- Anonymous Function, Global and Local Variables
- Defining a Function, Calling a Function
- Using Optional and Named Arguments Functions
- Types of Function, Function Arguments
- Using type, str, dir and other Built-In Functions

Session 7 (Working with Tuples)

- Introducing Tuples, Accessing Tuples
- Slicing with Tuples
- Other Operations with Tuples
- Practical Examples with Tuples

Session 8 (Basics of OOPS)

- Object Oriented Python, OOPs Concepts
- Object, Indenting Code, Native Data Types
- Declaring Variables, Referencing Variables
- Object References, Class and Object
- Attributes, Inheritance, Overloading
- Overriding, Data Hiding, Regular Expression

Session 9 (Exception Handling)

- Operations Exception
- Try Finally Clause
- Exception Handling, Except Clause
- User Defined Exceptions

Session 10 (Introduction to Tkinter)

- Working with Python GUI
- Working with Tkinter Events
- Tkinter Widgets Attributes

- Introduction to Tkinter Widgets
- Designing Tkinter Forms
- Tkinter Menu, Combobox, etc.

Session 11 (Working with Databases)

- Introduction to MySQL, SQL Introduction
- Working with PyMySQL
- Working with CRUD Operation in Python
- Working with SQL, Basic SQL Commands
- Working with SQL Joining with Python
- Working with SQL Functions
- Working with Keys and Constraints
- Project Development using Tkinter and MySQL

Session 12 (Working with Files I/O)

- Introduction to File, File Types
- File Manipulating using seek() and tell()
- Opening and Closing Files, File Opening Modes
- File and Directory Related Methods

Session 13 (Working with Network Programming)

- Introduction to Sockets, Client vs Server
- Server, Client and General Socket Methods
- Writing Client and Server code in Python
- Protocols used in Client/Server Architecture

Session 14 (Working with Emails)

- Introduction to smtplib, Email Protocols
- Sending mails using SMTP Methods
- SMTP Methods and its parameters
- Sending Attachments as an Email

Session 15 (Working with Multithreading)

- Introduction to Threads and Process
- Different Types of Threads, Thread Modules
- Starting a New Thread, The Thread Modules
- Create Thread using Threading Module
- Thread Synchronization

- Multithreaded Priority Queue

Session 16 (Introduction to Python GUI-Graphical User Interface)

- Introduction to PyQt5, PyQt5 Programming
- PyQt5 More Widgets Control with Programming
- PyQt5 Widgets
- PyQt5 with CRUD Operation with Database

Session 17 (Introduction to XML Processing)

- Introduction to XML, DTD with Examples
- XML Parser Architectures and APIs (SAX & DOM)
- Working with SAX Parser and its methods
- Parsing XML document using DOM APIs

Session 18 (Working with Django Web Framework)

- Installing Django, Setting Up Django
- Working with Web Application Development
- Django API, Django Admin App, Django Views
- Django Templates
- CRUD Operation using Django
- Working with Django with BootStrap 4.0
- Working with Django Forms
- Django Class View, Model Mixin, Inbuilt Classes for CRUD Operation
- Working with Django static files and JQuery Files
- Working with Django Validation with Forms

Session 19 & 20 (JSON and REST Architecture and AJAX)

- Introduction to JSON, Web Services in Python
- Introduction to AJAX, AJAX Architecture
- How AJAX Works, AJAX JS Code, Asynchronous vs Synchronous
- Fetching data behind the scene using AJAX
- Class Examples based on AJAX

Session 21 (Working with Tasty-Pie using Django Framework)

- Getting Started with Tastypie
- Interacting With The API
- Tastypie Settings
- Using Tastypie With Non-ORM Data Sources

- Python 3 Support
- Resource Fields
- Validation
- Authentication and Authorization
- Serialization and Paginator