

Python Syllabus

FDP

1] CORE PYTHON

An Introduction to Python:-

- What is Python and history of Python?
- Features of Python.
- Installation and Working with Python.
- Understanding Python variables.
- Python basic Operators.
- Python Identifiers, Keywords and Indentation.
- Understanding python blocks.
- Command line arguments.
- Getting User Input.
- Python Data Types.
- What are variables?
- Python Core objects and Functions.

Program Flow Control :-

- Conditional blocks using if, else and else if.
- For loops in python.
- For loop using ranges, string, list and dictionaries.
- Use of while loops in python.
- Loop manipulation using pass, continue, break and else.
- Programming using Python conditional and loops block.

Logic Building :-

- Condition Based Problems.
- Looping Related Problems.
- Numeric Logical Problems.
- String Logical Problems.
- Sorting Problems.
- Design Patterns.

List, Ranges, Dictionaries, Tuples and Sets in Python:-

- Introduction.
- Lists in Python
- Understanding Iterators
- Generators ,Comprehensions and Lambda Expressions
- Generators and Yield
- Next and Ranges
- Understanding and using Ranges
- Python Dictionaries
- Dictionary manipulation.
- Ordered Sets with tuples
- Sets
- Python Sets Examples

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2] ADVANCE PYTHON

File Input and Output in Python:-

- Reading and writing text files.
- Reading config files in python.
- Writing log files in python.



- Understanding built-in functions.
- Writing Binary Files Manually.
- Using Pickle to Write Binary Files.
- Manipulating file pointer using seek.

Object Oriented Programming in Python:-

- OOPs Concepts.
- Concept of class, object and instances.
- Constructor, class attributes and destructors.
- Accessing attributes, Built-In Class Attributes.
- Inheritance
- Polymorphism (overlapping and overloading operators).
- Achieving Abstraction
- Encapsulation

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Exception Handling in Python:-

- Exceptions Handling Introduction.
- Avoiding code break using exception handling.
- Handling various exceptions using try....except...else.
- Try-finally clause.
- Try-except-finally with return keyword.
- Argument of an Exception and create self-exception class.
- Exception Classes Hierarchy
- Raising an exceptions
- Custom (User-Defined) Exceptions.

Decorators, Iterators and Comprehensions:-

- Iterables
- Generators
- Yielding from the generators
- Inner Functions
- Decorators
- Comprehensions – List, Set & Dict.

Multithreading in Python Programs:-

- What is multithreading?
- Single v/s Multithreaded Apps
- Starting a New Thread.
- Forking threads.
- The Threading Module.
- Class level & Object level Locks
- Synchronizing Threads.

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Structured Query Language:-

- MYSQL Introduction
- Data Types
- DDL, DML, TCL
- Constraints
- DISTINCT Clause
- WHERE Clause
- MYSQL Conditions (AND, OR, BOOLEAN, LIKE, IN)

- MYSQL Functions (MIN, MAX, AVG, SUM, COUNT)
- ORDER BY Clause
- GROUP BY Clause
- Relationships in SQL
- Joins in SQL

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Python Database Connectivity (PDBC):-

- SQL Database connection using python.
- Install the MySQL dB and other Packages
- DML and DDL Operations with Databases.
- Performing Transactions.
- Handling Database Errors.
- Disconnecting Database.
- CRUD Operation Project using PDBC.

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3] ORM Tool

SQLAlchemy - Object Relational Mapper :-

- ORM Introduction
- SQLAlchemy Overview.
- SQLAlchemy over PDBC.
- Advantages of SQLAlchemy.
- Classical Way of Mapping
- Declarative Way of Mapping
- DML and DDL Operations with Database.

- Queries in SQLAlchemy.
- Applying Filters

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4] FrontEnd

HTML5:-

- Introduction
- Basic Formatting Tags
- Grouping Using Div Span
- Lists
- Images
- Hyperlink
- Table
- Iframe
- Form
- Headers
- Miscellaneous

CSS2:-

- Introduction
- Syntax
- Selectors
- Color Background Cursor
- Text Fonts
- Lists Tables
- Box Model
- Display Positioning
- Floats

JavaScript:-

- Introduction
- JS in HTML
- HTML DOM (Document Object Model)
- JS Console
- JS Debugging
- JS var & Arrays
- JS Objects & Functions
- JS dialog boxes
- JS JSON
- HTML Attributes

Advance JavaScript:-

- Internal Working of JS
- Scope Chain & Lexical Scoping in JavaScript
- Function & Variable Hoisting in JavaScript
- JS Object Constructors
- JS Object Prototypes
- JS Object Accessors
- JS Data Types
- Closure in JavaScript
- localStorage and sessionStorage in JS
- Synchronous v/s Asynchronous Programming in JS
- Event Loop in JS

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5] FrontEnd Framework

React JS:-

- React JS Introduction
- Advantages of scripting languages
- Features, Advantages & Limitations of React JS
- Setting up Environment
- Module Import - Export
- ES6/ES7/ES8
- JSX in Depth
- Babel and webpack in React JS
- Components in React JS
- Props in React JS
- Fragments in React JS
- State in React JS
- React Events
- Extracting Components
- React Conditional Rendering
- React SAAS
- Mounting, Updating & Unmounting
- React Component API
- Hooks in React JS
- HOC in React JS
- Context in React JS
- Form in React JS
- React Router

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6] BackEnd Framework

Django Framework:-

- Basic of Django Framework & its uses.
- Installation and setting up Django.
- Django with PyCharm CE.
- Virtual Environments.
- Templates in Django & Template Inheritance
- Context in Django
- Static Files in Django.
- Syntax and URL.
- Routing in Django.
- Request/Response Architecture in Django.
- Models
- Relationships in Models
- Handling various Databases in Django
- Django-ORM
- Queries of Django-ORM
- Function-based Views.
- Class-based Views.
- Forms – HTML, Model & Django Forms.
- Crispy Forms
- CRUD Operations using Model Forms

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- Form Validation
- Custom user models.
- Cookies & Session in Django.
- User Authentication(Login, Logout, SignUp)

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7] API & API Framework

API(Application Programming Interfaces):-

- Introduction
- Serialization & Deserialization
- Python JSON Module
- API
- Web API / Web Services
- REST & RESTful API
- Basics of SOAP API, REST API

Django REST Framework:-

- Introduction & Installation
- Requests
- Response
- API using api_view decorator and APIView class
- Serializer
- ModelSerializer
- CRUD using DRF
- API using GenericAPIView and mixins
- ViewSets
- Routers
- Authentication and Permissions
- Throttling
- Pagination
- Testing API using Postman

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8] Version Control System

Version Control System (GIT & GITHUB):-

- What is Git and GitHub?
- Account Setup
- Installing SourceTree Git GUI
- Git File Management
- Branching
- Pull Requests
- Common Workflows
- Git Branching
- Inside a Local Repository

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9] Live Project

Live Project:-

- Handle various phases of SDLC.
- Enhance your debugging skills.
- Be technically strong in particular domain.
- Flex your muscles on the cutting edge technology.
- Get help from passion driven industry experts who has diverse experience.
- Develop end-to-end project by yourself.

10] Interview Preparation

11] Mock Interviews

12] Resume Preparation
