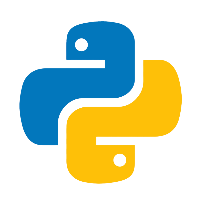
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**Python Course Modules**

**Course Overview**

This course takes students from **Beginner to Advanced Python Programming**, with hands-on practice and real-world projects. It is designed to build strong programming skills that can be applied in **software development, automation, data science, and machine learning**.

**Course Details**

* **Duration:** 18 Weeks (4 - 4.5 Months)
* **Schedule:** 5 Days per Week (Monday to Friday or Availability days )
* **Total Sessions:** 90 Sessions
* **Session Duration:** ~1.5 Hours (per session)
* **Mode of Learning:** Online (Live Interactive Sessions)
* **Daily Fee:** ₹200 per session
* **Total Course Fee:** ₹18,000 per student

**Module 1: Setup & Environment**

* Python Installation & Setup
* VS Code Setup
* Virtual Environments (venv & conda)
* Git & GitHub Basics
* Hello World & First Python Program
* pip & Package Management

**Module 2: Python Basics**

* Syntax & Code Structure
* Comments & Docstrings
* Variables & Data Types
* Type Casting
* Input/output
* Operators (Arithmetic, Comparison, Logical, Bitwise)
* Conditional Statements (if, elif, else)
* Loops (for, while, nested loops)
* Functions (definition, parameters, return, scope)

**Module 3: Data Structures**

* Strings (basic + methods)
* Lists, Tuples, Sets, Dictionaries
* Nested Data Structures
* List & Dictionary Comprehensions
* Matrix & 2D List Examples
* Practice Problems

**Module 4: Core Concepts**

* Advanced Functions
* Lambda Functions
* map(), filter(), reduce()
* Recursion
* Scope & Lifetime of Variables
* Modules & Packages
* Built-in Functions
* Date & Time

**Module 5: Object-Oriented Programming (OOP)**

* Classes & Objects
* Attributes & Methods
* Constructors (**init**)
* Inheritance
* Polymorphism
* Encapsulation
* Abstraction
* Magic Methods (**str**, **repr**, **add**, etc.)
* Class & Static Methods

**Module 6: Error Handling**

* Exceptions & Handling
* try / except / finally
* raise & Custom Exceptions
* Assertions
* Logging Basics

**Module 7: File Handling**

* Reading & Writing Text Files
* CSV File Handling
* JSON File Handling
* Pickle & XML Files
* Context Managers (with statement)

**Module 8: Advanced Python**

* Iterators & Iterables
* Generators
* Decorators
* Closures
* Regular Expressions (regex)
* Multithreading & Multiprocessing
* Async / Await (Asynchronous Programming)
* Memory Management & Garbage Collection

**Module 9: Modules & Libraries**

* os, sys
* math, random, statistics
* shutil, collections, itertools, functools
* pathlib

**Module 10: Data Science Basics**

* NumPy Basics (arrays, operations)
* Pandas Basics (Series, DataFrame, operations)
* Matplotlib & Seaborn (plots, visualization)
* Simple Statistics
* Probability & Hypothesis Testing
* Data Cleaning & Exploratory Data Analysis (EDA)

**Module 11: Web & Automation**

* Flask Basics
* Django Intro
* FastAPI Intro
* REST API Calls with Requests
* Web Scraping with BeautifulSoup
* Selenium Basics
* Playwright Automation

**Module 12: Machine Learning Basics**

* scikit-learn Introduction
* Regression Models
* Classification Models
* Clustering Models
* Model Evaluation Metrics

**Module 13: Projects**

* **Beginner Projects:** Calculator, Number Guess, Todo List, Rock-Paper-Scissors, Password Generator
* **Intermediate Projects:** Student Management, Weather App (API), Expense Tracker, Quiz App, Blog CMS
* **Advanced Projects:** E-commerce Store, Chat App, Face Recognition, Sentiment Analysis, Recommendation System