Data Science with Python

Duration - 20 Hours

Pricing – 20,000 INR

Module 1: Foundations of Python

Objective: Learn the basics of Python programming.
Topics Covered:

- Install **Python** (Anaconda/VS Code)
- **Basic Syntax**: print(), comments, and indentation
- Understanding **Data Types**: Strings, Numbers (int/float), Booleans, Lists, Dictionaries, Sets
- Control Structures: if-else, **Loops** (for, while), **comprehensions** (list/set/dictionary)
- **Functions**: Built-in (len(), type(), id()), user-defined, and *args/**kwargs

Module 2: Python Libraries for Data Science

Objective: Master the core Python libraries used in data science.
Topics Covered:

- **NumPy**: Arrays vs lists, matrix operations, broadcasting, statistical functions (mean, std, dot)
- **Pandas**: Series, DataFrames, importing/exporting data (CSV, Excel), handling missing values, **groupby**, merging/joining data
- **Matplotlib & Seaborn**: Plotting line graphs, bar charts, histograms, scatter plots, and customizing visualizations

Module 3: Statistical Analysis

Objective: Understand statistical concepts and hypothesis testing.
Topics Covered:

- Measures of **central tendency**: Mean, Median, Mode
- **Probability Basics**: Normal, Binomial, Poisson distributions
- Hypothesis testing: **Z-test**, **T-test**, **Chi-square test**

Module 4: Machine Learning with Python

Objective: Learn core machine learning techniques with **Scikit-learn**.
Topics Covered:

- **Scikit-learn Basics**: Data preprocessing, train/test split
- **Supervised Learning**: Regression (Linear, Logistic), Decision Trees, Random Forest
- **Unsupervised Learning**: Clustering (K-Means), **PCA** for dimensionality reduction

Module 5: SQL for Data Science

Objective: Learn how to use **SQL** for data analysis and manipulation.
Topics Covered:

- **SQL Basics**: SELECT, INSERT, UPDATE, DELETE
- **Advanced SQL**: Joins, subqueries, window functions, indexing
- **SQL for Data Analysis**: Aggregations, **CTEs**, stored procedures

Module 6: Practical Projects

Objective: Apply your skills to real-world data science problems.
Topics Covered:

- **Fraud Detection**: Build models to identify fraudulent transactions
- **Churn Prediction**: Predict customer churn using classification models
- **Interactive Dashboards**: Create dynamic dashboards with Python
- Build and deploy a machine learning model using **Flask** or **Streamlit**