

Data Science with Python

Batches: Weekdays/ Weekend

1. Getting Started

- What is Data Science?
- What's the need & why it's in demand?
- What is Data Analytics?
- Components of Data Science
- Real-life examples & applications
- Introduction to different programming languages used for Data Science.

2. Python Basics

- Why Python for Data Science?
- Installing Python
- Python IDEs
- Python Basic Syntax & Data types
- Lists
- String Manipulation
- Conditional Statements
- Looping Statements
- Dictionaries
- Tuples
- Functions
- Array

3. Python Libs

- Pandas
- Numpy
- Sci-kit Learn

- Matplot library
- Seaborn

4. Data Pre-processing & Exploration

- Extracting data from different sources
- Reading XLSX, CSV etc. files
- Handling Missing Values
- Handling Outliers
- Different Data Munging Techniques
- One Hot Encoder & Feature Scaling

5. Statistics

- Random Variable
- Mean Mode, Median
- Probability, Probability Distribution of
- Random Variables
- Type of Random Variables - Based on Scale of Measurement
- Variance & Standard Deviation
- Normal, Binomial, Poisson Distribution
- Standard Normal Distribution and Z-Score
- Sampling & Sampling Distribution
- Central Limit Theorem
- Simulation

- Hypothesis and hypothesis Testing
- Hypothesis Testing using z-test, t-test

6. Machine Learning

- Overview & Terminologies
- What is Machine Learning?
- Difference between AI & ML
- Supervised & Unsupervised ML
- Supervised ML Models
- Linear & Logistic Regression
- Regression methods, Classification
- K Nearest Neighbors KNN
- Decision Tree, Random Forest
- Unsupervised ML Models
- K Means Clustering
- Under fitting and Overfitting
- Confusion Matrix
- K-Fold Cross Validation
- Regression Evaluation Metrics
- Time Series Analysis
- Support Vector Machine (SVM)
- Naïve Bayes

7. Tableau (For Data Visualization)

- Introduction to Tableau
- Installation, Tableau and R connectivity
- Calculated fields, hierarchy, parameters, sets, groups in Tableau
- Various visualizations Techniques in Tableau
- Map based visualization using Tableau
- Adding Totals, sub totals, Captions
- Formatting Options
- Using Combined Field, filters

- Table Calculations
- Story telling, creating dashboards

8. Projects

- Project 1
- Project 2
- Project 3
- Project 4