



# **Basic Data Science and Data Analytics**

#### 1. Data Science Overview

- Introduction to Data Science
- Different Sectors Using Data Science
- Purpose and Components of Python
- Quiz

#### 2. Data Analytics Overview

- **Data Analytics Process**
- Exploratory Data Analysis (EDA)
- EDA Quantitative Technique
- EDA Graphical Technique
- **Data Analytics Conclusion or Predictions**
- **Data Analytics Communication**
- Data Types for Plotting
- **Data Types and Plotting**
- **Knowledge Check**
- Quiz

## 3. Statistical Analysis and Business Applications Introduction to Statistics

- Statistical and Non-statistical Analysis
- Major Categories of Statistics
- Statistical Analysis Considerations
- Population and Sample
- Statistical Analysis Process
- Data Distribution
- Dispersion
- Knowledge Check
- Histogram



- Knowledge Check
- Testing
- Correlation and inferential Statistics

#### 4. Python Environment Setup and Essentials

- Anaconda
- Installation of Anaconda Python Distribution (contd.)
- Data Types with Python
- Basic Operators and Functions

### 5. Mathematical Computing with Python (NumPy)

- Introduction to NumPy
- Demo 01-Creating and Printing an Indarray
- Class and Attributes of ndarray
- Basic Operations
- Activity-Slice It
- Copy and Views
- Mathematical Functions of NumPy

### 6. Scientific Computing with Python (SciPy)

- Introduction to SciPy
- SciPy Sub Package Integration and Optimization
- Calculate Eigenvalues and Eigenvectors
- SciPy sub Package Statistics, Weave and IO

### 7. Data Manipulation with Pandas

- Introduction to Pandas
- Understanding DataFrame
- View and Select Data Demo
- Missing Values
- Data Operations
- File Read and Write Support
- Pandas Sql Operation

### 8. Advance Data Science and Data Analytics

### 9. Machine Learning with Scikit-Learn

- Supervised Learning Model Considerations
- Scikit-Learn
- Supervised Learning Models Linear Regression

ecure Your Network



- Supervised Learning Models Logistic Regression
- Unsupervised Learning Models
- Pipeline
- Model Persistence and Evaluation

#### 10. Natural Language Processing with Scikit Learn

- NLP Overview
- NLP Applications
- NLP Libraries-Scikit
- Extraction Considerations
- Scikit Learn-Model Training and Grid Search

#### 11. Data Visualization in Python using matplotlib

- Introduction to Data Visualization
- Line Properties
- (x,y) Plot and Subplots
- Types of Plots

### 12. Web Scraping with Beautiful Soup

- Web Scraping and Parsing
- Understanding and Searching the Tree
- Navigating Options
- Demo3 Navigating a Tree
- Modifying the Tree
- Parsing and Printing the Document

### 13. Python Integration with Hadoop MapReduce and Spark

- Why Big Data Solutions are Provided for Python
- Hadoop Core Components
- Python Integration with HDFS using Hadoop Streaming
- Python Integration with Spark Using PySpark

### 14.Project 1

- Project 1 Stock Market Data Analysis
- Project 1 Demo

## 15.Project 2

- Project 2
- Main Project 2

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