Data Science with Python

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DATA SCIENCE WITH PYTHON

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Introduction to Data Science

What is Data Science
What does data science involves
Life cycle of Data Science
Tools of Data Science
Introduction to Python

Python environment Setup and Essentials

Introduction to python
Software installation
Basic operators and functions
Data types with python
Conditional statement

Mathematical Computing with Python (Numpy)

Introduction to Numpy
Introduction to numpy arrays
How to Access Array Elements?
Indexing, Slicing, Iteration, Indexing with Boolean Arrays
Dealing with Flat files using numpy
Mathematical functions
Statistical functions (mean, median, average, standard deviation)
Operations with arrays

Introduction to Scientific Computing (Scipy)

Save a search as a report
Editing reports
Creating reports with visualizations charts and tables

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Data Manipulation with Pandas

Introduction to Pandas
Defining data structures
Understanding Dataframes
Importing Data from various sources
(Csv, txt, excel etc)
Missing values
Data Operations
File read operations
Descriptive statistics

Data Visualization using Matplotlib

Create plots like scatter plot,
histogram, bar graph, pie chart using Matplotlib
Grids, axes, plots
Markers, colour, fonts and styling.

Machine learning using scikit-learn

Machine learning Process Flow
Machine learning categories
Feature selection and extraction in machine learning
Supervised learning algorithms

Regression
Simple linear Regression
    Applications of linear regression
    Building regression models using python
    Process to implement linear regression
    Coefficient of determination (R- Squared)
    Accuracy of model
Multiple linear Regression
Classification
    Logistic Regression
    Building Logistic Regression Model
    Understanding standard model metrics
    (Validation of Logistic Regression Models
    Standard Business Outputs

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Decision Tree
Random Forest
Support Vector Machines
K – NN
Naïve Bayes classifier

Model evaluation techniques – concepts of confusion matrix,
threshold evaluation with ROCR
Unsupervised machine learning algorithms
K-Means Clustering
Hierarchical Clustering

Web Scraping in Python

Working with Beautiful Soap
Parsing HTML and XML
Navigating the document
Handling CSV files
Parsing JSON into Python

Introduction to Deep learning

Assignment and Live Examples:

1. Resumes helping you to create your resume.
2. Case study based approach.
3. Placement Assistance.

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