Advance Soft

Data Science

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Overview

Data Science course is mainly designed for fresh graduates with keen interest in application development and working professionals who want to improve their skillset with current technology trends. The Course primarily focuses on delivering in-depth and Hands-on Understanding the data, Probability, statistical Inference, Data Clustering, Regression Modelling and Developing algorithms using Python.

By the end of the course, students will be able to:

- Identify solutions to Data Science tasks and interpret data and evaluate the limitations
- Proficiency with statistical analysis of data to build and assess databased models.
- Skills in data management

Students

Fresh Graduates	Students who want to improve the skill set and meet the current trends in the job market. They will be able to make their own Career in the world of Information Technology.
Career Shift	Someone looking for a career shift or start the career after having some gap in their career. This program helps to bridge the gap and make their career in Information Technology.

Curriculum

Introduction to Python

- Overview of Python
- The Companies using Python
- Different Applications where Python is used
- Discuss Python Scripts on UNIX/Windows
- Values, Types, Variables
- Operands and Expressions
- Conditional Statements
- Loops
- Command Line Arguments
- Writing to the screen

Sequences and File Operations

- Python files I/O Functions
- Numbers
- Strings and related operations
- Tuples and related operations
- Lists and related operations
- Dictionaries and related operations
- Sets and related operations

Functions, OOPs, Modules, Errors and Exceptions

- Functions
- Function Parameters
- Global Variables
- Variable Scope and Returning Values
- Lambda Functions
- Object-Oriented Concepts
- Standard Libraries
- Modules Used in Python
- The Import Statements
- Module Search Path
- Package Installation Ways
- Errors and Exception Handling
- Handling Multiple Exceptions

Introduction to NumPy, Pandas and Matplotlib

- NumPy – arrays
- Operations on arrays
- Indexing slicing and iterating
- Reading and writing arrays on files
- Pandas - data structures & index operations
- Reading and Writing data from Excel/CSV formats into Pandas
- matplotlib library
- Grids, axes, plots
- Markers, colors, fonts and styling
- Types of plots - bar graphs, pie charts, histograms
- Contour plots

Data Manipulation

- Basic Functionalities of a data object
- Merging of Data objects
- Concatenation of data objects
- Types of Joins on data objects
- Exploring a Dataset
- Analyzing a dataset

Time Series Analysis

- What is Time Series Analysis?
- Importance of TSA
- Components of TSA
- White Noise
- AR model
- MA model
- ARMA model
- ARIMA model
- Stationarity
- ACF & PACF

Model Selection and Boosting

- What is Model Selection?
- The need for Model Selection
- Cross-Validation
- What is Boosting?
- How Boosting Algorithms work?
- Types of Boosting Algorithms
- Adaptive Boosting