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Data Science using Python

16 Hours

(Basic + Intermediate)

Programming & Development

Python Basic:

An understanding of how to use the Python standard library to write programs, access various tools, and document and automate analytical processes.

- Types (strings, lists, dictionaries, and more)
- Control Flow (if-then statements, looping)
- Organizing code (functions, modules, packages)
- Reading and writing files
- Overview of Object-Oriented Programming (OOP)

NumPy & 2D Plotting Library:

Introduction to NumPy and 2D plotting. The NumPy package is presented as a tool for rapidly manipulating and processing large data sets. 2D plotting is introduced with matplotlib.

- Understanding the N-dimensional data structure
- Creating arrays
- Indexing arrays by slicing or more generally with indices or masks

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Python Pandas & Data Analysis:

the Python Data Analysis Library (Pandas) is a powerful and convenient package

- Tabular Datasets
- Data Aggregation & Data Exploration
- Labelling data for each dimensionBasic operations and manipulations on N-dimensional arrays
- Dealing with missing values, and time series manipulations.

Accessing Data from & multiple sources:

- Reading and writing data from local files (.txt,.csv,.xls, json, etc.)
- Reading data from remote files
- Scraping tables from web pages (.html)
- Making the most of the powerful read table method

Data Preparation & Cleaning:

- Working with Pandas data structures: Series and Data Frames.
- Accessing your data: indexing, slicing, fancy indexing, Boolean indexing.
- Data wrangling, including dealing with dates and times and missing data's.
- Adding, dropping, selecting, creating, and combining rows and columns.

Data Visualization:

- Understanding the structure of a Figure
- Data visualization: scatter plots, line plots, box plots, bar charts, and histograms with matplotlib
- Customizing plots: important attributes and arguments

Python Data Science:

- Linear Regression
- SVM (Support Vector Machine)
- KNN (K-Nearest Neighbors)
- Logistic Regression

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- Decision Tree
- K-Means

Python Forecasting Modelling in Data Science:

- Autoregressive Integrated Moving Average (ARIMA)
- Seasonal Autoregressive Integrated Moving-Average (SARIMA)
- Seasonal Autoregressive Integrated Moving-Average with Exogenous Regressors (SARIMAX)