C.F.A

CODING FOR ALL ACADEMY

Artificial Intelligence (Ai)

AI Foundations with Python Libraries and Machine Learning
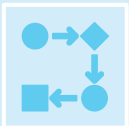
C.F.A
CODING FOR ALL ACADEMY

Learning Objectives:

Introduce students to the Kaggle platform and its importance in data science and AI.

Teach students how to search for datasets, explore them, and use Kaggle Notebooks for projects.

Provide a step-by-step guide to completing a full project on Kaggle.

C.F.A
CODING FOR ALL ACADEMY

Content

Module 1: Data Science With Python : NumPy for Numerical Data

Topics:

Introduction to NumPy

- Creating NumPy Arrays (1D, 2D, 3D)

Array Operations

- Indexing, Slicing, and Reshaping
- Mathematical Operations (addition, subtraction, dot product)
- Broadcasting and Vectorization

Linear Algebra with NumPy

- Matrix Operations
- Eigenvalues and Eigenvectors

Module 2: Pandas for Data Analysis

Topics:

Introduction to Pandas

- Series and DataFrames
- importing and Exporting Data (CSV, Excel)

Data Cleaning

- Handling Missing Values
- Duplicates and Outliers

Data Manipulation

- Filtering and Sorting
- Grouping, Aggregation, and Merging Data

Exploratory Data Analysis (EDA)

Module 3: Data Visualization with Matplotlib and Seaborn

Topics:

Introduction to Data Visualization

- Importance of Visualization in AI/ML

Matplotlib Basics

- Line Blot, Bar Charts, Histograms, Scatter Plots
- Customizing Plots (Labels, Titles, Legends)

Advanced Visualization With Seaborn

- Pair Plots, Heatmaps, Boxplots
- Visualizing Distributions and Relationships

Module 4: Machine Learning Fundamentals with Scikit-Learn

Introduction to Machine Learning

What is Machine Learning? Supervised vs. Unsupervised Learning

Scikit-Learn Basics

importing and Splitting Data Building a Basic ML Pipeline

Linear Regression

A supervised algorithm for predicting continuous values.

Classification

A supervised task to categorize data into labels.

Clustering

An unsupervised method for grouping similar data.

C.F.A

CODING FOR ALL ACADEMY

Contact

Email :
cfaacademy21@gmail.com

Phone Number:
01090334063

Physical Address:
Online

Course duration:
40 hour