

Advanced Data Science with Python

Duration - 30 Hours

Pricing - 30000

Module 1: Foundations & Libraries

Objective: Refresh and strengthen your foundational knowledge in Python and data science.

Topics Covered:

- All foundational topics from the **Data Science with Python** course, including Python basics, data science libraries (**NumPy**, **Pandas**, **Matplotlib**, **Seaborn**), statistical analysis, and basic machine learning concepts.

Module 2: Advanced Machine Learning

Objective: Dive into more complex machine learning algorithms and techniques.

Topics Covered:

- **Gradient Boosting:** Learn powerful algorithms such as **XGBoost**, **LightGBM**, and **CatBoost** for better predictive performance.
- **Hyperparameter Tuning:** Master techniques like **grid search**, **random search**, and **Bayesian optimization** to fine-tune models.
- **AutoML:** Automate model selection and optimization with tools like **H2O**, **Auto-sklearn**, and **TPOT**.

Module 3: Natural Language Processing (NLP)

Objective: Gain expertise in processing and analyzing text data.

Topics Covered:

- **Text Preprocessing:** Tokenization, stemming, and lemmatization.
- **Vectorization:** Convert text data into numerical form using techniques like **TF-IDF**, **Word2Vec**, and **FastText**.
- **Named Entity Recognition (NER):** Extract entities like names and dates using **spaCy**.
- **Topic Modeling:** Discover latent topics in text using **Latent Dirichlet Allocation (LDA)**.
- **Sentiment Analysis:** Learn how to analyze sentiment in text using tools like **VADER** and **TextBlob**.

Module 4: Time Series & Forecasting

Objective: Master time series data analysis and forecasting methods.

Topics Covered:

- **Models:** Understand and apply **ARIMA** and **SARIMA** models for time series analysis.
- **Decomposition & Seasonality:** Learn to identify trends and seasonality using **Statsmodels** and **Prophet**.
- Apply forecasting models to predict future trends in time-dependent data.

Module 5: Advanced SQL for Data Science

Objective: Improve your SQL skills for handling large datasets and optimizing queries.

Topics Covered:

- **Performance Optimization:** Techniques like indexing, partitioning, and query optimization.
- **Big Data:** Learn how to manage and query **large-scale datasets** in **cloud databases** like AWS, Google BigQuery, and Azure.

Module 6: Practical Projects

Objective: Apply your knowledge to real-world data science projects.

Projects Covered:

- **Real-time Recommendation Systems:** Build a recommendation system for personalized suggestions.
- **NLP-Powered Chatbots:** Develop a chatbot that can engage in meaningful conversations using NLP techniques.
- **Time Series Forecasting for Stock Market Trends:** Forecast stock prices using time series models like ARIMA and SARIMA.