

# Machine Learning for Finance Operations

Duration: 2.5 hrs

## Course Overview

This beginner-friendly course provides a focused introduction to Machine Learning (ML) for finance operations. The course introduces key Machine Learning models used in finance operations, including exploratory data analysis, supervised learning models for prediction and classification, and unsupervised techniques such as clustering and anomaly detection for fraud analysis. Special emphasis is placed on predictive modeling and time series forecasting methods, showcasing their application in financial operations with practical case studies, such as stock price prediction and operational forecasting. The session includes a hands-on demonstration where learners will build and evaluate a predictive ML model using Python in Jupyter Notebook, providing real-world relevance. The course wraps up with an interactive Q&A session, highlighting career opportunities and real-world use cases of AI and ML in finance operations, empowering participants with actionable knowledge and skills.

## Course Agenda

### Module 1: Introduction to AI & ML in Finance

- Evolution of AI in Finance
- Traditional Finance vs. AI-driven Finance
- Key Milestones in AI for Financial Services
- Types of AI: Narrow AI, General AI, AGI

### Module 2: Types of Machine Learning and Their Role in Finance

- Exploratory Data Analysis
- Supervised Learning: Regression & Classification Models
- Unsupervised Learning: Clustering & Anomaly Detection
- Fraud Detection & Outlier Analysis

### Module 3: Predictive Modeling & Time Series Forecasting

- Introduction to Financial Forecasting
- Time Series Models: Moving Average, ARIMA, LSTM
- Case Study: Stock Price Prediction

### Module 4: Project: Hands-on Predictive ML Model Building Demo

- Linear Regression for Financial Forecasting
  - o Predicting Future Stock Prices
- Model Evaluation: RMSE & R-squared Metrics
- Live Python Code Demo using Jupyter Notebook

## **Module 5: Q&A & Closing Discussion (20 min)**

- Open Discussion on Real-World Applications
- Career Opportunities in AI & ML for Finance