Description

Course - Introduction to Machine Learning & Building Fraud Prediction System

This course is designed to introduce you to the machine learning basics using python and help you build industry level use case for financial banks - predicting fraud in credit card transaction. This course will help you learn most popular python libraries like scikit learn, pandas, numpy and many more along with theoretical concepts like supervised learning, model building and optimisation, feature engineering and pre-processing. The course will also cover basic machine learning algorithms like Linear Regression, Logistic Regression, Decision Trees and Random Forest.

This course will benefit you if you are new to machine learning and python, or if you are coming from any IT vertical or other cross functional areas like marketing, finance, human resource, sales etc and looking forward to enhance your skills (make sure to take pre-requisite courses before attending). The course will be 4 hours per day for 4 days and will include combination of theory lectures, virtual games, digital whiteboard, live quizzes, industry information, python hand-on demos, assignments, future reference and notes.

The course includes building live end to end machine learning use case from financial domain where you will experience everything from data processing, feature engineering, model building, model optimisation and deployment using various python libraries and core machine learning concepts to help banks predict transactional fraud model that can save them million of dollars.

Syllabus

Day 1:

- Introduction to ML
    - What is ML, AI & Data Science
    - Type of Machine Learning
    - Machine Learning Data Types
    - Machine Learning & Data Science Pipeline
    - Exploratory Data Analysis
- Python (Hands-on)
    - Introduction to Anaconda Environment
    - Working on Jupiter Notebook & Google Collab
    - Basic Python Data Structure
    - Data Manipulation with Pandas
    - Building graphs with Plotly-Express & Seaborn

Day 2:

- Linear Regression & Logistic Regression
    - Introduction
    - Maths & Intuition around algorithm
    - Type of problems for Linear Regression
    - Type of problems for Logistic Regression
    - Different type of Linear Regression
    - RMSE, Require & Classification Accuracy
- Feature Pre-Processing
    - Feature Scaling
    - Feature Cleansing
- Feature Engineering
    - Feature Selection
    - Feature Compression
    - Feature Creation
- Hands-on with sample use-case
        - Predicting House Price with Linear Regression
        - Predicting Titanic Survival with Logistic Regression

Day 3:

- Decision Tree & Random Forest
    - Tree based models
    - Maths & Intuition for Algorithms
    - Ensemble Learning, Bagging & Bootstrapping
    - Bias & Variance
    - Types of Problem for Decision Tree
    - Typed of Problem for Random Forest
    - Pros & Cons of Decision Tree & Random Forest
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- Model Evaluation & Optimisation
    - Cross Validation
    - Hyper-Parameter Optimisation using Grid Search
    - Confusion Matrix & Classification Report
    - Advance Evaluation Metrics - Precision, Recall & F1
    - Multi-Metric Analysis
    - Multi- Model Analysis
- Hands-on with sample use-case
    - Extending Predicting House Price with Tree based Model
    - Extending Predicting Titanic Survival with Tree based Model

Day 4:

- Building Financial Fraud System with Python & ML
    - Business Case Understanding
    - Data Loading using Pandas
    - Data Pre-Processing using Pandas
    - Exploratory Analysis using Plotly Express
    - Feature Engineering using Pandas Scikit Learn
    - Model Building & Optimisation using Scikit Learn
    - Auto Model Building & Optimisation using PyCaret
    - Model Deployment using Stremalit & Heroku

Instructor Bio

Lavi Nigam

Artificial Intelligence has always fascinated Lavi and he truly believes that data is the new oil and AI is the skill of the century. His career began early in 2012 working with startup to develop machine learning based solution for various clients in different domain. Later in 2014, working with another startup he worked with India's leading steel manufacturing company and largest financial institution to deliver machine learning models that helped them optimise their business processes. In 2016, he joined HCL Research and

worked with clients like Boeing USA, Fujitsu Japan & Nokia, where he helped them with various deep learning, natural language processing and computer vision products to streamline their operational challenges. It is at this time, he started delivering AI courses to different professionals from various industries to help them transition into AI. He has so far trained more than 3000 professionals, mostly from fortune 500 companies, and mentored many more individuals build their careers in AI. He has an expertise in Ensemble learning, Model Stacking, Machine Learning Operations (MLOps), Computer Vision and NLP algorithms. He has also been speaking frequently in industry webinars, conferences and various other AI sessions. Over the years he has earned various accolades from industry and academic for his contribution in Indian AI Space. Currently, Lavi lives in Gurugram, Delhi NCR and loves spending time with his garden, guitar and books.