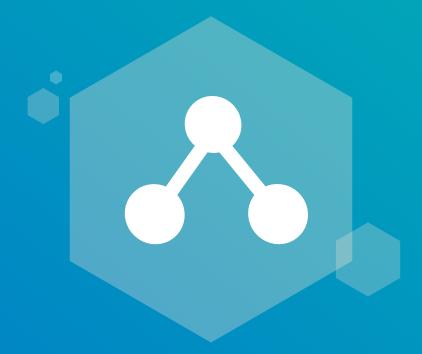


Machine Learning

Basic & Advanced Course



Detailed Course Syllabus

1. Getting Start With AI

a. Introduction to AI

- i. What is AI
- ii. Subsets of AI

b. How data science comes into play

- i. What is Data Science
- ii. AI vs ML vs DL

2. Mastering Numpy Arrays

a. Jupyter

- i. Jupyter Notebook Setup
- ii. Jupyter Notebook Walkthrough

b. Mastering Numpy Arrays

- i. Getting Started with Numpy
- ii. Reshape and Random Numbers Generator
- iii. Arithmetic Operations on Arrays
- iv. Arithmetic Operations on Multiple Arrays
- v. Array Sorting
- vi. Array Slicing
- vii. Array Merging
- viii. Automating using Numpy

3. Data Analysis with Python

a. Getting started with Pandas

- i. Getting Started with Pandas
- ii. Dataset Walkthrough

b. Data Preprocessing

- i. Data Preprocessing Removing Null Value Rows
- ii. Data Analysis Numeric
- iii. Data Analysis Categorical
- iv. Data Analysis Automatic Categorical
- v. Null Values Handling Numeric
- vi. Null Values Handling Categorical
- vii. Null Values Handling on Google Playstore Dataset

c. Data Analysis

- i. Data Analysis with Multiple Columns
- ii. Data Analysis using Conditions
- iii. GroupBy in Pandas

d. Data Visualization on Heart Disease Dataset

- i. Heart Disease EDA Introduction to Kaggle
- ii. Heart Disease EDA Age(DistPlot)
- iii. Heart Disease EDA Categorical Columns (Pie Charts)
- iv. Heart Disease EDA Violin Plot
- v. Heart Disease EDA Correlation (HeatMap)
- vi. Heart Disease EDA Correlation (PairPlot)
- vii. Heart Disease EDA Correlation (JoinPlot)

e. Black Friday Sales Data Analysis

- Black Friday Walkthrough
- ii. Black Friday Analysing Columns
- iii. Black Friday Analysing Gender
- iv. Black Friday Analusing Age & Martial Status
- v. Black Friday MultiColumn Analysis
- vi. Black Friday Occupation and Products Analysis
- vii. Black Friday Combining Gender & MAritial Status

f. Black Friday Sales Data Analysis

- i. GDP Analysis Assignment
- ii. GDP Analysis Dataset Walkthrough

- iii. GDP Analysis GDP Growth of a Country
- iv. GDP Analysis GDP Growth on whole Dataset
- v. GDP Analysis Plotting Graphs Using Plotly
- vi. GDP Analysis Plotting Graphs in Bulk
- vii. GDP Analysis Compare GDP across Countries
- viii. GDP Analysis Compare GDP Growth Comparison

4. Machine Learning

a. Linear Regression

- i. Linear Regression Intuition
- ii. Forward Propagation and Cost Function in Linear Regression
- iii. Gradient Descent in Linear Regression
- iv. Updating the Parameters in Linear Regression
- v. Detailed Mathematics behind Linear Regression
- vi. Linear Regression Model from Sratch
- vii. Linear Regression Model Training
- viii. Linear Regression Model Prediction
- ix. Linear Regression Model using ScikitLearn library

b. Multiple Linear Regression

- i. Multiple Linear Regression Intuition
- ii. Multiple Linear Regression Hands On
- iii. Linear Regression Model Assumption
- iv. Linear Regression Assumption Hands On
- v. Ordinary Least Square (OLS) method
- vi. Multiple Linear Regression using OLS.

c. Polynomial Linear Regression

- i. Polynomial Linear Regression intuition
- ii. Polynomial Linear Regression Hands On

d. Support Vector Machine

- i. Support Vector Regression Intuition
- ii. Support Vector Regression On Insurance Cost Prediction

e. Decision Tree

- i. Decision Tree Regression Intuition
- ii. Decision Tree Regression Hands On

f. Random Forest

- i. Random Forest Regression Intuition
- ii. Random Forest Regression Hands On

g. Classification Algorithms

- i. KNN Algorithm Intuition
- ii. Naïve Bayes Intuition
- iii. Project Titanic Classification

h. Clustering Alogrithms

- i. Introduction to K-Means Clustring
- ii. K-Means Initialise Centers
- iii. E step in K-Means
- iv. How to Plot Clusters
- v. M Step in K-Means
- vi. Random Init Improvement in K-Means

i. Feature Engineering

- i. Feature Selection with Correlation Matrix
- ii. Feature Selection with Extra Tree Classifier
- iii. Feature Selection with SelectKBest Method
- iv. Principal Component Analysis (PCA) Intuition
- v. PCA Implementation
- vi. TSNE Intuition
- vii. TSNE Implementation
- viii. K-Fold Cross Validation Intuition
- ix. K-Fold Cross Validation Implementation

5. Natural Language Processing

a. Getting Started with Files

- i. Reading Data from Text-File
- ii. Reading Data from Text-File Corpus
- iii. Text-Preprocessing
- iv. Advance Text Preprocessing
- v. Writing Data on a text-file

vi. Write Data on a text-file with New Line

b. Getting Started with NLTK

- i. Getting Started with NLTK
- ii. Stemming & Lematization
- iii. StopWords Removal
- iv. Corpus & Vocabulary

c. Text Encoding

- i. Word Cloud
- ii. Text Encoding Decoding
- iii. Text Encoding Decoding | Without Stop Words
- iv. Guessing Title | Most Frequent Word
- v. One Hot Encoding