ML Workshop

Date : 2081/10/02 - 2081/10/09

Syllabus:

Day-1: Basics of Machine Learning

- Data Science , AI, ML, DL
- Machine Learning Pipeline (Data Collection, Data Preparation, Feature Engineering, EDA, Model Training, Evaluation, Deployment, Monitoring)
- Types (Supervised, Unsupervised, Reinforcement)
- Basics of data collection (Self preparation, Public Dataset, Web Scrapping, API, Augmentation, Survey, Form)
- Basic Syntax of Pandas and NumPy

Day-2: Data Preprocessing And Feature Engineering

- Handling null values
- Handling duplicate values
- Outlier detection and handling
- Data manipulation (Selection, Filtration, Merging, Splitting)
- Statistics (Mean, Median, Mode, Variance, Standard deviation)
- Feature Engineering(Normalization, Standardization, Transformation, Encoding)
- Plotting basic charts and graphs

Day-3: Linear Regression

- Least square principle
- Closed form solution
- Batch gradient descent
- Error Function/ Cost function (MAE,MSE)
- Hands on

Day-4: Logistic Regression

- Overfitting & underfitting
- Bias variance tradeoff
- Binary classification
- Sigmoid
- Binary cross entropy

- Decision boundary

Day-5 and 6: Clustering

- Basics of clustering
- K-Mean clustering
- Selecting the number of clusters (Elbow Method, Silhouette Score)
- Cost function (WCSS/ Inertia)
- Limitations (Spherical Symmetry, Outliers)

**Day 7: Deployment

- API development (FastAPI, Flask)
- Frontend integration using Streamlit