Introduction to machine learning

- What is Machine Learning?
- Supervised vs Unsupervised
- Classification vs Regression
- ML vs. DL vs. AI vs. DS

Regression

- Linear Regression
- Multiple linear regression
- Polynomial Regression
- Logistic regression
- KNN
- Naïve Bayes
- Decision Tree
- Random Forest
- SVM

Unsupervised Learning

- What is unsupervised learning
- Types of unsupervised learning
- Applications of unsupervised learning
- K-means clustering

Feature Engineering

- Feature extraction
- Feature selection
- Dummy variable and one hot encoding
- Label encoding and ordinal encoding

- Feature scaling
- Hyper parameter tuning
- Dimension reduction (feature reduction)

Model selection

- What is Model Selection?
- The need for Model Selection
- Cross-Validation
- What is Boosting?
- How Boosting Algorithms work?
- Types of Boosting Algorithms

Deep Learning

- Biological Neural Network
- Artificial Neural Network
- Layers of a Network

Getting Started with PyTorch

- Introduction to PyTorch
- Matrx Fundamentals
- PyTorch Sensor
- Chain Rule
- Auograde in PyTorch
- Datasets and Data Loaders
- Classification Report and Confusion Matrix
- Cost Function
- Model Optimization
- CNN
- Transformers