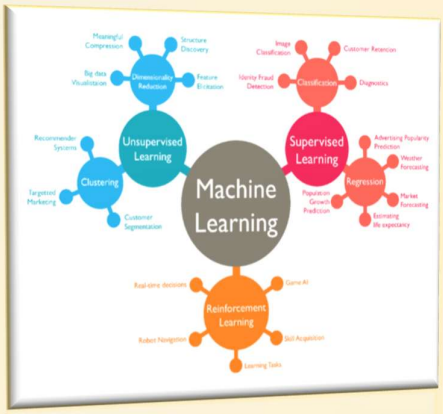
An ISO 9001:2015 Certified Organization

दिल्ली सरकार द्वारा मान्यता प्राप्त

MACHINE LEARNING FULL COURSE

DURATION - 6 MONTHS

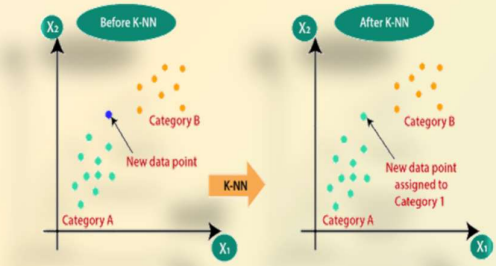


Module 1: Foundations – Python, Math, and ML Basics

- ✓ What is AI, ML, and Deep Learning?
- ✓ Types of ML: Supervised, Unsupervised, Reinforcement
- ✓ Python Basics (variables, loops, functions, libraries)
- ✓ Numpy, Pandas, Matplotlib, Seaborn
- ✓ Linear Algebra (vectors, matrices)
- ✓ Probability & Statistics
- ✓ Calculus basics (optional)
- ✓ Tools: Python, Jupyter Notebook, Google Colab

MODULE 2: SUPERVISED LEARNING

- ✓ Linear Regression (Simple & Multiple)
- ✓ Logistic Regression
- ✓ k-Nearest Neighbors (kNN)
- ✓ Decision Trees
- ✓ Naive Bayes
- ✓ Model evaluation: accuracy, precision, recall, F1 score, confusion matrix
- ✓ Predict house prices
- ✓ Spam detection model



Module 3: Unsupervised Learning + Feature Engineering

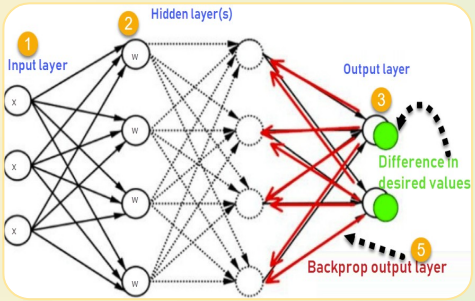
- ✓ Clustering (K-Means, Hierarchical)
- ✓ Dimensionality Reduction (PCA, t-SNE)
- ✓ Feature Scaling (Normalization, Standardization)
- ✓ Feature Encoding (One-Hot, Label)
- ✓ Outlier Detection

Module 4: Advanced Models + Model Tuning

- ✓ Ensemble Learning:
- ✓ Random Forest
- ✓ Gradient Boosting (XGBoost, LightGBM)
- ✓ Cross-validation (k-fold)
- ✓ Hyperparameter tuning (Grid Search, Random Search)

MODULE 5: INTRODUCTION TO DEEP LEARNING

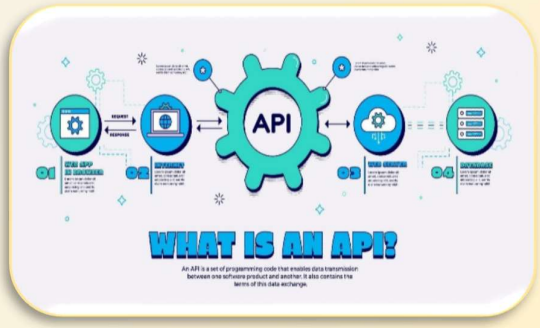
- ✓ Neural Networks Basics (Perceptron, Forward & Backpropagation)
- ✓ Activation Functions (ReLU, Sigmoid, Softmax)
- ✓ Loss functions
- ✓ Training vs Testing
- ✓ Overfitting and regularization
- ✓ Tools: TensorFlow / Keras



Module 6: CNNs, RNNs and NLP Basics

- ✓ Convolutional Neural Networks (CNN) for image data
- ✓ Recurrent Neural Networks (RNN), LSTM for sequence data
- ✓ Natural Language Processing (NLP) Basics
- ✓ Text cleaning
- ✓ Bag of Words, TF-IDF
- ✓ Word embeddings (Word2Vec, GloVe)

Module 7: Real-World Projects + Deployment



- ✓ End-to-End ML Pipeline
- ✓ Working with large datasets
- ✓ Using APIs and web scraping
- ✓ Model Deployment using:
- ✓ Flask
- ✓ Streamlit
- ✓ Git and GitHub basics

MODULE 8: CAPSTONE PROJECT

- ✓ Resume and GitHub Portfolio building
- ✓ Mock interviews and case studies
- ✓ Capstone project on domain of choice (healthcare, finance, etc.)
- ✓ Review of algorithms and core concepts