Machine Learning Training Program

Overview

The Machine Learning (ML) Training Program is designed to introduce participants to the fundamental concepts, algorithms, tools, and real-world applications of machine learning. It equips learners with the skills to build intelligent systems that learn from data, make predictions, and automate decisions.

Objectives

The program bridges theory and practice by combining mathematical foundations with hands-on coding. It is ideal for students, developers, data analysts, and professionals aiming to enter the field of artificial intelligence.

Key Modules

- Basics of data science, linear algebra, and statistics
- Supervised and unsupervised learning: linear/logistic regression, decision trees, K-means, SVM
- Practical implementation using Python, NumPy, pandas, scikit-learn, Matplotlib
- Projects: spam detection, house price prediction, customer segmentation
- Advanced concepts: model evaluation, cross-validation, overfitting/underfitting, hyperparameter tuning
- Optional: introduction to deep learning with TensorFlow or PyTorch

Outcomes

1. Understand core ML concepts and algorithms
2. Build and evaluate ML models
3. Work with real-world data
4. Choose appropriate algorithms and avoid common errors
5. Prepare for roles like ML Engineer, Data Scientist, or AI Developer

Curriculum:

1) Introduction to Machine Learning
2) Introduction to Python Libraries for ML & DL
3) Linear Regression & Simple Models
4) Classification Models such as Decision Trees and Random Forests
5) Unsupervised Learning: Clustering & Dimensionality Reduction such as PCA and Feature Selection approaches
6) Advanced Machine Learning Models such as Boosting
7) Advanced Regression & Classification Models such as ANN
8) Deep Learning Fundamentals such as CNN
9) Natural Language Processing (NLP) with Deep Learning
10) Project Work