

Machine Learning Algorithms – Summary

	Why It Is Used	What It Does	Example Applications
Linear Regression	Simple & interpretable	Predicts continuous values	House price, Sales forecasting
Naïve Bayes (Classification)	Efficient probability model	Predicts categorical outcomes	Disease diagnosis, Spam detection
Decision Tree	Easy to understand	Rule-based splitting	Medical diagnosis, Credit scoring
Random Forest (Ensemble)	High accuracy & robust	Combines multiple decision trees	Fraud detection, Stock prediction
K-Nearest Neighbors (K-NN)	Simple & intuitive	Predicts based on nearest neighbors	Image recognition, Pattern recognition
Support Vector Machine (SVM)	Effective in high dimensions	Finds optimal separating hyperplane	Face recognition, Text classification
K-Means (Clustering)	Fast clustering	Groups similar data points	Customer segmentation, Marketing
Principal Component Analysis (PCA)	Reduces complexity	Extracts principal components	Data visualization, Feature reduction