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| Supervised Learning | Machine learning approach where models train on labeled data for classification or regression tasks. |

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| Unsupervised Learning | Learning from unlabeled data to discover hidden patterns (clustering, dimensionality reduction, anomaly detection). |

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| Semi‑supervised Learning | Hybrid of supervised and unsupervised learning using both labeled and unlabeled data to improve model performance. |

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| Reinforcement Learning | Learning via interaction with an environment, optimizing actions based on rewards or penalties. |

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| Classification | Predicting a categorical label for input data. |

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| Regression | Predicting a continuous numerical value. |

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| Naive Bayes (NB) | Probabilistic classifier based on Bayes’ theorem assuming feature independence. |

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| Linear Discriminant Analysis (LDA) | Linear classifier projecting data into lower‑dimensional space minimizing within‑class variance. |

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| Logistic Regression (LR) | Statistical model using sigmoid function for binary/multiclass classification. |

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| Decision Tree (DT) | Non‑parametric model that makes decisions via a tree of feature-based splits. |

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| Random Forest (RF) | Ensemble of decision trees to improve accuracy and reduce overfitting. |

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| Support Vector Machine (SVM) | Builds a hyperplane maximizing margin between classes. |

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| k‑Nearest Neighbors (KNN) | Instance‑based classifier assigning labels by majority vote of nearest neighbors. |

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| K‑Means | Clustering algorithm partitioning data into k clusters minimizing within‑cluster variance. |

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| Hierarchical Clustering | Builds a tree (dendrogram) of nested clusters. |

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| DBSCAN | Density‑based clustering that finds arbitrarily shaped clusters and noise. |

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| Principal Component Analysis (PCA) | Linear dimensionality reduction maximizing variance retention. |

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| t‑SNE | Nonlinear dimensionality reduction for high‑dimensional data visualization. |

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| Apriori | Algorithm for mining frequent itemsets and association rules. |

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| FP‑Growth | Efficient association rule mining without multiple data scans. |

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| Isolation Forest | Anomaly detection isolating anomalies via random partitioning. |

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| Local Outlier Factor (LOF) | Measures anomaly score based on local density deviation. |

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| Multi‑Layer Perceptron (MLP) | Feedforward neural network for classification/regression. |

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| Convolutional Neural Network (CNN) | Neural network architecture specialized for image processing. |

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| Recurrent Neural Network (RNN/LSTM/GRU) | Neural networks for sequential data modeling. |

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| Autoencoder | Neural network for unsupervised feature learning and anomaly detection. |

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| Generative Adversarial Network (GAN) | Competing neural networks for realistic data generation. |