

**Machine Learning**  
Models & Where  
**to Use Them**

# Machine Learning Models & Where to Use Them

1. **Linear Regression:** Used for predicting continuous numeric values, such as predicting house prices based on features like size and location.
2. **Logistic Regression:** Primarily used for binary classification tasks, such as predicting whether an email is spam or not.
3. **Decision Trees:** Effective for both classification and regression tasks, decision trees are used in scenarios where interpretability of the model is important, such as in medical diagnosis.
4. **Random Forest:** A collection of decision trees that are used for classification and regression tasks, known for their robustness and ability to handle large datasets, such as in banking for fraud detection.
5. **Support Vector Machines (SVM):** Suitable for classification tasks with complex decision boundaries, SVMs are used in applications like image classification and text categorization.
6. **K-Nearest Neighbors (KNN):** A simple and effective algorithm for classification and regression tasks, KNN is used in recommendation systems and anomaly detection.
7. **Naive Bayes:** Particularly useful for text classification tasks, such as sentiment analysis and spam filtering.
8. **Neural Networks:** Deep learning models like convolutional neural networks (CNNs) for image recognition and recurrent neural networks (RNNs) for sequential data such as text and time series forecasting.
9. **Gradient Boosting Machines (GBM):** In Gradient Boosting Machines (GBMs), a learner is a weak learning model that is iteratively combined to create a stronger final model. These weak learners are typically simple models like decision trees with a shallow depth.
10. **Clustering Algorithms (e.g., K-Means, DBSCAN):** Used for unsupervised learning tasks like customer segmentation and anomaly detection in data.