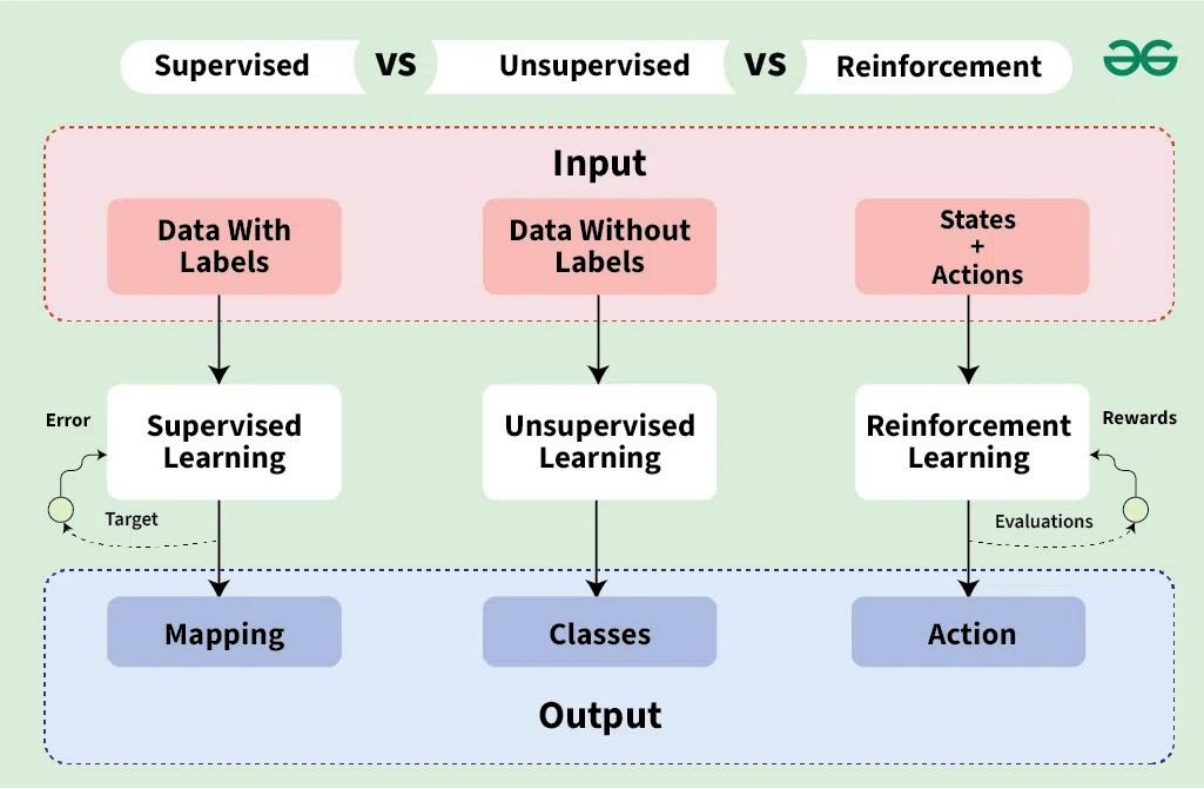
Supervised vs unsupervised vs Reinforcement learning



Criteria	Supervised Learning	Unsupervised Learning	Reinforcement Learning
Definition	Learns from labeled data	Identifies patterns in unlabeled data	Learns through interaction with environment
Type of Data	Labeled data	Unlabeled data	No predefined data learn from environment
Type of Problems	Classification, Regression	Clustering, Association	Sequential decision-making
Supervision	Requires external supervision	No supervision	No supervision, learns from feedback

Criteria	Supervised Learning	Unsupervised Learning	Reinforcement Learning
Algorithms	SVM, Decision Trees, Neural Networks	K-Means, PCA, Autoencoders	Q-learning, DQN, SARSA
Goal	Predict outcomes accurately	Discover hidden patterns	Optimize actions for maximum rewards
Applications	Medical diagnosis, fraud detection	Customer segmentation, anomaly detection	Self-driving cars, robotics, gaming