Summary

Summary:

* **Reinforcement Learning (RL):** An agent learns through trial and error in an environment, receiving feedback (rewards/penalties) for its actions to maximize long-term goals. Used in robotics, game playing, etc.
* **RL Types:** Positive reinforcement (adding something positive to encourage behavior) and negative reinforcement (removing something negative to encourage behavior).
* **RL Elements:** Policy (agent's behavior), reward function (defines the goal), and value function (long-term reward expectation).
* **Supervised Learning:** Trains a model on labeled data (input with correct output) to predict outcomes for new data. Used in image classification, risk assessment, etc.
* **Supervised Learning Types:** Regression (predicting continuous values) and Classification (predicting categories).
* **Unsupervised Learning:** Discovers hidden patterns in unlabeled data. Used for clustering and association.
* **K-Nearest Neighbors (KNN):** A supervised learning algorithm that classifies new data points based on their similarity to existing data points.

**

Flashcards

**

Q1: What is Reinforcement Learning?

A1: A machine learning technique where an agent learns through trial and error in an environment,

receiving feedback (rewards/penalties) to maximize long-term goals.

Q2: What are the two main types of Supervised Learning?

A2: Regression (predicting continuous values) and Classification (predicting categories).

Q3: What is the difference between Supervised and Unsupervised Learning?

A3: Supervised learning uses labeled data (input with correct output), while unsupervised learning uses unlabeled data and discovers hidden patterns.

Q4: What are the three main elements of Reinforcement Learning?

A4: Policy (agent's behavior), reward function (defines the goal), and value function (long-term reward expectation).

Q5: How does the K-Nearest Neighbors algorithm classify data?

A5: It classifies new data points based on their similarity (e.g., Euclidean distance) to existing data points, assigning the new point to the category most common among its K nearest neighbors.