

AI Decision Strategies: Multiple Decision Making & KNN

1. Multiple Decision Making

- **Focus:** Sequential choices under uncertainty to **maximize expected utility**.
- **Tools:**
- **Decision Networks:** Combine chance, decision, and utility nodes.
- **Policies:** Map from states to actions.
- **Value of Information:** Measures benefit of new data before acting.
- **Techniques:** Dynamic Programming, Backward Induction.

2. K-Nearest Neighbors (KNN)

- **Type:** Instance-based, supervised learning.
- **Core Idea:** Classify a sample based on **majority class of its K closest points**.
- **Distance Metrics:** Euclidean, Manhattan, etc.
- **Advantages:** Simple, no training phase.
- **Limitations:** Slow prediction, sensitive to irrelevant features and K value.