Training Day 20 Report

Date: 17 July 2025
Topic: Decision Trees

Overview

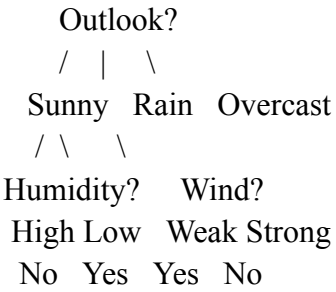
Decision Trees are a popular **supervised learning algorithm** used for both **classification** and **regression** tasks. They work by splitting data into branches based on conditions, forming a tree-like structure.

Key Points

- Each **node** represents a decision based on a feature.
- **Branches** represent possible outcomes of that decision.
- **Leaf nodes** give the final prediction (class or value).
- Easy to understand and visualize.
- Applications: medical diagnosis, fraud detection, customer segmentation.

Visualization Example

Decision Tree for "Play Tennis":



- If **Outlook = Sunny** and **Humidity = High** → No
- If **Outlook = Rain** and **Wind = Weak** → Yes
- If **Outlook = Overcast** → Always Yes

Learning Outcome

- Understood how Decision Trees split data into smaller groups.
- Learned that trees are simple yet powerful for decision-making.
- Saw a visual representation of how classification works step by step.