

## Predict whether a customer will buy coffee based on weather and personal conditions.

Day	Weather	TimeOfDay	SleepQuality	Mood	BuyCoffee
D1	Sunny	Morning	Poor	Tired	Yes
D2	Rainy	Morning	Good	Fresh	No
D3	Overcast	Afternoon	Poor	Tired	Yes
D4	Sunny	Afternoon	Good	Energetic	No
D5	Rainy	Evening	Poor	Tired	Yes
D6	Sunny	Morning	Good	Fresh	No
D7	Overcast	Morning	Poor	Tired	Yes
D8	Rainy	Afternoon	Good	Tired	Yes
D9	Sunny	Evening	Good	Energetic	No
D10	Rainy	Morning	Poor	Tired	Yes

### Feature Descriptions:

- **Weather:** Sunny, Rainy, Overcast
- **TimeOfDay:** Morning, Afternoon, Evening
- **SleepQuality:** Good, Poor
- **Mood:** Fresh, Tired, Energetic
- **BuyCoffee** (Target): Yes / No

Implement a Decision Tree using the ID3 algorithm (entropy criterion) to predict BuyCoffee based on user conditions.

- Train the model
- Plot the tree
- Predict for: Weather=Rainy, TimeOfDay=Morning, SleepQuality=Poor, Mood=Tired
- Explain the decision path