**Decision Tree**

***Decision trees are a popular machine learning algorithm that is widely used for both classification and regression tasks. Here's an overview of key aspects of decision trees and some areas of research***

**Usage:-**

1. **Classification: Assigning categories or labels to input data based on decision rules.**
2. **Regression: Predicting numerical values by mapping input features to an output value.**
3. **Decision Making: Providing a clear and interpretable decision-making structure for various scenarios.**

**Advantage of decision tree:-**

1. **Interpretability: Easily understandable and interpretable.**
2. **Versatility: Handles both numerical and categorical data.**
3. **No Feature Scaling: Does not require feature scaling and Automatically deals with missing values.**

**Disadvantage of decision tree:-**

1. **Overfitting: Prone to overfitting, especially with deep trees.**
2. **Sensitivity to Noisy Data: Can be sensitive to noisy data and outliers.**
3. **Instability: Small changes in data can lead to different tree structures.**
4. **Limited Expressiveness: May struggle to capture complex relationships compared to more advanced models.**

**Decision Tree Model Accuracy :-**

* 0.98 persent #