

Rule-Based Decision System

1 RULE

IF Age > 30 **AND** Income > 50K

THEN Decision = APPROVE

Coverage:  85% Confidence:  92%

2 RULE

IF Credit Score > 700 **AND** Debt Ratio < 0.3

THEN Decision = APPROVE

Coverage:  72% Confidence:  88%

3 RULE

IF Age < 25 **AND** Employment < 1 year

Key Concepts

IF-THEN Structure

Rules extracted from data patterns with logical conditions

Coverage

Number of instances satisfying rule conditions

Confidence

Prediction accuracy for instances matching rule

Interpretability

Each prediction explained by triggering rules

Trade-offs

Balancing concise rule sets with high coverage and accuracy

Metrics Guide

THEN Decision = **REJECT**

- █ **Coverage:** % of data covered
- █ **Confidence:** % prediction accuracy