

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