

## Employee Attrition Model Evaluation Report

### 1. Dataset Overview

Total Records: 1470 employees

Target Variable: Attrition (Yes / No)

Attrition Count:

No: 1233 employees

Yes: 237 employees

### 2. Logistic Regression Model

Accuracy: 87.75%

Confusion Matrix:

	Predicted No	Predicted Yes
Actual No	246	1
Actual Yes	35	12

Classification Report:

Class 0 (No Attrition):

Precision: 0.88

Recall: 1.00

F1-score: 0.93

Class 1 (Attrition):

Precision: 0.92

Recall: 0.26

F1-score: 0.40

Macro Avg F1-score: 0.67

Weighted Avg F1-score: 0.85

### 3. Decision Tree Model

Accuracy: 79.93%

Confusion Matrix:

	Predicted No	Predicted Yes
Actual No	220	27
Actual Yes	32	15

Classification Report:

Class 0 (No Attrition):

Precision: 0.87

Recall: 0.89

F1-score: 0.88

Class 1 (Attrition):

Precision: 0.36

Recall: 0.32

F1-score: 0.34

Macro Avg F1-score: 0.61

Weighted Avg F1-score: 0.79

### **Model Insights**

Logistic Regression performs better in terms of overall accuracy and precision.

However, recall for actual attrition (Class 1) is low in both models.

Decision Trees slightly improve recall at the cost of precision.

For HR use-cases, combining models or using ensemble methods may boost minority class detection.

### **Attrition Prevention Suggestions**

#### **Career Growth & Promotions**

- Offer timely promotions and career advancement programs.
- Encourage lateral movement within departments.

#### **Work-Life Balance**

- Implement flexible working hours and remote options.
- Monitor and reduce overtime, especially for roles with high attrition.

#### **Compensation & Recognition**

- Align salary bands with market standards.
- Recognize high performers with bonuses or recognition programs.

#### **Engagement & Inclusion**

- Increase employee engagement through regular feedback and surveys.
- Foster an inclusive culture and address employee concerns early.

#### **Learning & Development**

- Provide continuous learning programs and technical upskilling.
- Support certifications and advanced training for career mobility.

#### **Managerial Support**

- Ensure managers are trained in empathetic leadership.

- Monitor teams with low satisfaction or poor feedback scores.

#### **Data-Driven Monitoring**

- Use predictive analytics to identify high-risk employees.
- Track trends by department, job role, or tenure for preventive action.