

# HR Attrition Prediction – Model Accuracy Report and Prevention Suggestions

## 1. Model Overview

- **Model Used:** Logistic Regression
- **Objective:** Predict whether an employee will leave (Attrition = Yes/No).
- **Dataset Size (Test Set):** 294 employees

## 2. Confusion Matrix

	<b>Predicted: No Attrition</b>	<b>Predicted: Attrition</b>
<b>Actual: No Attrition</b>	247	8
<b>Actual: Attrition</b>	23	16

**True Negatives (TN):** 247

**False Positives (FP):** 8

**False Negatives (FN):** 23

**True Positives (TP):** 16

**Interpretation:** The model performs very well at identifying employees who will stay (97% recall for “No Attrition”). It is less effective at predicting employees who will leave (41% recall for “Attrition”).

<b>Metric</b>	<b>Precision</b>	<b>Recall</b>	<b>F1-Score</b>	<b>Support</b>
No Attrition (0)	0.91	0.97	0.94	255
Attrition (1)	0.67	0.41	0.51	39
<b>Accuracy</b>			<b>0.89</b>	294
Macro Avg	0.79	0.69	0.72	294
Weighted Avg	0.88	0.89	0.88	294

### 3. Classification Report

### 4. Key Findings

- The model achieves an overall accuracy of ~89%.
- Strong performance in detecting employees who stay (high precision & recall for class 0).
- Moderate performance in detecting employees who leave (attrition).
- Indicates class imbalance (far fewer Attrition cases than No Attrition).

## HR Attrition Prevention Suggestions

### 1. Compensation and Benefits

- Ensure competitive salaries aligned with market standards.
- Provide performance-based incentives and bonuses to retain top performers.
- Review salary bands regularly to reduce dissatisfaction among employees in the lower range.

### 2. Career Growth and Learning

- Offer clear career progression paths and regular promotions where deserved.
- Invest in upskilling programs (technical, leadership, and soft skills).
- Encourage internal mobility so employees can explore different roles without leaving the company.

### **3. Work-Life Balance**

- Promote flexible working hours and remote work options.
- Implement well-being programs (mental health support, counseling, wellness activities).
- Avoid employee burnout by monitoring workload and setting realistic deadlines.

### **4. Managerial Support and Culture**

- Train managers in effective leadership and communication skills.
- Encourage regular feedback sessions and open communication channels.
- Foster an inclusive, recognition-driven work culture that values contributions.

### **5. Employee Engagement and Retention Programs**

- Conduct engagement surveys and act on employee feedback.
- Build mentorship programs to strengthen employee connections.
- Recognize and reward employee achievements through employee-of-the-month awards, team celebrations, etc.

### **6. Targeted Retention for At-Risk Groups**

- Use analytics to identify high-risk employees (e.g., low promotion history, low salary band).
- Provide personalized retention plans such as role changes, promotions, or targeted incentives.
- Establish stay interviews (proactive discussions on why employees might leave).