Employee Attrition Analytics Report

Project Overview

This project focuses on analyzing employee attrition data to identify key factors influencing employee resignations. We built classification models to predict attrition and used SHAP analysis to explain the predictions.

Tools Used

- Python (Pandas, Scikit-learn, Seaborn, SHAP)
- Power BI

Deliverables

- Exploratory Data Analysis (EDA)
- Classification Model (Decision Tree)
- SHAP Model Explanation
- Attrition Prevention Recommendations
- Power BI Dashboard

Model Evaluation

Model Accuracy: 0.86

Classification Report:
No Attrition -> Precision: 0.89, Recall: 0.90, F1-score: 0.90
Attrition -> Precision: 0.83, Recall: 0.81, F1-score: 0.82
Overall Accuracy: 0.86

Confusion Matrix

		Predicted	
		No	Yes
Actual	No	112	13
	Yes	14	61

Key Insights from EDA

- Sales and Support departments have the highest attrition rates.
- Employees with low salaries are more likely to leave.
- Lack of promotion in the last 5 years correlates with attrition.
- Poor work-life balance scores align with higher attrition.
- Employees with <3 or >10 years in the company show higher risk.

Attrition Prevention Strategies

1. Improve Employee Satisfaction:

   - Conduct regular surveys and act on feedback.

   - Recognize and reward performance transparently.

2. Address Work-Life Balance:

   - Offer flexible hours and reduce overtime.

   - Promote wellness and mental health support.

3. Optimize Salary and Compensation:

   - Ensure competitive and fair pay via benchmarking.

   - Include performance-based bonuses and benefits.

4. Promote Career Development:

   - Offer clear growth paths and internal mobility.

   - Provide training and mentoring opportunities.

5. Focus on High-Risk Groups:

   - Target departments like Sales and Support.

   - Monitor and retain dissatisfied high performers.