The aim of this project is to develop a machine learning model that can predict employee attrition based on various features related to employee performance, work environment, and personal attributes. By identifying the key factors contributing to employee turnover, the company can implement targeted strategies to enhance employee retention and create a more stable and productive workforce.

Step 1: Problem Definition

Objective: To build a predictive model that identifies employees who are likely to leave the company.

Step 2: Data Collection

The dataset provided includes various features about employees:

- satisfaction_level
- last_evaluation
- number_project
- average_montly_hours
- time_spend_company
- Work_accident
- left (target variable)
- promotion_last_5years
- Department
- salary

Step 3: Data Preprocessing

1. Loading the Dataset
2. Handling Missing Values
3. Encoding Categorical Variables
4. Feature Scaling

Step 4: Exploratory Data Analysis (EDA)

Perform EDA to understand the data distribution and relationships.

Step 5: Model Building

1. Splitting the Data: Train and test split.
2. Choosing the Algorithm: Logistic Regression, Random Forest, etc.
3. Training the Model
4. Evaluating the Model

Step 7: Conclusion

Based on the analysis and model predictions:

- The most important features contributing to employee attrition include satisfaction level, number of projects, and average monthly hours.

Step 8: Recommendations

To improve employee retention, the company should focus on:

1. Increasing Employee Satisfaction: Implement initiatives to enhance job satisfaction.
2. Managing Workload: Ensure a balanced distribution of projects and hours.
3. Monitoring Key Indicators: Regularly monitor and address factors contributing to employee attrition, such as workload and job satisfaction.