

# 🌟 Elevate labs Internship – Data Analyst

## Project : HR Analytics- Predict Employee Attrition

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 Course: B.Tech CSE (AI & ML), 2023–2027

### Project Summary:

#### Objective:

The primary goal of this project was to predict employee attrition using machine learning techniques and to design a Power BI dashboard that effectively communicates insights from the predictions. The purpose was to help HR departments understand patterns in employee turnover and proactively identify potential attrition risks.

### Python-Based Machine Learning Implementation:

#### Steps Followed:

##### **1. Data Preprocessing:**

Handled missing values, encoded categorical columns, and scaled numerical fields.

Split the dataset into features (X) and target (Attrition).

##### **2. Model Selection:**

Used Logistic Regression and Random Forest Classifier.

Random Forest performed better in terms of accuracy and F1-score.

##### **3. Model Training & Testing:**

Trained model on training set and evaluated on test set.

Model achieved good performance with balanced precision and recall.

#### 4. Prediction Export:

Added prediction results to the original dataset.

Final dataset (HR\_Attrition\_Predictions.csv) contains an additional column "Prediction" marked as Yes/No.



#### **Power BI Dashboard Summary:**

A user-friendly interactive dashboard was created to visualize the employee attrition trends and model predictions.



#### **Key Visuals Included:**

- ✓ Pie Chart
- ✓ Bar Chart
- ✓ Donut Chart
- ✓ Clustered Column Chart
- ✓ Slicers



#### **Customization:**

Used HR-relevant color schemes.

Included titles, legends, and data labels for clarity.

Exported final dashboard as PDF.



#### **Insights Discovered:**

Prediction model helps in identifying at-risk employees before they leave, enabling preventive actions.



#### **Conclusion:**

This end-to-end project successfully demonstrated the use of machine learning for HR analytics and the power of data storytelling with Power BI. The solution can help organizations proactively manage employee retention and reduce costs related to attrition.

