Employee Attrition Prediction and Insights Dashboard

Overview

This application allows businesses to predict employee attrition and gain actionable insights from their employee data. By analyzing key attributes, the model identifies employees who are at risk of leaving the company. This enables HR teams and managers to take proactive measures to improve employee retention, reduce turnover costs, and enhance overall organizational performance.

Attrition Prediction Scores:

- **0**: The employee is predicted to stay with the company.
- **1**: The employee is predicted to leave (high risk of attrition).

Upload Employee Data or Paste CSV Data

Data Requirements

For accurate predictions, the dataset should include the following columns:

- **EmployeeID**: Unique identifier for each employee.
- **Age**: Age of the employee.
- **Gender**: Gender of the employee.
- **Department**: Department where the employee works.
- **Tenure**: Number of years the employee has been with the company.
- **JobRole**: Role or position of the employee within the company.
- **Salary**: Current salary of the employee.
- **JobSatisfaction**: Self-reported job satisfaction score (out of 10).
- **EngagementScore**: Employee engagement score (percentage).
- **PerformanceRating**: Performance rating (out of 5).
- **WorkLifeBalance**: Work-life balance rating (out of 5).

Upload CSV File   ⑦

	Drag and drop file here	
☁	Limit 200MB per file • CSV	Browse files

Or paste your CSV data here (CSV format)

```
E49994,57,Female,Finance,5,Manager,77814,9,96,4,4,42,85,No,Bachelor's,Low Risk
E49995,36,Male,Sales,14,Technician,48539,5,58,3,2,11,67,No,Master's,Medium Risk
E49996,28,Male,Finance,3,Developer,50348,4,41,2,3,28,35,No,High School,Medium Risk
E49997,42,Female,Marketing,12,Developer,68626,9,76,5,5,41,68,Yes,Bachelor's,Low Risk
E49998,54,Female,R&D,5,Developer,42002,5,65,2,3,9,25,No,Bachelor's,Medium Risk
E49999,58,Female,HR,4,Analyst,75980,7,65,3,3,48,93,Yes,Bachelor's,Medium Risk
E50000,31,Male,Sales,3,Manager,80309,3,8,1,1,38,52,Yes,High School,High Risk
```

Data pasted successfully!

Pasted Data Preview:

	EmployeeID	Age	Gender	Department	Tenure	JobRole	Salary	JobSatisfaction	Engagem
0	E00001	35	Female	Marketing	13	Technician	71,074	6	
1	E00002	23	Female	Finance	20	Manager	100,692	3	
2	E00003	41	Female	Marketing	16	Technician	53,434	4	
3	E00004	39	Female	R&D	8	Manager	108,846	5	
4	E00005	52	Female	Sales	14	Engineer	93,854	8	

Model Selection and Prediction

Model Selection

Choose a predictive model based on your business needs:

- **AdaBoost**: Ideal for businesses needing quick, actionable results with simpler data. AdaBoost is efficient and provides good predictions with a moderate number of features. It is suitable when you need to rapidly identify at-risk employees for early intervention.

- **Random Forest**: Suitable for complex data patterns and provides deeper insights. Random Forest excels with larger datasets and helps understand trends and factors contributing to attrition. Choose this model if you seek comprehensive insights into employee behavior.

Choose a model for predicting employee attrition:

Random Forest ⌄

Prediction Threshold

The prediction threshold determines the sensitivity of the model in classifying employees as at risk of attrition.

- A **lower threshold** captures more employees who might be at risk, allowing for early intervention but may include false positives.
- A **higher threshold** focuses on employees who are highly likely to leave, reducing false positives but potentially missing early warning signs.

Adjust the threshold based on your organization's risk tolerance and resource capacity for intervention.

Select Prediction Threshold

0.40

0.00   1.00

Attrition Prediction Results

|	Home	TrainingHours	Overtime	EducationLevel	Risk Category	Attrition Prediction	Risk Percentage
0	46	29	No	Master's	Low Risk	0	25.500000
1	18	65	Yes	Bachelor's	Medium Risk	1	49.000000
2	17	69	No	Bachelor's	Low Risk	0	0.000000
3	13	65	No	Bachelor's	Low Risk	0	15.500000
4	24	12	No	High School	Low Risk	0	24.500000
5	14	64	No	Bachelor's	Low Risk	0	16.500000
6	25	58	No	High School	Low Risk	0	0.000000
7	14	60	Yes	Master's	High Risk	1	71.000000
8	29	90	No	Bachelor's	Low Risk	0	0.000000
9	33	69	Yes	Bachelor's	Low Risk	0	0.000000

Current Attrition vs Predicted Attrition

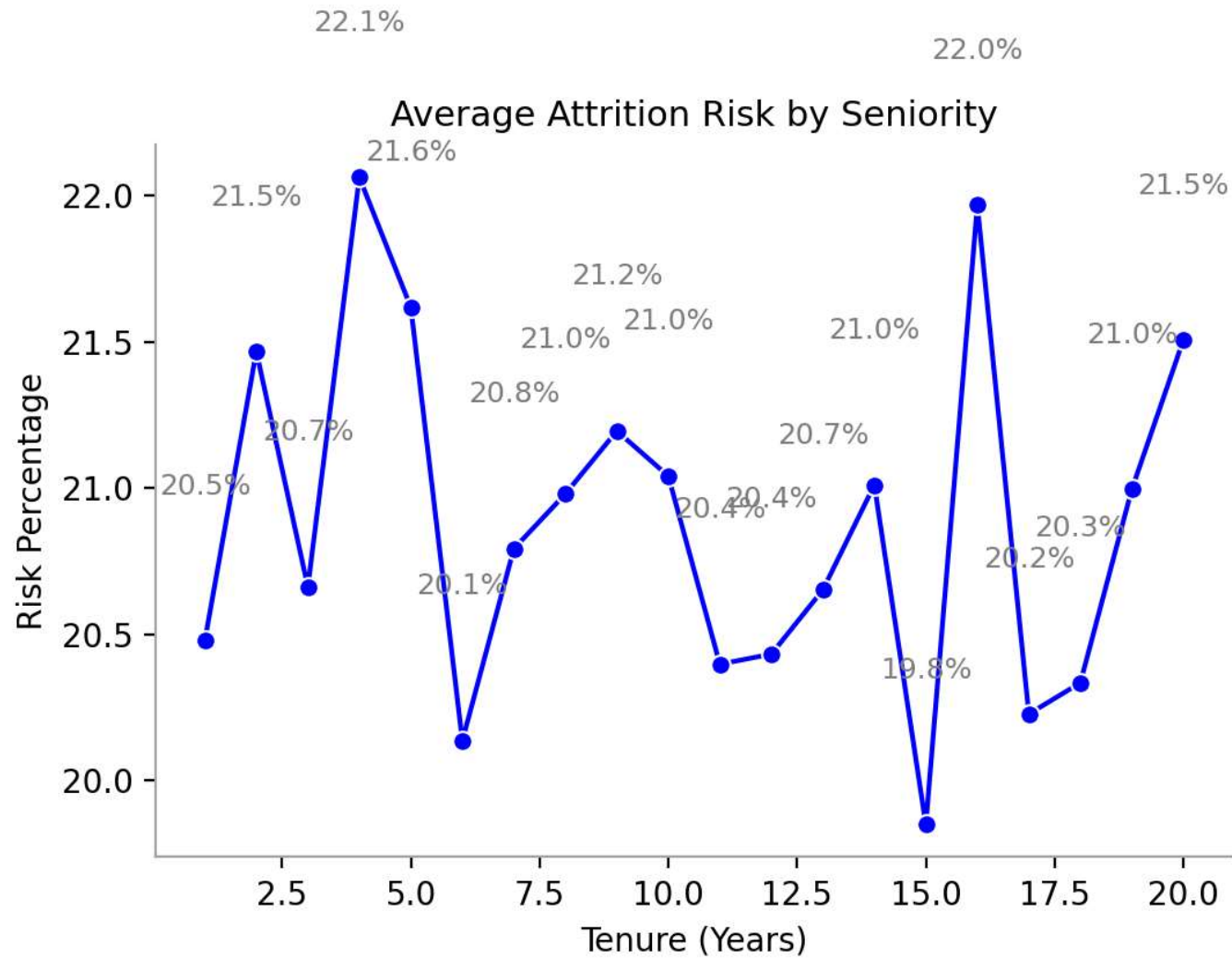## Current vs Predicted Attrition
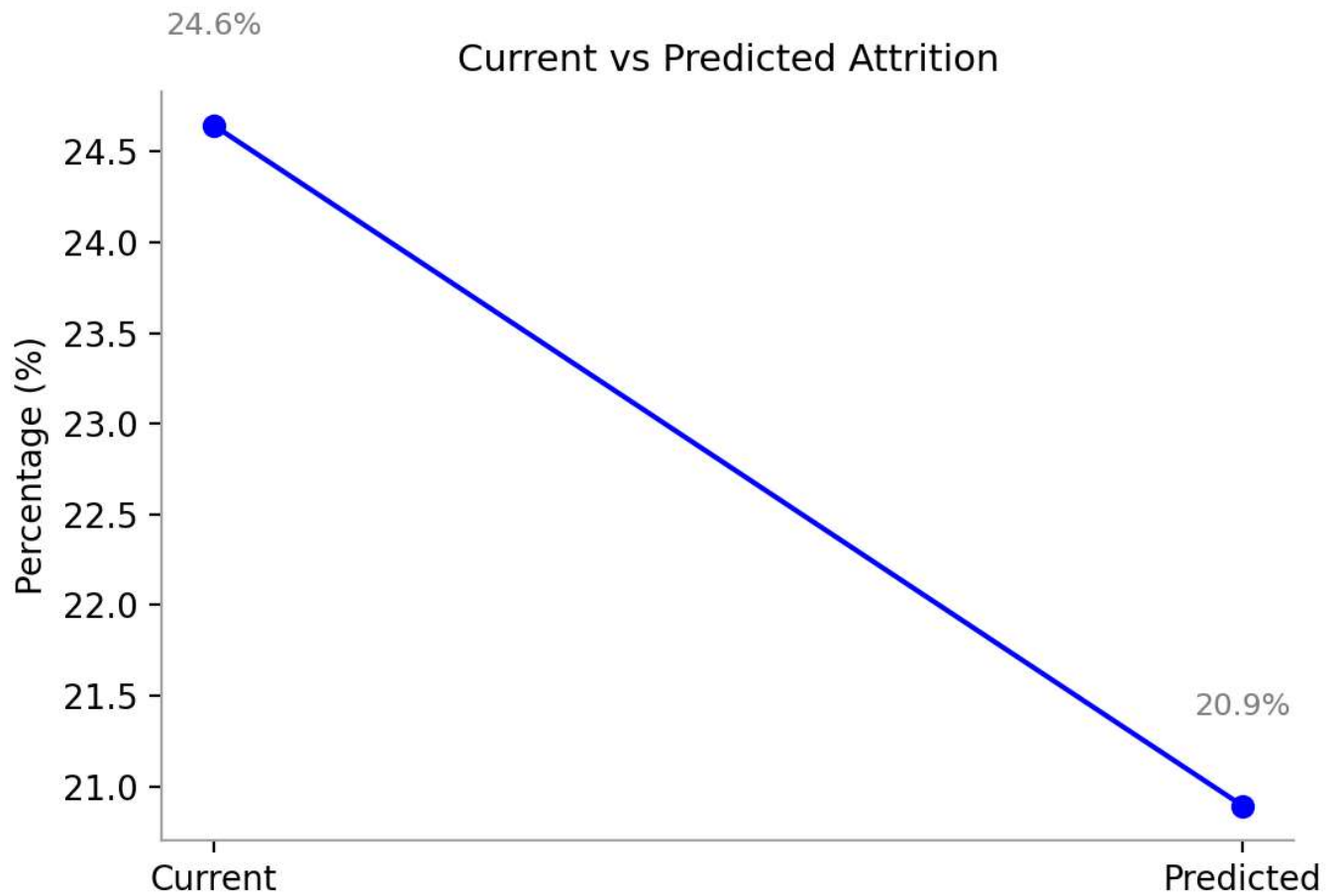
Average Risk Percentage by Job Role
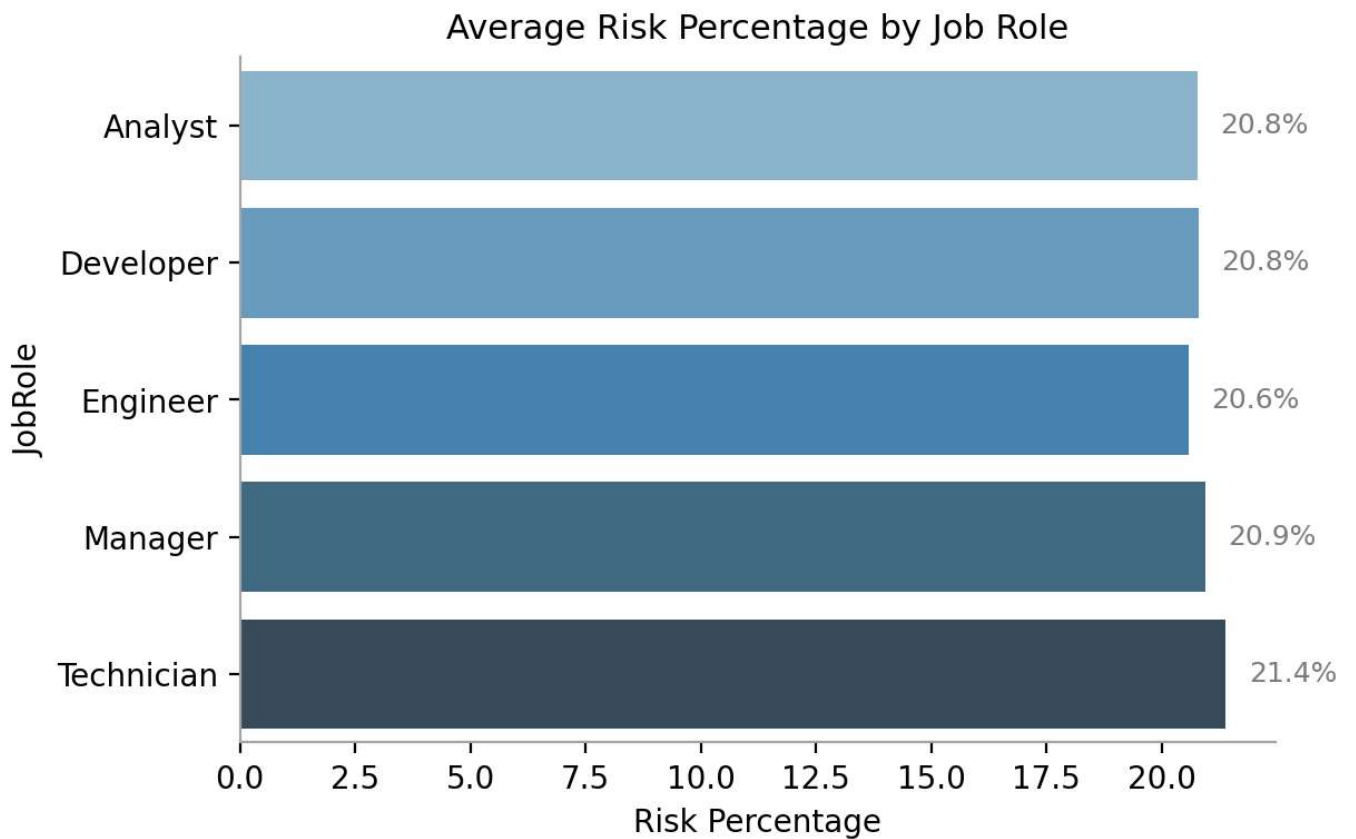
Average Risk Percentage by Department
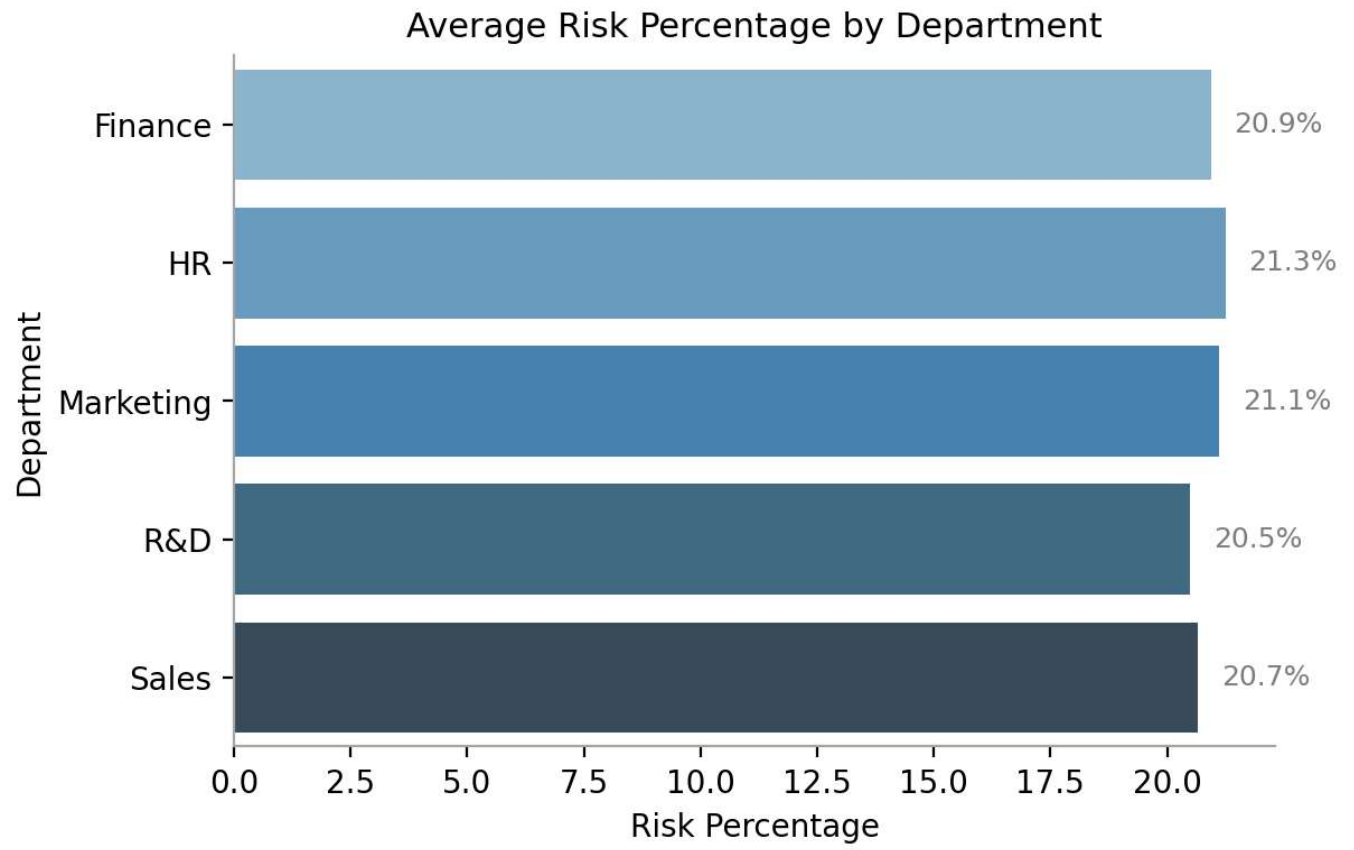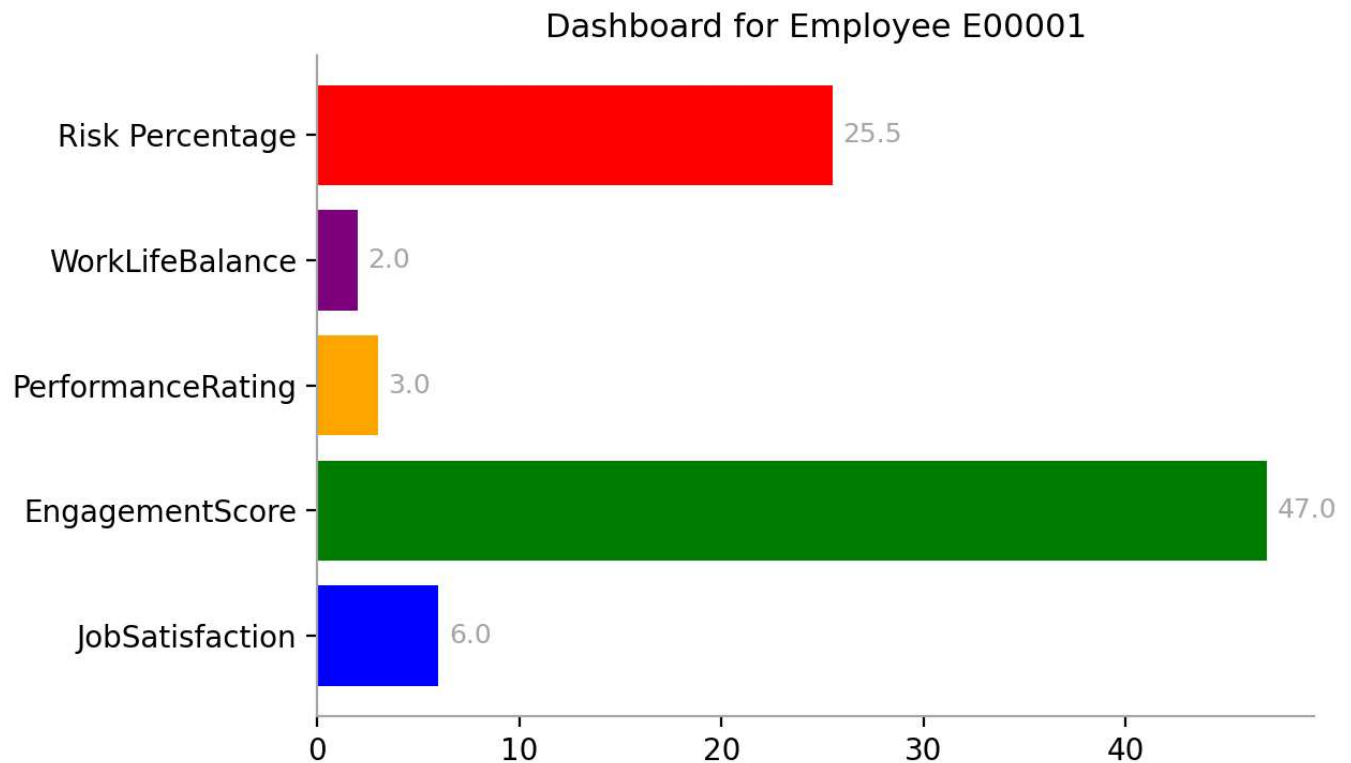

Average Risk Percentage by Seniority

Individual Employee Dashboard

Select Employee by ID

E00001 ⌄

Dashboard for Employee E00001

Insights and Recommendations

Based on the data, the overall average attrition risk is **20.9%**.

The current predicted attrition rate is **24.6%**.

The department with the lowest attrition risk is **R&D**, while the highest risk is in **HR**.

Recommendations:

- **High Risk (20-30%)**: Immediate attention is required. Evaluate compensation packages, benefits, and workloads to address employee concerns.

Data-Driven Insights

The following insights have been derived from the data to help inform strategic actions:

1. **Engagement and Attrition Risk Correlation**: There is a correlation of **-0.63** between engagement scores and attrition risk. Lower engagement scores are associated with higher attrition risk. Enhancing employee engagement programs may help reduce attrition.

2. **Overtime Impact**: Employees who frequently work overtime have higher attrition risk. Consider balancing workloads and encouraging a healthy work-life balance.

- **Overtime = No:** 10.1% risk

- **Overtime = Yes**: 34.7% risk

3. **Training and Development**: The average training hours per employee is **54.8**. Providing additional training and development opportunities can enhance employee satisfaction and reduce attrition risk.

Download Results

Download Results as CSV