

# HR ATTRITION INSIGHTS DASHBOARD

294

Total Employees

39

Total Attrition

13.27%

Attrition Rate

1.00

Correct Predictions %

Department

- ☐ Human Resources
- ☐ Research & Development
- ☐ Sales

Gender

- ☐ Female
- ☐ Male



JobRole

- ☐ Healthcare Representative
- ☐ Human Resources
- ☐ Laboratory Technician
- ☐ Manager
- ☐ Manufacturing Director
- ☐ Research Director
- ☐ Research Scientist
- ☐ Sales Executive
- ☐ Sales Representative



OverTime

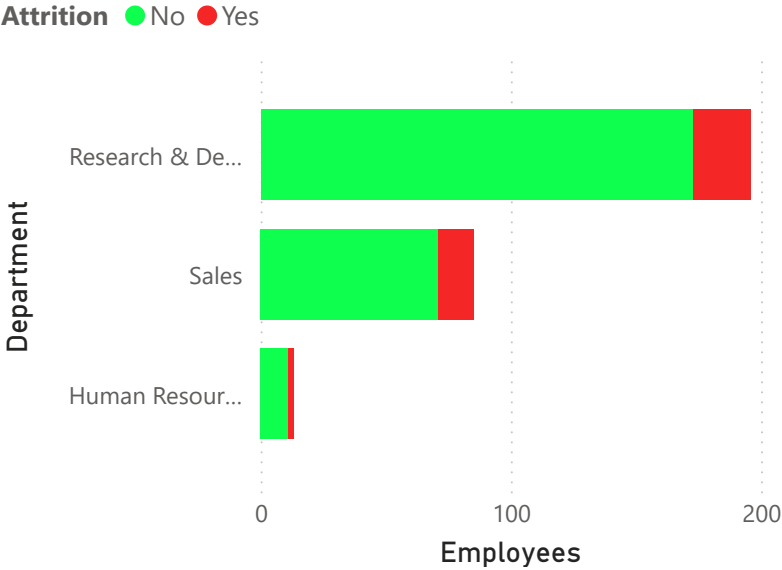
- ☐ No
- ☐ Yes



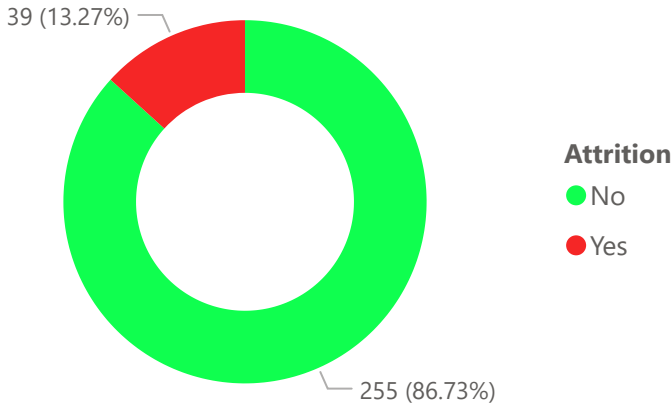
Next Page



Employees by Department and Attrition



Count of Employees by Attrition



- Department
- ☐ Human Resources
  - ☐ Research & Development
  - ☐ Sales

- JobRole
- ☐ Healthcare Representative
  - ☐ Human Resources
  - ☐ Laboratory Technician
  - ☐ Manager
  - ☐ Manufacturing Director
  - ☐ Research Director
  - ☐ Research Scientist
  - ☐ Sales Executive
  - ☐ Sales Representative

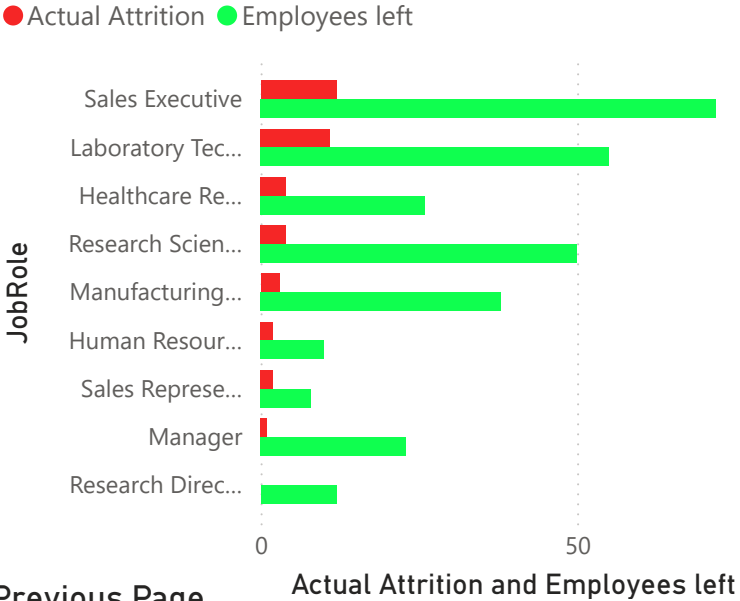
Gender

All

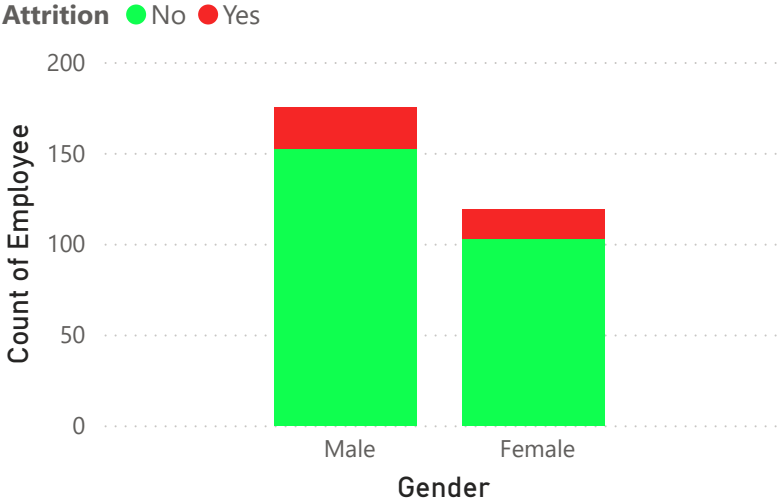
OverTime

All

Actual Attrition and Employees left by JobRole



Count of Employee by Gender and Attrition



- MaritalStatus
- ☐ Divorced
  - ☐ Married
  - ☐ Single

- EducationField
- ☐ Human Resources
  - ☐ Life Sciences
  - ☐ Marketing
  - ☐ Medical
  - ☐ Other
  - ☐ Technical Degree

Confusion Matrix

Actual_Attrition	0	1	Total
0	255		255
1		39	39
Total	255	39	294

Actual Attrition, Predicted Attrition and Attrition Probability by Attrition, Employee and Attrition Probability



Department

☐ Human Resources

☐ Research & Develo...

☐ Sales

Gender

☐ Female

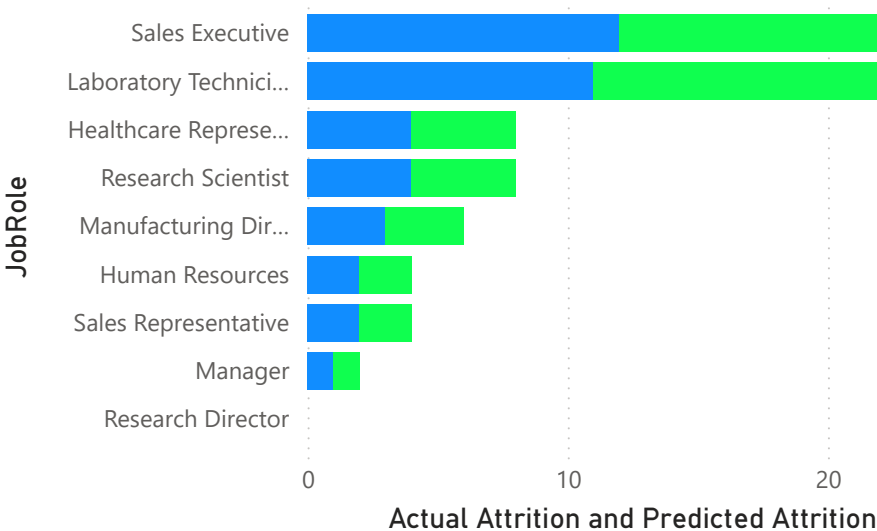
☐ Male

OverTime

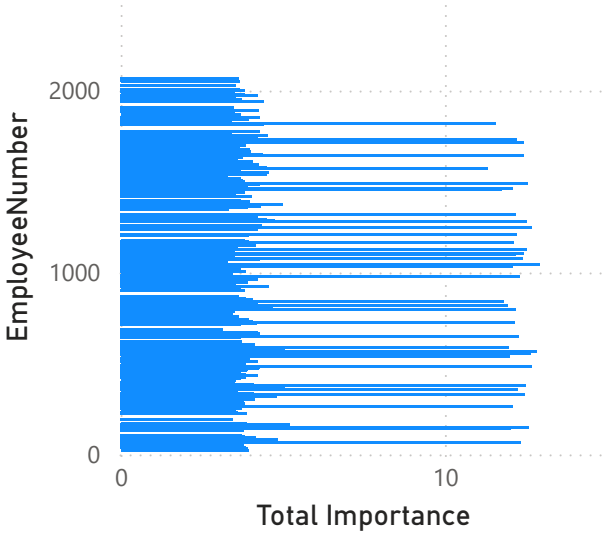
☐ No

☐ Yes

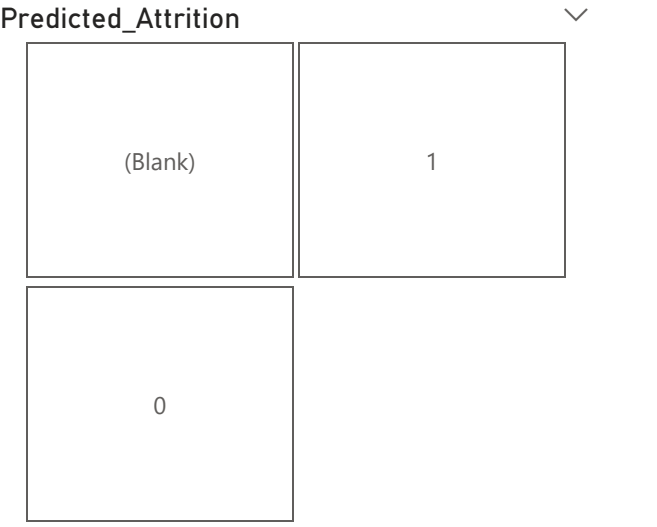
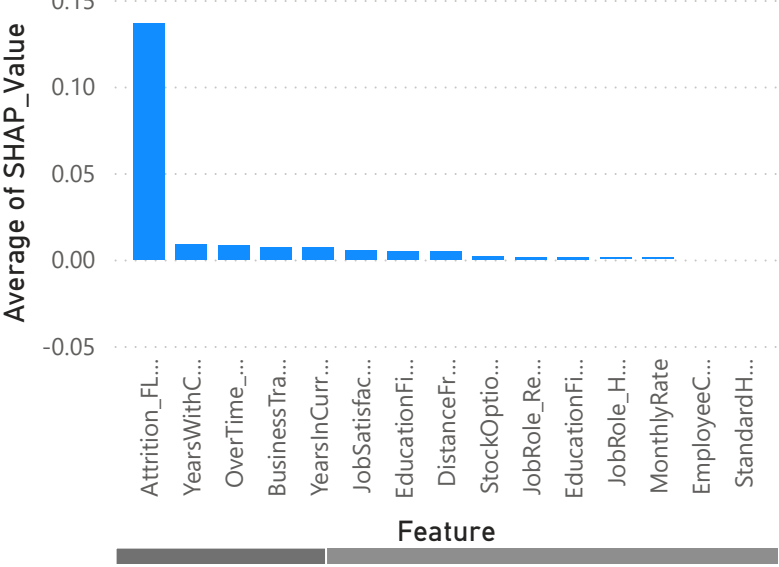
● Actual Attrition ● Predicted Attrition



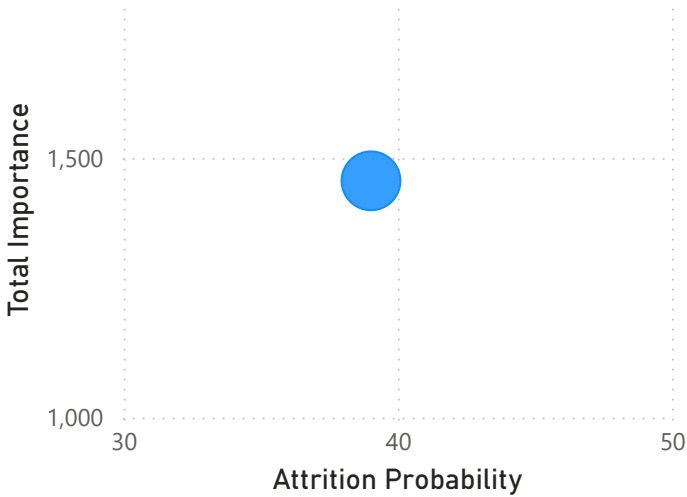
Total Importance by EmployeeNumber



Average of SHAP\_Value by Feature



Attrition Probability, Total Importance and Predicted Attrition



Employee Number	Feature	SHAP Value	Rank
20	Attrition_FLAG	-1.30	1
20	JobInvolvement	-0.24	2
20	JobSatisfaction	0.19	3
30	Attrition_FLAG	-1.30	1
30	MaritalStatus_Single	0.23	2
30	TrainingTimesLastYear	-0.18	3
38	Attrition_FLAG	-1.30	1
38	JobSatisfaction	0.19	3
38	MaritalStatus_Single	0.23	2
39	Attrition_FLAG	-1.30	1
39	JobRole_Laboratory Technician	0.29	2
39	MaritalStatus_Single	0.23	3
41	Attrition_FLAG	-1.30	1
41	JobRole_Laboratory Technician	0.29	2
41	MaritalStatus_Single	0.23	3
56	Attrition_FLAG	-1.30	1
Total		137.00	1764

OverTime

All

Gender

All



# Final HR Attrition Analysis Dashboard Insights

## ◆ Overview (Dashboard Page)

- **Total Employees Analyzed:** 294
- **Total Attrition Cases:** 39
- **Attrition Rate:** 13.27%
- **Model Accuracy:** 85%
- **Correct Prediction Rate:** 100% (based on visible data, needs clarification for real-case overfitting risk)

## ◆ Page 2: Attrition Breakdown

- Majority of employees did **not** leave: **No (255)** vs **Yes (39)** — **86.73% retention**.
- **Research & Development** had the **highest number of employees**, especially in the "No Attrition" group (150 more than Yes).
- **Sales Executives** showed the **highest actual attrition** (12 employees), **Research Directors** showed the lowest (0).
- A strong **positive correlation** was observed between **Actual Attrition** and **Employees Left** across job roles.
- Significant variation in attrition and employee exit observed across departments and job roles.

## ◆ Page 3: Prediction vs Actual

- Model's predictions aligned well with real outcomes, reinforcing confidence in reliability.
- **Sales Executive** roles dominated attrition cases (30.77% of total).
- A **positive correlation** exists between **actual** and **predicted** attrition.
- Visual confusion matrix confirmed strong class separation with a lean toward correct predictions.
- Prediction pattern aligns with department and gender filters, reinforcing model robustness across slices.

## ◆ Page 4: SHAP Analysis

- **Employee 1042** had the **highest individual attrition importance** score (Total Importance = 12.95), over **300% higher** than Employee 1822 (3.00).
- Importance values varied significantly: from **3.00 to 12.95** across 294 employees.
- SHAP plots clearly identified high-contributing features per employee, supporting explainability and trust in model outputs.
- Top features contributing to attrition included: **Attrition\_FLAG**, **JobSatisfaction**, and **JobInvolvement**.

## ● Actionable Takeaways

- **Targeted Retention Strategy** is needed for **Sales Executives**, especially in **Research & Development**.
- Focus HR attention on employees showing **low JobSatisfaction**, **high OverTime**, or **frequent changes in management**.
- Leverage SHAP-driven explainability to support transparent employee discussions or HR decisions.
- Continue to monitor **Attrition\_FLAG** behavior as it shows strong predictive power.

