

HUMAN RESOURCES DATA SET ANALYSIS



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PROJECT OVERVIEW

Objective: Analyze HR data to improve retention and performance.

Scope: Data cleaning, EDA, forecasting, visualization.

Tools: Python, SQL and Power BI.



DATA OVERVIEW

- **Employee** – Demographics, salary, roles, attrition
- **Performance Rating** – Satisfaction, ratings
- **Education Level** – Mapping of education levels
- **Rating Level** – Performance categories
- **Satisfied Level** – Satisfaction scale



KEY ANALYSIS QUESTIONS

What are the questions these data can directly answer through the insights and analysis

1

What is the distribution of employee demographics?

2

How is education level distributed?

3

What are the salary trends across roles and departments?



KEY ANALYSIS QUESTIONS

What are the questions these data can directly answer through the insights and analysis



4

What are the key factors driving attrition?

5

How does job satisfaction relate to training and performance?

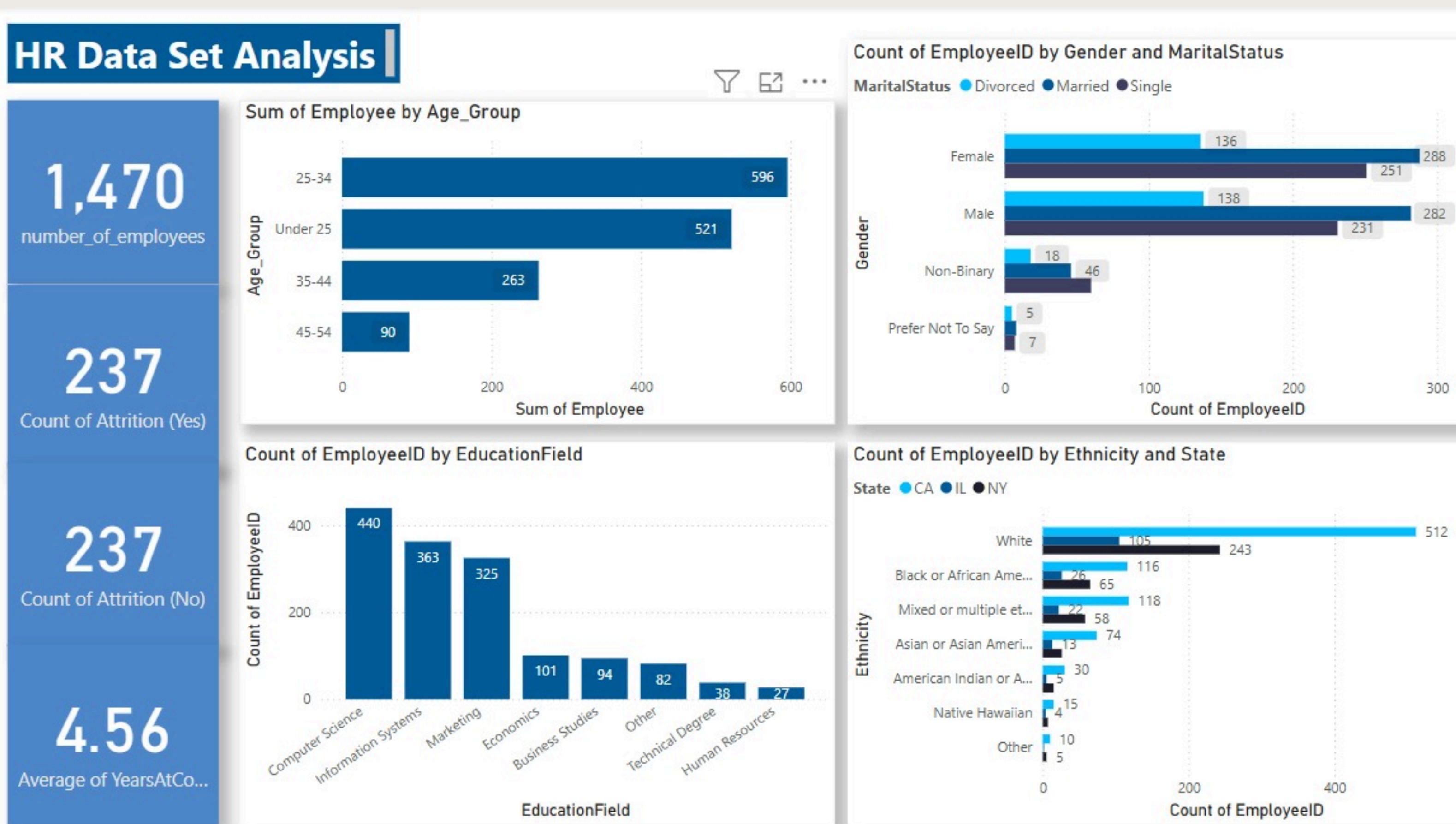
6

Is distance, overtime, or travel affecting attrition?

7

Which departments perform best overall?

DEMOGRAPHICS INSIGHTS



DEMOGRAPHICS INSIGHTS



**Most employees are
aged 25–34**

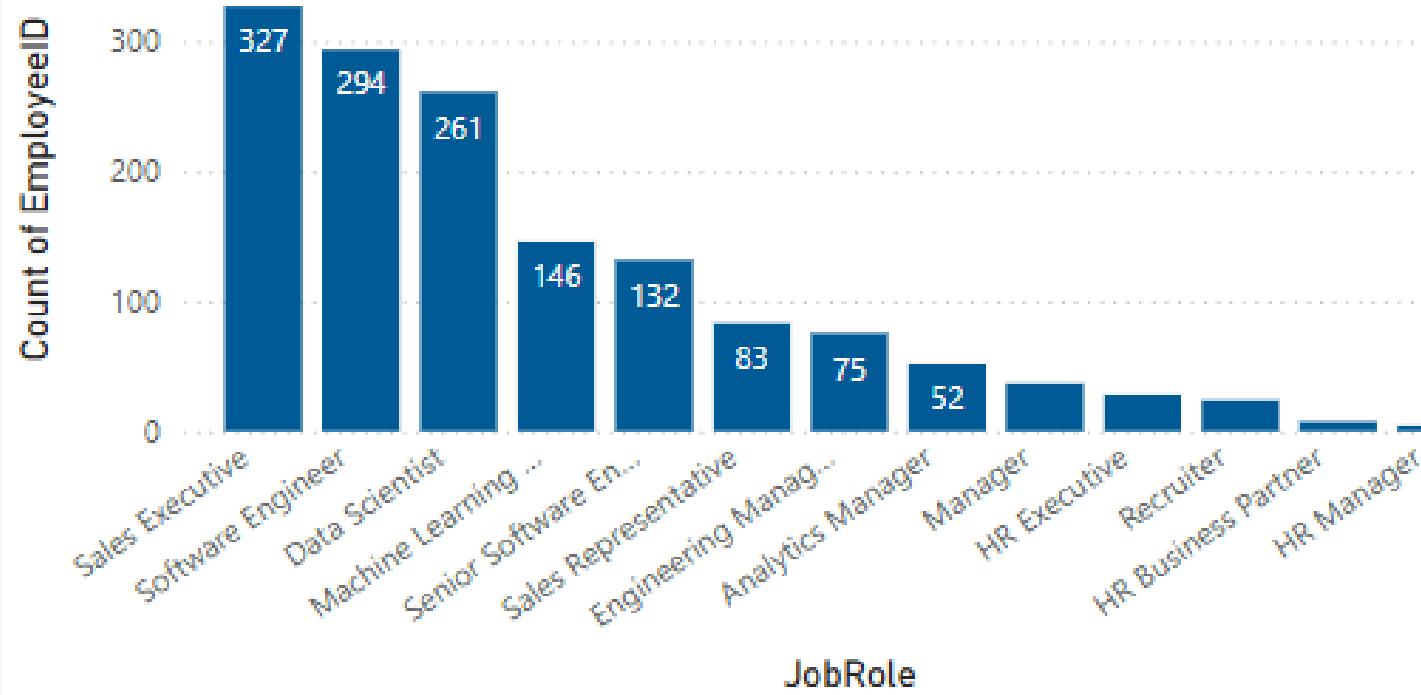
Majority are from CA state

**Balanced gender
distribution with slightly
more females**

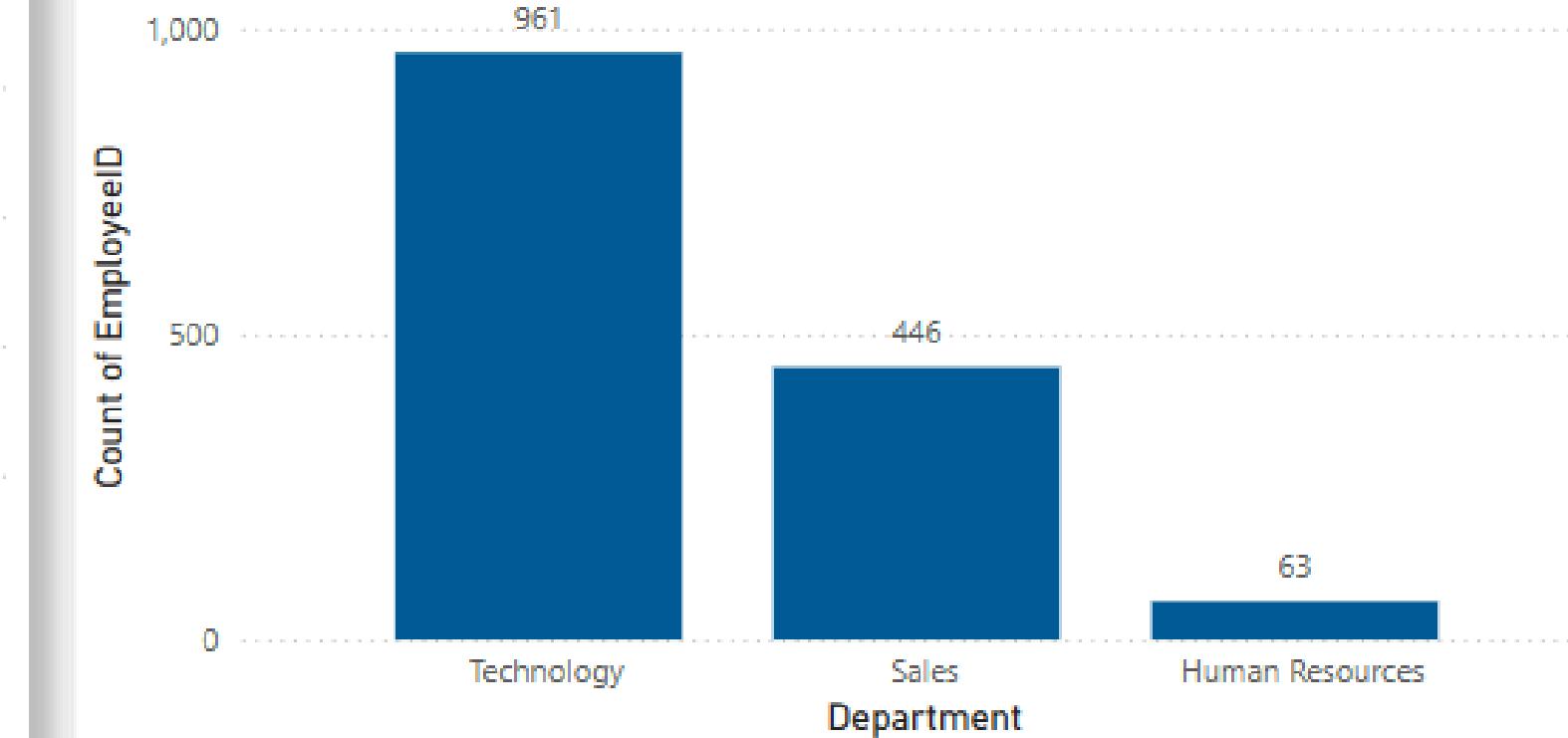
**Diverse marital statuses
and ethnic backgrounds**

EDUCATION & DEPARTMENT INSIGHTS

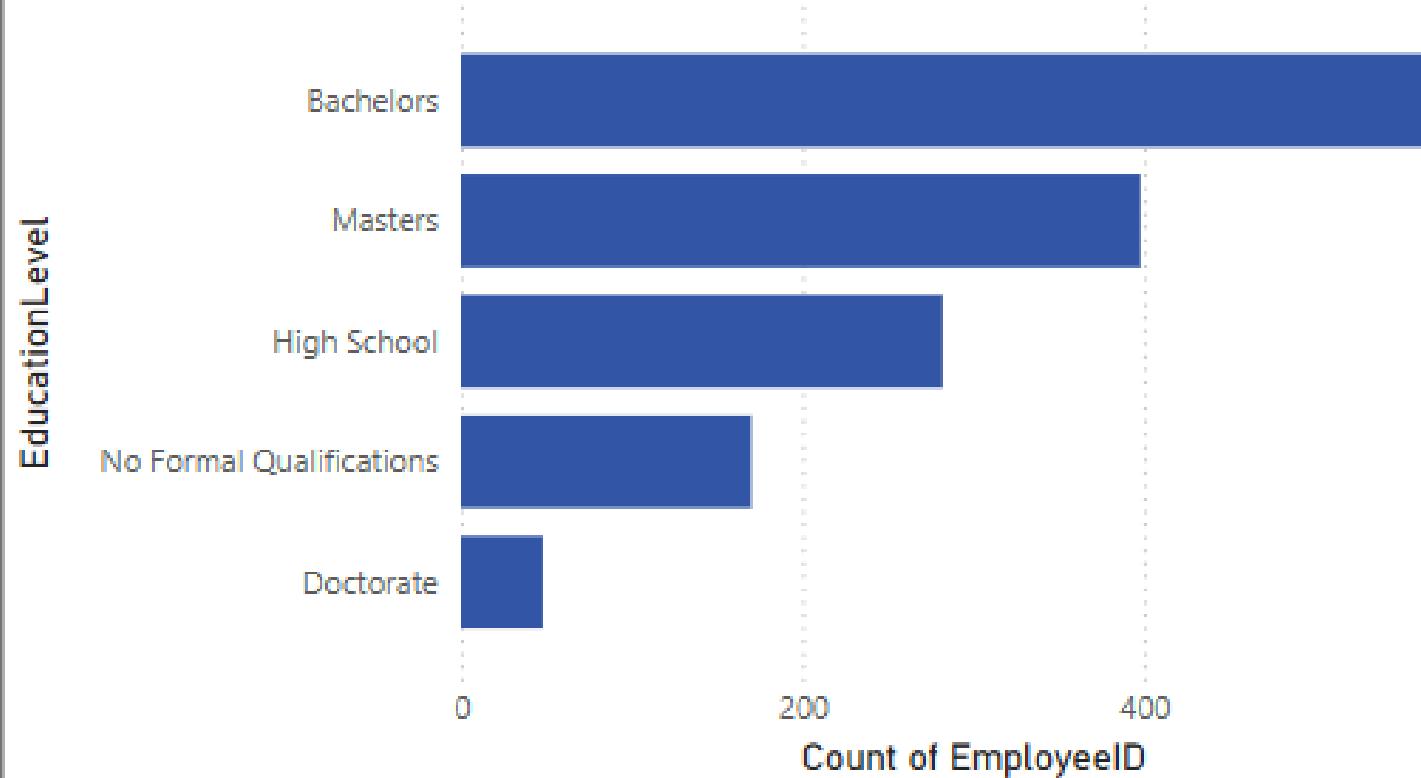
Count of EmployeeID by JobRole



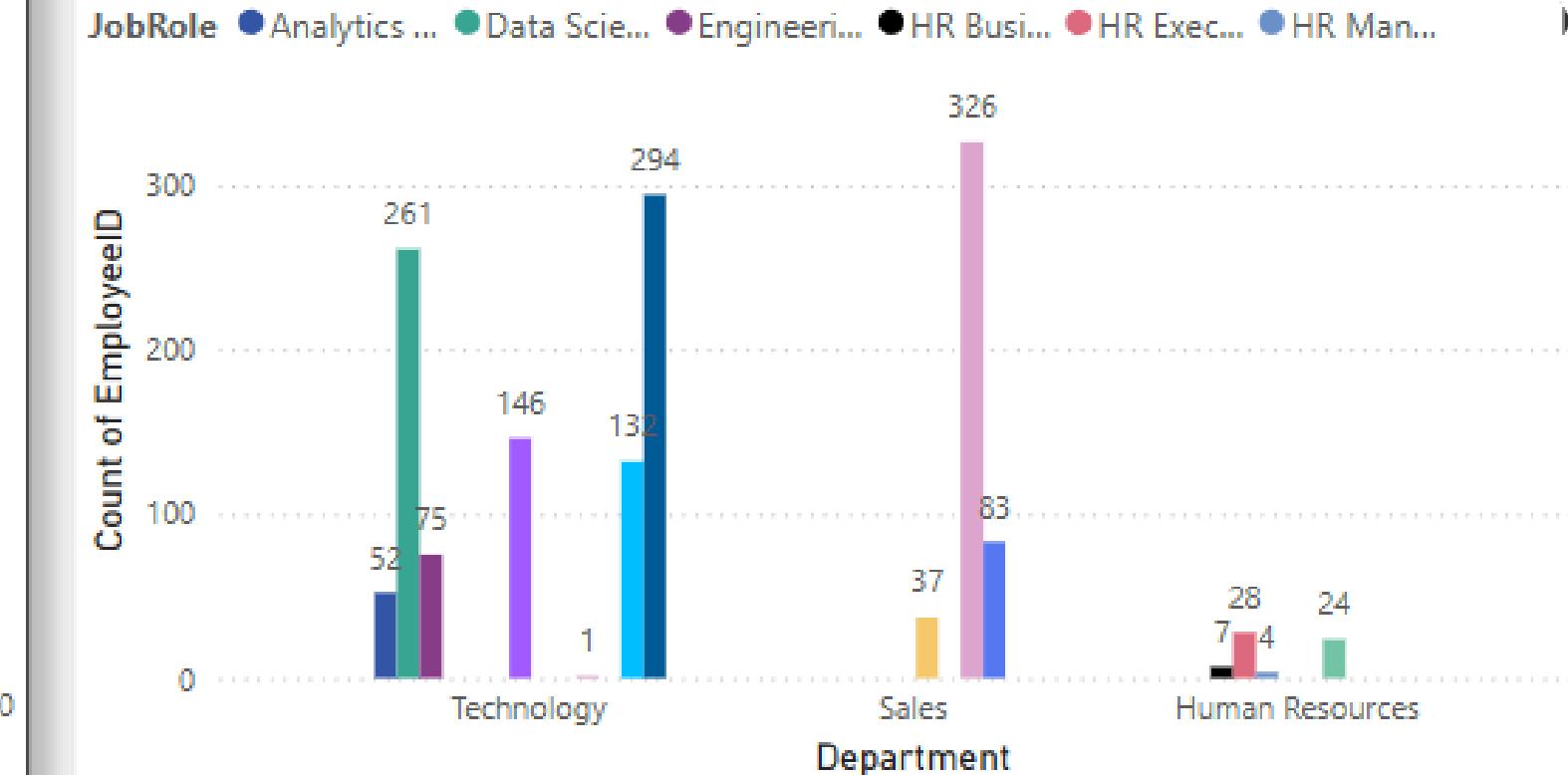
Count of EmployeeID by Department



Count of EmployeeID by EducationLevel

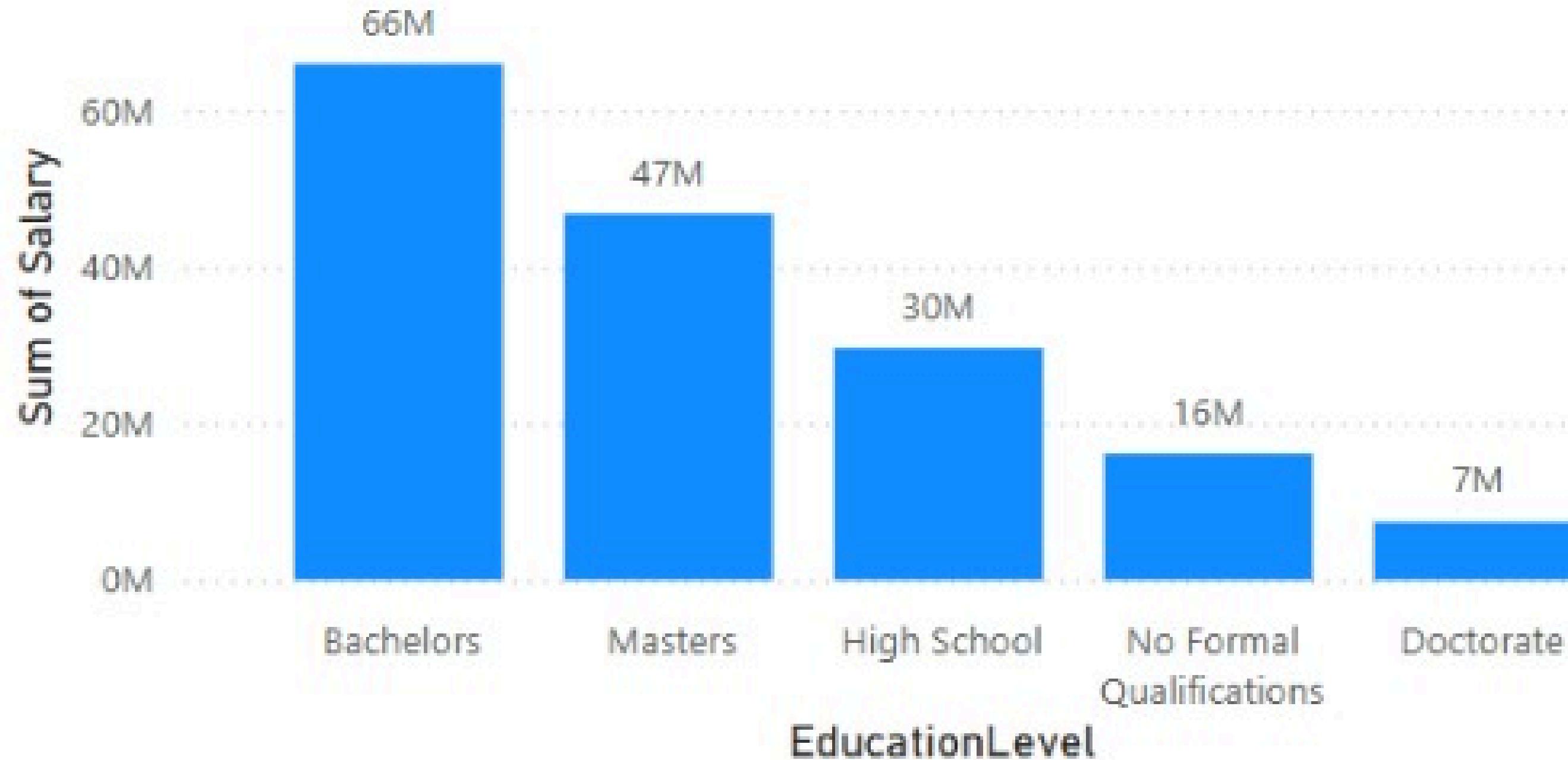


Count of EmployeeID by Department and JobRole



EDUCATION & DEPARTMENT INSIGHTS

Sum of Salary by EducationLevel



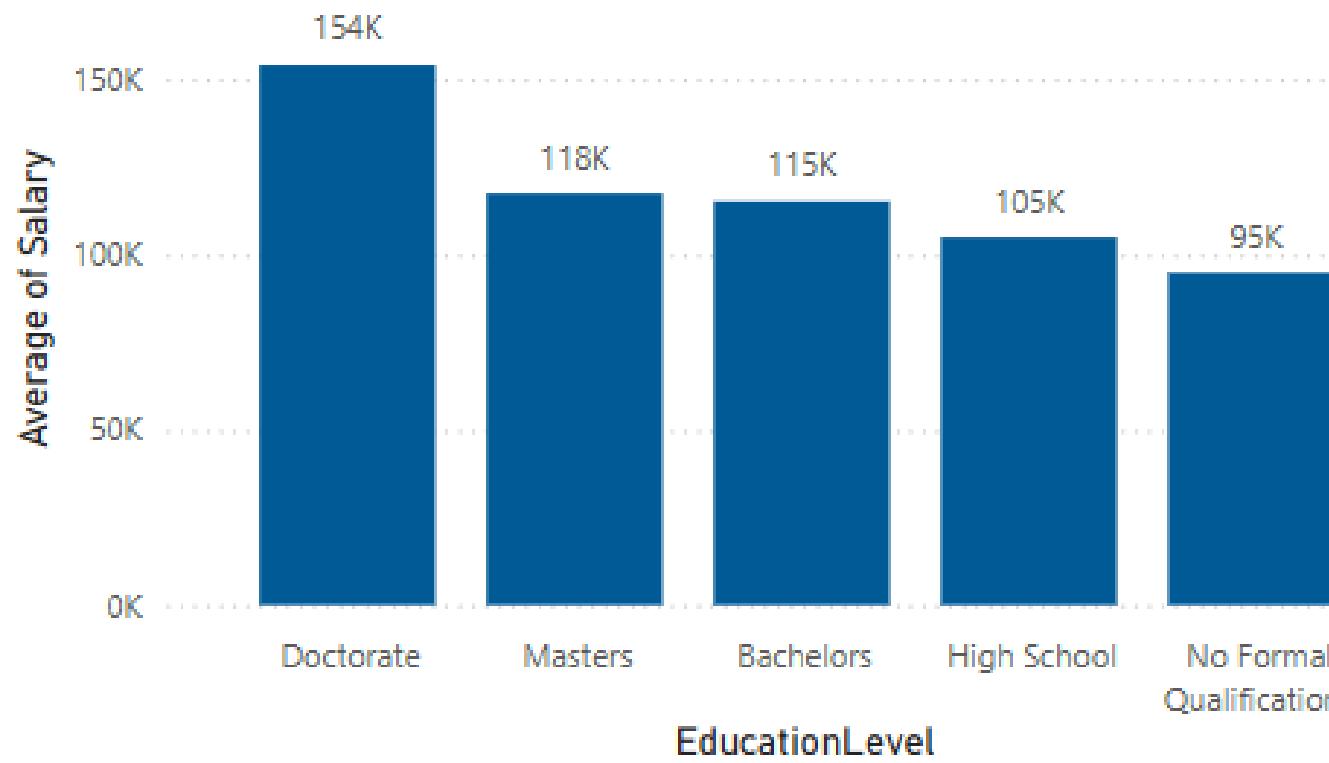
EDUCATION & DEPARTMENT INSIGHTS

- 1 Most common education fields:
Computer Science, Info Systems
- 2 Top education levels: Bachelors, Masters
- 3 Largest department: Technology
- 4 Popular roles: Sales Exec, Software
Engineer, Data Scientist

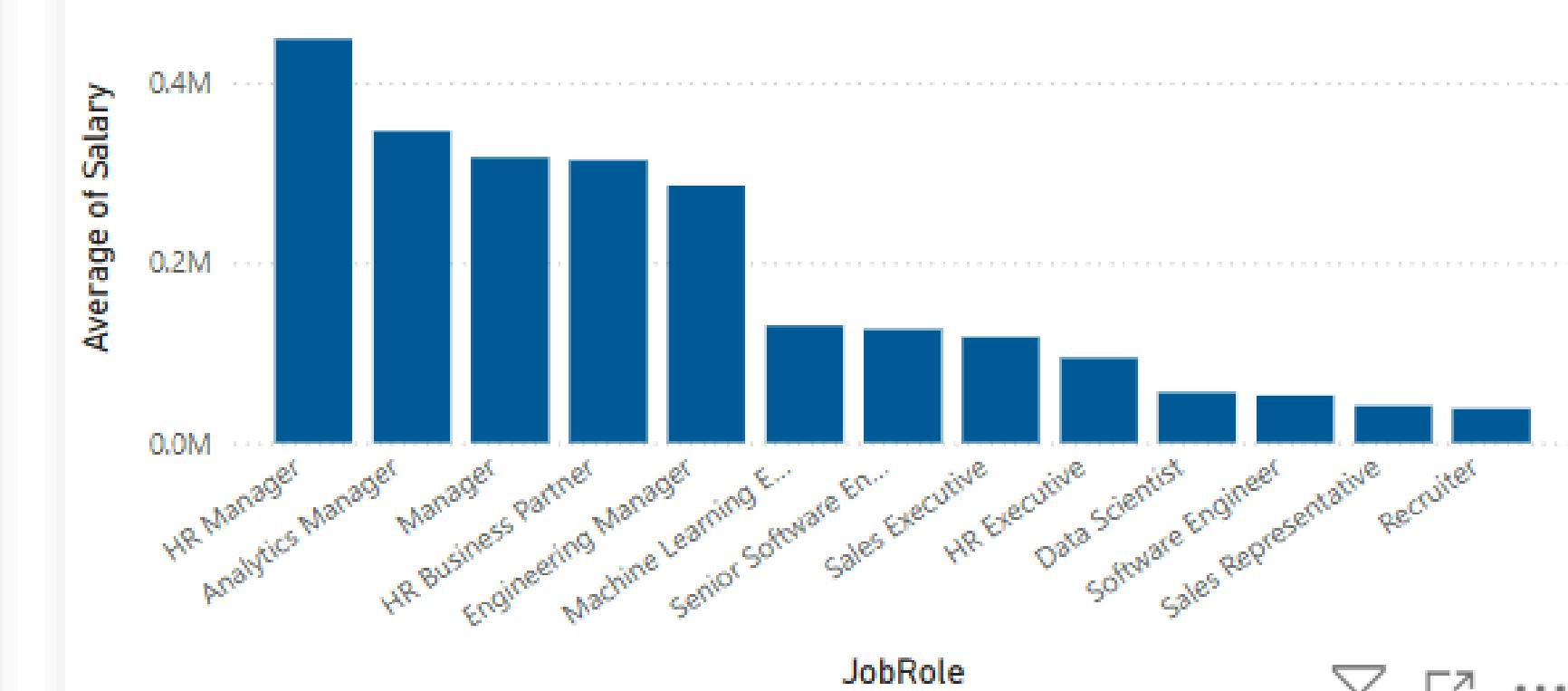


SALARY TRENDS

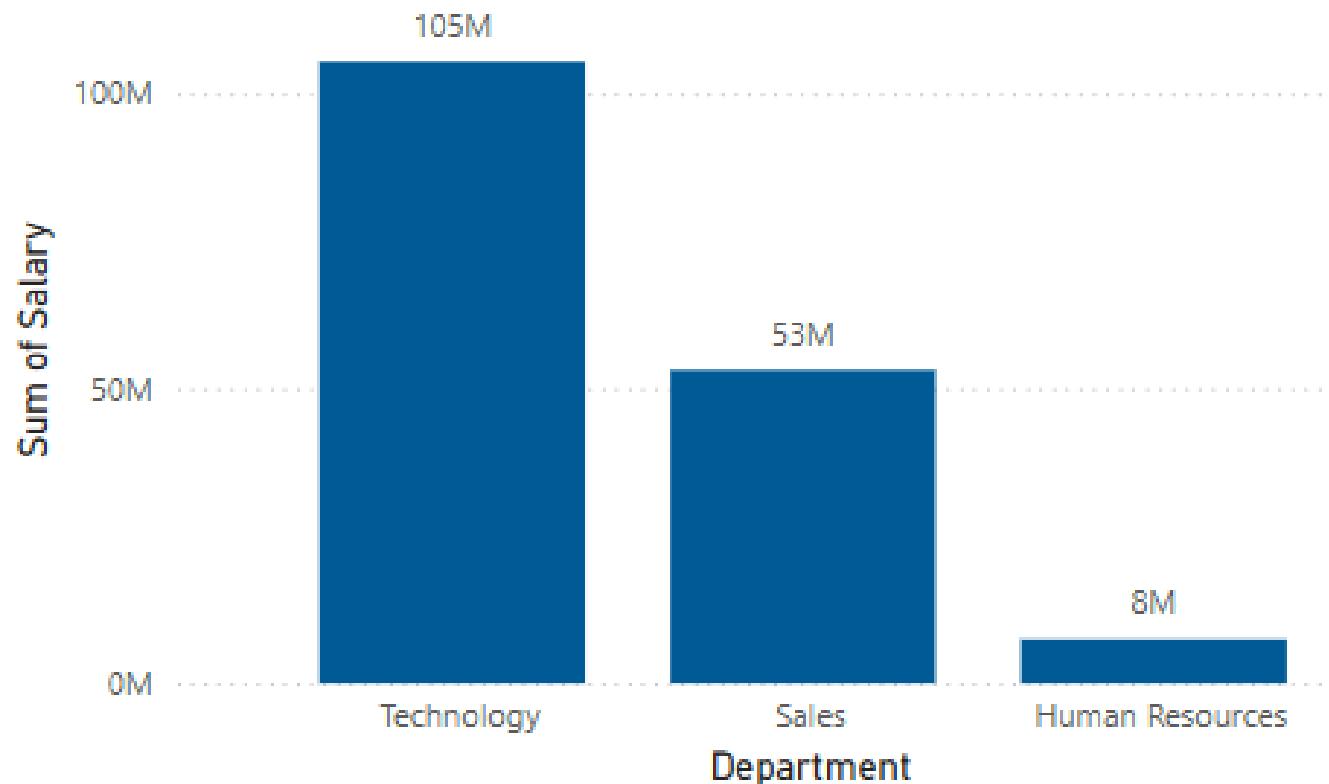
Average of Salary by EducationLevel



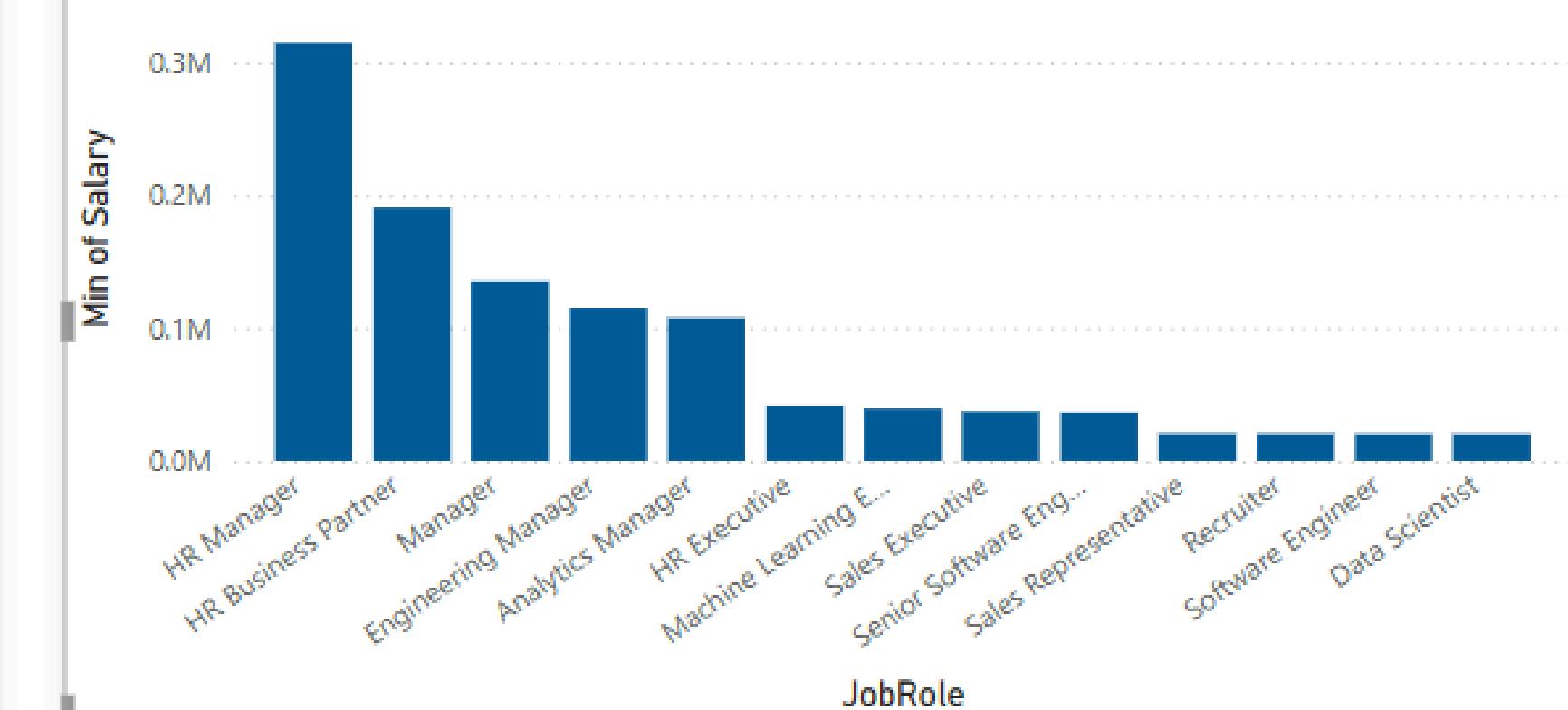
Average of Salary by JobRole



Sum of Salary by Department



Min of Salary by JobRole



SALARY TRENDS

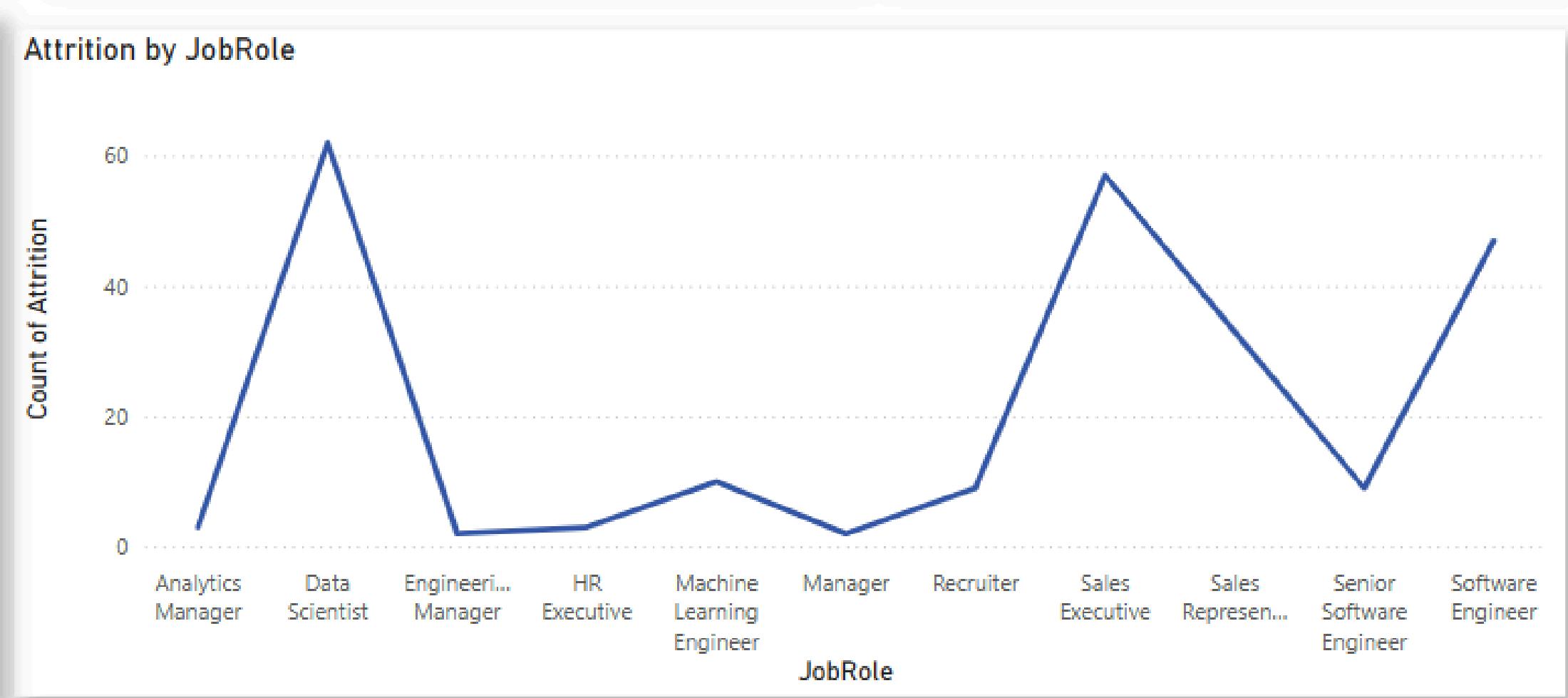
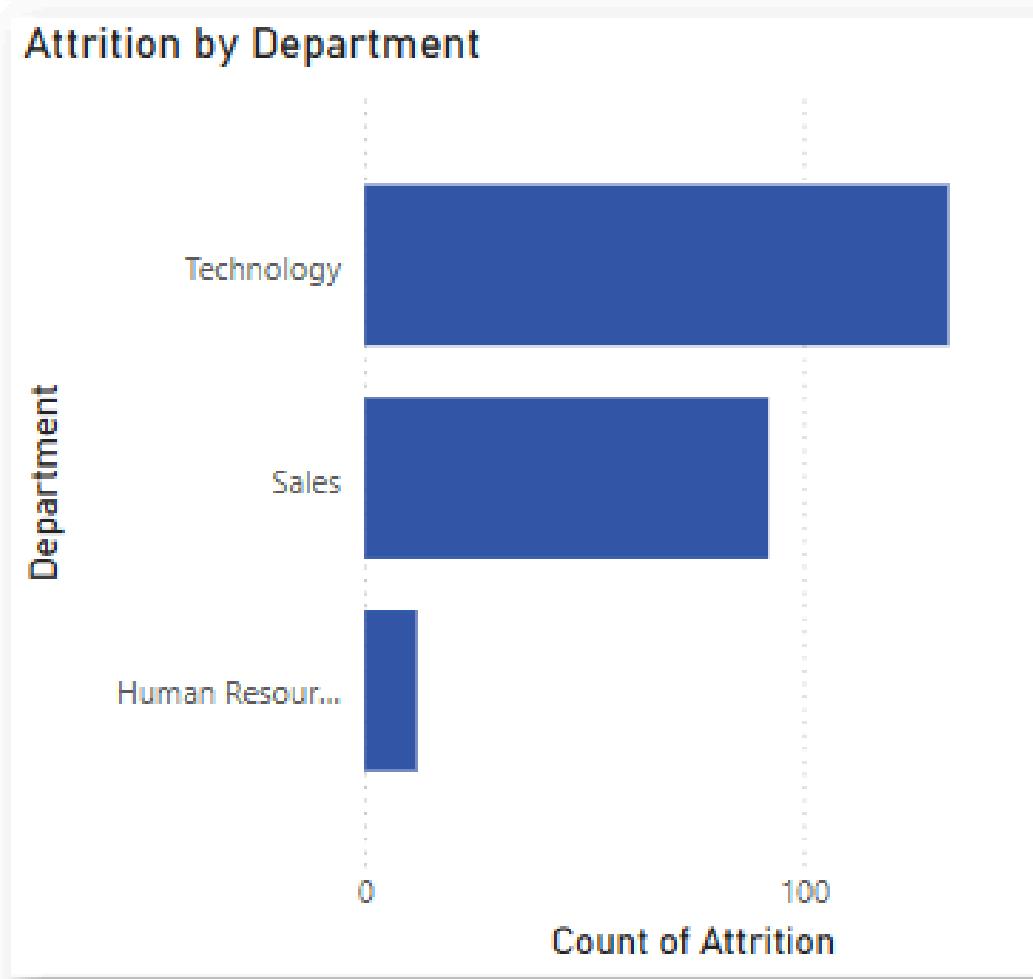
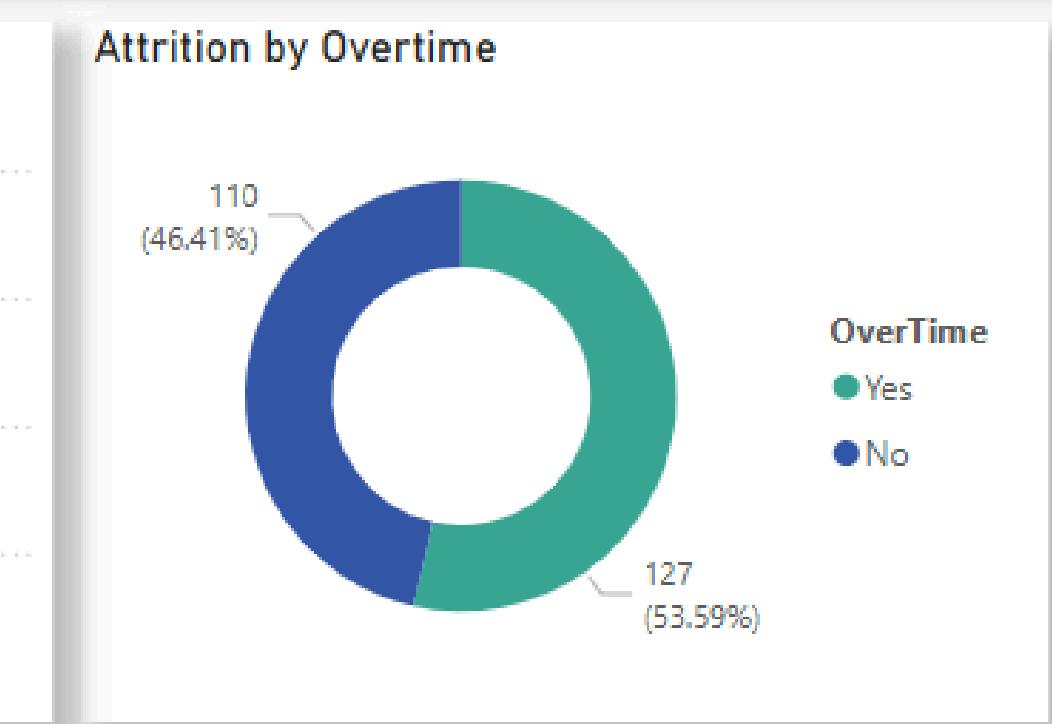
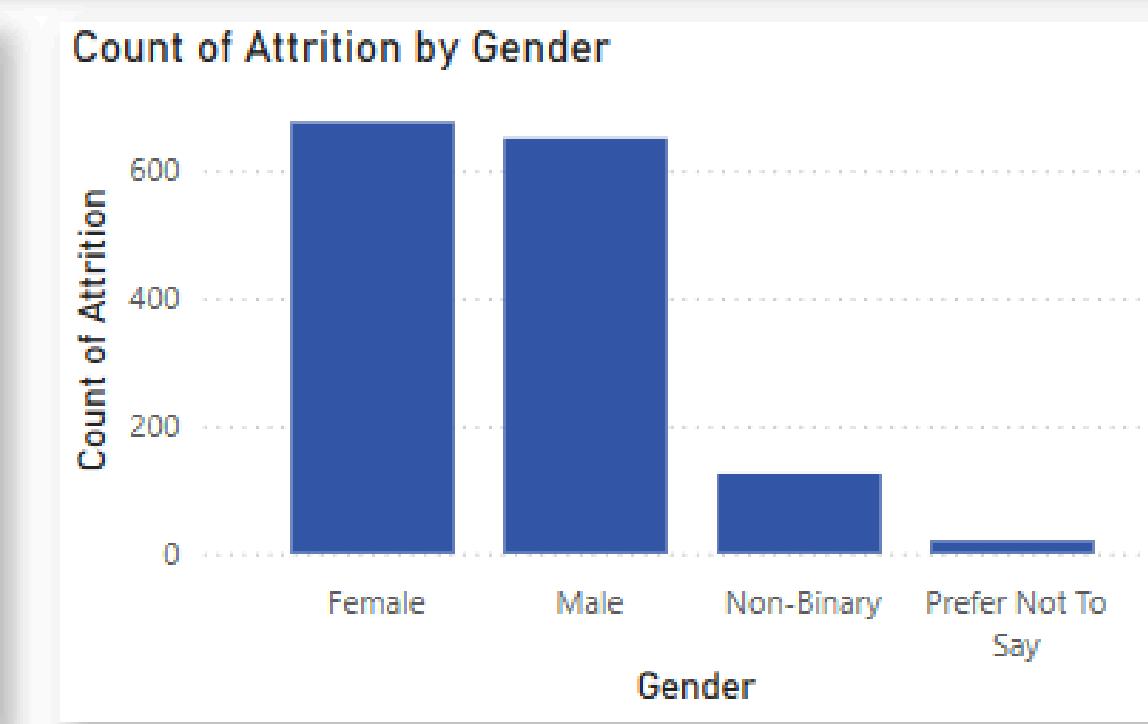
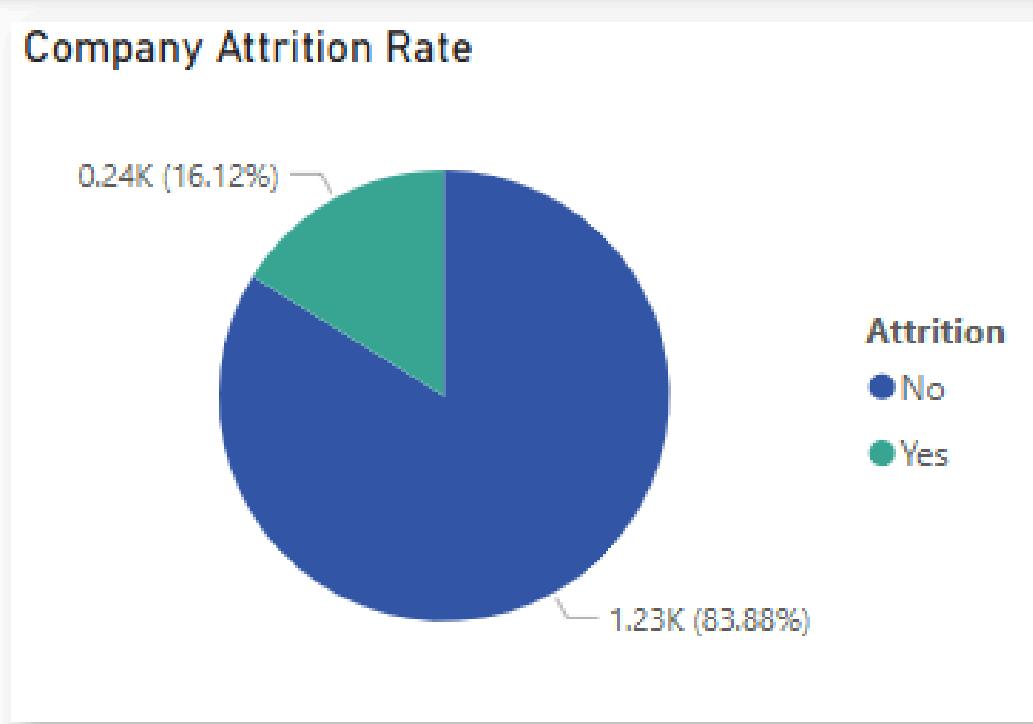


Higher education level → Higher salary

**Technology department
leads salary totals**

**Top roles by salary: Engineering,
Analytics, Managerial**

ATTRITION ANALYSIS

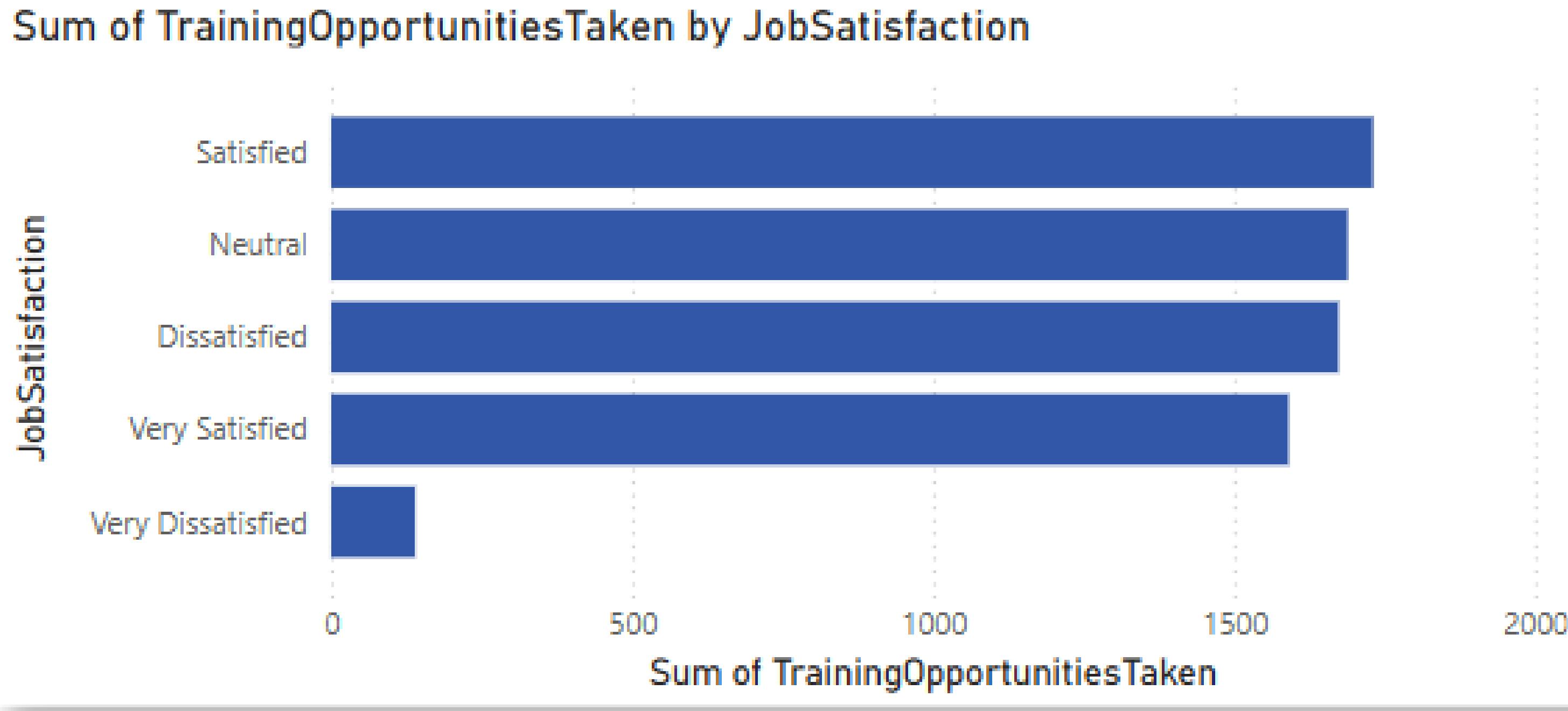


ATTRITION ANALYSIS

- 1 Total attrition: 237 out of 1470 employees
- 2 Highest attrition in Technology department
- 3 Bachelor's holders show the most attrition cases
- 4 Age, satisfaction, and overtime are major factors



SATISFACTION & TRAINING INSIGHTS



SATISFACTION & TRAINING INSIGHTS

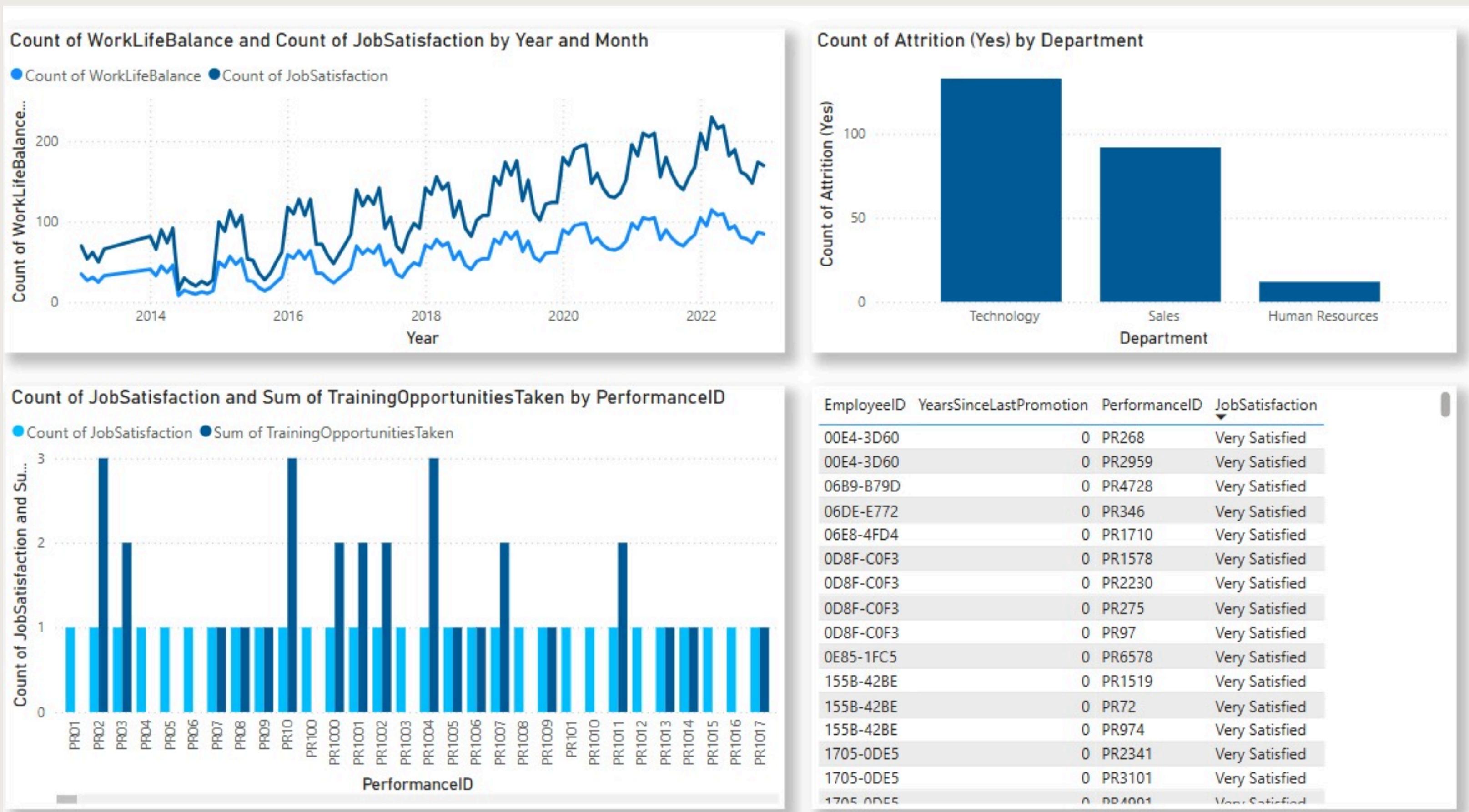


Satisfaction is highest with more training

Overlap observed between work-life balance and job satisfaction

Many top performers also had frequent training access

TRENDS OVER TIME



TRENDS OVER TIME

- 1 Job satisfaction shows periodic increases year over year
- 2 Work-life balance scores align with satisfaction trends
- 3 Performance ratings correlate with promotions



KEY TAKE AWAYS & RECOMMENDATIONS



Training

Increase training programs to boost satisfaction



Retention

Focus retention efforts on tech roles



Growth

Promote internal growth to reduce attrition



Attrition

Analyze role-specific attrition more deeply

CONCLUSION

Data-driven approach enhances
HR decision-making

Project addressed key trends
in attrition and satisfaction

Tools used: Python,
SQL and Power BI

THANK YOU!

We appreciate your attention
and welcome your feedback