

Attrition Data Analysis

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Introduction

Deliverables:

- **Factors affecting attrition**
- **A model for attrition prediction**
- **A model for income prediction**
- **Other interesting trends**

Dataset

870 observations with 35 features

18 categorical features

14 continuous features

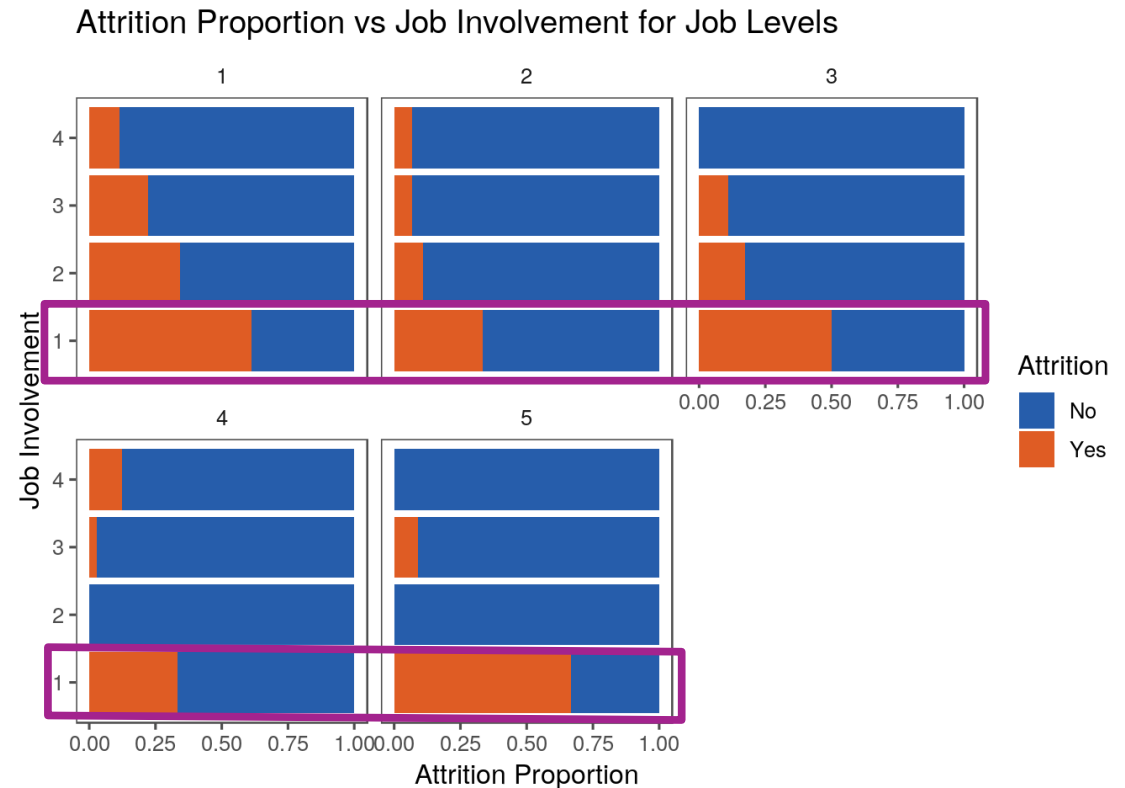
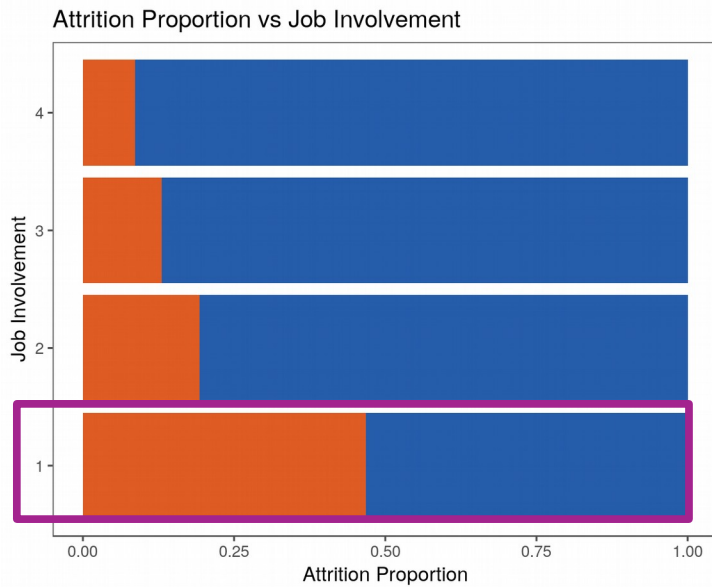
3 single valued features

2 addition data sets for auditing models

Top Attrition Factors

- **Job Involvement**
- **Work-Life Balance**
- **Overtime Work**

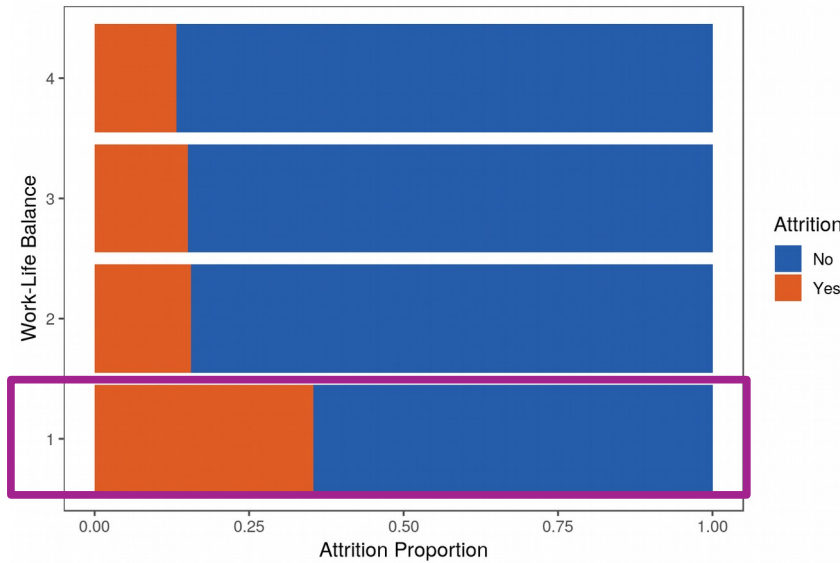
Job Involvement



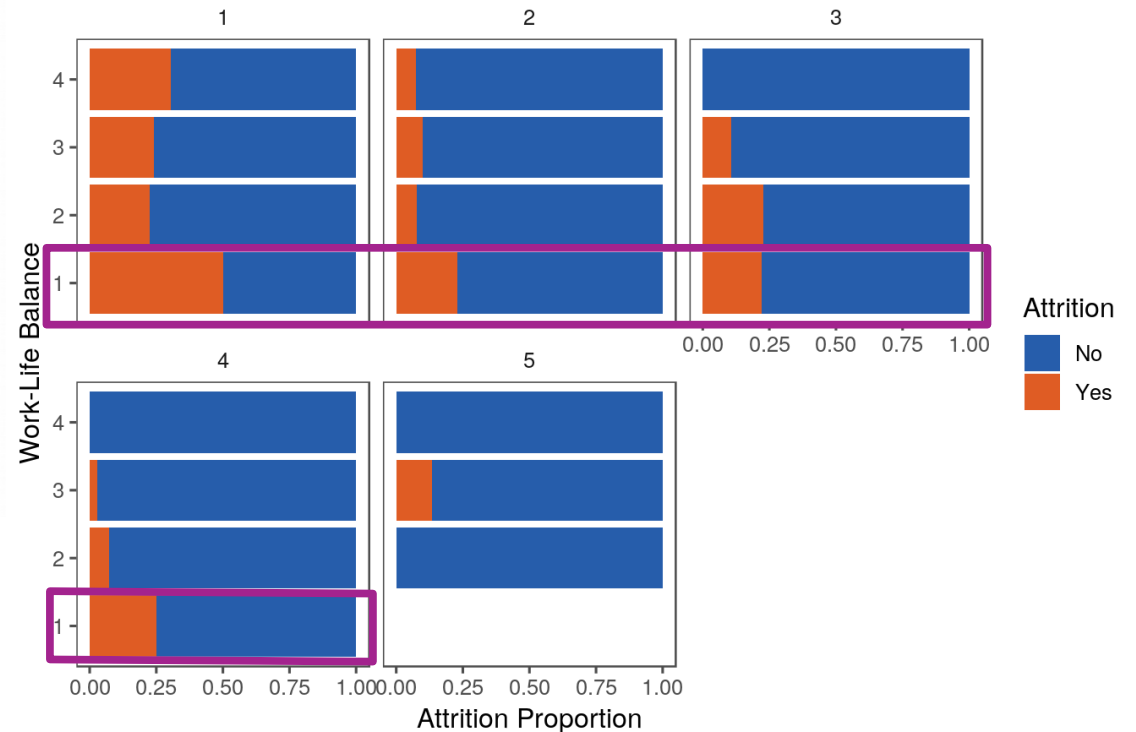
A large portion of employees with lower rating are leaving.

Work-Life Balance

Attrition Proportion vs Work-Life Balance

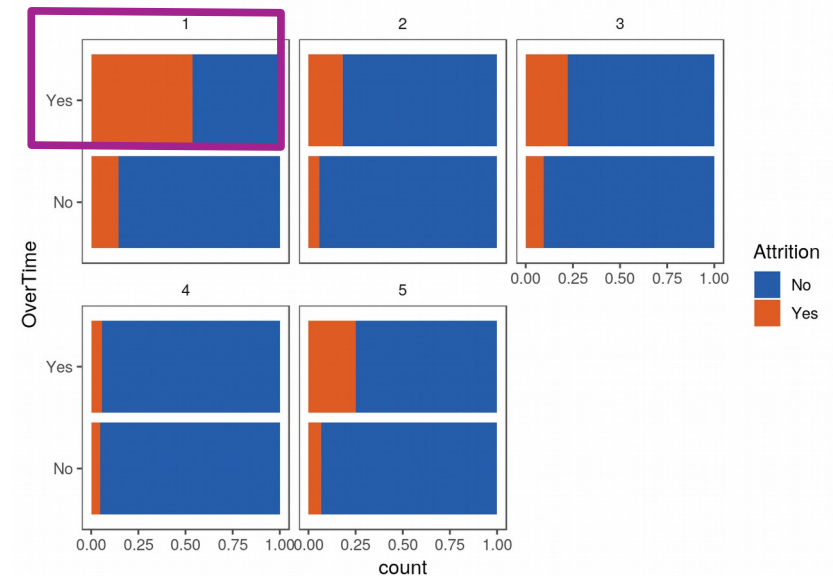
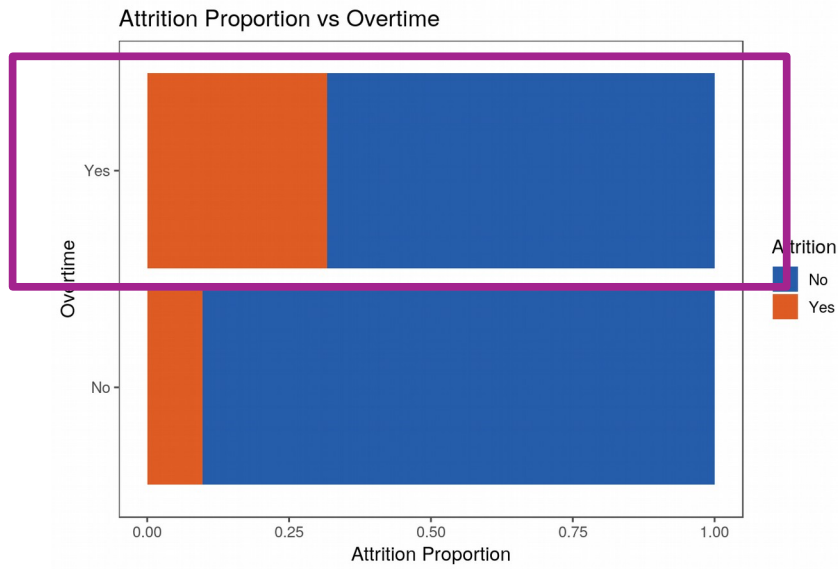


Attrition Proportion vs Work-Life Balance for Job Levels



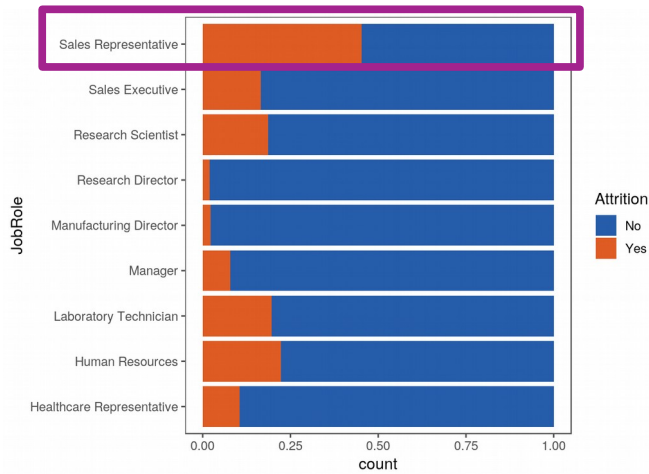
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Overtime Work

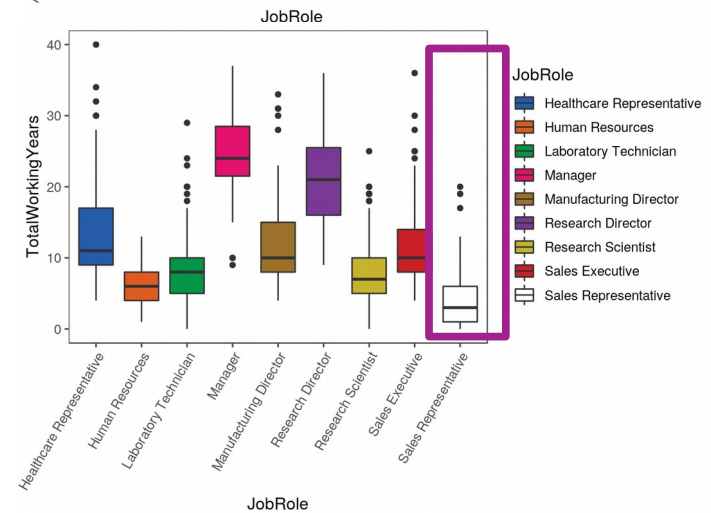
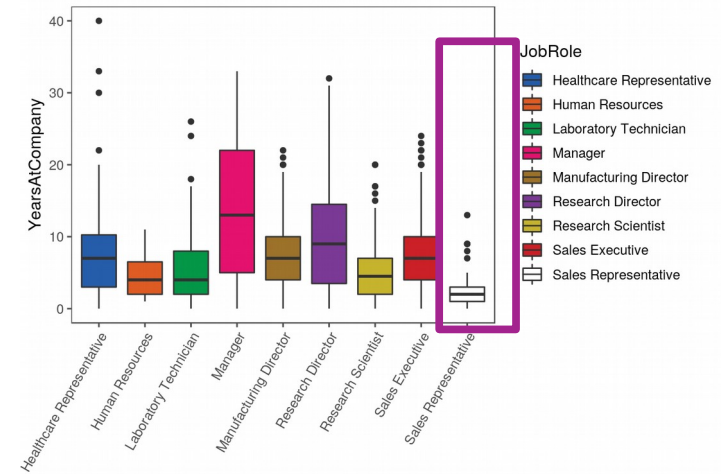


A large portion of employees working over time are leaving.

Sales Rep Attrition



Shortest tenure and least work experience



Attrition Modeling

- **Large number of variables in model**
- **Performance**

Specificity

0.6216216

Sensitivity

0.8547486

- **Data is highly unbalanced**

Income Modeling

- **Modeled with the equation**

$$\mu\{MonthlyIncome\} = \hat{\beta}_0 + \hat{\beta}_1(JobLevel) + \hat{\beta}_2(JobRole) + \hat{\beta}_3(TotalWorkingYears)$$

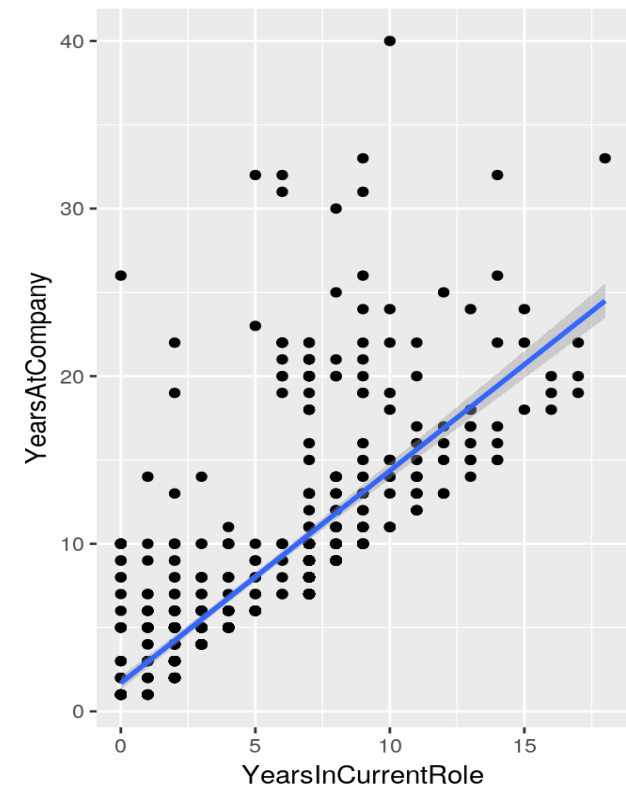
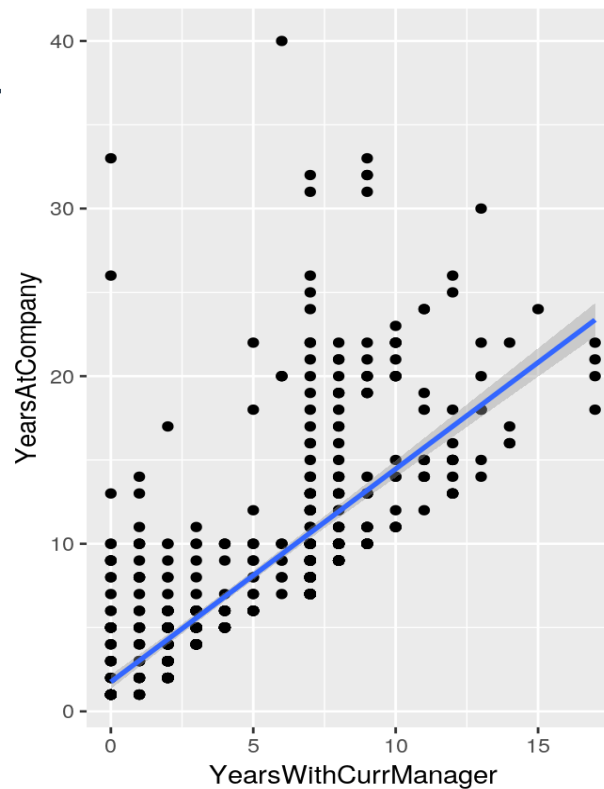
- **Performance**

Adjusted R2: 0.95

Other Interesting Trends

Evidence of correlation

- **Years at company**
 - Years with manager
 - Years in role



Conclusion

- **Factors affecting attrition**
 - Job Involvement
 - Work-Life Balance
 - Overtime Work
- **High attrition of Sales Reps**
- **Models**
 - Attrition
 - Income

Thanks!

For more information:

See the github repo for this project

<https://github.com/sjmillier8182/CaseStudy2DDS>