Employee Attrition Data

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Research Question

What factors contribute to employee attrition?

How likely is an employee to leave their company based on these factors? (Prediction effectiveness)

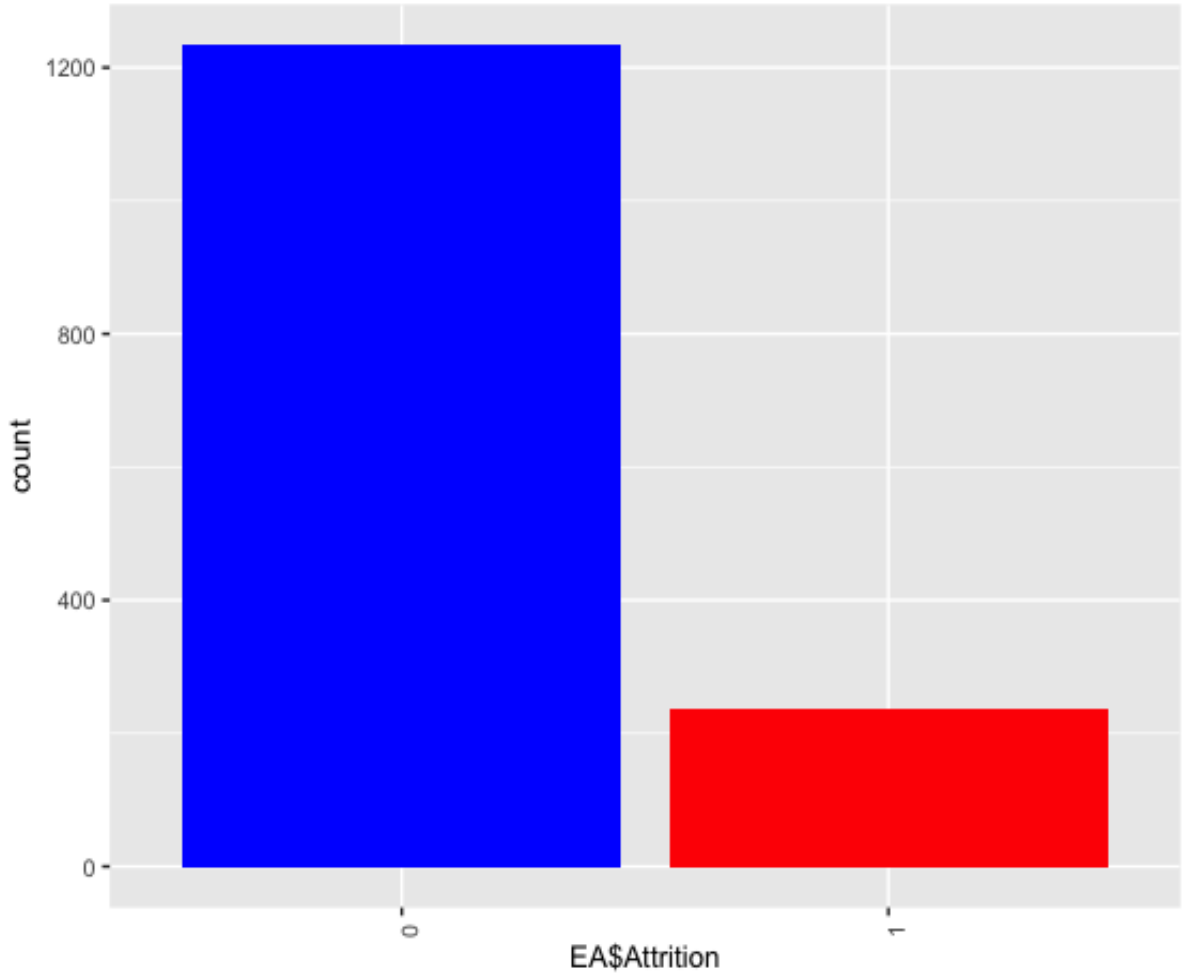
Overview

- Logistic Regression Model
- Model 1
- Model 2
- Plots
- Summary of Findings

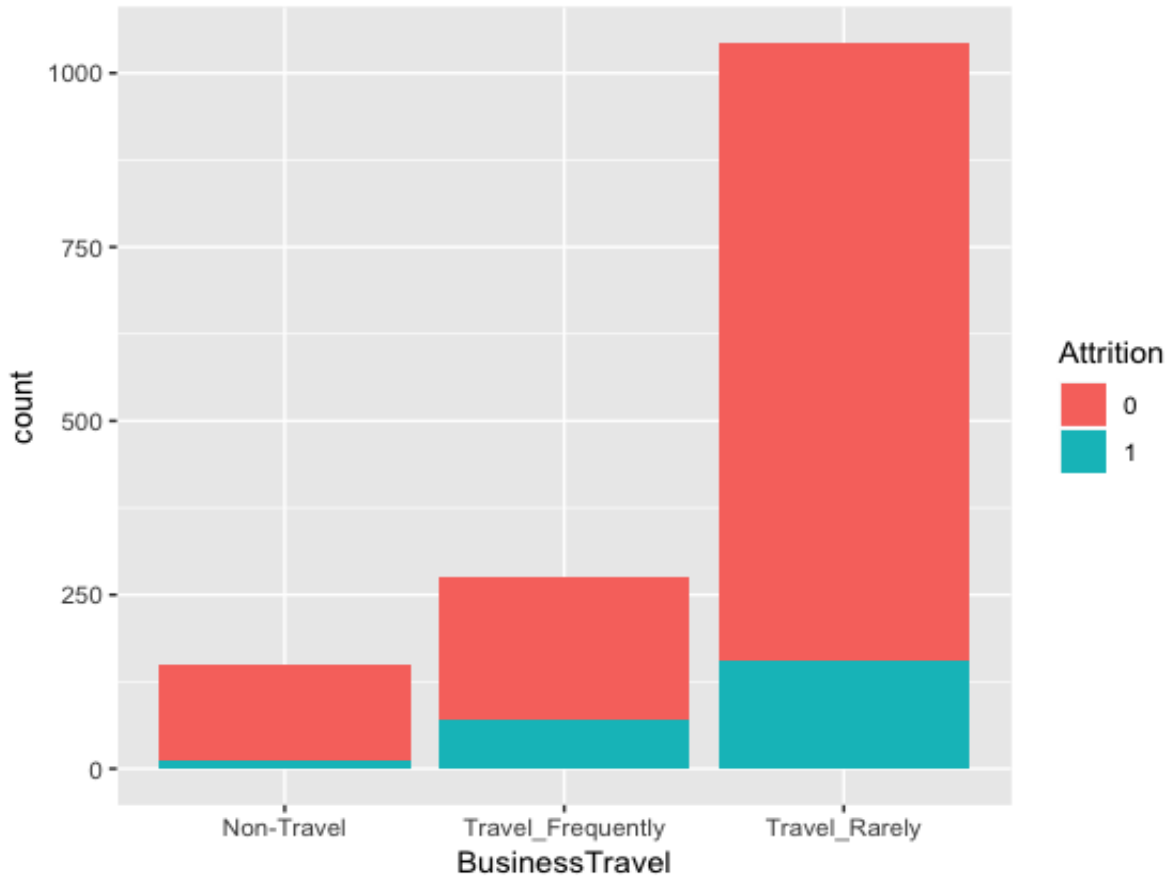
Logistic Regression Model

- Why Logistic Regression?
- Assess likelihood of Attrition based on factors to be determined
- Attrition is changed to binary variable (1 yes, 0 no)
- Test/Train Set
- Assessed qualities of 2 developed prediction models

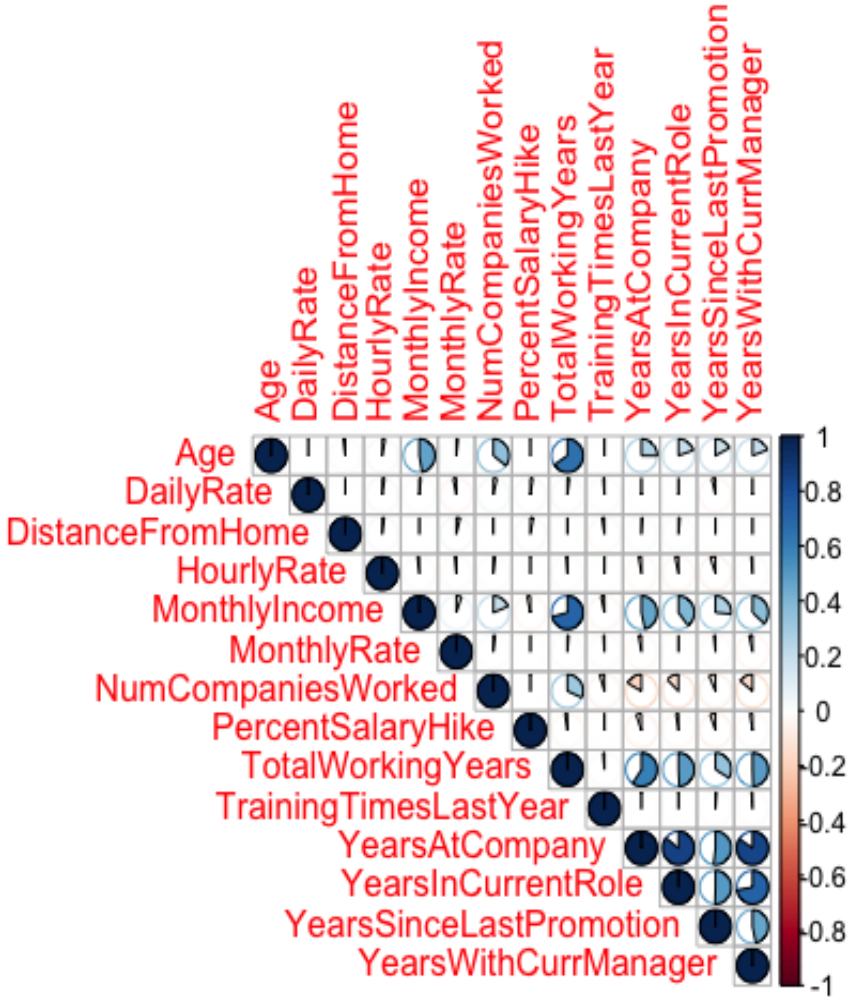
Attrition Plot



Attrition vs. Travel (ex. for every variable)



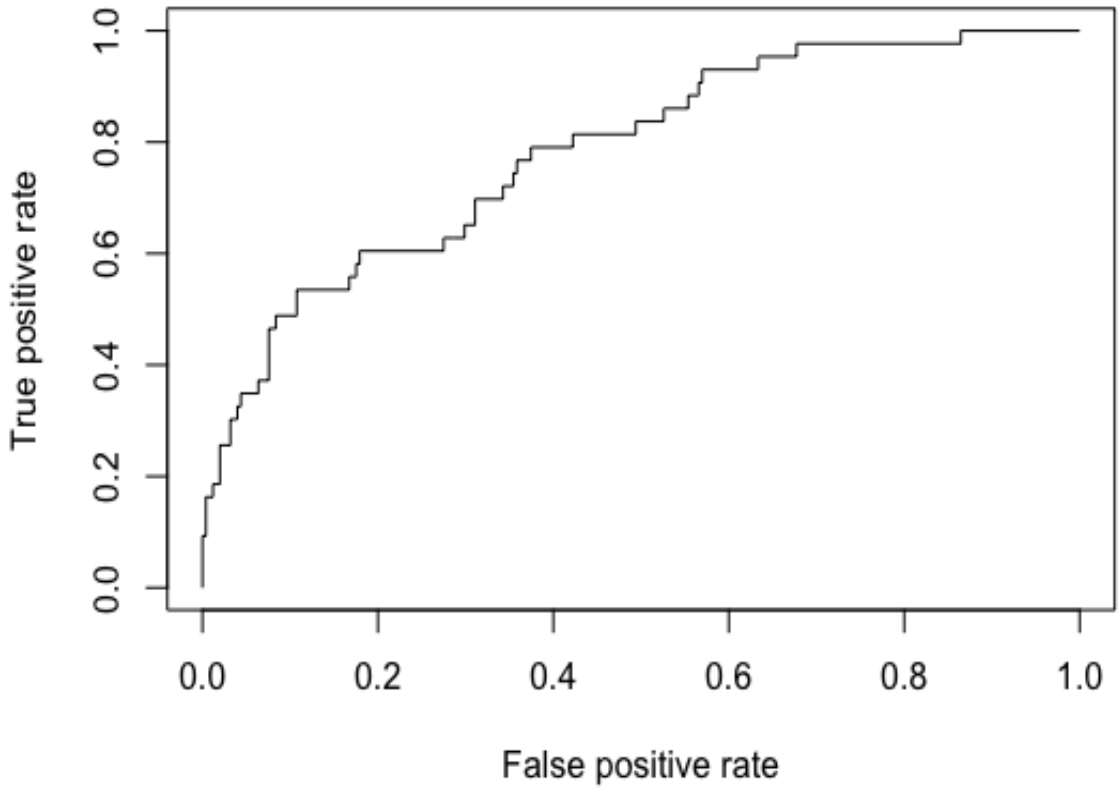
Corr Plot


Age
DailyRate
DistanceFromHome
HourlyRate
MonthlyIncome
MonthlyRate
NumCompaniesWorked
PercentSalaryHike
TotalWorkingYears
TrainingTimesLastYear
YearsAtCompany
YearsInCurrentRole
YearsSinceLastPromotion
YearsWithCurrManager
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1

Model 1

- 11 ind variables used: BusinessTravel, DistanceFromHome, EnvironmentSatisfaction, JobInvolvement, JobSatisfaction, NumCompaniesWorked, OverTime, RelationshipSatisfaction, WorkLifeBalance, YearsSinceLastPromotion, YearsWithCurrManager
- Prediction Model
- Hit Rate = 0.9796
- AUC = 0.7825

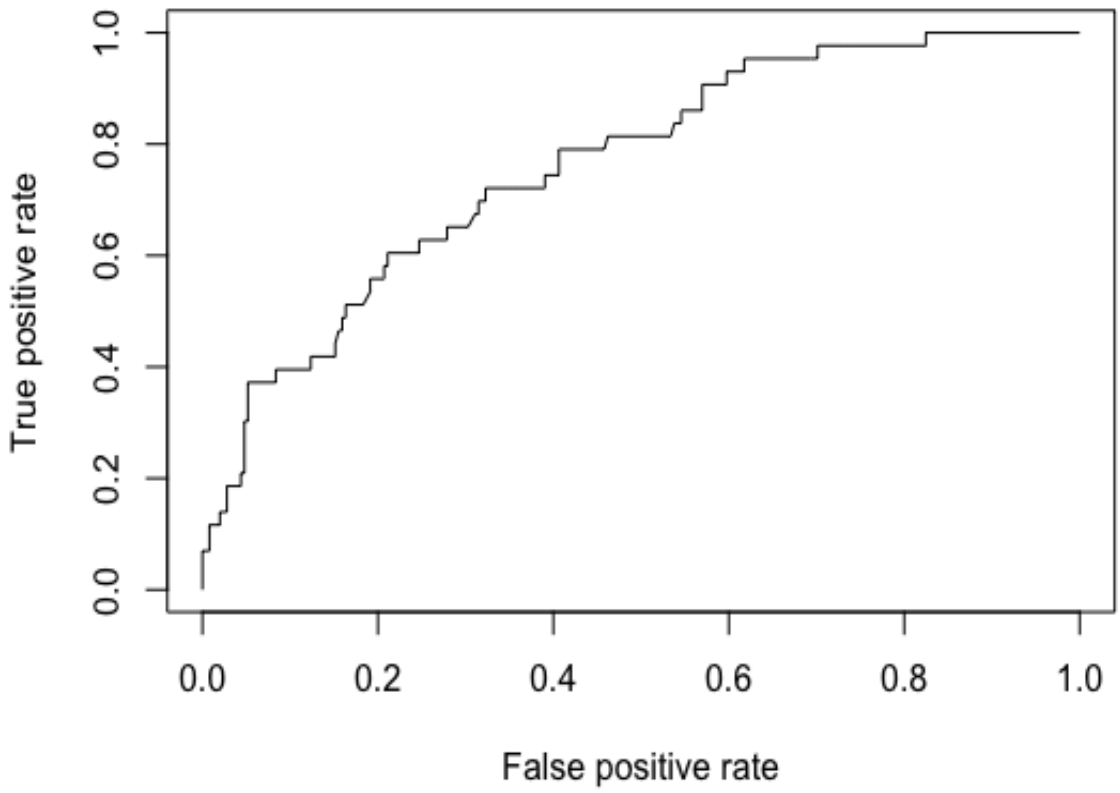
Prediction Model 1 ROC



Model 2

- 7 ind variables used: BusinessTravel, EnvironmentSatisfaction, JobInvolvement, JobSatisfaction, OverTime, WorkLifeBalance, YearsWithCurrManager
- Prediction Model
- Hit Rate = 0.9762
- AUC = 0.7626

Prediction Model 2 ROC



Summary of Findings

- Model 1: # of variables used = 11, AIC = 875.35, AUC = 78.25%
- Model 2: # variables used= 7, AIC = 883.78, AUC = 76.26%
- Stick with Prediction Model 1 due to decrease in AUC and increase in AIC when moving to Model 2