HR Analytics Case Study

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Abstract

A large company named XYZ, employs, at any given point of time, around 4000 employees. However, every year, around 15% of its employees leave the company. This level of attrition is very bad for the company. So we need to use the provided data and find the factors affecting the attrition.

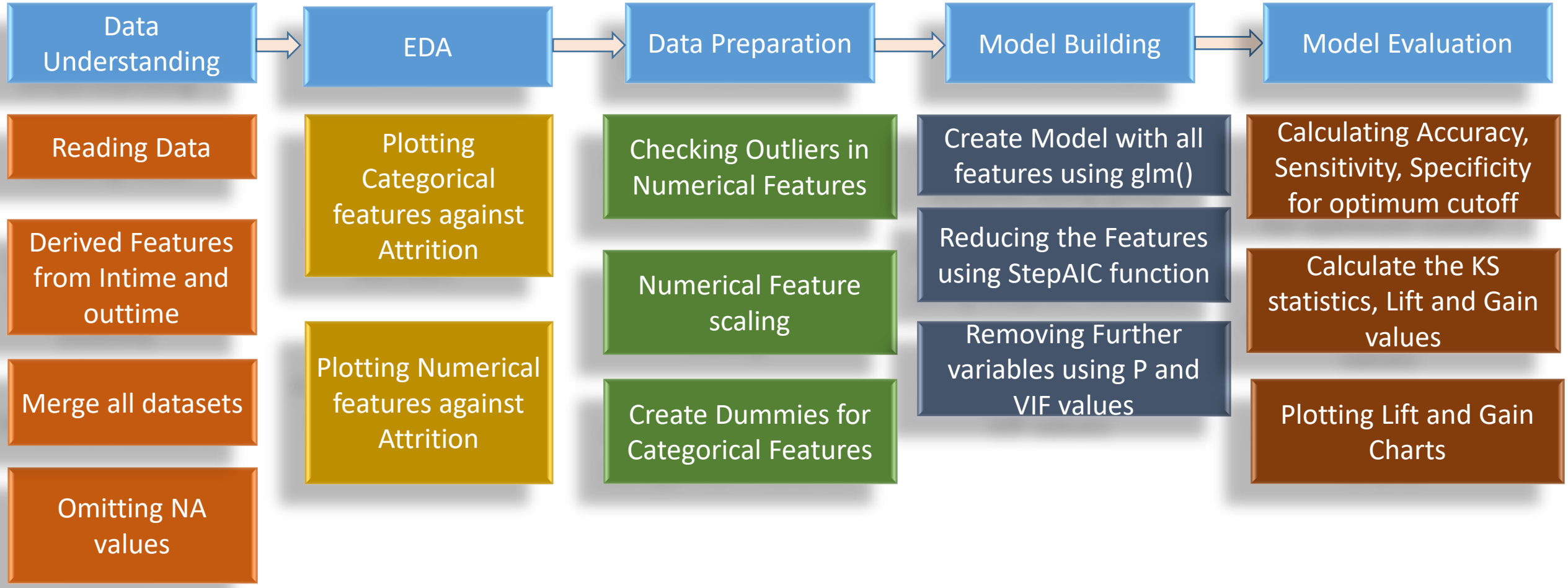
Goal of the analysis:

To model the probability of attrition using logistic regression. It will be used to understand what factors the company should focus on, in order to curb attrition what variables are most important and needs to be addressed right away.

- Assumptions made for the analysis are as follows:
  - If NA for a employees in both InTime and Outtime datasets considered as Employee vacation
  - If All the records having NA in both InTime and Outtime datasets considered as Public holiday.

Problem solving methodology

The Methodology used in solving the problem is highlighted as below:



Data Understanding

We have 5 datasets which is been given:

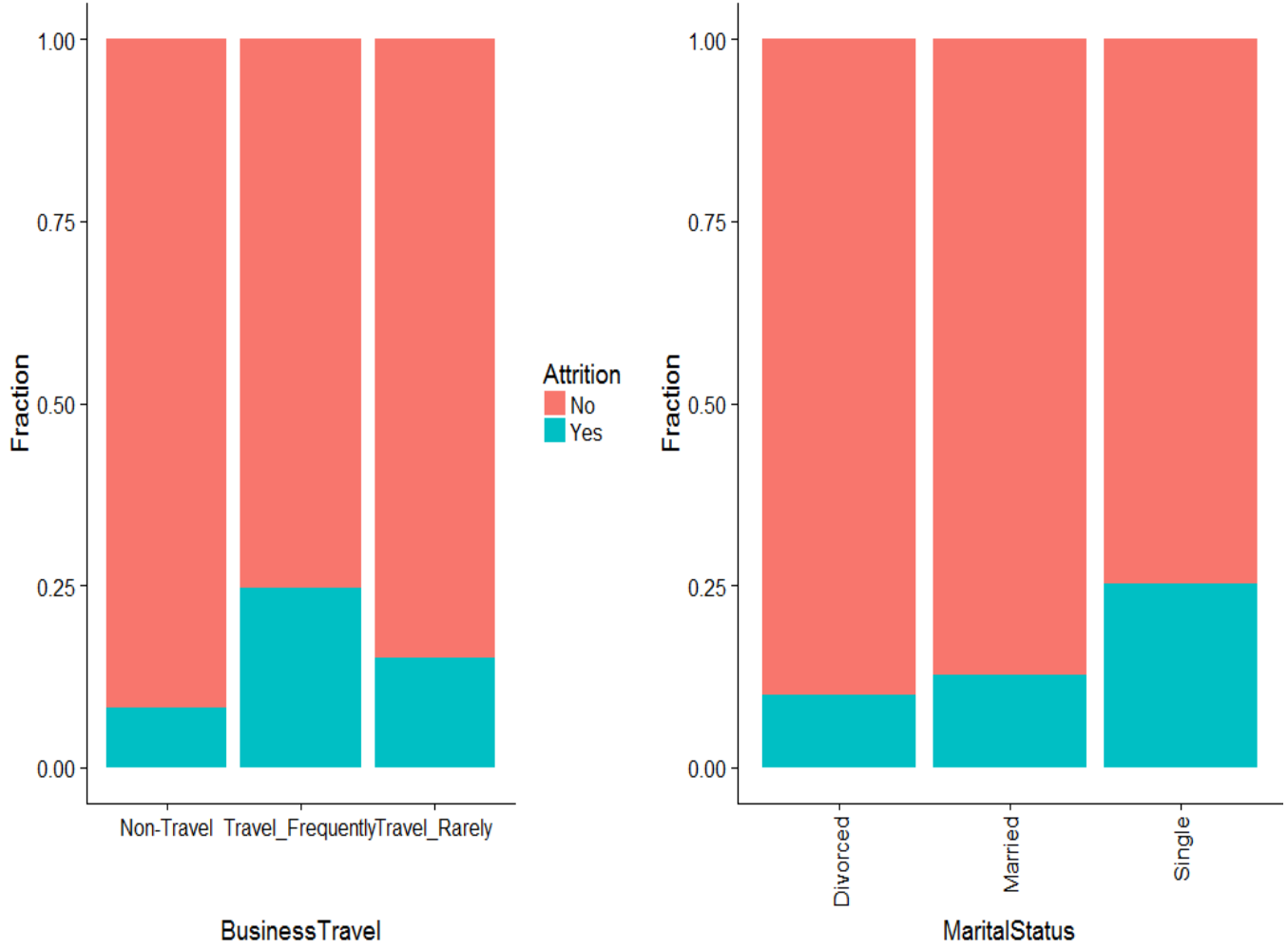
1) General data – This contains General HR data like Number of years in company, promotion details.
2) Manager Survey data – This contains Job involvement and Performance rating given to each employee
3) Employee Survey data – This contains rating given by employee against Environment Satisfaction, Job satisfaction and Worklife Balance
4) In Time - In time for all the employees for a time period
5) Out Time – Out time for all the employees for a time period

Using Intime and Outtime datasets, we have created a derived features like Avg_working_Hrs and Number of Vacation taken in specified period.

EDA on Categorical Features Against Attrition - 1

- Business Travel
  - We can see employees who travel Frequently has high Attrition Rate compared to Non-travel and Travel Rarely.

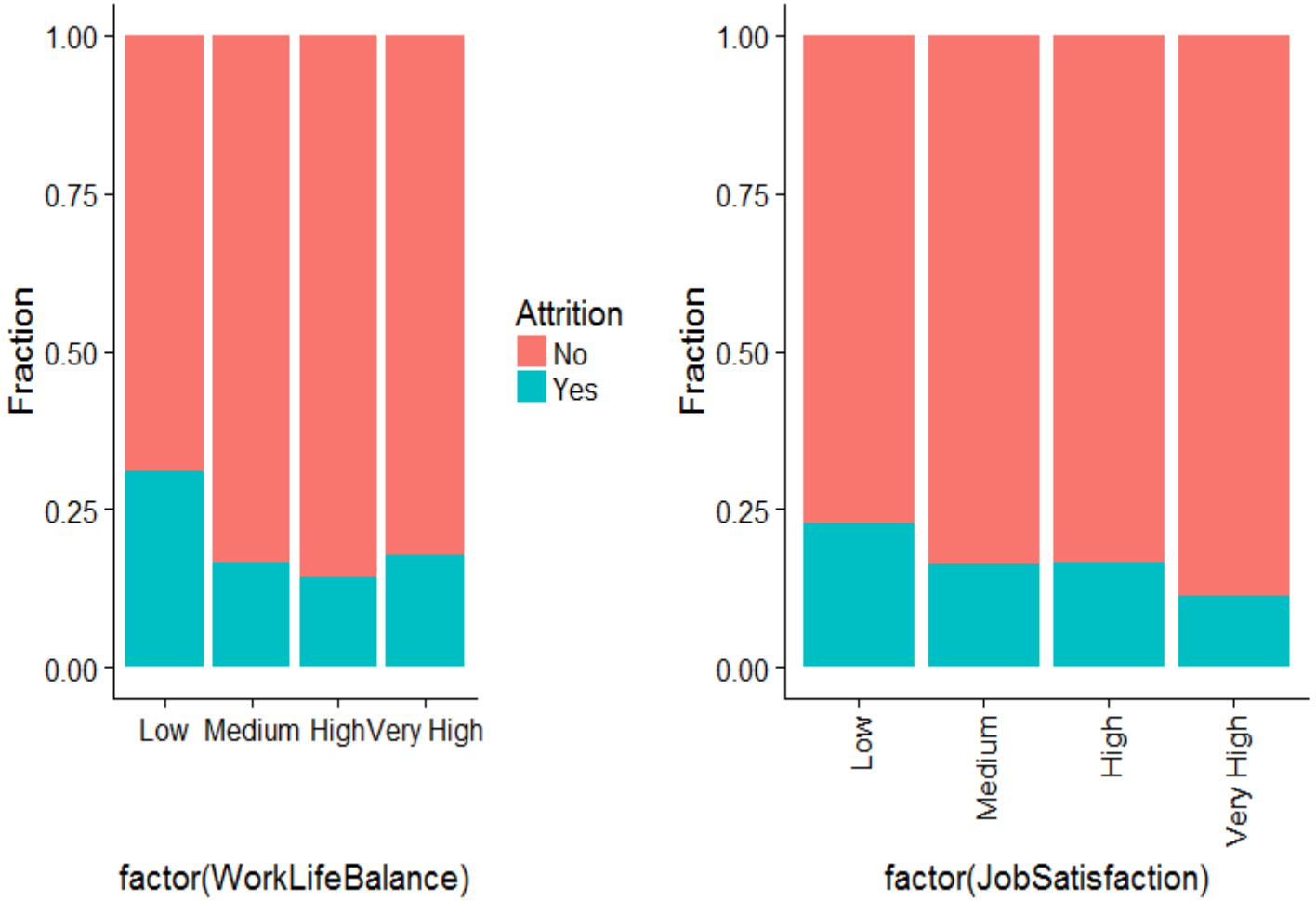
- Marital Status
  - We can see Employees who are having status single is more changes of leaving the company.



EDA on Categorical Features Against Attrition - 2

- Work Life Balance
  - We can see employees who have given less rating (Low) has high Attrition Rate and more likely to leave the organization

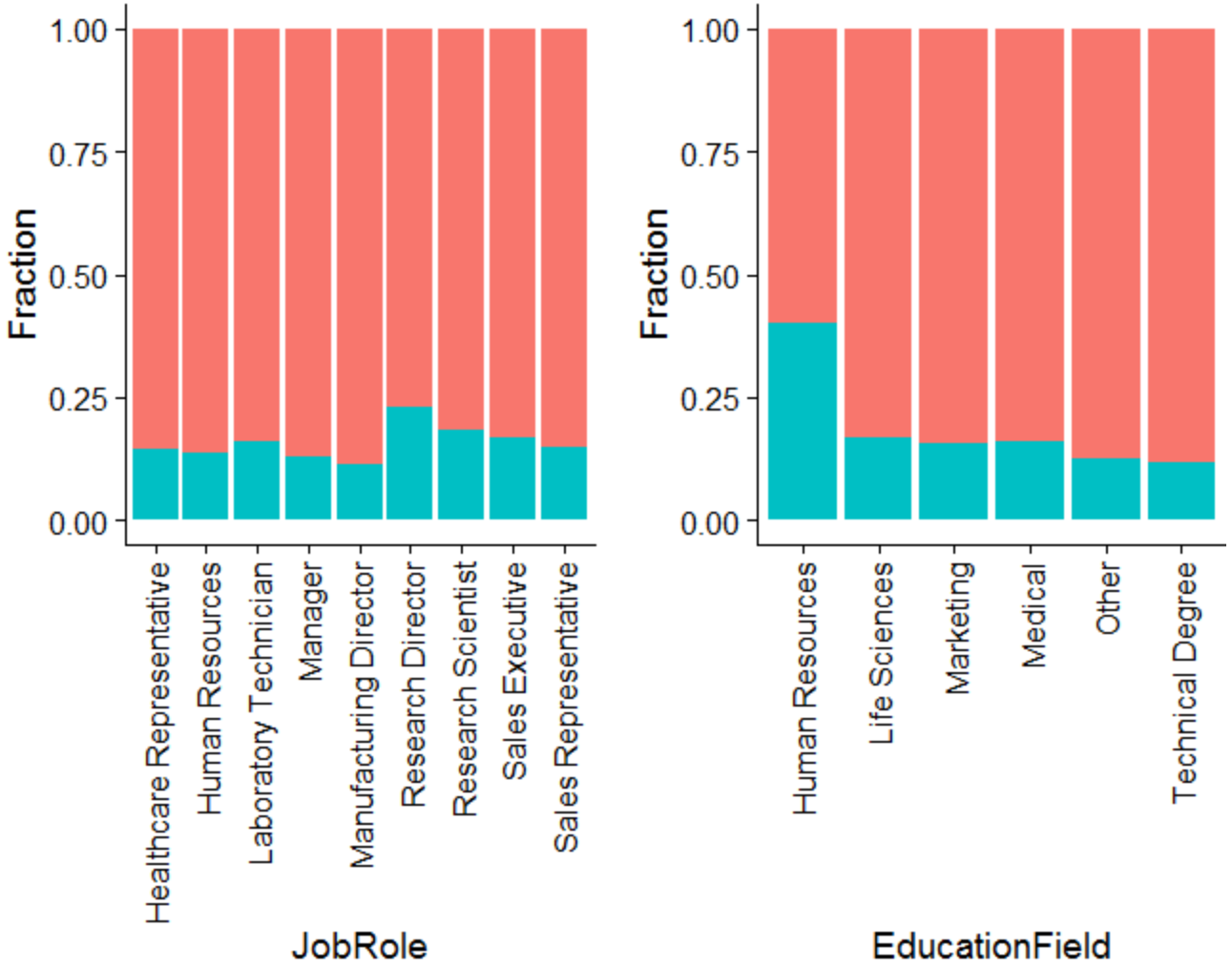
- Job Satisfaction
  - We can see employees who have given less rating (Low) has high Attrition Rate and more likely to leave the organization



EDA on Categorical Features Against Attrition - 3

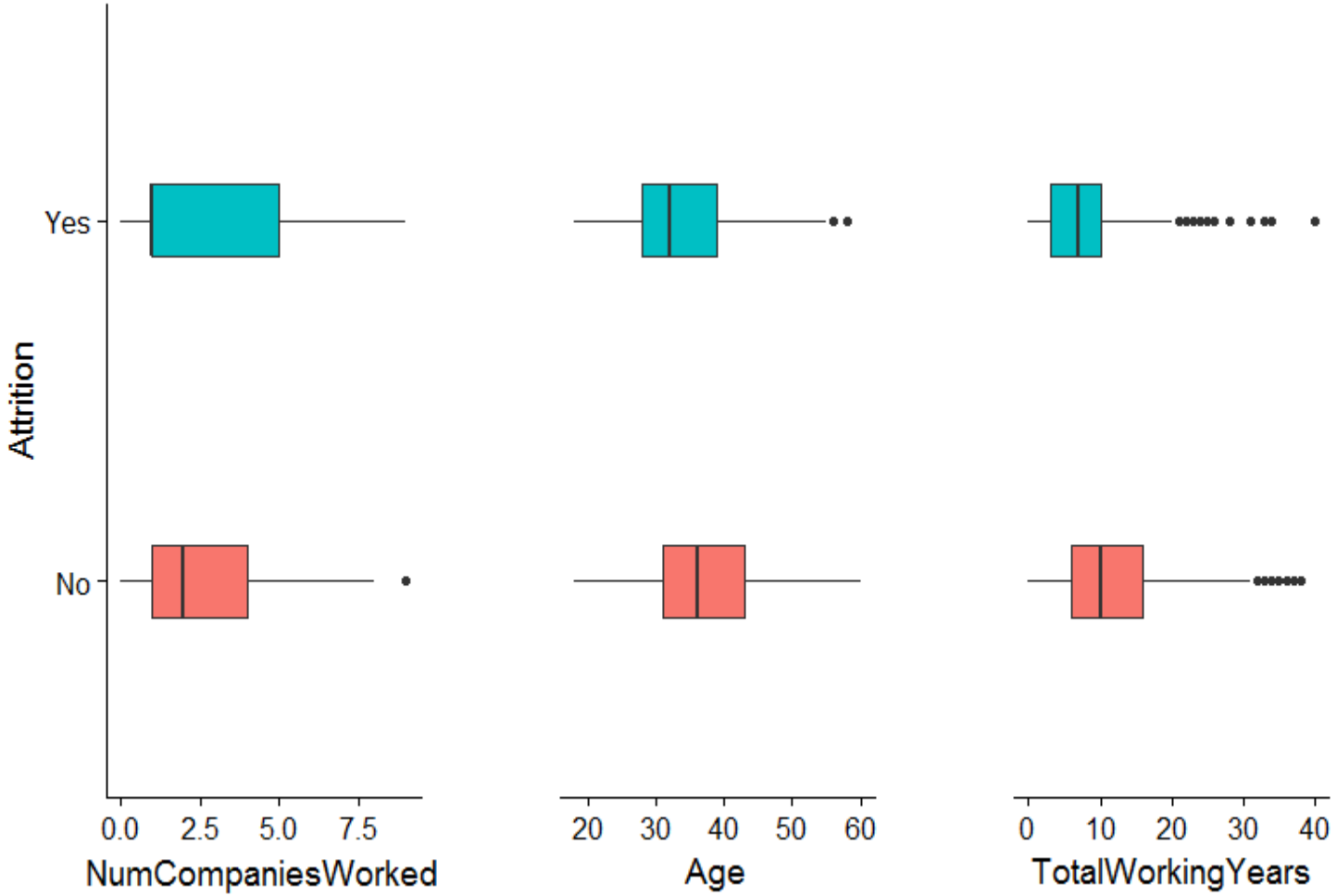
- Job Role
  - We can see employees who works as Research director has high Attrition Rate and more likely to leave the organization

- Education Field
  - We can see employees who as done education in the field of Human resources has high Attrition Rate and more likely to leave the organization



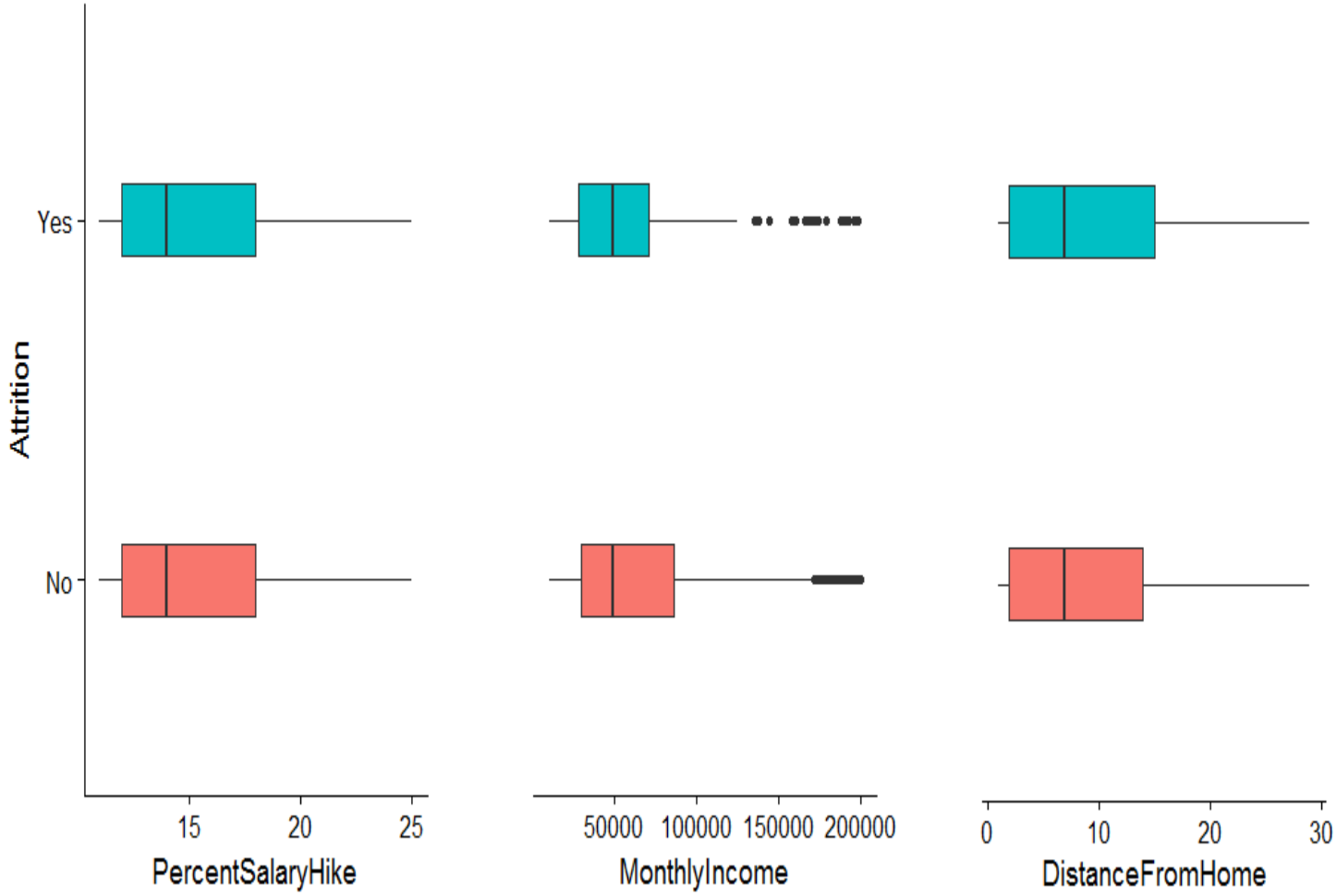
EDA on Numerical Features Against Attrition - 1

- Num Of Companies Worked
  - We can see employees who have changed more companies in the past is more likely to leave the organization
- Age
  - We can see employees who has less age is more likely to leave the organization
- Total Working Years
  - We can see employees who has less experience is more likely to leave the organization



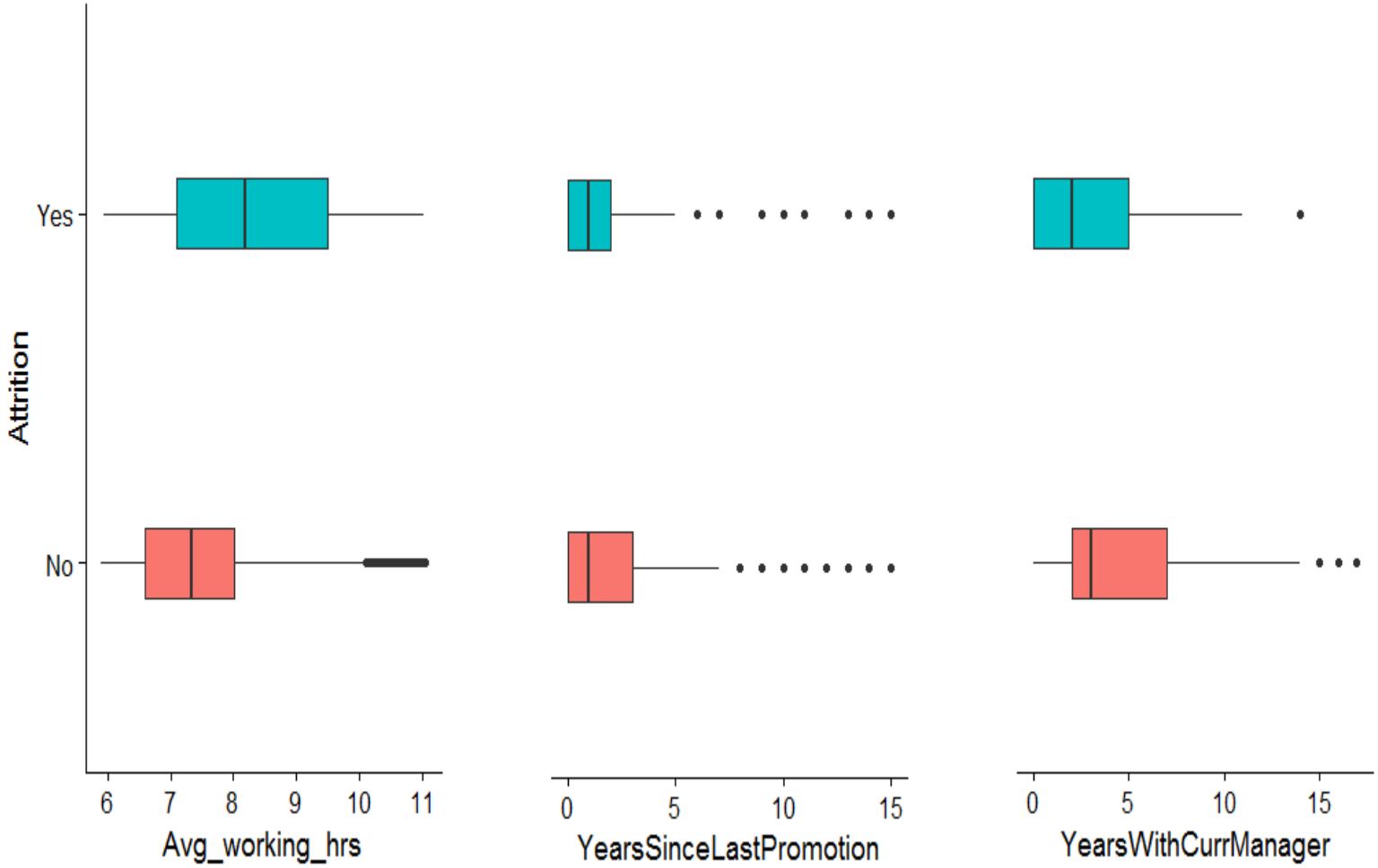
EDA on Numerical Features Against Attrition - 2

- Percent Salary Hike
  - We can see percentage hike for employees has no much impact on the Attrition rate.
- Monthly Income
  - We can see Monthly Income of employees has no much impact on the Attrition rate on employees.
- Distance From Home
  - We can see Distance from Home to Office has no much impact on the Attrition rate on employees.



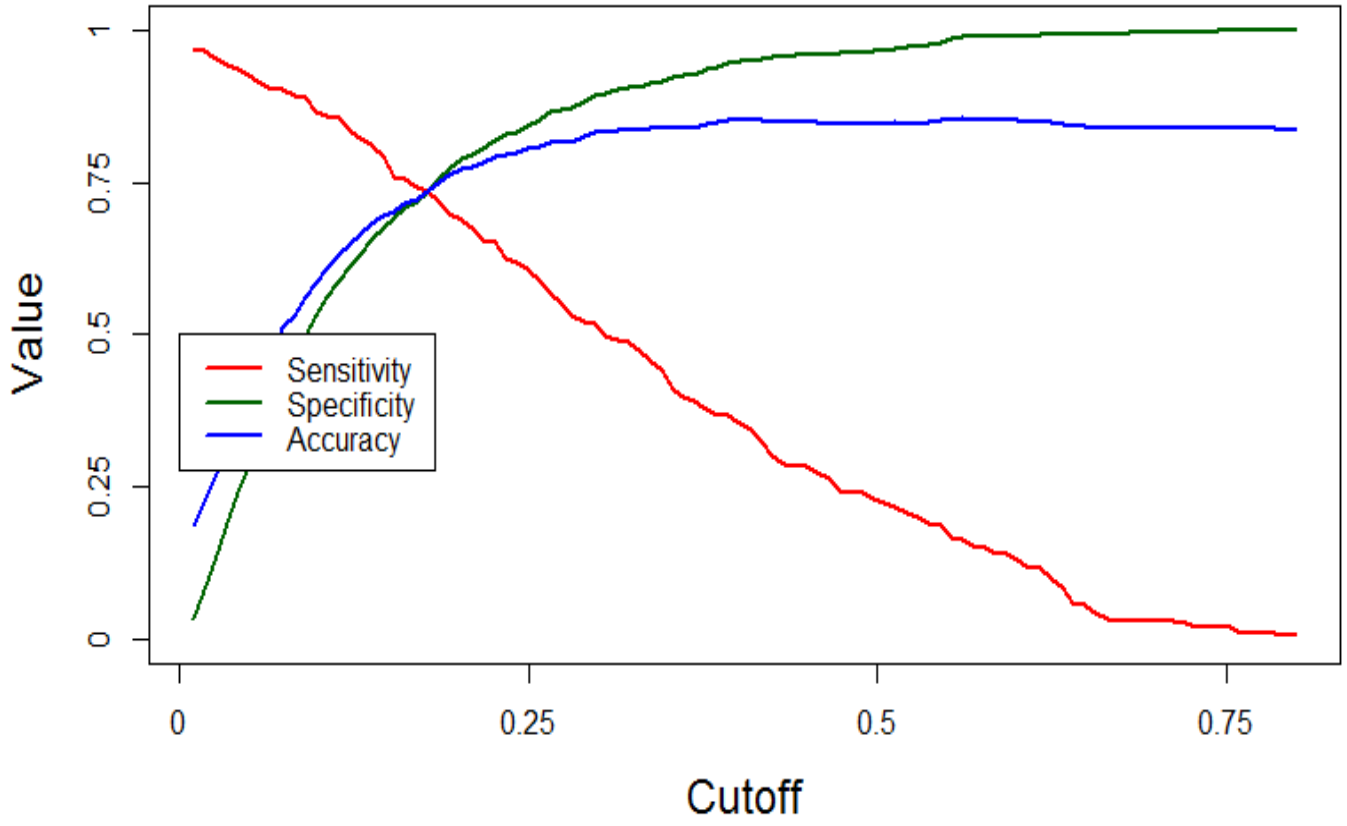
EDA on Numerical Features Against Attrition - 3

- Average Working Hours
  - Employees who are working more time in office are more likely to leave the organization.
- Years Since Last promotion
  - Employees who are having more number of years since last promotions are more likely to leave the organization.
- Years with Current Manager.
  - Employees who have spent less years with the current manager is likely to be leaving the organization.



Model Performance – 1/2

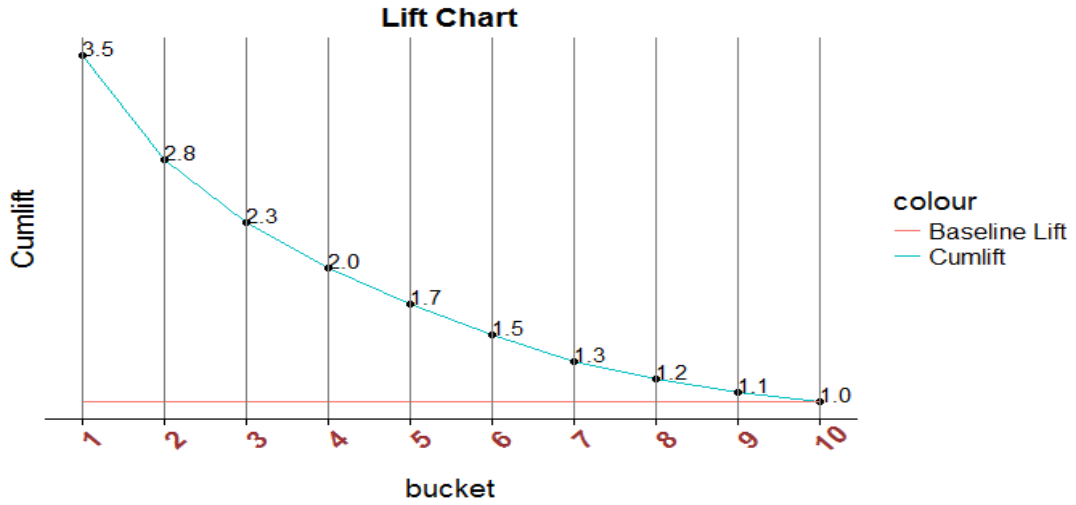
1. Model Accuracy is around 73%.
2. Model is predicting Attrition status of employee 73% correctly.
3. Sensitivity is 73%
4. Specificity is also 73%
5. The optimum cutoff is around 0.1776

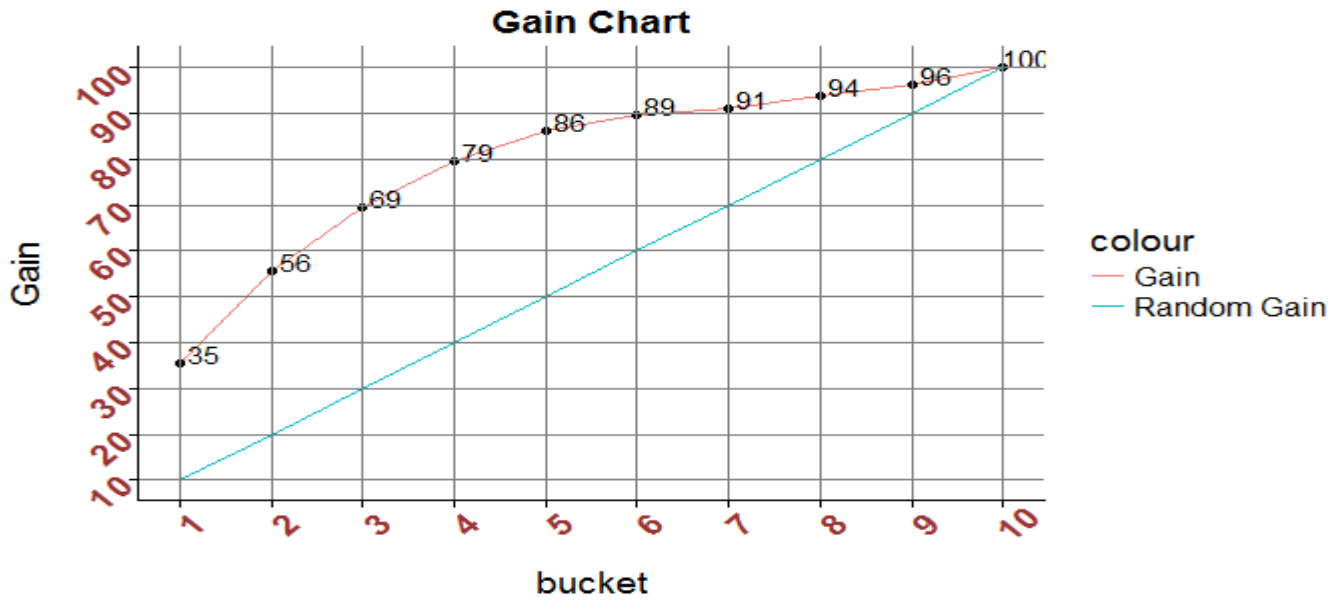


Model Performance – 2/2

1. Model Lift
   - Lift is ranging from 2.3 to 2 between 3rd to 4th Decile.

2. Model Gain
   - Model is gaining 69 to 79% between 3rd to 4th Decile.





Recommendations for HR department On Attrition

- Recommendations.
  - ✓ Employees who has given less rating on Worklifebalance and Jobsatisfaction need to be address their concerns
  - ✓ Manager should not be changed more frequently.
  - ✓ Employee who are working more hours need to be check and understand what is the cause and address the same
  - ✓ Business travel frequency need to be within acceptable limit.
  - ✓ When hiring, we need to see number of companies he has worked. If the candidate is more frequent job changer then we might not select the candidate.
  - ✓ Attrition is higher in young employees, so we need to give more Career guidance and opportunities.
  - ✓ Employees who have not been given promotions for a while, has to be addressed and given guidance to improve.