



# HR ANALYTICS CASE STUDY SUBMISSION PROBLEM OF EMPLOYEE ATTRITION

### **Group Details**

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## **Abstract**

XYZ being a large company almost employing 4000 employees at any given point of time is facing a serious problem with employee attrition on an year on year basis. The attrition rate of 15% is too high for the business continuity and currently this level of attrition is resulting in following issues:

- The former employees' projects get delayed, which makes it difficult to meet **timelines**, resulting in a reputation loss among consumers and partners.
- A sizeable department has to be maintained, for the purposes of **recruiting** new talent.
- More often than not, the new employees have to be **trained** for the job and/or given time to acclimatise themselves to the company.

As an HR analytics firm, we are entrusted with the objective of finding the solution for the above problems and thus curbing the current rate of attrition. The data from previous years in relation to the employee details, employee surveys, manager surveys and the in-out timing for the employees are being gathered and used for analysis.





## **Problem Solving Methodology**

#### Data Understanding Data Modelling Business **Data Preparation** Model finalization Understanding and Deployment • Building logistic Understanding Understand • Data loading Model evaluation "general data" XYZ business regression model plotting the Data cleaning problem. results data set • Removing Understand Collating the unwanted "employee survey general columns. understanding of data" data set • Handle NA values employee attrition Understand and related "manager\_survey reasons. \_data" data set Understand "in\_time" data set • Understand "out time" data set.





## **Business Understanding**

The business understanding of typical employee attrition problem is understood. The business objective is to ensure that the rate of attrition is curbed to the lowest possible limits by taking the practical issues with relation to the employee attrition in the job market.

Typical issues understood are as follows:

- Employee dissatisfaction due to strenuous work hours.
- Contradicting manager and employee mutual understanding levels.
- Contradicting employment options as considered to the educational qualifications.
- Appointments to certain departments without sensitivity to social prejudice like odd timings for the female employees.
- Portion of stagnant workforce resulting in less options for the new or lateral joiners resulting in attrition at specific employment levels.





## **Data Understanding**

#### General\_data

Indicative of general employee data including the personal persona and the job role related aspects.

#### Employee\_survey\_data

Recent employee survey details. This would help in indicating any direct relationship with the overall feeling level with the employee in the organization and also indicate the possible reasons of leaving the organization

#### Manager\_survey\_data

Recent manager survey details indicating the managers perception of the employee and feedback. This can be a possible input to understanding the reason of attrition.

#### In\_time

One of the major reasons of employee attritions are typically the over work methods employed by the organization. The in\_time and out\_time are god metrics to understand this being a primary driver behind the attrition. Additionally, this would also corelate with the manager perception of the employee as well as the employee self rating.

#### Out\_time

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## **Data Preparation**

Import data set

- 1. Validate the data set.
- 2. Removing unwanted columns from the data set.
- 3. Renaming the fields with no column headers
- 1. Data cleansing and conversion for the date fields to extract the time part in the in\_time and out\_time data set.
- 2. Deduce average working hours and leaves

Merging multiple data set to obtain single data frame.

Identification of factor variables

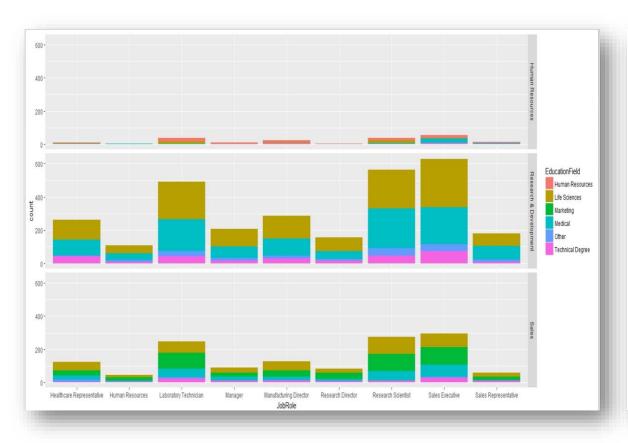
Normalizing / scaling of continuous variables

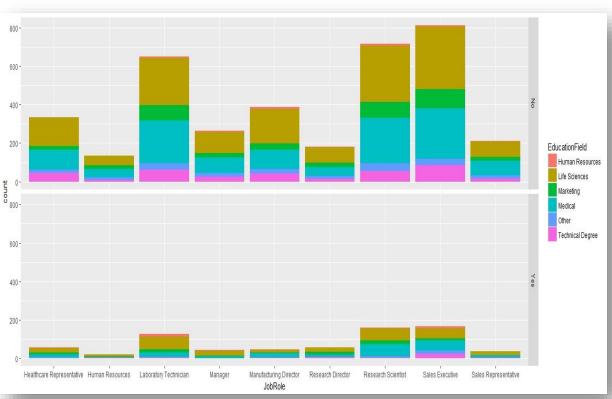
Convert
Categorical
variables to
Numeric values





# **Understanding Data**

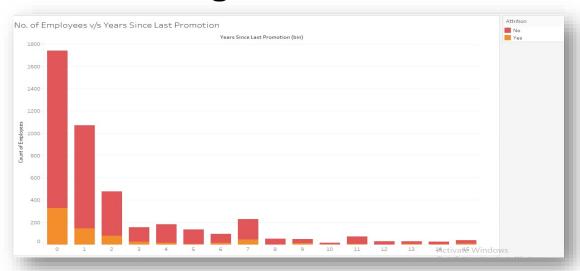


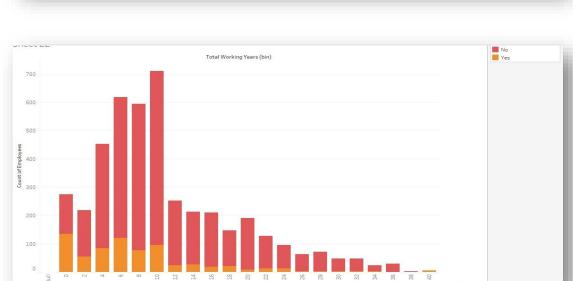


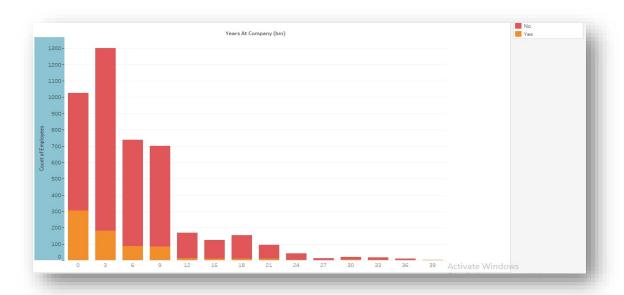


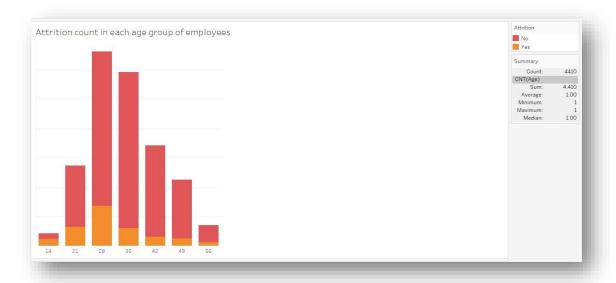


# **Understanding Data**













# **Data Modelling**

Use StepAlC function and the VIF computation to derive the consistent model with low VIF and significant Pvalue

Use this mechanism recursively to find the most apt model.

Derive confusion matrix.

Perform prediction analysis using KS statistics method.

Plot lift and gain charts.





## **Data Model**

A data model with the following significant influencing attributes is derived out of the data modelling exercise:



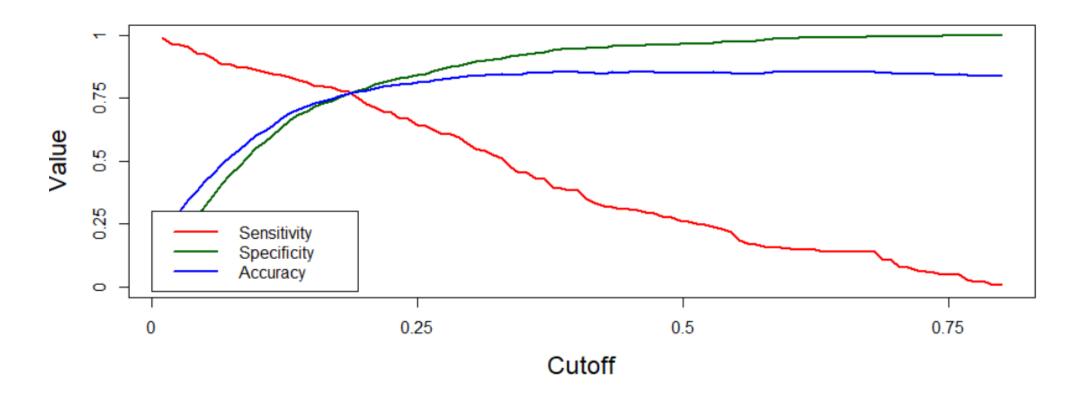






# **Data Modelling inferences**

The model obtained when passed through the confusion matrix analysis and the prediction analysis with the following results:







## **Business Conclusion**

The proposal to business is to take necessary steps to increment the following employee behaviour and situations to curb the problem of attrition.

- 1. Increase work life balance by helping in reducing the mean work timing.
- 2. Reduce promotion duration.
- 3. Reduce lateral admission of employees by promoting home grown talent with the company. This also allows employees to stick with the company for larger terms and significantly increasing the experience within the organisation.
- 4. Increase training to the employees, thereby increasing job satisfaction.
- 5. Reduce job profiles requiring frequent business travels.
- 6. Incentivise same manager policy where mentorship is possible under the same manager.
- 7. HR to ensure that the ratio of married employees are increased within the workforce for the future recruitments.





Thank you