

Factors Impacting Employee Satisfaction

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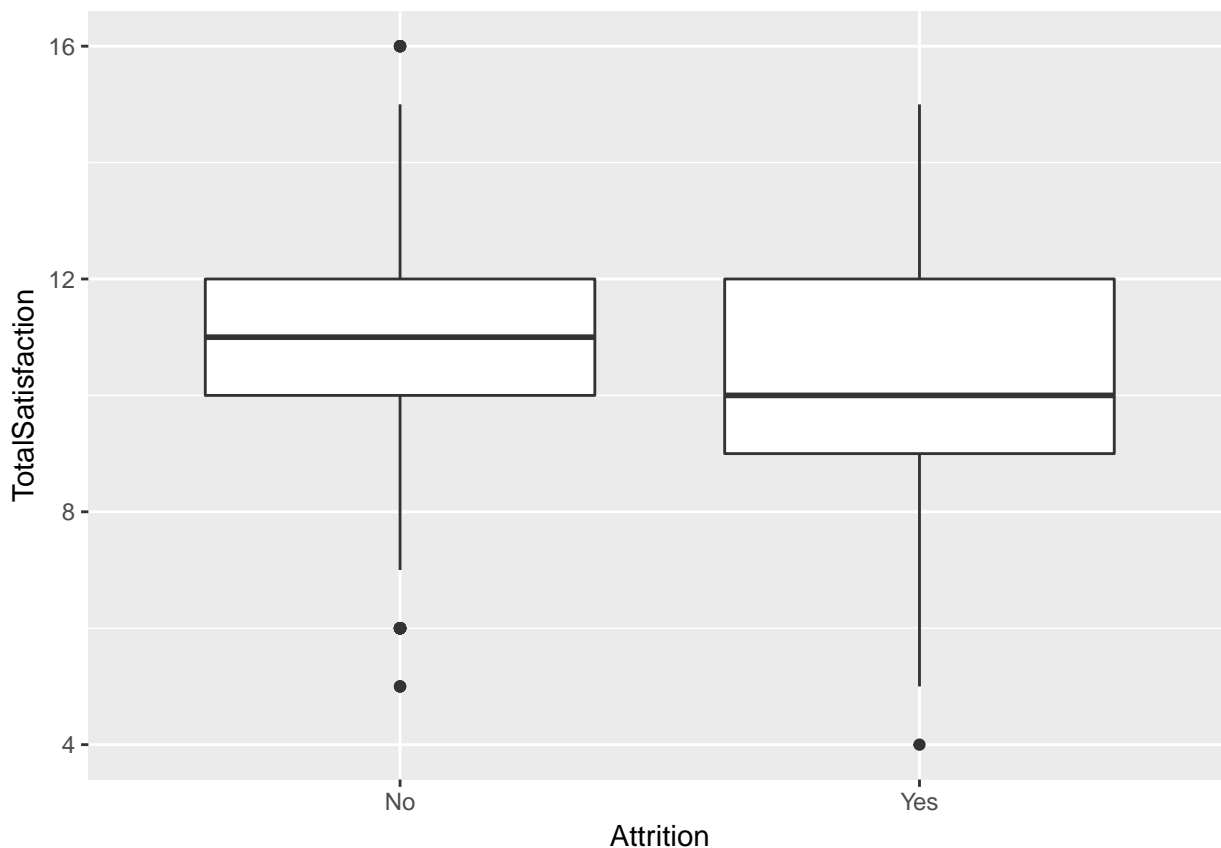
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1 Introduction

1.1 The relationship between Attrition and Total Satisfaction



2 Dataset Description

This dataset described the employees of IBM, providing a total of 1470 observations (employees) and 35 variables (information about the employee). In our analysis, the columns EmployeeCount and EmployeeNumber are not useful, and the value in Over18 and StandardHour are the same with all employees (Yes and 80 respectively), so we got rid of thses four columns to make our analysis more efficient. Meanwhile, we added a new colomn called “TotalSatisfaction”, which is the sum of EnvironmentSatisfaction, JobSatisfaction, RelationshipSatisfaction and WorkLifeBalance. In addition, the Education colomn uses integer between 1 to 5 to refer to the level of education of this employee, they mean below college, college, bachelor, master, doctor respectively. To catogriz the education level, we change the integer incicating the level in to factor. We did the same thing to JobLevel, StockOptionLevel and TrainingTimeLastYear. Then the variables can be divided into three groups: Personal Information, Job Information, Satisfaction to the Job in Total.

Table 1: Personal Information

Variable	Type	Description
Age	integer	The Employee’s age
DistanceFromHome	integer	The distance from home to work
Education	factor	Level of education (1 ‘Below College’, 2 ‘College’, 3 ‘Bachelor’, 4 ‘Master’, 5 ‘Doctor’)

Variable	Type	Description
EducationField	factor	The subject of the employee's education (Human Resources, Life Sciences, Marketing, M
Gender	factor	Gender of this employee
MaritalStatus	factor	Marital status of this employee (Divorced, Married, Single)
NumCompaniesWorked	integer	The number of companies this employee has worked
TotalWorkingYears	integer	Total number of years this employee has worked since graduation

Table 2: Job Information

Variable	Type	Description
Attrition	factor	If this employee left the company
BusinessTravel	factor	The frquency of business travel
DailyRate	integer	sth
Department	factor	The department of this employee (Human Resource, Research & Development and Sa
HourlyRate	integer	sth
JobInvolvement	factor	1 'Low', 2 'Medium', 3 'High', 4 'Very High'
JobLevel	factor	The level of this employee's job
JobRole	factor	The position of this employee (Sales Executive, Research Scientist, Laboratory Techni
MonthlyIncome	integer	The salary of this employee
MonthlyRate	integer	sth
OverTime	factor	If this employee works over time (Yes, No)
PercentSalaryHike	integer	The percentage of salary hike
PerformanceRating	integer	1 'Low', 2 'Good', 3 'Excellent', 4 'Outstanding'
StockOptionLevel	factor	The amount of stock this employee process
TrainingTimesLastYear	factor	The length of training the employee took last year
YearsAtCompany	integer	The number of years this employee has been in the company
YearsInCurrentRole	integer	The number of years this employee has been in this position
YearsSinceLastPromotion	integer	The number of years since last promotion
YearsWithCurrManager	integer	The number of years this employee has been with current manager

Table 3: Satisfaction to the Job in Total

Variable	Type	Description
EnvironmentSatisfaction	integer	Satisfaction to the environment (1 'Low', 2 'Medium', 3 'High', 4 'Very High')
JobSatisfaction	integer	Satisfaction to the job (1 'Low', 2 'Medium', 3 'High', 4 'Very High')
RelationshipSatisfaction	integer	Satisfaction to the relationship (1 'Low', 2 'Medium', 3 'High', 4 'Very High')
WorkLifeBalance	integer	The work life balance rate (1 'Bad', 2 'Good', 3 'Better', 4 'Best')
TotalSatisfaction	integer	The sum of EnvironmentSatisfaction,JobSatisfaction,RelationshipSatisfaction and Worl

We can see from the boxplot that there is a relationship between Attrition and Total Satisfaction. Employees who left the company in the end has a lower average total satisfaction and those who stay in the company are more satisfied with their company. So we can say that by predicting the employee's total satisfaction, we can know whether he is going to leave this company or not.

3 Hypothesis

4 Method

5 Analysis

6 Conclusion

Test 5 - Git Hub App