**ATTRITION ANALYSIS**

**PROBLEM STATEMENT :**

Problem Statement 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 and need to be replaced with the talent pool available in the job market. The management believes that this level of attrition (employees leaving, either on their own or because they got fired) is bad for the company, because of the following reasons -

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

Hence, the management has contracted an HR analytics firm to understand what factors they should focus on, in order to curb attrition. In other words, they want to know what changes they should make to their workplace, in order to get most of their employees to stay. Also, they want to know which of these variables is most important and needs to be addressed right away.

Since you are one of the star analysts at the firm, this project has been given to you.

Goal of the case study You are required to model the probability of attrition. The results thus obtained will be used by the management to understand what changes they should make to their workplace, in order to get most of their employees to stay.

Columns

EmployeeIDEmployee number/id

EnvironmentSatisfactionWork Environment Satisfaction Level

JobSatisfactionJob Involvement Level Job Involvement Level Job Involvement Level

WorkLifeBalanceWork life balance level

**Skewness Analysis :**

Age - Normally distributed

Disatace From Home - Positively Skewed

Education - Normally distributed

Monthly Income - Positively Skewed

Number of Companies worked - Positively Skewed

Percent Salary Hike - Positively Skewed

Total Working Years - Positively Skewed

Training Time Last Year - Positively Skewed

Years Since Last Promotion - Positively Skewed

Years With Current Manager - Positively Skewed

**CORRELATION ANALYSIS :**

## Attrition & Age

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Age.

## H1 = There is significant relation between Attrition and Age.

## Since p < 0.05

## H0 is rejected

## Attrition & Distance From Home

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Distance From Home.

## H1 = There is significant relation between Attrition and Distance From Home.

## Since p > 0.05

## H0 is accepted

## Attrition & Monthly Income

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Monthly Income.

## H1 = There is significant relation between Attrition and Monthly Income.

## Since p < 0.05

## H0 is rejected

## Attrition & Num Companies Worked

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Num Companies Worked.

## H1 = There is significant relation between Attrition and and Num Companies Worked.

## Since p < 0.05

## H0 is rejected

## Attrition & Percent Salary Hike

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Percent Salary Hike.

## H1 = There is significant relation between Attrition and Percent Salary Hike.

## Since p < 0.05

## H0 is rejected

## Attrition & Total Working Years

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Total Working Years.

## H1 = There is significant relation between Attrition and and Total Working Years.

## Since p < 0.05

## H0 is rejected

## Attrition & Training Times Last Year

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Training Time Last Year.

## H1 = There is significant relation between Attrition and and Training Time Last Year.

## Since p < 0.05

## H0 is rejected

## Attrition & Years At Company

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Years At Company.

## H1 = There is significant relation between Attrition and and Years At Company.

## Since p < 0.05

## H0 is rejected

## Attrition & Years Since Last Promotion

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Years Since Last Promotion.

## H1 = There is significant relation between Attrition and Years Since Last Promotion.

## Since p < 0.05

## H0 is rejected

## Attrition & Years With Curr Manager

## HYPOTHESIS :

## H0 = There is no significant relation between Attrition and Years With Curr Manager.

## H1 = There is significant relation between Attrition and Years With Curr Manager.

## Since p < 0.05

## H0 is rejected

**CONCLUSION :**

1. Employees having more distance from home has high attrition rate.

## DEPENDENCY TEST(CHI-SQUARE TEST) :

## Attrition & Age

## H0 = Attrition is not depended on Age.

## H1 = Attrition is depended on Age.

## Since p < 0.05

## H0 is rejected

## Attrition & Distance From Home

## H0 = Attrition is not depended on Distance From Home.

## H1 = Attrition is depended on Distance From Home.

## Since p < 0.05

## H0 is rejected

## Attrition & Gender

## H0 = Attrition is not depended on Gender.

## H1 = Attrition is depended on Gender.

## Since p > 0.05

## H0 is accepted

## Attrition & Job Level

## H0 = Attrition is not depended on Job Level.

## H1 = Attrition is depended on Job Level.

## Since p > 0.05

## H0 is accepted

## Attrition & Monthly Income

## H0 = Attrition is not depended on Monthly Income.

## H1 = Attrition is depended on Monthly Income.

## Since p < 0.05

## H0 is rejected

## Attrition & Num Companies Worked

## H0 = Attrition is not depended Num Companies Worked.

## H1 = Attrition is depended on Num Companies Worked.

## Since p < 0.05

## H0 is rejected

## Attrition & Percent Salary Hike

## H0 = Attrition is not depended on Present Salary Hike.

## H1 = Attrition is depended on Present Salary Hike.

## Since p > 0.05

## H0 is accepted

## Attrition & Stock Option Level

## H0 = Attrition is not depended Stock Option Level.

## H1 = Attrition is depended on Stock Option Level.

## Since p > 0.05

## H0 is accepted

## Attrition & Total Working Years

## H0 = Attrition is not depended on Total WorkingYears.

## H1 = Attrition is depended on Total WorkingYears.

## Since p < 0.05

## H0 is rejected

## Attrition & Training Times Last Year

## H0 = Attrition is not depended on Training Time Last Year.

## H1 = Attrition is depended on Training Time Last Year.

## Since p < 0.05

## H0 is rejected

## Attrition & Years At Company

## H0 = Attrition is not depended on Years At Company.

## H1 = Attrition is depended on Years At Company.

## Since p < 0.05

## H0 is rejected

## Attrition & Years Since Last Promotion

## H0 = Attrition is not depended on Years Since Last Promotion.

## H1 = Attrition is depended on Years Since Last Promotion.

## Since p < 0.05

## H0 is rejected

## Attrition & Years With Curr Manager

## H0 = Attrition is not depended on Years With Curr Manager.

## H1 = Attrition is depended on Years With Curr Manager.

## Since p < 0.05

## H0 is rejected

## CONCLUSION FROM CHI-SQUARE TEST

From the above test it can be concluded that attrition is depended upon Age, Distance From Home, Monthly Income, Num Companies Worked, Percent Salary Hike, Stock Option Level, Total Working Years, Training Times Last Year, Years At Company, Years Since Last Promotion, Years With Curr Manager.

 H0: There is no significant differences in the Monthly Income between attrition (Y) and attrition(N)

Ha: There is significant differences in the Monthly Income between attrition (Y) and attrition(N)

# MANN WHITNEY TEST

## Attrition & Age

## H0 : There is no significant differences in the Age between attrition (Y) and attrition (N)

H1 : There is significant differences in the Age between attrition (Y) and attrition(N)

## Since p < 0.05

## H0 is rejected

## Attrition & Distance From Home

## H0 : There is no significant differences in the Distance From Home between attrition (Y) and attrition (N)

H1 : There is significant differences in the Distance From Home between attrition (Y) and attrition(N)

## Since p > 0.05

## H0 is accepted

## Attrition & Gender

## H0 : There is no significant differences in the Gender between attrition (Y) and attrition (N)

H1 : There is significant differences in the Gender between attrition (Y) and attrition(N)

## Since p > 0.05

## H0 is accepted

## Attrition & BusinessTravel

## H0 : There is no significant differences in the BusinessTravel between attrition (Y) and attrition (N)

H1 : There is significant differences in the BusinessTravel between attrition (Y) and attrition(N)

## Since p > 0.05

## H0 is rejected

## Attrition & Monthly Income

## H0 : There is no significant differences in the Monthly Income between attrition (Y) and attrition (N)

H1 : There is significant differences in the Monthly Income between attrition (Y) and attrition(N)

## Since p > 0.05

## H0 is accepted

## Attrition & Num Companies Worked

## H0 : There is no significant differences in the Num Companies Worked between attrition (Y) and attrition (N)

H1 : There is significant differences in the Num Companies Worked between attrition (Y) and attrition(N)

## Since p < 0.05

## H0 is rejected

## Attrition & Percent Salary Hike

## H0 : There is no significant differences in the Percent Salary Hike between attrition (Y) and attrition (N)

H1 : There is significant differences in the Percent Salary Hike between attrition (Y) and attrition(N)

## Since p < 0.05

## H0 is rejected

## Attrition & Total Working Years

## H0 : There is no significant differences in the Total Working Years between attrition (Y) and attrition (N)

H1 : There is significant differences in the Total Working Years between attrition (Y) and attrition(N)

## Since p < 0.05

## H0 is rejected

## Attrition & Training Times Last Year

## H0 : There is no significant differences in the Training Times Last Year between attrition (Y) and attrition (N)

H1 : There is significant differences in the Training Times Last Year between attrition (Y) and attrition(N)

## Since p < 0.05

## H0 is rejected

## Attrition & Years At Company

## H0 : There is no significant differences in the Years At Company between attrition (Y) and attrition (N)

H1 : There is significant differences in the Years At Company between attrition (Y) and attrition(N)

## Since p < 0.05

## H0 is rejected

## Attrition & Years Since Last Promotion

## H0 : There is no significant differences in the Years Since Last Promotion between attrition (Y) and attrition (N)

H1 : There is significant differences in the Years Since Last Promotion between attrition (Y) and attrition (N)

## Since p < 0.05

## H0 is rejected

## Attrition & Years With Curr Manager

## H0 : There is no significant differences in the Years With Curr Manager between attrition (Y) and attrition (N)

H1 : There is significant differences in the Years With Curr Manager between attrition (Y) and attrition (N)

## Since p < 0.05

## H0 is rejected

## COCLUSION FROM MANN WHITNEY TEST

## From the above test it can be seen that there is significant difference between attrition (Y) for Distance From Home , Gender , Monthly Income & between attrition (N) for Distance From Home , Gender , Monthly Income.

## FINAL CONCLUSION

## Employees having more distance from home to the office have high attrition rate.

## Employees having worked at less than 2 companies have high attrition rate.

## Employees having low percent salary hike have high attrition rate.