ANALYSIS OF FACTORS THAT LEAD TO EMPLOYEE ATTRITION

IBM ATTRITION CASE STUDY

ADS-Assignment 2 and 3

Problem Statement

This analysis is based on IBM Attrition data set to understand why employees voluntarily or involuntarily left the company under review, and what might have prevented them from leaving. Attrition costs precious time and money and can lead to loss of staff morale as well as tarnishing company's reputation. It is very important for organisations to monitor their employee attrition rate and understand why employees are leaving to avoid negative repercussions. This analysis can be used to help organisations to understand and design interventions that are most effective in reducing unwanted attrition.

Costs of employee attrition

When an employee leave a company, costs are incurred in recruiting new staff and training them. The employee who is leaving a company goes with his experience which the one replacing him will need more years to gain. This result in low productivity until the new hire learn the business. If it is a customer based business, customers are more likely to be dissatisfied during the learning process of the new employee who may not be able to deliver in the same way the one who left was delivering. This could result in loss of customers who are not satisfied with services which result in decrease in revenue.

Dataset Snapshot

This analysis is using the IBM HR Employee Attrition dataset. This dataset has the following attributes:

1. Number of columns = 35
2. Number of rows = 1470
3. Data Types = int (26) and Object (9)
4. Attrition Rate = 237 / 1233 representing 19.2 %

Important questions to be answered

1. What is the likelihood of an active employee leaving the company?

2. What are the key factors of an employee's attrition?

3. Is there gender bias in the organization?

4. Based on results from (**3**) which gender has the higher rate of attrition?

5. How are the variables correlated?

6. How is the distribution of attrition variable?

Results of Analysis

1. Daily rate is highly dense between ages 25 to 40, meaning that people are very active in that range.

Age vs DailyRate Scatter Plot
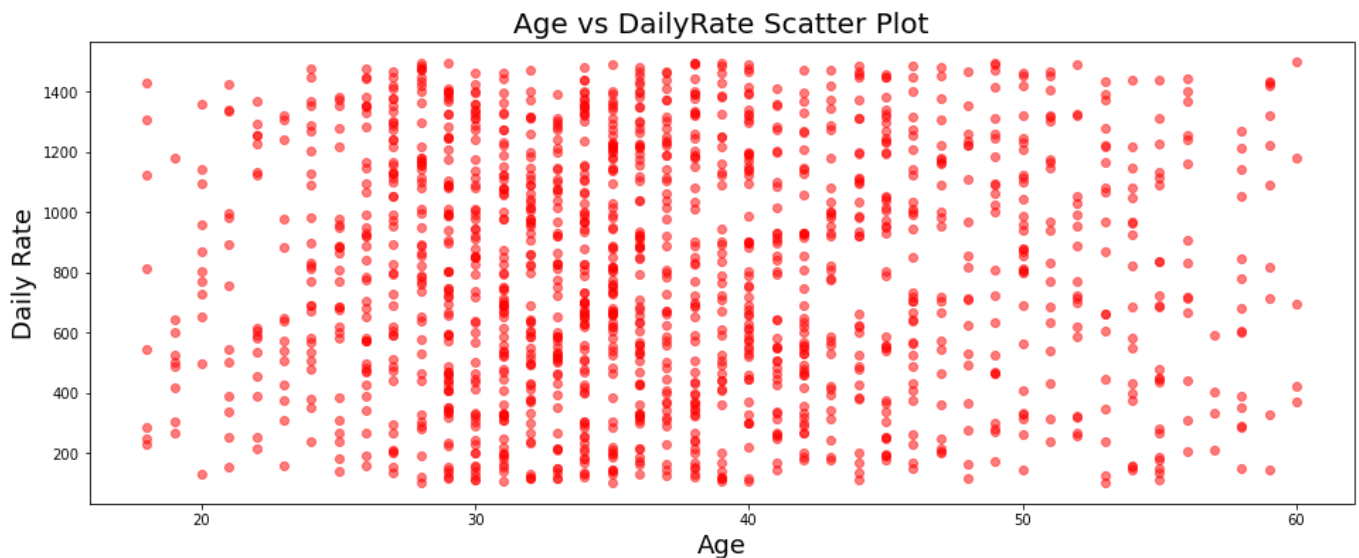
2. People are more likely to quit when distance from home is between 9 and 12.

Employee Attrition Vs Distance from Home
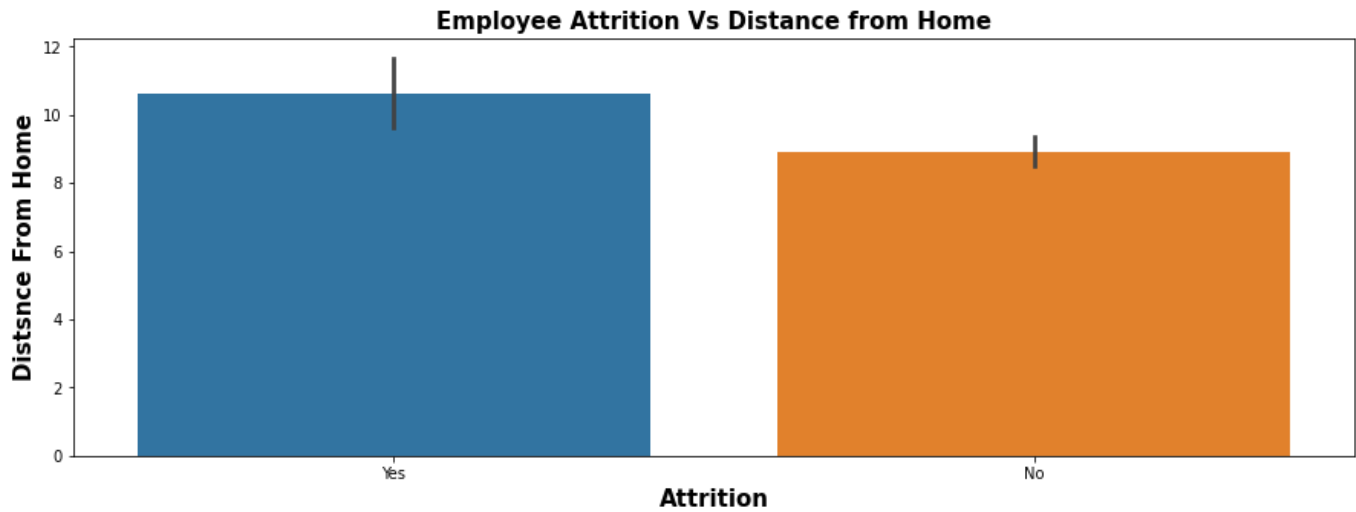
3. Male and female employees who have worked in the range of 11 to 13 total working years are less likely to quit their job.

Total Working Years Vs. Attrition
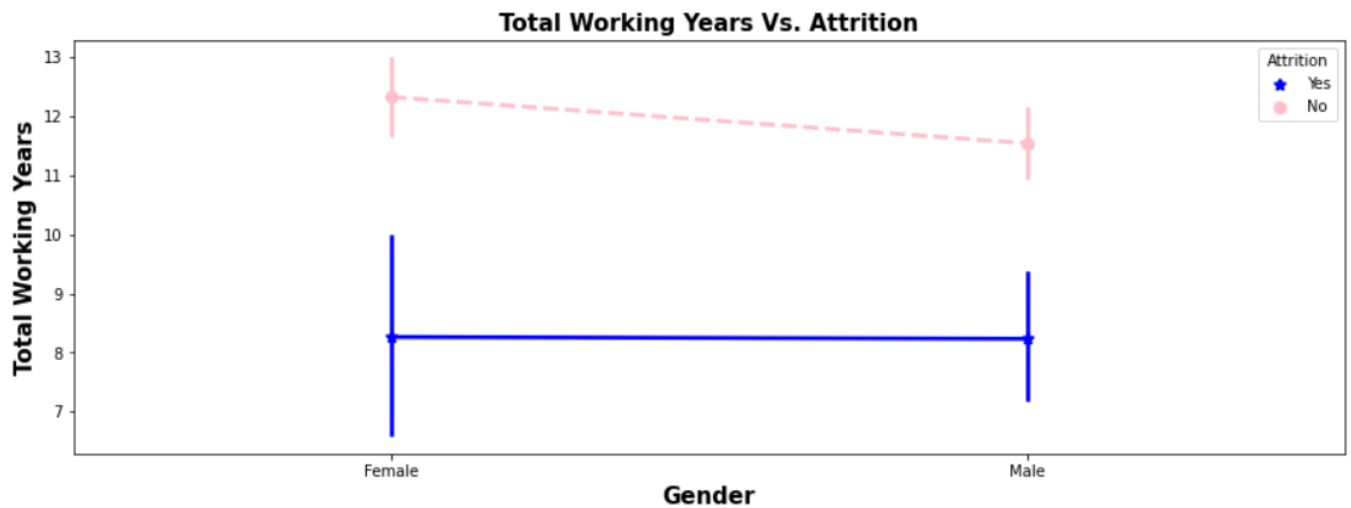
4. Based on the following visualisation, it can be summarised that:
    a. Employees whose Performance rating is between 3.0 and 4.0 are more likely to quit their jobs.
    b. Employees whose distance from home is between 10 and 15 are more likely to quit their jobs.
    c. Employees with years with current manager less than 5 years are more likely to quit their jobs.