



IBM

HR EMPLOYEES ATTRITION

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Overview

- This dataset is from IBM HR Analytics Employee Attrition & Performance. It has 35 features describing each employee's background and characteristics; and labeled with whether they are still in the company or whether they have gone to work somewhere else.

Attrition

- Employee attrition refers to the deliberate downsizing of a company's workforce. Downsizing happens when employees resign or retire.
- There are a number of reasons why employee attrition takes place.
- Examples:
 - Unsatisfactory pay and/or benefits
 - Poor workplace conditions
 - Poor work-life balance
 - Relocation

Dataset

- Demographic Factors:
Age, Education, Gender, Marital Status...
- Work-related Factors:
Business Travel, Department, Monthly Income...

Business Objective

- Exploratory data analysis to understand how these factors relate to employee attrition, in order to prevent valuable employees from leaving.

Data Preparation

- Remove unnecessary columns:
Employee Count, Over 18, Standard Hours.
- Change the wrong data type.
- Divide tables & create a “Star Schema”.

Exploratory Data

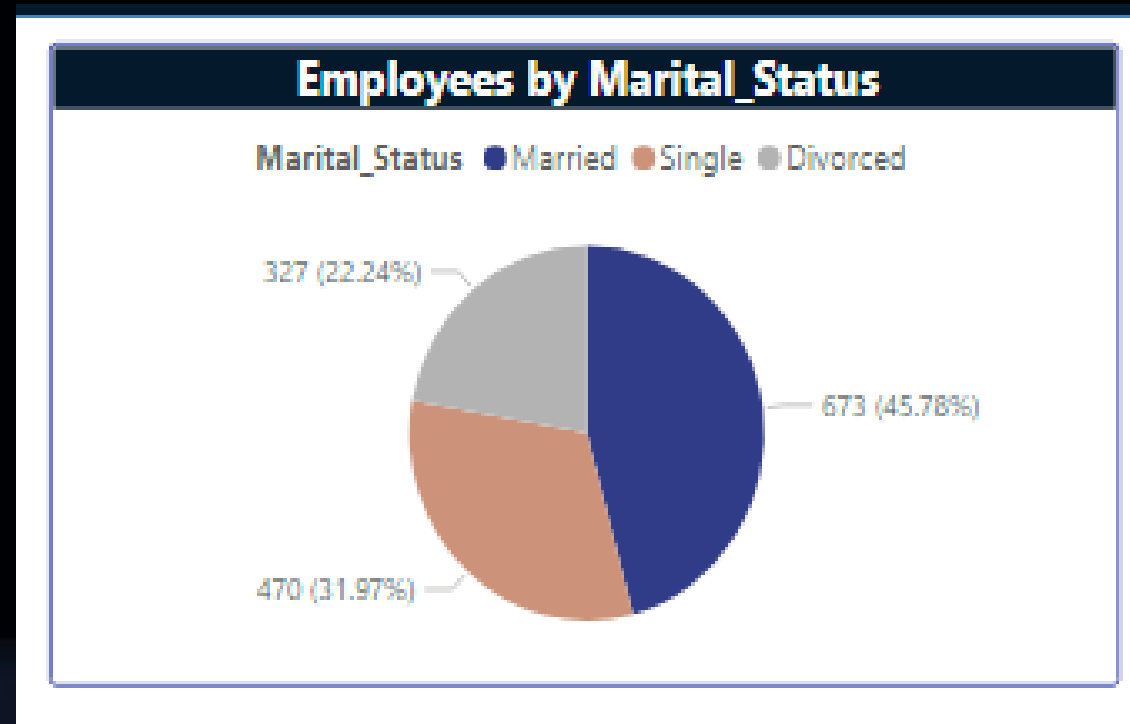
Founded that :

- Employees are: 1470
- Attrition employees are : 273
- Attrition Rate is : 16%

Exploratory Data...

conclusion :

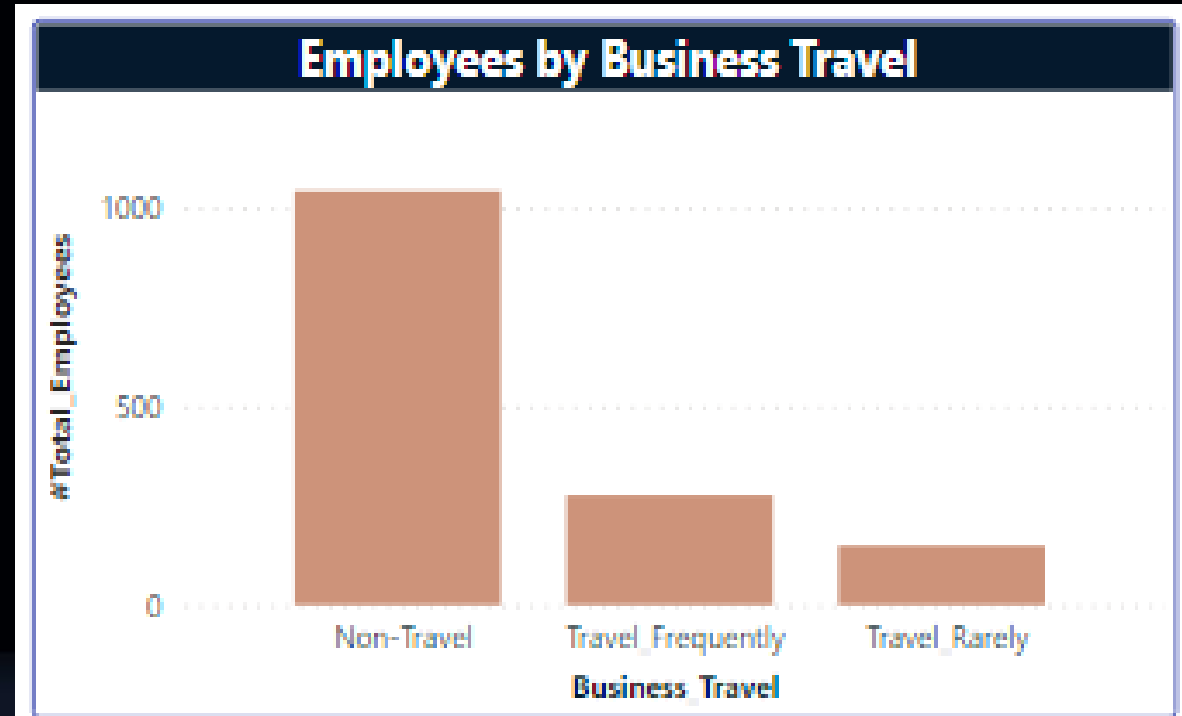
- Most employees are married



Exploratory Data...

conclusion :

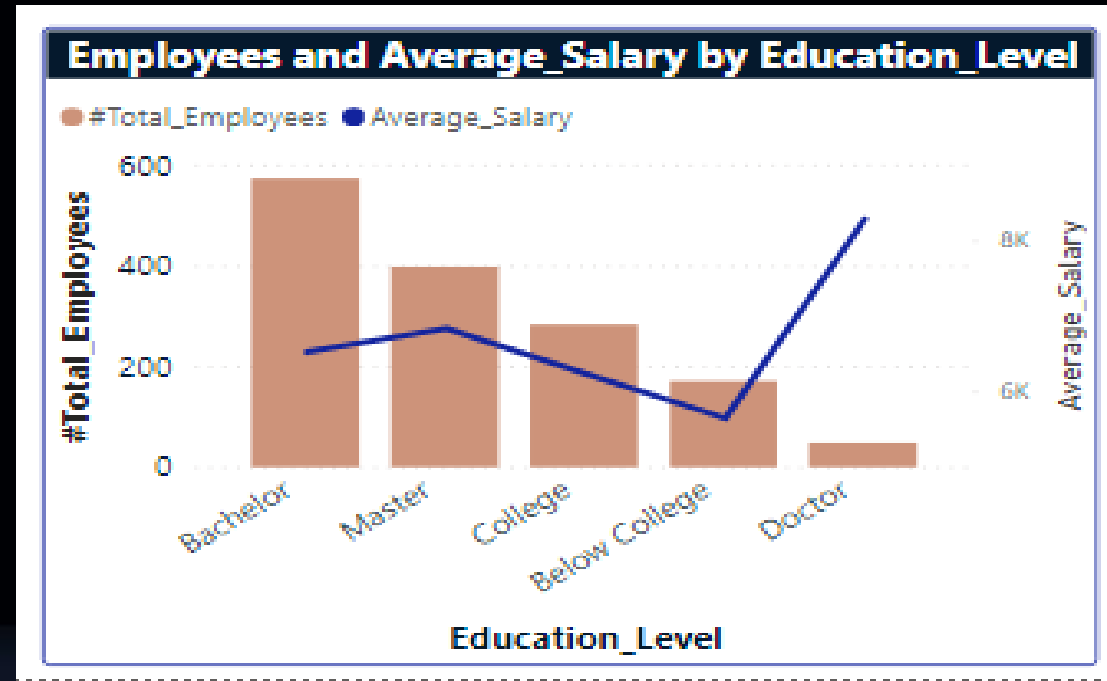
- Most employees are Non-travel.



Exploratory Data...

conclusion :

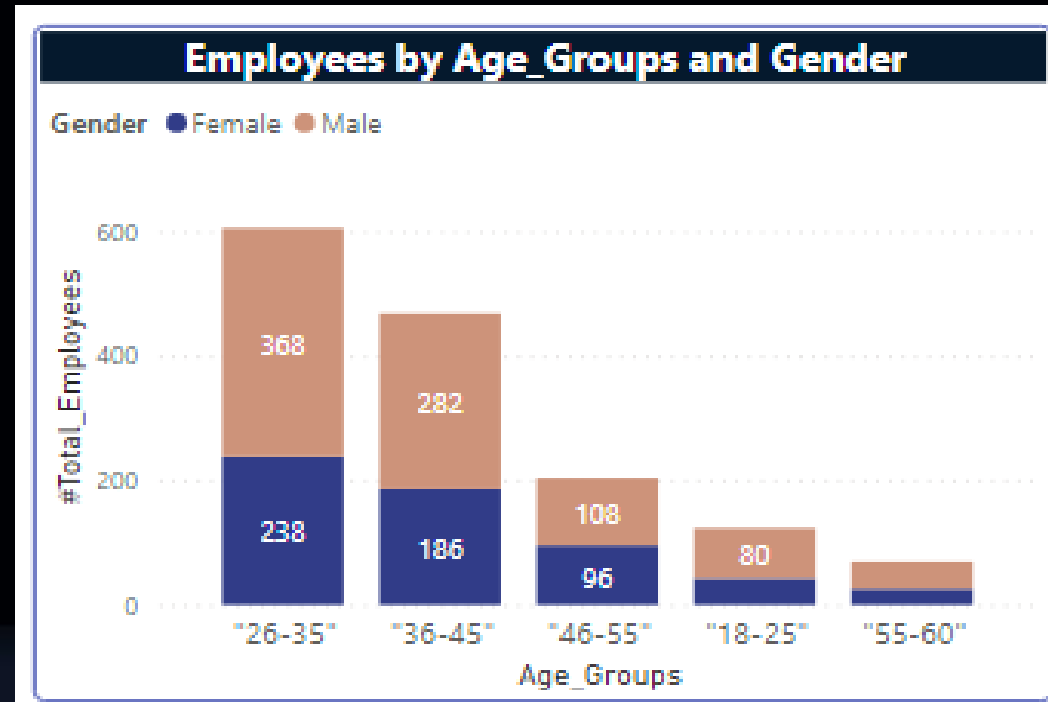
- The employee who has a doctor's degree has the largest salary.



Exploratory Data...

conclusion :

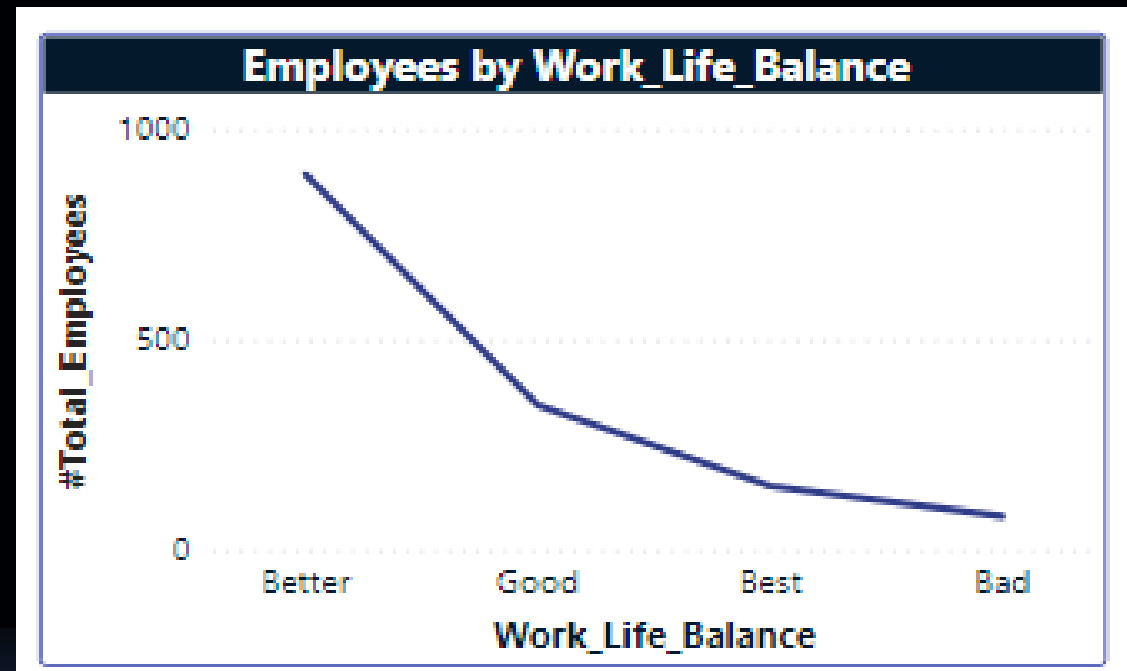
- The most popular employee age group is between 26:35.



Exploratory Data...

conclusion :

- Most Employees have Better work-life balance.



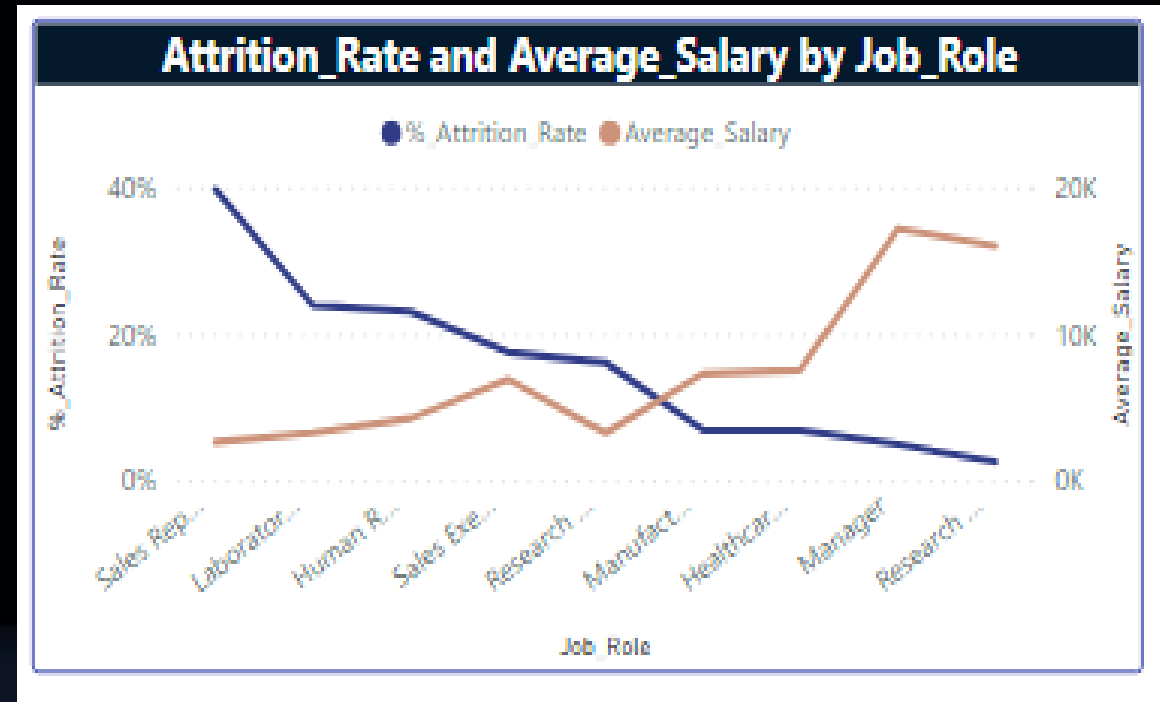
Attrition Analysis



Attrition Analysis...

conclusion :

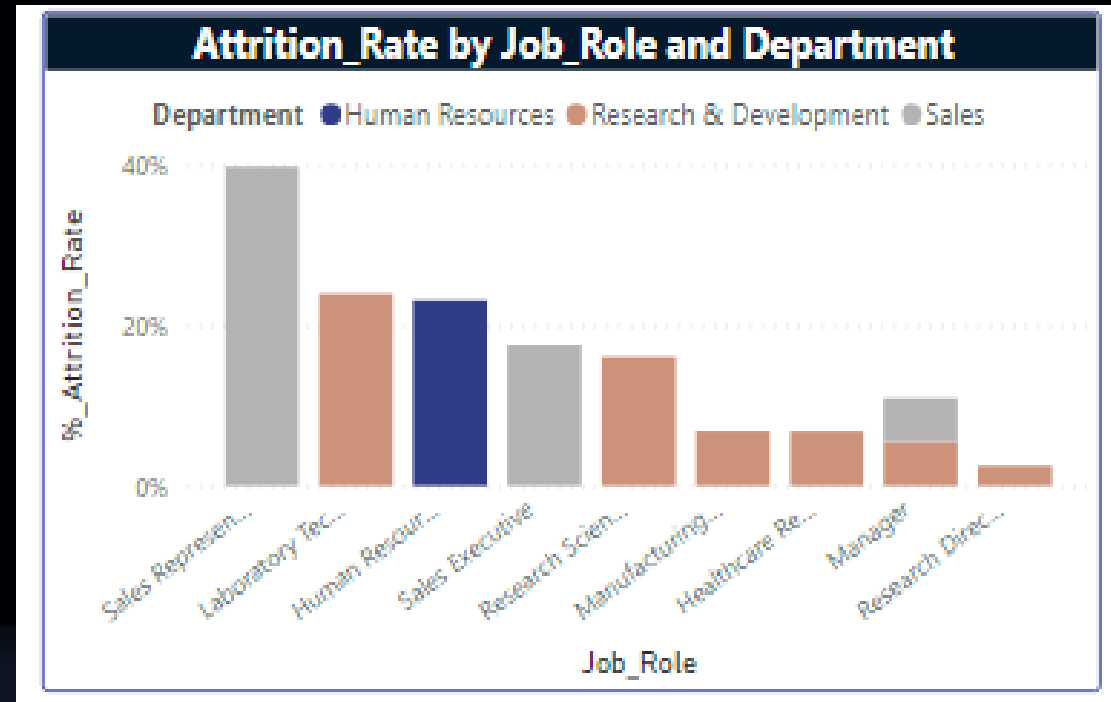
- Employees who have a **high salary**, have the **smallest attrition rate**.



Attrition Analysis...

conclusion :

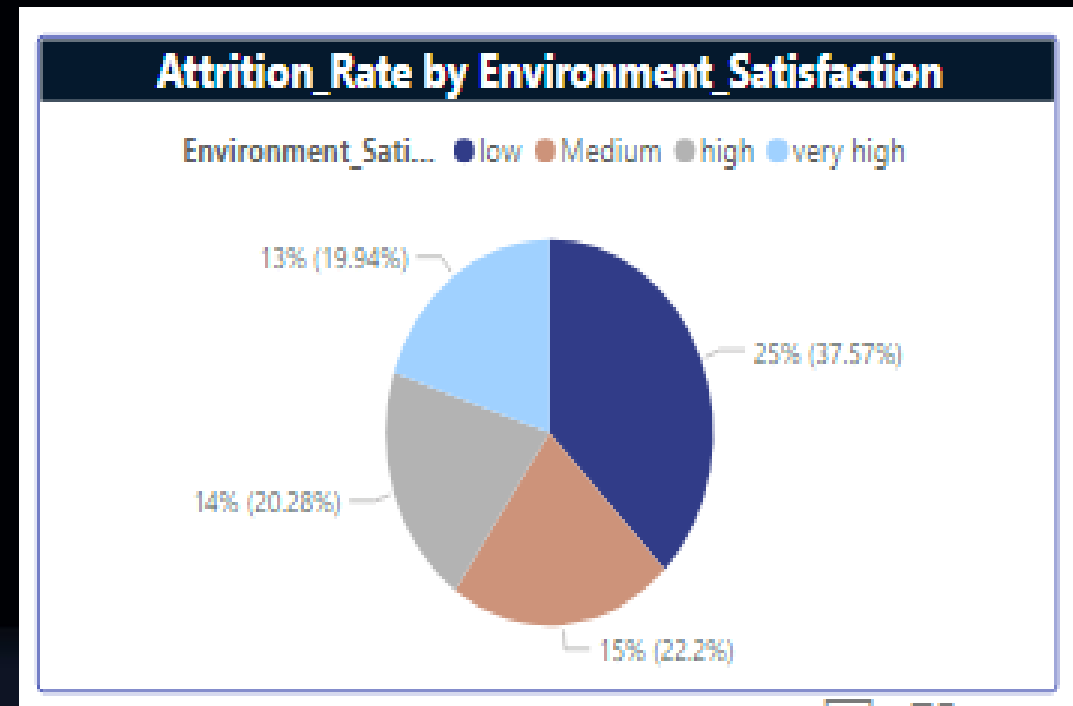
- Employees who are in the **Sales** department, especially in the **Sales representative** role.



Attrition Analysis...

conclusion :

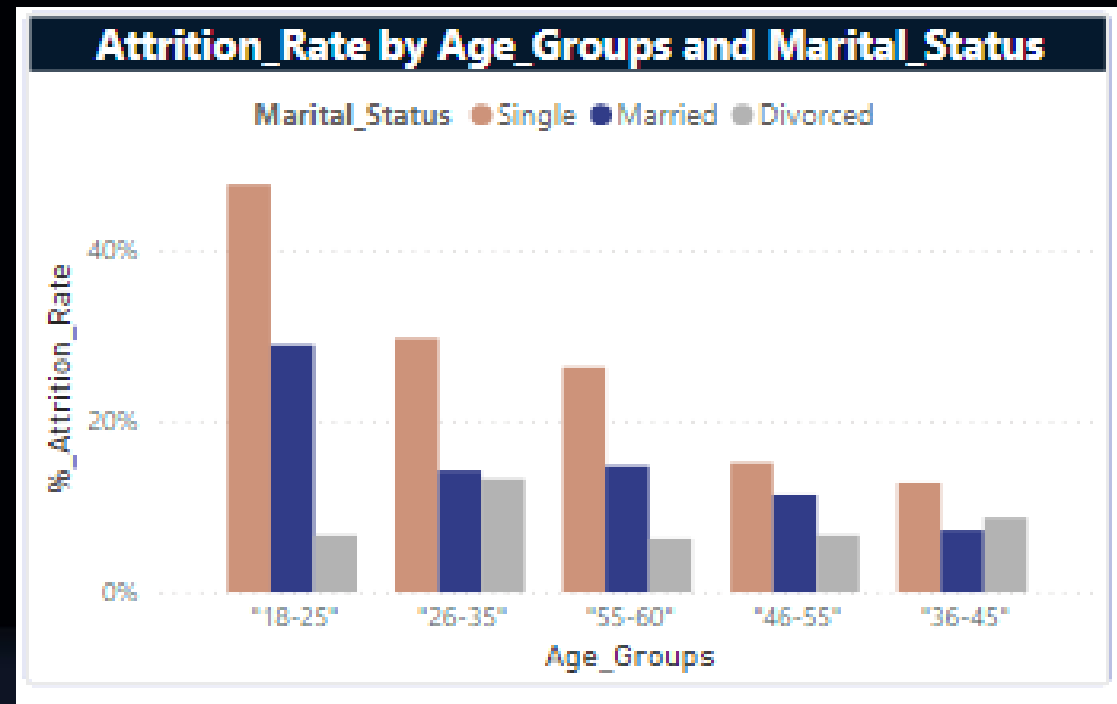
- Employees who have **low environmental satisfaction**, have the **biggest attrition rate**.



Attrition Analysis...

conclusion :

- Employees who are at **18:25 group age** and their **marital status are single**, have the **most attrition rate**.

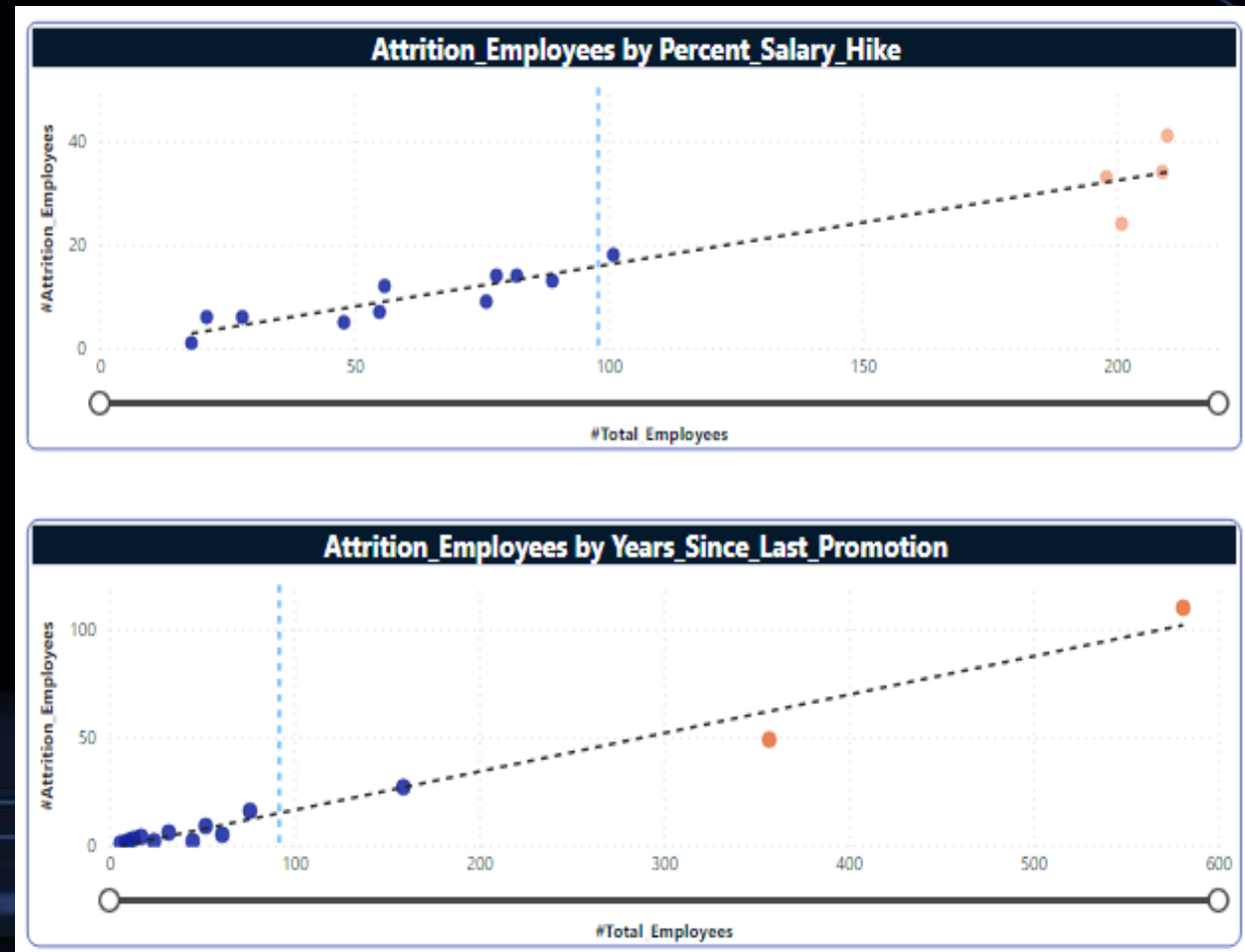


Outliers

- An outlier is an observation that lies an abnormal distance from other values.
- There are **no** outliers in:
 - Monthly income
 - percent salary hike.

Outliers...

- But there are outliers when we group attrition with another factor.
- For example:
 - percent salary hike.
 - years since last promotion.



Recommendations



Recommendations...

To have a low attrition rate, it is important for a company to:

- Fairly pay employees in different job roles, in proportion to the average payment in the job market.
- consider deeper into the sales department, especially the Sales representative role to understand the reasons for attrition and solve these reasons. For example: increase the payment, and sure that that working overtime is being paid.

Recommendations...

- consider the employees' environmental satisfaction, by discussing the reasons for this low satisfaction with them and solve these reasons. Frequent communication and one-on-ones are strongly recommended.
- care about juniors in the team, especially those who are single by increasing the learning curve, activities, and awards.

Hopefully, to decrease employee attrition in the future with those recommendations.

Thanks