



# HR ATTRITION

## From Data to Insightful Decisions

May 23, 2025



# MEET OUR TEAM



**Abdulrahman Hasib**



**Ahmed Ibrahim**



**Ahmed Mohsen**



**Ali Gamal**



**Huda Moussa**



**Ibrahim Ahmed**

# Agenda



01 Introduction



02 Problem,  
Vision & Mission



03 Importance of  
the Problem



04 Data cleaning



05 Data Modeling



06 Dashboard



07 Recommendations



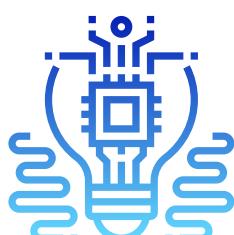
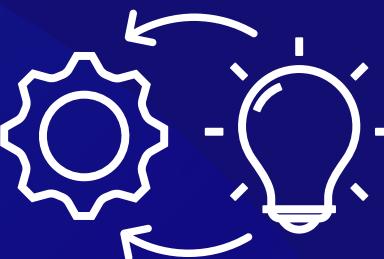
08 Conclusion

# Introduction

- **Scope:** Analyze workforce trends, identify attrition factors, and support retention strategy.
- **Duration:** 4 weeks
- **Tools:** Power BI, Power Query, DAX
- **Teamwork:** Collaborative effort across BI analysts using cloud platforms and real-time communication tools



Understanding and addressing **attrition** helps organizations retain talent, maintain team stability, and improve overall performance, making it essential for long-term growth and employee satisfaction.



# Problem, Vision & Mission



## Problem



Rising attrition rates impacting productivity and increasing HR costs. Some key factors are analyzed like Age & Education, Job Role & Department, Overtime & Travel Frequency, Commute Distance, Hire Date, and Performance & Satisfaction Ratings.

## Vision



Enable a data-driven HR strategy that fosters employee satisfaction and retention.

## Mission



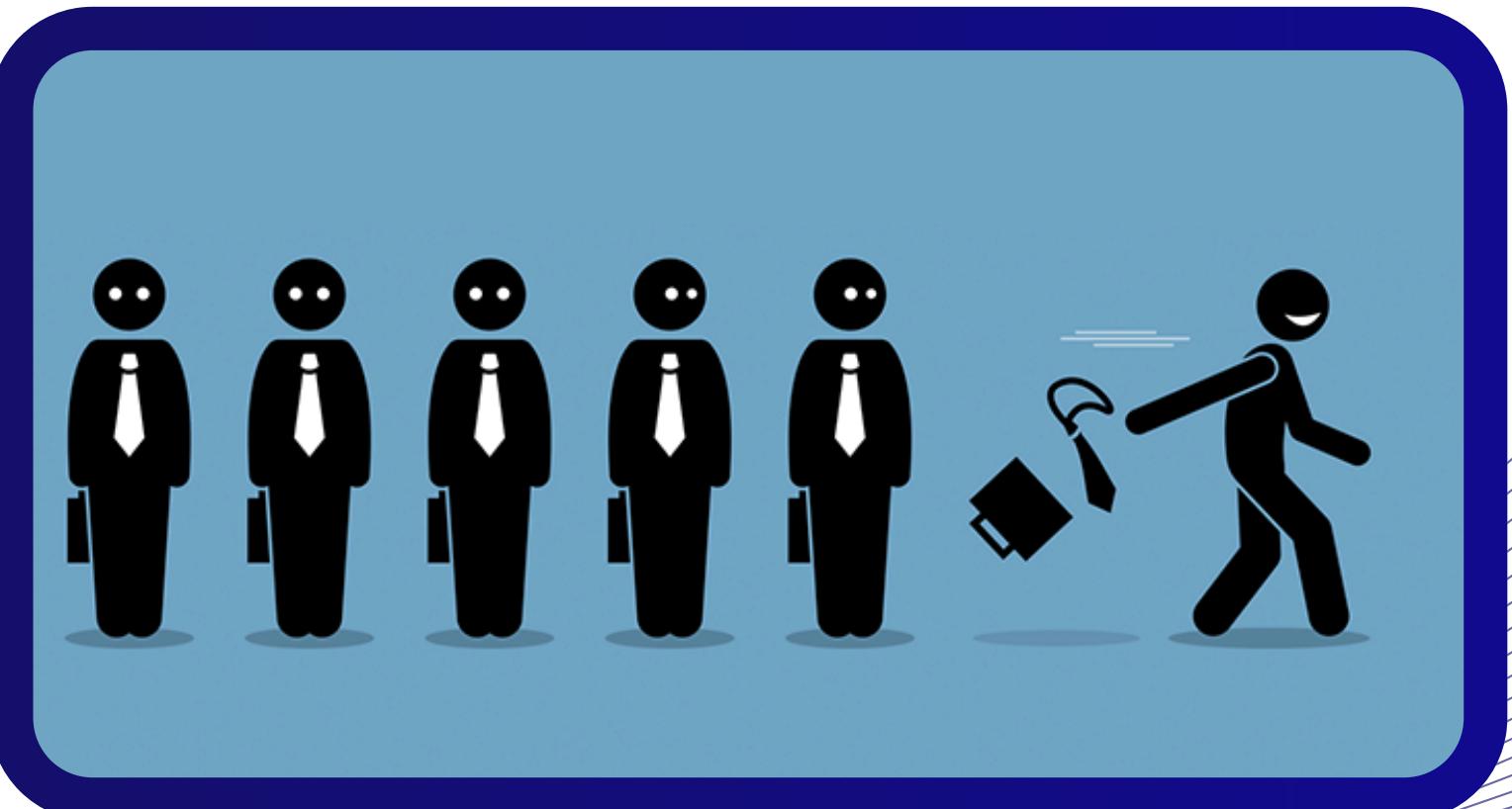
Leverage analytics tools and techniques to uncover hidden patterns in attrition data and provide clear, impactful recommendations to management.

# Importance of the Problem



## Strategic Impact:

- High attrition leads to knowledge loss and training costs
- Identifying drivers enables proactive retention measures





# Data Cleaning

## 1. Removing Duplicates:

Identified and removed duplicate rows from the dataset to ensure data uniqueness and integrity.

## 2. Adding Conditional Columns:

Created new columns based on logical conditions to categorize or transform existing data.

On columns:

- Mapped numerical "Education" values (1-5) to descriptive categories (e.g., "High School," "Bachelor's").
- Grouped "Age" into ranges (e.g., "18-25," "26-38") for better analysis.
- Converted "Attrition" values "Yes"/"No" to "Still Working"/"Left The Company" for clarity.

Query Settings X

**PROPERTIES**

Name  
DimEmployee

All Properties

**APPLIED STEPS**

Source	<span style="float: right;">⚙️</span>
Promoted Headers	<span style="float: right;">⚙️</span>
Changed Type	<span style="float: right;">⚙️</span>
Added Conditional Column	<span style="float: right;">⚙️</span>
Reordered Columns	<span style="float: right;">⚙️</span>
Renamed Columns	<span style="float: right;">⚙️</span>
Added Conditional Column1	<span style="float: right;">⚙️</span>
Removed Columns1	<span style="float: right;">⚙️</span>
Renamed Columns2	<span style="float: right;">⚙️</span>
Added Custom	<span style="float: right;">⚙️</span>
<b>Added Conditional Column2</b>	<span style="float: right;">⚙️</span>

# Data Cleaning

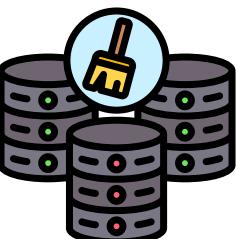
## 3. Added Custom Columns:

- EndDate: To conclude the invalid reviews based on dates
- Invalid Review: Mapped invalid reviews with "Yes"/"No"

## 4. Standardizing and Transforming Data:

- Replaced inconsistent values to correct errors and standardize entries.
- Changed column data types (e.g., text to date, numeric to integer) for consistency.
- Example: Used `Table.TransformColumnTypes` in Power Query to set proper data types (e.g., "ReviewDate" as date, ratings as integers).

These steps ensured the dataset was clean, structured, and ready for analysis in Power BI.



### Add Conditional Column

Add a conditional column that is computed from the other columns or values.

New column name

Column Name	Operator	Value	Output
If Attrition	equals	ABC 123	No
Else If Attrition	equals	ABC 123	Yes

[Add Clause](#)

Else

### Custom Column

Add a column that is computed from the other columns.

New column name

Custom column formula

[Learn about Power Query formulas](#)

No syntax errors have been detected.

### Add Conditional Column

Add a conditional column that is computed from the other columns or values.

New column name

Column Name	Operator	Value	Output
If Age	is greater than	ABC 123	59
Else If Age	is greater than	ABC 123	45
Else If Age	is greater than	ABC 123	30
Else If Age	is greater than or...	ABC 123	18

[Add Clause](#)

Else

### Custom Column

Add a column that is computed from the other columns.

New column name

Custom column formula

[Learn about Power Query formulas](#)

No syntax errors have been detected.

### Add Conditional Column

Add a conditional column that is computed from the other columns or values.

New column name

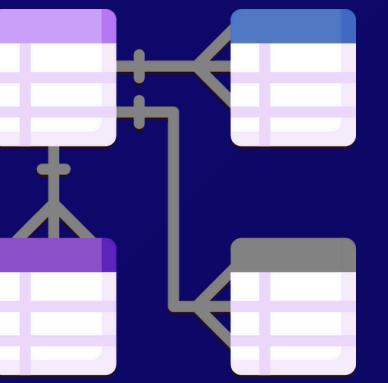
Column Name	Operator	Value	Output
If Education	equals	ABC 123	1
Else If Education	equals	ABC 123	2
Else If Education	equals	ABC 123	3
Else If Education	equals	ABC 123	4
Else If Education	equals	ABC 123	5

[Add Clause](#)

Else

OK

Cancel



# Data Modeling

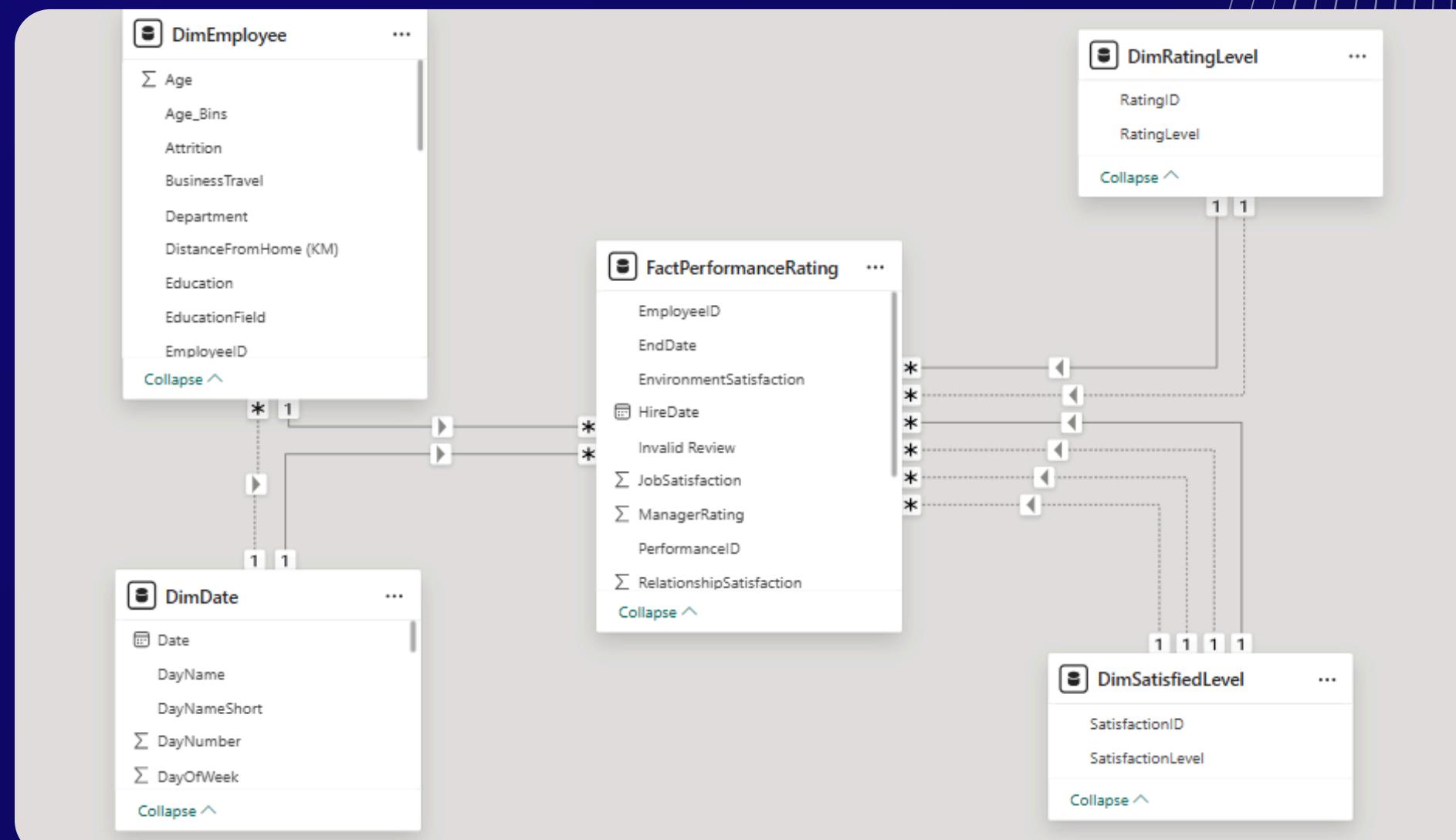
After cleaning the data, we modeled it using star schema. We splitted them into tables like:

## Fact Tables

1. FactEmployee: Tracks employee attributes which are Attrition, BusinessTravel, Department; Linked to standardized EmployeeID and Education.
2. FactPerformanceRating: Measures employee performance metrics which are JobSatisfaction, EnvironmentSatisfaction, ReviewDate

## Dimension Tables

1. DimDate: Time hierarchy: DayName, DayNumber, DayOfWeek.
2. DimSatisfactionLevel /DimRatingLevel: Satisfaction and performance rating scales (SatisfactionID, RatingLevel).

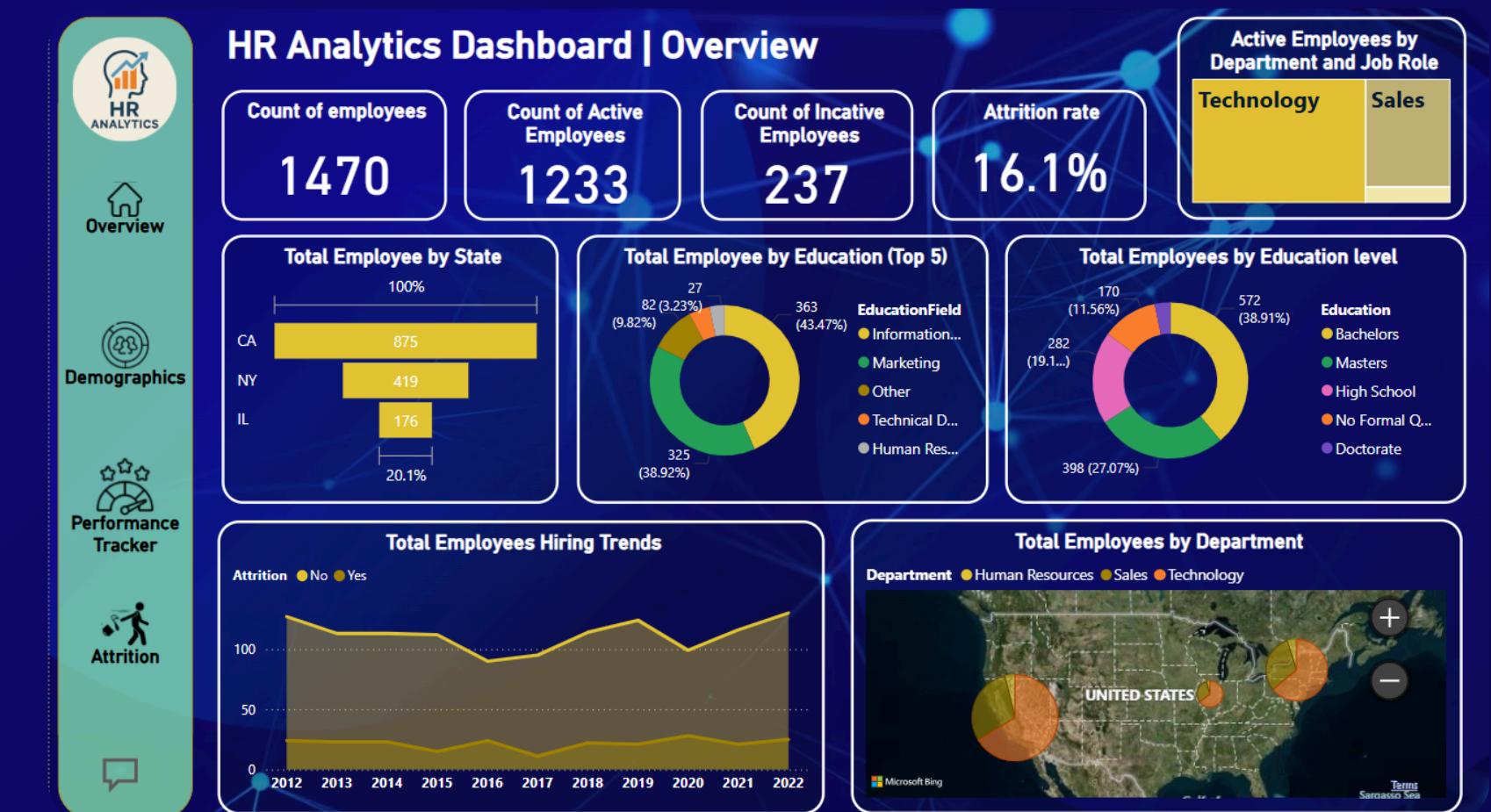


# Dashboard

After modeling the data and organizing its structure, we began to analyze the data and implement the dashboard.

We divided our dashboard into 4 pages:

- Overview page: overall information about all employees (education, department, etc.).
- Demographics page: demographic information about all employees (marital status, etc.).
- Performance Tracker page: provide the performance measures for every employee.
- Attrition page: overall attrition metrics such as the attrition rate and count of inactive employees, hire date, overtime requirement, and tenure.

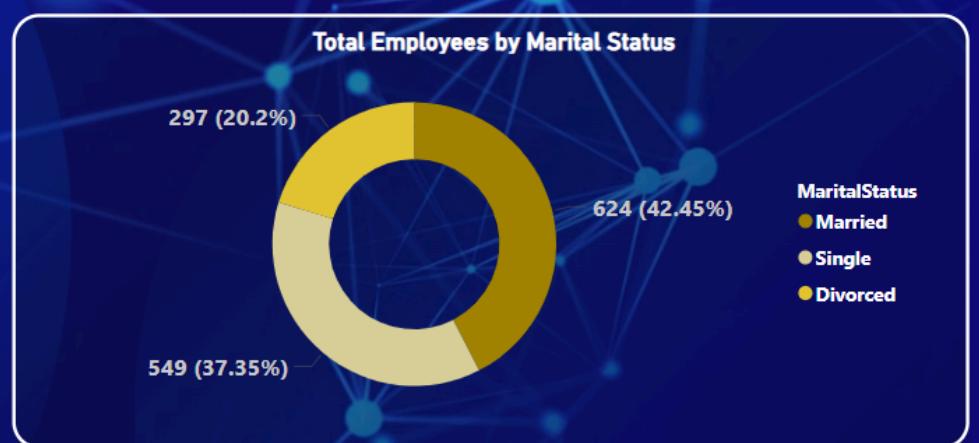
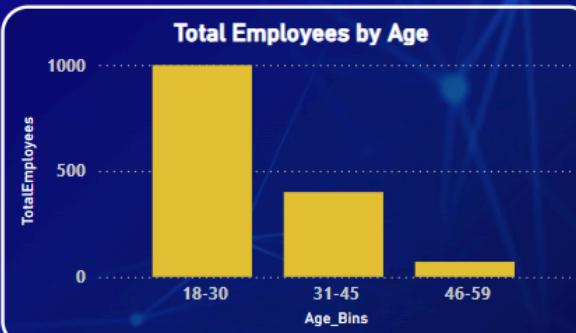


## HR Analytics Dashboard | Demographics

- HR ANALYTICS**
- Overview**
- Demographics**
- Performance Tracker**
- Attrition**
- Feedback**

**Youngest Employee**  
**18**

**Oldest Employee**  
**51**



## HR Analytics Dashboard | Performance Tracker

- HR ANALYTICS**
- Overview**
- Demographics**
- Performance Tracker**
- Attrition**
- Feedback**

Select employee  
**Aube Bassill**

Start Date  
**09/07/2015**

Last Review  
**04/14/2022**

Count Review  
**5**

Still Working



**Distance From Home (Km.)**  
**38**

Satisfaction Level	Satisfaction ID
Very Satisfied	5
Satisfied	4
Neutral	3
Dissatisfied	2

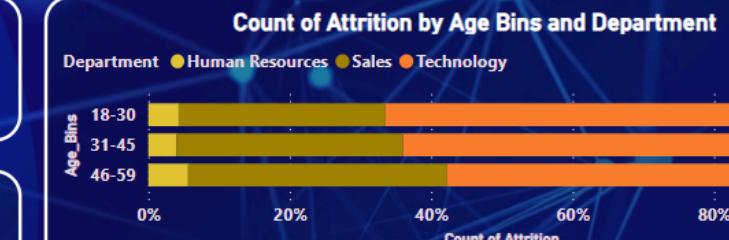
Rating Level	Rating ID
Above and Beyond	5
Exceeds Expectation	4
Meets Expectation	3
Needs Improvement	2

## HR Analytics Dashboard | Attrition

- HR ANALYTICS**
- Overview**
- Demographics**
- Performance Tracker**
- Attrition**
- Feedback**

**Attrition rate**  
**16.1%**

**Count of Inactive Employees**  
**237**



### Attrition by Hire Date



### Attrition by Business Travel



### Attrition by Tenure

# Recommendations

1. Focus Retention Efforts on the 18–30 Age Group by implementing mentorship programs and career progression plans
2. Investigate and Reduce Disparities in Salary by Ethnicity by paying equity audit and creating transparent salary bands
3. Focus on Retaining New Hires by strengthening onboarding programs and provide early career support through mentoring
4. Address Overtime as a Major Risk Factor by reevaluating workloads and consider hiring additional staff or redistributing responsibilities
5. Address the problem of Frequent traveling by distributing the travel trips on more employees instead of certain employees

# Conclusion

- Wrapping up the problem of attrition
- Data cleaning and Modeling
- Data analysis and dashboard design
- Suggest useful recommendations for future



# Thanks for listening!

