# Exploration of HR Data

## Introduction to HR Data Analysis:

**Introduction to HR Data Analysis:**

**Content:**

- In this analysis, we explore an HR dataset consisting of 1,480 rows and 35 columns.
- The data covers various attributes of employees, including age, income, job satisfaction, years of service, and promotion history.
- this exploration aims to understand the factors influencing employee satisfaction, turnover, and performance.

## Key Employee Attributes: (Part 1)

**Key Attributes in the Dataset:**

**Content:**

- **EmpID (Employee ID):** A unique identifier for each employee, ensuring data accuracy and avoiding duplication.
- **Age:** Employee age ranges from **18 to 60 years**, with an average age of **36.9**. Age analysis helps in understanding workforce demographics.
- **Attrition:** A binary indicator showing whether an employee has left the company ("Yes"/"No"). This column is key to studying employee turnover.

## Key Employee Attributes: (Part 2)

**Key Attributes in the Dataset:**

**Content:**

- **Job Satisfaction:** Measured on a scale of **1 (Low)** to **4 (Very High)**. High satisfaction scores correlate with better retention and performance.
- **Monthly Income:** The average monthly income is **801.38**, with a range between **102** and **1499**. Analyzing this helps in understanding income distribution across roles.
- **Distance from Home:** Employees commute an average of **9.22 km**. Long commutes can negatively impact job satisfaction and attrition.

# Key Employee Attributes :(Part 3)

## Key Attributes in the Dataset:

**Content:**

- **Overtime:** Indicates whether the employee works overtime (Yes/No). Excessive overtime can lead to burnout, impacting job satisfaction and retention.
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- **Department Distribution:** Most employees work in **Research & Development**, followed by **Sales** and **Human Resources**. Understanding department sizes helps in resource allocation and performance comparison.

# Graphical Analysis: (Part 1)

## Graphical Insights:

**Content:**

- **Income vs. Years of Service:** Generally, income tends to increase with years of service. However, there are variations based on departments and job roles.
- **Department Analysis:** Majority of employees work in **Research & Development**, reflecting its central role in the organization.
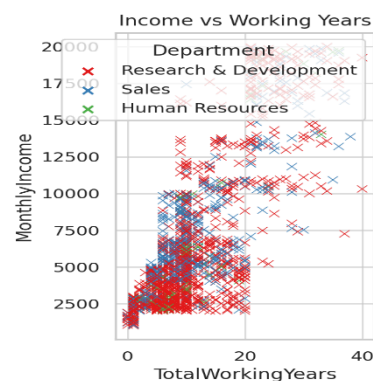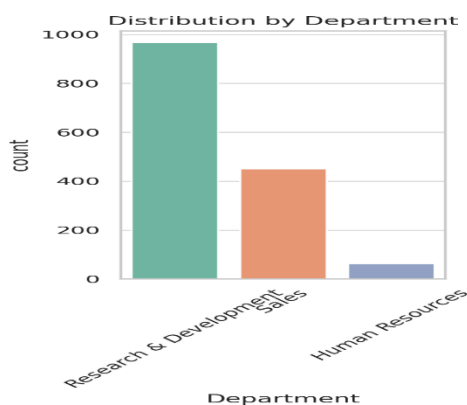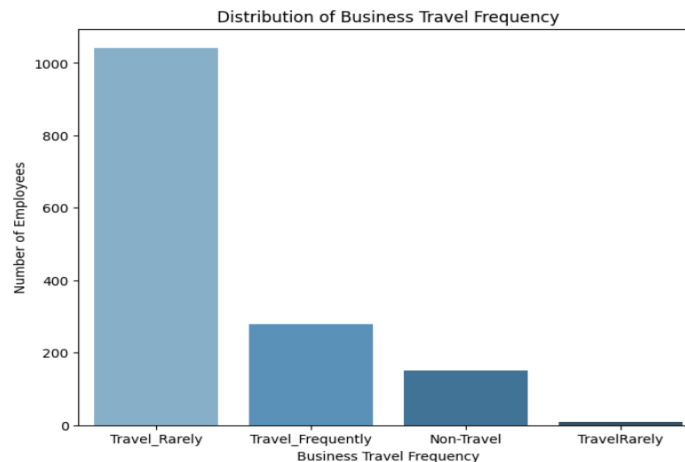
# Graphical Analysis: (Part 2)

## Graphical Insights:

**Content:**

- **Business Travel Frequency:** Most employees either travel frequently for business or do not travel at all. A small percentage engage in occasional travel, which may impact job satisfaction.
- **Job** of

**Satisfaction:** High levels job satisfaction are seen in departments with lower turnover rates, emphasizing the importance of a positive work environment



Distribution of Business Travel Frequency

## Distance From Home:

- **Minimum Distance:** 1 kilometer/mile (shortest commute distance).
- **Maximum Distance:** 29 kilometers/miles (longest commute distance).
- **Average Distance:** 9.2 kilometers/miles (average distance employees live from the company).

**Key Insight:**

Employees living closer to the company may experience higher job satisfaction, while those with longer commutes may show higher attrition rates or request flexible working arrangements.

**Distribution of Distance From Home**
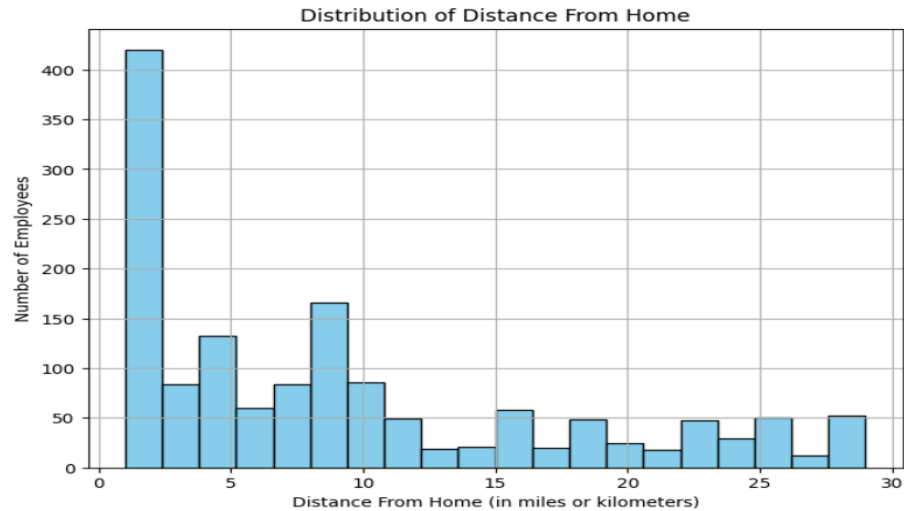
# Conclusion:

**Content:**

- The analysis provides deep insights into key employee metrics such as **age**, **income**, **job satisfaction**, and **attrition**.
- **Key Takeaway:** Employee satisfaction and compensation are critical factors influencing turnover rates and overall performance.
- Further studies can be conducted to explore the relationship between employee training, performance, and retention.