



# HR Analysis

# 1. Project Overview

The HR Analytics project aims to provide insights into the organization's workforce to support data-driven decision-making. The analysis covers employee attrition, salary trends, performance evaluation, and diversity assessment. Key goals include understanding factors influencing employee turnover, analyzing salary distribution, and evaluating workforce diversity.

## 2. Data Overview

### 2.1. Data Sources

Data was collected from internal HR databases and included the following details:

- Employee demographic data (age, gender, education level)
- Job information (department, job role, tenure)
- Compensation details (monthly income, salary bands)
- Performance metrics (ratings, evaluation scores)
- Attrition data (indicator of whether an employee has left the company)

### 2.2. Key Data Fields

- **Employee ID:** Unique identifier for each employee.
- **Age:** Employee's age in years.
- **Gender:** Employee gender (Male/Female).
- **Department:** The department to which the employee belongs (e.g., Sales, IT, HR).
- **Monthly Income:** Employee's monthly salary.
- **Performance Rating:** Score assigned during performance evaluation.
- **Attrition:** Indicates if the employee has left the company (Yes/No).
- **Years at Company:** Total number of years the employee has worked at the company.

## 3. Data Preprocessing

### 3.1. Data Cleaning

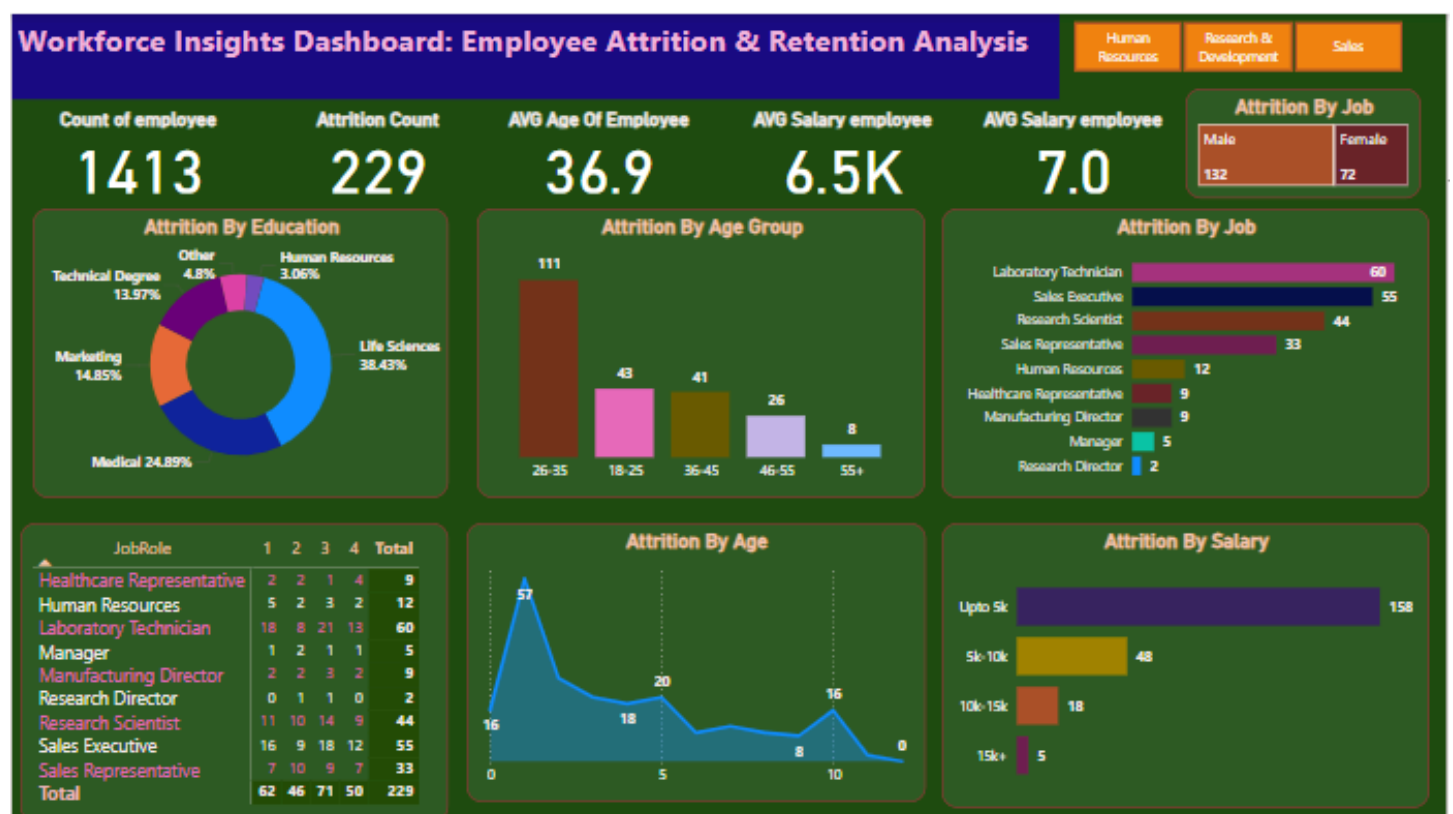
- **Missing Values:** Handled missing values in Performance Rating and Education Level using median imputation.
- **Data Type Corrections:** Converted numerical fields (e.g., Age, Monthly Income) to integers. Categorical fields like Gender, Department, and Attrition were encoded appropriately.
- **Outlier Detection:** Identified outliers in Monthly Income using box plots. These outliers were mostly executive-level salaries and were retained for analysis.

## 3.2. Feature Engineering

- **Tenure Groups:** Created categories based on employee tenure (e.g., <2 years, 2-5 years, 5+ years).
- **Salary Bands:** Classified Monthly Income into ranges (Low, Medium, High).
- **Age Categories:** Grouped employees into age segments (<25, 25-35, 36-45, 46+).

## 4. Exploratory Data Analysis (EDA)

### 4.1. Workforce Insights Dashboard: Employee Attrition & Retention Analysis



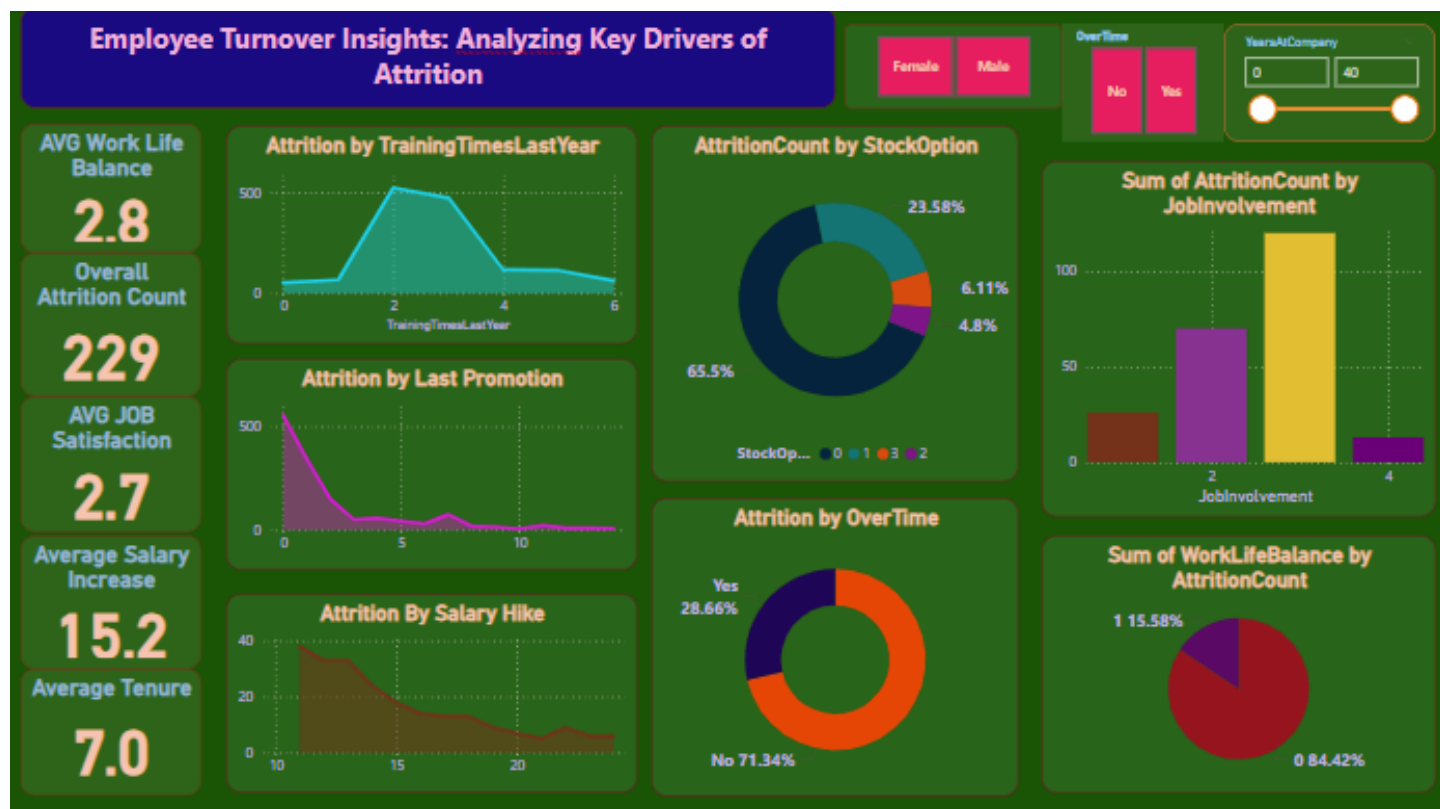
**High Attrition Rate in Specific Demographics:** The attrition rate is highest among employees aged **26-35 years** (111) and those with **Life Sciences** (33.4%) or **Medical** (24.8%) education backgrounds.

**Job Roles Affected by High Turnover:** **Laboratory Technicians** (60) and **Sales Executives** (54) have the highest attrition, suggesting potential issues in these roles related to job satisfaction or work environment.

**Gender and Salary Disparity:** More male employees (132) left compared to females (72). Additionally, a majority of those who left were in the **lower salary range** (up to \$5k), indicating a possible link between lower pay and higher attrition.

**Retention Among Senior Employees:** Attrition decreases significantly for older age groups (46+) and higher salary ranges (\$10k+), suggesting better retention among experienced and well-compensated employees.

## 4.2. Salary Analysis



- Low work-life balance (2.8) and job satisfaction (2.7) scores indicate dissatisfaction among employees.
- High attrition is linked to fewer training opportunities and lack of recent promotions.
- Most attrition occurs among employees without stock options (65.5%) and those working overtime (28.6%).
- Employees with low salary hikes and low job involvement show higher turnover rates, suggesting issues with compensation and engagement.

## 5. Key Observations and Insights

- **High Attrition in Sales and IT:** The Sales and IT departments had the highest attrition rates, suggesting a need for targeted employee retention strategies.
- **Gender Pay Disparity:** The gender pay gap highlighted a significant issue that could affect employee satisfaction and company reputation. Addressing this could improve equity

and morale.

- **Performance and Tenure Link:** Longer-tenured employees generally performed better, which emphasizes the importance of employee retention and training programs.
- **Need for Diversity Initiatives:** While there was a balanced gender ratio in certain departments, leadership roles lacked diversity. This suggests an opportunity for initiatives aimed at promoting a diverse leadership pipeline.

## 6. Recommendations

1. **Enhance Onboarding Experience:**
  - Address high attrition rates among employees with less than 2 years of tenure by improving the onboarding process and providing mentorship programs.
2. **Address Pay Disparities:**
  - Conduct a comprehensive salary review to close the gender pay gap, especially in senior roles.
3. **Focus on Employee Retention:**
  - Develop targeted retention strategies for departments with high turnover, such as Sales and IT, by analyzing feedback and implementing employee engagement programs.
4. **Promote Diversity in Leadership:**
  - Implement policies to ensure a more diverse leadership team by providing equal opportunities for career advancement and leadership training programs.

## 7. Conclusion

The HR Analytics project provided valuable insights into workforce trends, highlighting areas for improvement in employee retention, salary equity, performance management, and diversity. By implementing the suggested recommendations, the organization can foster a more inclusive and efficient workplace, leading to better overall employee satisfaction and productivity.