HR Analytics Project Report

Employee Attrition Analysis Using Excel

1. Introduction

Employee attrition is a critical challenge for organizations as it directly impacts productivity, employee morale, and operational costs. Understanding the factors that influence employee turnover enables organizations to design effective retention strategies. This project focuses on analysing HR data using Microsoft Excel to identify key drivers of employee attrition and provide data-driven business recommendations.

2. Problem Statement

The objective of this project is to analyse employee data to:

- Identify patterns and trends associated with employee attrition
- Determine key factors contributing to employee turnover
- Provide actionable recommendations to reduce attrition and improve employee retention

3. Dataset Description

The dataset used for this analysis is the IBM HR Analytics Employee Attrition dataset. It contains 1,470 employee records with 35 attributes covering demographic details, job-related factors, compensation, and employee satisfaction metrics.

Key attributes include:

- Age, Gender, Department, Job Role
- Monthly Income, Years at Company
- Job Satisfaction, Work-Life Balance
- Attrition (Yes/No)

The dataset was sourced from a publicly available HR analytics dataset and analyzed using Microsoft Excel.

4. Tools and Techniques Used

- **Microsoft Excel**

- Data cleaning and preparation
- Pivot tables and pivot charts
- Excel formulas (IF, COUNTIF, AVERAGEIFS)
- Conditional formatting
- Interactive dashboard creation

5. Data Cleaning and Preparation

The following steps were performed to ensure data quality:

- Verified and corrected data types for numerical and categorical fields
- Checked for missing values and ensured data completeness
- Removed any duplicate records
- Created derived columns such as attrition risk indicators using Excel formulas

These steps ensured the dataset was accurate and suitable for analysis.

6. Exploratory Data Analysis

Using pivot tables (shown in fig.1) and charts(shown in fig.2), the following analyses were conducted:

6.1 Attrition by Department

Analysis revealed that the Research & Development departments experienced higher attrition rates compared to other departments.

6.2 Attrition by Job Role

Certain job roles such as Sales Executive, Research Scientist and Laboratory Technician showed higher employee attrition, indicating potential role-specific challenges.

6.3 Job Satisfaction and Attrition

Employees with lower job satisfaction levels were more likely to leave the organization, highlighting a strong relationship between satisfaction and retention.

6.4 Age group vs Attrition

Employees in the age gap 25-34 experience higher attrition compared to elderly employees. Also it was inferred that male employees experience higher attrition than female.

Row Labels	Count of Attrition
Human Resources	63
Research & Development	961
Sales	446
Grand Total	**1470**

Fig.1 Pivot Table for Department Vs Attrition

7. Dashboard and Visualization

An interactive Excel dashboard was created to summarize key insights. The dashboard includes:

- Total number of employees
- Overall attrition rate
- Attrition by department and job role
- Average job satisfaction and income metrics

The dashboard allows stakeholders to quickly understand attrition trends and identify high-risk employee segments.

8. Key Insights

- Sales and R&D departments have the highest attrition rates
- Low job satisfaction is a major contributor to employee turnover
- Employees with shorter tenure are more likely to leave
- Certain job roles show consistently higher attrition patterns

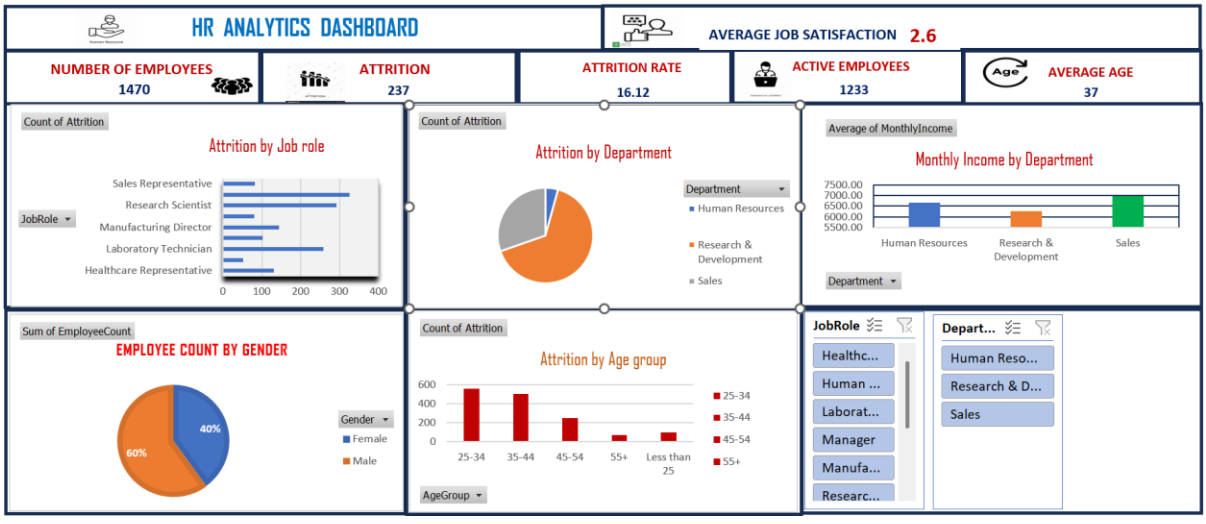

Fig.2 Dashboard created in Excel

9. Business Recommendations

Based on the analysis, the following recommendations are proposed:

- Implement targeted employee engagement and mentorship programs for high-attrition departments
- Conduct regular job satisfaction surveys and address employee concerns proactively
- Strengthen onboarding and training programs for new hires
- Review compensation and career growth opportunities for high-risk job roles

10. Conclusion

This project demonstrates how Microsoft Excel can be effectively used for HR analytics to uncover meaningful insights. By analysing employee attrition patterns, the project provides valuable recommendations that can help organizations improve retention and workforce stability. The analysis highlights the importance of employee satisfaction, departmental focus, and early engagement in reducing attrition.

11. Project Outcome

The project successfully delivered a complete HR analytics solution using Excel, including data cleaning, analysis, visualization, and business insights. It showcases practical data analyst skills and serves as a strong portfolio project for entry-level data analyst roles.

By,

Neha Surendran