

IBM HR Employee Attrition Analysis (SQL + Business Insights)

Business Problem

Employee attrition increases hiring cost, reduces productivity, and impacts team stability.

The objective of this analysis is to identify key drivers of employee attrition and provide actionable insights for HR decision-making.

Dataset

- Source: IBM HR Analytics Dataset
- Records: 1470 employees
- Key fields: Attrition, Department, JobRole, MonthlyIncome, Age, Tenure

Data Cleaning & Preparation

- Identified missing values in critical fields (Attrition, Department, JobRole, MonthlyIncome)
- Avoided blind deletion of records to prevent bias
- Applied department-level salary imputation for missing MonthlyIncome values
- Validated data completeness before analysis

Key Business Questions

1. Which departments have the highest attrition rate?
2. Is attrition higher among low-income employees?
3. Does job role impact attrition probability?
4. Are employees leaving early in their tenure?

Key Insights

- Attrition rate is significantly higher in Sales and Human Resources departments.
- Employees with lower monthly income show higher attrition, indicating compensation sensitivity.
- Certain job roles show disproportionately high attrition despite moderate headcount.
- Majority of attrition occurs within the first 2–3 years of employment.

Recommendations

- Review compensation structure for high-attrition job roles.
- Strengthen onboarding and engagement programs during the first two years.
- Conduct role-specific attrition analysis instead of company-wide policies.
- Introduce targeted retention strategies rather than blanket HR initiatives.

Tools Used

- SQL (MySQL) – data cleaning, aggregation, business analysis
- Excel – exploratory analysis
- Power BI – dashboard & visualization