Project Title:

HR Attrition Analysis using SQL and Power BI

Technologies Used:

- **SQL (for data cleaning, transformation, and KPI calculations)**
- **Power BI (for data visualization and interactive dashboard creation)**
- **Excel (initial data inspection and validation)**

Dataset Source:

- **Data obtained from Kaggle**
- **Dataset includes HR data with 1480 rows and 38 fields, covering attributes like Employee ID, Age, Gender, Department, Job Role, Monthly Income, Job Satisfaction, Attrition, and Years at Company**

Business Questions Solved & Answers:

1. **What is the overall attrition rate of the company?**
   → **16.1%**
2. **What is the average salary, age, and tenure of employees?**
   → **Average Monthly Salary:** ₹6.5K
   → **Average Age:** 37 years
   → **Average Tenure:** 7 years
3. **Which employee segments have the highest attrition?**
   → Employees earning **≤ ₹5K/month** had the **highest attrition count (163 employees)**.
4. **How can HR identify and address factors contributing to employee turnover?**
   → By analyzing trends using filters (salary, age, department, etc.), HR can identify vulnerable segments and improve retention strategies.
5. **How can the dashboard support better hiring and retention strategies?**
   → HR can use the insights to revise salary benchmarks, target specific roles or departments, and enhance employee satisfaction efforts.

Steps Involved:

1. Data Collection & Exploration:

- HR dataset with 1480 rows and 38 fields provided.

2. Data Cleaning & Preparation (SQL):

- Cleaned and structured data using SQL.
- Created derived columns: Age Group and Salary Slab.

3. Data Analysis (SQL):

- Calculated KPIs: attrition rate, average salary, average age, and average tenure.
- Identified key patterns such as salary-based attrition.

4. Data Visualization (Power BI):

- Imported dataset into Power BI.
- Built an interactive dashboard with filters and visuals for HR decision-making.

Summary of Findings:

- The **overall attrition rate** is 16.1%.
- **Employees earning ≤ ₹5K/month** represent the **most at-risk group**, with 163 resignations.
- The **average employee** is 37 years old, earns ₹6.5K/month, and has been with the company for 7 years.
- **Low-income employees**, especially in specific job roles and departments, are more likely to leave.
- **Job satisfaction and salary level** are significant indicators of attrition.
- The dashboard empowers HR to **visualize attrition trends** and design targeted actions to improve retention.

Project Summary:

This project leveraged SQL for data processing and Power BI for visualization to uncover key trends in employee attrition. It identified critical risk groups (e.g., low-salary employees) and provided actionable insights for HR teams to refine hiring, compensation, and engagement strategies.