HR Analytics Project Report

1. Introduction
The purpose of this project is to analyze HR data to uncover trends and patterns related to employee demographics, performance, and attrition. The dataset used consists of 1,480 employee records with 38 features including demographic, job-related, and performance metrics.

2. Data Overview

- **Total Records:** 1,480
- **Features:** 38
- **Missing Values:** Only in YearsWithCurrManager (57 missing)
- **Key Columns:**
    - Attrition: Target variable (Yes/No)
    - Age, Department, JobRole, MonthlyIncome, Education, JobSatisfaction, etc.

3. Exploratory Data Analysis (EDA)

- **Attrition Rate:** Approximately 16.2% employees have left (238 out of 1480).
- **Age Distribution:** Range is 18 to 60 years, with a mean of ~37 years.
- **Department Distribution:**
    - Research & Development: 967
    - Sales: 446
    - Human Resources: 67
- **Monthly Income:**
    - Mean: ₹6,502
    - Range: ₹1,000 to ₹19,000

4. Power BI Dashboard Insights
The interactive Power BI dashboard provides a segmented view of HR analytics by department. Filters for "Human Resources", "Research & Development", and "Sales" let users explore tailored metrics. Key insights from the dashboard include:

- **No. of Employees:** 961 (filtered subset)
- **Attrition Count:** 133
- **Attrition Rate:** 13.8%
- **Average Age:** 37 years
- **Average Salary:** ₹6,300
- **Average Tenure:** 6.9 years

4.1 Attrition by Education

- Life Sciences: 46%

- Medical: 38%
- Technical Degree: 10%
- Other: 7%

4.2 Attrition by Age Group

- Highest in 26–35 age group (67 employees)
- Followed by 36–45 (25), and 18–25 (24)

4.3 Attrition by Gender

- Male: 88
- Female: 38

4.4 Attrition by Salary Slab

- Upto ₹5,000: 110 employees
- ₹5k–₹10k: 12
- ₹10k–₹15k: 8
- ₹15k+: 3

4.5 Attrition by Years at Company

- Highest attrition for employees with <1 year: 38
- Other peaks at years 5 (13), 9 (14)

4.6 Attrition by Job Role

- Laboratory Technician: 62
- Research Scientist: 47
- Manufacturing Director: 10
- Healthcare Representative: 9

4.7 Job Role vs Attrition Level Table

- Displays attrition count per job role across four levels or bands
- Highlights high attrition in specific roles (e.g., Lab Technician, Research Scientist)

5. Key Findings

- **Young professionals (26–35) are most likely to leave.**
- **Low salary and early career stage are significant attrition factors.**
- **Life Sciences and Medical graduates show higher attrition.**
- **Lab Technicians and Research Scientists contribute majorly to attrition.**
- **Males show higher attrition count than females in this subset.**

6. Conclusion and Recommendations

- **Enhance retention efforts** for early-career employees with lower salaries.
- **Re-evaluate work roles** with high turnover like Lab Technician and Research Scientist.
- **Customize retention strategies** by department and education background.

7. Future Scope

- Integrate qualitative feedback (exit interviews).
- Build predictive models using ML algorithms to forecast attrition.
- Benchmark results with industry peers.

Appendix

- Dataset source: HR_Analytics.csv
- Visualization Tool: Power BI
- Dashboard Filters: Department-based view (Human Resources, R&D, Sales)