HR Analytics Dashboard

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I. Objective

The objective of this project is to analyze employee attrition data to identify key factors influencing employee turnover and to support data-driven decision-making in human resource management. The analysis focuses on attrition trends across departments, job roles, work-life balance, overtime, business travel, salary hikes, tenure, and employee satisfaction using an interactive Power BI dashboard.

II. Methodology

A. Data Collection

The dataset used in this project was obtained from Kaggle and contains employee-related information such as age, department, job role, salary, years of experience, overtime, business travel frequency, satisfaction levels, and attrition status. The dataset represents a simulated real-world HR environment with approximately 10,000 employee records.

B. Database Creation and Data Ingestion

A dedicated relational database was created using SQL Server Management Studio. The employee table schema was designed to store all relevant attributes efficiently. Data was inserted into the database using a bulk insert method for performance optimization. To validate the end-to-end data pipeline, additional employee records were manually inserted after dashboard development to verify real-time updates in Power BI.

C. Data Connection and Modeling

Power BI was connected directly to the SQL Server database using the *Get Data* connector. A clean and optimized data model was maintained by ensuring proper data types, column standardization, and optimized measures. DAX measures were created to calculate key metrics such as total employees, attrition count, attrition rate, active employees, and average age.

D. Visualization and Dashboard Design

The dashboard was developed using Power BI to present insights through KPI cards, bar charts, line charts, donut charts, treemaps, and matrix visuals. Interactive slicers were implemented for job role, job level, and gender to enable dynamic exploration of attrition patterns. A consistent visual theme was applied to improve readability and user experience.

III. Key Findings

A. Overall Attrition

The organization exhibits an overall attrition rate of 22.47%, indicating a significant level of employee turnover that requires focused intervention from HR and leadership teams.

B. Department and Job Role Analysis

The Cyber Security department records the highest attrition count. Job roles such as Consultant, Director, QA Analyst, and IT-related positions experience comparatively higher attrition, suggesting role-specific workload or growth challenges.

C. Distance from Home

Attrition increases with greater distance from home, indicating that long commuting times negatively impact employee retention.

D. Overtime and Work-Life Balance

Employees who frequently work overtime demonstrate a higher attrition rate. Lower work-life balance scores are strongly associated with increased employee turnover.

E. Business Travel

Employees who travel frequently or occasionally show elevated attrition levels, with the highest attrition observed among employees who travel rarely, highlighting dissatisfaction related to travel policies.

F. Salary Hike and Tenure

Lower salary hike percentages are associated with higher attrition rates. Employees with fewer years in their current role exhibit higher attrition, emphasizing the importance of career progression and role stability.

IV. Business Insights

1) High attrition adversely affects workforce planning, productivity, and project continuity.
2) Department- and role-level insights enable targeted and cost-effective retention strategies.
3) Commute distance and travel frequency significantly influence employee satisfaction and retention.
4) Work-life balance is a critical determinant of long-term employee engagement.
5) Competitive compensation growth and career development reduce attrition risk.

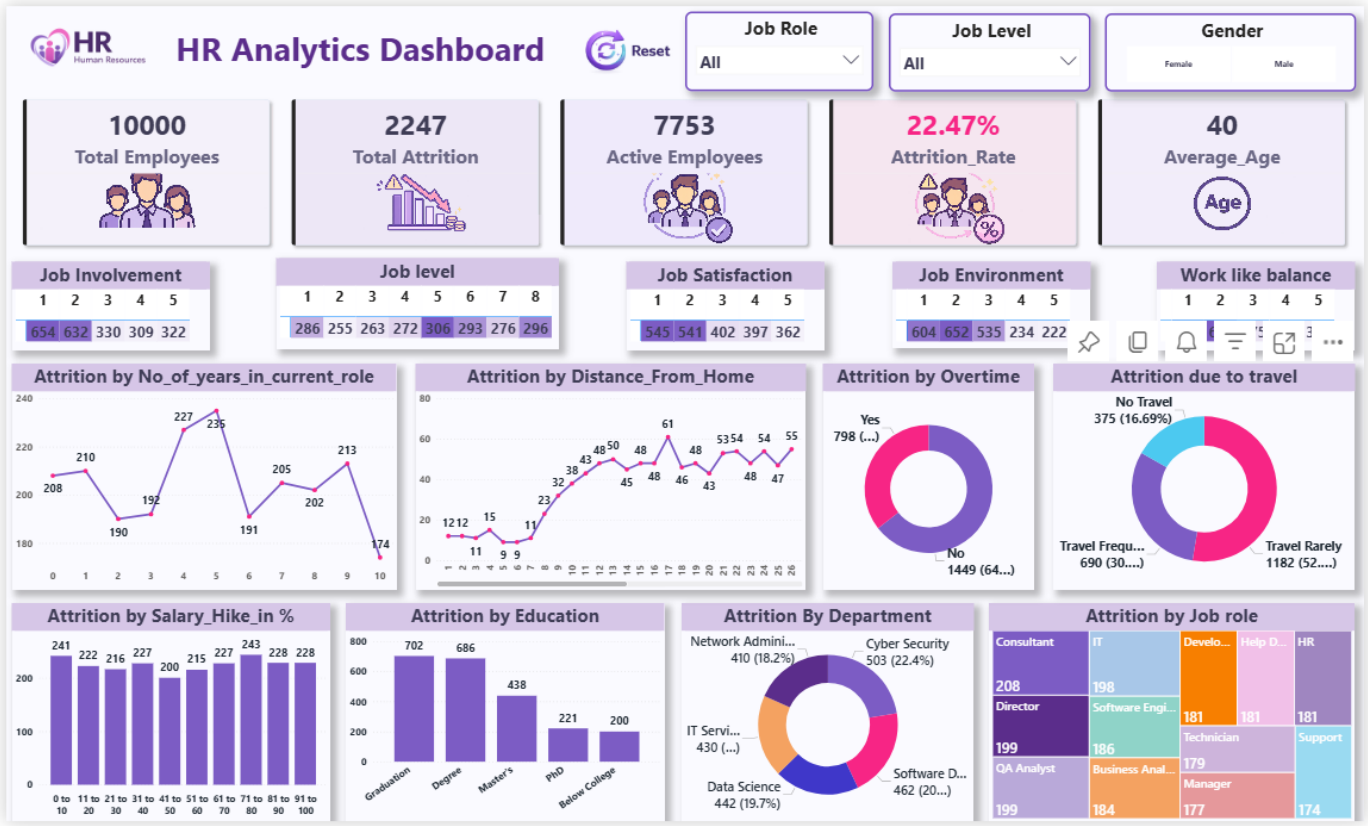

Fig. 1. HR Attrition Analytics Dashboard

V. Recommendations

1) **Flexible Work Policies:** Introduce hybrid or remote work options to support employees with long commuting distances.
2) **Overtime Management:** Monitor and regulate overtime hours to prevent burnout and improve work-life balance.
3) **Career Development Programs:** Design clear career progression paths and internal mobility opportunities.
4) **Travel Policy Optimization:** Reduce unnecessary business travel through virtual collaboration tools.
5) **Compensation Strategy Alignment:** Align salary hike decisions with performance metrics and market benchmarks.

VI. Conclusion

This HR Attrition Analytics Dashboard demonstrates the effective integration of SQL Server and Power BI to analyze workforce data and identify key attrition drivers. The project delivers actionable insights that enable HR teams and business leaders to implement targeted retention strategies.

By leveraging data-driven decision-making, organizations can reduce employee turnover, improve satisfaction, and enhance overall organizational stability.