HR Analytics Employee Insights and Trends Analysis

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GitHub link: https://github.com/giridhar3105/HR-Analytics-Employee-Insights-and-Trends-Analysis/tree/main

Introduction

This project involves analyzing employee data from a human resources database to gain insights into employee distribution, attrition trends, job satisfaction levels, and other key metrics. The SQL queries below are used to extract meaningful information from the HR_Data.csv dataset.

SQL Queries

1. Fetch all employee data

```
SELECT * FROM EMP;
```

2. Count the number of employees in each department

```
SELECT DEPARTMENT, COUNT(*) AS 'Employee_Count' FROM EMP GROUP BY DEPARTMENT;
```

3. Calculate the average age for each department

```
SELECT DEPARTMENT, AVG(AGE) AS 'Average_Age' FROM EMP GROUP BY DEPARTMENT;
```

4. Identify the most common job roles in each department

```
SELECT DEPARTMENT, JOB_ROLE, COUNT(*) AS 'Role_Count' FROM EMP GROUP BY DEPARTMENT, JOB_ROLE ORDER BY DEPARTMENT, Role_Count DESC;
```

5. Calculate the average job satisfaction for each education level

```
SELECT EDUCATION, AVG(JOB_SATISFACTION) AS 'Avg_Rating' FROM EMP GROUP BY EDUCATION;
```

6. Determine the average job satisfaction for different age bands

```
SELECT AGE_BAND, AVG(JOB_SATISFACTION) AS 'Avg_Rating' FROM EMP GROUP BY AGE_BAND ORDER BY Avg_rating DESC;
```

7. Calculate the attrition rate for each age band

```
SELECT AGE_BAND, SUM(CASE WHEN ATTRITION = 'YES' THEN 1 ELSE 0 END)/COUNT(*)*100 AS 'ATTRACTION RATE' FROM EMP GROUP BY AGE_BAND;
```

8. Identify the departments with the highest and lowest average job satisfaction

```
SELECT DEPARTMENT, AVG(JOB_SATISFACTION) AS 'Average_Satisfaction' FROM
EMP GROUP BY DEPARTMENT ORDER BY Average_Satisfaction;
```

9. Find the age band with the highest attrition rate for a specific education level

```
SELECT AGE_BAND, EDUCATION, SUM(CASE WHEN ATTRITION = 'YES' THEN 1
ELSE 0 END) AS 'ATTRITION_RATE' FROM EMP GROUP BY AGE_BAND, EDUCATION
ORDER BY ATTRITION_RATE DESC LIMIT 1;
```

10. Find the education level with the highest average job satisfaction among frequent travelers

```
SELECT EDUCATION, AVG(JOB_SATISFACTION) AS 'Avg_job_satisfaction' FROM EMP
WHERE BUSINESS_TRAVEL = 'Travel_Frequently' GROUP BY EDUCATION ORDER BY
Avg_job_satisfaction DESC LIMIT 1;
```

11. Identify the age band with the highest average job satisfaction among married employees

```
SELECT AGE_BAND, AVG(JOB_SATISFACTION) AS 'Avg_job_satisfaction' FROM EMP
WHERE MARITAL_STATUS = 'Married' GROUP BY AGE_BAND ORDER BY
Avg_job_satisfaction DESC LIMIT 1;
```

Insights and Observations

1. **Employee Distribution by Department**: The query reveals the number of employees in each department, helping HR teams allocate resources effectively.
2. **Average Age by Department**: This insight shows which departments have younger or older employees, useful for tailored HR policies.
3. **Common Job Roles**: Identifies popular roles in each department, guiding recruitment strategies.
4. **Job Satisfaction by Education Level**: Highlights how education impacts employee satisfaction.
5. **Attrition by Age Band:** Shows which age groups are more likely to leave, helping in retention strategies.
6. **Job Satisfaction among Frequent Travelers:** Useful for policies around frequent travel employees.
7. **Married Employees' Satisfaction**: Provides insights into marital status' influence on job satisfaction.

Conclusion

The SQL queries and analyses provide a comprehensive view of various employee metrics. These insights enable HR teams to make data-driven decisions, improving overall employee management and satisfaction.