Welcome

HR Analytics Project

Using SQL Queries

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Project Overview

This project focuses on analyzing employee attrition and performance using SQL on the IBM HR Analytics Employee Attrition & Performance dataset. The objective is to design a clean, structured database and perform analytical SQL queries to uncover key workforce insights that can help organizations improve employee retention, compensation strategies, and workplace satisfaction.

The dataset represents a snapshot of employee information, where employees with Attrition = 'No' are currently working in the organization, and those with Attrition = 'Yes' have left.

Objective

- Analyze employee attrition patterns across departments, job roles, and demographics
- Identify factors contributing to high attrition such as overtime, low satisfaction, and salary
- Compare compensation and performance metrics between current and former employees
- Build interview-level SQL queries using real-world business scenarios

List all employees who have left the company

```sql
SELECT
    EmployeeNumber, attrition
FROM
    hr_analytics
WHERE
    attrition = 'Yes';
```

EmployeeNumber	attrition
1	Yes
4	Yes
19	Yes
27	Yes
31	Yes
33	Yes
42	Yes
45	Yes
47	Yes
55	Yes

Count Total no.of employees in each department

```sql
SELECT
    department, COUNT(*)
FROM
    hr_analytics
GROUP BY department;
```

department	count(*)
Sales	446
Research & Development	961
Human Resources	63

Find average montly income by job role

```sql
SELECT
    JobRole, AVG(MonthlyIncome)
FROM
    hr_analytics
GROUP BY JobRole;
```

JobRole	avg(MonthlyIncome)
Sales Executive	6924.2791
Research Scientist	3239.9726
Laboratory Technician	3237.1699
Manufacturing Director	7295.1379
Healthcare Representative	7528.7634
Manager	17181.6765
Sales Representative	2626.0000
Research Director	16033.5500
Human Resources	4235.7500

Show the Gender wise employee count

```sql
SELECT
    Gender, COUNT(*)
FROM
    hr_analytics
GROUP BY Gender;
```

Gender	COUNT(*)
Female	588
Male	882

List Employees with more than 5 years at the company

```sql
SELECT
    EmployeeNumber, YearsAtCompany
FROM
    hr_analytics
WHERE
    YearsAtCompany > 5;
```

EmployeeNumber	YearsAtCompany
1	6
2	10
5	8
8	7
12	9
13	7
15	9
20	10
21	6
23	25
28	12
32	14
33	10
35	9
36	22

Display employees who work overtime

```sql
SELECT
    EmployeeNumber, overtime
FROM
    hr_analytics
WHERE
    overtime = 'Yes';
```

EmployeeNumber	overtime
1	Yes
4	Yes
5	Yes
10	Yes
15	Yes
19	Yes
21	Yes
22	Yes

Find the top 5 job roles with highest attrition count

```sql
SELECT
    JobRole, COUNT(attrition)
FROM
    hr_analytics
GROUP BY JobRole
LIMIT 5;
```

JobRole	COUNT(attrition)
Sales Executive	326
Research Scientist	292
Laboratory Technician	259
Manufacturing Director	145
Healthcare Representative	131

Compare avg salary for employees who left vs stayed

```sql
SELECT
    attrition, AVG(MonthlyIncome)
FROM
    hr_analytics
GROUP BY attrition
HAVING attrition = 'Yes';
```

attrition	AVG(MonthlyIncome)
Yes	4787.0928

Find departments with avg job satisfaction<3

```sql
SELECT
    department, AVG(JobSatisfaction)
FROM
    hr_analytics
GROUP BY department;
```

department	AVG(JobSatisfaction)
Sales	2.7511
Research & Development	2.7263
Human Resources	2.6032

Find avg MonthlyIncome by Education Field

```sql
SELECT
    education_field, AVG(MonthlyIncome)
FROM
    hr_analytics
GROUP BY education_field;
```

education_field	AVG(MonthlyIncome)
Life Sciences	6463.2888
Other	6071.5488
Medical	6510.0366
Marketing	7348.5849
Technical Degree	5758.3030
Human Resources	7241.1481

Identify Employees who never got a promotion despite working more than 7 years

```sql
SELECT
    EmployeeNumber YearsAtCompany, YearsSinceLastPromotion
FROM
    hr_analytics
WHERE
    YearsSinceLastPromotion = 0
        AND YearsAtCompany > 7;
```

YearsAtCompany	YearsSinceLastPromotion
15	0
62	0
96	0
141	0
147	0
159	0
176	0
195	0
204	0
206	0

Determine the avg years at company for each role

```sql
SELECT
    JobRole, AVG(YearsAtCompany)
FROM
    hr_analytics
GROUP BY JobRole;
```

JobRole	AVG(YearsAtCompany)
Sales Executive	7.4969
Research Scientist	5.1130
Laboratory Technician	5.0193
Manufacturing Director	7.6000
Healthcare Representative	8.3740
Manager	14.4314
Sales Representative	2.9157
Research Director	10.9375
Human Resources	5.3269

Thank You

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