HR Attrition Analysis

Introduction : Welcome to the HR Attrition Analysis presentation, where we delve into key insights derived from our HR analytics database. Employee attrition is a critical aspect of workforce management, and understanding the underlying trends can provide valuable insights for retention strategies and organizational growth.

In this analysis, we explore various factors influencing attrition, such as demographics, job satisfaction, and work-related attributes. By examining these aspects, we aim to uncover patterns that can inform decision-making and contribute to the overall well-being and stability of our workforce.
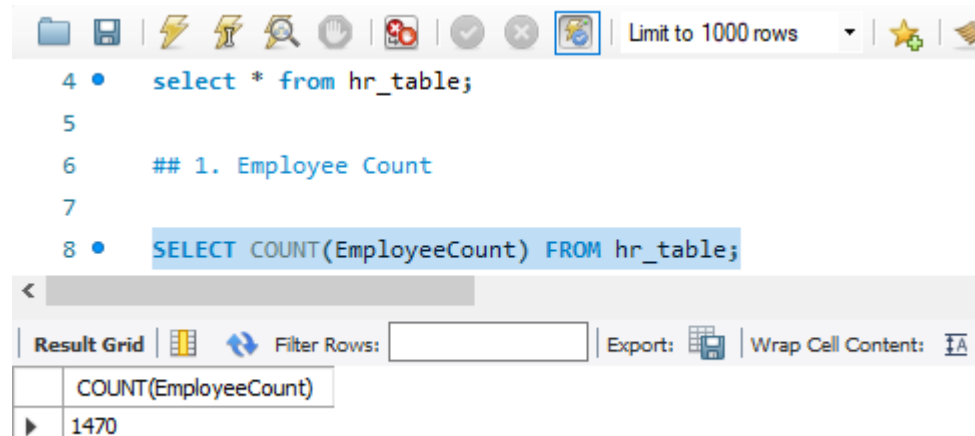
Analysis:

create database HR_Analytics;

use HR_Analytics;

select * from hr_table;

1. Employee Count

SELECT COUNT(EmployeeCount) FROM hr_table;
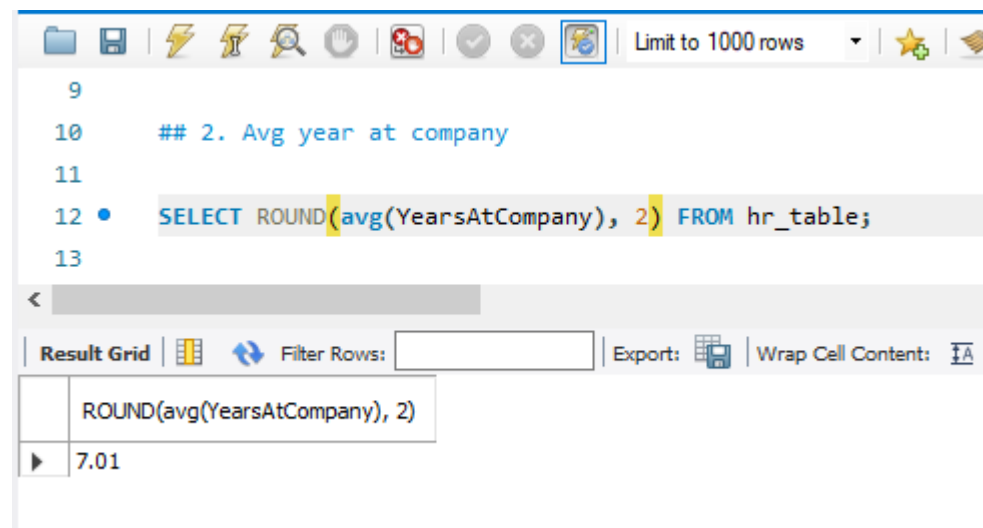

```
 4 ●    select * from hr_table;

 5

 6      ## 1. Employee Count

 7

 8 ●    SELECT COUNT(EmployeeCount) FROM hr_table;
```

COUNT(EmployeeCount)
1470

2. Avg year at company

SELECT ROUND(avg(YearsAtCompany), 2) FROM hr_table;


```
 9

10      ## 2. Avg year at company

11

12 ●    SELECT ROUND(avg(YearsAtCompany), 2) FROM hr_table;

13
```

ROUND(avg(YearsAtCompany), 2)
7.01

3. Avg Age of Employee

SELECT ROUND(AVG(Age), 0) FROM hr_table;

4. Attrition Count

SELECT COUNT(Attrition) as Attrition_Count FROM hr_table

WHERE Attrition = "Yes" ;

5. Attrition Rate

SELECT ROUND((SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) / COUNT(EmployeeCount)) * 100, 2) as AttritionRate

FROM hr_table;
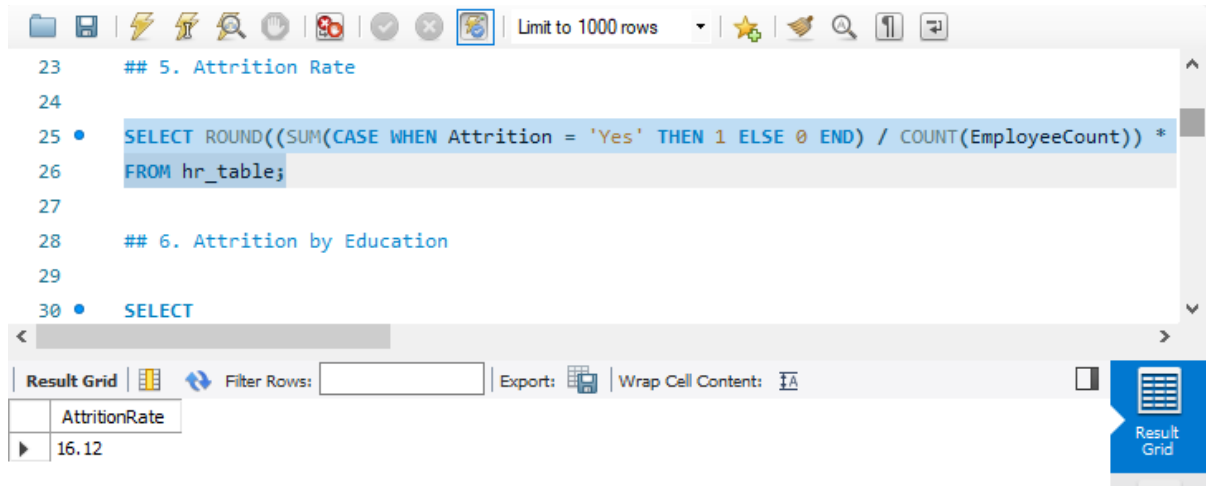
6. Attrition by Education

SELECT

   EducationField,

   SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) as Total_Attrition,

   ROUND((SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) / SUM(SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END)) OVER ()) * 100, 2) as Percentage_of_Total_Attrition,

   ROUND((SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) / COUNT(*)) * 100, 2) as AttritionPercentage

FROM hr_table

GROUP BY EducationField;

```
30  ●    SELECT
31          EducationField,
32          SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) as Total_Attrition,
33          (SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) / SUM(SUM(CASE WHEN Attrition = 'Ye
34          (SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) / COUNT(*)) * 100 as AttritionPerce
35      FROM hr_table
36      GROUP BY EducationField;
37
```

EducationField	Total_Attrition	Percentage_of_Total_Attrition	AttritionPercentage
Life Sciences	89	37.5527	14.6865
Other	11	4.6414	13.4146
Medical	63	26.5823	13.5776
Marketing	35	14.7679	22.0126
Technical Degree	32	13.5021	24.2424
Human Resources	7	2.9536	25.9259

7. Attrition by Age Group

SELECT

 (CASE WHEN Age BETWEEN 18 and 25 THEN "18-25"

              WHEN Age BETWEEN 26 and 35 THEN "26-35"

     WHEN Age BETWEEN 36 and 45 THEN "36-45"

     WHEN Age BETWEEN 46 and 55 THEN "46-55"

     ELSE "56 & Above"

     END) Age_Group,

     SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

     FROM hr_table

     GROUP BY Age_Group

     ORDER BY Age_Group;

```
38        ## 7. Attrition by Age Group
39
40  ●      SELECT
41  ⊖      (CASE WHEN Age BETWEEN 18 and 25 THEN "18-25"
42              WHEN Age BETWEEN 26 and 35 THEN "26-35"
43              WHEN Age BETWEEN 36 and 45 THEN "36-45"
44              WHEN Age BETWEEN 46 and 55 THEN "46-55"
45              ELSE "56 & Above"
46              END) Age_Group,
47              SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition
48              FROM hr_table
49              GROUP BY Age_Group
50              ORDER BY Age_Group;
```

Age_Group	Total_Attrition
18-25	44
26-35	116
36-45	43
46-55	26
56 & Above	8

8. Attrition by Salary Slab

SELECT

(CASE WHEN MonthlyIncome BETWEEN 5000 and 10000 THEN "5k-10k"

          WHEN MonthlyIncome BETWEEN 10000 and 15000 THEN "10k-15k"

     WHEN MonthlyIncome > 15000 THEN "15k+ "

     ELSE "Upto 5k" END) Salary_Slab,

COUNT(CASE WHEN Attrition = "Yes" Then 1 ELSE 0 END) Attrition_Count

FROM hr_table

GROUP BY Salary_Slab

ORDER BY Salary_Slab;

```
53
54     ## 8. Attrition by Salary Slab
55
56 •   SELECT
57     (CASE WHEN MonthlyIncome BETWEEN 5000 and 10000 THEN "5k-10k"
58          WHEN MonthlyIncome BETWEEN 10000 and 15000 THEN "10k-15k"
59          WHEN MonthlyIncome > 15000 THEN   "15k+ "
60          ELSE "Upto 5k" END) Salary_Slab,
61     COUNT(CASE WHEN Attrition = "Yes" Then 1 ELSE 0 END) Attrition_Count
62     FROM hr_table
63     GROUP BY Salary_Slab
64     ORDER BY Salary_Slab;
65
```

Salary_Slab	Attrition_Count
10k-15k	148
15k+	133
5k-10k	440
Upto 5k	749

9. Attrition by Job Role

SELECT JobRole,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY JobRole;

```
 66        ## 9. Attrition by Job Role
 67
 68   •    SELECT JobRole,
 69        SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition
 70        FROM hr_table
 71        GROUP BY JobRole;
 72
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

JobRole	Total_Attrition
Sales Executive	57
Research Scientist	47
Laboratory Technician	62
Manufacturing Director	10
Healthcare Representative	9
Manager	5
Sales Representative	33
Research Director	2
Human Resources	12

10. Attrition by Year at Company

SELECT YearsAtCompany,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY YearsAtCompany

ORDER BY YearsAtCompany;

```
73    ## 10. Attrition by Year at Company
74
75 ●  SELECT YearsAtCompany,
76    SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition
77    FROM hr_table
78    GROUP BY YearsAtCompany
79    ORDER BY YearsAtCompany;
```

YearsAtCompany	Total_Attrition
0	16
1	59
2	27
3	20
4	19
5	21
6	9
7	11
8	9
9	8
10	18
11	2
12	0
13	2

11. Job Satisfaction by Role and Total Attrition

SELECT JobRole, JobSatisfaction,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY JobRole, JobSatisfaction

ORDER BY JobRole, JobSatisfaction;

```
81      ## 11. Attrition by JobRole and JobSatisfaction
82
83  ●   SELECT JobRole, JobSatisfaction,
84      SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition
85      FROM hr_table
86      GROUP BY JobRole, JobSatisfaction
87      ORDER BY JobRole, JobSatisfaction;
```

JobRole	JobSatisfaction	Total_Attrition
Healthcare Representative	1	2
Healthcare Representative	2	2
Healthcare Representative	3	1
Healthcare Representative	4	4
Human Resources	1	5
Human Resources	2	2
Human Resources	3	3
Human Resources	4	2
Laboratory Technician	1	20
Laboratory Technician	2	8
Laboratory Technician	3	21
Laboratory Technician	4	13
Manager	1	1
Manager	2	2

12. Attrition by Department

SELECT Department,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY Department;

13. Attrition by Gender

SELECT Gender,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition,

ROUND((SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) / SUM(SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END)) OVER()) *100, 2) as Percentage_of_Total_Attrition

FROM hr_table

GROUP BY Gender;
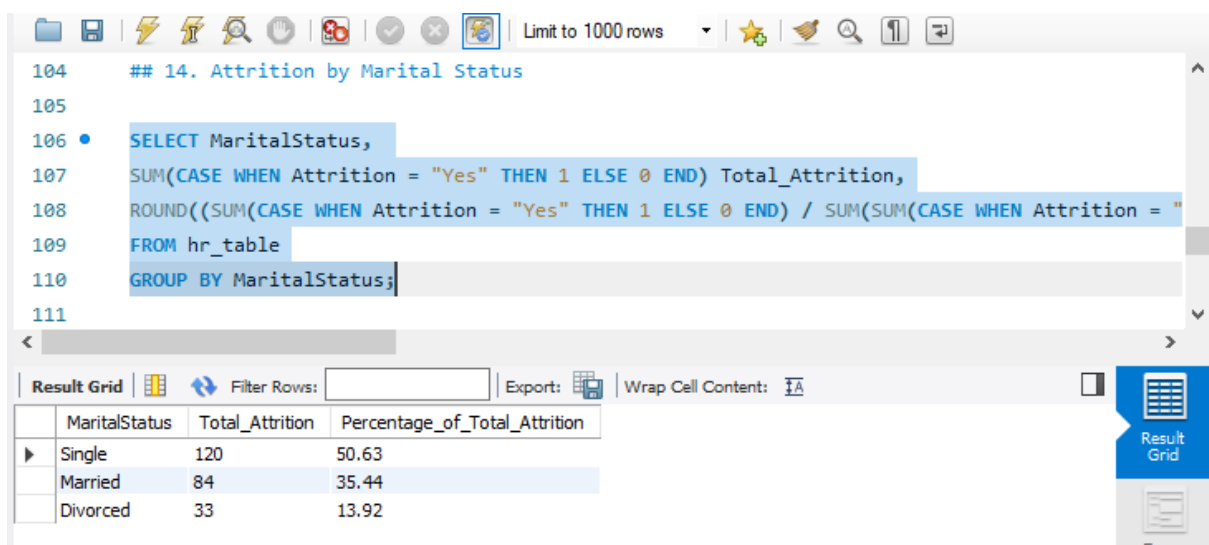
14. Attrition by Marital Status

SELECT MaritalStatus,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition,

ROUND((SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) / SUM(SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END)) OVER()) *100, 2) as Percentage_of_Total_Attrition

FROM hr_table

GROUP BY MaritalStatus;

15. Attrition by WorkLife Balance

SELECT WorkLifeBalance,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY WorkLifeBalance;

```
111
112     ## 15. Attrition by WorkLife Balance
113
114  •  SELECT WorkLifeBalance,
115     SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition
116     FROM hr_table
117     GROUP BY WorkLifeBalance;
118
```

WorkLifeBalance	Total_Attrition
1	25
3	127
2	58
4	27

16. Attrition by Business Travel

SELECT BusinessTravel,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY BusinessTravel;

```
118
119     ## 16. Attrition by Business Travel
120
121  •  SELECT BusinessTravel,
122     SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition
123     FROM hr_table
124     GROUP BY BusinessTravel;
125
```
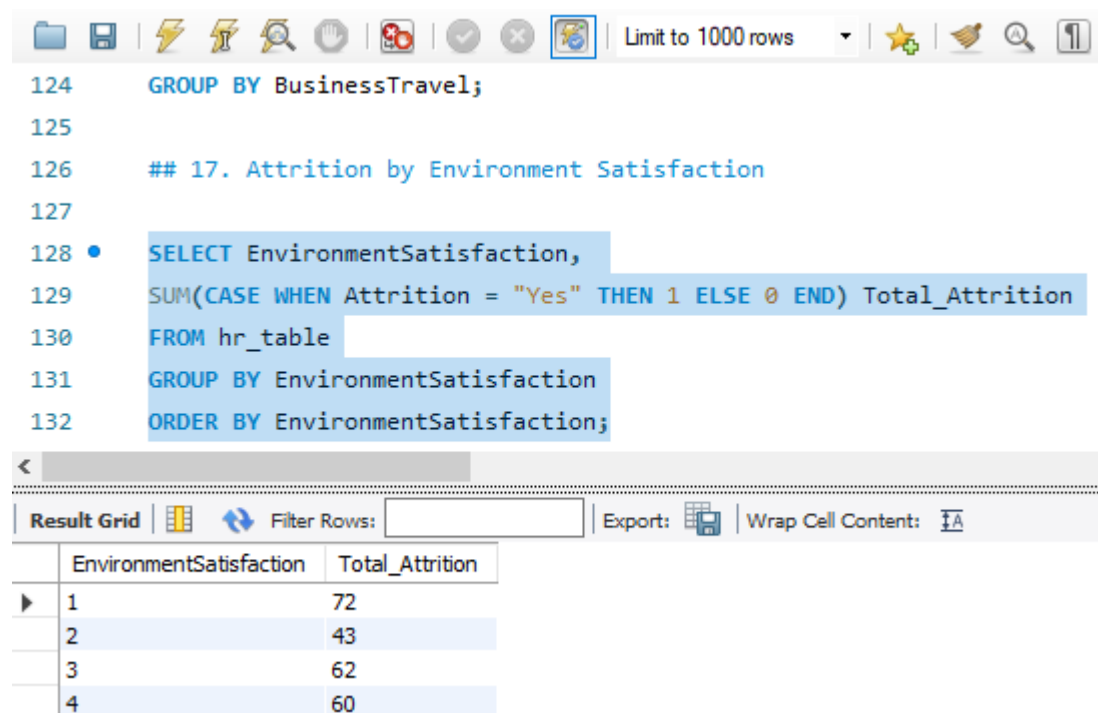
BusinessTravel	Total_Attrition
Travel_Rarely	156
Travel_Frequently	69
Non-Travel	12

17. Attrition by Environment Satisfaction

SELECT EnvironmentSatisfaction,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY EnvironmentSatisfaction

ORDER BY EnvironmentSatisfaction;

18. Attrition by Distance From Home

SELECT DistanceFromHome,

SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition

FROM hr_table

GROUP BY DistanceFromHome

ORDER BY DistanceFromHome;

```
133
134     ## 18. Attrition by Distance From Home
135
136  •  SELECT DistanceFromHome,
137     SUM(CASE WHEN Attrition = "Yes" THEN 1 ELSE 0 END) Total_Attrition
138     FROM hr_table
139     GROUP BY DistanceFromHome
140     ORDER BY DistanceFromHome;
141
```
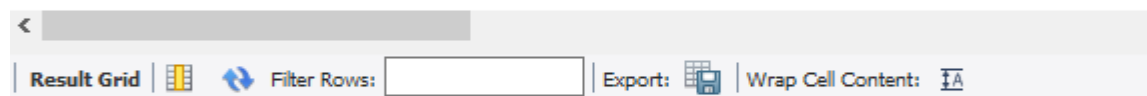
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

DistanceFromHome	Total_Attrition
1	26
2	28
3	14
4	9
5	10
6	7
7	11
8	10
9	18
10	11
11	4
12	6

Summary:

As a data analyst, I have conducted an in-depth HR Attrition Analysis using the provided SQL queries on the HR analytics database. The objective was to gain insights into employee attrition trends and identify key factors influencing workforce stability. Let's distill the findings:

1. **Employee Overview:**

   - The organization currently has 1470 employees.

   - The average tenure at the company is 7.01 years, indicating a relatively stable workforce.

   - The average age of employees is 37 years.

2. **Attrition Metrics:**

   - 237 employees have left the company.

   - The overall attrition rate is 16.12%, suggesting the need for a closer examination of contributing factors.

3. **Demographic Analysis:**

   - **Education Impact:**

     - Attrition varies across education fields, with 37.55% being the highest in Life Science.

   - **Age Insights:**

     - The age group 18-25 experiences the highest attrition, emphasizing the importance of age-related considerations.

4. **Financial Factors:**

   - **Salary Impact:**

     - Employees with monthly incomes in up to 5k have a higher attrition rate, highlighting potential financial factors influencing attrition.

5. **Job-related Factors:**

   - **Job Roles:**

     - Certain job roles, such as Sales Executive, exhibit higher attrition rates.

   - **Tenure Influence:**

     - Attrition varies based on the number of years an employee has been with the company, providing insights into retention challenges.

6. **Job Satisfaction and Work Environment:**

- **Job Satisfaction:**

  - Employees in Laboratory Technician with 3 star job satisfaction levels exhibit higher attrition.

- **Departmental Impact:**

  - Attrition differs significantly across departments, with Research and Development having the highest attrition.

7. **Personal Factors:**

   - **Gender Impact:**

     - Attrition varies between genders, with 63.29 in Male.

   - **Marital Status:**

     - 50.63% of single employees experience attrition.

8. **Work-life Balance and Well-being:**

   - **Work-life Balance:**

     - Employees who gives point 3 work-life balance experience higher attrition.

   - **Business Travel Impact:**

     - Frequent business travel is associated with higher attrition.

9. **Employee Satisfaction Metrics:**

   - **Environment Satisfaction:**

     - Employees with 1 satisfaction levels exhibit higher attrition.

   - **Distance from Home:**

     - Attrition is influenced by the distance of the workplace from home.

In conclusion, this analysis provides actionable insights for HR interventions, emphasizing the importance of addressing factors such as job satisfaction, financial considerations, and work-life balance. These findings lay the foundation for data-driven decision-making, enabling targeted strategies for employee retention and organizational growth.