HR Analytics Project

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Employee Satisfaction Analysis Using SQL

This project leverages SQL to analyze critical HR metrics and uncover insights into employee satisfaction and performance across departments. The analysis focuses on identifying the top and bottom-performing departments based on satisfaction scores, examining the relationship between salary and satisfaction, and evaluating key performance indicators such as last evaluation, number of projects, average monthly hours, time spent in the company, work accidents, and promotions. By exploring these dimensions, the project aims to provide actionable insights that can help organizations enhance employee well-being, optimize departmental performance, and foster a more productive work environment.

TASK1:To get the list of all tables and their schemas

```sql
SELECT
    TABLE_SCHEMA AS SchemaName,
    TABLE_NAME AS TableName,
    COLUMN_NAME AS ColumnName,
    DATA_TYPE AS DataType,
    CHARACTER_MAXIMUM_LENGTH AS MaxLength
FROM INFORMATION_SCHEMA.COLUMNS
ORDER BY TABLE_SCHEMA, TABLE_NAME, ORDINAL_POSITION;
```

120 %

Results | Messages

	SchemaName	TableName	ColumnName	DataType	MaxLength
1	dbo	Employee Attrition	Emp_ID	smallint	NULL
2	dbo	Employee Attrition	satisfaction_level	float	NULL
3	dbo	Employee Attrition	last_evaluation	float	NULL
4	dbo	Employee Attrition	number_project	tinyint	NULL
5	dbo	Employee Attrition	average_montly_hours	smallint	NULL
6	dbo	Employee Attrition	time_spend_company	tinyint	NULL
7	dbo	Employee Attrition	Work_accident	float	NULL
8	dbo	Employee Attrition	promotion_last_5years	float	NULL
9	dbo	Employee Attrition	dept	nvarchar	50
10	dbo	Employee Attrition	salary	nvarchar	50

Q1)Which 3 departments had highest satisfaction scores & which 3 departments had lowest satisfaction scores?

```sql
SELECT dept,ROUND(AVG(satisfaction_level),2) AS Avg_Satisfaction
FROM [Employee Attrition]
GROUP BY dept
ORDER BY 2 DESC;
--ANS:TOP 3-Marketing,RandD,IT ;LOWEST 3-Accounting,Technical,HR
```

	dept	Avg_Satisfaction
1	marketing	0.62
2	RandD	0.62
3	IT	0.62
4	product_mng	0.62
5	support	0.62
6	management	0.62
7	sales	0.61
8	hr	0.6
9	technical	0.6
10	accounting	0.58
11	NULL	NULL

Q2)What is the relationship between salary & satisfaction score?

```sql
--What is the relationship between salary & satisfaction score?
SELECT Salary,ROUND(AVG(Satisfaction_level),2) AS average_satisfaction_level
FROM [Employee Attrition]
GROUP BY salary
ORDER BY 2;
--ANS:Employees with higher salaries tend to have higher satisfaction levels & vice-versa
```

	Salary	average_satisfaction_level
1	NULL	NULL
2	low	0.6
3	medium	0.62
4	high	0.64

Q3)How did the top 2 & bottom 2 departments in terms of satisfaction scores perform in the following areas:-

A)Last Evaluation
B)Number_Projects
C)Average_Monthly_Hours
D)Time_Spend_Company
E)Work_Accident
F)Promotion_Last5_Years

TASK-1)Find the top 2 & bottom 2 departments

TOP2:
Support
Management

BOTTOM2:
HR
Accounting

A)Last Evaluation

HR_Analytics.sql -...IPV\S. AMRITA (55))

```
SELECT CASE
WHEN dept IN('Support','Management') THEN 'Top'
WHEN dept IN('HR','Accounting') THEN 'Bottom'
END AS TOP_BOTTOM,ROUND(AVG(last_evaluation),2) AS Avg_Eval
FROM [Employee Attrition]
WHERE dept IN('Support','Management','HR','Accounting')
GROUP BY CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'
        END;
```

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Results | Messages

	TOP_BOTTOM	Avg_Eval
1	Bottom	0.71
2	Top	0.72

B)Number_Projects

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```
SELECT CASE
WHEN dept IN('Support','Management') THEN 'Top'
WHEN dept IN('HR','Accounting') THEN 'Bottom'
END AS TOP_BOTTOM,AVG(number_project) AS Avg_number_project
FROM [Employee Attrition]
WHERE dept IN('Support','Management','HR','Accounting')
GROUP BY CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'
        END;
```

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Results | Messages

	TOP_BOTTOM	Avg_number_project
1	Bottom	3
2	Top	3

C)Average_Monthly_Hours

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```
SELECT CASE
WHEN dept IN('Support','Management') THEN 'Top'
WHEN dept IN('HR','Accounting') THEN 'Bottom'
END AS TOP_BOTTOM,AVG(average_montly_hours) AS average_monthly_hours
FROM [Employee Attrition]
WHERE dept IN('Support','Management','HR','Accounting')
GROUP BY CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'
        END;
```

120 %

Results | Messages

	TOP_BOTTOM	average_monthly_hours
1	Bottom	199
2	Top	200

D)Time_Spend_Company

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```
SELECT CASE
WHEN dept IN('Support','Management') THEN 'Top'
WHEN dept IN('HR','Accounting') THEN 'Bottom'
END AS TOP_BOTTOM,ROUND(AVG(time_spend_company),1) AS average_time_spend_company
FROM [Employee Attrition]
WHERE dept IN('Support','Management','HR','Accounting')
GROUP BY CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'
        END;
```

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Results | Messages

	TOP_BOTTOM	average_time_spend_company
1	Bottom	3
2	Top	3

E)Work_Accident

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```
ALTER TABLE [Employee Attrition]
ALTER COLUMN Work_accident FLOAT;

SELECT CASE
WHEN dept IN('Support','Management') THEN 'Top'
WHEN dept IN('HR','Accounting') THEN 'Bottom'
END AS TOP_BOTTOM,ROUND(AVG(Work_accident),2) AS average_work_accident
FROM [Employee Attrition]
WHERE dept IN('Support','Management','HR','Accounting')
GROUP BY CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'
        END;
```

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Results | Messages

	TOP_BOTTOM	average_time_spend_company
1	Bottom	3
2	Top	3

F)Promotion_Last5_Years

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```
ALTER TABLE [Employee Attrition]
ALTER COLUMN promotion_last_5years FLOAT;

SELECT CASE
WHEN dept IN('Support','Management') THEN 'Top'
WHEN dept IN('HR','Accounting') THEN 'Bottom'
END AS TOP_BOTTOM,ROUND(AVG(promotion_last_5years),2) AS avg_promotions_last5yrs
FROM [Employee Attrition]
WHERE dept IN('Support','Management','HR','Accounting')
GROUP BY CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'
        END;
```

120 %

Results | Messages

	TOP_BOTTOM	avg_promotions_last5yrs
1	Bottom	0.02
2	Top	0.03

Q4)Count of Employees in both the top 2 & bottom 2 departments?

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```
SELECT COUNT(Emp_ID) AS Total ,CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'  END AS Bottom_Top
FROM [Employee Attrition]
GROUP BY CASE
        WHEN dept IN ('Support', 'Management') THEN 'Top'
        WHEN dept IN ('HR', 'Accounting') THEN 'Bottom'
        END;
```

120 %

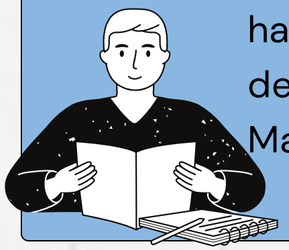
Results | Messages

	Total	Bottom_Top
1	10634	NULL
2	1506	Bottom
3	2859	Top

Findings

Top 3 departments by satisfaction scores: Marketing, R&D, and IT.
Bottom 3 departments by satisfaction scores: Accounting, Technical, and HR.

Positive correlation between salary and satisfaction scores (higher salaries = higher satisfaction).



Employee count: Bottom 2 departments (HR and Accounting) had 1506 employees, while top 2 departments (Support and Management) had 2859 employees.

Performance comparison between top 2 (Support and Management) and bottom 2 (HR and Accounting) departments

- Last evaluation: Top 2 scored higher (0.72 vs 0.7).
- Number of projects: No significant difference (both averaged 3 projects).

- Average monthly hours: Top 2 worked more hours (200 vs 199).
- Time spent at company: No significant difference (both averaged 3 years).

- Work accidents: No significant difference (both averaged 3 accidents).
- Promotions in last 5 years: Top 2 had slightly more promotions (0.03 vs 0.02)..

Insights and Recommendations:

01. Invest in employee satisfaction initiatives, focusing on Accounting, Technical, and HR departments.

02. Analyze factors contributing to high satisfaction in Marketing, R&D, and IT departments and replicate best practices.

03. Consider salary adjustments to improve satisfaction in lower-paid departments.

04. Develop targeted training programs to enhance performance in underperforming departments.

05. Monitor work-life balance, as excessive hours may impact satisfaction.

06 Review promotion processes to ensure fairness and equity.

Thank you very much!

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