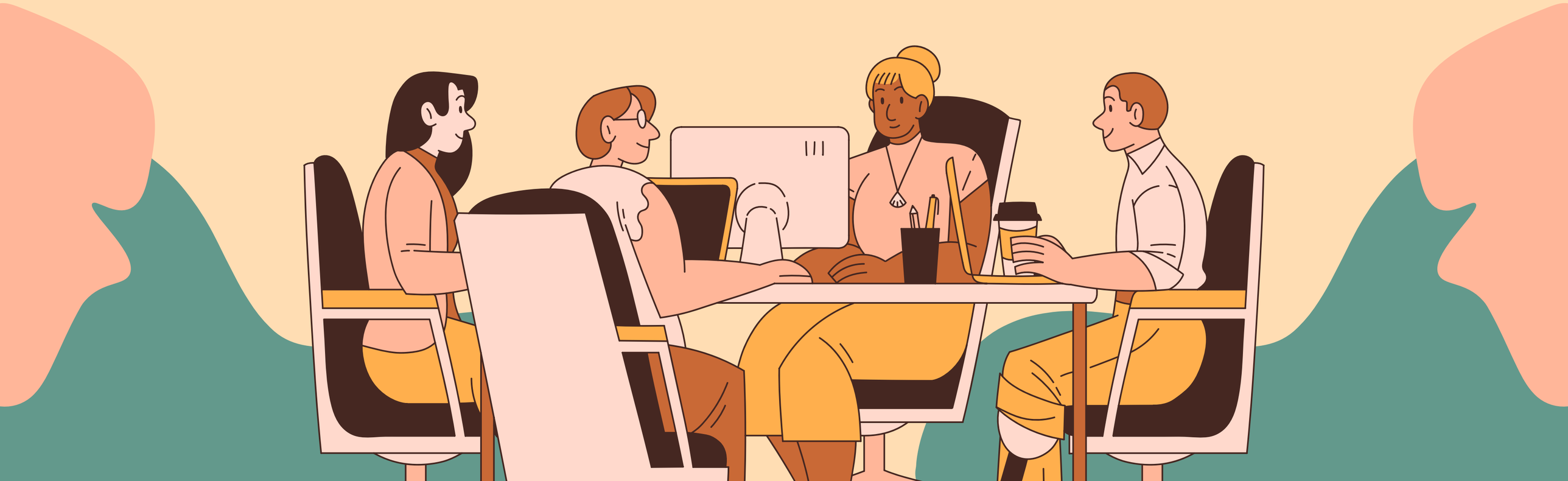
EMPLOYEE ATTRITION ANALYSIS

-by Ankita Sarkar



WHAT WE WILL TALK ABOUT

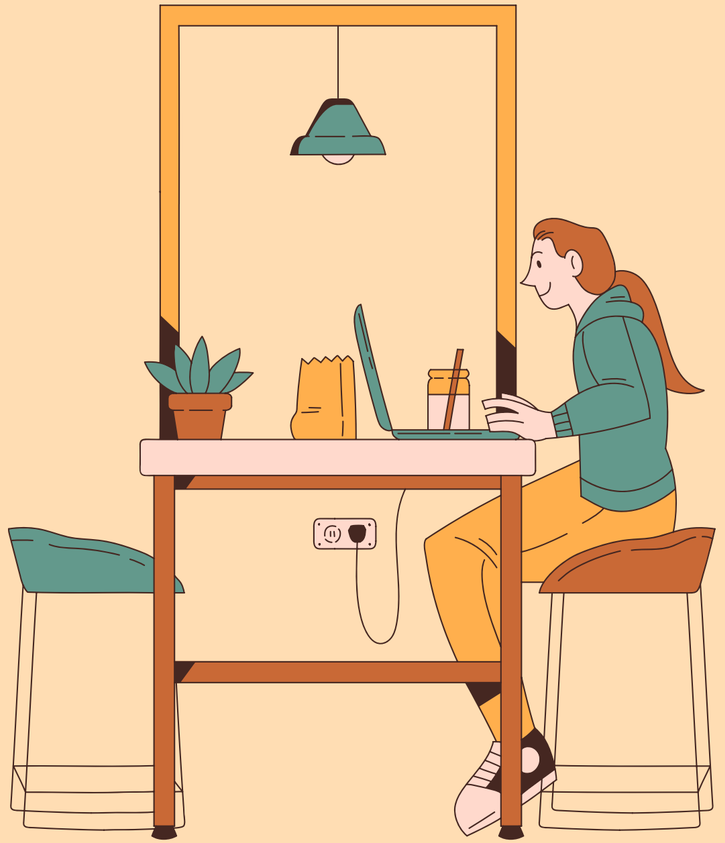
Introduction

Objective of the Analysis

Conclusion

HELLO, EVERYONE!

MY name is **Ankita Sarkar,** and this project focuses on analyzing employee attrition data using **SQL**. It explores trends such as attrition rates by age, gender, and department, while also examining factors like job satisfaction and tenure. The goal is to uncover insights that can help organizations improve employee retention and workforce management.



OBJECTIVE

The objective of this project is to analyze employee attrition data to identify patterns and factors contributing to employee turnover. By leveraging SQL queries, the analysis aims to provide actionable insights into attrition rates, job satisfaction, demographic distributions, and other key metrics, helping organizations make informed decisions to improve employee retention and workplace efficiency.

EMPLOYEE DISTRIBUTION BY DEPARTMENT

```sql
SELECT
    Department, COUNT(*) AS Total_employees
FROM
    `attrition data`
GROUP BY Department
ORDER BY Total_employees DESC;
```

Department	Total_employees
Research & Development	2807
Sales	1307
Human Resources	186

EMPLOYEE DISTRIBUTION BY AGE

```sql
SELECT
    Age, COUNT(*) AS Total_employees
FROM
    `attrition data`
GROUP BY Age
ORDER BY Age desc
limit 5;
```

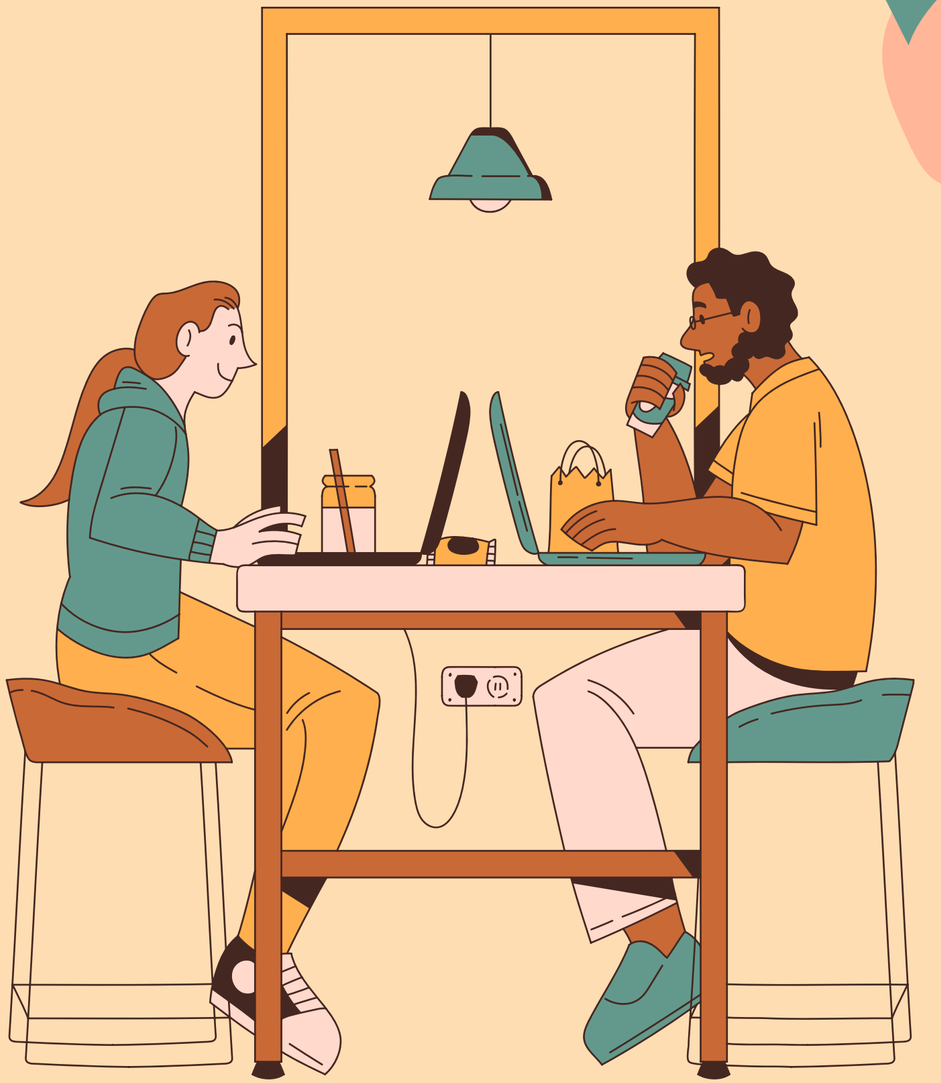
Age	Total_employees
60	15
59	30
58	42
57	12
56	40

Age	Total_employees
18	22
19	27
20	33
21	38
22	47

EMPLOYEE DISTRIBUTION BY GENDER

```sql
SELECT
    Gender, COUNT(*) AS Total_employees
FROM
    `attrition data`
GROUP BY Gender
ORDER BY Gender;
```

Gender	Total_employees
Female	1729
Male	2571



ATTRITION RATE

```sql
SELECT
    Attrition,
    COUNT(*) AS TotalEmployees,
    ROUND(COUNT(*) * 100.0 / (SELECT
                    COUNT(*)
                FROM
                    `attrition Data`),
            2) AS Percentage
FROM
    `attrition data`
GROUP BY Attrition;
```

Result Grid | Filter Rows:

Attrition	TotalEmployees	Percentage
No	3605	83.84
Yes	695	16.16

ATTRITION BY DEPARTMENT

```sql
SELECT
    Department, Attrition, COUNT(*) AS TotalEmployees
FROM
    `attrition data`
GROUP BY Department , Attrition
ORDER BY Department;
```

Department	Attrition	TotalEmployees
Human Resources	No	132
Human Resources	Yes	54
Research & Development	No	2364
Research & Development	Yes	443
Sales	No	1109
Sales	Yes	198

ATTRITION BY AGE

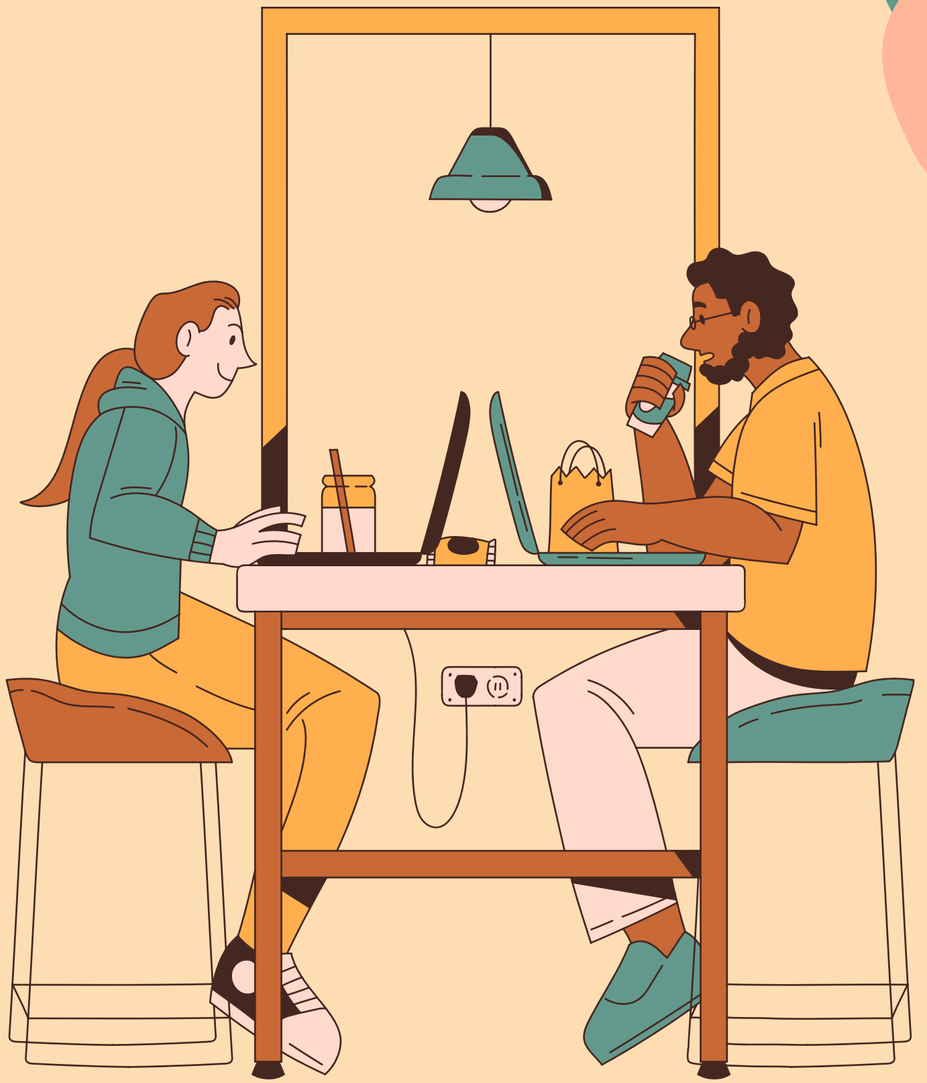
```sql
SELECT
    Age,
    COUNT(*) AS TotalEmployees,
    SUM(CASE
        WHEN Attrition = 'Yes' THEN 1
        ELSE 0
    END) AS Total_attrition
FROM
    `attrition data`
GROUP BY Age
ORDER BY Age;
```

Age	TotalEmployees	Total_attrition
18	22	11
19	27	18
20	33	18
21	38	17
22	47	15

ATTRITION BY GENDER

```sql
SELECT
    Gender,
    COUNT(*) AS TotalEmployees,
    SUM(CASE
        WHEN Attrition = 'Yes' THEN 1
        ELSE 0
    END) AS Total_attrition,
    ROUND(SUM(CASE
                WHEN Attrition = 'Yes' THEN 1
                ELSE 0
            END) * 100.0 / COUNT(*),
            2) AS Attrition_Rate
FROM
    `attrition data`
GROUP BY Gender;
```

Gender	TotalEmployees	Total_attrition	Attrition_Rate
Female	1729	265	15.33
Male	2571	430	16.73



AVG MONTHLY INCOME

```sql
SELECT
    JobRole, AVG(MonthlyIncome) AS Avg_income
FROM
    `attrition data`
GROUP BY JobRole
ORDER BY Avg_income desc
limit 5;
```

JobRole	Avg_income
Human Resources	58896.6883
Healthcare Representative	61060.3714
Manager	62569.1639
Research Scientist	65045.2852
Sales Executive	65064.4247

JobRole	Avg_income
Manufacturing Director	69445.5687
Laboratory Technician	66703.1572
Research Director	65532.9787
Sales Representative	65075.6846
Sales Executive	65064.4247

RETENTION ANALYSIS BY TENURE

```sql
SELECT
    YearsAtCompany,
    COUNT(*) AS Total_employees,
    SUM(CASE
        WHEN Attrition = 'Yes' THEN 1
        ELSE 0
    END) AS Attrition_Count
FROM
    `attrition data`
GROUP BY YearsAtCompany
ORDER BY YearsAtCompany desc
LIMIT 5;
```

YearsAtCompany	Total_employees	Attrition_Count
0	126	46
1	499	175
2	369	79
3	376	59
4	324	55

YearsAtCompany	Total_employees	Attrition_Count
40	3	3
37	3	0
36	6	0
34	3	0
33	15	3

COUNT OF EMPLOYEES BY JOB SATISFACTION LEVELS

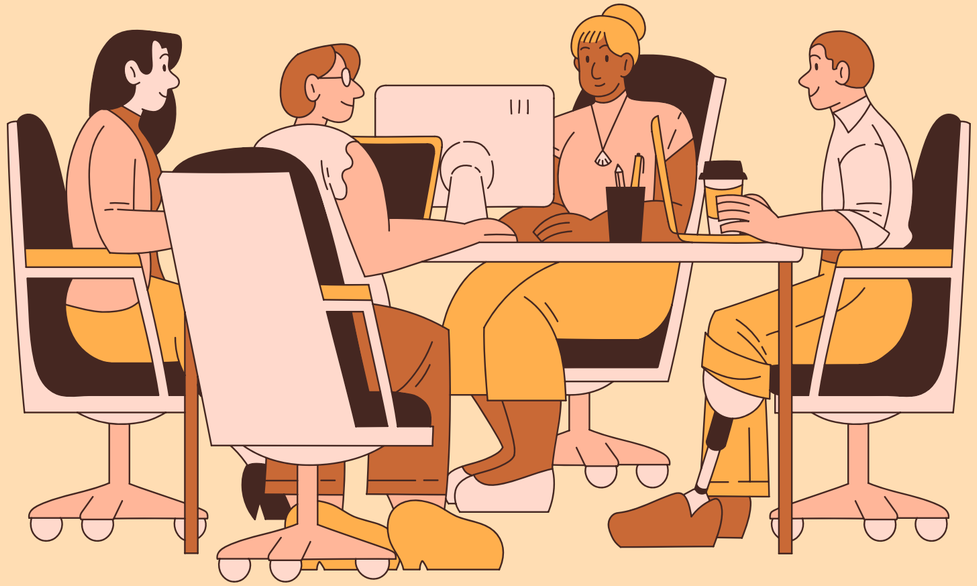
```sql
SELECT
    JobSatisfaction, COUNT(*) AS Employee_Count
FROM
    `attrition data`
GROUP BY JobSatisfaction
ORDER BY JobSatisfaction;
```

JobSatisfaction	Employee_Count
1	847
2	823
3	1296
4	1334

RELATION BETWEEN JOB SATISFACTION AND MONTHLY INCOME

```sql
SELECT
    JobSatisfaction, AVG(MonthlyIncome) AS AvgMonthlyIncome
FROM
    `attrition data`
GROUP BY JobSatisfaction
ORDER BY JobSatisfaction;
```

JobSatisfaction	AvgMonthlyIncome
1	65692.6210
2	60715.6865
3	68748.4722
4	63754.6102



JOB SATISFACTION DISTRIBUTION FOR EMPLOYEES WHO LEFT

```sql
SELECT
    JobSatisfaction, COUNT(*) AS Count
FROM
    `attrition data`
WHERE
    Attrition = 'Yes'
GROUP BY JobSatisfaction
ORDER BY JobSatisfaction;
```

JobSatisfaction	Count
1	194
2	135
3	214
4	152

TO IMPROVE ATTRITION RATES ORGANIZATIONS CAN:

1. **Enhance Job Satisfaction**: Provide competitive salaries, benefits, and meaningful work.
2. **Offer Career Growth**: Create clear paths for promotion and skill development.
3. **Foster a Positive Work Environment**: Encourage work-life balance and a supportive culture.
4. **Address Employee Concerns**: Conduct regular feedback sessions and act on issues.
5. **Recognize and Reward Performance:** Acknowledge achievements to boost morale.

These steps can help reduce turnover and improve employee retention.

CONCLUTION

This project successfully analyzed employee attrition data, uncovering critical insights into factors influencing turnover, such as age, gender, department, and job satisfaction. The findings highlight key areas for improvement, including enhancing employee satisfaction and addressing department-specific retention challenges. By leveraging SQL for data analysis, the project provides a foundation for data-driven decision-making to improve workforce management and reduce attrition rates.

THANK YOU