EMPLOYEE ATTRITION DATASET ANALYSIS

INTRODUCTION

Employee attrition, or turnover, is a significant issue for organizations as it affects productivity, morale, and the company's financial well-being. To develop effective strategies for retaining talent and lowering turnover rates, it is crucial to understand the factors that contribute to employee attrition.

This analysis will investigate an employee attrition dataset to uncover the primary factors that influence employees' decisions to leave the organization. By applying the analysis, we will examine variables such as job satisfaction, work-life balance, compensation, career progression, and organizational culture, among others.

AIM

The aim of analyzing an employee attrition dataset is to pinpoint the key factors that contribute to employees leaving an organization, including job satisfaction, work environment, compensation, and career growth opportunities.

Through this analysis, it aims to identify employees at higher risk of leaving, allowing organizations to take proactive steps to retain valuable talent. Additionally, it offers data-driven insights to inform and refine human resource strategies focused on reducing turnover and boosting employee retention. Ultimately, this analysis supports decision-making processes that cultivate a positive work environment and enhance employee satisfaction.

OBJECTIVES

1. Uncover Key Drivers: Pinpoint the main factors that influence employee attrition within the organization.

2. Predict Attrition: Developed and executed SQL queries to extract relevant data from the database to forecast which employees are most likely to leave.

3. At-Risk Groups: Identify specific employee segments, such as by department or role, that are more susceptible to attrition.

**4. Shape HR Strategies: Offer actionable insights to assist HR in developing and refining strategies to enhance employee retention.**

5. Elevate Employee Satisfaction: Leverage findings to suggest changes in policies or practices that can boost job satisfaction and reduce turnover.

DATA OVERVIEW

**Columns Datatype**

|  |  |
| --- | --- |
| EmployeeID | int |
| Age | int |
| Attrition | text |
| BusinessTravel | text |
| DailyRate | int |
| Department | text |
| DistanceFromHome | int |
| Education | int |
| EducationField | text |
| EmployeeCount | int |
| EnvironmentSatisfaction | int |
| Gender | text |
| HourlyRate | int |
| JobInvolvement | int |
| JobLevel | int |
| JobRole | text |
| JobSatisfaction | int |
| MaritalStatus | text |
| MonthlyIncome | int |
| MonthlyRate | int |
| ? | text |
| salary\_category | varchar(50) |
| age\_category | varchar |

DATA ANALYSIS

1.Descriptive Analysis: Summarize the data to grasp overall attrition trends, average tenure, and the departments most affected.

2. Trend Analysis:Detect patterns over time, such as monthly or yearly attrition rates and shifts in employee satisfaction.

3.Employee Segmentation: Classify employees based on demographics or job roles to customize retention strategies.

4.Performance Analysis: Examine performance metrics, including average productivity, and their correlation with attrition.

5.Attrition Reasons Analysis: Investigate the reasons behind employee attrition and their frequency across different segments

QUESTIONS

1.NUMBER OF MALE AND FEMALE WORKERS

select gender,count(\*) from employee\_attirtion\_new group by gender;

gender count(\*)

Female 678

Male 998

2.AVERAGE AGE OF FEMALE AND MALE WORKERS

select gender,avg(age) from employee\_attirtion\_new group by gender;

gender avg(age)

Female 37.3274

Male 36.5531

3.NUMBER OF PEOLE WITH HIGH,LOW,AVERAGE SALARY

update employee\_attirtion\_new set salary\_category=case when monthlyincome<5000 then 'Low salary'

when monthlyincome>=5000 and monthlyincome<=10000 then 'Average salary'

else 'High salary' end ;

select salary\_category,count(\*) from employee\_attirtion\_new group by salary\_category;

salary\_category count(\*)

Average salary 492

Low salary 859

High salary 325

4.COUNT OF MALE AND FEMALE LEFT FROM EACH SALARY\_CATEGORY

select salary\_category, count(\*) as m\_left from employee\_attirtion\_new where attrition='Yes'and gender='Male' group by salary\_category;

select salary\_category ,count(\*) as f\_left from employee\_attirtion\_new where attrition='Yes'and gender='Female' group by salary\_category;

salary\_category m\_left f\_left

Low salary 81 72

Average salary 22 12

High salary 10 2

6.AVERAGE DAILYRATE FOR THE PEOPLE WHO LEFT AND STAYED

select attrition,avg(dailyrate) from employee\_attirtion\_new group by attrition;

attrition avg(dailyrate)

No 808.4997

Yes 741.6131

7.NUMBER OF PEOPLE LEFT FROM EACH DEPARTMENT

select department,count(attrition) as num\_left from employee\_attirtion\_new where attrition='Yes' group by department;

department num\_left

Maternity 98

Cardiology 74

Neurology 27

8.NUMBER OF MALE AND FEMALE LEFT

select gender,count(attrition) from employee\_attirtion\_new where attrition='Yes' group by gender;

Gender p\_left

Female 86

Male 113

9.TOTAL PEOPLE IN EACH BUSINESS TRAVEL CATEGORY

select businesstravel,count(\*) as count from employee\_attirtion\_new group by businesstravel;

businesstravel count(\*)

Travel\_Rarely 1184

Travel\_Frequently 320

Non-Travel 172

10.COUNT OF MALE AND FEMALE LEFT FROM EACH BUSINESSTRAVELCATEGORY

select businesstravel,count(\*) as F\_count from employee\_attirtion\_new where gender='Female' and attrition='Yes' group by businesstravel;

select businesstravel,count(\*) as M\_count from employee\_attirtion\_new where gender='Male' and attrition='Yes' group by businesstravel;

businesstravel f\_count m\_count

Travel\_Frequently 31 22

Travel\_Rarely 49 77

Non-Travel 6 10

11.AGE CATEGORISED AND NUMBER OF PEOPLE IN EACH CATEGORY

alter table employee\_attirtion\_new add column age\_category varchar(50);

update employee\_attirtion\_new set age\_category=case when age between 18 and 30 then 'Young adults'

when age between 30 and 50 then 'Middle aged adults'

else 'Older adults' end ;

select age\_category,count(\*) from employee\_attirtion\_new group by age\_category;

age\_category count(\*)

Middle aged adults 1066

Young adults 448

Older adults 162

12.NUMBER OF PEOPLE LEFT IN EACH AGE CATEGORY

select age\_category,count(attrition) as num\_left from employee\_attirtion\_new where attrition='Yes' group by age\_category;

age\_category num\_left

Middle aged adults 80

Young adults 109

Older adults 10

13.CORRELATION BETWEEN ATTRITIONAND DISTANCE

SELECT attrition,AVG(distancefromhome) AS average\_distance FROM employee\_attirtion\_new GROUP BY attrition;

attrition average\_distance

|  |  |
| --- | --- |
| No | 8.9059 |
| Yes | 11.5678 |

14.COUNT OF WORKERS WHO LEFT IN EACH CATEGORY JOB SATISFACTION

select jobsatisfaction,count(\*)as count\_yes from employee\_attirtion\_new where attrition='Yes' group by jobsatisfaction;

jobsatisfaction count\_yes

|  |  |
| --- | --- |
| 2 | 42 |
| 4 | 45 |
| 1 | 52 |
| 3 | 60 |

15.CORRELATION OF JOB SATISFACTION TO ATTRITION

select attrition,avg(jobsatisfaction) from employee\_attirtion\_new group by attrition;

attrition avg(jobsatisfaction)

No 2.4925

Yes 2.7718

CONCLUTION

1. The total number of female workers are 678 and male workers are 998.
2. The average age of the females and male workers are 37 and 36.
3. The average daily rate for employees who left is lower than for those who stayed. Increasing wages could influence employees' decisions to remain with the company.
4. There is only 325 workers with salary higher than 10k and almost 12 workers have already left.
5. The majority of employees who left the company had low salaries, which appears to be a key factor in their decision to depart.
6. 6. Among the employees who left from the high salary category, most were men, with only two being women.
7. The number of employees who left the company from the Maternity, Cardiology, and Neurology departments were 98, 74, and 27, respectively.
8. From each category of age most of the workers are found to be middle aged.
9. From the middle aged people almost 80 left more people are left from an age group of young adults.
10. Most of the people travel rarely and 172 workers do not travel .
11. Employees who left the company had the longest commutes from home to work. Providing accommodations closer to the workplace could help reduce this number.Most of the workers are not quite satisfied with their overall assistance provided by the company .

In Overall,

The analysis reveals that employee attrition is influenced by several key factors. Middle-aged employees make up a significant portion of those who have left, though the young adult age group has seen even higher levels of turnover. Employees with lower salaries are more likely to leave, suggesting that wage increases could improve retention. Additionally, those with longer commutes are more prone to departing, indicating that providing nearby accommodations could mitigate this issue. Furthermore, many employees are dissatisfied with the overall support provided by the company, highlighting the need for improved assistance and benefits. Overall, addressing these factors could help enhance employee retention and satisfaction.