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.

SPECIFIC OBJECTIVES

1. Determine Influencing Factors: Understand what drives employee turnover to address underlying issues.

2. Predict Employee Departure: Utilize data analysis to forecast which employees are likely to leave the organization.

3. Identify Vulnerable Groups: Focus on specific segments within the workforce that are at higher risk of attrition.

4. Develop Effective HR Strategies: Generate actionable insights to help HR create and improve strategies for retaining employees.

5. Boost Job Satisfaction: Propose changes to enhance employee satisfaction and reduce the likelihood of 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 ASSESSMENT

1. Summary Analysis: Compile data to understand general attrition patterns, average employee tenure, and identify the departments with the highest turnover.

2. Pattern Identification: Analyze changes over time, such as fluctuations in attrition rates on a monthly or annual basis and variations in employee satisfaction levels.

3. Employee Classification: Segment employees by demographics or job roles to tailor retention initiatives more effectively.

4. Productivity Evaluation: Assess performance metrics, such as average output, and examine their relationship with employee turnover.

5. Reasons for Departure Analysis: Explore the causes of employee departures and their prevalence across different employee groups.

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. Workforce Composition: The workforce comprises 678 female and 998 male employees.

2. Average Age: The average age of female workers is 37, while male workers have an average age of 36.

3. Wage Disparity: Employees who left the company had a lower average daily rate compared to those who stayed. Offering higher wages might encourage employees to remain with the organization.

4. High Earners: Only 325 employees earn more than 10k, with 12 of them having already left the company.

5. Salary Impact: A significant factor in the decision to leave was low salary, which was common among the majority of employees who exited.

6. Gender Distribution in High Salary Exits: Among the employees with higher salaries who left, most were men, with only two women departing.

7. Departmental Attrition: The number of employees who left from the Maternity, Cardiology, and Neurology departments were 98, 74, and 27, respectively.

8. Age Demographics: The workforce is predominantly middle-aged across various age categories.

9. Age-Related Attrition: Approximately 80 middle-aged employees left, with a higher attrition rate observed among young adults.

10. Travel Habits: Most employees rarely travel, with 172 workers reporting no travel at all.

11. Commute and Satisfaction: Employees who left had the longest commutes. Providing housing closer to the workplace might help reduce turnover. Additionally, many employees expressed dissatisfaction with the support 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.