Analysis Report of Employee Attrition Data

SUBMITTED BY:

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Objective: The primary goal of this analysis is to identify patterns and factors that contribute to employee attrition. Understanding these factors can help the organization implement targeted strategies to improve employee retention and overall satisfaction, which are crucial for maintaining a stable and effective workforce.

The   dataset consists of 1676 entries with 21 columns.

Key columns: Employee ID, Age, Attrition, Business Travel, Department, Distance from home, education, job role, gender etc...

Field	Type	Null	Key	Default	Extra
▶ EmployeeID	int	YES		NULL	
Age	int	YES		NULL	
Attrition	text	YES		NULL	
BusinessTravel	text	YES		NULL	
DailyRate	int	YES		NULL	
Department	text	YES		NULL	
DistanceFromHome	int	YES		NULL	
Education	int	YES		NULL	
EducationField	text	YES		NULL	
EmployeeCount	int	YES		NULL	
EnvironmentSatisf...	int	YES		NULL	
Gender	text	YES		NULL	
HourlyRate	int	YES		NULL	
JobInvolvement	int	YES		NULL	
JobLevel	int	YES		NULL	
JobRole	text	YES		NULL	
JobSatisfaction	int	YES		NULL	
MaritalStatus	text	YES		NULL	
MonthlyIncome	int	YES		NULL	
MonthlyRate	int	YES		NULL	
age_category	varc...	YES		NULL	

Main steps in this analysis:

importing dataset into mysql using table data import wizard in mysql we are importing the dataset into a newly created database

Data cleaning: Removed unnecessary columns and check for any missing or inconsistent data.

Feature Engineering: created new features for making the analysis more easier and meaningful

DATA ANALYSIS

Analyses the data using SQL queries group by, order by, limit, aggregate functions like max, min, avg etc.

- Age: The average age of employees is about 37 years, with a range from 18 to 60 years
  Minimum age is 18
  Maximum age is 60
- Daily rate: Daily rate varies widely, with a mean of 800.55
- Distance from home: Employees live an average of 9.2 km from work place, with some living as far as 29 km away.

- Environmental satisfaction: the average satisfaction level is 2.71 on a scale from 1 to 4
- Job level: most employees are at level 1 or 2,with an average job level of 2.07
- Monthly income: the average monthly income is 6516 rupees ,ranging from 1009 to 19999 rupees.

Attrition Analysis

- Overall Attrition Rate:
  NO: 1477 employees remain with the company
  YES: 199 employees have left the company
  (86 females & 113 males left)
- Attrition by age:
  Higher attrition rates are observed in younger employees, especially those aged 18 -30
  Attrition rates generally decrease with age, with almost no attrition among employees aged 46 and older.

Age category	Count of employees have left the company (Yes)	Count of employees remain with the company (No)
Young adults	109	339
adults	74	841
Old age	16	297

- Attrition by department:
  Maternity and cardiology department has the highest attrition rate.

Department	Count of employees have left the company(Yes)	Count of employees remain with the company
Maternity	98	698
Cardiology	74	457
Neurology	27	322

- Attrition by job satisfaction:

Job satisfaction	Count where attrition (Yes)	Count where attrition (No)
1	52	277
2	42	268
3	60	447
4	45	485

- Attrition by job role:

  The Nurse job role has the highest attrition rate, while no employees have left the job role of an Admin.

Job role	Count where attrition (Yes)	Count where attrition (No)
Nurse	107	715
Therapist	4	185
administrative	1	114
Admin	0	16
others	87	447

- Attrition by gender:
  113 male and 86 female employees have left the company
  885 male and 592 female employees remain with the company
- Attrition by Educational field:

Educational field	Count of attrition (yes)	Count of attrition(No)
Life science	84	613
Medical	51	473
marketing	28	161
Technical degree	22	127
Human resource	6	23
other	8	80

- Attrition by marital status:
  Single employee leads to higher attrition ,that means most of the employees who left the company were single.
   most of the employees who remain with the company are married.

Marital status	Count where attrition (Yes)	Count where attrition (No)
Single	144	408
married	61	716
Divorced	24	353

- Attrition by Hourly rate
  Average hourly rate is 65.47
  Minimum=30
  Maximum=100

- Attrition by Business travel:
  Rarely travel leads to higher attrition

Business Travel	Count where attrition (Yes)	Count where attrition (N0)
Travel-rarely	126	1058
Travel-frequently	57	263
Non-travel	16	156

CONCLUSION

- Overall attrition rate:
  Approximately 12% of employees have left the company
- Age related trends:
  Young employees are more likely to leave the company. As employees age, attrition rate tend to decrease significantly. This suggests that younger workers may be seeking more growth opportunities or face challenges that older employees do not.

- The maternity and cardiology department has the highest attrition rate ,this could indicate department workload issues.