

# Employee Data Analysis Report



## 1. Introduction

This report analyzes an employee dataset to identify key factors influencing employee attrition, job satisfaction, salary distribution, and overall organizational efficiency. By leveraging data analytics, the report aims to provide insights into employee behavior and organizational trends to support decision-making processes for human resources and management.

## 2. Aim

The aim of this analysis is to understand the factors affecting employee attrition, job satisfaction, salary equity, and organizational diversity. The analysis will help identify areas for improvement in retention strategies, compensation structures, and work environment enhancements.

## 3. Objectives

The objectives of this report are:

- To determine the primary factors contributing to employee attrition.
- To analyze the distribution and fairness of salaries across different roles, departments, and demographics.
- To examine the impact of age, education, and job involvement on employee satisfaction and turnover.
- To identify patterns in employee demographics, such as age, gender, education, and their effect on career progression
- To provide actionable insights for improving employee retention and satisfaction.

## 4. Data Overview

The dataset includes the following columns:

Column name	Data type
EmployeeID	Int
Age	Int
Attrition	Text
Bussinestravel	Text
Daillyrate	Int
Department	Text
Distancefromhome	Int
Education	Int
Educationfield	Text

Column name	Data type
Employeecount	Int
Environmentsatisfaction	Int
Gender	Text
HourlyRate	Int
Jobinvolvement	Int
Joblevel	Int
Jobroll	Text
Jobsatisfaction	Int
Maritalstatus	Text
Monthlyincome	Int
Monthlyrate	Int
?	Text
Salary_category	varchar(30)
age_category	varchar(30)

## 5. Data Analysis

- Descriptive Analysis:** Summarize data to understand overall attrition trends, average tenure, and most affected departments.
- Salary Analysis**
  - Salary Distribution and Fairness: There is a significant variation in salary based on job roles and departments. Certain departments, such as R&D and Sales, showed higher average monthly income compared to others like Human Resources.
- Age Demographics**
  - Age Categories and Job Roles: The majority of employees are in the "Middle-Aged" category, with this group showing a lower attrition rate. "Young" employees tend to have higher attrition rates, possibly due to career exploration or dissatisfaction.
- Employee Segmentation:**

Group employees based on demographics or job roles to tailor retention strategies.

## 5. Diversity and Inclusion Analysis

- **Gender Disparities in Salary:** While there is a near-equal representation of genders across departments, there is a noticeable gender pay gap in certain roles, particularly in managerial positions.

## 6. Questions

### 1. NUMBER OF MALE AND FEMALE WORKERS

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

gender	count(*)
Female	678
Male	998

### 2. AVERAGE AGE OF FEMALE AND MALE WORKERS

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

gender	avg(age)
Female	37.3274
Male	36.5531

### 3. AVERAGE DAILYRATE FOR THE PEOPLE WHO LEFT AND STAYED

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

attrition	avg(dailyrate)
No	808.4997
Yes	741.6131

### 4. NUMBER OF PEOPLE LEFT IN EACH AGE CATEGORY

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

Age_category	Num_left
Middle aged adult	80
Young Adult	109
Older Adult	10

## 5.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

## 6.Gender-Based Salary Disparities

```
select  
  
    Gender,  
  
    avg(MonthlyIncome) as AverageMonthlyIncome,  
  
    min(MonthlyIncome) as MinMonthlyIncome,  
  
    max(MonthlyIncome) as MaxMonthlyIncome  
  
from  
  
    Employee_attirtion_new  
  
group by  
  
    Gender  
  
order by  
  
    AverageMonthlyIncome desc;
```

Gender	AverageMonthlyIncome	MinMonthlyIncome	MaxMonthlyIncome
Female	6702.8746	1129	19973
Male	6389.9058	1009	19999

## 7.Compare Job Satisfaction Across Departments

```
select  
  
    Department,  
  
    avg(JobSatisfaction) as AverageJobSatisfaction,  
  
    count(EmployeeID) as TotalEmployees  
  
from  
  
    Employee_attirtion_new  
  
group by  
  
    Department  
  
order by
```

AverageJobSatisfaction desc;

#### 8.NUMBER OF PEOPLE LEFT FROM EACH DEPARTMENT

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

Department	Num left
Maternity	98
Cardiology	74
Neurology	27

#### 9.NUMBER OF MALE AND FEMALE LEFT

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

Gender	People left
Female	86
Male	113

#### 10.EVALUATE THE IMPACT OF ATTRITION ON FINANCIALS BY ANALYZING THE COST

select

JobRole,

sum(MonthlyIncome) as TotalAttritionCost

from

Employee\_attrition\_new

where

Attrition = 'Yes'

group by

```
JobRole
order by
TotalAttritionCost desc;
```

## 11.AGE CATEGORISED AND NUMBER OF PEOPLE IN EACH CATEGORY

```
alter table employee_attrition_new add age_category varchar(20);
select age,case when age between 18 and 30 then 'Young adults'
when age between 30 and 50 then 'Middle aged adults'
else 'Older adults' end as age_category from employee_attrition_new;
update employee_attrition_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          #Group Employees into Age Categories:
age_category as AgeCategory,
count(employeeid) as TotalEmployees
from Employee_attrition_new
group by
age_category
order by
TotalEmployees desc;
```

## 12.ANALYZE THE MONTHLYINCOME, HOURLYRATE, AND DAILYRATE IN CONJUNCTION WITH JOBROLE, DEPARTMENT, EDUCATIONFIELD, JOBLEVEL, AND GENDER TO IDENTIFY PAY EQUITY AND ANY DISPARITIES

```

alter table Employee_attrition_new add salary_category varchar(30);

select MonthlyIncome,case  when monthlyincome<5000 then 'Low salary'
when monthlyincome>=5000 and monthlyincome<=10000 then 'Average salary'
else 'High salary' end as salary_category from employee_attrition_new;

update employee_attrition_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

JobRole,

Department,

AVG(MonthlyIncome) as AverageMonthlyIncome,

MIN(MonthlyIncome) as MinMonthlyIncome,

MAX(MonthlyIncome) as MaxMonthlyIncome

from

    Employee_attrition_new

group by

    JobRole, Department

order by

    AverageMonthlyIncome desc;

```

#### 10.NUMBER OF PEOPLE LEFT IN EACH AGE CATEGORY

```

select age_category,count(attrition) as num_left from employee_attrition_new where attrition='Yes'
group by age_category;

```

## 7.Conclusion

The analysis reveals that several factors, such as job satisfaction, business travel frequency, distance from home, salary disparities, and educational background, influence employee attrition and retention. Addressing these factors through targeted interventions can improve overall employee satisfaction, reduce turnover, and enhance organizational performance.

The company should consider implementing retention strategies focused on reducing stressors related to travel and commuting, promoting gender pay equity, and fostering a more inclusive environment. Additionally, supporting employees through career development initiatives, especially younger staff, can lead to better retention and job satisfaction outcomes.

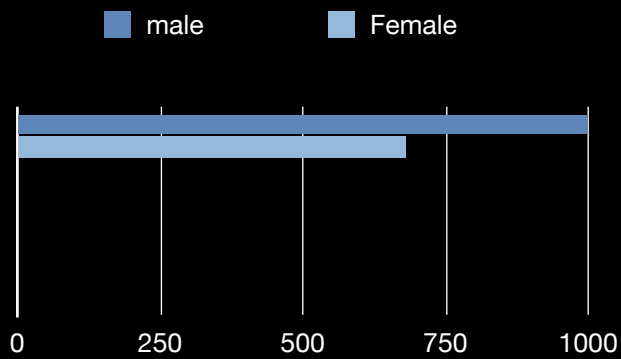
1. The total number of female and male workers

M-998

F-678

2.The average age of the females and male workers are 37 and 36.





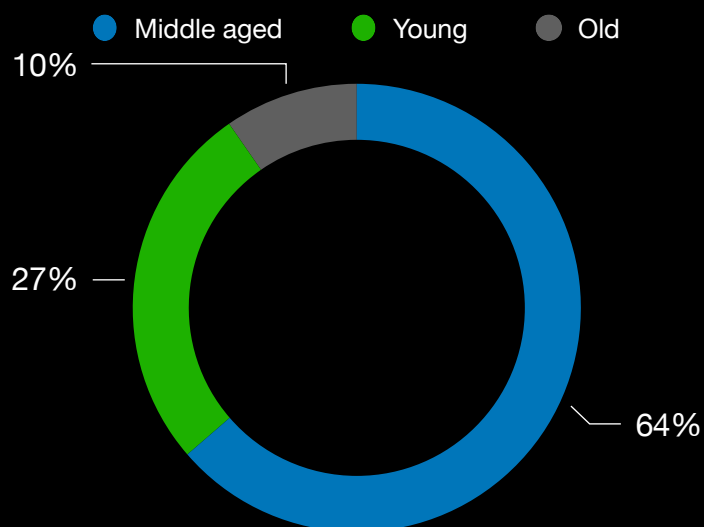
3. Most of the workers with a low salary is found to have left the company because of their low income

4. From the workers who left from the high salary category most of them are men and only 2 are women.

5. Admin from neurology department have the highest average monthly income

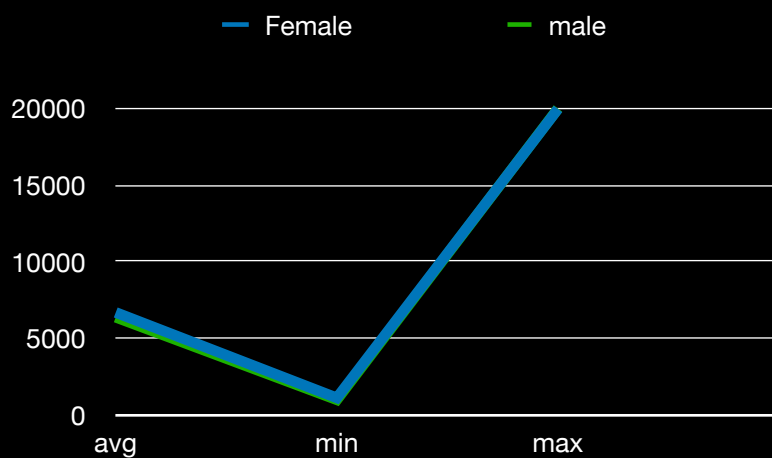
6. Cardiology department workers have the lowest average monthly income

7. Employees categorised by age



## 8. Gender-Based Salary Disparities

Gender	Avgmonthlyincome	Minmonthlyincome	Maxmonthlyincome
Female	6702.8746	1129	19973
Male	6389.9058	1009	19999



There no visible salary disparities based on gender

## 9. Job Satisfaction Across Departments

Department	AverageJobSatis Faction	TotalEmployees
Neurology	2,7622	349
Cardiology	2,7382	531
Maternity	2,7286	796

10. The people who left from the company has the longest distance from home to their workplace. If necessary stay is provided near the workplace these number can be reduced.

## 11.Workers resignation based on age category

