

Problem Statement:

As a Data Analyst in our HR firm, we aim to analyze and understand the factors influencing employee attrition within our organization. The dataset provided contains various features related to employees, their demographics, job roles, and satisfaction levels.

The objective is to identify patterns and insights that can help us predict and mitigate attrition rates effectively.

Key Features:

1. **Attrition:** Whether the employee has left the company (Yes/No).
2. **Business Travel:** Frequency of employee's business travel (Non-Travel, Travel_Rarely, Travel_Frequently).
3. **CF_age band:** Categorical feature representing the age group of employees.
4. **CF_attrition label:** A categorical label for attrition.
5. **Department:** Department where the employee works.
6. **Education Field:** Field of education of the employee.
7. **emp no:** Employee number.
8. **Employee Number:** Employee number (similar to emp no).
9. **Gender:** Gender of the employee.
10. **Job Role:** Role or position of the employee within the organization.
11. **Marital Status:** Marital status of the employee.
12. **Over Time:** Whether the employee works overtime (Yes/No).
13. **Over18:** Whether the employee is over 18 years old (Yes/No).
14. **Training Times Last Year:** Number of training sessions attended by the employee last year.
15. **-2:** Not specified (considered as an unidentified feature).
16. **0:** Not specified (considered as an unidentified feature).
17. **Age:** Age of the employee.
18. **CF_current Employee:** Categorical label indicating if the employee is current.
19. **Daily Rate:** Daily rate of pay for the employee.
20. **Distance From Home:** Distance of employee's residence from the workplace.
21. **Education:** Level of education attained by the employee (1: 'Below College', 2: 'College', 3: 'Bachelor', 4: 'Master', 5: 'Doctor').
22. **Employee Count:** Number of employees (possibly redundant).
23. **Environment Satisfaction:** Satisfaction level with the work environment (1: 'Low', 2: 'Medium', 3: 'High', 4: 'Very High').
24. **Hourly Rate:** Hourly rate of pay for the employee.
25. **Job Involvement:** Level of involvement in the job (1: 'Low', 2: 'Medium', 3: 'High', 4: 'Very High').
26. **Job Level:** Level of the job (1 to 5).
27. **Job Satisfaction:** Satisfaction level with the job (1: 'Low', 2: 'Medium', 3: 'High', 4: 'Very High').

28. **Monthly Income:** Monthly income of the employee.
29. **Monthly Rate:** Monthly rate of pay for the employee.
30. **Num Companies Worked:** Number of companies the employee has worked for.
31. **Percent Salary Hike:** Percentage increase in salary.
32. **Performance Rating:** Performance rating of the employee (1 to 4).
33. **Relationship Satisfaction:** Satisfaction level with work relationships (1: 'Low', 2: 'Medium', 3: 'High', 4: 'Very High').
34. **Standard Hours:** Standard hours of work for the employee.
35. **Stock Option Level:** Level of stock options for the employee (0 to 3).
36. **Total Working Years:** Total years of work experience.
37. **Work Life Balance:** Satisfaction level with work-life balance (1: 'Bad', 2: 'Good', 3: 'Better', 4: 'Best').
38. **Years At Company:** Years spent at the current company.
39. **Years In Current Role:** Years spent in the current role.
40. **Years Since Last Promotion:** Years since the last promotion.
41. **Years With Curr Manager:** Years spent with the current manager.

Main Objective:

1. Identify key factors contributing to employee attrition within the organization.
2. Explore relationships between various features and attrition rates.
3. Build predictive models to forecast the likelihood of employee attrition.
4. Provide actionable insights and recommendations to HR and management to reduce attrition and enhance employee retention strategies.

How to write this project in resume

Project Heading: Employee Attrition Analysis and Prediction

As a dedicated Data Analyst specializing in Human Resources (HR) analytics, I led a comprehensive project focused on understanding and analyzing employee attrition within our organization. I conducted in-depth exploratory data analysis to uncover key factors influencing attrition rates and develop predictive models to forecast attrition risk.

Key Contributions:

- Identified critical factors contributing to employee attrition, including demographics, job characteristics, and satisfaction levels.
- Utilized statistical methods and machine learning algorithms to analyze patterns and trends within the dataset, extracting actionable insights for HR and management.
- Developed predictive models using logistic regression, decision trees, and random forests to forecast attrition likelihood with high accuracy and precision.

- Collaborated closely with HR stakeholders to translate analytical findings into targeted retention strategies and proactive interventions.
- Monitored model performance and provided ongoing recommendations for enhancing organizational retention efforts and fostering a positive work environment.

Results and Impact:

- Generated actionable insights leading to a measurable reduction in attrition rates and enhanced employee retention efforts.
- Improved organizational understanding of attrition dynamics and facilitated data-driven decision-making across HR and management functions.
- Implemented targeted retention strategies based on predictive model outcomes, resulting in a more engaged and satisfied workforce.