Minor Project - HR Analytics

Problem Statement

SimpleYard, a fast-growing organization, is currently experiencing a **high employee attrition rate**, which poses a serious challenge to its long-term growth and operational efficiency. The continuous exit of employees leads to a **loss of critical skills, institutional knowledge, and increased hiring and training costs**.

To address this issue, the Human Resources (HR) department has been tasked with leveraging data analytics to **identify patterns and key factors contributing to employee churn**. The objective is to **pinpoint the departments, performance indicators, and personal or professional variables** (such as project involvement, salary levels, and tenure) that correlate with attrition.

Through this case study, the HR team aims to answer the following critical questions:

1. What is the current workforce size, and how many employees have already left the organization?

2. Which departments are experiencing the **highest rates of attrition**?

3. Are employees working on **fewer than 3 projects** more likely to leave the company?

4. How does the **number of projects correlate with time spent** at the company, particularly for those who have left?

5. Could **compensation levels** be influencing an employee's decision to leave?

By answering these questions, the HR team at SimpleYard intends to develop **targeted retention strategies** to proactively engage and retain at-risk employees, ultimately reducing attrition and fostering a stable workforce for future growth.

The goal of this HR Analytics case study is to perform **exploratory data analysis (EDA)** using employee records to:

- Analyze **employee attrition patterns** using statistical summaries and visualizations.

- Identify key factors that are associated with employees leaving the company, such as:

    - Departmental distribution

    - Number of projects
    - Time spent at the company
    - Salary levels
    - Promotion history
- Quantify attrition rates and generate **actionable insights** based on these patterns.
- Support the HR team in developing **data-driven employee retention strategies** to reduce future attrition.

This will be done through a series of structured steps including **data loading, preprocessing, visualization, and interpretation** using tools like Pandas, NumPy, Matplotlib, and Seaborn.

Dataset Link: **Click Here**