Employee Performance and Retention Analysis

Overview

This project focuses on analysing employee performance and retention patterns within an organisation. By leveraging HR data, the goal is to identify key factors influencing employee productivity, performance, and retention, and provide actionable insights for improving workforce efficiency, reducing turnover, and fostering a positive work environment. The project will employ data analysis techniques, including exploratory data analysis (EDA), trend analysis, and visualisation to help HR managers make data-driven decisions for workforce management.

Problem Statement

The objective of this project is to analyse HR data to assess employee performance, identify trends influencing retention, and provide recommendations for improving employee productivity and reducing turnover. Specifically, the project aims to:

● Identify performance patterns based on factors such as age, education, department, and training

. ● Examine retention trends based on employee characteristics such as tenure, performance ratings, and awards.

● Provide recommendations for improving employee engagement and retention strategies by analysing the relationship between key employee metrics

Dataset Information

The dataset includes records of employees with various demographic, performance, and organisational details. Key variables in the dataset are:

● employee_id : Unique identifier for each employee

● department : The department the employee works in

● region : Geographical region of the employee

● education : The education level of the employee

● gender : Gender of the employee

● recruitment_channel : The method by which the employee was recruited

● no_of_trainings : Number of training sessions attended by the employee

● age : Age of the employee

● previous_year_rating : Rating of the employee's performance from the previous year

● length_of_service : How long the employee has worked in the company

● KPIs_met_more_than_80 : Whether the employee met more than 80% of their KPIs

● awards_won : Number of awards the employee has won

● avg_training_score : Average score of the employee in training programs

Deliverables

1. Exploratory Data Analysis (EDA) : Perform a thorough EDA to explore key trends and outliers. Generate descriptive statistics and visualisations to understand patterns in employee performance, retention, and demographics.

2. Data Preprocessing : Clean and preprocess the dataset by handling missing values, encoding categorical variables, and ensuring consistency in data formatting.

3. Key Metrics Analysis : Analyse key performance and retention metrics such as length of service , average training score , awards won , previous year ratings , and KPIs met .

4. Retention Trends Analysis : Assess retention trends based on age , education , department , and training .

5. Predictive Insights : Based on the analysis, provide actionable recommendations to HR for improving employee retention and performance management strategies.

6. Final Report : A detailed report documenting all steps of the analysis, findings, insights, and recommendations. This will include visualisations to support the conclusions.

Tools Required

● Python : For data analysis, preprocessing, and visualisation (using libraries such as pandas, matplotlib, seaborn, and scikit-learn).

● Jupyter Notebook or Excel : For executing and documenting the analysis.

● Visualisation Tools : Tools such as matplotlib for creating compelling visual insights from the data.

● Statistical Analysis : Use statistical techniques to calculate correlations, averages, and other key metrics.