

## Introduction:

HR analytics is the process of collecting and analyzing Human Resource (HR) data in order to improve an organization's workforce performance. The process can also be referred to as talent analytics, people analytics, or even workforce analytics. This method of data analysis takes data that is routinely collected by HR and correlates it to HR and organizational objectives. Doing so provides measured evidence of how HR initiatives are contributing to the organization's goals and strategies.

## Abstract:

This project aims at predicting employee attrition using HR Analytics data. The goal is to provide actionable insights for human resources to reduce employee turnover by identifying those at risk of leaving. Using logistic regression as a baseline model, this project seeks to understand which factors drive employee decisions to stay or leave.

## Tools Used:

- Python 3.7+: Main programming language used.
- Jupyter Notebook: Environment for developing and documenting the project.
- Libraries:
  - Pandas: Data manipulation and analysis.
  - NumPy: Numerical computing.
  - Scikit-Learn: Machine learning algorithms and tools for model building and evaluation.
  - Matplotlib & Seaborn: Data visualisation
- Power BI : Data visualisation and Dashboard

## Steps Involved in Building the Project :

- Data Exploration: Load and explore the dataset to understand its structure and features.
- Data Preprocessing: Clean the data, encode categorical variables, and scale features to prepare them for model building.
- Model Building: Build a logistic regression model to predict employee attrition, serving as a baseline for future improvement.

- Result Analysis: Evaluate the model's performance and visualise feature importance to understand key factors influencing attrition.

#### Insights :

- People are tending to switch to a different job at the start of their careers, or at the earlier parts of it. Once they have settled with a family or have found stability in their jobs, they tend to stay long in the same organization- only going for vertical movements in the same organization.
- Salary and stock options have a great motivation on the employees and people tend to leave the organization much less. Higher pay and more stock options have seen more employees remain loyal to their company.
- Work life balance is a great motivation factor for the employees. However, people with a good work-life balance, tend to switch in search of better opportunities and a better standard of living.
- Departments where target meeting performance is very much crucial (for e.g. Sales) tend to have a greater chances of leaving the organization as compared to departments with more administration perspective (For e.g. Human Resources)
- People with a good Job Satisfaction and Environment satisfaction are loyal to the organization- and this speaks loud for any Organization. However, people who are not much satisfied with their current project- tend to leave the organization far more.

#### Conclusion :

This project has delivered problem-solving insights that HR Analytics promises, where data was first collected, monitored and measured against other data, such as historical information, norms or averages. Trends or patterns were identified at the analytical stage and insights were generated to drive organizational decisions.