# Employee Attrition

## Fictional dataset on HR Employee attrition and performance

***Description***

The key to success in any organization is attracting and retaining top talent. As an HR analyst one of the key task is to determine which factors keep employees at the company and which prompt others to leave. Given in the data is a set of data points on the employees who are either currently working within the company or have resigned. The objective is to identify and improve these factors to prevent loss of good people.

***Content***

Below are the values each column has. The column names are pretty self-explanatory.

1. AGE Numerical Value
2. ATTRITION Employee leaving the company (0=no, 1=yes)
3. BUSINESS TRAVEL (1=No Travel, 2=Travel Frequently, 3=Travel Rarely)
4. DAILY RATE Numerical Value - Salary Level
5. DEPARTMENT (1=HR, 2=R&D, 3=Sales)
6. DISTANCE FROM HOME Numerical Value - THE DISTANCE FROM WORK TO HOME
7. EDUCATION Numerical Value. (1 'Below College' 2 'College' 3 'Bachelor' 4 'Master' 5 'Doctor')
8. EDUCATION FIELD (1=HR, 2=LIFE SCIENCES, 3=MARKETING, 4=MEDICAL SCIENCES, 5=OTHERS, 6= TECHNICAL)
9. EMPLOYEE COUNT Numerical Value
10. EMPLOYEE NUMBER Numerical Value - EMPLOYEE ID
11. ENVIRONMENT SATISFACTION Numerical Value - SATISFACTION WITH THE ENVIRONMENT (1 'Low' 2 'Medium' 3 'High' 4 'Very High')
12. GENDER (1=FEMALE, 2=MALE)
13. HOURLY RATE Numerical Value - HOURLY SALARY
14. JOB INVOLVEMENT Numerical Value - JOB INVOLVEMENT (1 'Low' 2 'Medium' 3 'High' 4 'Very High')
15. JOB LEVEL Numerical Value - LEVEL OF JOB
16. JOB ROLE (1=HR REP, 2=HR, 3=LAB TECHNICIAN, 4=MANAGER, 5= MANAGING DIRECTOR, 6= RESEARCH DIRECTOR, 7= RESEARCH SCIENTIST, 8=SALES EXECUTIVE, 9= SALES REPRESENTATIVE)
17. JOB SATISFACTION Numerical Value - SATISFACTION WITH THE JOB (1 'Low' 2 'Medium' 3 'High' 4 'Very High')
18. MARITAL STATUS (1=DIVORCED, 2=MARRIED, 3=SINGLE)
19. MONTHLY INCOME Numerical Value - MONTHLY SALARY
20. MONTHLY RATE Numerical Value - MONTHLY RATE
21. NUMCOMPANIES WORKED Numerical Value - NO. OF COMPANIES WORKED AT
22. OVER 18 (1=YES, 2=NO)
23. OVERTIME (1=NO, 2=YES)
24. PERCENT SALARY HIKE Numerical Value - PERCENTAGE INCREASE IN SALARY
25. PERFORMANCE RATING Numerical Value - PERFORMANCE RATING
26. RELATIONS SATISFACTION Numerical Value - RELATIONS SATISFACTION
27. STANDARD HOURS Numerical Value - STANDARD HOURS
28. STOCK OPTIONS LEVEL Numerical Value - STOCK OPTIONS (Higher the number, the more stock option an employee has)
29. TOTAL WORKING YEARS Numerical Value - TOTAL YEARS WORKED
30. TRAINING TIMES LAST YEAR Numerical Value - HOURS SPENT TRAINING
31. WORK LIFE BALANCE Numerical Value - TIME SPENT BETWEEN WORK AND OUTSIDE
32. YEARS AT COMPANY Numerical Value - TOTAL NUMBER OF YEARS AT THE COMPANY
33. YEARS IN CURRENT ROLE Numerical Value -YEARS IN CURRENT ROLE
34. YEARS SINCE LAST PROMOTION Numerical Value - LAST PROMOTION
35. YEARS WITH CURRENT MANAGER Numerical Value - YEARS SPENT WITH CURRENT MANAGER

**Capstone Project Requirements:**

This project is based on a hypothetical dataset downloaded from [IBM HR Analytics Employee Attrition & Performance](https://www.kaggle.com/pavansubhasht/ibm-hr-analytics-attrition-dataset). It has 1,470 data points (rows) and 35 features (columns) describing each employee’s background and characteristics; and labelled (supervised learning) with whether they are still in the company or whether they have gone to work somewhere else. Machine Learning models can help to understand and determine how these factors relate to workforce attrition.

## Problem Statement

HR Analytics helps us with interpreting organizational data. It finds out the people-related trends in the data and helps the HR Department take the appropriate steps to keep the organization running smoothly and profitably. Attrition is a corporate setup is one of the complex challenges that the people managers and the HRs personnel have to deal with.

Interestingly, machine learning models can be deployed to predict potential attrition cases, thereby helping the appropriate HR Personnel take the necessary steps to retain the employee.

## What you have to do…

Perform exploratory data analysis to find a pattern or find and filter the criteria which are most responsible for attrition.

You should start with

1. Descriptive statistics.
2. Measure whether there are significant differences between attrition factor with other demographics factors.
3. Perform Logistic regression analysis (normal method).
4. Perform Logistics regression analysis (using Stepwise approach).
5. Give recommendation about the most significant factor.

Report:

The drafted report should not exceed 4 pages.

To submit your drafted report, please fill your information using the below link:

<https://app.smartsheet.com/b/form/c06cc729d07d467e88e151a763cff21a>

Report evaluation will take around 3 to 4 weeks

**Submission deadline = 15-03-2022**