# **Case Study : Absenteeism at a Company during work time using Python , SQL and Tableau integration**

This case study demonstrates how to integrate Python,SQL and Tableau to analyze the probability of employee absenteeism at work.

#### **Objective:**

To analyze the factors contributing to employee absenteeism in a company and propose strategies to reduce it.

Analyzing on the dataset of absenteeism on how long (working hours) the employee would be away from work based on the information such as,

1. How far do they live from the workspace?
2. Any external cause of morbidity and mortality?
3. Are there any factors influencing health status and contact with health services? and so on

**Steps to analyze the case study:**

1. **Data Preprocessing:** Working on the dataset ‘*Absenteeism\_data.csv’*’ in Jupyter Notebook and using it for the machine learning algorithm. After the data preprocessing part has been exercised, we’ll switch to a role to act as a member of a team of data scientists and ML engineers.
2. **Machine Learning:** In this process, we’ll develop a **logistic regression model** that will help to predict the probability of an individual employee being absent from work. The Python module which results from this work will be used for further analysis.
3. **Loading modules from the previous operation and integrating Python and SQL:** In this process we load the module to generate predictions. Further, we’ll integrate Jupyter Notebook with MySQL workbench to showcase how Python and SQL can be connected. The dataset obtained from this will be used for further analysis and visualization.
4. **Analyzing predicted outputs in Tableau:** In the end we’ll use Tableau to visualize three separate dependencies between inputs and the model obtained.

**Tools Required:**

1. [Jupyter Notebook — Anaconda](https://www.anaconda.com/download)
2. [MySQL Workbench](https://www.mysql.com/products/workbench/)
3. [Tableau](https://www.tableau.com/products/public/download)

**Dataset** : [**Absenteeism Exercise dataset**](https://drive.google.com/file/d/1dEffFrcZ-nOf3AAsvenPnda0h_oFbKoo/view?usp=sharing)