Project Title: Energy Consumption Analysis
Technologies: Data Cleansing, Exploratory Data Analysis (EDA), Visualization (Tableau/Power BI)
Domain: Energy and Sustainability

Problem Statement:

Project will analyze energy usage and greenhouse gas (GHG) emissions of Ontario's Broader Public Sector (BPS) organizations, leveraging a comprehensive database of reported data. We aim to identify trends, assess conservation effectiveness, and pinpoint areas for improvement, informing data-driven strategies to achieve climate change mitigation goals within the BPS.

Data Understanding

The Dataset spans from 2012 to 2021 and contains information about BPS organizations, including public hospitals and school boards.Key attributes include organization details, operational information, energy consumption data, and GHG emissions.

Dataset Link: Dataset

Key Features:

- **Sector:** Represents the sector of the organization (e.g., Public Hospital, School Board).
- **SubSector:** Provides further classification within the sector.
- **Organization:** Name of the BPS organization.
- **Operation:** Specific operation or facility within the organization.

- **Address, City, Postal Code**: Location details of the organization.
- **Energy Usage:** Information about electricity, natural gas, fuel oil, propane, coal, wood, district heating, and district cooling consumption.
- **GHG Emissions:** Greenhouse gas emissions in kilograms.

Data Preparation and Cleansing:

- Clean and transform the data into a format suitable for analysis by handling missing values, standardizing units, and deriving relevant features.
- Segment the data by relevant factors like sector, organization type, and facility size

Exploratory Data Analysis-PowerBI

- Employ statistical analysis and visualization techniques to uncover key trends, patterns, and relationships within the data.
- Investigate correlations between energy consumption, GHG emissions, and relevant features like building size, operational hours, and weather data.
- Identify outliers and potential areas for further investigation.
- Develop compelling and interactive visualizations using Tableau or Power-BI to effectively communicate key insights from the EDA.
- Create dashboards showcasing energy consumption and GHG emissions by sector, organization, and facility type.
- Design comparative visualizations to analyze performance trends and benchmark organizations against established metrics.

Submission:

1. Power BI Dashboard with Insights on GitHub.
2. Presentation in PowerPoint covering Problem Statement, Tools Used, Approaches, EDA Insights, and Conclusion/Suggestions.

Note:

After completion of all the task you need to create a PowerPoint presentation that should contain the:

1. Problem Statement
2. Tools Used
3. Approaches
4. EDA Insights
5. Conclusion/Suggestion

Project Evaluation metrics:

- Project evaluation will be done in the live session and have to showcase the approaches done to complete the project
- You are supposed to write a code in a modular fashion (in functional blocks)
- Maintainable: It can be maintained, even as your codebase grows.
- Portable: It works the same in every environment (operating system)
- You have to maintain your code on GitHub.(Mandatory)
- You have to keep your GitHub repo public so that anyone can check yourcode.(Mandatory)
- Proper readme file you have to maintain for any project development(Mandatory)
- Follow the coding standards: https://www.python.org/dev/peps/pep-0008/
- You should include basic workflow and execution of the entire project in the readme file on GitHub