ROUND 1: Data Visualization Competition - Carbon Emissions Dataset

Dataset Overview:
The dataset provided contains various aspects of carbon emissions globally and by country, including fossil emissions, land-use change emissions, emission transfers, emission categories, sink fluxes (ocean and terrestrial), and more.

Tasks for Participants:

1. Data Loading and Preparation:
- Load the provided dataset into a database of your choice.
- Prepare the data for analysis and visualization.

2. ETL Process (Extra Points for SQL):
- Perform the Extract, Transform, Load (ETL) process, with extra points awarded for those who use SQL.

3. Feature Engineering and Table Reshaping:
- Create meaningful features for visualization based on your analysis goals. Here are examples of 5 features you could consider:

- Total Global Carbon Emissions Over Time
- Comparison of Fossil CO2 Emissions vs. Consumption Emissions
- Distribution of Fossil Emissions by Category
- Variation in Land-use Change Emissions by Model
- Analysis of Ocean and Terrestrial Sink Fluxes

- Reshape or create new tables as necessary to facilitate analysis and visualization. Here are two possible table reshaping techniques:

- Reshaping Example 1: Fossil CO2 Emissions by Country (Territorial) Table
  - Original Table Structure: Year, Country1, Country2, ..., CountryN
  - Reshaped Table Structure (Long Format): Year, Country, Fossil CO2 Emissions
  - Reshaping enables analysis of emissions trends for individual countries over time.
- Reshaping Example 2: Land-use Change Emissions Table
  - Original Table Structure: Year, Model1_Net, Model1_Deforestation, ..., ModelN_Peat_Fires
  - Reshaped Table Structure (Long Format): Year, Emission Category, Model, Emission Value
  - Reshaping facilitates analysis of land-use change emissions by category and model over time.

4. Submission Guidelines:

- Screenshots of new features and reshaped tables.
- Submit your code files and screenshots in a ZIP file named after your team.
- Provide clear instructions on how to execute the code and reproduce the results.
- Document any assumptions or decisions made during the analysis process.

Note:

Participants are encouraged to explore additional insights and visualize meaningful relationships within the dataset. You have the flexibility to choose the features you believe will provide the most insight into carbon emissions trends. Additionally, you are free to reshape tables in a way that best suits your analysis and visualization needs.