Title
Home Assignment 3 - Data visualization App

Description
This is the third bonus point homework assignment. It is a data visualisation app with focus on user interface design, LINQ and SOLID principles.

Scenario
Imagine you are working in the IT department of a data analysis company. The Sales department requests an application that helps visualize data for better analysis. The application must provide clear, intuitive, and visually appealing charts so that managers can present insights to stakeholders and non-technical teams.

The application should be flexible and customizable- users must be able to add and remove graphs easily to adjust the displayed data as needed.

Basic requirements:

1. Use the following technologies:
    a. C#, Avalonia, CommunityToolkit, LiveCharts2 and CsvHelper,
    b. Follow the MVVM (Model-View-ViewModel) architecture.
2. Apply SOLID principles to ensure clean and maintainable code.
3. Create a UI sketch (this can be: a drawing on paper sent as a photo, in Paint, Figma, or any other design tool).
    a. Think of it as a single-screen application with a dashboard and a control panel.
    b. The control panel should contain a list of preset queries for users to choose from.
    c. The sketch does not need to be very detailed, use any of the designs/sketches presented in class as a reference.
4. Read a dataset from a CSV file (you can select one from the provided datasets at the bottom of this document, the CSV files are posted on itslearning so you do not need to download them from the links).
5. Use LINQ to process and analyze the data (grouping, sorting, filtering, etc.).
    a. Implement 5-10 preset queries.
6. Include at least two types of charts, such as:
    a. Pie charts
    b. Bar charts
    c. Line charts
    d. Other - your choice.
7. Ensure an intuitive and modern UI by applying additional styling.
8. Allow users to add and remove graphs dynamically:

a. When a user selects an option from the list, the corresponding chart should appear on the dashboard.
b. Users should be able to remove a chart by clicking a delete button.

Additional requirements:

1. **Drag-and-Drop movable charts**
    A. Users should be able to drag and rearrange the charts on the dashboard freely.
    B. Make sure the positioning updates dynamically to reflect changes.The UI should remain responsive, ensuring smooth movement of charts.
2. **Undo/redo functionality**
    A. Implement an option where users can undo and redo actions related to adding, removing, or moving charts.
3. **Resizable charts**
    A. Users should be able to resize the charts dynamically by dragging the corners.
    B. Make sure the chart scales properly without changing the data representation.
    C. Keep the layout responsive so that charts adjust to different window sizes.
4. **Dynamic queries**
    A. Allow users to customize their queries rather than relying on preset ones.
    B. Provide an interface where they can select filtering conditions, sorting options, or data groupings.
    C. Example: Instead of a fixed query for "Sales by Country," let users choose specific countries, years, or product categories.

Grading:

1 Point: The application meets all basic requirements and runs without requiring code adjustments.

2 Points: The application meets 1-point criteria + implements at least one additional feature from the list above.

Submission:

1. Submit a zipped folder or a link to GitHub repository.
    a. If submitting via GitHub, add all evaluators as collaborators beforehand.
2. Include a README file with:
    a. Project description
    b. Instructions on how to run the application
    c. Any additional notes or explanations
3. Ensure your code is well-documented.
4. Deadline: Submit by April 3rd, 23:55.

Datasets:

Global food waste:

https://www.kaggle.com/datasets/atharvasoundankar/global-food-wastage-dataset-2018-2024

Chocolate sales:
https://www.kaggle.com/datasets/atharvasoundankar/chocolate-sales

Student performance:
https://www.kaggle.com/datasets/lainguyn123/student-performance-factors

Music trends:
https://www.kaggle.com/datasets/atharvasoundankar/global-music-streaming-trends-and-listener-insights

E-Commerce:
https://www.kaggle.com/datasets/carrie1/ecommerce-data?resource=download

Video games sales:
https://www.kaggle.com/datasets/gregorut/videogamesales

Kickstarter platform data:
https://www.kaggle.com/datasets/kemical/kickstarter-projects?select=ks-projects-201612.csv