Overview and Motivation:
Our project visualizes nutritional supply trends in North and South America using FAOSTAT data. The goal is to make it easier to compare nutrients across countries and understand how values change over time. The dashboard begins with a scatterplot which helps users compare nutrients, observe changes between years, and explore differences across countries. Users can then focus on more specific patterns in the line chart by choosing both a country and a nutrient to view trends across all years. The bar chart shows protein supply by food group for a selected country, to compare how different food categories contribute to overall protein levels.

Related work:

Questions:
Our project began with broad questions because it started with the scatterplot which covered all the dataset. As we explored the data and made the other visualizations, our questions became more focused and shaped the design of each visualization.

Initial Questions
- How do nutrient levels compare across countries?
- Which nutrients changed the most between 2010 and 2022?

Evolving Questions
- How does a specific country's nutrient supply change across all years?
- Which food groups contribute most to protein levels?

Data: Our dataset comes from the FAOSTAT Food and Agriculture Organization (FAO) nutritional supply records for countries in North and South America. It includes nutrient values such as protein supply, energy supply, and other dietary indicators across multiple years.

Exploratory Data Analysis:
We started by exploring the dataset to understand which nutrients, years, and countries were included. Simple plots helped us see how nutrient values varied and which indicators changed the most over time. The scatter plot was chosen for the first visualization to better show the Visual Information-Seeking Mantra showing overall changes by country, but not how values changed over time or why certain countries stood out. This led to the line chart for year-to-year trends and the bar chart to break down protein supply by food group. The types of visualizations were kept for this prototype but made more interactive and visually appealing.
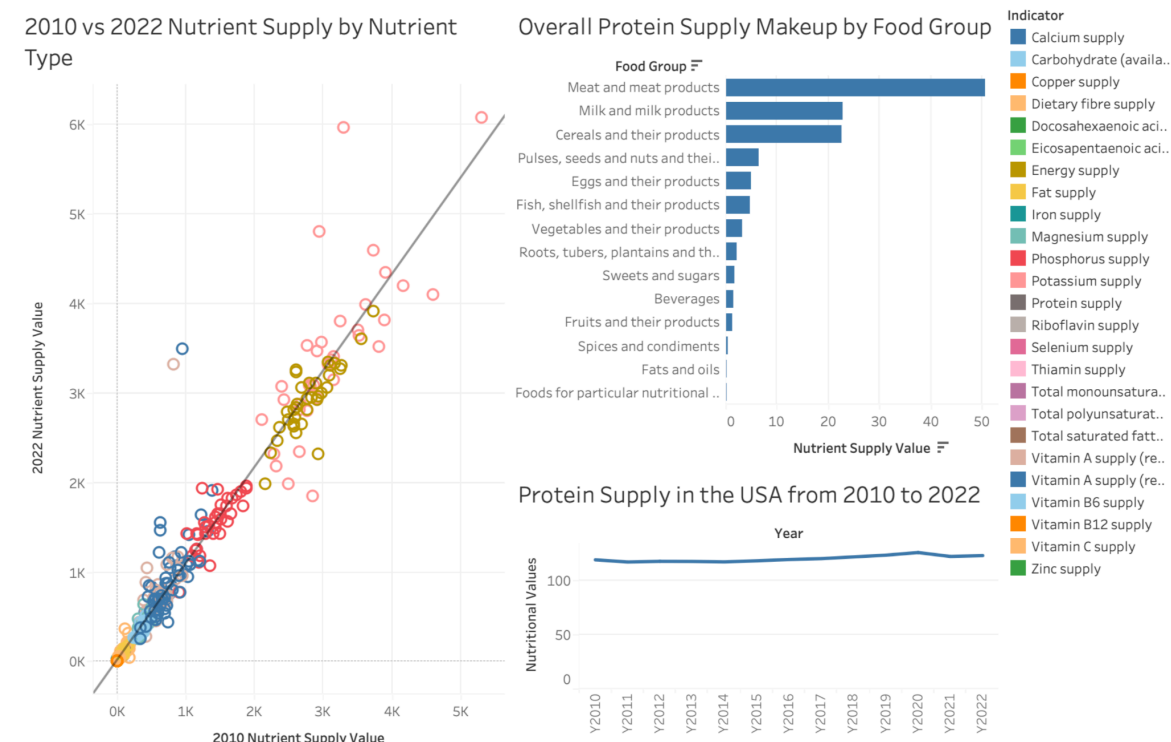
Design Evolution:

Our design changed as we explored the dataset and applied the feedback we received. The original scatterplot used many colors to show different nutrient types, but this quickly became cluttered and hard to read. We simplified it by allowing users to choose one nutrient at a time and comparing its 2010 and 2022 values without extra color encoding. This made the overview much clearer.

We also adjusted our second and third visualizations. Instead of having two separate protein-focused charts, we redesigned the line chart so users can select a country and nutrient to see yearly trends. The bar chart still focuses on protein, but now highlights how different food groups contribute to protein supply for a chosen country. These changes created a clearer flow: a broad overview, a detailed country trend, and a breakdown of food groups.
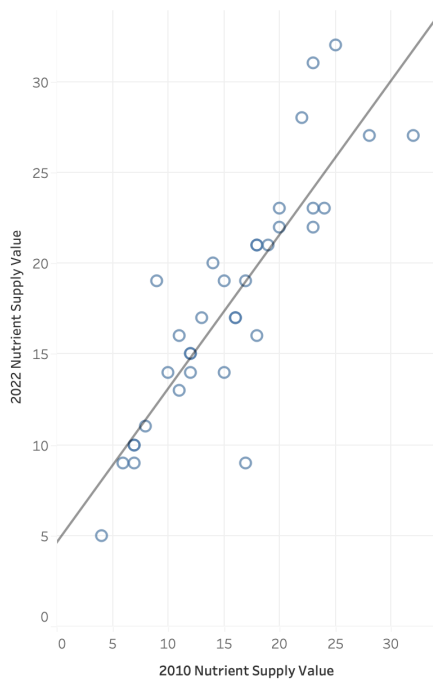
Implementation

After presenting our initial proposal, we revisited our design based on the feedback provided.The main issues being the second and third visualization which both went into more detail about the protein supply. Both needed the use of interactions and the last visualization needed re thinking of the design and purpose.

The first issue we addressed was the use of too many colors in the indicator. In the original scatterplot, every nutrient type was assigned a different color. which overwhelmed the graphic and made many marks indistinguishable due to overlapping categories. Although we kept the scatterplot structure, we removed the color-coded indicator to make things clearer.

2010 vs 2022 Nutrient Supply by
Nutrient Type

We updated our prototype to work properly on GitHub Pages by fixing the file organization and correcting how the data was loaded. Placeholder files for the line and bar charts were added for the time to be able to view the scatterplot. The dataset was renamed for shortness and the scatterplot code was updated to match the new CSV name, correct column labels, and proper filtering. After these changes, the scatterplot displayed correctly online, confirming that the data pipeline and scripts were set up properly before building the remaining visualizations.

The line chart and bar chart scripts were later completed. The line chart now lets users select a country and nutrient to see trends over time, while the bar chart shows protein supply by food group for a chosen country. After connecting both charts to the dataset and dropdowns, all three visualizations now work together as a coordinated dashboard.

Evaluation:

Using our dashboard, we were able to better understand how nutrient supply changes across countries and over time. Overall, the visualizations worked well for answering our main questions and supported both broad comparisons and more focused analysis. The dropdowns also made the dashboard easy to navigate. Future improvements include improving spacing and layout, using a more consistent color palette across the three charts, and cleaning up the bar chart's long food group labels so they are easier to read.

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