COM-480 - Data Visualisation - Milestone 2

Visualizing Swiss Trade

Mathis Magnin, Robin Patriarca, Tatiana Tuor

1 Project Goal

Our goal is to develop a website that provides a clear and engaging overview of Swiss trade history. We would like to highlight trends in imports and exports at the country and product-category levels using intuitive visual elements that allow easy groupings. The primary motivation is to allow both expert and non-expert users to easily have an intuitive understanding of the large quantities of trade data, while also providing them with options to explore the details for a given country, or a type of product, or group of products, and historical patterns.

We aim to answer questions such as:

- Which countries does Switzerland import from or export to the most?
- What are the top imported/exported specific products? or category of products?
- How has the import/export of a certain product evolved over a certain period of time?

2 Visualisations

Our final product will be a web-based interactive visualization, enabling users to: view import/export flows on a world map, choose very precisely what they want to know, and see the evolution over time with charts.

2.1 Main Map View

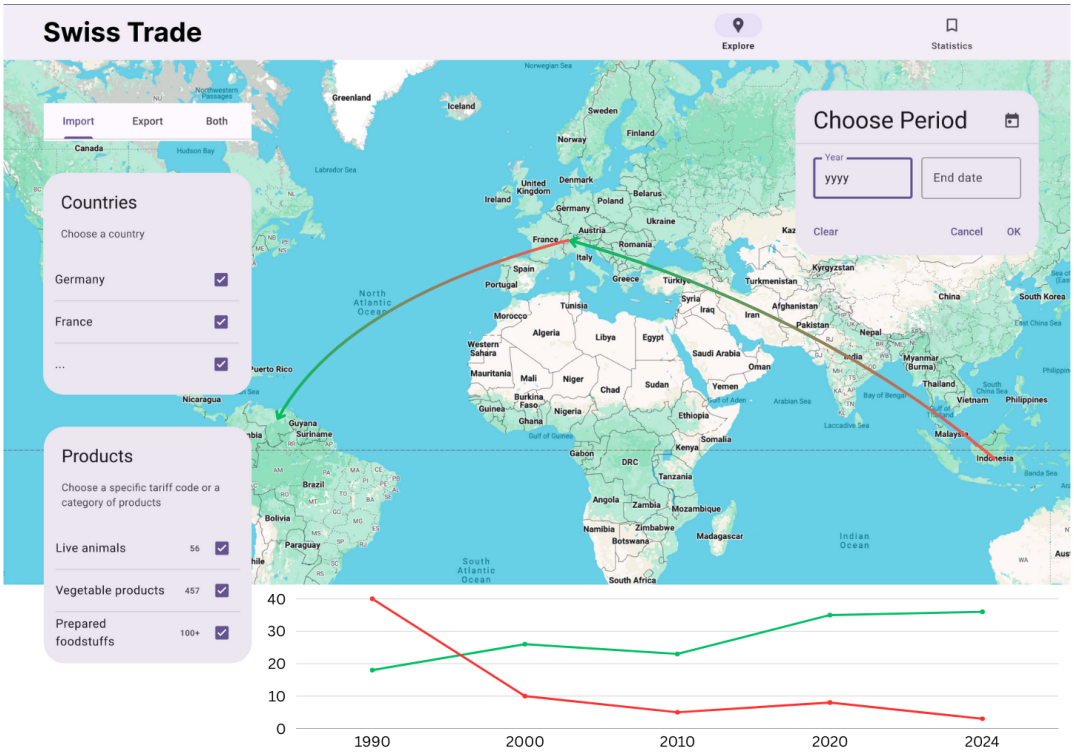
Our primary view will be based on a map showing all the countries in the world. You will be able to filter your searches based on type of trade, country, product, and time period.

- Type of trade: import, export or both
- Country: choose up to 5 countries (we will adapt this quantity based on how crowded the map/graph looks)
- Product: choose the specific product (based on tariff number identifier), or up to 3 levels of categories which are more and more general For example: 0301.1100 is "Live ornamental freshwater fish" also can be found in category "Live fish", "Fish and crustaceans, molluscs and other aquatic invertebrates", and also "Live animals; animal products" (in order from most specific to most general)
- Time period: choose a range of years (ex. 2010-2020)

Based on your search criteria, you will have a graph that shows how the trade quantities of the chosen category of product has evolved over the selected period of time.

2.2 Statistics View

On this page, we would like to expose all the most common and extreme statistics relevant and interesting about Switzerland's trade history. This will have featured information such as: top



10 imported/exported products, years with the highest value of import/export, top products with the biggest difference between their import and export values. Given a selected product, we can feature pie charges showcasing which countries are the top importers/exporters and their relative percentages. Many other types of statistics can be featured here.

2.3 Extra ideas

On the map, we can have bubbles of with proportional sizes to their quantities, however, the challenge will be figuring out how to make this coherent if multiple types of trades and/or product categories are chosen.

3 Tools

- **GitHub Pages** will host our website made from a combination of HTML/CSS/JS files. Due to the large quantity (>2.2GB) of data, we will host it on a server and make API calls in order to retrieve data based on queries on the website
- **D3.js** will be heavily manage the visualization of the lines and dots on the maps, handle data binding, etc.
- A **lightweight CSS/JS library**, will be used to facilitate making the website "pretty" from a design perspective
- **Python** will be used to clean and structure the large amounts of data we have. It will be most useful for generating the featured statistics view.
- **Lecture resources** Lectures 2-4, which covers JavaScript and D3.js. Given that we will use maps, we will use lecture 8 as well. Finally, we will surely use lectures 11-12 as well for the charts and tables.