Milestone 2

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1 Core visualisation

The goal of this project is to highlight the environmental and ethical impacts of different food products through interactive data visualizations. A scheme of the site is provided on the second page. The website can be found here https://githublouisepfl.github.io/site_colocaviz/#.

1.1 Zoomable treemap

The main part of the project consists of two synchronized, zoomable treemaps : one displaying the CO_2 footprint and the other the water footprint of various food categories. These treemaps mirror each other in structure, representing the same food categories but through the lens of two different environmental indicators.

The data is organized into three hierarchical levels, allowing users to explore in depth. At the first level, users select a broad food commodity group (e.g., Dairy products). Once a group is selected, both treemaps zoom into the second level, revealing food typologies (e.g., Cheese). Selecting a typology then zooms into the third and final level, where specific items (e.g., Camembert, Grana Padano) are displayed.

Clicking on a specific category or subcategory not only zooms into the treemap, but also updates the rest of the website to display detailed information related to the selected food group, typology, or item.

On the right, a side menu links to other visualizations, also accessible through scrolling. All visualizations are binded to the category selected in the treemaps. Each of these visualizations features an interactive world map that displays global data related to the currently selected food category – such as worldwide production, harvested area, or other relevant statistics. When a country is clicked, the view shifts to highlight that country's specific contribution, often accompanied by intuitive comparisons to familiar references (for example, expressing weight in terms of the number of cars/trucks/liners; area in terms of number of Switzerlands, etc...) to help users form a more meaningful understanding of these quantities. For the moment, these visualizations are not implemented on the website.

1.2 Area harvested

Area harvested for the production of the selected group is shown in hectars. Clicking on a country will show on the side the country partially filled, representing how much of the country's surface area is used up by the production of the selected category. This is accompanied by a small text comparing the harvested area to a known area, for example how many switzerlands it can fit.

1.3 Production per country

As production is described in tons produced by year we thought of displaying it as its equivalent weight in cars. Once a certain threshold is exceeded the comparison could be made with items of a different scale, for example cargo ships.

2 Additional ideas

Since our food production dataset contains yearly data, it would be nice to incorporate them by adding a time range slider to our different visualizations. The dataset also contains the number of animal slaugthered which could be interesting to add.

The main visualization emphasizes the impact of various food categories but does not provide a comprehensive overview at the country level. It would be intersting to introduce an option for country-specific insights. For example, an interactive world map could allow users to click on a country to view information about its food production and consumption patterns. To support the visualization of food consumption by country, an additional dataset would be required.

Additionnaly we could add mini games where the user could gain points. Those mini games could either encourage the user to dig in the page or inform on facts. An example could be a Quizz asking the user to select what consumes more carbon between heated greenhouse or imported vegetables.

Finally one last idea would a personal footprint calculator. The user would be able to select which produces constitute most of his or her diet and a breakdown of their water and carbon footprint would be shown to them.

3 Useful tools and courses

- Useful tools : D3 library for the treemaps and interactive world map, as well as the classic pandas,
- Useful courses: Lectures on D3, Lecture on Perception of color, lecture on interactions, Lecture on Mark channels for the intuitive visualizations and finally the Lectures on maps.

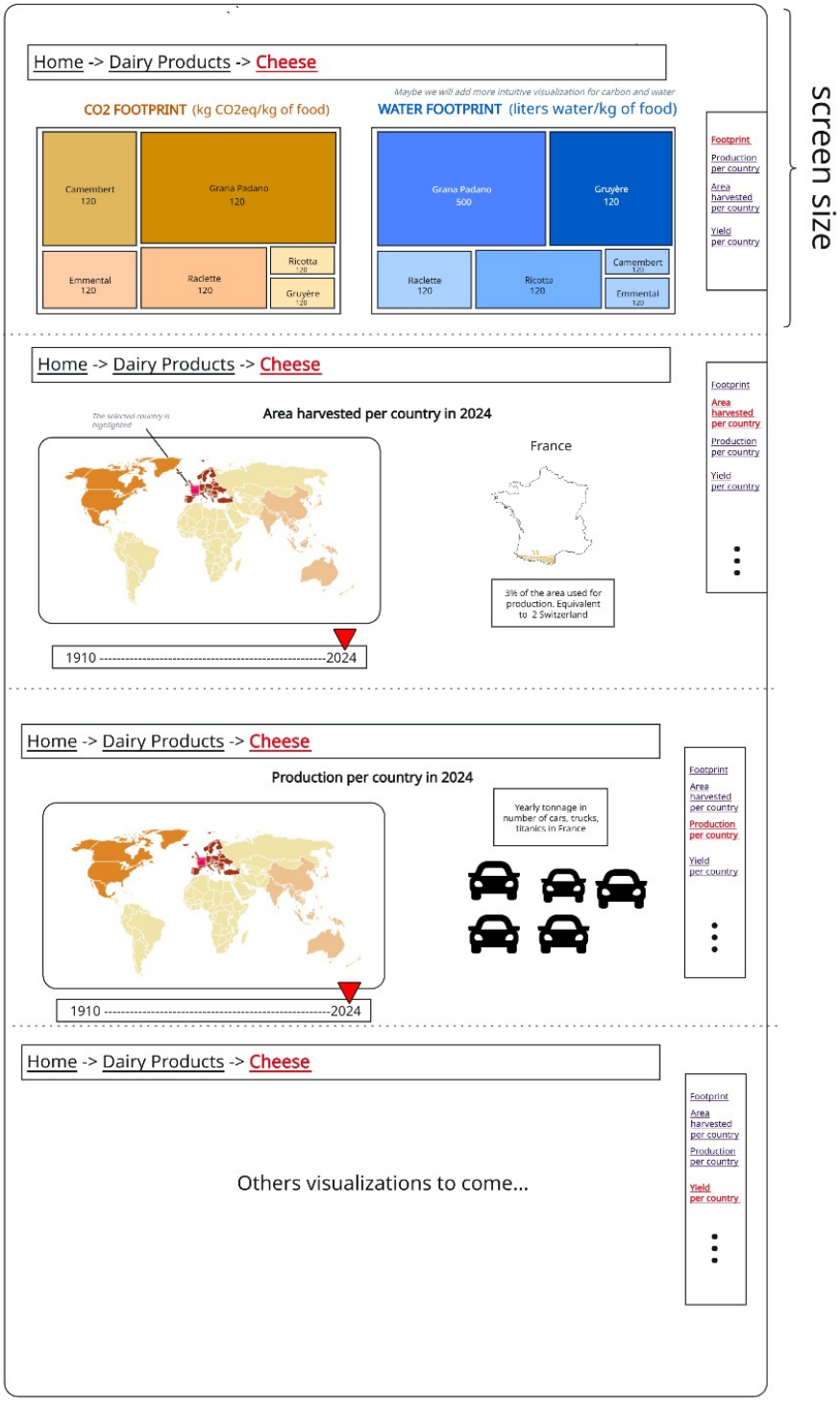

Figure 1: Minimal viable product with dummy values.