Data Visualisation-Milestone 2

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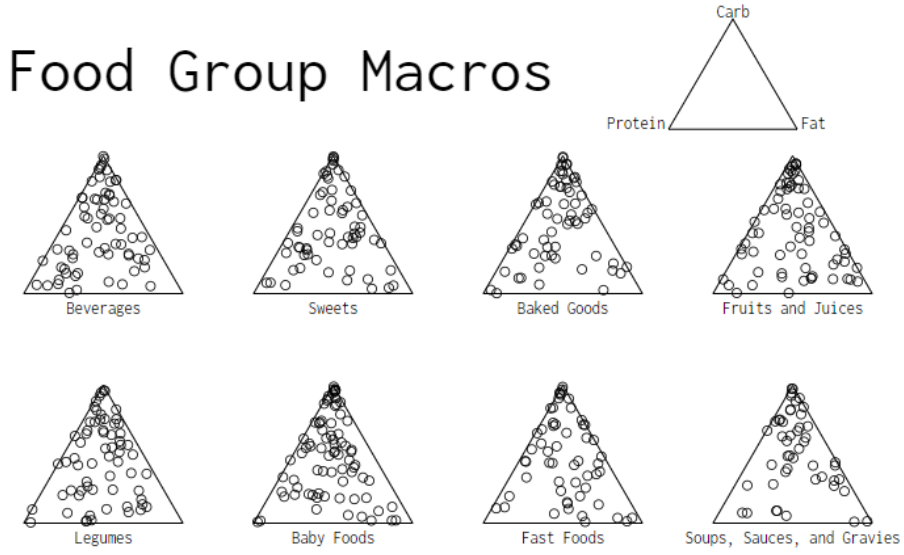
1 Introduction

After the study and discussion in milestone1, we decided that the research topic of this project is mainly centered the nutritional composition of food and the recommendation of nutritious diet. Since there is a lot of information about food, our goal is to filter out the small and precise parts, so that users can experience a clear and understandable food visualization information at a glance.

2 Visualization ideas and sketches

2.1 Ternary diagram of food nutrient

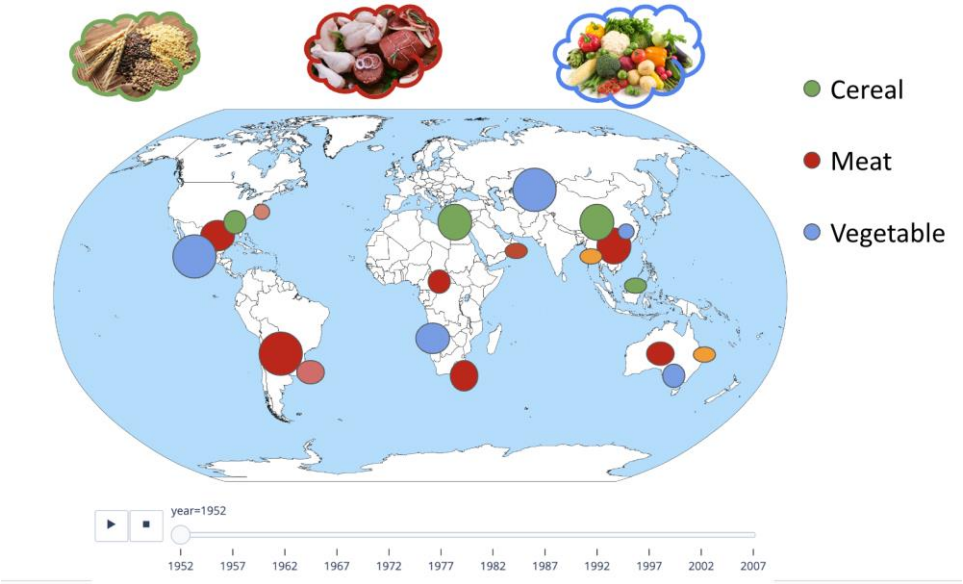
First, the specific foods in the dataset are grouped into different food groups as they are conventionally understood, such as fruits, beverages, etc. After that, three macro-nutrients, carbohydrate, protein, and fat, were identified as the three coordinates of the ternary diagram. Each point in the ternary diagram is a single food in the food group and is plotted as a ternary diagram according to the proportion of macro-nutrients it contains. The size of the point is determined by the number of calories per 100 g of that food listed in the dataset.



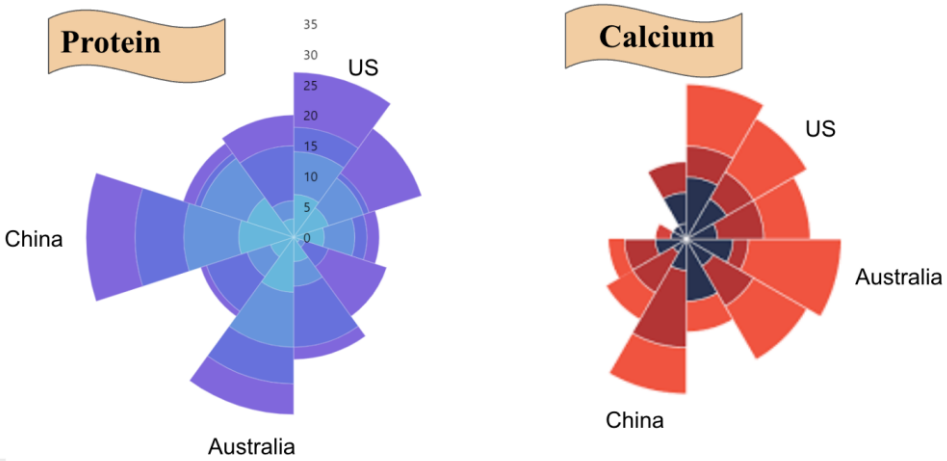
2.2 World food production

(1) In this graph, the project plans to visualize simultaneously the production of several major countries during the period ****-****, focusing on the total production of each country, categorized in several kinds of food. The data are plotted on the basis of a world map, with the radius of the circle representing the size of the

yield. Regarding interactive features, the project plans to add a timeline, which can be dragged to observe changes in the radius of the circle, which represents the trend of food production in the same region over time, as well as global trends in production and the distribution of various types of food production.



(2) As the dataset also contains detailed information about nutrients production, we could also use a polar area chart to showcase the distribution of nutrient production across different continents or regions. Each region can be represented by a sector of the chart, and the area of the sector can indicate the overall nutrient production within that region. This visualization helps to identify regions which lack of certain

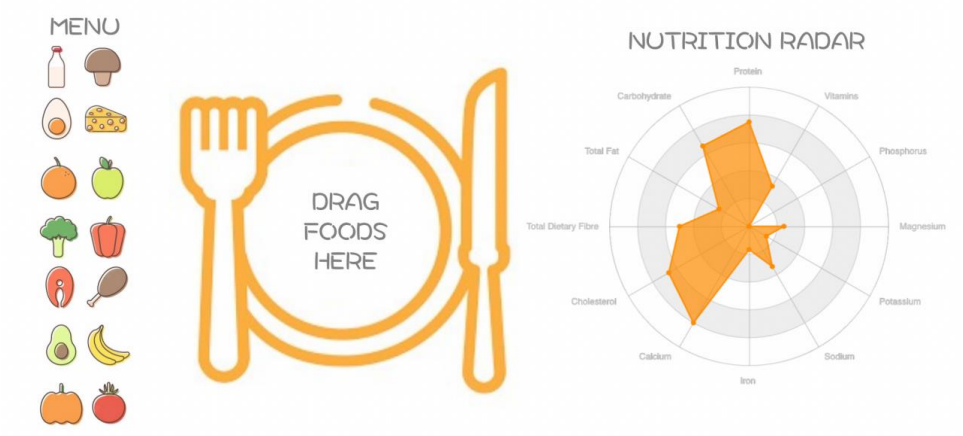


nutr ients.

2.3 Recipe Nutrition Facts Calculator

This section is a table of food nutrients presented in a dynamic and interactive format. This project selected a portion of the food and extracted the respective

nutrient table from the dataset. A plate was designed to allow people to drag and drop food icons onto the plate and synchronize the update of the nutrient table on the right to show the current combined nutrient content of the food on the plate. The nutrient table is presented as a circular radar chart.



2.4 Recipe Nutrition Facts Calculator

A connected line or scatter network diagram is used to present the ingredient pairings in a database of common recipes. If there is enough time, this project can also be designed interactively to show what other ingredients are associated with the selected ingredient again in the recipe based on the position of the mouse hovering over it, and ideally, a simple preparation process of the dish can be written.

3 Tools and lectures

Python is planned for preliminary data processing. D3.js is used for visualization. HTML, CSS and JavaScript for the skeleton and behavior of the website. We will also use Plotly to help us generate more user-friendly graphs. The main courses involved are 1st, 2nd, 3rd, 4th, 5th, 7th, 12th, etc.

4 Further ideas

If time permits, this project also hopes to attempt to correlate unhealthy diets with common diseases. This will help warn people to pursue healthier eating habits. In addition, in the yield map section, we will also try to compare the nutrients of regionally grown crops with the total nutrient requirements of the local population, and visualize the difference with visualizations.