. Coffee Kingdom .

Process Book

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OUR PATH

Our group, Coffee Kingdom (the Kingdom of Kaffa), indulges in a cup of fresh coffee every day. Not only do we drink it to enhance our energy levels for extended study sessions, but we also appreciate its delightful taste and the cultural experience of sipping coffee while programming. Consequently, we have made the decision to create a website dedicated to our passion for coffee and to further explore this subject that captivates us.

Our initial plan was to create an educational visualization depicting the captivating journey from coffee beans to a delightful latte macchiato. However, upon discovering similar concepts already existing online and realizing that our initial idea lacked substantial data, we decided to embark on our project in a data-driven manner by first seeking out available coffee-related data. This shift in focus led us to contemplate our first question: Where can we locate high-quality coffee-related data on the internet?

Throughout our research, we encountered numerous European roasteries renowned for their wide selection of exceptional coffee products. However, obtaining the necessary dataset for our specific idea focusing on coffee brands posed a challenge. We couldn't find coffee items dataset on famous sources like kaggle. To surmount this obstacle, we employed web scraping techniques to extract relevant data from Kofio.co, an online repository of European roasteries and their coffee offerings.

Furthermore, we explored various Kaggle datasets and relevant websites to gather additional insights and information to support our project.
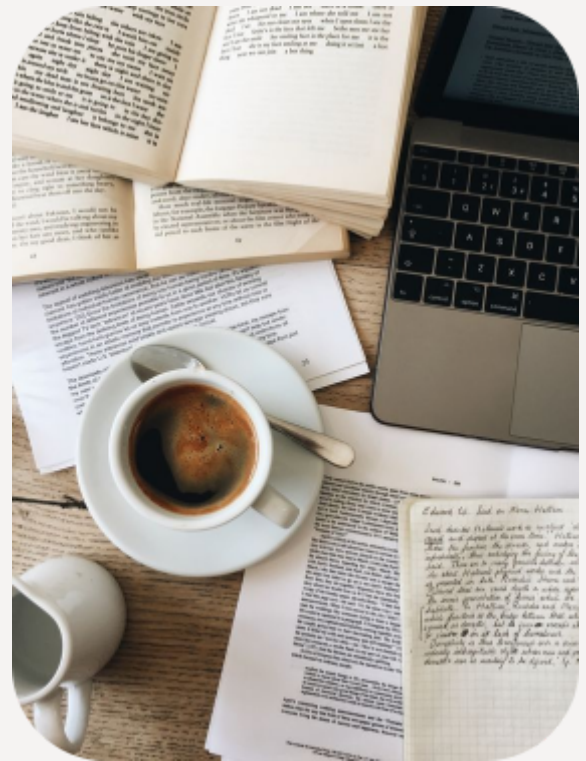
At this moment, we form our ultimate objective for the visualizations: to assist users in discovering their ideal coffee products from kofio.co. Then the second question arises: What should we display in our visualizations to differ our project from existing ones?

After thorough brainstorming and in-depth data exploration, we have concluded that our differentiating factor lies in our compelling storytelling and providing a rich user experience. Our aim is to offer users a comprehensive understanding of the global coffee consumption, highlighting the magnitude of coffee lovers worldwide. Consequently, our first visualization is dedicated to showcasing global coffee consumption.

Following that, we delve straight into introducing users to the exquisite coffee brands available on Kofio. We provide valuable information such as product price, rating, and recommendation rate. To enhance the user experience, we have also incorporated visually appealing filters to assist users in finding their desired items.

Once the coffee item has been selected, our attention shifts towards enabling users to fully enjoy their coffee. We present intriguing coffee-food pairings to recommend suitable food options, and we also include coffee-making animations that introduce the most renowned coffee types.

Global Coffee Consuption   Coffee Items Filter   Choose Your Coffee

Kofio Coffee Brands   Coffee & Food Pairing
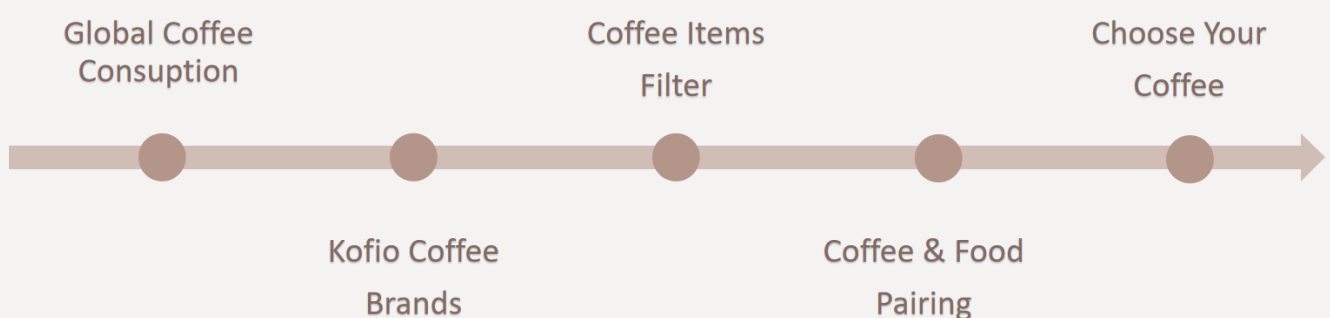
Here came the implementation stage. We determined the draft layout for our website and divided the visualizations among team members to ensure a cohesive outcome.

Following the course recommendations, we utilized HTML, CSS, JavaScript, and the D3.js library to create interactive plots. Initially, we focused on coding the core functionality of our visualizations, which were later integrated into a cohesive unit. Upon completing the initial website draft, we took two essential steps: aligning the user story with the journalistic model to ensure engaging and informative content, and refining the visual aspects such as layout, navigation, style, color scheme, and background to enhance aesthetics and user experience.

Once we were satisfied with the website, we actively sought feedback from a diverse group, including friends and family, to gather insights from individuals with different ages and levels of coffee experience. Their input on visuals, storytelling, and overall functionality was invaluable. Incorporating the received feedback, we iterated on our design, making necessary adjustments and enhancements, until arriving at the final version that catered to our target audience's needs and preferences.

Challenges

Building our first website with comprehensive visualizations has been an exciting and new experience for our team. As we embarked on this new endeavor, we encountered several critical challenges along the way:

Data representation

Given the vast number of examples and the influence of our peers' work, we initially felt overwhelmed when it came to plotting the data. Selecting the right visualization that aligns with the data type, target audience, and website's purpose proved to be a tricky task. Despite sketching out the plots during the second milestone, we had to make significant changes to ensure visually appealing and informative animations.

Technical implementation

One of the main hurdles we faced was our team's lack of prior experience with d3.js. It took time for us to become familiar with its syntax and functionalities. Specifically, we struggled with understanding and correctly implementing data selections, data joins, and scale functions. These concepts are crucial, and it requires dedication to master them.

In addition to d3.js, we also encountered challenges with other libraries. To meet our specific requirements, we even had to code on top their implemented features to make it usable for us.

Naming Convention

At the outset of our work, we frequently encounter issues with name conflicts in CSS class/ID or global variable names in JavaScript. While using descriptive names for variables, functions, and CSS class/ID helps prevent confusion and save time, we face difficulties with commonly used names such as 'button' and 'title'. We discuss this matter and decide to adopt a 'figure prefix' approach for our naming conventions. Since each of us is responsible for different figures, simply adding the 'figx-' prefix to our class/ID names can effectively resolve any potential conflicts. Additionally, we strive to utilize local variables defined with 'let' instead of global variables defined with 'var' as much as possible, in order to minimize interference with others' work.

Visualization style

As we worked independently on different figures, we found ourselves with completely different visual styles when we came together. Throughout the process, we were unsure about the ideal design for our website: Should it have a minimalistic design, an illustrative design, or perhaps a retro design? Ultimately, we made the decision to adopt a minimalistic design approach, featuring a flat light-gray background, clean and simple visualizations, and a straightforward font. Despite its apparent simplicity, choosing this style was a challenging task.

"Striving for the best" mindset

With the implementation of our initially planned figures, we realized that our story felt incomplete. Driven by our team's passion and commitment, we made the bold choice to go above and beyond, incorporating an additional plot and animation despite the approaching deadline. This last-minute push was fueled by our desire to deliver the best possible outcome and provide our audience with a truly impactful experience.

Despite these challenges, our collective efforts and dedication allowed us to overcome obstacles and create a website with compelling visualizations that we are proud of.

Sketches

The idea of our website is the discovery of the ideal coffee product. To represent our figures, before diving into each figure in detail, let's first have a quick overview of the website. The roadmap of our website combines the following steps:
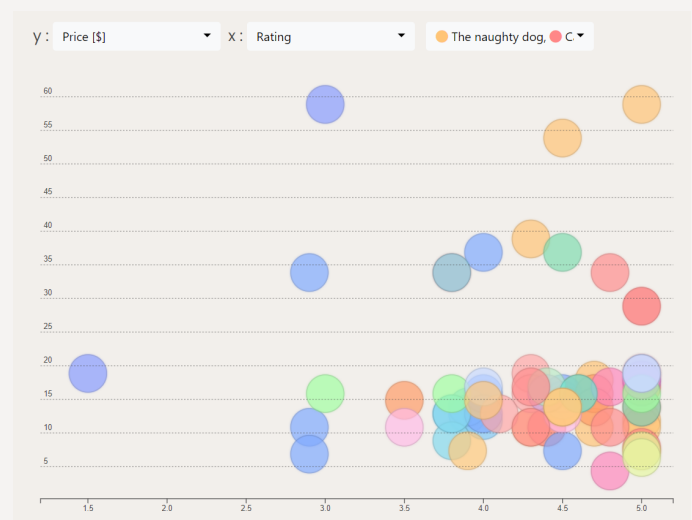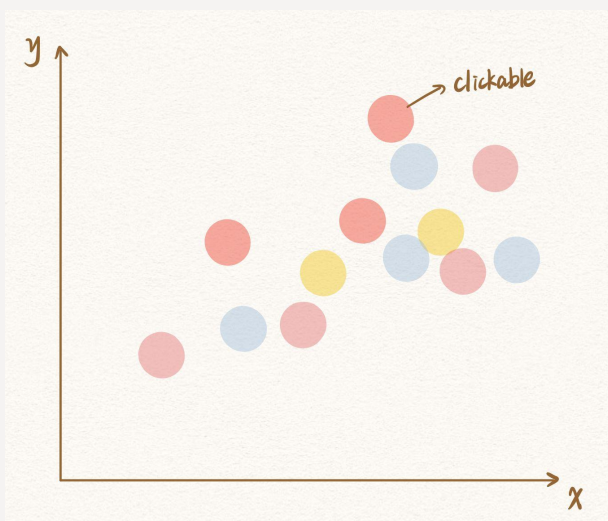
1. Introduction to coffee, its trend and influence, small overview of our website and the idea (Text)
2. Coffee influence over the years. Its consumption and production globally. (Animated figure)
3. Discovery of european brands that offer high quality freshly roasted beans and their market (Animated figures)
4. Exploration of the coffee products based on different characteristics (Roast level, Roast type, Rating, Price)
5. Food choice based on the coffee flavor and origin (Animated figure)
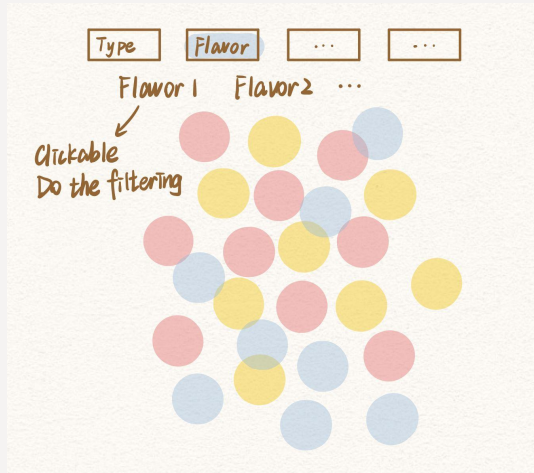6. Preparation of the perfect drink (Animated figure)

Viz 1. Coffee has transformed into a cultural symbol worldwide. The coffee market has undergone significant shifts, influenced by evolving coffee culture. Initially, our first visualization aims to present changes in coffee consumption around the world, the sketch is shown on the left.

However, we find the dataset very sparse with a bad visual impact. Therefore, we finally resort to an animation showcasing the dynamic change of global coffee consumption.
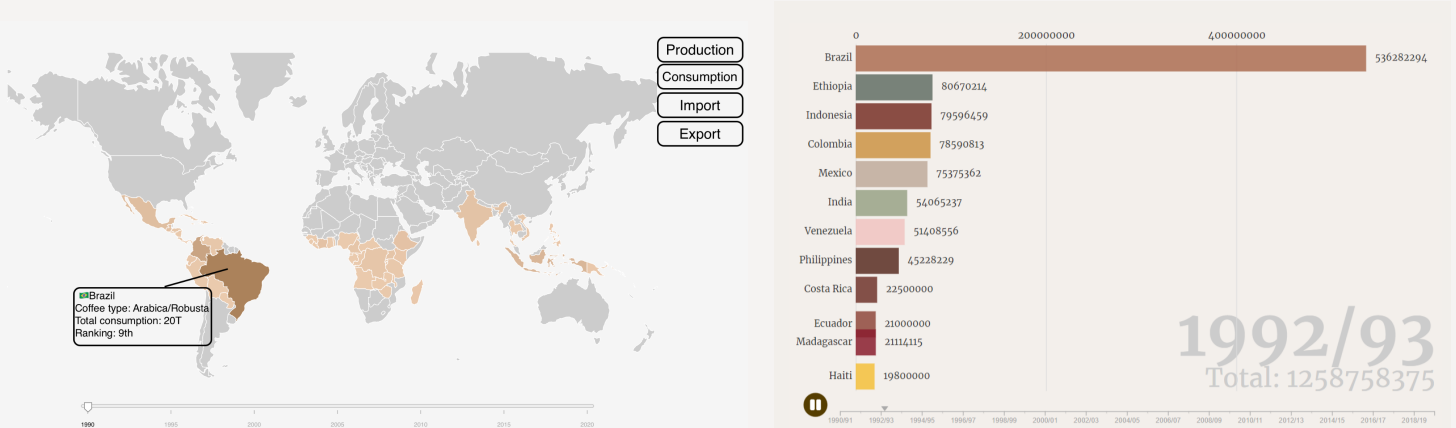

Viz 2. Our second figure depicts the correlation between price, rating, and recommendation rates among a selection of European coffee brands. Each brand is visually distinguishable by unique colors, and users are afforded the option to adjust the x and y axis, allowing them to compare data points and make informed decisions based on their preferences. The initial sketch and final result are as follows:

Viz 3. The third visualization is the core of our website, it presents a bubble visualization of all coffee items from Kofio. This figure offers filtering functionalities based on four distinct indicators, namely Price, Rating, Roast type, and Roast level. By clicking top buttons, the items under different indicators are visualized.

Furthermore, one can also click on the legend to retain their interesting items. Detailed page on the product item can be displayed by clicking on the bubbles.
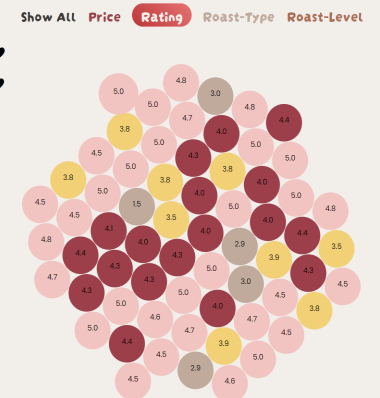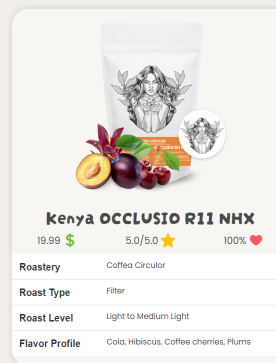
Viz 4. After careful selection of their desired items, the fourth figure is designed for users to consider how they can enjoy their coffee. The original figure is designed to be structured in two columns, each of which corresponds to 'coffee origin', and 'food flavor'. However, to avoid too many circle elements through our website, we finally resort to chord graphs to showcase this food-flavor pairing. The graph is interactive, allowing users to click on any circles to establish connections with other relevant ones.
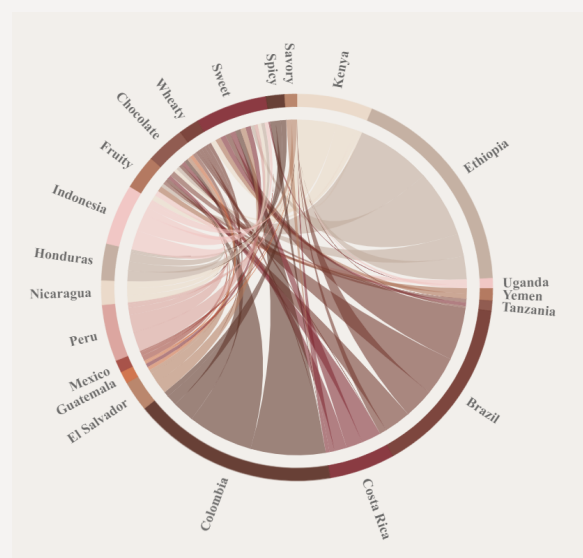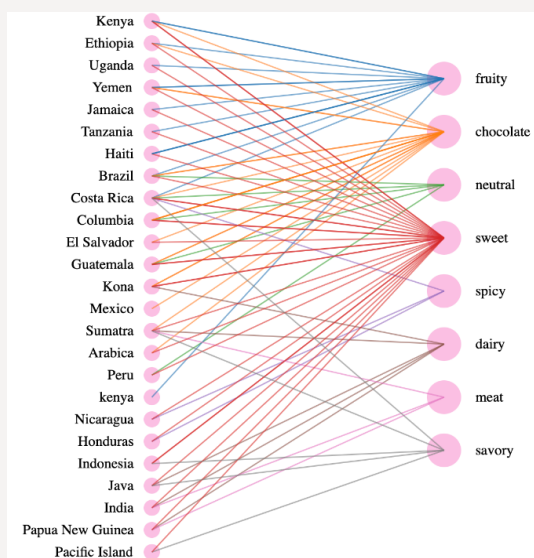
Viz 5. The last figure was not in our initial plan. We decided to add it to increase user experience. It's a lovely animation showing how to make some famous coffee types. The final version is shown to the right.

Peer assessment

All three of us collaborated to complete data collection, idea brainstorming, code implementation, and report writing. We always help each other and meet frequently to push the projects forward. Each one of us plays an indispensable role in the final outcome of this project.

Each of us is mainly responsible for one or two figures. Kamila is in charge of Fig.2 and Fig.5, Fan is responsible for Fig.1 and Fig.4, and Yikai takes responsibility for Fig.3. Nevertheless, we cross-check each other's figures throughout the process and make necessary improvements.