

EuroViz

Process Book

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Interlude

Every year, a continent holds its breath. One stage, a grandiose show, and only one glass microphone trophy. The greatest battle of melodies unites Europe through music. And in the end... the winner takes it all.

1. The Path

"Twelve points go to..." is one of the most famous lines from the competition. Getting that twelve is what all countries wish for, but **only a few get the glory**.

Our vision was to bring the user closer to how the Europeans actually vote every year during the final round of the Eurovision Song Contest. Our path to create these insights were as follows:



1.1. The Idea

To start the project we needed to decide what data we would like to visualize. We wanted something **lighthearted and topical**. This led us to consider the Eurovision song contest which was held this year in Basel. This felt like a good choice for several reasons, for one it was very topical since the competition took place during our project and in Switzerland. Furthermore, it was a lighthearted and fun subject. With the idea decided, we could move on to initial designs.

1.2. The Data

With the idea in place the next step was to decide on a dataset. But to decide on this we needed to know what we wanted to visualize. To find this out we, first off, decided on a target audience, namely Eurovision watchers. After deciding on this target audience, we considered questions like, what does the audience need to know, what does the audience want to know and what would the audience find interesting? Our answer to these questions basically boiled down to voting and voting history. We wanted to visualize **how many votes countries have received** and **who they tend to vote for**. Also to see if there is a difference between the jury votes and the people (telephone) votes.

We needed a dataset containing voting data from the Eurovision song contest. The dataset we decided on was a dataset that contained voting data scraped by github user Spijkervet from the Eurovision song contest website [1]. This dataset contained voting data for all Eurovision competitions between the years 1957-2023 which was perfect for our use case.

1.3. The Design

With the idea in place and the dataset decided we could move on to designing the visualizations. As mentioned before we wanted to visualize how many votes countries have received and who they tend to vote for and if there is a difference between the different vote types. In order to do this we decided on a map approach where we visualize the countries on a map and draw arrows and change colors of the countries based on different data.

To get an idea of what we actually wanted the visualization to look like we drew up a few sketches. The first sketches of our data visualizations were good representations of what we wanted the different pages to showcase. These sketches ended up still being an accurate preview of the final product. All of the sketches (see figure 1, 2 and 3) are all in the same light and minimalist style as the final visualisations.



Fig. 1. Sketch of voting map before interaction



Fig. 2. Sketch of voting map after a country has been clicked

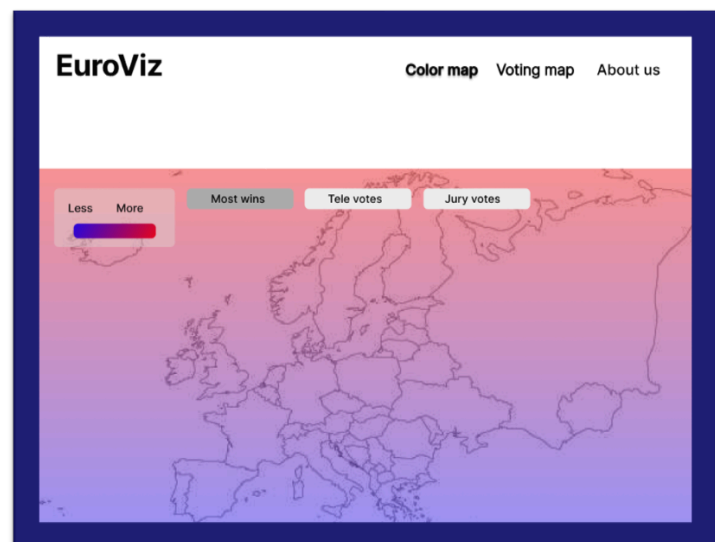


Fig. 3. Sketch of color map

1.4. The Implementation

The next step was actually implementing the visualization. This consisted of two main parts. Implementation of the website and preprocessing of the data.

1.4.1. The Website

To implement the website we used the following tools:

- HTML & CSS
- JavaScript
- D3



We decided that the most important thing was to get the **website working** and the **visualization looking good**. We started with doing the routing in the web app, we created 3 different pages and added a header and footer so the user easily could navigate the different pages. Now we went over to implement the visualizations. In order to be able to prioritize this part of the project we implemented the whole visualization using mock data where we supplied the interface with dummy data in a format that was nice to work with in the frontend.

The first step was getting the map of the Eurovision contestant countries showing. To do this we used geojson data from [2]. On this site you could get geojson data for the borders of the countries in Europe as well as other countries of our choosing, i.e. contestants outside of Europe. We utilized the D3 to create our svg map with all the competing countries.

After this step the map was rendered and we started to make the countries that were competing that year look more available than the countries that weren't.

With this setup we could work on the two different maps in parallel. When working with the voting map we needed points/coordinates where the arrows should start and stop. We found another application where we could get the position of the country capitals which we used [3].

We implemented the arrows and the different colors in both maps and moved over to adding an information display and a year, vote type display.

1.4.2. The Data Processing

When the website was in place and we knew what format was necessary for the data we started with the preprocessing of the data. This became a straightforward task since we didn't really need to think about what formats we would potentially want the data in because we had already figured out the interface the frontend needed for the visualization. We wrangled the dataset, which was provided in csv files, into json files using the following tools:

- Python
- Jupyter notebooks
- Pandas



The result was three different notebooks and resulting json files with one containing the song for the top 5 countries in each competition year, one containing the amount of votes each country sent and to what countries each year and a final one containing how many votes each country received each year. These json files were then hooked up to the frontend to finalize the visualization on real data.

2. Challenges

During the process of creating our visualisations we stumbled upon several challenges.

2.1. Lack of Data

The dataset that was used contained data sufficient to do our main visualisations, but we **lacked some details in the data**. One thing we would have liked to include was to show votes from semi-final rounds and final round, but for most of the years only the votes from the final round were present in the dataset. Since the dataset only included the separation of total votes into jury and tele votes from 2016 and moving forward, we could not show this from earlier years even though televoting was introduced in 1997 [4]. To not confuse the user, the drop-down menu has a clarifying text (see fig. 4) and does not display these options if a year before 2016 is selected. However, as seen in figure 5, after 2016 it is possible to choose in between total, jury and tele votes.

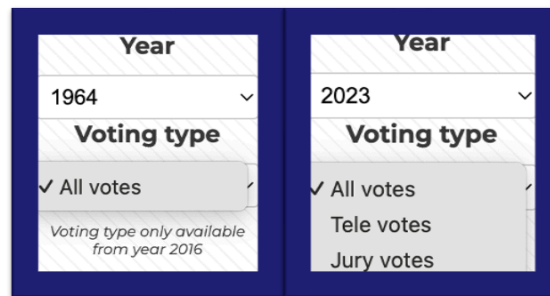


Fig. 4 Selecting a year before and after 2016

2.2. Arrow destination

One issue we faced was the problem of knowing where to draw the arrows between each country. Our first attempt involved calculating the center of the polygons that described each country, however, **this quickly ran into some issues**. The main problem with this was that for some countries the average position of the polygon lay outside of country borders, for example with Norway which includes Svalbard which meant that the arrow pointed out into the north sea. Our solution to this was to get data about the countries capitals position on the map. Using this we could draw arrows between the capitals which ensured that the arrows always pointed within the country and to the "main" part of the country.

3. Design Decisions and Development

3.2. Aesthetic design

We decided to go for a minimalistic design with a lot of white space and contrasting colors. We use an eggshell white for the over design, we used contrasting colors like “powder blue” and “midnight blue” to form a nice gradient color effect in the color map, these colors match the overall “feel” of the website. In the voting map we wanted to contrast these colors, so we chose the colors “salmon” and “peru”. These colors also blend nicely in with the minimalistic design.



The information displays and the header are transparent, and the map takes the full width and height of the screen. We chose to have it like this to make the map more immersive.

3.1. Final designs

The first sketches were representations of our first idea of the concepts, but **some design choices still had to be made**. Our path to the final designs was highly impacted by trial and error, as some ideas that we had from the beginning ended up not being user friendly or viable. We wanted the website to be easy to interact with and show insightful data.

3.1.1 Voting Map

Comparing the final voting map to our initial sketches and preliminary idea, we ultimately decided to not include the option to view the votes over a span of several years. Hence, it is only possible to view a certain year's result. The main reason for this was to **not overcomplicate the map and confuse the user** by adding too many filters for the visualisation. In order to further reduce the clutter on the map we decided to only show arrows for the top 5 countries voted for that year since more arrows seemed to be too much. As seen in fig. 5, when a country was not taking part in the final of the Eurovision song contest, it is shown as striped.

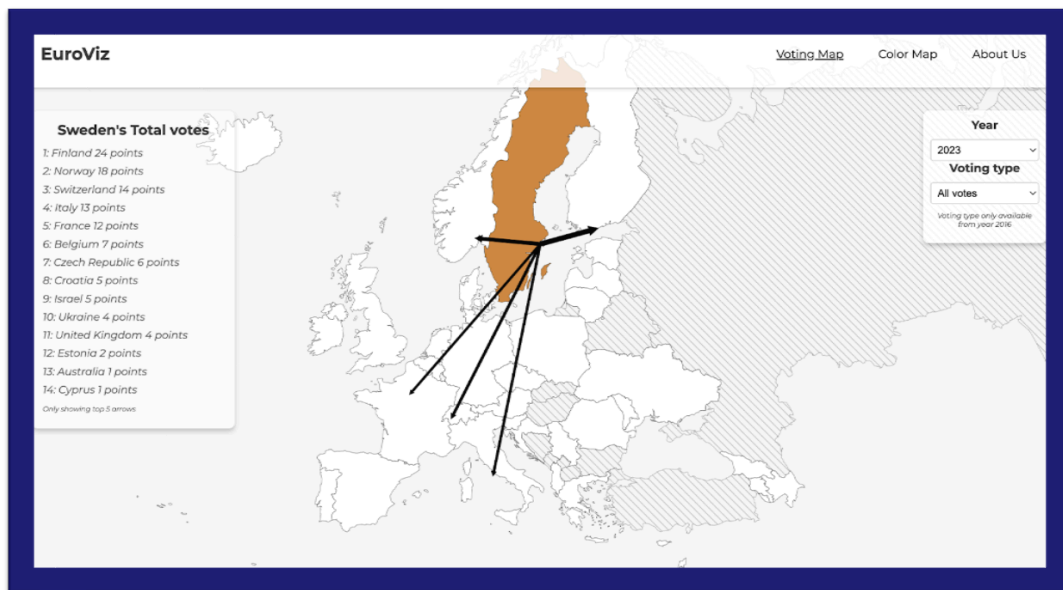


Fig 5. Voting map

3.1.2 Color Map

The final version of the color map visualization is a neat blue graded color map that shows the amount of votes every country received a certain year. When you select a year from 2016, it is possible to filter on showing total, jury or tele votes. To know the exact number of points a country received, the map is clickable (see fig. 7)

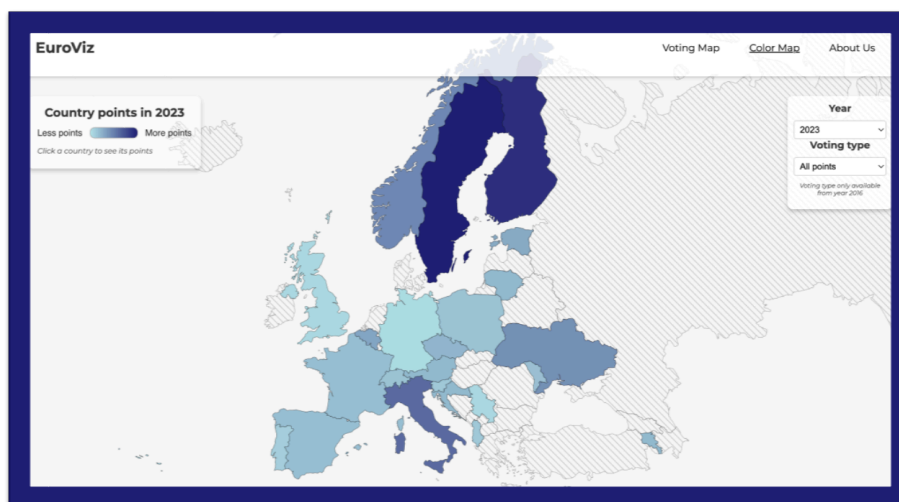


Fig 6. Color map

Fig 7. Clicking to show number of votes



4. Peer Assessment

All group members actively participated in choosing the topic and dataset as well as designing the visualization. Moreover, all group members collaborated on the entire project to achieve the end result but here follows a rundown of more specific responsibility areas in the project.

4.1. William Frisk

William was responsible for the **data preprocessing** in python. He also helped with implementing the geographic information in the website. Further, he contributed much to the process book as well as the writing of the other documents during the project.

4.2. Isac Hansson

Isac was responsible for creating the **web application template**, including the routing structure. He later on focused on implementing the two visualization maps, incorporating both color and the arrows. Isac also designed and created **prototypes in Figma** for Milestone 2. Additionally, he contributed to writing the documents and reports throughout the project.

4.3. Linn Rågmo

Linn worked on the **voting map** and the **about us** page, and was a part of the design process and idea development in **Figma** for the visualizations. Furthermore, she contributed to the different written documents including the process book during the project.

References

- [1] J. Spijkervet, "Eurovision Song Contest Dataset," Zenodo, Sep. 2023. [Online]. Available: <https://doi.org/10.5281/zenodo.4036456>
- [2] A. Kyd, "GeoJSON Maps of the Globe," [Online]. Available: <https://geojson-maps.kyd.au/>.
- [3] Stefie, "geojson-world: GeoJSON files of all Capitals and Countries of the world," GitHub repository, <https://github.com/Stefie/geojson-world>.
- [4] EurovisionWorld, "Eurovision voting rules," Eurovisionworld.com. [Online]. Available: <https://eurovisionworld.com/esc/voting-systems-in-eurovision-history>