IN4086: Data Visualization

Final project

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1 Introduction

For the final project we have chosen for a design study, where we will apply visualization techniques to a specific domain.
The domain that we have chosen is climate change. Recently there has been more attention for this problem due to the United Nations Climate Change Conference in Paris. On the Internet we sometimes see a lot of conflicting statements in heated debates. The goal for this project is to show people the true past and current state of climate change.
We saw in various debates that participants were making correlations with other indicators such as economical growth and health. Therefore our project will not be limited to just climate change. We will include data about other aspects and see if there is a strong correlation with each of them.

2 Visualisations

2.1 Timeline

At the top of the page we have added a timeline which the user can interact with. By adjusting the slider the data changes in each visualization on the page. This feature enhances the storytelling and provides a means for the user to investigate the data on his own way.

2.2 Geographical map

In order to show the spatial relationship between the several countries we have a geographical map. We incorporated the color as a visual channel to indicate the strength of each countries' value on the map. This provides a fast way for the user to gain insight into the relationships between the countries. The color is explained by a color legend under the map.

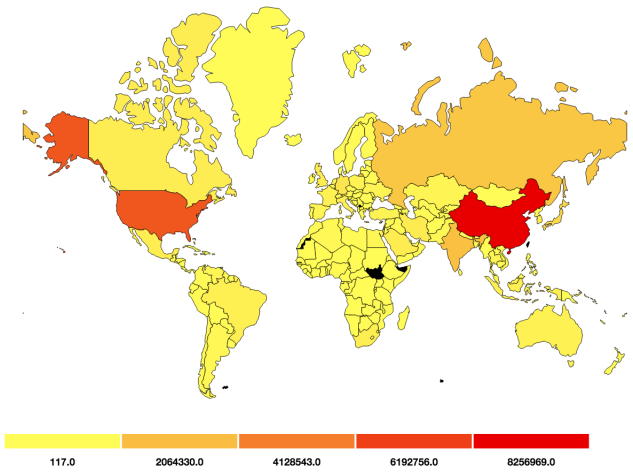

Figure 1: Geographical map displaying the emission data in 2011

2.3 Line Graph

We used a line graph to show the change of data in time. This gives an quick overview of the general trend of the data for each country.

2.4 Bubbles Chart

The bubble chart uses the size as a visual channel. By using this channel the user can quickly get an impression of the relationship of the values between countries.

2.5 Scatter-plot

The user can select two datasets and compare them in a scatter-plot. This provides a way for the user to investigate whether there are correlations between datasets, identify clusters and outliers.

3 Interaction & Animation

We have added several brushing and linking techniques to the web application that enhances the interaction and animation.
The first non-trivial elements is the displaying of the value when a user hovers over a country. While doing so, not only is the value displayed, but also the trend of the country is highlighted in the line graph.

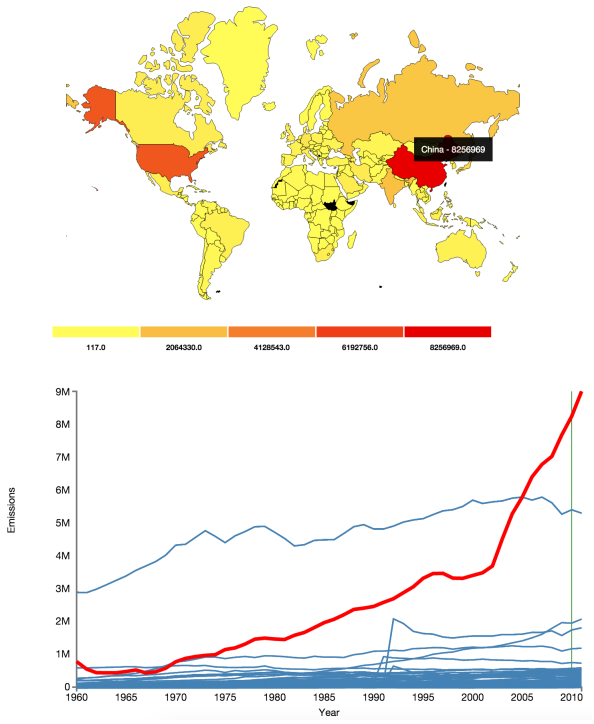

Figure 2: Image displaying the linking feature

When hovering over the country in the table, all visualization will highlight the corresponding country. The geographical map will single out the country, the line graph will highlight the color of the line as does the scatter-plot and bubble chart.

4 Conclusions

In the end we have created a interactive web application which used several visualization techniques that show the data from several perspectives. In our opinion this gives the user a proper way to investigate and compare datasets and educate themselves in the field of climate change.