Topic: Exploration of visualization tool(s), and prototyping.

Progress of this week:

Besides the later mentioned challenges, I worked on the following topics:

- Design: I implemented a grid view, which is already partly responsive. So also tablets and mobile phones can use the homepage.

- Implemented a bar chart, which displays the cases in comparison with the population of a country. This gives a new view on the subject.

The challenge(s):

1)Working on interactivity. A big challenge this week was the interactivity of the graphs. As already mentioned last week, I am currently using d3, react-simple-maps and react-vis as libraries.

2) It is part of the project to make it accessible online. The right choice of platform was a problem.

3) The interactive line graph displays along the x-axis every single day since January. Simply because of the data source. Along the y-axis the number of cases. The problem is the timeframe. While it is okay for China to start in January, many other countries have 0 cases in January and February. This pushes the lines to the right side, while the middle and beginning are empty.

4) Implementing the information seeking mantra

The methods you tried to address the challenge(s):

1) I decided to implement a line graph as interactivity in the choropleth map. With a click on a certain country (explore interactivity), a popup window appears and shows a line graph with 4 different lines (confirmed, active, recovered, deaths). The line graph itself has a crosshair implemented, which shows the exact value of all four lines when the mouse hovers over a certain point (elaborate interactivity).

Also, it is possible to hide a specific line with click on a button (filter interactivity).

Besides that, the choropleth can show the density of all 4 categories (confirmed, recovered, active, deaths) with a click on a specific button (encode interactivity).

Furthermore, every country gets highlighted when the mouse hovers over it and a little tooltip shows the country's population and the exact number of cases (elaborate interactivity).

Another interaction is part of some of the bar chart. Keyboard interaction gets used to filter certain countries or put two countries next to each other for comparison (filter interactivity).

Overall, I implemented quite a lot of the interaction categories. Although, I don't see a chance to use the connect interactivity with this topic but reconfigure and select would be possible too.

2) I first tried to push the data to Heroku. Heroku is a nice platform to host web applications. Although it would be nice to keep the data constantly updated and this is not possible with Heroku. The John-Hopkins-University updates their data once a day regularly. So I need some sort of cronjob, which pulls the data and runs my python scripts to preprocess the data. If I would have implemented everything just in Javascript, Heroku would be still an option. Although the storage is quite limited on Heroku.

As alternative, I chose to sign up for AWS. Amazon offers in the first year a free EC2 instance. It gives the possibilities to run the application ([1]) and also implement a cronjob, which updates daily the data.

3) For now, I don't display data where the number of confirmed cases is 0. Which leads to the simple effect, that the beginning gets completely removed of every country where nothing happened. The graph looks a lot better now. In the long run, this is also not very satisfying. The longer this crisis lasts, the more days I have to visualize. In the future, it will be better to split up the days in months and only display single months.

 4)There are many graphs and numbers, which I have to present and I don't want to present too much at the beginning. Only on demand. So as the core of the visualization platform I decided to put the choropleth map. The interactivity hides information and only reveals them on demand. I am probably going to put the other graphs below it, where users have to scroll to reach them.

Learned:

- Information seeking mantra

- Interactivity categories

Plan of next week:

- Make it fully responsive

- Find a good mix of graphs and maybe tables to provide information in a proper way (information seeking mantra)

- Bugfixing

References:

[1]: http://52.47.133.119:5000/