15 - World War II: Project Report

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July 31, 2017

1 WHY?

We decided to create a visualization about World War II because in the Web we did not find good representations.
In fact we found either partial representation without data animation or works with outdated technology.
We developed a work with the idea of it being used in an educational scenario.
Our work is divided into 4 parts:

- Home: here the user can navigate the map through a timeline observing the change of borders between countries and learning events month by month;
- Sides: here the user can observe the faction of each country and the time it participated to the war (both actively or not);
- Deaths: here the user can observe the distribution of death by country, both in the map with color and in a bubble chart with color and size;
- Holocaust: here we decided to have a separate representation of deaths by country for only jewish people. The representation is implemented in the same way as the previous one.

2 Dataset

For this project we had available a csv file *WW2 Casualties - Incidents.csv*.
In this file we could find information about casualties in various countries involved in the conflict.
We have decided to restrict this file to Europe and only take the information related to total deaths in each European country and the ones related only to jewish people.

2.1 Home

In order to have a map in which the borders change with the time we needed a map for each month of the war. We found a work done by Stanford University form which we downloaded some files.
These files are in shape format and they are one for each month from February, 1938 to May, 1945.
To manipulate the files we had to reduce the size and convert them into topojson format using *mapsharper.org*.
After this, we created a Python script which inserts into each json file the attributes, such as name of the country and which side of the conflict it was on, in that month.

To describe the events we wrote two json files: one with events about change of borders, occupied territories and change of sides, the other one with a report of each country behaviour.

2.2 Sides

To obtain this visualization, we created a csv file, starting from the topojson files previously created; this file contains in each row the european country with the amount of time which it spent on each faction.

2.3 Deaths

To obtain this visualization, we took the information from the file we started with.

2.4 Holocaust

Also in this visualization we took the information from the starting file filtering values, keeping those where the column *tags* is "holocaust-jewish".

3 How

3.1 Home

We have decided to represent the change of borders of the europeans territories with a map. To help the user navigate the page we decided to insert a timeline, initially visualized with zoom-out displaying only the years from 1938 to 1945.

We coloured countries based on their alignment:

- Allies
- Axis
- Axis-occupied, territories occupied from axis power
- Other, territories in which there is a battle but not being part of World War II
- Neutral.

We implemented the zoom-in/zoom-out to help users to better navigate through the time.

To better explain the events we created a box in the right showing information about each country and events.

3.2 Sides

To visualize this we decided to create a stacked bar chart: each stack represents one side, such as Axis, Allies and territory occupied by Axis.

We decided to not represent the moments in which a country was *neutral*. In this way the height of the bar is intuitively related to how long a country was involved in the war.

3.3 Deaths and Holocaust

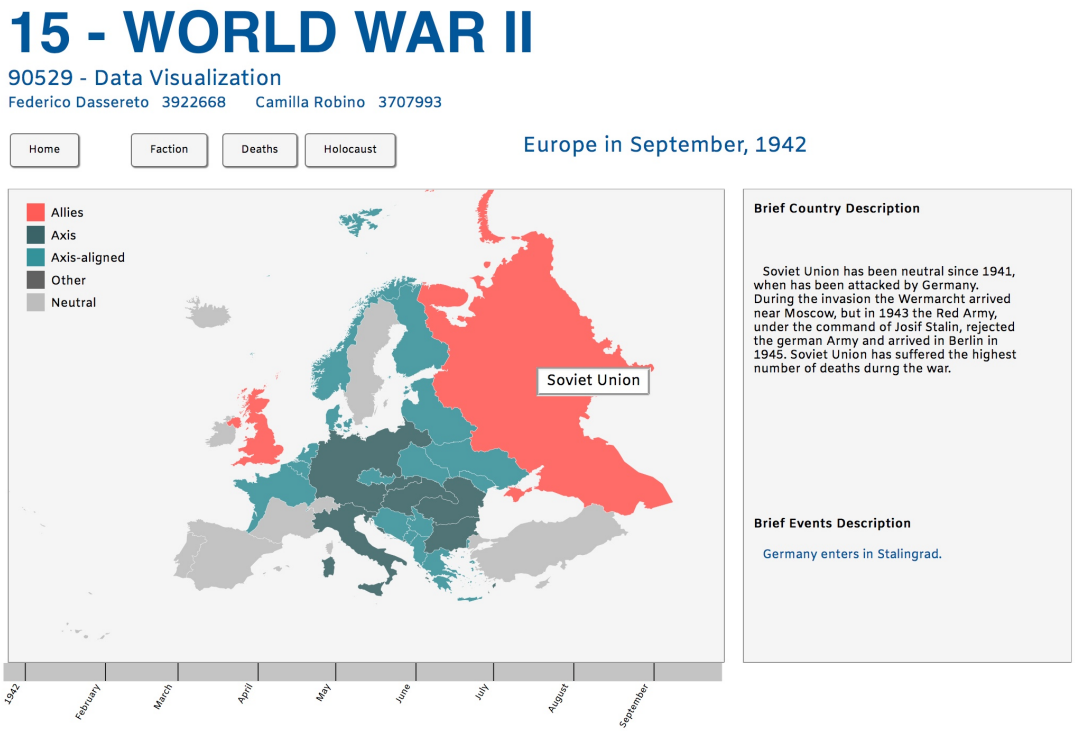
Here, we want to represent the same kind of information with two different datasets we use the same representation for both.

Here we have a number associated to each country, so we decided to represent it with a map where each country is coloured based on a scale proportional to the number of deaths. Since there were many countries with small number of deaths and just a few with high values, we decided to use a logarithmic scale.

To have another intuitive representation, we decided to put a bubble chart with the same colours of the map but in which the information is also in the dimension of each bubble.

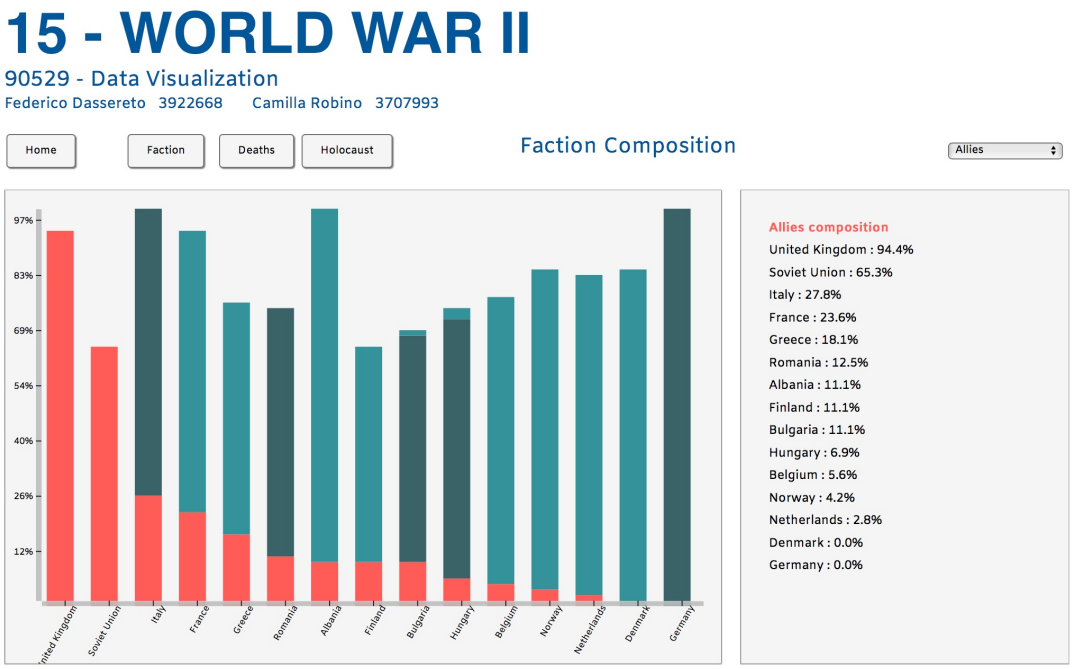
4 Navigation

4.1 Home



In this page, on the left there is a map, underneath which there is a timeline. The user can zoom in/zoom out on it and click on one of the month displayed. The map changes to show the situation in that month (some new countries can appear and other disappear) and a box on the right shows the relevant events of that month.

The user can also click on a country and the box on the right will show a brief summary about its role in the war.

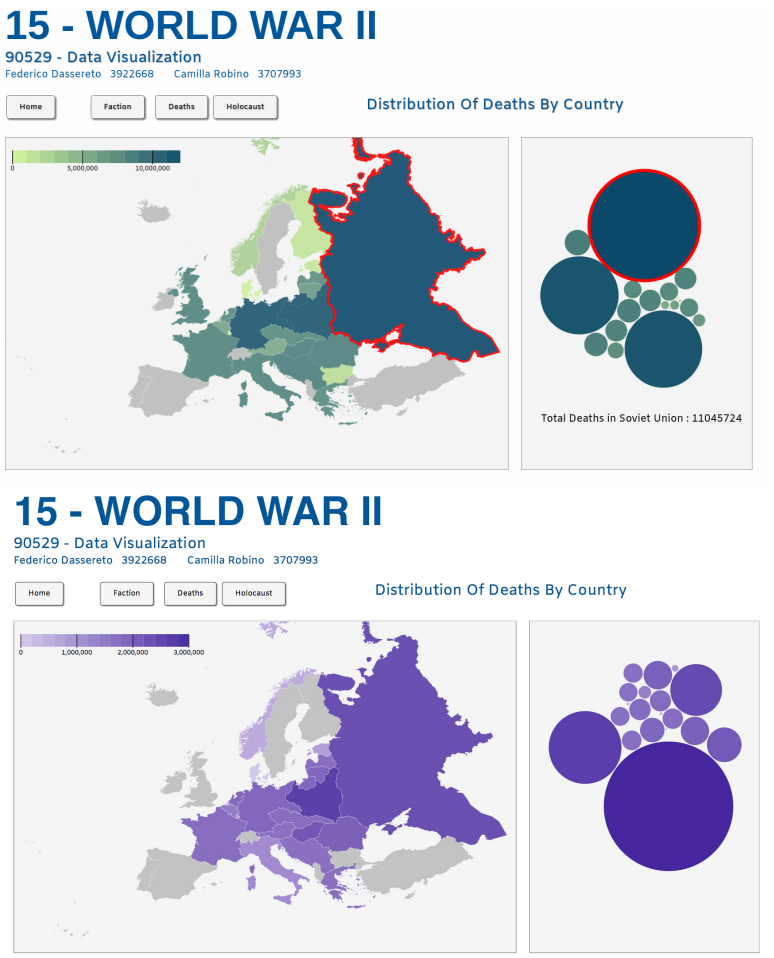


By clicking on the button *Faction* the stacked bar char is shown, with the same colours of the map representation in the Home.

By hovering on a specific country block, all the blocks regarding the specific faction is highlight by reducing the opacity of others.

Selecting a specific option (on top-right corner), the box on the right will show, for each country, the percentage of time it has been aligned with that faction and the stacked bar chart will be sorted by this option.

4.3 Deaths and Holocaust



By clicking on one of the two buttons, the visualization will change to a map and a bubble chart.

By hovering on a country it will be highlighted both on the map and on the bubble chart and underneath it will show the number of total casualties of that country.

5 NOTES

5.1 POSSIBLE EXTENSIONS

We thought about other extensions of our project but we did not have time to implement them:

- a play button that start an animation from February, 1938 to May, 1945 with the map that changes month by month showing the evolution of the borders;
- extend representation not only Europe but all the world.

Furthermore, we had problems with representation of maps: we know that, during the change of map, some inconsistency of map's scale leads to different placement of the map into the svg.