PRESENTATION AND VISUALIZATION
Geographic task

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In this task we perform our firsts charts using D3. To do so we will work on the 2016 USA elections results.

1 Data

Summary of the data we are given

- CSV with all kind of data of every county of USA (i.e: population, extension, unemployment rate,...). Every class is codified by a key.
- CSV with two columns that associate the key classes of the above dataset with its description.
- CSV which contains the results of the elections for every county. For every county we have 7 different candidates, two of them of the democratic party and 5 of the republicans.
- Shape format files (different resolution) of the map of the USA divided by counties.

Choosing between states and counties

The data sets we were given contain information about every county of the USA. However, one of the main difficulties we faced during this delivery were some incongruities about the counties data. The fips (i.e. ID of each county) had two different styles, suggesting that probably the data was generated by merging two different data sets. The results using the counties were not clean enough because there were some duplicates counties and many missing values. In consequence we decided to consider only the results depending on the state. We had information about in which state belongs every county. We use this fact to merge the different counties into states without difficulty. As a drawback, the state division is much more general than the county one and we may lose the opportunity to observe some particular tendencies inside

the states. On the other hand its use makes it easier to review the results in order to get the general picture of the USA elections.

In addition to this one may also defend the use of state partitions instead of counties because the electoral system of the general USA elections grants a certain a number of elected senators to the winner of each state. In other words, the winner of a single region is meaningless compared to the winner of the state.

2 Charts

2.1 Map of Democrats vs Republicans states

This map is the most visual design to observe in a second in which states the democrats and republicans won. The colours are clear because red and blue are so different and representatives for this two political positions.

We decided to represent with a map this two political position to minimize the cost of visual searches and make visualization displays as compact as possible to show more clarity.

2.2 Map of candidates winners for states

This map show which candidate won for each state. We decided to make this map with states instead of region because we wanted to minimize the cost of visual searches compacting the regions and show in a seconds the maximum information possible.

In this case, we can see the winner and then when you click in each state we show more information of the state there, like inhabitants or population density.

The colours for each candidate are relational of the political position (republicans or democrats) and we used the intense of tonalities depending on the how extreme is the candidate. So, in this map we can see the winning candidate of each state and which political position defends.

2.3 Bar chart and pie chart of the states with more participation

The main goal of this plot is to show the results of the candidates in each state and at the same time take into account the importance of such states. The first main difficulty we have is that our data is given by counties, so our first step was creating a dataset of the total number of votes for each candidate in each state. To do so we used, excel formulas. We called this

data set `state_candidate20.csv`.

The next step is decide how we show the data. In our opinion the most adequate way to show the candidate results is a pie of the percentage of votes achieved. The size of the pie plays an important role since a too big pie may mislead the viewer because the biggest slices may seem bigger than the smaller in proportion. To visualize the importance of each state we decided to compare them by a bar plot showing the total number of votes for each state. When we first check our first trial of the plot we realized that showing all states made the bar plot too much overwhelming, because it contained two much information. To solve this issue we decided to show just the 20 most voted states.

When choosing the colours for each candidate we took into account the fact that we want to make easily differentiate weather they are republicans or democrats. For these reason we used red (respectively blue) colours for the republican (respectively democrats) candidates. In addition to that we use more intense tonalities for the most conservatives. For example since Trump is more conservative than Ted Cruz its red tonality has a strongest colour.

The most interesting thing about this plot is the interactivity it offers. When the viewers sees for the first time the plot the pie show the general results but when they move the mouse on the bars associated to a state the pie shows the results of the respective state. The interactivity also work in the other way around: when the user selects a candidate in the pie, the bar plot shows its number of votes achieved in each state.

3 Duties of each member of the group

- **Marc Cardus:** the map of Republicans vs Democrats for states.
- **Carla Diví:** the map of the winner for each state.
- **Arnau Escapa:** bar chart of each state with the corresponding pie chart.
- **Enric Sarlé:** clean the data and collaborate with map of the winner of each state and barchart of each state with the corresponding pie chart graphics.