Group 1 Information Visualization Report

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# INTRODUCTION

How do the countries that participated in the Olympic Games stand against each other concerning the medals they achieved through the years? Do countries with a greater population also get more medals? How do these standings evolve over time and how do they accumulate in a certain amount of years?

We knew there was data to answer how many medals a country scored for a certain sport in a certain year, and we did find a solution that did that, on the Internet. But we wanted to go a bit further and be able to make comparisons, not just for one sport, not just for one year at a time, and not just counting one or all kinds of medals. So we went further and now we could know, as an example, if Russia had more or less gold and silver medals than the Soviet Union.

We also thought of seeing how many medals each country “owned”. That is, for example, how many medals Germany had scored, plus medals Germans playing for other teams scored, minus the ones foreigners playing for Germany scored. Unfortunately, we couldn’t find the nationalities of a big amount of athletes, so we decided to leave this feature alone.

The first tasks we proposed to support were, then:

* Browse – display the countries with the most gold medalists in total in a given year.
* Identify – show the country with the most medalists in a sport of all time.
* Locate – show the position of a country in the overall standings.
* Explore – using the coefficient medals/population (derivative variable), display the countries with the highest coefficient.
* Compare – show the medals each country won.

Our initial thought of showing statistics for “all time” was also changed to a “span of years”, where we chose the minimum and maximum years, making our visualization more flexible.

# The data

After days of search on the Internet, we found several documents/datasets that provided to us some contents of what we were looking for. For the main problem, that was giving to us data, divided by section of years/Olympic edition, about the medals and the countries that have won those medals in different sports, we use a dataset that we’ve found in this article of the Guardian: <http://www.theguardian.com/sport/datablog/2012/jun/25/olympic-medal-winner-list-data#data>. Later, if we wanted the original dataset, this site would redirect us to this doc - <https://docs.google.com/spreadsheets/d/1zeeZQzFoHE2j_ZrqDkVJK9eF7OH1yvg75c8S-aBcxaU/edit>. This was the original dataset where we based our data.

To represent a bubble chart of the country in a world map we needed another dataset that represented the location of a country in coordinates so we could associate a country in a map image that would be properly related with the attributes of size image and GPS coordinates. For this, we opted to use this dataset: <https://developers.google.com/public-data/docs/canonical/countries_csv>.

Finally, we also want it to test if a countries population had some impact in order of winning more or less medals in an edition of the Olympic Games. So for that we only concerned in data that had the population of all countries and we found a dataset with that information, but it only had information from the year 1960 to now: <http://data.worldbank.org/indicator/SP.POP.TOTL?page=6>.

After founding and extracting this data, we had to evaluate them in order to know if we could relate attributes between them; like for example, could we say in the bubble chart that Romania is located in such coordinates given in the GPS dataset? No. Could we associate the Germany population in 1960 with the winning rank they had in that year? No. And so on. There were things that we had to have concerned like the ISO, NOC and IOC code, the countries that no longer exists but existed in the pass (West Germany, Soviet Union for example) and some information that we just didn’t need it.

So for the first issue, we had some problems like ISO 2-letter codes and ISO 3-letter codes, and for that, we made a dataset relating those codes. Also we had problems cause there were codes that in time had changed, so for that we put in the original dataset the recent ISO code in all occurrences of the country (ies). We also had a problem in countries that no longer existed. Like, what would be the coordinates for West Germany? So for that, we add to the GPS coordinate dataset an ISO code that represented the older country, its name and a latitude & longitude that were located inside of the corresponding countries that they were located. Meanwhile, when we were doing this task, we had the concerned to grant to the Olympic dataset (the data that had all winners and medals) the corresponding ISO and NOC code updated of countries that don’t exist anymore and in the population dataset, we incorporate the same task.

The third issue that we talked about it, was the unused information that we had on some dataset. Like in the Olympic dataset, we had attributes like City, Athlete, Gender, Event and Event\_gender that we didn’t need it. So we extract that information from the data.

In the end, we had 2 dataset. One containing the Olympic medals (each year, we had information about a sport, the country, and its ISO 3 and 2-letter code, that win the medal of that sport, and the medal that it won) and the coordinates of the country, and a dataset of the population over the years that could be related with the earlier dataset by associating the ISO-3-letter codes with the NOC codes.

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