THE OLYMPIC GAMES: AN OVERVIEW

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CS 171 Final Process Book

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TABLE OF CONTENTS

INITIAL PROJECT PROCESS: SUMMARY

- The Olympics are an event that are said to bring the world together in friendly athletic competition. We enjoy watching the competitions, but couldn't help but notice that it seemed that certain countries outperform others on a regular basis. In discussing this trend, we first thought that success in the games was likely determined by the countries wealth. For example, the United States with the world's largest GDP takes home the largest number of medals. While this is true, the United States and wealthy countries do not dominate every sport.
- The visualization was originally intended to be a a tool to illustrate the relationship between wealth, population, Olympic participation, and Olympic Success.

INITIAL PROJECT PROCESS: OVERVIEW

- By the first milestone, our visualization contained 3 main components, each of which interacted with each other and update whenever any graph was clicked. Upon mouseover of any element, information about that data was shown in a tooltip.
- The first component was a map of the world, with a slider on the bottom. The slider allows for the progression through each Olympic Games. For every Game, the participating countries appeared with more opacity, while the non-participating countries blended in more into the background.
- The second component was a bar graph that shows the number of medals won by each participating team, in ranking order.
- The final component was a scatterplot containing information about GDP per capita for each country versus the number of medals won.

INITIAL PROJECT PROCESS: PROBLEMS

- The problem with the initial idea of just looking at GDP (as a measure of wealth) and medals won was that it missed a lot of the story of the participation and success in Olympic games. We thought after our first iteration that there were a few narratives about the Olympics that weren't coming across that this visualization could be fixed to illustrate.
- The issue with the version presented at the milestone marker was that it lacked the narrative of why certain countries were disappearing and appearing as participating in the Olympics. There was also an issue with the color scheme, as it initially was difficult to distinguish certain countries and the highlighted country did not stand out enough. Also, as of the first milestone, there was no graph describing the relationship with population, a statistic we believed to also be relevant.

UPDATED PROJECT PROCESS

- Since the milestone, we have added several important features to our visualization. The most noticeable is the change in color, which helps the visualization present the data more clearly. The other big change is with the indications of important events in Olympic history. Every time a notable event occurs along the timeline, a dot pops up, which, upon mouseover, reveals a tooltip describing the important events.
- Another change was the addition of a radio button for the GDP graph, allowing the user to switch between viewing the GDP per capita or the total population. Also, the points on the scatterplot increase in size and change color when selected, allowing for an easier viewing of the data.
- Additionally, the menu bar at the top was updated to provide a lightbox effect, showing information “About the Authors”, the screencast, and this process book.

PROJECT PROCESS BOOK: INTRODUCTION

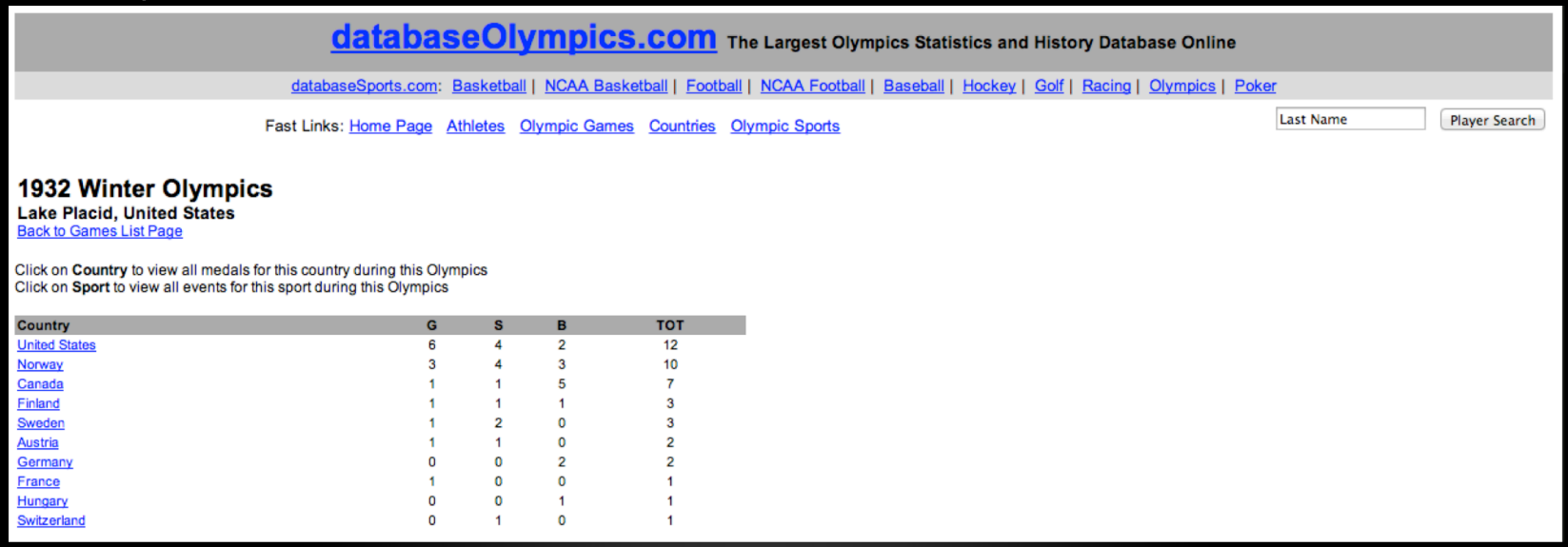
- The purpose of our visualization is to show the changing nature of the Olympic Games and its evolution from a few countries to almost the entire world's participation.
- Our audience is intended to be the general public who are familiar with the Games and interested in learning more. Therefore, we included some interesting facts that the general public may not know about the Games, to keep everyone interested even if you have little knowledge of Olympic history.
- Through this visualization, we hope to show trends in GDP/capita and population size that help influence the number of medals won by a country at each Olympic Games. There is a general positive correlation between medals won and population size, as well as with GDP/capita
- Another thing we want to show is the rising participation among countries, as well as to emphasize those years when certain countries decided not to participate for one reason or another.

PROJECT PROCESS BOOK: LIBRARIES AND DATA

- The data about Olympic medal history was retrieved from:

  http://www.databaseOlympics.com/

- The file newProjectData.html searches through each Olympics by url and then screen scrapes the results of the table



databaseOlympics.com The Largest Olympics Statistics and History Database Online

databaseSports.com: Basketball | NCAA Basketball | Football | NCAA Football | Baseball | Hockey | Golf | Racing | Olympics | Poker

Fast Links: Home Page Athletes Olympic Games Countries Olympic Sports

Last Name Player Search

1932 Winter Olympics

Lake Placid, United States

Back to Games List Page

Click on **Country** to view all medals for this country during this Olympics
Click on **Sport** to view all events for this sport during this Olympics

Country	G	S	B	TOT
United States	6	4	2	12
Norway	3	4	3	10
Canada	1	1	5	7
Finland	1	1	1	3
Sweden	1	2	0	3
Austria	1	1	0	2
Germany	0	0	2	2
France	1	0	0	1
Hungary	0	0	1	1
Switzerland	0	1	0	1

PROJECT PROCESS BOOK: LIBRARIES AND DATA

- The data from the screen scrapes were then compiled into a json file, containing the total number of medals won by each country for every set of Olympic Games

olympicData.json


```
{"1906 Summer Olympics":
    {"Year":"1906 Summer Olympics",
        "France":{"Gold":"15","Silver":"9","Bronze":"16","Total":"40"},
        "Greece":{"Gold":"8","Silver":"13","Bronze":"13","Total":"34"},
        "United Kingdom":{"Gold":"8","Silver":"11","Bronze":"5","Total":"24"},
        "United States":{"Gold":"12","Silver":"6","Bronze":"6","Total":"24"},
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        "Germany (until 1912)":{"Gold":"4","Silver":"6","Bronze":"5","Total":"15"},
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        "Hungary":{"Gold":"2","Silver":"5","Bronze":"3","Total":"10"},
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        "Canada":{"Gold":"1","Silver":"1","Bronze":"0","Total":"2"},
        "International Team":{"Gold":"0","Silver":"2","Bronze":"0","Total":"2"}},
"1912 Summer Olympics":
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        "United States":{"Gold":"26","Silver":"19","Bronze":"19","Total":"64"},
        "United Kingdom":{"Gold":"10","Silver":"15","Bronze":"16","Total":"41"},
        "Finland":{"Gold":"9","Silver":"8","Bronze":"9","Total":"26"},
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        "Denmark":{"Gold":"1","Silver":"6","Bronze":"5","Total":"12"},
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        "Canada":{"Gold":"3","Silver":"2","Bronze":"3","Total":"8"},
        "Hungary":{"Gold":"3","Silver":"2","Bronze":"3","Total":"8"},
        "Italy (until 1946)":{"Gold":"5","Silver":"1","Bronze":"2","Total":"8"},
        "Australasia (until 1920)":{"Gold":"2","Silver":"2","Bronze":"3","Total":"7"},
```

PROJECT PROCESS BOOK: LIBRARIES AND DATA

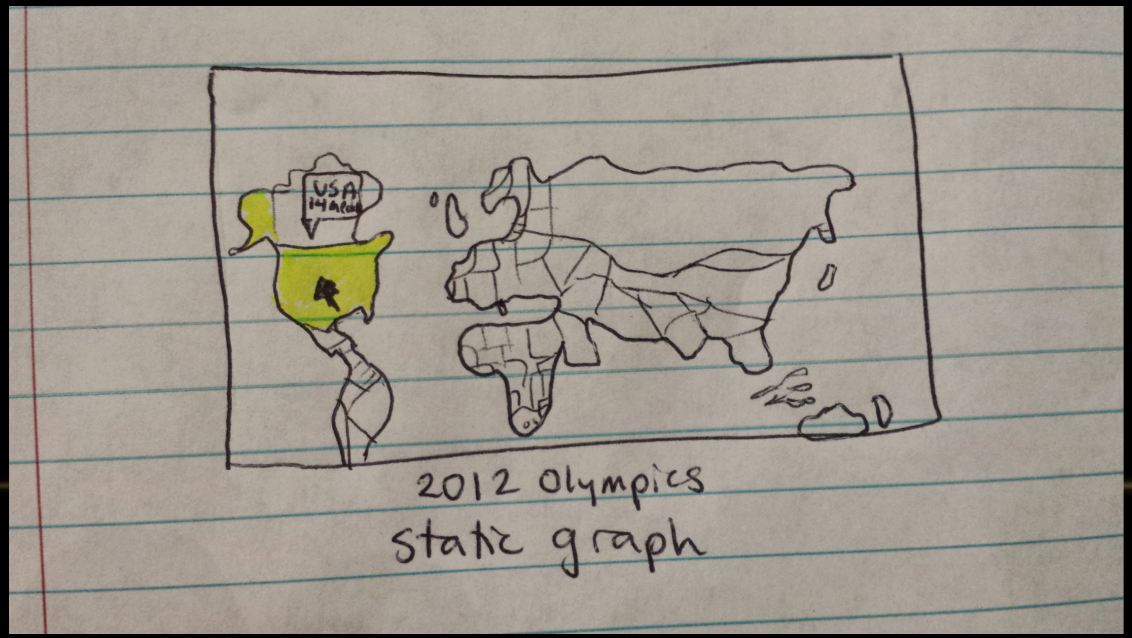
- Participating country data was taken from a table on http://en.wikipedia.org/wiki/List_of_participating_nations_at_the_Summer_Olympic_Games and http://en.wikipedia.org/wiki/List_of_participating_nations_at_the_Summer_Olympic_Games
- The table was converted to a .json file separated by country, with each country containing a list of the years of the Games and a “1” or “null” depending on whether or not that country participated in the given Games
- The file HostCities.json contains the information about the host city and country name for each Olympic Games, which is displayed next to the year on the slider

PROJECT PROCESS BOOK: LIBRARIES AND DATA

- A few different libraries were used for this visualization
  - D3.slider contains the library for creating the timeline at the bottom that allows the user to traverse through the years
  - FancyBox is the library that contains the basis for the lightbox effect, where each of the menu items pop up on the screen when clicked, and the rest of the page gets dark
  - Tipsy is the library that has the formatting for the tooltip used in this visualization

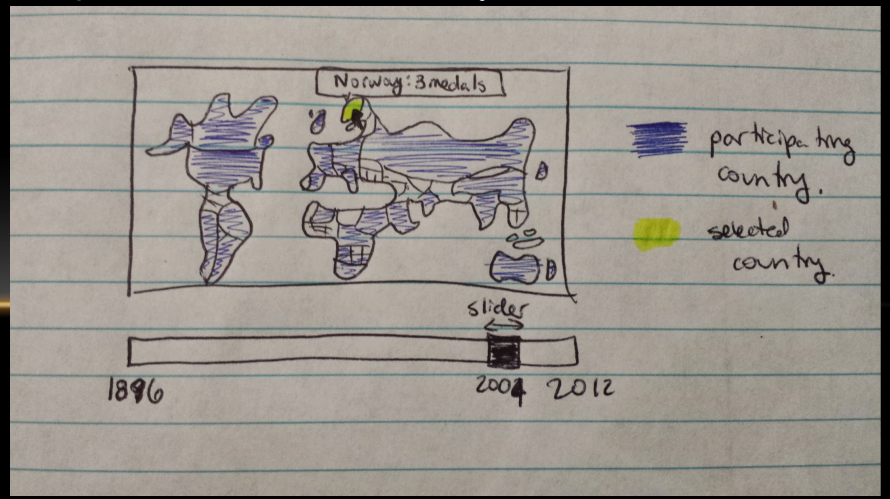
PROJECT PROCESS BOOK: PROCESS REPRESENTATION SKETCHES

- Our first iteration for the map component of our visualization is shown above. We decided to show only the most recent dataset (the site where we got our data has not uploaded the 2014 winter Olympics yet) because we were worried about how to incorporate earlier years. Because country names and geographic borders have changed dramatically throughout the years, we felt it would be more feasible to only show the most current data on the current map of the world. This graph would allow for user interaction by showing the information about the highlighted country (medal count).



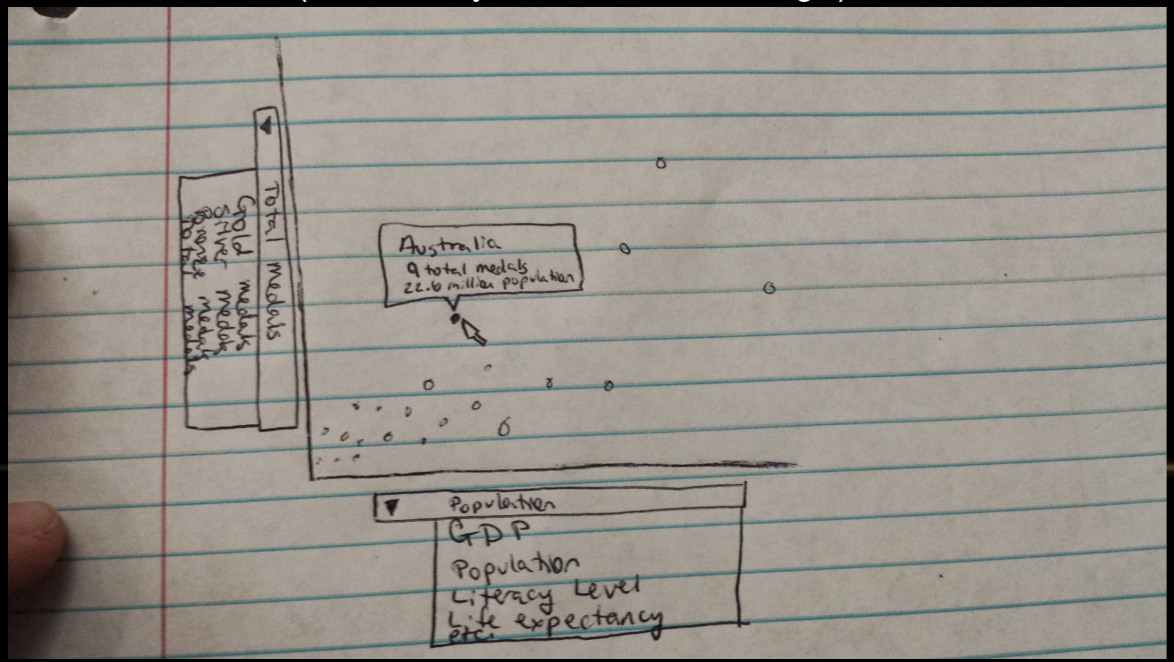
PROJECT PROCESS BOOK: PROCESS REPRESENTATION SKETCHES

- On our second iteration of the map, we decided to try to tackle the challenge of past years' Olympic history. We also decided that we wanted to show more information on the map. We chose to notate all countries that participated in the Olympics of that year with one color change, and then show the highlighted country in another. This way, we can show over time how more and more countries started participating, and that more countries with lower GDP were added to the Games (since only the richest countries initially participated). We thought that it would be appropriate to highlight all countries that were geographically located where past countries were (eg, for USSR, highlight Russia and Ukraine and Latvia and….). This way, the geographic appearance of the map would be reflective of the actual participating countries, even if borders were slightly shifted over time. The graph would still have a tooltip that shows the country name and information about the medal count.



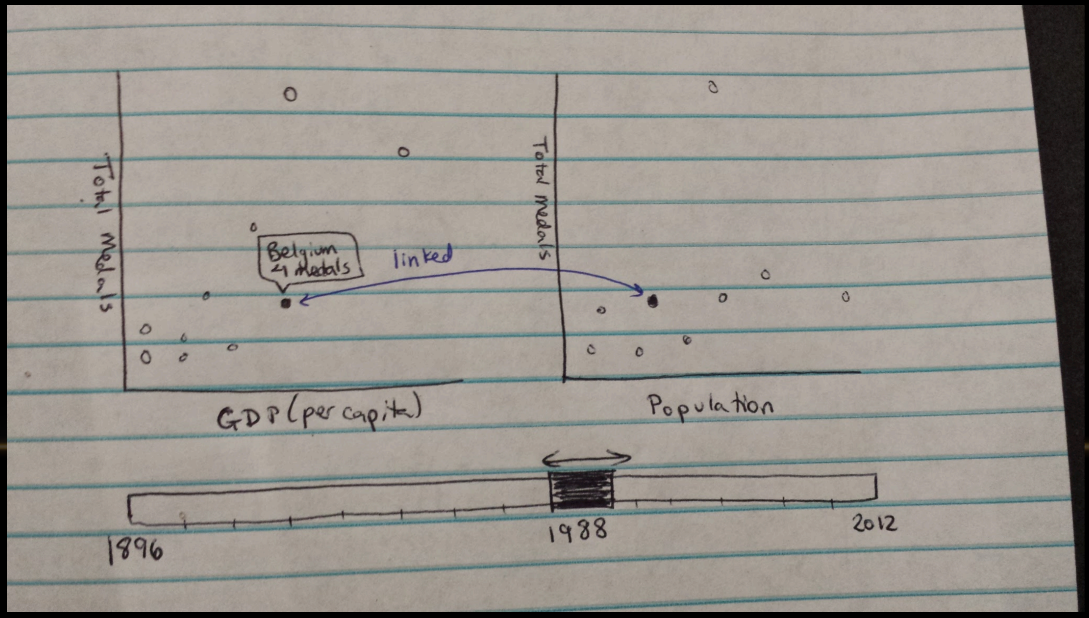
PROJECT PROCESS BOOK: PROCESS REPRESENTATION SKETCHES

- In the first iteration of our scatterplot, we planned to use data from World Bank to create a drop-down menu with various country data. This would appear on the x axis. On the y axis, the user would be able to choose which set of Olympic data to compare to the world bank data (gold, bronze, silver, total). We like this visualization because it allows for an easy way to see many different correlations between country factors and Olympic success. Also, this graph would feature a tooltip that shows the country name, as well as the values associated with that data point, and the highlighted datapoint would be accentuated somehow (most likely with a color change)



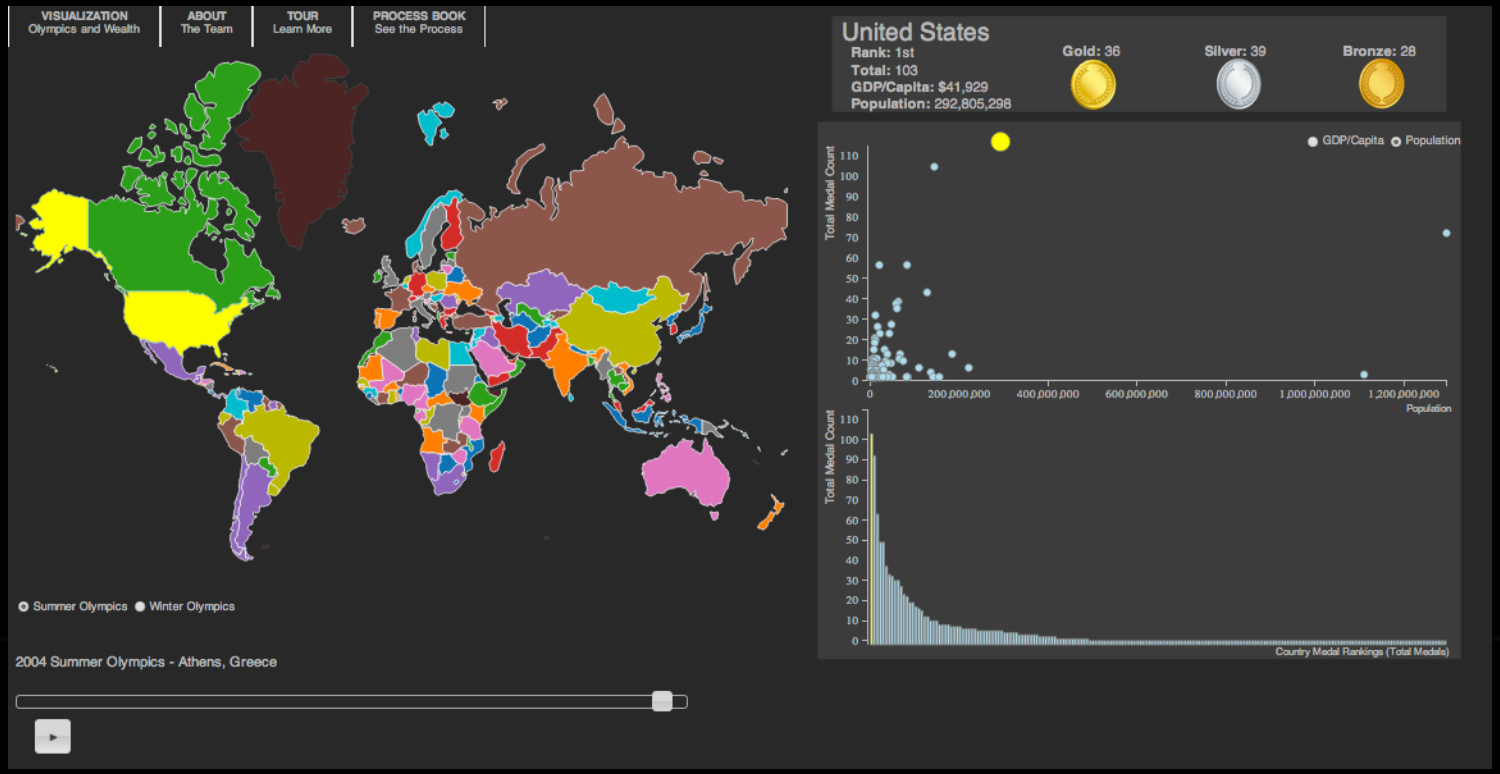
PROJECT PROCESS BOOK: PROCESS REPRESENTATION SKETCHES

- After further research, we discovered that the most important socioeconomic country factors that influence success were only GDP and population. Therefore, we revised our visualization to account for this, by displaying 2 separate graphs, one for each factor. Also, since the type of medal won was less correlated than the total medals won, we decided to only feature the latter in our visualization. However, we decided to add a slider to change the year that is being looked at. Also, we wanted the highlighted datapoint from one graph to highlight the corresponding country from the other graph to make it easier for the reader to see where countries fit into the overall correlations.



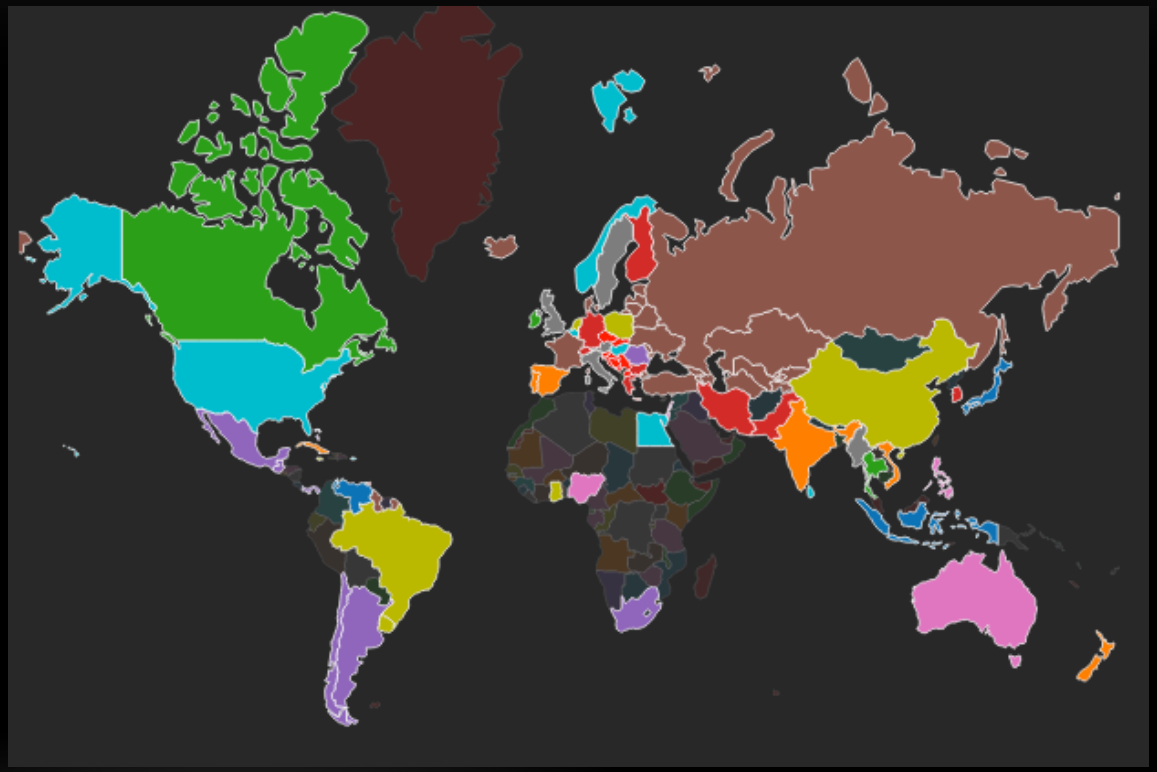
PROJECT PROCESS BOOK: VISUAL DESIGN-OVERVIEW

- Our visualization has a multiple view approach in order to more effectively convey the information that we wanted to share with our audience. We decided to include two graphs and a map within our visualization because we could convey both quantitative and geographical data at the same time.



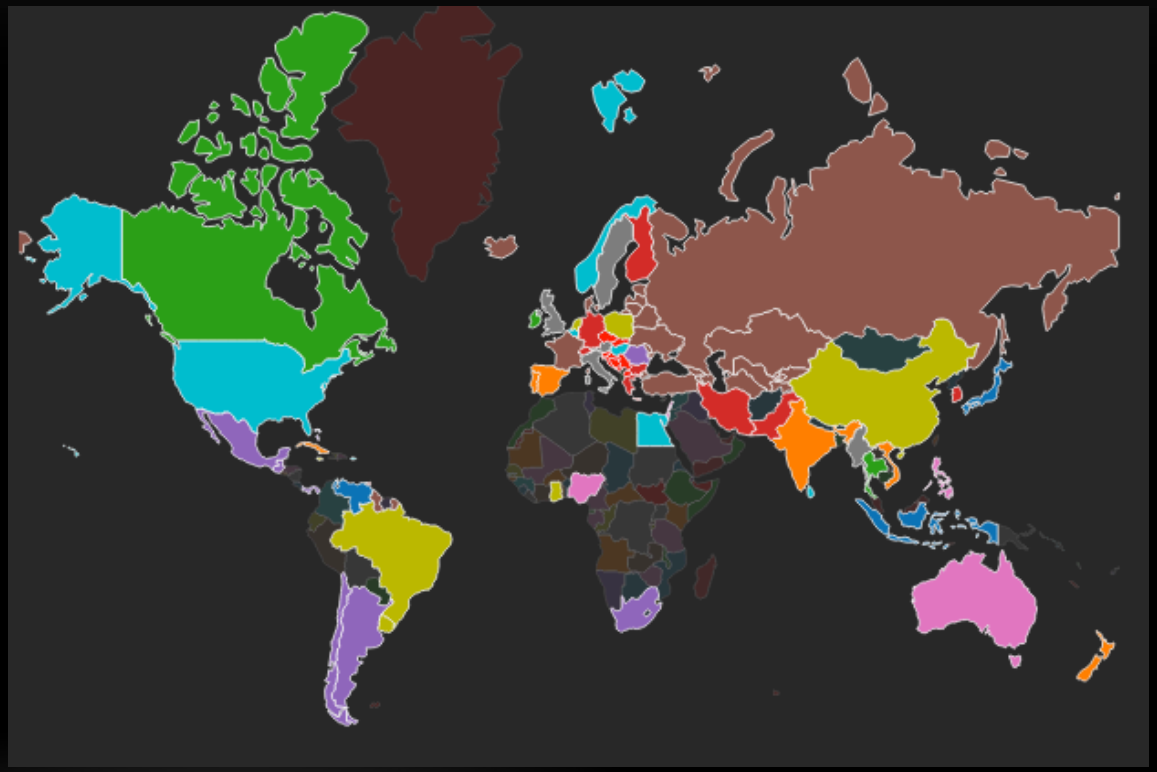
PROJECT PROCESS BOOK: VISUAL DESIGN- MAP - COLOR

- The color scheme for the map is used to distinguish between countries, and show when neighboring countries were part of a larger nation (eg, USSR)
- We also used a colorblind test subject to make sure all of our colors throughout the visualization were colorblind-friendly



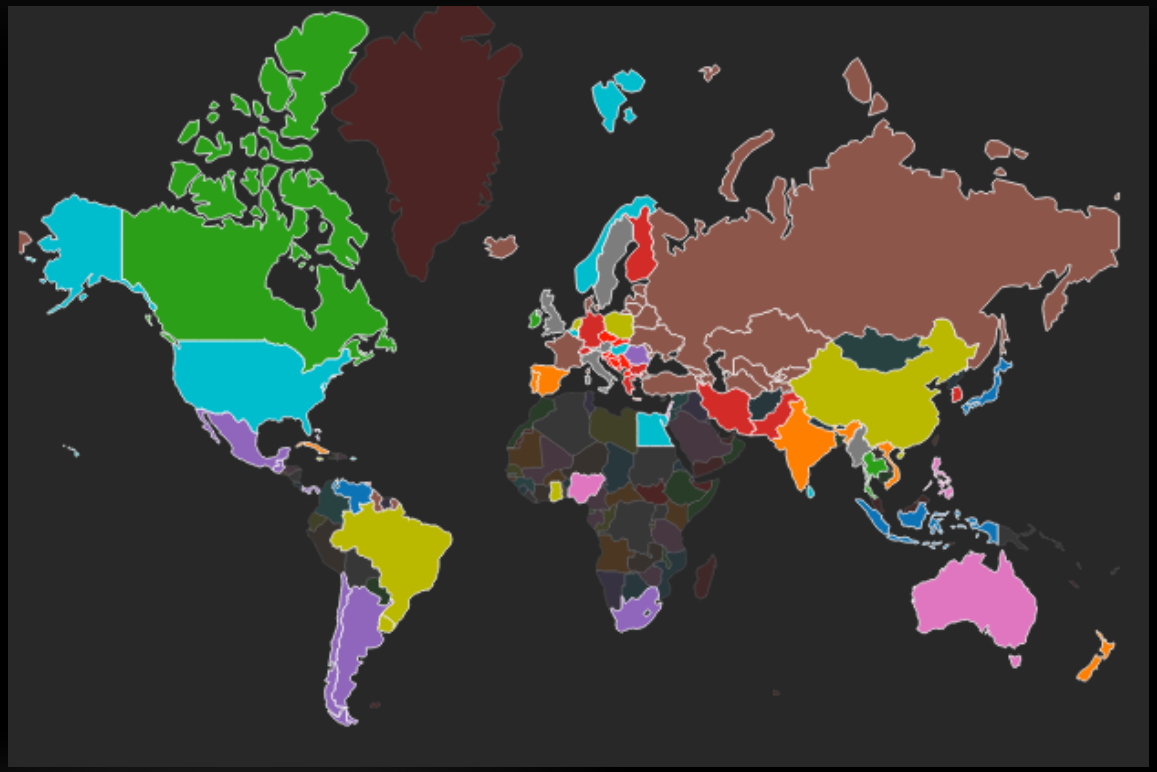
PROJECT PROCESS BOOK: VISUAL DESIGN- MAP - SHAPE

- The map section of the visualization has several important components. The mercator map was chosen as it preserves all of the appropriate shapes, and by cutting out Antarctica, most of the features are relatively scaled, though the most northern countries do appear larger. However, since the color does not indicate a true value, this is not a problem



PROJECT PROCESS BOOK: VISUAL DESIGN- MAP – OPACITY CHANGE

- In order to convey which countries were present at a given Olympic Games, the opacity of that nation changes, such that it stands out from the dark background. This makes it easy to notice quick changes in the participating nations, while maintaining the full map.



PROJECT PROCESS BOOK: VISUAL DESIGN- MAP - TOOLTIP

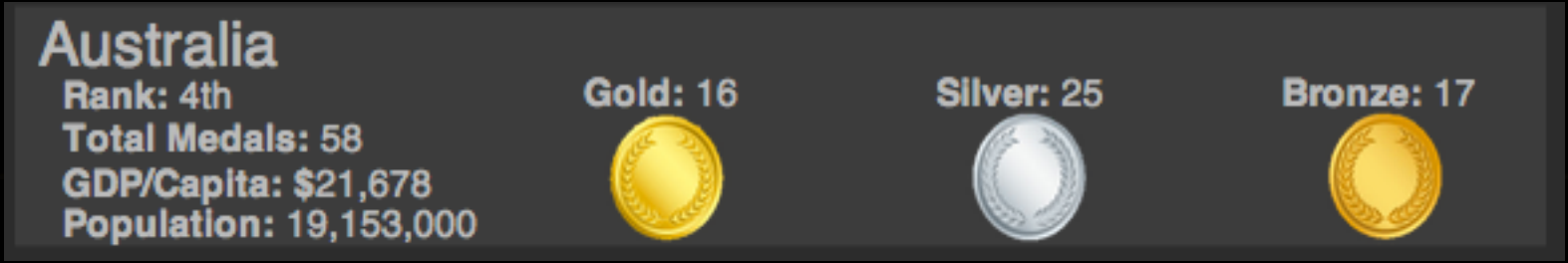
- On mouse over, a tool-tip pops up, containing the name of the country, as well as that Games' breakdown of medals won for the that country.
- Additionally, the country changes color to bright yellow, and if clicked, will remain yellow for easy spotting

PROJECT PROCESS BOOK: VISUAL DESIGN- EVENT BUTTONS

- When an important piece of Olympic history coincides with a given Games, a button pops up with a plus sign in it (top figure) at the geographical location of interest. Upon mouse over (bottom figure), the button turns blue, and a tooltip appears giving a short description of the event of interest.

PROJECT PROCESS BOOK: VISUAL DESIGN- COUNTRY GUIDE

- When a country is selected, either on the map or one of the graphs, the Country Guide is updated to represent that country's performance in the current Olympic Games. It shows the country's name, its overall rank (given by total number of medals won), its GDP/capita for that year, its population for that year, as well as the breakdown of medals won at the given Olympic Games. This guide updates as the user scrolls through different years, and displays the message "no data" if there the relevant information is not available for that year or the message "did not participate" if the selected country was not present in that year's Games.

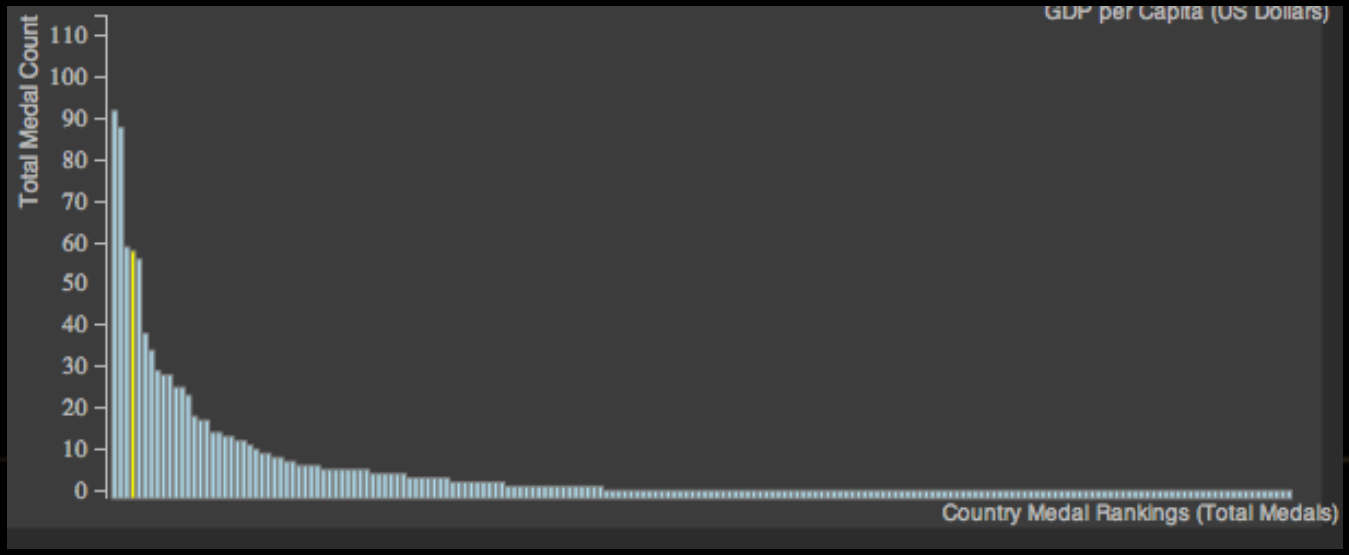


PROJECT PROCESS BOOK: VISUAL DESIGN-SLIDER

- The slider at the bottom of the map allows the user to scroll through the different Olympic Games. There is also a radio button which lets the user switch between winter and summer Olympic Games. As the user scrolls through the slider, the year of the Games and the location of the host city appears. There is also a play button, which allows the user to automatically progress through the years.

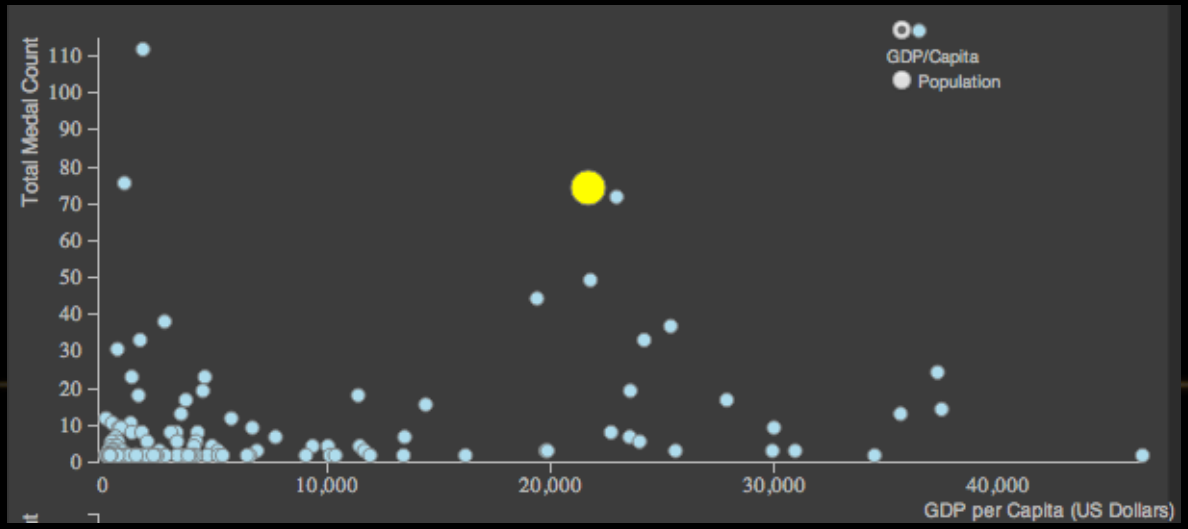
PROJECT PROCESS BOOK: VISUAL DESIGN- RANKING CHART

- This graphs is meant to convey the placement of the country relative to the other countries that participated in the selected Olympic Games. When a country is selected on the map (or on any of the other graphs), the corresponding bar is highlighted and a tooltip appears upon hovering over the selected bar. Also, when fewer countries participated, the bars get thicker to accommodate. However, there is an upper limit of the thickness, to make the graph more visually pleasing.



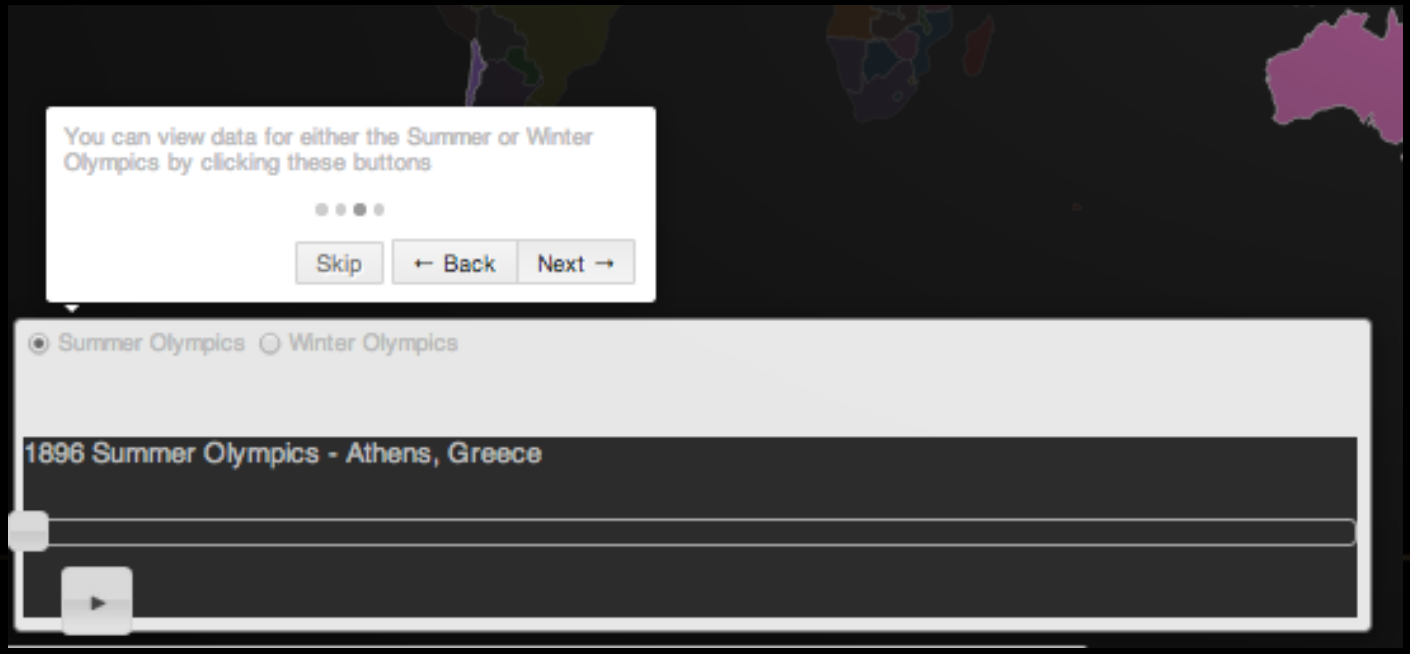
PROJECT PROCESS BOOK: VISUAL DESIGN- GDP & POPULATION SCATTERPLOT

- The scatterplot lets the user compare the total medal count for that year to the GDP/capita or the population, depending on which radio button is selected. When a country is selected, it is highlighted and its size increases, so that it is easy to point it out from the other points. Also, like all of the other graphs, upon mouseover, a tooltip appears, containing the information related to that point (country name, total medal count, and either GDP or population, depending again on the radio selection).



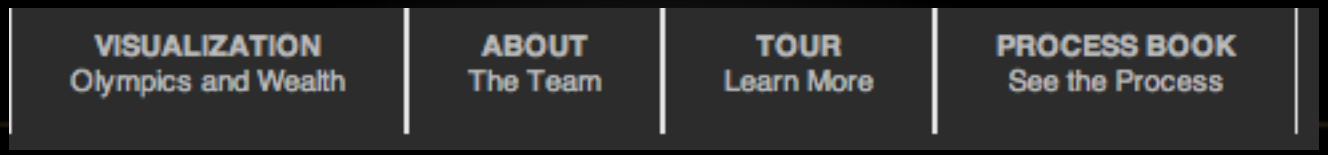
PROJECT PROCESS BOOK: VISUAL DESIGN- INTRODUCTION TO THE SITE

- When the user first goes to the site, there is an introductory tour that steps the user through all of the different elements with which the user interacts. For each element, there is a description on what that object does, as well as next and back buttons to navigate the tour.



PROJECT PROCESS BOOK: VISUAL DESIGN- MENU BAR

- The menu bar appears at the top of the page and allows for the easy viewing of information about the visualization. When the mouse goes over a title, there is an effect of both movement and color change to make it clear which subsection will be viewed upon click. When a title is clicked, a lightbox pops up with information about the given title, either information about the authors, a video tour, or a PDF of the process book.



PROJECT PROCESS BOOK: ANALYSIS

- We think that our visualization accurately reflects the goals and question that we tried to answer. Our visualization is readable and effectively conveys the data we are trying to show. It is also easy to interact with.
- One issue that we came across was going through history and looking at the changing map of the world. There were so many countries that were formed from old countries, making it very difficult to code a generic function. Therefore, we had to add an extraordinary number of exceptions in order to account for all of these changes throughout time. There were also a few errors in our data that had to be resolved, which again took quite a bit of time.

PROJECT PROCESS BOOK: LOGISTICS

- Overall, we believe that we did a good job of distributing the work throughout our team members. We chose to each focus on different aspects in order to maximize our efficiency
- JT did a lot of the coding for both the graphs and the map, and added the exceptions of country changes and data inaccuracies. He was also integral in making the slider function properly and have the movie “play” feature
- Alex did work on the map, as well as other features of the visualization. He did work retrieving and organizing data into json files, and added the lightbox feature. He also wrote a significant portion of the process book
- Rachel made the menu bar, worked on the map, and did a lot with css elements, determining appropriate colors for each element of the visualization, in addition to a myriad other aspects of the project, such as the introductory tour of the site.

PROJECT PROCESS BOOK: CONCLUSIONS

- Our visualization provides a way to convey a vast amount of information in a concise and organized manner. It also provides insight into the history surrounding the Olympic Games. The average user would likely not know about the great influence that politics has on the competition, such as the American boycott of the 1980 Moscow Olympic Games and the Soviet response of boycotting the following 1984 Los Angeles Olympics Games. Our visualization shows these alongside the interesting data of GDP/capita and population and its influence on success at the Games.
- Overall, we are extremely pleased with our results, and we hope you are too. We had the chance to learn so much about Olympic history in addition to all of the coding we had to do. We now all feel very comfortable I can safely say that because of this project, all of our team members will be much more interesting at cocktail parties, due to our now extensive knowledge of random facts about the Olympic Games.