

1 Introduction 🏅

Paris 2024 is rapidly approaching as this project unfolds, and the Olympic Games will once again be the center of global attention for a few months. But beyond the sporting achievements and the wonderful moments of emotion, another vision of the games is emerging, one of inequalities. Indeed, not all countries are equal when it comes to the games, whether in terms of results or the organization of the games. Accessing comprehensive information about Olympic Games results and host countries can be challenging. This project aims to address this issue by creating a centralized platform offering in-depth insights into the Olympic Games. The envisioned platform will feature a dynamic world map interface, allowing users to explore various statistics such as hosting countries and medal counts. A page showing other statistics will also be added to have a complete where. By clicking on a specific country, users can delve into the country awards as well as the detailed profiles of top athletes from that country, along with their corresponding medal counts.

2 Visualisations

2.1 Visualisation 🏅 : World Map 🌍

2.1.1 What was planned

The main component of our project consists of visualizing the main information of the countries about olympics games on a world map. The idea was to be able to click on each country and display general statistics such as the number of medals the country has won and the most decorated athlete (which is the athlete who has won the most medals) of the country since the beginning of the games. The user should also be able to switch between seasons (games of winter or summer). Thus, world map must adapt to the season and only display statistics of the selected season.

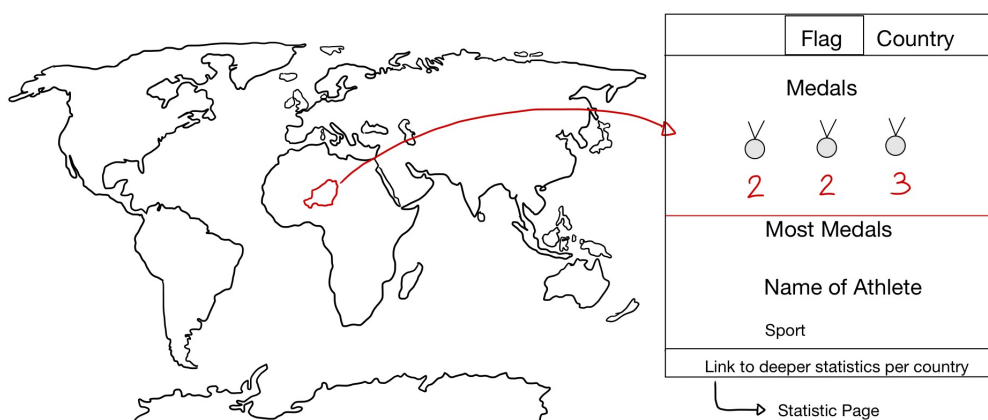


Figure 1: Sketch of the Map World Visualization

The figure 1 shows a global view of the world map and the associated panel on the right describing the clicked country. Furthermore, we wanted to allow the user to have the possibility to learn more about the country by providing a link at the end of the panel which redirect to the third visualization (2.3).

As extra implementations, we aimed to add a small button labeled 'Hosts' on the left side. When a user clicks on this button, it should display all the countries that have hosted the Olympic Games, with each hosting country highlighted. Additionally, the year of the Olympic Games hosted by each country will be shown. This desired feature is sketch in Figure 2.

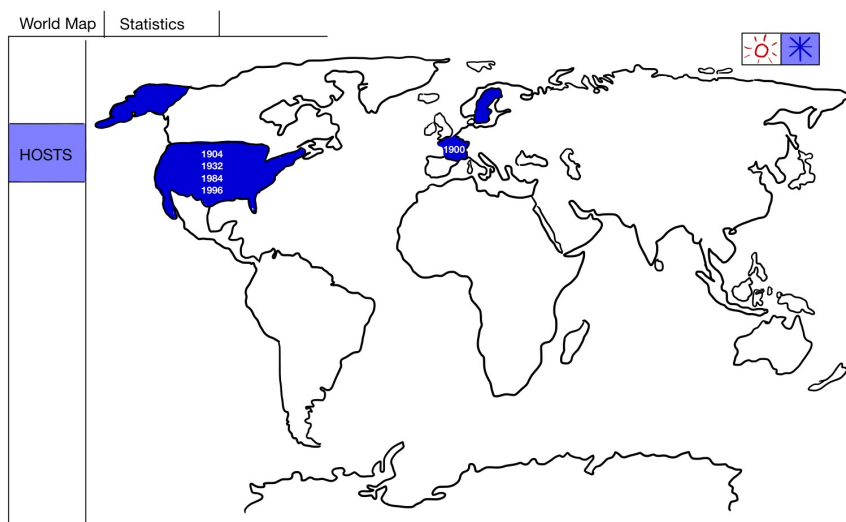


Figure 2: Future Implementation with hosts highlighted

2.1.2 Final Results

The final version of the interactive world map allows the user to click on any country to display the general information panel. This panel shows global statistics about the country depending on the season, such as the number of medals won and the athlete who won the most medals. When a country is clicked, it is zoomed in on and highlighted. The user can easily change the season from Winter (see Figure 3) to Summer (see Figure 5) and vice versa using the top right slider.



Figure 3: Visualisation for Winter medals for Switzerland

As you can see in Figure 3, we implemented an additional visualization for the winter season. When winter is selected, snowflakes fall down the screen.

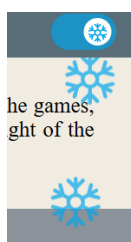


Figure 4: Implementation of snowflakes

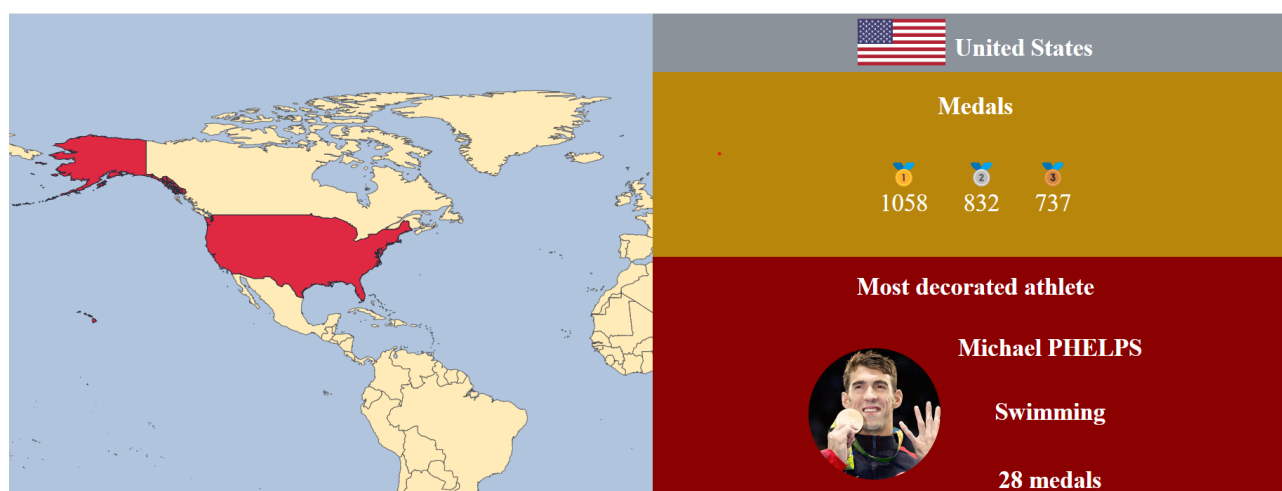


Figure 5: Visualisation for Summer medals for USA

Additionally, we have implemented the feature that allows the user to click a button to highlight all countries that have hosted the Olympic Games, again, depending on the season. When this button is clicked, the map highlights these host countries and displays the names of all editions hosted by each country above them as shown in the Figure 6.

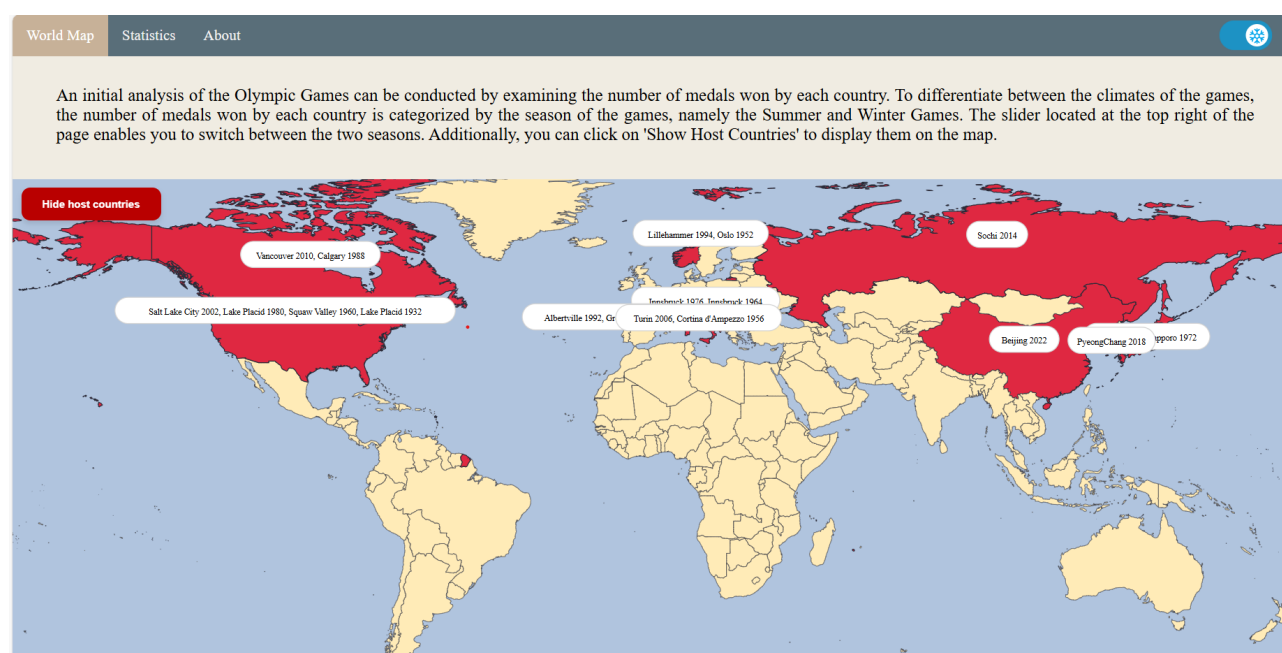


Figure 6: Visualisation to show Host Countries (Winter Edition)

2.1.3 Challenges

We encountered several challenges when we implement this part:

1. The first challenge to implement this part was to create the countries. This was done by using the library GeoJSON and SVG with the following: JSON file, containing the coordinates for each country.
2. The second challenge was to obtain all the flags for each country, this was solve by calling the Flags API & CDN which contains the SVG code of all country flags.
3. We also aimed to include the image of the most decorated athlete from each country. In the dataset we have chosen, it contained links to personal pages of athletes where their images

could potentially be found. Consequently, we conducted web scraping to gather these images. However, it was noted that not all athletes had an image available on the website. In such cases, we opted to display only the athlete's name without an accompanying image.

4. The final challenge involved displaying the names of the different editions of the host countries' games when the corresponding button was clicked. To address this issue, we utilized the centroid of each country to determine the appropriate position for placing the text box.

2.2 Visualisation 🏅 : Wheelchart

2.2.1 What was planned (Milestone 2)

The second visualization implemented is a wheelchart diagram, which should display the stats of each game. This wheel have several layers which are:

1. Game edition (Beijing, Rio, etc)
2. Sport
3. Medals (Gold, Bronze, Silver)

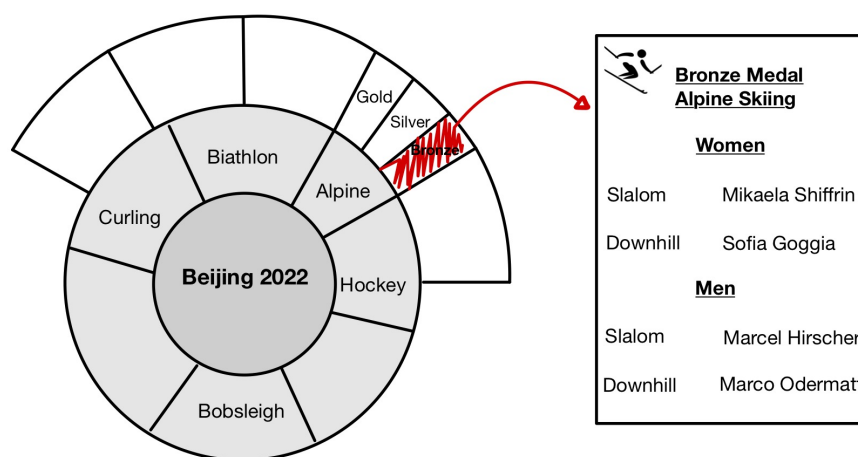


Figure 7: Future implementation of Wheel diagram

When the last layer of the wheel diagram is selected, a side panel appears showing the winner name's of each medal for each event.

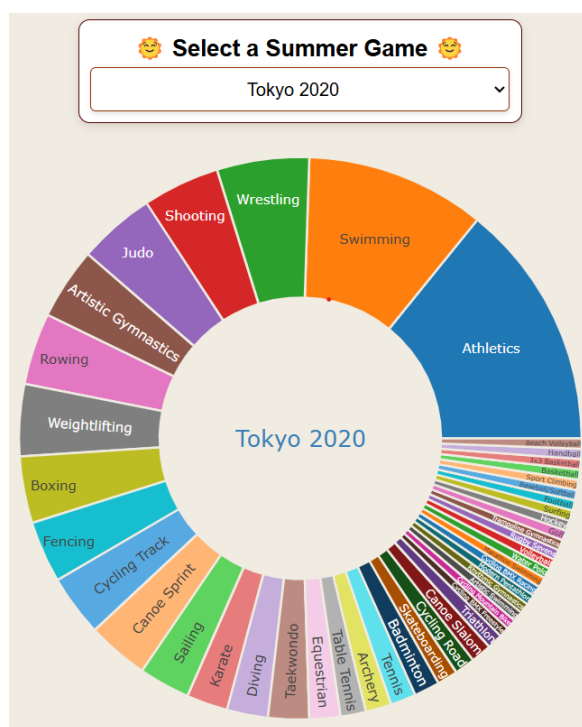
2.2.2 Final Results

The final result of the wheel chart differs slightly from our initial plan. When we plotted all the games on a single wheel chart, it became unreadable (see Figure 8). Therefore, we decided to create individual wheel charts for each Game Edition. Users can select a specific Game Edition using a selection element, and, as always, separate the winter and summer games using the switch button.

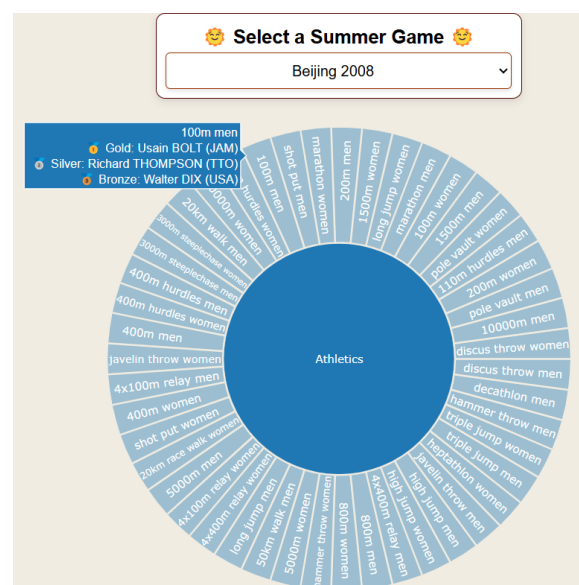


Figure 8: Wheelchart with all Winter Games

We can observe that the size of different discipline in the wheel chart is proportional to the number of events. For example, in the final visualisation (cf 9a), Athletics is the discipline with the most events, while Beach Volleyball has the fewest, with only two categories: Men and Women. The first layer of the wheel chart represents the disciplines. Clicking on a discipline navigates to the second layer, which displays all the events within that discipline. For example, in Athletics, we see events like 100m Men, 100m Women, Triple Jump, and so on. When hovering over an event, the chart reveals the three medalists of that event, along with their respective country. The result (see Figure 9a) is much more readable when selecting only one edition at a time. By default, the last edition of the selected season is shown.



(a) Full Wheelchart with selection for Tokyo 2020



(b) Second Layer of Wheelchart (Athletics 2008)

Figure 9: Final Visualisation of Wheelchart

2.2.3 Challenges

The main challenge was to create something readable for the user. Initially, the difficulty lay in correctly generating the parent and labels. At first, the disciplines were displayed only for the first game, and each subsequent game only showed events that hadn't been created yet. This caused significant issues because many games share the same events, making it challenging to manage the data accurately. The solution to address the problem was to make each event unique. However, for the reasons discussed above (see section 2.2.2), we decided to display only one game per wheel chart. This resulted in a much more pleasant and readable visualization and indirectly resolved the problem of redundant event names.

The last challenge encountered in designing the wheelchart was to display the medalists only on the last layer. First, all the medalists were shown on all layers, which was illogical. We addressed this by creating a function to determine when each display should occur.

2.3 Visualisation 🏆 : Treemap 🌲

2.3.1 What was planned

The third objective of the project is to link the world map of the main page to a second page, displaying more powerful statistics. A first visualization will be a treemap. The tree map will first display the gender of the athletes for the selected country. By clicking on one gender, the treemap will zoom and the different sport categories (athletics, alpine ski, etc.) are displayed. When clicking on one of the fields, the zoom will be applied, and each event will be displayed. For instance the following sequence can be imagine:

- You are in the world map^{2.1} and you click on Switzerland
- In the general panel (described in 2.1), you click on the link that sends you to the statistics page, where you see the described treemap.
- You click on "Men"
- You click then on "Alpine Ski"
- You see all the different discipline involved in the category such as men slalom, men giant etc..

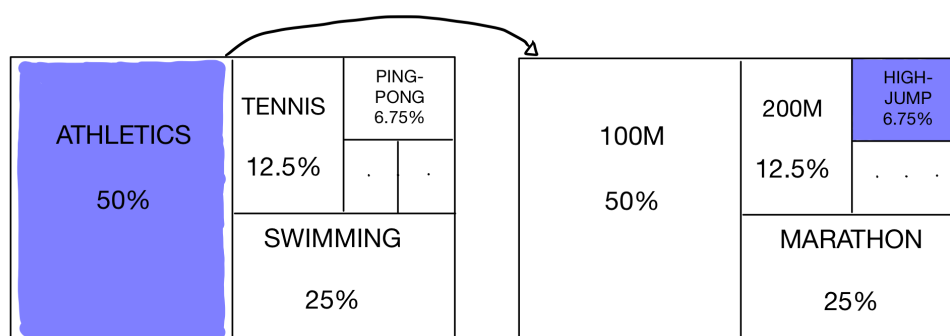


Figure 10: Sketch for the projected Treemap visualization

2.3.2 Final Results

Finally, the link between the two pages was dropped. In fact, the world map visualization was coherent in that way and adding extra information would have lead to uncomprehensible graph. Despite this aspect, the visualization was done as planned, showing two layers of disciplines. Percentages was also added on a popup window in order to have a refined design.

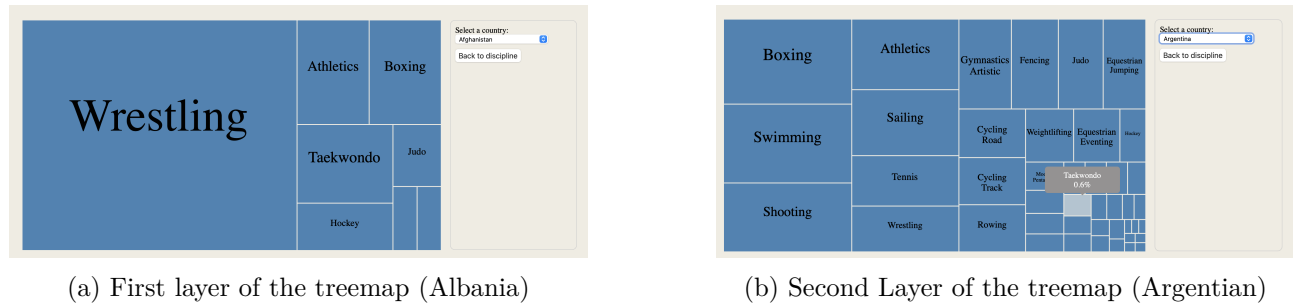


Figure 11: different layers of the treemap

Figure 11 shows the implementations of the treemap. When the mouse is over a category, the color changes to highlight this area and the popup window shows the name and the percentage. the country selector allows the user to switch between the different countries. Furthermore, if a country is selected, the season is switched and this country has never participated to the current season, the first country is displayed.

2.3.3 Challenges

During the elaboration of this visualization of this plot, several challenges have been faced. The first one is the fitting of the discipline name into the boxes. Some discipline has a long name and fitting them into the box was challenging. To face this issue, the font of the name is adjusted with the width of the box. Furthermore, if the name is too long, it is splitted in two lines. Finally if the font is too small, the discipline name will not be displayed. It can still be seen in the popup window when the mouse is over the region.

3 Peer Assessment

As three visualization was required, the team decided to split the work as follow: each member develop one visualization. The rest of the work (styling the website, texts, process book, screencasting, preprocessing) are done together. The different parts are summarized in the following bulletpoints.

- Fabio  :
 - Wheelchart
 - Datastory
 - Webstyle styling (colors, size)
 - Top Navigation Bar
- Yannis  :
 - World Map
 - Country info panel
 - Host country feature
 - Web scraping athlete image
- Vincent  :
 - About section
 - Treemap
 - popup window
 - slider and its animation