

Athletes in Winter Olympics: Milestone 2

Liu Haowen, Sun Haoxin, Wu Yujie

May 4, 2022

1 Project Goal

This project aims to show information about elite athletes in all 24 Winter Olympics. The visualization is realized by displaying these athletes on the world map with their profiles, as well as some figures to show statistical characteristics.

2 List of Tools

To achieve our goal, we need multiple tools for web design and visualization. Firstly, to establish the website structure, tools like HTML and CSS are required, which are the content of Lecture 1. Then basic JavaScript (Lecture 2 and 3) is needed to create interactive widgets on the page, like the navigation bar, back-to-top button, and so on. Since the core of our pages is to visualize the dataset, the D3 library of JavaScript shown in Lecture 4 and 5 is also necessary for dataset display.

For better visualization, our main visualization is based on the world map, so maps and the Leaflet library in Lecture 8 are key tools. Besides this, knowledge about visualization is also indispensable as we hope users can clearly browse and understand the data. Therefore, perception colors (Lecture 6), tabular data (Lecture 11), storytelling (Lecture 12), and basic design principles (Lecture 7) are helpful for this project.

3 Achieved Goals

In milestone 1 and previous works, we have already finished the following parts of our project.

- **Dataset preprocessing:** We have used Python to preprocess the dataset utilized in this project, like removing unimportant information, and replacing the name of athletes' committee with countries' capitals for better visualization.
- **Exploratory data analysis:** We also have done some fundamental analysis of the dataset. For example, we categorize the data by years, countries, and events, which can be directly shown as figures or used as filters in the world map.

4 Future Project Milestones (MVP)

In Appendix A, a draft of the sketch of our page is displayed, which shows what our project looks like. It mainly consists of the following contents.

4.1 Home page and navigation

The home page contains a navigation bar to indicate three main parts of our project: basic information, elite athletes, and statistics. It will help users to identify what they want to know and get the desired information quickly.

4.2 Basic information about Winter Olympics

This content briefly introduces the Winter Olympics, it will use some texts to demonstrate basic knowledge about the game, and then use a timeline to redirect users to the summary of each Olympics, as shown in Appendix B.1. It also contains information about events in Olympics, like Appendix B.2.

4.3 Interactive map

This interactive world map which visualizes the athletes' data is the most important part of our design. Athletes are represented by dots located at their motherlands, as shown in Appendix C. As there are too many athletes in the dataset, it is impossible to directly display and visualize all of their information on the map. Thus the map needs to be interactive so that users can freely explore athletes' information that they are interested in. In our visualization design, users can zoom in on any particular location (e.g., users from South Korea only want to browse East Asian athletes' information), and the map should correspondingly show the detailed knowledge.

4.4 Athlete profile

After finding one interested athlete on our map, users may hope to know more about him/her. Then our design allows users to click on the map, and then the page will display the selected athletes' profiles, like the figure in Appendix D. For example, their basic information, the events they participate in, and so on.

By combining the interactive map and athletes' own profiles, it is easy and convenient for users to learn more about these elite athletes who once won Winter Olympic medals.

4.5 Statistical figures

To intuitively summarize the statistical characteristics in the dataset, we design a page to display some figures based on the preprocessing results of this dataset. Bar charts and radar diagrams are implemented to visualize the information. These figures are also interactive so that by hovering, clicking, zooming in/out the contents, users can get corresponding detailed information, just like Appendix E.

5 Extra Ideas (Nice to Have)

The world map plays a key role in our visualization task, but some improvements listed below can further enhance users' experience with our website and it is nice to include them in the future.

5.1 Filters

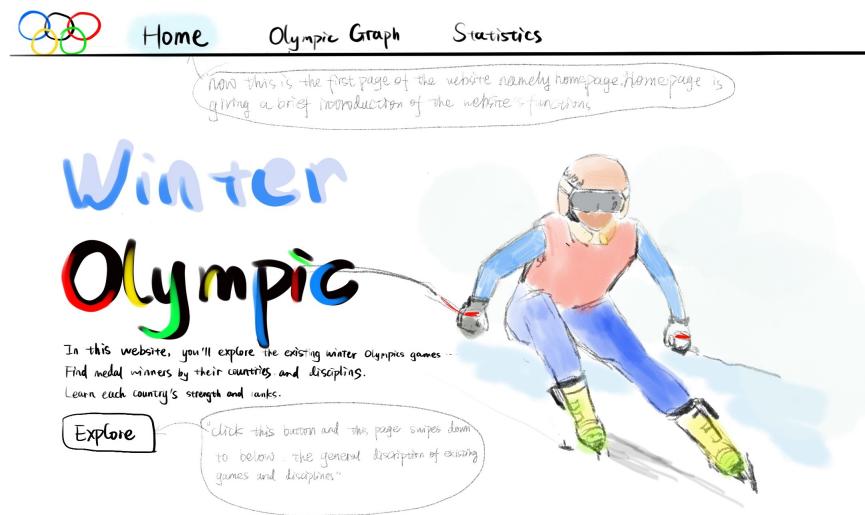
Sometimes users may only hope to see athletes with some specific characteristics. For instance, some skiing enthusiasts just want to know more about athletes in skiing and are not interested in athletes in other fields. Then applying some filters on the map would be really meaningful and useful. We plan to have filters in several dimensions: years they won medals, events they participate in, and nationalities.

5.2 Search field

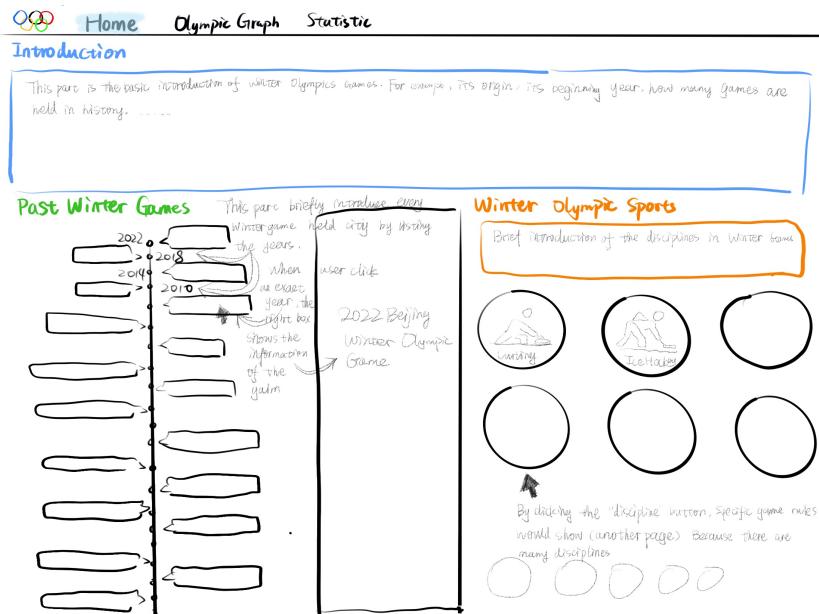
A simple search field can also be implemented in our design. This can help users to locate specific athletes quickly. For users who have some basic knowledge about the interested athletes, rather than spotting athletes by zooming on the map or setting complex filter conditions, they can directly find them by using this kind of search field.

A Appendix: Sketch of our design

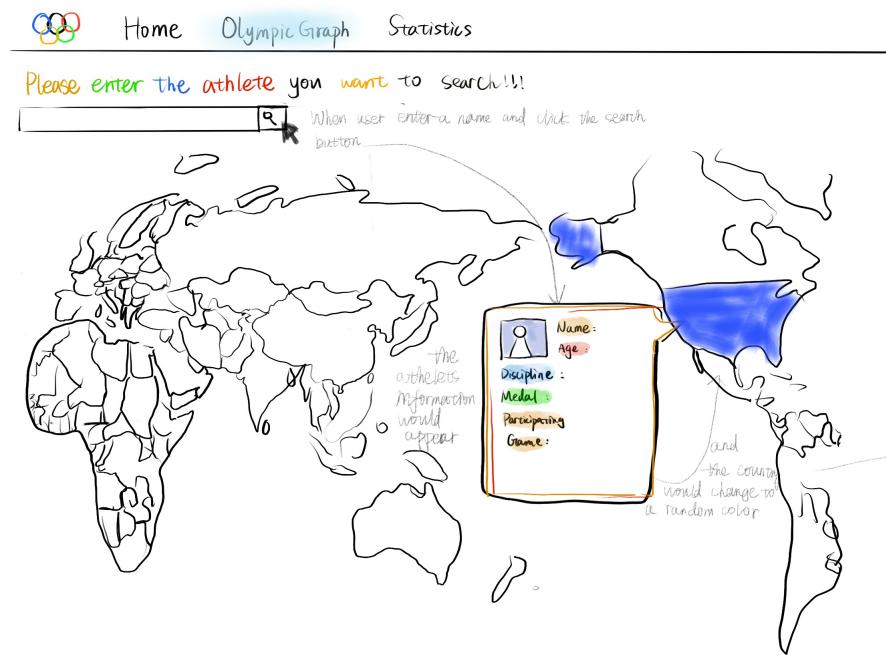
A.1 Sketch of home page



A.2 Sketch of home page introduction



A.3 Sketch of interactive map



B Appendix: Basic information about Winter Olympics

B.1 Information about each Winter Olympic Game

Date	9 FEBRUARY - 25 FEBRUARY
Country	REPUBLIC OF KOREA
Athletes	2833
Teams	92
Events	102

B.2 Information about winter events



BIATHLON

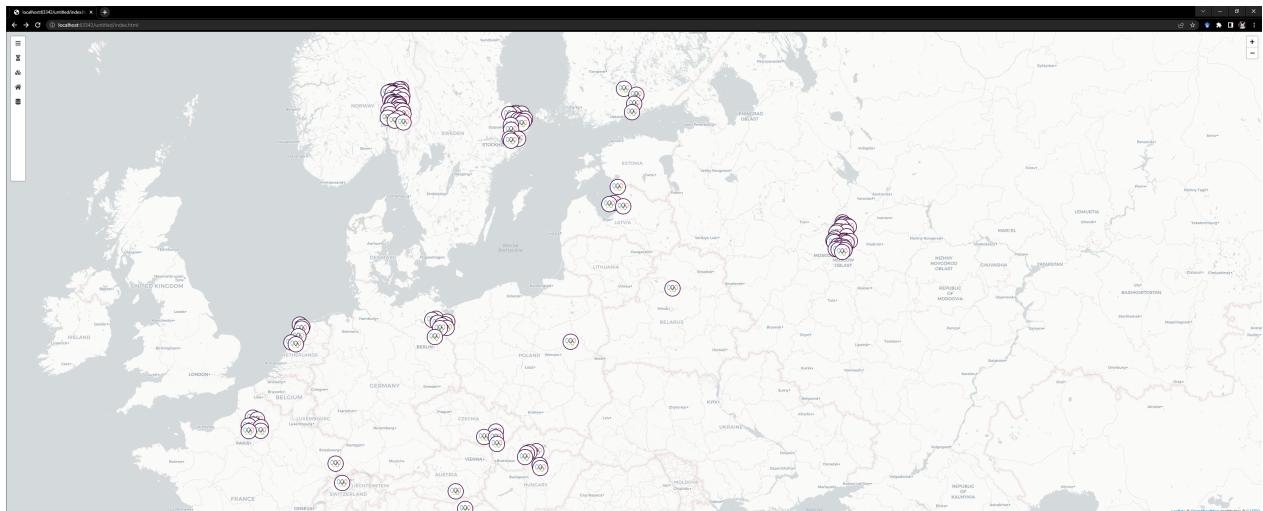


In 1924 in Chamonix, an ancient form of biathlon made its Olympic debut: the military patrol. This event was then in demonstration in 1928, 1936 and 1948. After some attempts to incorporate it into a winter pentathlon, biathlon appeared at the Games in its current form in 1960 in Squaw Valley. Women's biathlon made its first appearance on the Olympic programme in Albertville in 1992.

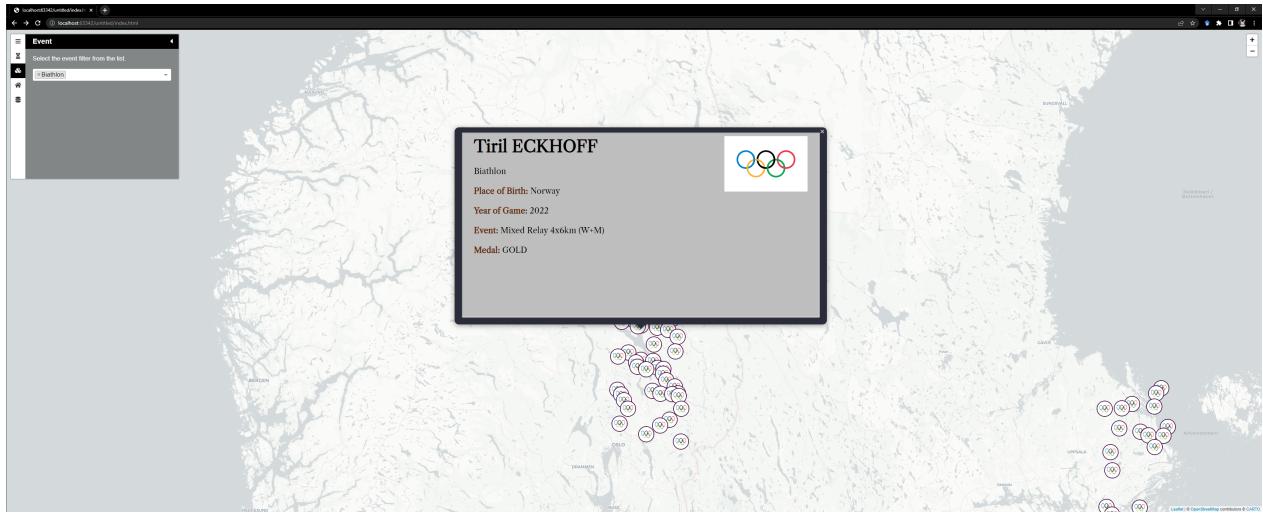
Until the 1976 Games in Innsbruck, the events comprised an individual race and a relay. In Lake Placid in 1980, a second individual event was introduced.

In Salt Lake City in 2002, a 12.5km pursuit event was added for men and 10km for women. From Turin in 2006, a new mass-start event was introduced for both men and women. This brings together the 30 best athletes from the World Cup.

C Appendix: An interactive map containing athletes' information

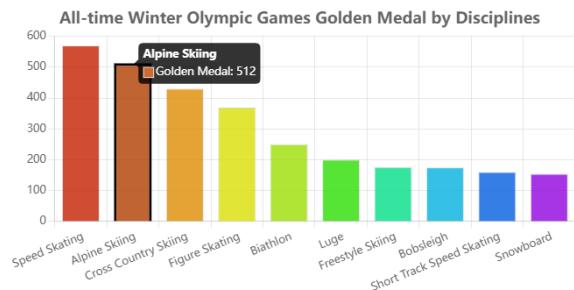


D Appendix: Athletes' own profiles



E Appendix: Statistical figures

Here is a bar chart of all the medals won by top 10 countries participating at the Winter Olympics (including 2022 Beijing Winter Olympic results). The country which has won the most golden medals and most medals overall is Germany.



Here is a bar chart of all the medals won by top 10 countries participating at the Winter Olympics (including 2022 Beijing Winter Olympic results). The country which has won the most golden medals and most medals overall is Germany.