

# History of Olympic Weightlifting

**Leonardo Framba**

**Email:** leoframba@gmail.com

**Git:** [https://github.com/leoframba/CS360\\_FinalProject](https://github.com/leoframba/CS360_FinalProject)

**Project Webiste:** <https://leoframba.github.io/Final/>

## Background and Motivation

The motivation for this project comes from my love for the sport of Olympic weightlifting. Weightlifting has been a staple of the Olympic games since its original inception in the 1920s. Over the course of its history, the sport has undergone a number of changes to make the sport more competitive and fair. Currently, competitors perform two movements called the Snatch, and Clean and Jerk. Each competitor has three attempts to perform each lift and then gets a total score based on the total of their two greatest lifts. While the total is the ultimate decider of if a medal the sport also keeps track of records for individual lifts.

## Project Objectives

My goal for this project is to analyze the growth of the sport since its original inception. This is going to be done by visualizing the records of different powerlifters categorized by a number of variables such as weight, age, year, steroid use, etc.

Objectives:

1. Illustrate the growth of the Sport via Records
2. Analyze how rule changes have impacted world records
3. Analyze which countries have dominated the records list

## Data

Data will be obtained from “Lift Up” website: <http://www.chidlovski.net/liftup/default.asp>

## Data Processing

Data processing will need to be done to get some of the values I want to visualize. The database is limited to basic information on the lifters and their records. This means that processing will need to be done to get non-competition-relevant statistics.

## Must-Have Features

1. A graph showcasing the records for all three major lifts over the course of the existence of the IPF federation
  - a. Display growth of records
    - i. Showcase each lift via small multiples
  - b. Potentially highlight certain changes in records due to change in regulations
    - i. Removal of the clean and press
  - c. Highlight the dominance of certain athletes that have held records for extended periods of time
  - d. This graph aims to complete objective one
2. Race Bar Graph showcasing the history of dominant countries in the sport
  - a. Illustrate which countries dominate the sport
    - i. What Country dominated what era
    - ii. Do certain countries dominate eras of less regulation?
3. TreeMap showcasing the current record holders
  - a. Showcase the latest rule change where many records were replaced with “Olympic Standards”
  - b. Which country is currently the most dominant
4. Highlight some of the greatest athletes in the sport

## Optional Features

- Records tracking individual dominant athletes
- Which years had the most records broken
- Comparison of avg height per weight class
- Add age as a variable to one of the graphs
- Interactability

## Project Schedule

**March 23** - Finalize proposal and decide on which graphs to use for visualization

- By the end of March I want to get all of my data sorted. This means separating my dataset.csv into arrays containing the data I want to use for each graph

**Apr 6 - Alpha** - Complete Data Processing for all graphs along with having mental sketches of how they will be visualized

- By the first week of April, I want to begin doing rough mock-ups of all my graphs. I want to confirm that the data will be optimal for each graph type before putting in more effort.
- By the second, I should have a confirmed idea of the final graphs and I'll begin working on objective one
- By the Beta release, I want to have all of my objectives completed so that I can spend the last bit of time polishing up optional features and adding interaction

## Related Work

Powerlifting Data Viz that uses similar graphs to the ones I want to create.

<https://towardsdatascience.com/powerlifting-data-and-exploratory-data-analysis-part-1-6f21d79ac5db>

Both the textbooks will be used for guidance/inspiration on this project

<https://clauswilke.com/dataviz/introduction.html>

<https://learning.oreilly.com/library/view/visualization-analysis-and/9781466508910/>

Another Data Viz project that compares fitness before and after the pandemic

- Interesting choice to use a bar + line graph to show additional variables. This is something I could add to my own graphs as an optional feature to showcase an additional variable

<https://chriscali.commons.gc.cuny.edu/2021/11/07/an-exercise-in-data-visualization-personal-fitness-before-during-the-covid-19-pandemic/>

A graph showcasing weightlifting differences between genders

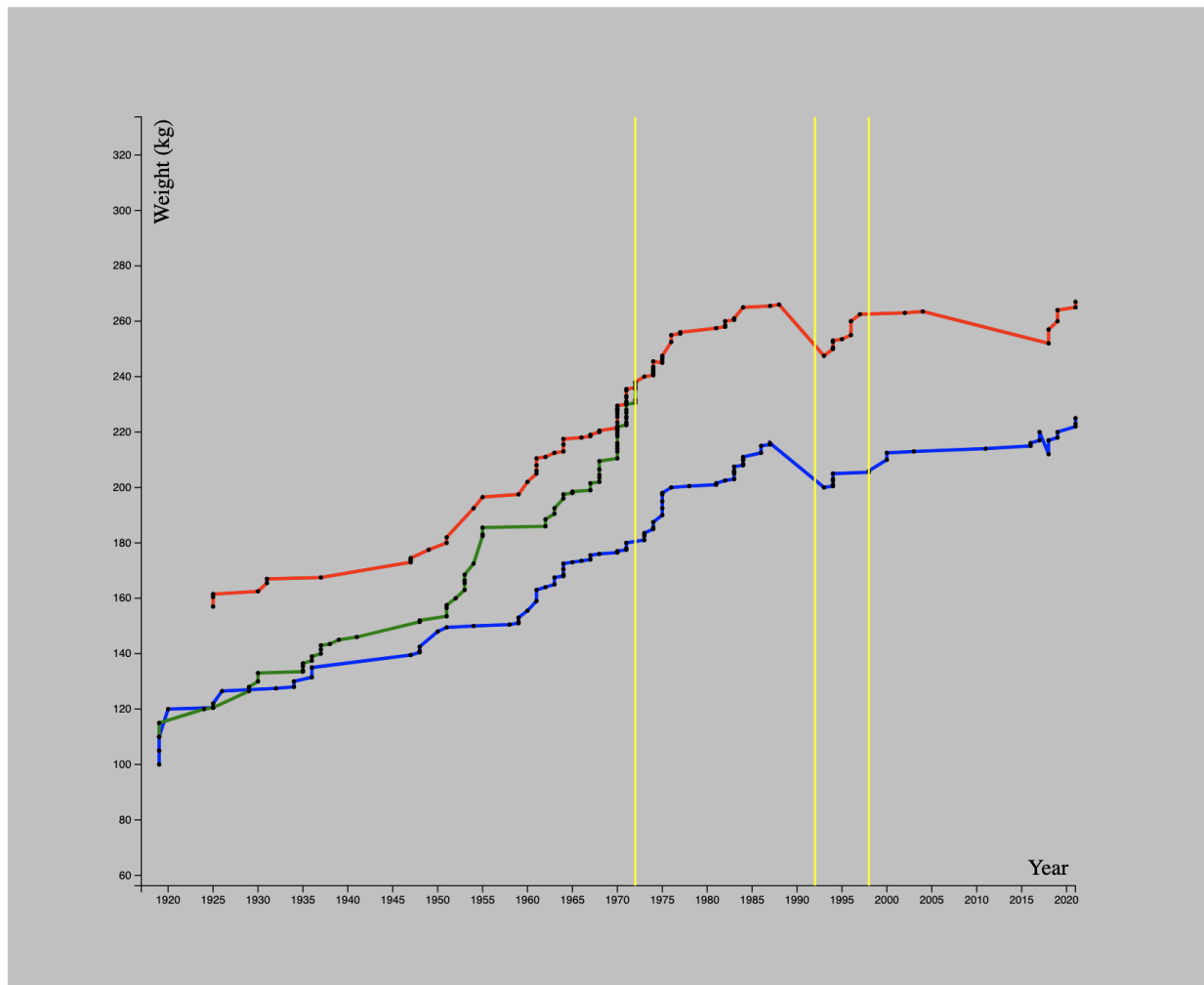
- I like the graph they used to show the difference in lifts by gender. While my objective states that I will be using a diverging bar chart for my own gender comparison if it doesn't look interesting I may try to create this one.

<https://www.anychart.com/blog/2019/10/18/visualizing-numbers-dataviz-weekly/>

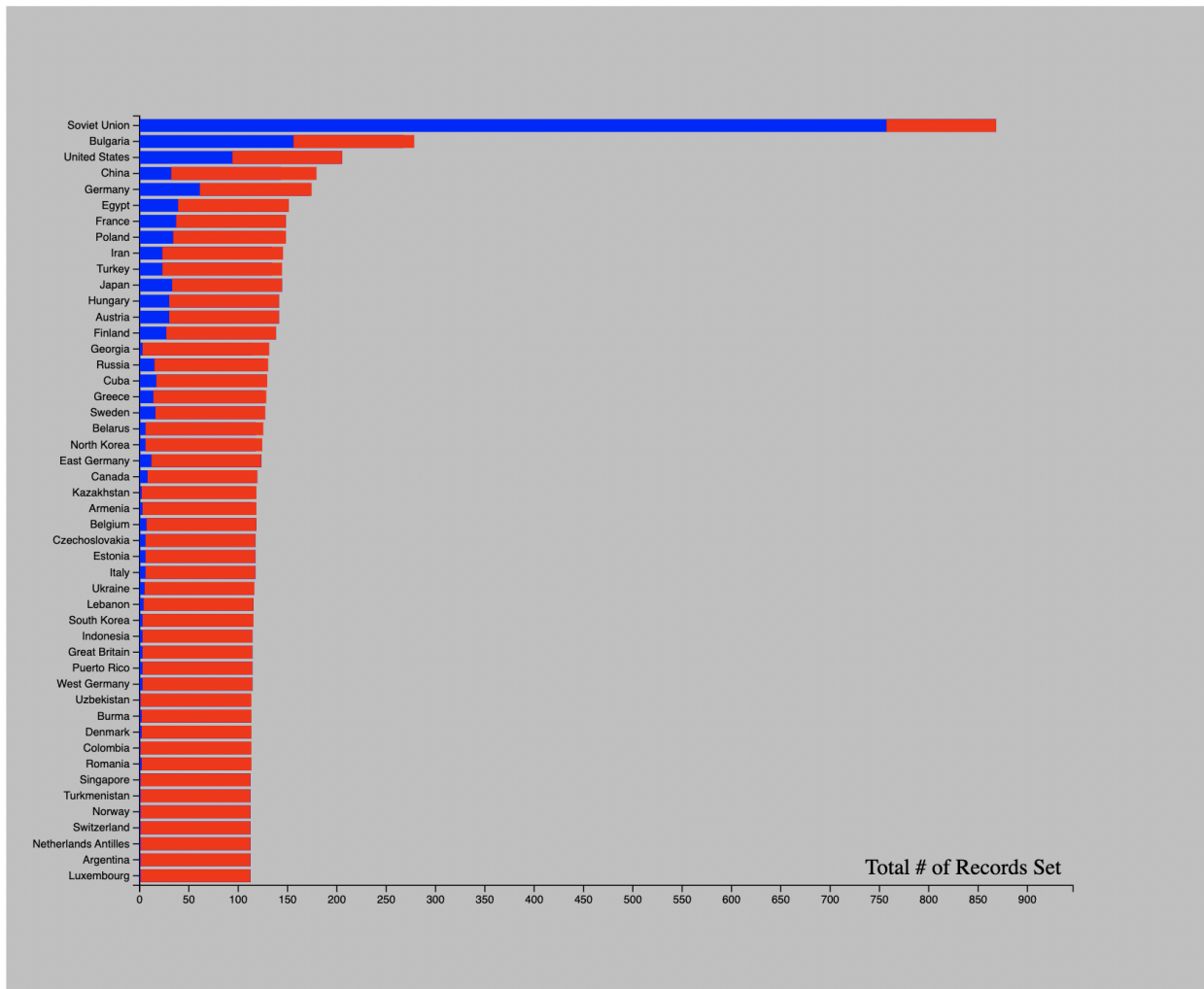
Additional inspiration for how to showcase the gender splits

<https://deepnote.com/@diane-bousadda/Data-Visualization-mnqyWk1iQO6hB1Lp13p89w>

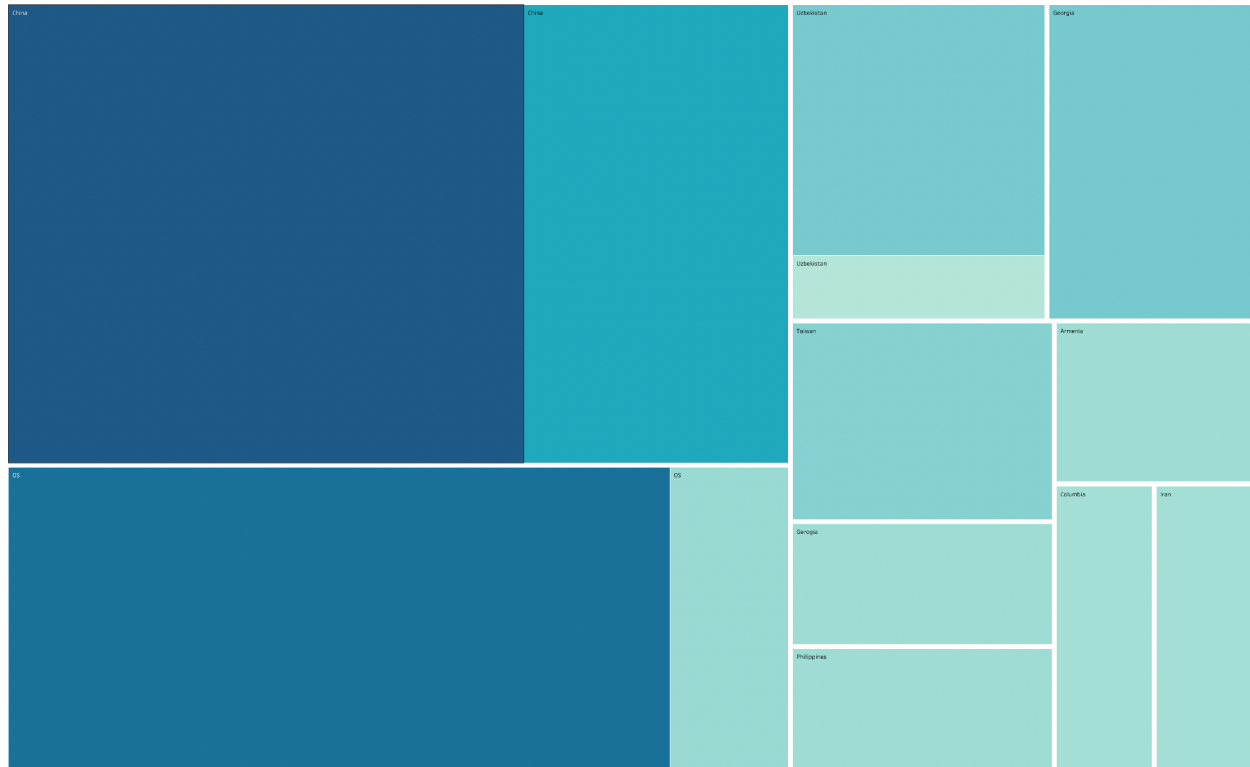
## Alpha Release



- Aims to complete objective one
- Currently working on implementing:
  - Better highlighting of the significant rule changes with a tooltip explanation for how they changed the records
  - The graph currently showcases only the Super Heavyweight class but I will be implementing a filter interaction to switch between the different weight classes
    - If I'm not able to implement the filter nicely I will use small multiples instead
- <https://vizhub.com/leoframba/44956b372e004768b3bd65fac2b447c3>



- Aims to complete objective two
- I would like to make this a race graph that shows the amount of records broken by country during the period of my data set
- Currently, the colors showcase the records broken before and after the removal of the clean and press lift
- <https://vizhub.com/leoframba/1a82921a508c4d7a948e5f4ba4d3e24f?edit=files>



- This graph aims to complete objective 3
- Treemap made in tableau showcases the spread of current record holders
- Highlights how China has recently become incredibly dominant in the sport despite not holding many records in the past