

CS 4460: P5  
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Nobel Laureates

analytic tasks

browsing sorting determining\_ranges clustering comparing

We chose the nobel laureates data set because it contained many types of data - historical, geographical, and biographical - and this affected our design process as we tried to incorporate all these aspects into our visualization.

## Design Overview

Our goal in creating this visualization was to show both the historical and categorical aspects of the data. In doing this, we also wanted to show which attributes or clusters of attributes apply to more winners compared to other attributes, since these apparent contributors to success would likely be a primary interest of the user. In general, this visualization is useful for browsing because the data has a good underlying structure and in the visualizations items that are spatially close to each other are related; in fact this is the entire basis of the treemap. More specifically, the treemap also uses clustering and some minor locked-in filtering to show attributes of winners and how they compare to other attribute clusters. This follows the zoom and filter paradigm proposed by Shneiderman that we have seen used extensively in class examples.

The timeline view allows the user to determine ranges and find spans of values within the data set that match their desired range by looking at the values relative to the axes. The user can also see extrema on this view fairly easily. It provides some limited clustering by showing teams as vertically arranged dots and using a border to differentiate males from the much less abundant females. This view also includes tooltips describing the person and their work which provide detail on demand, another part of the Schneiderman mantra. The darker circles represent female nobel prize recipients, which is something we wanted to highlight in the dataset. Finally, the colors of the categories represented in the scatterplot match the colors of the categories represented in the treemap, which is helpful for the user maintaining and understanding the dataset no matter which view they pick to focus on.

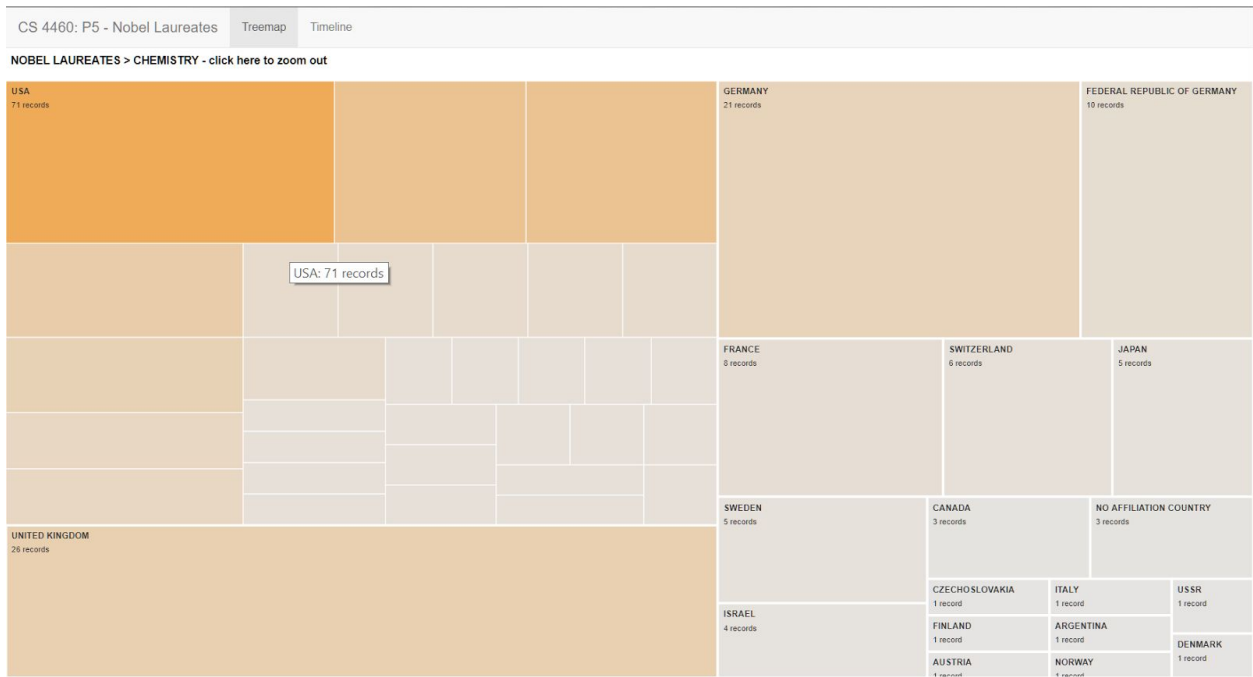
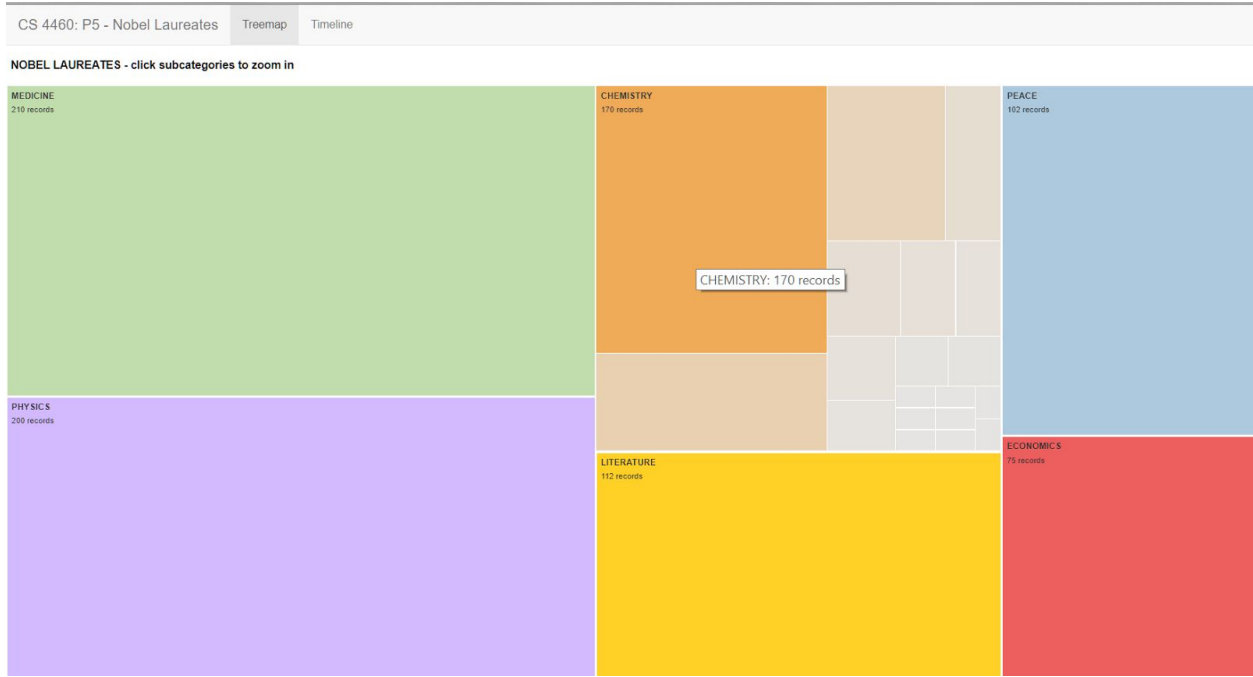
## Design Setbacks

We originally planned to use the country codes included in the data to create a geographic map visualization of where the nobel laureates were born versus where they were affiliated, and to show links between affiliated laureates. However, finding a place in the country where the persona representation could be displayed in a sensible way proved to be difficult, especially for smaller countries or strangely shaped ones, and the map material was not covered in class until too late to be helpful. We changed this visual to the treemap, since the geographic location of the country is not that important - we were more interested in the born country and affiliation country as clustering mechanisms.

In implementing the scatterplot, we wanted to use a range slider that would zoom in on a particular section of the x-axis. There were limited examples available of such an implementation, but we understand that having it implemented would have improved the quality and understandability of the visualization. Additionally, and aside from the previous implementation challenge, we wanted to show the data in a way that was both meaningful and interesting. The lack of females in the dataset was something we wanted to highlight, but certain ways of showing the data were boring considering the lack of females relative to the total number of nobel prize recipients. Finding a way to show this data while having it also be visually interesting was another challenge we faced.

Finally, we intended to link the two views together so that the timeline view would highlight or otherwise emphasize the laureates who fall within the category of the element selected on the treemap. However, the time spent working on the issues above prevented us from implementing this, which is unfortunate because it would have made the visualization much more explorable.

Screenshots



NOBEL LAUREATES > CHEMISTRY > UNITED KINGDOM - [click here to zoom out](#)

CAMBRIDGE  
4 records

UNIVERSITY OF OXFORD  
3 records

GLYNN RESEARCH  
LABORATORIES  
1 record

CLARE HALL LABORATORY  
1 record

UNIVERSITY OF OXFORD,  
ROYAL SOCIETY  
1 record

LONDON UNIVERSITY  
1 record

MRC LABORATORY OF MOLECULAR BIOLOGY  
4 records

UNIVERSITY OF SUSSEX  
2 records

BIRMINGHAM UNIVERSITY  
1 record

INSTITUTE OF PHYSICAL  
CHEMISTRY  
1 record

ROYAL INSTITUTION OF GREAT  
BRITAIN  
1 record

NATIONAL INSTITUTE FOR MEDICAL RESEARCH  
1 record

IMPERIAL COLLEGE  
2 records

UNIVERSITY COLLEGE  
1 record

VICTORIA UNIVERSITY  
1 record

ROWETT RESEARCH INSTITUTE  
1 record