

Milestone 2

The goals of our project are to visualize and provide insight into the Erasmus educational mobility program concerning the institutional, geographic, temporal, and demographic points of view. We explore the program's evolution, focusing on different demographic groups, geographic areas, education levels, and types of participation. Additionally, we investigate volume and collaboration between countries and their institutions, changes in exchanges, the popularity of programs in different education fields, and university significance to the program. All this, we explore interactively and interestingly through our visualizations presented in this report.

The prototype of the website: <https://com-480-data-visualization.github.io/datavis-project-2022-why-axis/>

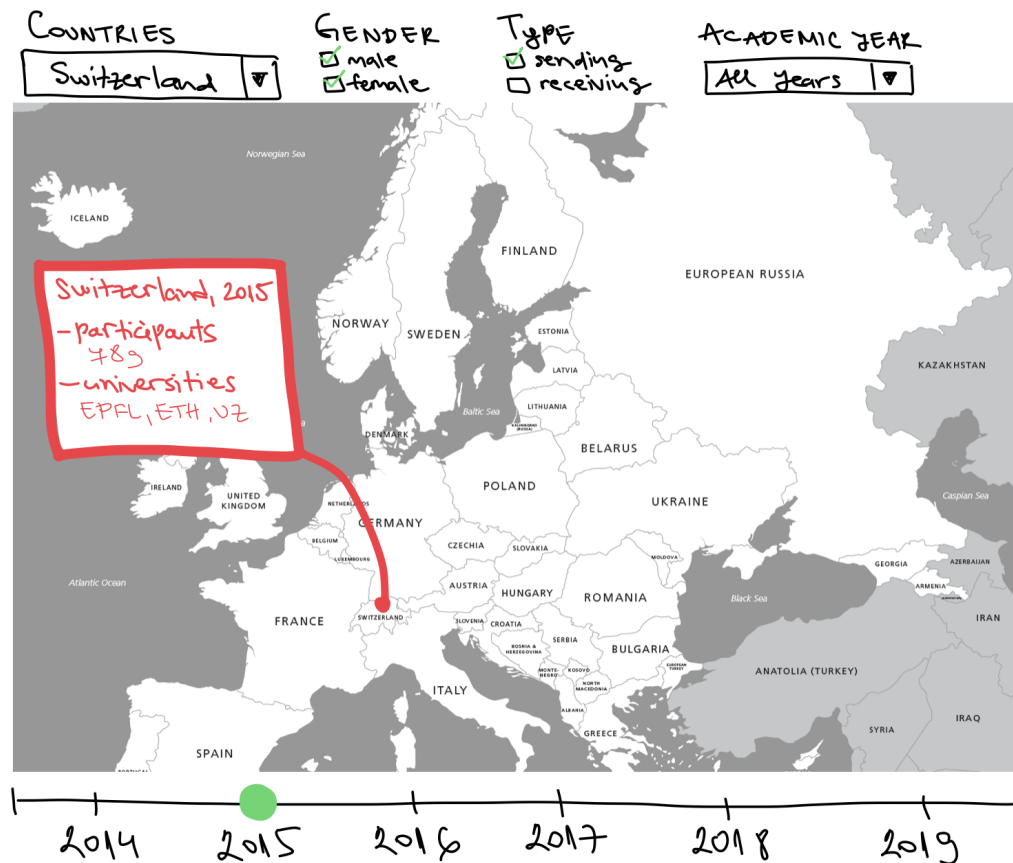
Visualizations:

#1: Erasmus Map

The map shows the evolution of the Erasmus program in terms of geographic, temporal, and demographic points of view. The data is displayed per one program year, chosen from 2014 to 2019. It is possible to see which (top 5) universities participated in the mobility programs of selected countries and the total number of participants for the country. Additionally, it is possible to filter and investigate participants' gender, type of exchange for a country (sending/receiving), and an academic year, i.e., education level.

Tools: JavaScript, D3.js, Bootstrap, Plotly

Lectures: weeks 2, 3, 4, 5, 10

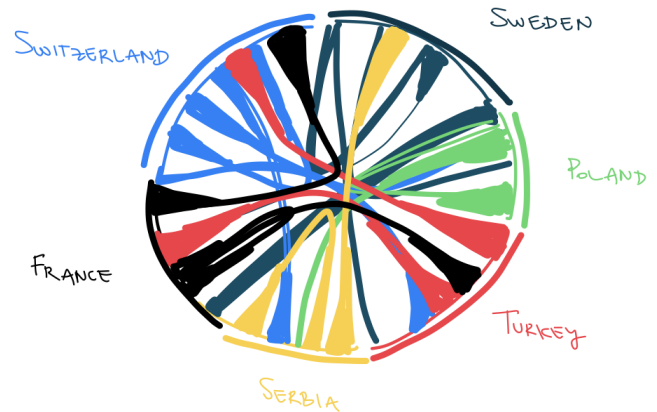


#2: Country Relationship Diagram

To better understand the participating countries' volume, collaboration, and popularity, we want to present a country relationship diagram. This visualization is depicted as the [chord diagram](#) showing dependencies between countries participating in the Erasmus mobility programs. Each country is represented as a colored fragment along the circle, while arches are drawn to show exchanges between the countries (sending or receiving institutions).

Tools: JavaScript, D3.js, Bootstrap

Lectures: weeks 2, 3, 4, 6, 12

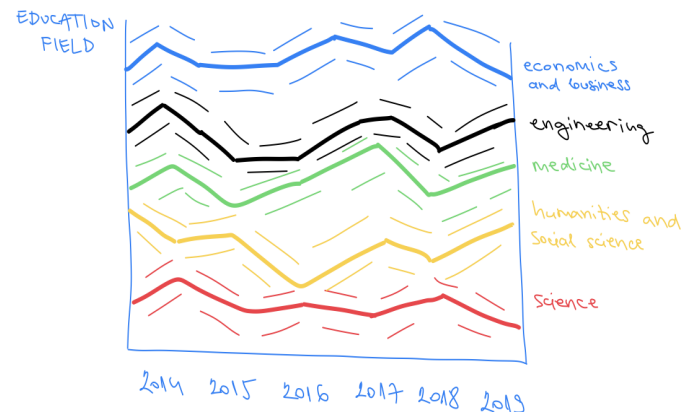


#3: Education Field Yearly Stream

This stream chart gives insight into the number of participants per education field for each Erasmus program year. We want to depict the increase and decrease in the popularity of education fields for the given six years of data.

Tools: JavaScript, D3.js, Bootstrap

Lectures: weeks 2, 3, 4, 6, 7, 13



#4: Universities Bubble Cloud

We use a bubble plot to explore which universities are in Erasmus mobility exchanges and how many participants. Each university is represented as a colored bubble, while the attribute chosen from a filter determines the size of the bubble. This attribute can be the number of outgoing or incoming participants, the total number of participants, pagerank, or graph betweenness measure. All the data is calculated by summing the provided data for 6 years.

Tools: JavaScript, D3.js, Bootstrap

Lectures: weeks 2, 3, 4, 11, 12



Extra ideas:

Idea 1: Combine with data from other sources

One could merge the Erasmus dataset with other data sources to give richer information about universities and their Erasmus programs. For example, we could add university metadata, such as size, the fraction of international students, or university ranking. This information could be added to **Visualization #1** on hover or to transform **Visualization #4** to investigate the relation between the pagerank/betweenness ranking and actual university ranking.

Idea 2: Visualizing nationalities of participants

We would like to have a world map with a "heatmap" presenting the nationalities of program participants that could be filtered on different aspects - e.g., present nationalities of students who decide to go to Spain on a language-oriented exchange.