Visualization Project

The idea of each project is to apply the visualization principles, you have learned in the course. You choose the data and task for your project yourself. Your job is to develop a meaningful interactive visualization solving the task defined by you in *D3.js*. You may of course use Tableau Prep or Tableau for data preparation. You will hand in a complete website with task & data description, concept sketch, interactive visualization, references and authors.

Problem Definition

The problem definition (a.k.a research question) is the cornerstone of your visualization project. It should be clear and focused, as well as of personal interest to you. You should develop your problem definition in order to target the specific topic but remember that the visualization should also be able to answer that question. Spend some time collecting information about a topic that interests you and remember to mention the most relevant references in the link section of your website. Discuss possible research questions with your group member and choose one for your project proposal.

Data

As a group, you should choose the data best fitting your research question. There is no restriction on the data you should use but remember that the source should be reliable. There are many open datasets available on the Internet. Please make sure that there is no copyright problem, i.e. you can use the data, as this could lead to legal issues. Once you selected the data, keep track of basic metadata information, as you should present it in your project proposal and in a dedicated section of your website.

Visualization

One (or more) interactive visualizations should be the core practical outcome of your project. This is the main support that visitors of your website should use to investigate and understand your data and problem. Spend some time on the Internet looking at existing solutions and draft a paper sketch (Figure 1 and 2). We ask you to enclose a sketch like this with the project proposal and on your final webpage. Remember that you should be able to justify the design solutions you implement. You need to be able to discuss the motivation, justification of your design solutions when presenting your research project in oral form.
Do not forget to include (color) legends!

We propose that you look at the galleries of D3.js:
https://www.d3-graph-gallery.com/
https://github.com/d3/d3/wiki/Gallery

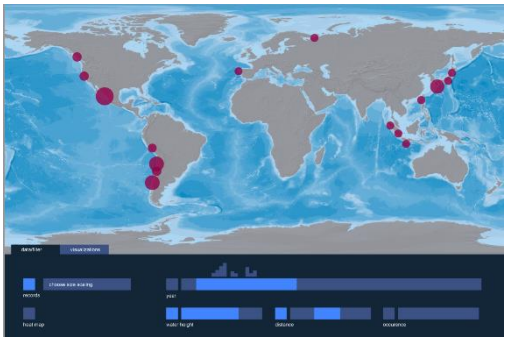

Figure 1: Example sketch from Tobias Frey, 2018

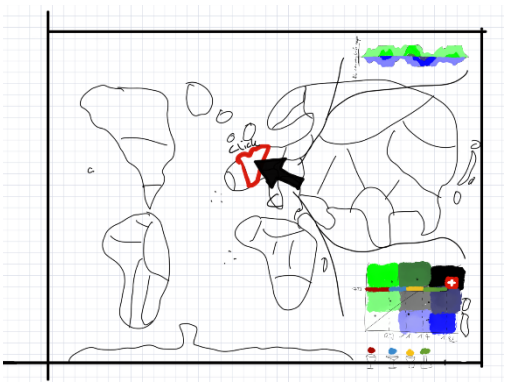

Figure 2: Example sketch from Emanuel Martin, 2018

Interaction

Your project will be considered as interactive, if it fulfills at least the following two criteria:

- The visualization follows the overview-first, zoom-and-filter, details-on-demand Information Seeking Mantra
- At least two visualizations are connected by brushing & linking

Your Web-Artifact

As previously mentioned, your visualization project goes beyond a simple visualization. We expect you to provide a complete web-based solution on your research topic. Ideally you should include at least the following elements:

- A home page that allows navigating within the pages of your website
- A section with background information on your research project and your first sketch
- A section providing basic information on your data sources
- A section with your visualization(s) (including interactive elements such as filtering, brushing & linking, dynamic plots, etc.)
- A section with respect to your visual design choices (2500 to 3500 letters inclusive white spaces). The following list of aspects should be covered in your reasoning (approximately 500 letters each):
    - Foundations Visual Design
    - Fundamental Principals of Analytical Design (Tufte)
    - Data-Ink Ratio (Tufte)
    - Human Perception
    - Tasks in Data Visualization
    - Interaction Concept
- A section with references to relevant information on your research topic together with findings
- A contact section with some information about the group members

Regulations & Evaluation

During the first session, you will create your group of **two** students (in case of odd numbers there will be only one three-person group) and select the topic of your research project. Unless strong arguments are provided, the groups and topics cannot be changed.

You are of course allowed to use any help of tutorials or existing visualization examples. However, you **must** make this help obvious to us by listing it in your references writing one half sentence, what code you have used from this source. Plagiarism must be taken seriously: https://www.hslu.ch/-/media/campus/common/files/dokumente/m/bibliothek/richtlinien-leitfaden/m-merkblatt-plagiate.pdf

We will evaluate your visualization project using the following criteria:

- Clarity and plausibility of your concept (40 %)
- Implementation of the interactive D3.js visualization in accordance with the theoretical foundations of information visualization (50 %)
- User Experience of Website (navigation, structure, user expectations, mental model) (10 %)

Lecture Time on Thursday

There will be no classical input lecture starting from November 9th. If you want to have support, feedback, or discussions, attend the zoom meeting during our class time. We will give individual support in this time frame. If you are in need for real-world meeting, please let us know early in advance. **We recommend meeting us once during the project phase for feedback!**

Important dates

October 19th, 2023 – Project Proposal (obligatory):

- Enter in ILIAS your group members and an expressive title of your project
- Please prepare in your group the problem definition, data source, and concept sketch (Powerpoint with a couple of slides)
- Upload your presentation to ILIAS (Deadline: October 18 th)
- Present your project in 3-5 minutes in front of the class

December 14th, 2023 – Project Presentation (obligatory):

- Present your project in front of the class (all group members must contribute equally)
- Upload your presentation to ILIAS (Deadline: December 13 th)
- Your presentation fills (and not exceeds) 5 minutes effectively
- You give feedback to your colleagues – 5 minutes

January 15th, 2024 – Project Submission (obligatory):

- Upload zip file of your website to ILIAS
- Upload a link to your web page to ILIAS

Proposal of Technologies

We propose to use Brackets (http://brackets.io/) together with Chrome for the website development.

For website hosting please use GitHub Pages. If you don't have a GitHub account, please create one: https://docs.github.com/en/get-started/onboarding/getting-started-with-your-github-account

In GitHub use the following to clone a repository: https://docs.github.com/en/repositories/creating-and-managing-repositories/cloning-a-repository

An example link to your GitHub Repository would look like as follows: https://github.com/DAVIHS23/g01

All commits that you make, will result in a deployment of your website automatically.

An example link to your webpage would look like as follows: https://davihs23.github.io/g01/

Note: All repositories are created. You only need to clone the repository that corresponds to your project group.