

# Group Assignment 2: Interactive Visualization Project

This is a team assignment.

In this final project assignment, your team will develop an interactive web-based visualization building on the dataset, analytical tasks, and design concepts from Group Assignment 1.

## Requirements

Your interactive visualization must meet the following minimum criteria:

- The visualization must include **at least  $n$  distinct visualization techniques**, where  $n = \text{number of team members}$ . Using the same chart type multiple times (e.g., three bar charts) counts as one technique.
- **At least 2 interaction methods** (e.g., brushing & linking, dynamic querying, filtering, zooming).
- **At least 2 coordinated views need to be linked.** Ideally, these views are linked bidirectionally.
- **Interactive tooltips** are shown when users hover over marks, **at least in one view**.

Most projects will be a good fit for a dashboard style (where all or nearly all views are visible at once), but you may also use a scrollytelling style.

## Implementation

This project assignment requires **code writing efforts and technical implementations** of visualization components. You are expected to create visual elements directly, rather than relying on tools that automatically generate charts or dashboards.

Code-based visualization frameworks and libraries are **allowed**, including:

- **D3 (Data-Driven Documents)**: A JavaScript library for data-driven DOM manipulation, interaction, and animation. (preferred as it is demonstrated in the class)
- **Vega / Vega-Lite**: A declarative visualization grammar.
- **Processing / p5.js**: A popular language and IDE for interactive graphics.

Libraries that support specific-purpose visualization functionality, such as *Leaflet* for plotting maps, are also permitted. You may additionally use CSS frameworks (e.g., *Bootstrap*,

*Materialize*) and general utility libraries such as *jQuery*, *Moment.js*, or similar tools to support layout, interaction structure, or data handling.

Tools that generate visualizations with minimal (low-code) or no programming (no-code) effort are **not allowed**, including:

- GUI-based dashboarding tools, such as Tableau, Power BI, and Datawrapper
- Streamlit, Dash, Plotly, Plotly Express, Bokeh
- Highcharts, Amcharts, Chart.js, and similar charting abstractions

## Presentation

Each team will have 10 minutes for the presentation, plus 5 minutes for Q&A afterward. Your presentation should include the following structure:

1. **Elevator pitch** (1-2 minutes)
  - What does your visualization show, and for whom?
  - Why is the project interesting/important?
1. **Project description** (2-3 minutes)
  - What is the motivation?
  - Who and what is your tool for, more specifically?
  - What are your research questions?
  - What is the data source used in this project?
1. **Project demo** ( $\approx$  5 minutes)
  - An explanation of what the tool shows. Describe why the encoding you used makes sense for the visualization regarding your research question.
  - A demo of the possible interactions in the tool.
  - A demo of some of the most interesting things you found in the tool.

## Submission

Submit your final interactive visualization project on TUWEL.

1. **Provide two URL links in the comment.**
  - Source code repository on GitHub or GitLab, all necessary project files, data, and dependencies required to build and run the tool independently.
  - Live, deployed version of your visualization tool. The online tool must run in a standard web browser without installation and allow users to explore and interact with the visualization.
2. **Presentation slides.** Upload your final presentation slides as a PDF file.