

Data Visualisations 2023: Project

(40% of the total grade)

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1 Key Dates

Handed out: March 14, 2023.

Submission of Deliverable 1: **April 6, 2023** (before 11:59 PM).

Submission of Deliverable 2: **May 6, 2023** (before 11:59 PM)

2 Objective of the project

The goal of this project is to expose you to real-world research and dive into the visualisation design and implementation. As part of the project each group of 2-3 students will need to work with real datasets, complete a task analysis, design and implement an interactive web-based visualization, and communicate the results of the final project through a web-page and in-class presentation.

3 Requirements

3.1 Select a real dataset

The group should select a real-world dataset that presents compelling data and convey useful information. Make sure that the data is publicly available and can be legally used for this project. Please, select a dataset not too large. However, it should also have enough variables for an insightful visualisation. The group could also create its own dataset by collecting data by itself or scraping data on the web. The following links might be useful for the dataset selection: <http://www-personal.umich.edu/~mejn/netdata/> and <http://snap.stanford.edu/data/>. The group should ensure that the dataset is reliable and accurate by checking for missing values, outliers, and inconsistencies.

Bonus point: If you create your own dataset for example by scraping data on the internet (through an API) you get **1 bonus point**.

3.2 Perform a task analysis

The group should identify the specific tasks that the visualization will help to accomplish, such as finding patterns, making comparisons, or identifying trends.

3.3 Design the visualization

Once the task analysis is complete, the group should start designing the visualization. The students should choose an appropriate visualization type based on the data and task analysis. The visualisation should include:

- a minimum of two different static visualisations with different visual encodings. Use an appropriate form of color, size, and shape encodings. Use consistent encodings across views.
- two interactive visualisations that include the following two interactivity concepts: brushing and linking, and details-on-demand. Brushing and linking allow users to select a subset of data in one visualization and see the corresponding data in other visualizations. Details-on-demand

allows users to hover over a data point or select it to see more detailed information. These interactivity concepts are important for helping users explore the data and gain insights from the visualizations. The group should make sure that these interactions are clearly explained and easy to use.

3.4 Implement the visualization

With the design complete, the group can start implementing the visualization. They should use tools like python/javascript/html etc to create the visualization. They should make sure the visualization is interactive and easy to use. Be sure to test the visualization to ensure it is working as expected.

Bonus point: If you use git/github properly and continuously to collaborate with your group members and track the changes during the project development you get **1 bonus point**. Attention: no bonus point will be delivered for creating and managing your code only locally and just uploading it when is ready on the github.

3.5 Create a web-page (1 bonus points)

The group should create a webpage that showcases the visualization project. The webpage should include an introduction to the project, a description of the dataset and task analysis, and interactive visualizations. They should also include a conclusion that summarizes the main findings from the project.

3.6 Prepare for in-class presentation

The group should prepare a presentation to show the projects to their classmates and instructor. The presentation should include an overview of the project and its goals, a description of the dataset and task analysis, a demonstration of the visualization, and a discussion of the main findings. The group should also be prepared to answer questions and discuss their design and implementation decisions.

- The presentation should be approximately 8 minutes in duration (cannot exceed 15 minutes including QA).
- Each member of the group must speak for approximately equal portions of the presentation.
- The presentation must include a live-demo of the interactive visualizations.

4 Deliverables

4.1 Deliverable 1 (deadline April 6, 2023)

You should submit on luis.learn a pdf containing a brief but clear description of Tasks 3.1, 3.2 and 3.3. **Attention for Task 3.3: You do not have to implement the visualisation, you can just make a (even a handwritten) sketch of the visualisations you plan to implement.** Then, each group will have a short meeting (max 15 mins) with the instructor to discuss the deliverable. The meeting can be online or in person. All the members of the group should participate. The dates for these meetings will be decided when the deadline approaches.

4.2 Deliverable 2 (deadline May 6, 2023)

- If you use git and GitHub for your project: The group should submit the link to the public GitHub page of the project. **Please note that any modifications made to the group's GitHub repository after the project deadline may result in a penalty or even a failure of the project.** It is important that all work is completed and uploaded before the deadline.
- Before the deadline, the group should submit on luis.learn a single zip folder containing all the code of the implementation as well as the presentation pdf.

Good luck!