Final Project Description & Rubrics

SLIS/IGPI-6155: Information Visualization

Instructor: Chaoqun Ni

Description

The purpose of the final project is to provide hands-on experience designing, creating and interpreting visualizations for given data sets. The final project will require individual efforts and should address a concrete visualization problem. Your report should describe the issue/problem, the approach/solution, the data, and visualization, and major conclusions. You should also put your work in a broader context by a brief search of how others, if any, have addressed the same/similar issue. Please include references when appropriate.

Steps

1) Decide a data set. You are encouraged to use a dataset related to your own research or work. I also provide some datasets in case you don't have access to one.
2) Exploratory analysis. You should explore the data set and come up with initial ideas of what questions to want to ask from the dataset and what kind of visualizations you are thinking about creating.
3) Decide the type of visualization
4) Decide the tool for creating the visualizations and create 4-6 visualizations (each visualization should represent different information). You are required to use at least 2 different visualization tools and packages.
5) Summarize the whole process in a report
6) Submit the report
7) Create presentation materials and present in class.

What to submit

1. **A report up to 10 pages** in MS word or PDF format. Please note that you will be using single-space and 12 font size for the report. If you are using any references, please cite the work using APA 7 style (guide: https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/general_format.html)
    - The report should include the following component:
        - A brief introduction to the dataset
        - A list of questions that you want to use the dataset to answer. You are suggested to include 4-6 research questions.
        - A list of information visualization tools that you will be using and the reasons for using them. You are encouraged to use at least 2 different visualization tools.
        - A list of high-resolution visualization images (4-6). Explain clearly why a specific type of visualization is used, what each visualization is about, how users should read it, and what is the main information each visualization delivers.
        - Storytelling: please revisit each of the research questions, answer and conclude each question with the visualization results in the previous step. Make sure you tell a story using the visualizations you created.

- Discussion, Limitations and future steps: discuss what might be the potential limitation of the visualizations you created, and how you will improve in the future. You should also put your work in a broader context by a brief search of how others, if any, have addressed the same/similar issue.
- (Optional)Appendix: You may include any additional information in the appendix. This is no page limit on the appendix.

2. Presentation materials you use for in-class presentation.

Guidance and Formatting Instructions

On how to write information visualization research papers, read Tamara Munzner's guide: http://www.cs.ubc.ca/labs/imager/tr/2008/pitfalls/pitfalls.pdf

Software Tools

You may consider the following list of software tools in association with suitable types of data you want to analyze and visualize. This is NOT a comprehensive list. Instead, the purpose is to give you a starting point in planning for your final project.

- **Tabular Data**

If you will be dealing with data in tabular forms, e.g. spreadsheets and CSV data files, you may consider the following as your starting point:

⇒ Tableau
⇒ RAW
⇒ Many Eyes
⇒ Google Fusion Tables

- **Network Data**

If your data is about a network or a graph, you may consider the following:

⇒ Gephi
⇒ Pajek
⇒ NodeXL
⇒ Social Network Image Animator
⇒ Hierarchical Data
⇒ SequoiaView
⇒ R
⇒ Python

- **Bibliographic Data**

⇒ CiteSpace
⇒ VOSViewer
⇒ Python

- **Text Data**

If your data is a collection of unstructured text documents, consider the following. CiteSpace has adaptors to convert bibliographic data to the format for Carrot and for Jigsaw.

⇒ Carrot2 Workbench
⇒ Jigsaw
⇒ Python

- **Time Series Data**
  ⇒ Timesearcher

- **GeoSpatial Data**
  ⇒ Google Fusion Tables

- **Multi-Dimensional Data**
  ⇒ GGOBI http://www.ggobi.org/

Grading Rubric

The following grading rubric will be used:

- Overall cohesiveness of the project
  - Does the work clearly identify a specific problem?
  - Does the work provide a focused analysis of the problem?
- Quality of argument, analysis, evidence, and interpretation
  - Does the work make a compelling argument in terms of the depth of analysis, evidence, and convincing interpretation?
  - Does the work consider alternative perspectives and offer reasonable justifications of major decisions made?
- Quality of visualization
- Clarity of presentation

Please let me know if you have any questions!