DSCI 554 Group Project

Description

In this final project, you will create a comprehensive data visualization demo paper as a conference submission. The goal is to design an interactive visualization system or tool that addresses a unique data-driven problem. This project aims to showcase the application of visualization principles and techniques learned in class to provide a solution to a problem.

Deliverables

- Paper
- Demonstration
- Presentation
- Video

Requirements

- Using Git for version control.
- One of React, Vue.js, or Streamlit is well utilized.
- All pages are well laid out and use Bootstrap.
- All pages and at least one chart are responsive.
- Final product is deployed and publicly accessible (see deployment examples for instructions).
- README.md is updated with the requested information

Rubric

Students are expected to submit:

1. A research paper about their project as if they were submitting it to a conference for publication. The paper should follow the LNCS format, be **at most 5 pages long**, and include sections on the *introduction, data, approach* (including design, technical considerations, development, and evaluation), *system, related work, conclusions,* and *references*. Each paper should be clearly written, concise, and organized professionally. **Overleaf** is required to write the paper.
2. A link to the deployed system. Please see the following examples for instructions:
    - React App GitHub and React App GitHub.io deployed link
    - Vue App GitHub and Vue App GitHub.io deployed link
    - Streamlit App GitHub and Streamlit App GitHub.io deployed link
3. A link to a video demonstration on YouTube. The video should introduce and demonstrate the project. This video should be understandable by domain experts and clearly communicate the system's purpose, functionality, and potential impact.
4. A link to your overleaf project for writing the paper.

Students will present the paper to the class as if they were presenting at a conference session, effectively communicating the design choices, contributions, and findings and leveraging the video to provide an overview of the visual display they have built.

Category	Sophisticated (4-5 pts)	Competent (2-3 pts)	Needs Work (0-1 pts)
Paper Presentation and Organization	The paper is at most 5 pages long, exceptionally clear, concise, and logically organized. Language is professional and effectively communicates complex ideas. Figures, tables, and captions are well-formatted and enhance comprehension.	The paper is understandable but may lack conciseness or logical flow. Language is generally clear but may include minor issues. Formatting of figures, tables, and captions can be improved and/or may better support the text.	The paper is difficult to follow, poorly organized, and contains multiple unclear sentences. Figures and tables may be missing or confusing.
Paper Clarity of Purpose and Contribution	The paper explains the purpose and contributions of the project well. The visualization challenges are clearly identified. High-quality references are relevant, sufficient, and recent. All references are properly cited in LNCS format. The implications and possible applications of the findings are discussed. The paper acknowledges limitations and suggests directions for future research.	The paper explains purpose and contributions but may lack depth or clarity in some areas. Visualization challenges are identified, though not thoroughly. References are generally relevant but may lack sufficiency or recency. Most citations follow LNCS format. Implications and applications are not deeply explored. Some limitations or future research suggestions may be missing.	The purpose and contributions are unclear, and visualization challenges are not well identified. Few references are provided, or citations are missing or incorrectly formatted. Conclusions are vague, with no discussion of implications or applications. Limitations and future research directions are absent.
Paper Methodology and Implementation	The design and implementation methods used to develop the visual display are well-documented and justified. The visual display design and implementation methods and choices are clearly explained. Gen AI was used effectively to design and implement the visual display.	The methodology is explained but may lack clarity or full justification for some design choices. The role of Gen AI is mentioned but not well integrated. Visual display implementation is mostly effective but may need refinement.	Methodology is poorly documented, with a limited explanation of design choices. The use of Gen AI is unclear or ineffective. The visual display does not adequately demonstrate the project's contribution.

Category	Sophisticated (4-5 pts)	Competent (2-3 pts)	Needs Work (0-1 pts)
Project Repository	Bootstrap and one of React, Vue.js, or Streamlit are well utilized. The project `README.md` is formatted according to the guidelines and provides the requested project information. The visual display is deployed in GitHub Pages.	Bootstrap and a chosen framework are used, but the implementation may be inconsistent or lack full functionality. The `README.md` is present but lacks some key details or clarity. Deployment may be incomplete, or the project may be hard to access.	Project framework usage is poor or absent. The `README.md` is unclear, missing important information, or not formatted per guidelines. The project is not deployed or lacks accessibility.
Presentation	The presentation is professional and engaging and clearly explains the purpose and contributions of the project. Video clips are presented to showcase the contributions of the paper effectively. Challenges, limitations of the project, and future work are discussed.	The presentation covers key points but may lack clarity or engagement in some areas. Video clips are included but may not fully highlight contributions. Some discussion of challenges, limitations, or future work is present but not in depth.	The presentation is unclear, not engaging, or misses key points. Video clips are irrelevant or missing, and challenges, limitations, and future directions are not discussed.
Video	Effectively presents the purpose and contributions of the project. Highlights data and information visualization design and implementation contributions. Demonstrates all key aspects of the project. The video is less than 5 minutes in length and has a voice-over.	The video explains the project but may lack depth or clarity. Some design or implementation elements may not be fully covered. The voice-over or visuals may need improvement.	The video is unclear or lacks a voice-over and fails to convey purpose and contributions effectively. Visuals are poor quality or not relevant to the project content.

Attendance to project labs is mandatory; unexcused absences are subject to a penalty of up to 5% of the grade.