# Assignment: Visualization Ethics and Communication

### Project Overview

This assignment focuses on the power of visualization in shaping narrative and understanding. Using the Titanic dataset, you will create accurate visualizations that effectively communicate patterns in the data, as well as intentionally misleading visualizations to explore the ethical implications of data representation. The project includes individual coding, collaborative group work, and a final report and presentation.

### Learning Objectives

1. Create effective visualizations that clearly communicate insights.
2. Understand and apply ethical principles in data visualization.
3. Demonstrate how visualization choices can mislead or distort interpretation.
4. Collaborate with peers to evaluate visualization quality and communicate findings.

### Dataset

You will use the Titanic dataset, which contains demographic and survival information for passengers aboard the RMS Titanic. This dataset allows for analysis of survival patterns across passenger classes, ages, genders, and other variables.

### Project Steps

**Step 1: Understand the Dataset**

* Analyze the Titanic dataset to identify key trends, such as survival rates across demographic groups.
* Identify opportunities for effective visualizations that highlight these trends.

**Step 2: Set Up GitHub and OneDrive Repositories**

1. **GitHub Repository:**
   * Create a shared GitHub repository named DATA6550-Visualization.
   * Share repository access with all group members and the instructor.
   * Follow this directory structure:
     + visualization\_report.docx: Shared Word document for the final report (with "Track Changes" enabled).
     + readme.md: Overview of the repository.
     + Code/:
       - Individual subfolders (e.g., Lastname1/, Lastname2/) for personal coding contributions.
     + Data/: Store the dataset files here.
     + Collaboration/: Weekly AI-generated summaries of group discussions (e.g., WeekA.docx, WeekB.docx).
     + Analysis/: (Optional) Place graphics or intermediate results here.
2. **OneDrive Document:**
   * Use OneDrive to create a shared Word document for the final report.
   * Enable "Track Changes" under the Review tab, and do not turn it off at any point.
   * Share the document with all team members and the instructor.

**Step 3: Individual Coding Work**

1. **Accurate Visualizations:**
   * Create two visualizations that ethically and effectively represent patterns in the Titanic dataset.
   * Focus on clarity, accuracy, and professional presentation.
2. **Misleading Visualizations:**
   * Create two intentionally misleading visualizations to demonstrate how design choices can distort understanding.
   * Examples might include manipulated scales, cherry-picking data, or altering visual emphasis.
3. **Documentation:**
   * Write explanatory paragraphs for each visualization in your report, discussing why the accurate visualizations are effective and how the misleading visualizations could deceive viewers.
4. **Submission:**
   * Upload your personal coding work to your individual folder in the Code/ directory of the GitHub repository.

**Step 4: Collaborative Group Work**

1. **Group Discussion and Summaries:**
   * Participate in regular group discussions via your chosen platform (e.g., D2L forums, Teams, or Zoom).
   * Share and review visualizations, discussing:
     + Visualization effectiveness and areas for improvement.
     + Ethical implications of misleading visualizations.
   * Summarize group discussions using AI tools, including:
     + Key points discussed.
     + Decisions made (e.g., which visualizations to highlight in the report).
     + Challenges and resolutions.
   * Upload these summaries to the Collaboration/ folder in GitHub.
2. **Group Report:**
   * Use the shared Word document to collaboratively write the final report, including:
     + A summary of the dataset.
     + Description of the visualizations and their implications.
     + Ethical considerations in visualization design.
   * All group members must contribute to the writing process.

**Step 5: Final Deliverables**

1. **GitHub Repository:**
   * Ensure the repository includes:
     + visualization\_report.docx: Final report with contributions tracked.
     + All code files in the Code/ subfolders.
     + Dataset files in the Data/ folder.
     + Weekly summaries in the Collaboration/ folder.
     + Visualizations or intermediate results in the Analysis/ folder (optional).
2. **Dropbox Submission:**
   * Submit the following to the group Dropbox:
     + Final report in both Word and PDF formats.
     + AI-generated collaboration summaries.
   * Each member must also submit a personal reflection to the individual Dropbox, summarizing contributions and lessons learned.

**Step 6: Final Presentation**

* Present your findings during the final Zoom session.
* **Include:**
  + A brief summary of the dataset and your analysis.
  + Key takeaways from the accurate visualizations.
  + Ethical implications of the misleading visualizations.
* One group member will be randomly selected to give a 5-minute presentation.

### Evaluation Criteria

Your work will be evaluated based on the following:

1. **Individual Contributions:**
   * Quality and clarity of code.
   * Meaningful participation in discussions (as reflected in discussion summaries).
   * Contributions to the report (tracked in Word).
   * Final reflection paper submitted to the individual Dropbox for the project.
2. **Group Deliverables:**
   * Quality of the final report (clarity, depth, and analysis).
   * Effectiveness of the presentation (engagement, visuals, and communication).
   * Organization and completeness of the GitHub repository.
3. **Collaboration and Documentation:**
   * Use of GitHub for version control and organization.
   * Comprehensive AI summaries of group discussions.

**Notes**

* Regular participation is critical for individual and group success.
* If challenges arise with group participation or technical issues, inform the instructor promptly.
* Use the course forum or office hours for additional support.