# Exam 1

Due: 10pm, 3/11/2015 (EDT, Wednesday)

**IE 59000** – Data Visualization: Theory and Practice

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Spring 2015

Notes:

* General
  + Exam time: 10pm, 3/10/2015 (EDT) – 10pm, 3/11/2015 (EDT)
  + A late submission will not be graded **without any exception**.
  + If you need to make any assumptions, state them clearly.
* Answering Sheet
  + You have to use this document as the answering sheet.
  + **Remove all text in red** before submitting in order to prevent any unnecessary plagiarism alerts.
  + The answering sheet consists of the body section and the reference section. **The body section cannot exceed 3 pages**; the reference section does not have any page limitation.
  + Do not change any formats affecting the length of the contents (e.g., font size, font, margin, line spacing, etc.) to compress more contents within the page limit.
  + In the answer sheet, put your full name that is used on Blackboard Learn.
  + The references and citations should be in the APA format (zotero.org would help).
    - https://owl.english.purdue.edu/owl/resource/560/01/
  + When you use abbreviations, please define them first even for a very well known one (e.g., InfoVis, VA, and PC).
  + In order to clarify your descriptions in the answer sheet, you may embed illustrations or drawings. However, be careful. They also occupy space.
* Plagiarism
  + Double check the SafeAssign Report after your submission to prevent any potential plagiarism concerns.
  + Note that the plagiarism detection process of SafeAssign may take 10 to 20 minutes when many submit the responses at the same time. Thus, if you would like to check the SafeAssign Report before your final submission, you should submit your response sufficiently earlier.
  + Your code will be also compared with other students’ code using moss (http://theory.stanford.edu/~aiken/moss/). Basically, do not copy others’ code. You must write down your own code by yourself.

1. Discuss whether chart junks are bad or good for designing an information visualization. It is expected that you will summarize different published opinions regarding chart junks and provide your own opinions based on the different opinions. Your answer will be evaluated based on 1) whether existing literature was properly understood and cited; and 2) whether an informed opinion was established based on the understanding. (20 points)

2. Please discuss the pros and cons of the following information visualization using the concepts and guidelines discussed in our class (20 points). Any creative suggestions to overcome the identified cons will get additional points (10 points). Your answer will be evaluated based on 1) whether existing literature was properly understood and cited; 2) whether appropriate guidelines / theories were applied; and 3) whether proposed solutions were clearly explained and appropriate.

http://graphics.wsj.com/job-market-tracker/

3. Base on the JSON data (number of IE students in different years for five universities) in the following URL, please implement an Interactive Stacked Bar Chart following the three steps.

http://hivelab.org/static/exam1.json

3.1. Bar Chart. Implement a bar chart to compare the number of *senior* IE students in the five universities. The bar chart should have a proper title, axes, axis labels, and legends. (30 points)

3.2. Stacked Bar Chart. As shown in Figure (a), implement a stacked bar chart in order to help compare total numbers of IE students in five universities easily. (10 points)

3.3. Interactive Stacked Bar Chart. As shown in Figure (b), implement an interactive stacked bar chart. When a segment of a bar (the West section in this example) is clicked, the segments should be interactively aligned to the base line (x-axis) to help comparison of the selected segment. (extra 20 points)

Note that Figures (a) and (b) are based on a different data set, so your implemented visualizations may look different. You can be creative in color and style as long as the visualizations satisfy the aforementioned requirements.

The implemented visualizations should be publicly available. You need to submit a single URL to an HTML page, and the page should contain three links, which are directed to the three implemented visualizations.

Your answer will be evaluated based on 1) whether the visualizations were properly implemented; 2) whether components in D3 (e.g., data import, scale, axis, text, functions, animation, event handler, etc.) were properly used instead of being unnecessarily reinvented; and 3) resulting codes are easy to read.



4. Given the following data set, what kinds of visualization techniques can be used? What would be the pros and cons of those visualization techniques? Your answers will be evaluated based on whether the nature of data was properly understood; whether suggested visualizations are comprehensive; whether the description of each visualization is understandable; and whether pros and cons of different visualization techniques were properly described. (20 points)

http://www.whitehouse.gov/briefing-room/disclosures/visitor-records

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total ( / 100 points)

1. ( / 20 points)

2. ( / 20 points)

3. ( / 40 points)

4. ( / 20 points)

References