Data Visualization Exam Guide

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1 Format

Exam type: D2G: Submission for groups with following oral exam supplemented by the submission. Shared responsibility for the report.

Exam Access: Only people in a group and with at least five approved mandatory activities by May 16th can access the exam. The sooner you hand-in the mandatory activities, the better.

Duration of Oral Examination: 20 minutes per student: 5 minutes of group presentation and 15 minutes individual questions.

Project type: Group.

Deadline for Project Submission: May 16th 2024 @ 2PM (first attempt).

Written project format:

- Maximum four pages.
- Minimum one figure with your main visualization, plus any additional visualization you feel necessary to integrate your project. Interactive visualizations are welcome (include a static screenshot and a link). Visualizations can be hand drawn if you think you can defend your choice at the oral.
- Text explaining your choices. This is optional, as the oral is there for you to motivate your choices. However, it is suggested to have some, so that you make your life easier at the oral. In practice, the text is your best tool to manipulate us in asking you the questions you want to be asked – it doesn't always work, but if you don't try you won't know :-)

Oral examination format:

- Initial defense of the project. The project will provide us an anchor about the grade we think you deserve and the oral will allow us to move the anchor either up or down one or more grades for good or bad performances.
  - Minimum requirement: simple oral statement (one-two minutes) tell us what data you used, what you wanted to communicate, and why you chose the specific visualization technique. Failure to clearly state one or more of these fundamental aspects will result in lower grades.
  - You can, but you're not obliged to, have slides and make a presentation (maximum five minutes).
- Questions on the project. The examiner will ask you individually about specific choices you made in the project. Examples: "why did you choose this color scheme?", "why is your y-axis truncated?", "are you showing raw counts or rates? Why?". If you made unconventional choices ("breaking rules") expect us to notice and to ask why. Failure to provide a valid reason for the choice will result in lower grades. For example:

  - Valid: "I chose this color scheme because it is color-blind friendly". However, it might trigger a follow-up question if the way it achieves color blindness safety makes the visualization harder to read (e.g. by using black & white patterns that are hard to distinguish).
  - Invalid: "I chose this color scheme because it increases contrast", if you just chose a non-perceptual aware rainbow scale in RGB.

- Theory questions. One or more questions (depending on the time left) from the syllabus readings. This is to measure your understanding of the key concepts, regardless whether you used them in your project or not. Examples: "what are pie charts for?", "what does details-on-demand mean in information visualization?", "what's the data-ink ratio and how should you use it to guide your visualizations?". Failure to provide a correct answer will result in lower grades.

- Exam wrap-up. In the final five minutes we'll go over the performance during the oral to make sure we agree on how each part went.

2 Office Hours

You're always free to send us or the TAs an email. We can normally provide feedback in writing, but you can always request an in-person meeting if you prefer.
We are reachable at: `mlun@itu.dk`, `zimme2cj@gmail.com`. The TAs are available at the exercise sessions.

3 Guidelines for a Good Project/Oral

Chris will share an exam preparation presentation on the final lecture.

Follow best practices and guidelines from cheat sheets, checklists, and suggestions. But, if you can break a rule *for a very good reason that* ***you can explain***, you can probably get a bonus point. A silly example: "I chose a difficult-to-distinguish color palette because the point of this infographic is for normal-seeing people to know how it feels like when color-blind people look at badly chosen color palettes" (please don't try to be this meta at the exam :-)).

If you don't know where to start, pick a project template from the ones we will provide you. E.g.: **makeover**, take an already made (bad) visualization and re-make it; **data postcard**, collect data about individuals/places/organizations/teams and visualize their defining characteristics in a postcard-like format so it's easy to compare them; **dashboard**, combine a few simpler visualizations to get a top-down view on a complex phenomenon such as students' performance on a number of dimensions.

Take inspiration from your work (or your colleagues') during the mandatory activities.

4 Resources

Suggested pre-cleaned datasets are the easiest option, as we already took care of them being usable for (almost) immediate visualization:
`https://www.dropbox.com/sh/0uluwbrebwmi2dy/AADMB62PEO7OfdgO6rRidOMba?dl=0`.

Other data sources you can explore:

- Makeover Monday Archive `http://www.makeovermonday.co.uk/data/`
- David McCandless Repository `https://informationisbeautiful.net/data/`
- CPH Open Data `https://data.kk.dk`

- Google Dataset Search `https://toolbox.google.com/datasetsearch`
- Google Public Data Explorer `https://www.google.com/publicdata/directory`
- Google Trends `https://trends.google.com/trends/`
- N-Gram Search `https://books.google.com/ngrams`

You can bring your own data! It's totally fine and could be better for you if you have an intimate relationship with what you want to visualize. If you're unsure whether it's appropriate, ask us. Make sure not to include personally identifiable and/or confidential data (if in doubt, ask SAP and your data provider).

You can use any visualization tool you want, there are links to free visualization software in the LearnIT course page.