Instructor Guide

Eytan Adar, Version 1.0: December 8, 2016

Description

These labs are intended to be used as design exercises. They are currently designed to run at around 75-80 minutes. The Lab-Handout-0 file in each directory contains instructions for the students and should serve as a high level description of how to run the labs. You're welcome to modify them but see our note below on "time."

The order we ran the labs was: Set Comparison, Website, Tennis, Review Paper Builder, and Plagiarism. This fit with the structure of lectures in our class as the topics were relevant to that week's focus. Set Comparison is the only "deconstructive" lab where students reverse engineer materials.

Don't be discouraged if the first lab isn't "smooth." Our experience has been that it takes a couple of times before they understand the structure well enough to make it through the whole thing effectively.

Creating Groups

We randomly assigned groups every lab section. Our experience is that groups of around 4 work best. Too many and it takes too long for discussion, too few and they don't have enough alternatives to consider.

Notes on Time

Our experience is that you need to go through a couple of labs before students get used to the structure. The first one will likely overrun by time. We usually put up a countdown timer on the projector and announce key times to switch.

If you have more time than 80 minutes, you can add more sketch/discuss steps (or extend the time for those). An alternative is to add a presentation step and to have the groups present either to each other (peer round-robin) or to the entire class.

If you have less time, you can make some adjustments (e.g., the number of individual sketches). You may also consider breaking apart the lab over two sessions.

Lab types

There are five labs. The deconstructive variant has them breaking apart an existing visualization and finding what tasks it is suitable for. In our class, we run this one early. It gives the students experience with breaking apart a new vis type into things that they could use for other tasks.

A Note on the Tennis Lab – for every other lab we had true random assignment of groups. For the tennis lab we made sure there was at least one person in the group that knew the rules of tennis.

Prompts

1. Timekeeping is crucial. It's important to make sure they switch steps. After the first lab this tended to be less of a problem.
2. It's important (at least it was for us) that students document their decisions. We ask them to take pictures of various pieces that they create and document group decisions. We had to remind them of this on occasion.

3. We encouraged students to pick domains that "worked well together." Sometimes they would pick sets that were not particularly suited to a good design. You may allow them to change their minds.
4. When sketching, we often would remind them that (a) neatness does not count… they should simply get as many ideas down as fast as possible, and (b) they should always consider the domain tasks they picked.
5. When presenting to each other ("group") we asked them to go around so that everyone has a chance to talk. When presenting multiple sketches, they were asked to present their favorite first and then move on to the next.
6. In the second round sketches they were always prompted to "steal, mashup, and consider alternatives."
7. Depending on the lab, we would often supply prompts about the domain task that they may not have considered (scaling of the solution, in particular, was often something they wouldn't think about). Depending on the learning objectives you can push groups to focus on the text, network structure, reminders about expressiveness/effectiveness, etc.
8. When they generate comparisons between their solutions and the "professional" ones (see below) we would prompt them with specific things to focus on (e.g., how text and labels were used in PivotPaths, and the potential tradeoffs in scale, etc.)
9. We would try to walk around the room and ask questions about designs and ideas (and just to listen). If the students share a google doc with you, you can also follow along that way.

Materials

The various folders here contain everything you should need to run the labs. We suggest loading the powerpoint/presentation template into google docs and sharing a read-only variant. Either way, you will want to modify Lab-Handout-0 to point at the right document and your email address (we've tried to highlight places that need to be changed). You will also need to combine the layout cards depending on what you've covered and what they need for the lab. There is some overlap in these, but they tend to be data-domain specific.

For the consensus sketch, we put up big poster-size sheets and handed out multi-colored pens for each group.

Handing Out Materials

We generally gave out all the materials labeled Lab-Handouts at the start of the lab (one per student). The cards we usually gave out as needed (when they were moving to a step that required them). Students tend to get distracted by the additional materials.

Building Decks

There are various "Layout" cards in the different directories. We suggest combining sub-sets as needed and only introducing cards after the topic is covered in class. We also have a number of cards that are specific to visualizations we discussed in class. The students are familiar with those. You may want to remove cards that are not relevant or are unfamiliar.

We printed our cards on sheets of "Avery Laser Business Cards, 2 x 3.5-Inches (5911)." They were cheap and disposable. You'll find that some sheets in the labs have duplicate cards (this was to avoid printing blank cards). We tended to group the ones we needed to hand out (e.g., a group of blank domain cards,

a group of example domain cards, and a group of layout cards). If your students are organized you might get them back in that order, but we tended to just re-print.

Domain Cards

In some situations there are different kinds of domain cards. For example, the Tennis lab has cards that focus on the structure of the tennis match and others that focus on player properties. Depending on the focus of the lab you can restrict the types the students can pick (we usually said that they had to pick from at least two different types).

We suggest adding or removing task options as you see fit.

Post Lab Readings

The following were blurbs describing readings and responses. **These were only given after the lab was completed**. We asked each student to produce a slide deck and picked one at random to present and lead discussion.

Set Visualization

- You should do this individually. This will be a slide deck about the response reading (Radial Sets, see below). Please upload a slide deck of 5-6 slides (no more than 5 minutes of presentation). You can safely assume that everyone has read the paper so no need to go over the features of the system. Instead, please have the following slides:
  - Title slide (*with your name!*)
  - Key benefits of radial sets -- this should combine what the authors tell you is good but also your thinking from lab
  - Encoding - the actual radial sets implementation is a bit different than the example in lab. Does your opinion of expressiveness/effectiveness change? Are the solutions still equivalent?
  - Interactivity - what were the interesting interactive features? Did they change your sense of expressiveness/effectiveness?
  - Discussion points - a few questions that you'd like the class to discuss (you can bring up limitations you want to talk about here)

Some advice on slides: (1) use images to highlight your points (text only is not appropriate for a vis class!), (2) avoid having a ton of text on the slide (focus on bullet points), (3) if it's not obvious what you are going to say from the text's slide please add information to the the lecturer notes, (4) you did a lot of thinking in your groups in lab--use what you learned when critiquing the solution, (5) practice so you're ready to give the talk if selected.

Bilal et. al, “Radial Sets: Interactive Visual Analysis of Large Overlapping Sets,” TVCG 19(12):2496-2505, 2013. (focus on sections 1, 2, 4, and 5). There is a video and demos on the Radial Sets homepage (http://www.cvast.tuwien.ac.at/radialsets)

Web Evolution

For the reading response. Please read:

- Chi, E. H., Pitkow, J., Mackinlay, J., Pirolli, P., Gossweiler, R., and Card, S. K. 1998. Visualizing the evolution of Web ecologies. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (Los Angeles, California, United States, April 18 – 23, 1998)
- You should have ~5-8 slides worth of content for about 5 minutes of talk.
  - Title
  - Solution (1 slide): Spend ~30-45 seconds on their solution (assume people have seen it already).
  - Comparison: 2-3 slides comparing your solution from lab to the "professional" one -- focus on what you did well or didn't, what they did well or didn't, etc. We encourage you to copy the image from your shared google doc (or redraw) and have that in a slide to be able to talk about differences.
  - You should reflect on the differences in focus (tasks), approach (encoding), and pros and cons of the designs.
  - You should have a final slide with some discussion points/questions.

Tennis Match

For the reading response. Please read:

- Jin and Banks, “TennisViewer: A Browser for Competition Trees,” IEEE Computer Graphics and Applications, 1997.
  - Please also take a look at the work over at gamesetmap (http://gamesetmap.com/). and at the IBM Visualization (video here (http://vimeo.com/15162181)). You can find more commentary on the original one at this blog (http://www.infiniteturtles.co.uk/blog/us-open-pointstream-from-ibm). You’re welcome to use one of these for your slides, but please read the tennisviewer paper regardless. I find the gametree (http://gamesetmap.com/?p=801) one interesting.
- You should have ~5-8 slides worth of content for about 5 minutes of talk.
  - Title
  - Solution (1 slide): Spend ~30-45 seconds on their solution (assume people have seen it already).
  - Comparison: 2-3 slides comparing your solution from lab to the "professional" one -- focus on what you did well or didn't, what they did well or didn't, etc. We encourage you to copy the image from your shared google doc (or redraw) and have that in a slide to be able to talk about differences.
  - You should reflect on the differences in focus (tasks), approach (encoding), and pros and cons of the designs.
  - You should have a final slide with some discussion points/questions.

Review Article Construction

For the reading response. Please read:

- Marian Dörk, Nathalie Henry Riche, Gonzalo Ramos, and Susan Dumais. PivotPaths: Strolling through Faceted Information Spaces. TVCG: IEEE Transactions on Visualization and Computer Graphics (Proceedings InfoVis 2012). 18(12), pages 2709-2718, Dec 2012. You can also check out a demo and video here: http://mariandoerk.de/pivotpaths/ (Links to an external site.) **Please pay specific attention to how they used text and the tradeoffs they make to support readability/navigation.**
- You should have ~5-8 slides worth of content for about 5 minutes of talk.
  - Title
  - Solution (1 slide): Spend ~30-45 seconds on their solution (assume people have seen it already).
  - Comparison: 2-3 slides comparing your solution from lab to the "professional" one -- focus on what you did well or didn't, what they did well or didn't, etc. We encourage you to copy the image from your shared google doc (or redraw) and have that in a slide to be able to talk about differences.
  - You should reflect on the differences in focus (tasks), approach (encoding), and pros and cons of the designs.
  - You should have a final slide with some discussion points/questions.

Plagiarism Detection

For the reading response. Please read:

- P. Riehmann, M. Potthast, B. Stein & B. Froehlich, “Visual Assessment of Alleged Plagiarism Cases,” Computer Graphics Forum, June 2015. Also watch the video http://www.uni-weimar.de/medien/webis/publications/videos/stein_2015z.mp4). Make sure to both read the material and watch the video, they cover different things.
- You should have ~5-8 slides worth of content for about 5 minutes of talk.
  - Title
  - Solution (1 slide): Spend ~30-45 seconds on their solution (assume people have seen it already).
  - Comparison: 2-3 slides comparing your solution from lab to the "professional" one -- focus on what you did well or didn't, what they did well or didn't, etc. We encourage you to copy the image from your shared google doc (or redraw) and have that in a slide to be able to talk about differences.
  - You should reflect on the differences in focus (tasks), approach (encoding), and pros and cons of the designs.
  - You should have a final slide with some discussion points/questions.