Assignment 3 (due Dec. 7, 22:00)

In this assignment we'd like you to work with graphs as well as time series data. You should again work on this in groups of 1–3 students. You can choose between creating static, animated, or interactive visualizations for this assignment (unless specified).

3.1   Social network of a movie

For this part of the assignment, please grab the *Moviegalaxies* dataset from:

  https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/T4HBA3

We'd then like you to pick a movie from the dataset and visualize it. While the dataset already contains node positions and colors, please don't use them. Instead, please pick a character from your chosen movie and make that character the center of your visualization. You should then visualize all other characters and relationships relative to that initial character. Please also make use of the available edge weights in your visualization. You might also want to incorporate some of the node information (e.g., a node's *degree* gives you a measure of how many other nodes are connected to it and hence also its importance).

In your report, include a screenshot of your visualization and write 2–3 paragraphs where you describe your design goals, how you approached them, and reflect on how well you achieved them. You'll also need to attach the visualization source files.

3.2   Social networks across movie series

Building on the previous task, we'd like you to visualize character graphs across movies. For this please use the four Star Wars movies available in the dataset (II, IV, V, VI) and create a visualization that makes *changing relationships* across movies visible. You can interpret that as you see fit, for example, concentrating on characters coming and going, or on the strength of relationships varying. If applicable, please make time (i.e., in-movie time, not when they were in theaters) an explicit part of your visualization.

In your report, again include a screenshot of your visualization. Also write another 2–3 paragraphs where you describe your design goals, process, and reflections. And don't forget to attach the source files to your submission.

3.3   Plotting power in Denmark

We'd also like you to work with time series data and we'll use a dataset on power production and consumption in Denmark. Please download this dataset from here:

                          https://doi.org/10.11583/DTU.7599629.v2

That dataset contains data for two price regions: DK1 (Western Denmark) and DK2 (Eastern Denmark). You can use either or both of them for this assignment.

For starters, please plot a static time series visualization of the data. You can choose what parts of the data to use in your visualization (e.g., focusing on offshore wind production or energy exchange with the rest of Europe). As the data spans a long time, you could also explore different ways to aggregate the data. For example, you could plot a moving average or focus on daily minima and maxima. But please include time in some form as a component of your visualization. You can keep this simple and just show time on the x-axis, but you can also try other ways to incorporate the temporal aspect of the data in your visualization.

We'd like you to create two different visualizations of the data. Your report should include screenshots of those visualization (also attach the source files). For each, please write 1–2 paragraphs describing it and your design process. Also include one paragraph where you discuss differences between the two different visualizations.

3.4 Animating power in Denmark

Finally, please create an animation for the energy dataset from the previous task. You can use the same component of the data as before, but we recommend exploring some other aspect of the data. While your report should include an image of your visualization, please also create a video or gif of your animation (try to keep the file size small) and attach that to your submission. In your report, please describe and reflect on your visualization in 2–3 paragraphs.

Format

Please follow the IEEE VIS formatting guidelines for this assignment. You can find them and templates at https://tc.computer.org/vgtc/publications/journal/. Our recommendation is to use the LaTeX version. You don't need to write an abstract or include index terms in your report, so just remove those parts from the template. When you include images, be sure to create them at a sufficiently high resolution so they are legible. Remember that you can have figures span two columns, if you need the space.

Submission

The hand-in for this assignment is your report in `.pdf` format bundled together with the source files and outputs of your visualizations as one `.zip` file. You need to submit your report on Absalon by **22:00** on **Dec. 7**. Only one report should be uploaded per group. Be sure to include all group members as authors on the report.

Grading

Individual assignment are graded as pass/fail. Assignments are failed (a) when some part is missing, (b) in case of plagiarism, or (c) when submitted after the assignment deadline. To qualify for the course's exam, you need to have at least 4 assignments approved (in addition to handing in a project report).

Questions

If you have questions on the assignment, you can email Soham Shinde (srs@di.ku.dk) or get help during the exercise sessions.