Information Visualization 2023/2024

Lab Classes

You will have two laboratory classes per week. These classes have three main purposes: (i) exercises to develop D3 programming skills, (ii) support the development of the project with group discussions and feedback sessions, and (iii) evaluate your knowledge through tasks and checkpoints.

Schedule of the Laboratory Classes

Week	First Class of the Week	Second Class of the Week
W1 (11/Sep)	Course intro - Groups Creation - D3 Intro	D3 Basics Task I: Crafting the Vis
W2 (18/Sep)	Checkpoint I Template - CP Submission - Improv. Submission	Data Processing Task II: Processing a Dataset
W3 (25/Sep)	Checkpoint II Template - CP Submission - Improv. Submission	
W4 (02/Oct)	Checkpoint III Template - CP Submission - Improv. Submission	
W5 (09/Oct)	D3 Advanced #1 Task III: Extending the Gapminder	D3 Advanced #2 Task IV: Linking Idioms
W6 (16/Oct)	Checkpoint IV Template - CP Submission - Improv. Submission	
W7 (23/Oct)	Project Development Support	
27/Oct	Project Template - Project Submission	

Classes with Tutorials, Suggested Exercises, and Tasks

The laboratory classes that include tutorials follow a flipped classroom strategy. It means that you must complete readings/watch instructional videos before the class and work on live problem-solving during class time. Tutorial videos and their respective code are available on this page. The tutorial videos are a use case of d3 to showcase its potential. However, we invite you to tweak the code and learn by yourself *how* the code works. The best way to learn d3 is by experimenting. You can use whichever programming environment you prefer.

The exercises consist of changing the code that is provided in the tutorial or adding new features to it. For instance, at the beginning, we will ask you to change the color palette of a plot. As you progress, we will ask you to include a new variable in the visualization or change a visual encoding. In the last laboratories, you will create a new plot!

The learning process will be incremental, and we will provide materials to help you learning. Keep in mind that d3 is vast, and we will not be able to teach you everything. However, our objective is to give you the basic concepts and then some examples on how to use them. It will be your responsibility to follow the tutorials, understand the code, and do the exercises. The professor will be available in the class and office hours to support you. Be sure to manage your time wisely.

The exercises do not count towards your grade. Their purpose is to help you develop an initial skill set to work with d3. We also expect you to understand the basics of HTML5, CSS, JS, and SVG. If you have never worked with these technologies, check an online tutorial to get a grasp of them. We will not have enough time to explain d3 and those technologies simultaneously. You can find tutorials here and here.

The suggested exercises are present on the laboratory instructions document or on this page (see below). We suggest that you complete them after following the respective video tutorial. In the class, you should have the code for the exercises or clarify any doubts you have regarding how to implement it. By doing so, you will increase your chances of completing the exercises in class and receive real-time feedback from the professor. We also suggest that you use a dataset from the ones presented below and do the tutorial from scratch using a different dataset to create the visualizations. Although we tried to find clean datasets, please notice that they may require some pre-processing, e.g., dealing with missing values or merging tables, before you can work with them.

Finally, you will be asked to solve a given task related to the exercises you just finished. The proficiency you demonstrate in executing this task determines your grade.

Classes with Checkpoints

You have two classes in each checkpoint week, except for CP I. During these classes, the teacher discusses with the group and provides feedback regarding their project, with as many as four groups per class. In the first laboratory class, the teacher assigns each group to one weekly class (first or second) for evaluation in the CP II-IV. This assignment remains unaltered throughout the period.

Regarding the checkpoint submissions, we provide a template for you to use, fill in with information, and deliver. The document you submit **must** follow the template. If you use other editing tools besides Word, be careful not to change the template. The deliverable should reassemble the template look as much as possible. **Noticeable changes will be penalized.** If you use Google Docs, you can install Microsoft fonts to surpass some changes. However, it is extremely likely that any editing tool besides Word will change the template. Except for the project, the formatting rules are the following:

1. *Headings*: Franklin Gothic Demi, size 16, justified
2. *Body*: Calibri, size 11, spacing after 8 pt, justified
3. *Margins*: 2 cm top and bottom, 2.5 cm left and right, portrait
4. The top 3.6 cm after the margins should have the image, checkpoint title, group identifier information, and delivery date.

Materials

Datasets

The datasets that you may find in your classes are chosen from the following set:

Airbnb Amsterdam	https://www.kaggle.com/erikbruin/airbnb-amsterdam?select=listings.csv
Amazon Top 50 Bestselling Books 2009 - 2019	https://www.kaggle.com/sootersaalu/amazon-top-50-bestselling-books-2009-2019
Chocolate Bar 2020	https://www.kaggle.com/soroushghaderi/chocolate-bar-2020
Coursera Course Dataset	https://www.kaggle.com/siddharthm1698/coursera-course-dataset
Disney Movies 1937-2016 Gross Income	https://www.kaggle.com/rashikrahmanpritom/disney-movies-19372016-total-gross
Gapminder Dataset	https://www.kaggle.com/sansuthi/gapminder-dataset
Google Ad Costs	https://www.kaggle.com/brendan45774/how-much-it-cost-to-get-an-ad-on-google
Heart Attack Analysis & Prediction Dataset	https://www.kaggle.com/rashikrahmanpritom/heart-attack-analysis-prediction-dataset
The Cure discography	https://www.kaggle.com/xvivancos/the-cure-discography
Water Quality	https://www.kaggle.com/adityakadiwal/water-potability
Wine Reviews	https://www.kaggle.com/datasets/zynicide/wine-reviews
World Happiness Report 2021	https://www.kaggle.com/ajaypalsinghlo/world-happiness-report-2021
TopoJSON World Maps	https://github.com/topojson/world-atlas

Tutorial Videos

- Why d3?

- BioMedVis Spring School | A Tour of D3

- D3.js in 100 Seconds

- Oscars Tutorial (Code)

- Pentaho Data Integration Tutorial (Solution)

- Pandas Python Library Tutorial (Code)

- Stratify Tutorial (Code)

- Geo Tutorial (Code)

Additional Resources

There are several resources online where you can learn more about D3 as well as information visualization in general. We advise you to check the following links so that you can complement what you learn in class with applied knowledge to develop or study information visualization systems and techniques:

- [BioMedVis Spring School | Visualization Analysis and Design](#)

- [BioMedVis Summer School](#)

- [EuroVis](#)

- [IEEE VIS](#)

Last modified: Monday, 11 September 2023, 11:02 AM

Jump to...

- [BioMedVis Spring School | Visualization Analysis and Design](#)

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- [IEEE VIS](#)