

## Data Visualisation with and for AI: Assignment 1

You may do this assignment in groups of 1–3 people (i.e., alone or with up to two others). At this point in the course, use of LLMs to just prompt for appropriate code is not allowed, please actually look at the syntax of the functions that you use. Considering the syntax is educational and will lead you to see the possibilities on how to use that specific chart.

- 1) Browse the paper *A Tour through the Visualization Zoo: A survey of powerful visualization techniques, from the obvious to the obscure*: <https://doi.org/10.1145/1794514.1805128>.
- 2) Choose a type of visualization from the paper or lecture that appeals to you and read the correspond text about it in the paper. Find a data set where this visualization could lead to an informative chart. Some suggested data archives:
  - ☐ A variety of data sets: <https://archive.ics.uci.edu>
  - ☐ Time series (Gapminder, e.g., population per country): <https://www.gapminder.org/data/documentation/gd003/>
  - ☐ Mixed attribute data table (Titanic survivors; from Pandas tutorial): [https://pandas.pydata.org/docs/getting\\_started/intro\\_tutorials/02\\_read\\_write.html#min-tut-02-read-write](https://pandas.pydata.org/docs/getting_started/intro_tutorials/02_read_write.html#min-tut-02-read-write)
  - ☐ Hierarchical data (Belgian municipalities, processed open data): [https://github.com/vandenbroucke/belgian\\_municipalities](https://github.com/vandenbroucke/belgian_municipalities)
  - ☐ Open data about Belgium: <https://data.gov.be/en>
- 3) Make a visualization of that type based on the chosen data.
  - ☐ You are free to use any visualization tool/API that you like (e.g., Matplotlib, Seaborn). If you want a simple start that connects most to future assignments, use Python Plotly (<https://plotly.com/python/>).
  - ☐ Note that no tools in existence offer all chart types. You can also choose a chart type like the one you chose from the paper above.
- 4) Export this chart in a suitable format. Make a 1-page PDF of the figure with a caption (using LaTeX or Word). Keep the caption concise, but sufficiently comprehensive that it becomes self-explanatory. Make sure the used marks and used channels are explained in the caption.
- 5) Create a second document (also to be submitted as PDF). Explain more verbosely what this chart shows, how it shows this, and what we could learn from it. Consider the 'Elements of a chart' slide from the lecture (1.1 slide number 9) and use appropriate academic language.
- 6) Keep both documents anonymous. Include a third file with your names and student numbers (.txt is fine).
- 7) Submit these 3 documents together with the code to create the chart in a single zip file in Ufora, by Saturday October 7<sup>th</sup>.

The anonymous figure and explanation PDF will be used as input for the following week and given to two other groups. These will be graded, not the code. It should be easy to get full points, there is no need to overdo it. Unless you really want to, do not spend more than one morning or afternoon on it (e.g., 4 hours maximum).