

Lab - Coursework 2 practice (marked group work)

Marked group work

This exercise is part of Coursework 2 and to be completed as a group work:

- The lab will be divided into 4 groups;
 - Form your own groups;
- Each group will produce a data visualisation report as described below;
- Each group has to present the result in the lab next week:
 - Vega-lite visualisation
 - PowerPoint slide addressing marking criteria;
 - These need to be submitted after the demonstration;
- The result will be marked, following the same marking scheme as Coursework 2:
 - All the group members receive the same mark;
 - Member not present at the demonstration will receive zero mark unless evidence of extenuating circumstance is provided.

Dataset

- The social-economical metrics of many countries over time;
- Available on the module page next to the lab sheet.

The original talk by Prof. Hans Rosling in his 2006 TED talk analysing the same dataset:

https://www.ted.com/talks/hans_rosling_shows_the_best_stats_you_ve_ever_seen

Tasks: Use Vega-Lite to create visualisations that answer the following analysis questions:

1. What is the general trend of changes in the social-economical metrics within the period covered in the dataset?
 - This can be in the context of a country or a region;
 - This can be the relationship between different metrics.
 2. Are there any anomalies that does not fit the general trend?
- You must use Vega-Lite to create the visualisations;
 - You are free to apply any pre-processing and/or non-visual analysis to help answer these questions.

Submission

- All the necessary files should be included in a zip file (max 10MB), including the PowerPoint, html/css/javascript, external library, and dataset (please include the original data files used in the visualisations).
- You are free to use any third-party library or API to help with the analysis. Make sure the required files are included in the submission.

Requirements

- There should be at least one Vega-lite visualisation for each analysis question. Usually, 2-3 visualisations (including dashboard) is expected for each questions.
 - The number of visualisation depends on the number of findings in the answer: for example if three patterns are found for Question 1, one or more visualisations are expected for each pattern.
- Besides the visualisations, the answer to each question should include text that describes and discusses:
 - What the finding is (a pattern, an anomaly, etc.);
 - How the finding can be seen from the visualisation;
 - How the visualisation design support the analysis, i.e. what the data and analysis task are and how the visualisation is designed to match and support them.
 - Any advanced Vega-lite visualisation features used, such as multi-layer, chart concatenation, and interaction.
 - Any additional (non-visual) analysis used and how it contributed to the answer.

Marking scheme (total 5%)

The quality of the findings, i.e., how insightful is the finding (1%)

- What is the finding, i.e., what message the visualisation aims to convey;
- Insightful finding receives higher mark: for example, findings that considers multiple aspects of the data, such as time, location, and measurements is more interesting than those with less aspects;
- Visualisation that clearly shows the intended finding receives higher mark.

The effectiveness of the visualisation design (2%):

Why such visual mapping is effective for the given data (*what*) and analysis (*why*), e.g.,

- Why is the chart type most appropriate for the analysis?
- Why are the choice of mark and channel the most effective?
- Is there any additional feature, such as sorting/filtering, dashboard or interactions, is used to improve the visualisation?

The quality of the visualisation and analysis code (2%):

- The quality of HTML, CSS, JavaScript, and most importantly Vega-lite code;
- Usage of advanced features such as multiple views/dashboard and interaction receives higher mark;
- Usage of additional analysis (such as statistical analysis) that contributes to the analysis (needs to be demonstrated) receives higher mark.