

Project Presentation and Report

CZ4124/SC4024 Data Visualisation

1. Introduction

Data Visualisation is a confluence of many different disciplines in both the sciences and the arts. It is technical because it requires knowledge to interpret, manipulate and transform digital data into appropriate visual forms. At the same time, it has elements of the visual arts and psychology as it is to the human mind that we visually and effectively communicate the meaning behind this data. Evidence of mastery in data visualisation will therefore require the demonstration of one's ability to bring all these different knowledge and skills together to discover and then tell a compelling visual story behind what a set of numbers mean. This first assignment will provide you a creative opportunity to put into practice the skills and knowledge you are expected to acquire in this course.

2. The Domain

Demonstrating your data visualisation skills requires a domain in which you can first find a suitable dataset. With it, you can then investigate, explore, design and develop appropriate data visualisations that will allow you to tell an effective visual story of the interesting insights you have discovered. **You are free to choose your own dataset** for this purpose. It is recommended that you pick a domain that is of your interest and you are knowledgeable about as the interpretation of insights within the dataset requires some degree of domain knowledge (e.g. if you have little interest or understanding of sports, you may not want to look at datasets related to sports). There are many online sources and repository where you can freely download datasets. (See **Appendix C** for some suggestions).

3. Video Presentation

Duration - The deliverables of this assessment are mostly visual in nature. For this reason, your main task is to demonstrate your competency in exploratory and explanatory data visualisation using a succinct video presentation that is no more than **5 minutes** in duration.

Name and Title – Your video **must start** with a brief introduction of the title of your presentation and the name of the presenter. You can decide if you want to make an appearance in the video (e.g. at the introduction, as a mini video insert at some appropriate place within the visualisation).

Originality - The visualisation design, implementation and video presentation must be done by you. As such, you must record your own narration. Substitute narrator or text-to-speech narration will not be accepted. Plagiarism or submission of content not done by you is considered a serious violation and can severely impact your assessment. Avoid imitating visualisation techniques already done by others on your selected dataset. Do note that **novelty** is an assessment criterion (see Appendix A).

Exploit the medium - You should fully exploit the features of video communication, which include colour, animation, sound, etc to demonstrate your ability to create, interact, sequence and effectively present visual information derived from your analysis of the chosen dataset.

The audience - In your presentation, you should be mindful of your audience and provide sufficient background information to help them understand the message you are attempting to convey.

Assessment criteria – The assessment criteria for the video presentation component are given in Appendix A. Read through these criteria carefully so you know exactly what to address when creating your data visualisation project video.

Sharing your video – More instructions will be given to you later on how you can label your video based on your assigned number. Completed video should be uploaded to Youtube for sharing with the instructor and your peers. You are to ensure that the contents of your presentation are not of a confidential nature (video needs to be shared) and do not violate social, cultural and political sensitivities.

4. Summary Report

Objective - The objective of the summary report is to provide an additional avenue for you to communicate your contributions in this assignment, which cannot be justifiably done in the time-limited video presentation.

Contents – The summary report should detail the objectives of your video presentation, the background of the dataset used, the novelty of your contributions, the technical challenges and innovation related to your video presentations and all relevant references to the dataset and idea sources that guided your contributions.

Assessment components – The assessed components for the summary report are listed in Appendix B. Ensure that all these components are appropriately addressed in your summary report.

Page limit – Your submitted summary report should not exceed **2 pages** (in softcopy PDF or Word format). Font sizes should be no smaller than 11 point. This page limit **includes** your references, figures and tables.

Template – Use the uploaded template (“*Summary report-Name.docx*”) to complete your technical report. It will guide you on the required information that you have to provide in order to address the stipulated assessment components.

Note: Please replace the *-Name* in the report filename with your own name to enable the instructor to identify each student’s unique submission.

5. Deliverables and Deadlines

The table below outlines the various deliverables for assignment #1 and their respective weightage.

Deliverables	Submission Mode	Weightage	Deadline
Presentation Video – Completed video presentation (≤ 5 mins duration) in a popular and easily viewed video formats like mp4 or mov. In order to manage file sizes, your video resolution should not exceed 720p. (Note: Contents beyond the 5 mins limit will not be assessed)	Upload to Youtube See *	85%	Any time before Friday, Week #11 (12 noon)
Summary Report – Completed summary report done using the provided template. (Note: Include your name in the filename of the technical report.)	Upload to NTULearn as an Assignment	15%	Any time before Friday, Week #11 (12 noon)

* Upload your completed video to Youtube and make sure it is accessible and viewable to the instructor and your classmates. If you have problems uploading your video to Youtube, please contact the instructor and provide an alternative means for others to view your video.

Appendix A – Assessment Criteria for Video Presentation

Presentation - Assessment Criteria	Weightage
Visualisations – Variety, appropriateness and correctness of the visualisation used in the presentation. Did your visuals help convey the intended messages? Did your visual design take into consideration human visual perception characteristics and constraints? Was a good variety of different types of visual covered in this course used appropriately in the presentation.	30%
Techniques - Effective use of visualisation techniques like animation, sequencing, interactivity, etc. How technically sophisticated is the visualisation techniques used? Did the visualisation demonstrate competency in the use of the selected visualisation tools? Did the visual sequencing and transitions help deliver an easy-to-understand visual narrative. Note: You are free to use any visualisation tools of your choice in making your video presentation. This should be highlighted in the summary report.	30%
Novelty and Originality – Key features that are novel in the video presentation and visualisation techniques. Was there originality in the way the visualisation was done and the way the visual message was communicated? Note: Features that you think are novel should be highlighted in your summary report.	20%
Presentation - Clarity and effectiveness of the presentation done by the presenter. These include clarity in the verbal communication and the aesthetic quality of the visual presentation.	20%
Total	100%

Appendix B – Summary Report Assessment

Required Components
Objectives – Objectives of the video project and the messages (or stories) communicated by the presentation are clearly described.
Novelty – Highlight original contributions in your data visualisation that you are particularly proud of. What new visualisation techniques did you use in creating the video presentation?
Technical Challenges and Innovation – What visualisation tools did you employed in exploring your data and creating your visualisation and presentation? Describe any noteworthy technical contributions done during the design and implementation of the visualisation. What were the technically challenging aspects in creating the visualisation?
References – List all references where your datasets have been taken from. Also list the main reference sources that have contributed preliminary ideas and technical help during the design and implementation of your project. The source and weblink where the datasets were taken from should be listed at the start of your list of references.

Appendix C – Some possible online sources for datasets

- [1] Kaggle - huge repository of community published data & code - <https://www.kaggle.com/datasets>
- [2] Data.world open datasets - <https://data.world/datasets/open-data>
- [3] Singapore Statistics - <https://www.singstat.gov.sg/>
- [4] Singapore Government Published Dataset - <https://data.gov.sg/dataset>
- [5] Singapore Geo Data dataset - <https://data.gov.sg/dataset/national-map-line>
- [6] US COVID-19 Datasets - <https://data.cdc.gov/browse?limitTo=datasets>
- [7] COVID-19 data - <https://github.com/owid/covid-19-data/tree/master/public/data>
- [8] Our World in Data - Coronavirus Source Data - <https://ourworldindata.org/coronavirus-source-data>
- [9] UCI Machine Learning Repository - <https://archive.ics.uci.edu/ml/datasets.php>
- [10] Asian Development Bank (ADB) dataset - <https://data.adb.org/search/content/type/dataset>
- [11] DataHub.io Stock Market Data - <https://datahub.io/collections/stock-market-data>
- [12] Tableau - Free Public Data Sets for Analysis - <https://www.tableau.com/learn/articles/free-public-data-sets>
- [13] Dataquest - 21 Places to Find Free Datasets for Data Science Projects - <https://www.dataquest.io/blog/free-datasets-for-projects/>
- [14] Chartio - Where to Find Free Datasets & How to Know if They're Good Quality - <https://chartio.com/learn/data-analytics/where-to-find-free-datasets/>
- [15] Google's Dataset Search - <https://datasetsearch.research.google.com/>
- [16] Statista (requires NTU login) - <https://www.statista.com/remotexs.ntu.edu.sg/>

Note: some links may no longer be available with time.