Northeastern University London

LDSCI5209 Information Presentation and Visualisation AE1

Assessment Details

Course Leader:	Dimitris Mylonas
First, Second, or Third Sitting:	First
Issue Date:	9 September 2025
Assessment Type:	Set Exercises
Assessment Title:	From Colours to Words
Restrictions on Time/Length:	24-32 hours
Assessment Weighting:	60%
Hand-in Deadline:	By 13:00 on 20 October 2025
Planned Feedback Deadline:	28 calendar days after hand-in deadline or last presentation date
File Format Accepted:	.ipynb Notebook
Mode of Submission:	Online (Canvas)
Anonymous Submission:	Yes
Marking Scheme:	Categorical

	**Permitted**	Use of AI is allowed on this assignment; specific tools and uses must be cited (*example: Claude used for feedback on draft*).

The **appropriate** use of AI tools is permitted to support your coding work. However, you are expected to critically review and edit any AI-generated code to follow good programming practices. This includes reducing verbosity, consolidating imports at the top of your script, avoiding repetition, and ensuring the code is clean, readable, and properly commented. Students remain fully responsible for understanding, testing, and validating all code in their submissions.

Assessment Task

In this assignment, you will utilise a colour naming dataset to apply key data visualisation concepts covered in the course. You will complete a set of tasks that

involve critique of an existing visualisation, preparing the dataset for analysis, creating both informative and misinformative static visualisations, and developing an interactive geospatial visualisation with a perceptually salient categorical colour palette. Through these exercises, you will demonstrate your understanding of visual communication, data abstraction, colour theory, and the principles of interaction. Additionally, you will reflect on the visualisation process and consider the ethical implications associated with your design choices.

Task 1: Critique of Visualisation (10 points)

Provide a brief (maximum 250 words) but constructive critique of the pie chart visualisation in Figure 5 from the research study:

Griffin LD, Mylonas D (2019) Categorical colour geometry. PLOS ONE 14(5): e0216296.

Figure 2 URL: https://journals.plos.org/plosone/article/figure?id=10.1371/journal.pone.0216296.g005

Your analysis should address the following components:

a. Effectiveness: How well does the visualisation communicate its intended message?
b. Design principles: Does the visualisation align with key principles of human perception and cognition?
c. Suggestions: Offer at least two practical suggestions for improvement, grounded in course concepts.

Your critique should demonstrate technical understanding as well as clarity in written expression.

Task 2: Data Preparation (10 points)

Load and prepare the raw colour naming data for analysis and presentation by making consistent the case of all letters and removing special characters and unnecessary white spaces. You may transform the data as needed (e.g., data types, log transformation, grouping, removing variables or low frequency records) and even incorporate external data if needed. For more information about the dataset, see https://colornaming.net/ and download the CSV file from Canvas.

Task 3: Informative Visualisations (20 points)

Create an informative data visualisation that clearly communicates relationships and patterns in the dataset, such as the frequency of colour names and the visual representation of their distribution. You are free to use any effective data visualisation technique (e.g., bar charts, scatter plots, treemaps) and data filtering or transformations as needed. Remember that each colour name represents a category that may have been assigned to multiple RGB coordinates. Provide a rationale for

your design choices, including the type of visualisation, size, colour, background, and any sorting or data transformations, in a brief paragraph.

Task 4: Misinformative Visualisations (20 points)

Create a misinformative data visualisation that intentionally misleads the viewer regarding the relationships and patterns in the dataset. Subtly manipulate the visualisation using techniques like inappropriate scaling, misleading colour schemes, or selective data omission, making it difficult to accurately interpret the data. Provide a rationale for your design choices, including how the visualisation misleads through the type, size, colour, background, and any data filtering or transformations, in a brief paragraph.

Task 5: Categorical Colour Palette in Interactive Maps (20 points)

Using the colour naming dataset, create a salient categorical colour palette and apply it to a geospatial visualisation that represents different categories, such as regions or countries. The colours should be distinct and easily distinguishable to enhance clarity. Deploy an interactive version of this map in HTML (using e.g., Jupyter, Plotly, Folium) to allow users to explore various aspects of the dataset, such as filtering or hovering for more information, that benefit from interactivity. In a brief paragraph, explain your colour palette choices and how they improve the visualisation of complex data. Additionally, describe the interactive features you implemented and how they contribute to user engagement and data exploration.

Task 6: Reflection and Ethical Considerations (10 points)

Reflect on the data visualisation process you have undertaken throughout this assignment. Discuss the challenges you faced, the decisions you made, and how these affected the final outputs. In addition, address the ethical considerations related to data visualisation, including potential biases, the impact of misinformative visualisations, and the importance of honesty in data representation. Your reflection should be concise and no more than two paragraphs.

Language Proficiency (10 points)

Points will be awarded for clarity and technical proficiency in British English. Ensure your writing is clear, concise, and well-structured, with attention to grammar and spelling.

Report Submission

For this assignment, please submit an HTML export of a Jupyter or Colab Notebook. The notebook should include well-commented code, structured text, printed outputs, and both static and interactive data visualisations. Avoid including personal identifiers in the notebook. Ensure you restart the kernel, check the notebook for errors, remove any unnecessary code or markdown cells, provide a working link to any external datasets used in your analysis, and confirm that all code runs smoothly before generating the HTML.

Assessment Criteria

The assignment is scored out of a total of 100 points and covers all topics up to and including Week 6. The general assessment criteria are outlined below.

70 or higher	There was evidence of the ability to perform all tasks correctly. The demonstration of the methods was excellent, coherent, well documented, and clearly explained.
60-69	There was evidence of ability to perform some tasks correctly. The demonstration of the methods is good, coherent, and reasonably detailed and explained.
50-59	There was evidence of ability to perform some tasks correctly, but the demonstration of the methods was limited, incoherent, not adequately documented and vaguely explained.
40-49	There was limited evidence of ability to perform tasks. The demonstration of the methods involved significant omissions and produced substantial inaccuracies.
39 or less	Failure to solve the tasks in the assignment. Methods were completely incorrect or absent.

Submitting Assessments

You have three submission attempts, but only the last submission will be graded. If your last submission attempt is late, you will receive the late penalty even if you have a previous submission that was on time. Please make sure to avoid multiple submissions for assessments with multiple components, as only the last attempt will be graded. Upload several files in one submission attempt using the ‘add files’ function instead.

If you encounter issues with submission:

- Check the assessment details table at the top of the assessment brief to be sure you are submitting a permitted file format. Avoid zip files (unless explicitly required) and scanned PDFs. Use the ‘add files’ function to submit multiple files instead of a zip file.
- Make sure you have ticked the agreement box at the bottom of your Canvas submission page (scroll down if you don’t see it). This will enable you to select ‘Submit Assessment.’
- Try changing web browsers.

If you still cannot submit, e-mail a copy of your assignment before the deadline to student.assessments@nulondon.ac.uk along with screenshots of the problem on Canvas, showing a timestamp.

If your assessment requires anonymous submission (see the assessment details table at the top of the assessment brief), be sure you have left your name off of your submission and out of the submission file name.

Please review the submitted file to ensure that everything is in order. To turn on notifications for submission confirmation emails in your Canvas settings: Account > Notifications > Turn on the bell for ‘All submissions.’ In the app this is via Settings > Email Notifications > All submissions.

Marking

The University uses two assessment marking schemes – one for undergraduate and one for postgraduate – to mark all taught programmes leading to an award of the University.

More detailed information on the assessment marking scheme and the criteria can be found in the Course Syllabus, available on the University’s VLE.

Learning Outcomes

This assessment will enable students to demonstrate in full or in part the learning outcomes identified in the Course Descriptor.

On successful completion of this assessment, students should be able to:

Knowledge and Understanding

K1b Demonstrate knowledge and critical understanding of well-established concepts in information design and data visualisation techniques.

K2b Demonstrate knowledge of human perception and cognition to assess the quality and effectiveness of a data visualisation.

K3b Demonstrate the ability to identify the appropriate data visualisation techniques for exploration and discovery.

Subject Specific Skills

S1b Apply data visualisation techniques in an appropriate manner to a given data set across application domains.

S2b Develop a static or interactive reproducible data visualisation in Python.

S3b Design an effective data visualisation using human perception and cognition principles.

Transferable and Employability Skills

T1b Constructively critique and assess a data visualisation.

T3b Demonstrate a sound technical proficiency in written English and skill in selecting vocabulary so as to communicate effectively to specialist and non-specialist audiences.

Accessing Feedback

Students can expect to receive feedback on all summative coursework within 28 calendar days of the submission deadline or, if applicable, the last oral assessment date, whichever later. The 28 calendar day deadline does not apply to work submitted late. Feedback can be accessed through the assessment link on the Canvas course page.

Late Submissions

Please ensure that you submit your assignment well before the deadline to avoid any late penalties, as a submission made exactly on the deadline will be considered late. Please keep in mind that there may be differences between your computer's clock and the server time, which can cause discrepancies, and that Canvas may take some time to process your submission.

Your Canvas submission portal displays two due dates: one is the deadline for your assignment, and the second is the latest possible date by which your assignment can be submitted late. Please make sure you submit by the assessment deadline in order to avoid late penalties.

If assessments are submitted late without approved Extenuating Circumstances, there are penalties:

- For assessment elements submitted up to one day late, any passing mark will receive 10 marks deducted or a threshold pass (40% for undergraduate students, 50% for postgraduate students), whichever is higher. Any mark below 40% for undergraduate students and below 50% for postgraduate students will stand.
- Students who do not submit their assessment within one day of the deadline, and have no approved Extenuating Circumstances, are deemed not to have submitted and to have failed that assessment element. The mark recorded will be 0%.
- For assessment sub-elements, late submission will result in non-submission penalties deducted according to the marking criteria above.

For further information, please refer to AQF7 Part C in the Academic Handbook.

Extenuating Circumstances

The University’s Extenuating Circumstances (ECs) procedure is in place if there are genuine circumstances that may prevent a student from submitting an assessment.

If the EC application is successful, there will be no academic penalty for missing the published submission deadline.

Students are normally expected to apply for ECs in advance of the assessment deadline. Students may apply for consideration of ECs retrospectively if they can provide evidence that they could not have done so in advance of the deadline. All applications for ECs must be supported by independent evidence.

Successful EC applications for live oral assessments, including vivas, will result in a deferral of the oral to be organized by faculty, students, and Timetabling for a date as close as possible to the original presentation date. The deadline for supplementary materials, if assigned, will be carried forward by the length of the oral assessment extension.

Missing an oral assessment, including a compulsory viva, without an approved EC will result in a non-submission for the entire assessment and, accordingly, a recorded mark of 0%.

Students are reminded that the ECs procedure covers only short-term issues (within 21 days leading to the submission deadline) and that if they experience longer-term matters that impact on learning then they must contact Student Support for advice.

Under the Extenuating Circumstances Policy, students may defer an assessed element on only one occasion and may request an extension on a maximum of two occasions.

For further information, please refer to the Extenuating Circumstances Policy in the Academic Handbook.

Academic Misconduct

You must submit work for assessment purposes that is your own and meets good academic practice. Assessments must be completed strictly in accordance with the instructions outlined in the assessment brief. This includes ensuring that your work is appropriately referenced.

It is important to understand if artificial intelligence (AI) is permitted to be used or not, and if yes, the conditions for its use. For clarity, the assessment brief expressly states if AI can be used, and the parameters of its permitted usage. You are not permitted to use AI (in any form) if the assessment brief does not expressly state that usage is permitted.

Any concerns with the academic integrity of a submission will be addressed in accordance with the Academic Misconduct Policy. This policy gives details of the different types of misconduct and the steps the University may take when a concern arises. Action may result in academic penalties being applied directly to you. You are advised to review this policy in full before completing and submitting any work for marking purposes. The University may also take steps to ascertain the authenticity of a submitted piece of work in cases of relevant concern, such as by holding a viva.

Version History

Title: Assessment Brief Template **Approved by: The Quality Team**					
Version number	**Date approved**	**Date published**	**Owner**	**Location**	**Proposed next review date**
4.0	March 2023	March 2023	Registrar	VLE/ Faculty Resources Page	March 2024
3.0	August 2022	August 2022	Registrar	VLE, Faculty Resources Page	July 2023
2.3	December 2021	December 2021	Registrar	VLE	August 2022
2.2	August 2021	August 2021	Registrar	VLE	August 2022
2.1	September 2020	September 2020	Registrar	VLE	August 2021
2.0	September 2020	September 2020	Registrar	VLE	August 2021
1.0	August 2019	August 2019	Registrar	VLE	August 2020
Referenced documents	AQF7 Academic Regulations for Taught Awards; Extenuating Circumstances Policy; Academic Misconduct Policy; Course Syllabus				
External Reference Point(s)	UK Quality Code Theme: Assessment				