Northeastern University London

Assessment Brief: Individual Coursework 2024–25

Assessment Details

Course Title:	Experimental Data Science Project
Course Code:	LDSCI5207
Course Leader:	Mark Martin
Level:	5
First, Second, or Third Sitting:	First Sitting
Assessment Title:	Written assignment
Assessment Number:	AE1
Assessment Type:	Written assignment
Restrictions on Time/Length:	3000 words
Assessment Weighting:	70%
Issue Date:	08 January 2025
Hand-in Deadline:	13 March 2025, 13:00
Planned Feedback Deadline:	28 calendar days after hand-in deadline
File Format Accepted:	Jupyter Notebook (HTML) & Application (Zip File)
Mode of Submission:	Online (Canvas)
Anonymous Submission:	Yes

Assessment Task

The **written assignment** for the LDSCI5207 Experimental Data Science Project will involve applying the data science and programming skills you have learned in **LDSCI4211 Programming with Data** or **LCSCI4208 Fundamentals of Computer Science II** to solve a **local problem within London, UK**. The problem you choose should have **societal impact** or be aimed at improving conditions for the residents of the area, helping them become more informed citizens or highlighting opportunities for positive change.

Your project should focus on how data science can address a **real-world challenge** that affects the local community, such as housing, transportation, healthcare, education, air pollution, or public services. Your analysis should aim to provide insights or solutions that could lead to improved quality of life, better decision-making, or a deeper understanding of an issue.

Below is the recommended structure for your assignment:

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1. Understanding the Business Problem

- **Identify and describe a local issue in Tower Hamlets or East London**. The issue should have societal relevance, such as housing affordability, public transportation inefficiencies, air pollution, or local crime trends.
- Explain the **importance of the problem** for local residents or businesses. How does it affect the community? Why is it a pressing issue?
- Define the **objectives** of your project. What are you trying to achieve? For example, your objective could be to help local authorities allocate resources more efficiently or provide residents with insights into air quality trends.

2. Preparing the Data

- **Data Collection**: Identify the dataset(s) you will use to address the problem. These can be sourced from local government repositories (e.g., East London Datastore), publicly available datasets, or data gathered through surveys.
- **Data Description**: Provide an overview of the dataset's size, types of data (e.g., numerical, categorical), and features relevant to your problem (e.g., housing prices, crime statistics, pollution levels).
- **Data Preprocessing**: Explain the steps you took to clean and prepare the data for analysis, including handling missing data, outliers, and any feature engineering or transformations needed to improve the quality of the data.
- Data Ethics: Consider any biases in the dataset. For example, does the data represent Londoners fairly, or are some data underrepresented?

3. Exploring and Modelling the Data

This section combines **Exploratory Data Analysis (EDA)**, **simple modelling**, and **evaluation** in one streamlined section.

- **Exploratory Data Analysis (EDA)**: Use visualisations and descriptive statistics to explore the dataset. For instance, you might use heatmaps to show correlations, scatter plots to identify trends, or maps to visualise geographic patterns (e.g., crime hotspots or air quality variations across East London).

- **Simple Modelling**: Based on your findings, select a basic model or method to analyse the data. This could be a linear regression for predicting housing prices, a classification algorithm to predict crime rates, or clustering techniques to identify patterns in air pollution. Keep the modelling straightforward to focus on practical applications rather than advanced techniques.
- **Model Evaluation**: Evaluate your model's performance using basic metrics (e.g., accuracy, confusion matrix, RMSE). Discuss the results, highlighting the strengths and limitations of your model. You don't need to focus on highly advanced metrics but should demonstrate an understanding of how the model performed in addressing the problem.

4. Deploying Findings via Application

- **Application**: Explain how you deployed your findings in an **application of your choice for example Streamlit**. The app should present your data visualisations and model insights in an interactive format.
    - Describe the **features of the app**, such as interactive sliders, filters, or maps that allow users to explore the data themselves.
    - Discuss how this app can benefit **local residents** or **stakeholders**. For example, an app that displays air quality levels in different parts of Tower Hamlets can help residents plan outdoor activities, while a greenspaces heatmap could assist local authorities in better resource allocation.
- **Deployment Impact**: Reflect on how deploying your findings via a user-friendly interface (like Streamlit) or choice contributes to making data science accessible to non-technical users. Highlight the potential societal benefits of this deployment.

5. Conclusion

- **Summarise your key findings** and how they address the business problem identified at the beginning of the project.
- Reflect on the **impact** of your solution on the local community. How does it help improve the lives of residents or inform decision-makers? Could your project be scaled or extended to address other related problems?
- Suggest **future improvements** or **next steps** for your project. For example, gathering more data, refining the model, or expanding the app's functionality could be proposed.

Appendix (if applicable)

- Include additional materials such as charts, data tables, or detailed code snippets that support your analysis.

Assessment Criteria

The assessment should be completed in the accompanying Python notebook which contains the questions and code from this brief and Markdown cells for the written components of the task. You must remove any unnecessary code or markdown cells from the notebook before submitting the assignment.

Submitting Assessments

Submission of the assessment to Canvas must be in the form of a HTML export, full instructions for exporting a HTML file from a Python Notebook will be provided on the course Canvas page.

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 instead.

If your assessment requires anonymous submission (see the assessment details table at the top of your assessment brief), please be sure you have left your name off of your submission and out of the submission file name, as failing to do so may result in a 0% mark on the assessment.

Refer to the assessment details table in your assignment brief for acceptable file formats. Avoid submitting zip files (unless explicitly required by the assessment brief); use the ‘add files’ function to submit multiple files instead. If you are submitting a physical artefact, you must also provide clear and thorough documentation (such as in the form of photographs or a video) of your submission by the deadline; see the bottom of this section for guidance on submitting video files.

Please ensure that you tick the agreement box at the very bottom of your Canvas submission page (scroll down if you don’t see it). This will enable you to select ‘Submit Assessment.’ Please review the submitted file to ensure that everything is in order.

If you encounter any issues with submission, 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.

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.

To submit a video recording: Select the ‘Panopto video’ icon in the text entry box in your submission portal. You can upload a video file of any format from your media library by selecting ‘upload,’ choosing ‘my folder’ in the drop down menu, and

clicking ‘insert.’ You should be able to play the video back once it processes. See further explanation, including guidance on recording videos using Panopto, in this support article: ‘How to Submit a Video Assignment in Canvas.’

Marking

The University uses two categorical 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 categorical 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 the well-established principles that underpin the project’s area(s) of study.
K2b	Demonstrate a critical understanding of well-established software tools and technologies to solve problems.
K3b	Critically evaluate the appropriateness of different methods and techniques used in related work.

Subject Specific Skills

S1b	Demonstrate familiarity with codes of ethics (e.g., code licensing, data use) and codes of practice (e.g., testing) underpinning the development of software solutions.
S2b	Use well-established methods and techniques to design and implement a software solution for project-related problems.

S3b	Use well-established methods and techniques to critically analyse related projects and propose solutions to project-related problems.

Transferable and Employability Skills

T3b	Display a developing technical proficiency in written English and an ability to communicate clearly and accurately in structured and coherent pieces of writing.
T4b	Carry out projects using a range of modern, well-proven software tools and libraries to appropriate standards.

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 subelements, 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 and Development 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

Any submission must be a student's own work and, where facts or ideas have been used from other sources, these sources must be appropriately referenced. The University reserves the right to hold a viva if there are concerns about the authenticity of a student's or learner's work. The Academic Misconduct Policy includes the definitions of all practices that will be deemed to constitute academic misconduct. This includes the use of artificial intelligence (AI) where not expressly

permitted within the assessment brief, or in a manner other than specified. Students should check this policy before submitting their work. Students suspected of committing Academic Misconduct will face action under the Policy. Where students are found to have committed an offence they will be subject to sanction, which may include failing an assessment, failing a course or being dismissed from the University depending upon the severity of the offence committed. For further information, please refer to the Academic Misconduct Policy in the Academic Handbook.

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				