Assessment Brief

Module code/name	INST0001/Database Systems
Module leader name	Foteini Valeonti and Karen Stepanyan
Academic year	2024/25
Term	2
Assessment title	Design and Development of a Database System for tracking progress towards Sustainable Development Goals (SDGs) in charitable organisations
Individual/group assessment	Group and Individual assessment

Submission deadlines: Students should submit all work by the published deadline date and time. Students experiencing sudden or unexpected events beyond your control which impact your ability to complete assessed work by the set deadlines may request mitigation via the extenuating circumstances procedure. Students with disabilities or ongoing, long-term conditions should explore a Summary of Reasonable Adjustments. Students may use the delayed assessment scheme for pre-determined mitigation on a limited number of assessments in a year. Check the Delayed Assessment Scheme area on Portico to see if this assessment is eligible.

Return and status of marked assessments: Students should expect to receive feedback within 20 working days of the submission deadline, as per UCL guidelines. The module team will update you if there are delays through unforeseen circumstances (e.g. ill health). All results when first published are provisional until confirmed by the Examination Board.

Academic Misconduct: Academic Misconduct is defined as any action or attempted action that may result in a student obtaining an unfair academic advantage. **Academic misconduct includes plagiarism, self-plagiarism, obtaining help from/sharing work with others be they individuals and/or organisations or any other form of cheating that may result in a student obtaining an unfair academic advantage.** Refer to Academic Manual Chapter 6, Section 9: Student Academic Misconduct Procedure - 9.2 Definitions.

Referencing: You must reference and provide full citation for ALL sources used, including AI sources, articles, text books, lecture slides and module materials. This includes any direct quotes and paraphrased text. If in doubt, reference it. If you need further guidance on referencing please see UCL's referencing tutorial for students. Failure to cite references correctly may result in your work being referred to the Academic Misconduct Panel.

Use of Artificial Intelligence (AI) Tools in your Assessment: Your module leader will explain to you if and how AI tools can be used to support your assessment. In some assessments, the use of generative AI is **not permitted** at all. In others, AI may be used in an **assistive** role which means students are permitted to use AI tools to support the development of specific skills required for the assessment as specified by the module leader. In others, the use of AI tools may be an **integral** component of the assessment; in these cases the assessment will provide an opportunity to demonstrate effective and responsible use of AI. See Section A of this brief to check which category use of AI falls into for this assessment. Students should refer to the UCL guidance on acknowledging use of AI and referencing AI. Failure to correctly reference use of AI in assessments may result in students being reported via the Academic Misconduct procedure. Refer to the section of the UCL Assessment success guide on Engaging with AI in your education and assessment.

Content of this assessment brief

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Section A: Core information

Submission dates	**Pre-requisites for self-assessment of the critical report:** **Assessment milestones:** **29/01/25** – Group member selection, **05/02/25** – Charity (and its three SDGs) selection, **26/02/25** – Draft group report and database export, **19/03/25** – Draft individual report and MySQL queries. **Summative submissions:** **02/04/2025** – 50% Group work **02/04/2025** – 50% Individual work
Submission time	15:00 UK Time
Assessment is marked out of:	100
% weighting of this assessment within total module mark	100%
Maximum word count/page length/duration	Group work: 1,500 words maximum (including a 10% leeway). Individual work: 1,000 words maximum (including a 10% leeway).
Footnotes, tables and captions for tables, figures, diagrams, charts included in word count?	Included in the word count
Bibliographies, reference lists, cover page, appendices, excluded from word count?	Excluded from the word count
Penalty for exceeding word count/page length	Penalty for exceeding word count will be a deduction of 10 percentage points, capped at 40% for Levels 4, 5, 6 and 50% for Level 7). Refer to Academic Manual Section 3: Module Assessment – 3.12 Word Counts.
Penalty for late submission	Standard UCL penalties apply. Students should refer to Academic Manual Section 3: Module Assessment – 3.11 Deadlines and Late Assessment.
Artificial Intelligence (AI) category	**Category 2: AI tools can be used in an assistive role**. For this assignment, this means that you can use AI for: • structuring content; • acting as a support tutor; • giving feedback on content, or proofreading content within the grounds permitted in the Academic Manual (9.2.2b). While you may use AI tools as an assistant, the intellectual or technical work should be your own and you need to clearly acknowledge how and where you have used generative AI. Any student use of Generative Artificial Intelligence (GenAI) tools that exceeds that permitted in the assessment brief will be subject to academic misconduct procedures.

Submitting your assessment	Submission via the INST0001 Moodle space only.
Anonymity of identity. Normally, <u>all</u> submissions are anonymous unless the nature of the submission is such that anonymity is not appropriate, illustratively as in presentations or where minutes of group meetings are required as part of a group work submission	The nature of this assessment is such that anonymity is required.

Section B: Assessment Brief and Requirements

1. Scenario

1.1. Introduction

You were recently employed as a Database Engineer by a charity and you are now part of its digital team. The charity's management has made the decision to make progress towards the United Nations' Sustainable Development Goals (SDGs). In the first instance, the charity's management has decided to choose three SDGs to work towards.

Your team has been tasked to design and develop a new, shared, database system that is dedicated to tracking the progress the organisation will be making towards achieving its chosen SDGs. The charity's **SDG Database** that you will develop, will be separate from the charity's existing database(s), such as those that are used to track HR records or payroll.

1.2. Group Work Description

Your team (i.e. your coursework group, please see 4.1) will design a shared database. Each of the team members will be responsible for tracking the progress towards one of the chosen SDGs through the same database. The database design, therefore, should accommodate the needs of all three group members.

The team will develop a conceptual model as an ER diagram. The team must also normalise the database to 3NF, clearly recording and presenting the steps of normalisation.

Your team will then develop the logical schema and implement this new database using MySQL adopting best practice in relational database design and development.

Your team will populate the database with synthetic data in order to run queries. You are free to decide how many records to include in the database for demonstrating its capabilities in tracking progress towards SDGs effectively.

1.3. Individual Work Description

You, individually, must make sure the developed SDG database is capable of tracking progress towards the chosen SDG. This will need to be demonstrated through effective queries of the developed database.

Across industry, progress towards an SDG is monitored using SDG Data Indicators. As such, you will need to ensure the new database system will be capable of tracking progress towards some of the data indicators that are relevant to the SDG you are focusing on (for the specific SDG Data Indicators please see 4.2).

2. Assessment Deliverables

2.1. Group Submission

A: Group Report (1,500 words max) – Your report must include:

- Justified ER diagram and schema design of the SDG Database.
- Well-presented details of normalisation process.

- Details of the MySQL implementation in line with the proposed database design, supplemented with screenshots.
- Details of synthesising realistic data that enable the insightful querying of the SDG Database.
- Critical reflection covering limitations of the current design and implementation and pathways for future work.
- References supporting the Group Report.

B: Database Backup - A backup (*mysqldump*) of the MySQL database developed, as a plain text file.

2.2. Individual Submission

A: Individual Report (1,000 words max) - Your report must include some context on the SDG you worked on and the SDG Data Indicators monitored, as well as:

- Justification and presentation of the design decisions made to facilitate monitoring progress for this particular SDG and critical reflection.
- Details of implementing the aforementioned design decisions on the SDG Database.
- Details of effective use of the SDG Database, through appropriate MySQL queries.
- Critical reflection on your learning.
- References supporting your Individual Report.

B: My SQL Queries (Appendix) – Please append to the Individual Report:

- The MySQL queries as text (ideally formatted, coloured appropriately) you wrote and used, in order to ensure robust tracking of the chosen SDG.
- Please supplement your MySQL queries with screenshots of their query results. This appendix would not be included in your main report's wordcount.

C: Copy of the Submitted Group Report – Your individual report will be assessed along with the group report.

3. Assessments Milestones

For deadlines please see "Section A: Core information". Submission through Moodle.

3.1. Group Submission Draft

- Report Draft (approx. 1,000 words).
- Backup of the MySQL database developed so far (*mysqldump*), as a plain text file.

3.2. Individual Submission Draft

- Individual Report draft showing your individual progress.
- Appended to the report any SQL Queries developed so far.

4. Additional Information

4.1. Group Formation

- Groups should consist of three students, that belong to the same Thursday tutorial group (i.e. Group A, B or C).

- Students will be asked to form pairs – forming a group of two within the given number of Groups on Moodle on a first come first served basis. Students who did not form a pair will be randomly allocated to groups of two to form a group of three.
- Pairs who wish to work together must indicate this through the relevant Group Choice Activities on Moodle (see Assessment section).
- You should not join a group if you have not formed a pair, as you will be allocated to a group by module leads.
- Students who did not form pairs by the given deadline will be allocated to groups randomly.
- Module leader will not be in a position to support formation of student pairs.

4.2. Selection of Charity, SDGs and SDG Data Indicators

- You are free to choose the charity, the SDGs and, respectively, the SDG Data Indicators that you are going to work on.
- Charity selection:
  - As a group, please select a charity registered with Charity Commission from England and Wales. You can use the Advanced Search option to explore the list of charities.
  - Your choice of charity needs to be unique (i.e. two groups cannot work on the same charity) and will be approved on a first-come, first-served basis by module leads. Therefore, to reserve a certain charity, please make your choice early.
- Selection of SDGs and SDG Data Indicators:
  - Please select three SDGs which are relevant and appropriate for the charity your group has chosen. There are 17 SDGs in total and these can be found here: United Nations – The 17 Goals
  - Once you have selected three SDGs (one for each group member), then for each SDG, please select, one or more, *SDG Data Indicators* to track this particular SDG's performance. You can browse SDG Data Indicators by Goal here: Indicators by Goal
- Example:
  - Say your group has decided to work for the charity Save the Children, which provides humanitarian assistance and development programmes to improve the well-being of children worldwide; initiatives include delivering healthcare services, ensuring access to education, promoting child protection, responding to emergencies, and advocating for policies that benefit children's rights.
  - Given the charity's aforementioned profile, the SDGs your group may choose are: SDG1 (No Poverty), SDG2 (Zero Hunger), or SDG4 (Quality Education).
  - If you have chosen to work on SDG4 (Quality Education), you may focus on monitoring SDG Data Indicator 35 (i.e. Secondary completion rates for girls and boys). You can then focus on capturing educational completion rates by income, disability, or regional conflicts, enabling your database to monitor trends over time.

Section C: Module Learning Outcomes Covered

This assignment contributes towards the achievement of the following stated module Learning Outcomes as highlighted below:

- Understand the dominant database paradigms available today, their strengths, weaknesses, and application examples.
- Extract requirements for, design and specify a relational database using standard notation and methodologies.
- Apply normalisation techniques on data.
- Implement, modify, and query a database solution using standard tools such as MySQL.
- Explain the major issues around database administration.

Section D: Groupwork instructions (if applicable)

Groupwork Guidelines:

- We encourage all groups to keep a log of all meetings. These would include group work decisions, progress, and outcomes.
- We encourage an early assessment project start and proactive feedback request on your weekly progress during our Lab Sessions.
- If there are any issues you experience as a group or individually seek support from the teaching team immediately.

Additional Guidelines:

Use the following checklist to help you assess your progress.

1. Does this project align with the potential needs of the charity and the chosen SDGs?
2. Is there evidence of a working understanding of the most relevant database paradigm available today?
3. Have relevant issues of database administration been considered?
4. Is there a reflection on the inherent strengths and limitations of the proposed design?
5. Is there evidence of both:
    a. collaborative problem-solving and balanced teamwork?
    b. independent learning and self-reflection?

Section E: How your work is assessed

Assessment Marking Criteria are provided in Section F.

Within each section of this assessment you may be assessed on the following aspects, as applicable and appropriate to this assessment, and should thus consider these aspects when fulfilling the requirements of each section:

- The accuracy of any calculations required.
- The strengths and quality of your overall analysis and evaluation;
- Appropriate use of relevant theoretical models, concepts and frameworks;
- The rationale and evidence that you provide in support of your arguments;
- The credibility and viability of the evidenced conclusions/recommendations/plans of action you put forward;
- Structure and coherence of your considerations and reports;
- Appropriate and relevant use of, as and where relevant and appropriate, real world examples, academic materials and referenced sources. Any references should use either the Harvard OR Vancouver referencing system (see References, Citations and Avoiding Plagiarism)
- Academic judgement regarding the blend of scope, thrust and communication of ideas, contentions, evidence, knowledge, arguments, conclusions.
- Each assessment requirement(s) has allocated marks/weightings.

Student submissions are reviewed/scrutinised by an internal assessor and are available to an External Examiner for further review/scrutiny before consideration by the relevant Examination Board.

It is not uncommon for some students to feel that their submissions deserve higher marks (irrespective of whether they actually deserve higher marks).

The above is an important link as it specifies the criteria for attaining the pass/fail bandings shown below:
At UG Levels 4, 5 and 6:
80% to 100%: Outstanding Pass - 1st; 70% to 79%: Excellent Pass - 1st; 60%-69%: Very Good Pass - 2.1; 50% to 59%: Good Pass - 2.2; 40% to 49%: Satisfactory Pass - 3rd; 20% to 39%: Insufficient to Pass - Fail; 0% to 19%: Poor and Insufficient to Pass - Fail.
At PG Level 7:
86% to 100%: Outstanding Pass - Distinction; 70% to 85%: Excellent Pass - Distinction; 60%-69%: Good Pass - Merit; 50% to 59%: Satisfactory - Pass; 40% to 49%: Insufficient to Pass - Fail; 0% to 39%: Poor and Insufficient to Pass - Fail.

You are strongly advised to review these criteria **before you start your work** and **during your work**, and **before you submit**.

Upon receipt of your mark, you are strongly advised to **not** compare your mark with marks of other submissions from your student colleagues. Each submission has its own range of characteristics which differ from others in terms of breadth, scope, depth, insights, and subtleties and nuances. On the surface one submission may appear to be similar to another but invariably, digging beneath the surface reveals a range of differing characteristics.

Students who wish to request a review of a decision made by the Board of Examiners should refer to the UCL Academic Appeals Procedure, taking note of the acceptable grounds for such appeals.
Note that the purpose of this procedure is not to dispute academic judgement – it is to ensure correct application of UCL's regulations and procedures. The appeals process is evidence-based and circumstances must be supported by independent evidence.

Institutional Policies and General Information:
The process of confirming the mark will be reviewed/scrutinised by an internal assessor. This will be made available to an External Examiner for further review/scrutiny before consideration by the relevant Examination Board.

To help you assess the relative strengths and weaknesses of your submission, please refer to UCL Assessment Criteria Guidelines, located at https://www.ucl.ac.uk/teaching-learning/sites/teaching-learning/files/migrated-files/UCL_Assessment_Criteria_Guide.pdf You may consult Level 5 Assessment Criteria from the generic UCL Guide.

Students who wish to request a review of a decision made by the Board of Examiners should refer to the UCL Academic Appeals Procedure, taking note of the acceptable grounds for such appeals.
Note that the purpose of this procedure is not to dispute academic judgement – it is to ensure correct application of UCL's regulations and procedures. The appeals process is evidence-based and circumstances must be supported by independent evidence.

Institutional Policies on the Use of Generative AI
Students are permitted to use AI tools for as assistive role within the assessment. The use of AI is not in itself a learning outcome. The use of generative AI must be acknowledged and detailed in the references section of the submitted report. There will be some aspects of the assessment where the use of AI is inappropriate, and you should seek clarity from tutor when in doubt.

The use of generative AI must be acknowledged in the References section. The minimum requirement to include in acknowledgement:

- Name and version of the generative AI system used; e.g. ChatGPT-3.5
- Publisher (company that made the AI system); e.g. OpenAI
- URL of the AI system.

- Brief description of context in which the tool was used and how.

The References section of your report is excluded from the word count, enabling you to provide as much context with regards to the use of AI as you find necessary.

Section F: Additional Information

Appendix 1: Marking Criteria for the Group Work

Criteria/Judgement	Poor (0-39)	Emergent (40-49)	Adequate (50-59)	Proficient (60-69)	Exemplary (70-100)
1. ER Diagram and Schema Design (25%)	ER diagram is inaccurate or inconsistent. Schema details are missing or significantly flawed.	ER diagram has some inaccuracies or inconsistencies. Schema details are incomplete or unclear.	ER diagram is mostly accurate and consistent, with minor documentation gaps. Schema details are mostly complete.	ER diagram is good, accurate, consistent, well-presented and well-documented. Schema details are complete and precise and justifications of design decisions are strong.	ER diagram is excellent, very well-presented and documented, demonstrating advanced understanding of modelling principles. Schema details are comprehensive, precise, and insightful. The justification and discussion of both suggests a thoughtful and systematic design process.
2. Normalisation (20%)	Database schema is not normalised, or the normalisation is exceptionally poor.	Database schema has some normalisation issues.	Database schema is normalised to 2NF, with minor inconsistencies.	Database schema is normalised to 3NF, with minor inconsistencies.	Database schema is normalised to 3NF clearly and consistently.
3. MySQL Implementation (30%)	Database is poorly implemented in MySQL, with significant issues.	Database is partially implemented in MySQL, with some issues.	Database is mostly implemented in MySQL, with minor issues.	Database implementation in MySQL is good, demonstrating strong understanding of database development.	Database implementation in MySQL is excellent and flawless adopting best practices in database development.
4. Sample Data (10%)	Sample data is missing, irrelevant or inconsistent.	Sample data is somewhat relevant, yet it limits meaningful querying of the database.	Sample data is mostly relevant allowing meaningful querying of the database.	Sample data is good allowing for insightful querying of the database.	Sample data is excellent and realistic, allowing for insightful querying and emulating a real-world database that is in line with the design proposed.
5. Limitations and future work (10%)	No limitations or future work is considered in the report, or the section remains very superficial.	An account of limitations and future work is presented, but some key limitations and/or important potential avenues for future development remain unexplored.	An account of limitations and future work is presented to an adequate degree, but some gaps are present.	Limitations and future work are well-presented, demonstrating critical thinking and understanding of database design and development beyond the scope of the project.	Limitations and future work are excellent. Both are covered in great extent, demonstrating deep critical thinking and thorough understanding of database design and development beyond the scope of the project.
6. References. (5%)	The references are missing, incomplete or do not seem to adhere to a specific format.	A basic list of references is provided, but formatting is inconsistent.	An adequate list of references is provided. The sources are cited in-text and they are also present in the list of references.	A good list of references is provided and is well-formatted. The references are from reputable and/or academic sources. All sources are cited in-text as well as presented in the list of references.	An excellent, exhaustive list of references is provided and are meticulously formatted. The references are from reputable and/or academic sources. All sources are cited in-text as well as presented in the list of references.

Appendix 2: Assessment Criteria for the Individual Component

Criteria/Judgement	Poor (0-39)	Emergent (40-49)	Adequate (50-59)	Proficient (60-69)	Exemplary (70-100)
1. Database Design Decisions for Monitoring the given SDG (35%)	Poor or no design decisions for accommodating the given SDG, failing to provide monitoring.	Some evidence of poor design decisions that provide limited monitoring of the given SDG.	Design decisions are satisfactory, enabling the tracking of a specific SDG to an adequate degree.	Design decisions are thought-through, enabling meaningful monitoring of the given SDG. Design adaptations are also well justified, demonstrating a good understanding of database design.	Design decisions are excellent enabling highly insightful monitoring of the given SDG. Justification of those adaptations is excellent, demonstrating very deep understanding of database design.
2. Implementation in MySQL (35%)	Poor implementation of database design decisions for tracking the given SDG.	Some evidence of poor implementation of database design decisions, providing very limited monitoring of the given SDG.	Implementation of database design decisions is satisfactory, enabling the tracking of a specific SDG to an adequate degree.	Implementation of design decisions is robust, enabling meaningful monitoring of the given SDG. SQL queries are well constructed, demonstrating a good understanding of database management.	Implementation of design decisions is excellent, enabling insightful monitoring of the given SDG. SQL queries are constructed adopting best practices, demonstrating an excellent understanding of database development.
3. Lessons Learned and Reflection (25%)	Little or no information about the learning achievements are reported.	The report includes little insight into the learning journey. The report outlines some of the process of problem solving, but its account remains limited and not fully linked to the project.	The report includes insights into the learning journey, but this remains limited. Few examples of knowledge learned is used with limited comparison to previous knowledge. The report outlines some of the process of problem solving, but is lacking in describing specific learning experiences in the context of conducted work.	The report includes good insights into the learning journey. It lists new knowledge learned with previous ones. It outlines the process of problem solving, specific learning experiences in the context of conducted work. It assesses the process of overcoming challenges and projects these into future work.	The report includes excellent insights into the learning journey. It clearly lists new knowledge learned as well as previous knowledge. It outlines the process of problem solving and specific learning experiences in the context of conducted work with emotional engagement. It critically assesses the process of overcoming challenges and projects these into future work.
4. References (5%)	The references are missing, incomplete or do not seem to adhere to a specific format.	A basic list of references is provided, but formatting is inconsistent.	An adequate list of references is provided. The sources are cited in-text and they are also present in the list of references.	A good list of references is provided and is well-formatted. The references are from reputable and/or academic sources. All sources are cited in-text as well as presented in the list of references.	An excellent, exhaustive list of references is provided and are meticulously formatted. The references are from reputable and/or academic sources. All sources are cited in-text as well as presented in the list of references.