

Assessment Brief Template

Academic Year	2022/ 2023
Semester	Semester 1
Module Number	CM1603
Module Title	Database Systems
Assessment Method	Individual
Deadline (time and date)	23 rd December 2022 at 11.50 pm
Submission	A zipped file which contains the database backup and the report should upload to the CampusMoodle.
Word Limit (see Assessment Word Limit Statement)	Does not apply since the report contains diagrams and screen shots only.
Module Co-ordinator	Dileeka Alwis

What knowledge and/or skills will I develop by undertaking the assessment?

Students will gain the knowledge and skills required to perform the following tasks by undertaking the assessment:

- Analyse a given business case study and identify the requirements to design and develop a Relational Database.
- Apply database design and modelling methods to develop the Conceptual Relational Data Model and the Logical Relational Schema for the given business case study.
- Implement and test the relational database using Structured Query Language (SQL).
- Write SQL queries to manipulate data stored in the relational database according to the requirements and constraints of the given business case study.

On successful completion of the assessment students will be able to achieve the following Learning Outcomes:

1. Implement and test relational database using a query language with a suitable interface.

Please also refer to the Module Descriptor, available from the module Moodle study area.

What knowledge and/or skills will I develop by undertaking the assessment?

What is expected of me in this assessment?

Task(s) - content

Consider the following as a hypothetical scenario.

CoffeeCafe' is a well-known coffee shop in the city which offers high quality beverages and snacks. It is now moving to undertake online orders and facilitate doorstep delivery.

There are variety of items sold by the cafe which can be categorized based on the item type such as hot beverage, cold beverage, snack, cake, dessert, and others. Each item sold by the cafe belongs to one of those categories and each item has a unique identification code, name, price, and description. The cafe employees many staff members including stewards, delivery staff, and managers. Each employee has a unique staff ID number, designation, and a supervisor who is the manager of the division. The personal details and contact details of each employee is recorded. The detail of the driver's license of each delivery staff is recorded.

Customers can order one or more items and the same item can be ordered multiple times in one order. Each online order must contain the contact number of the customer, email address, delivery address and the date/time that the order must be delivered. Customers can settle the payment online payment or cash on delivery, and the payment details need to be recorded. Each order is assigned to a steward who will be responsible to track the order until the items are delivered to the customer and settle the payment.

You have been hired by CoffeeCafe' as a Database Management Architect to undertake a database development project to support the business processes of the cafe. Your goal is to produce a high-quality **Conceptual Relational Data Model**, **Logical Relational Schema**, and a **Physical Data Model** by implementing relevant tables using an appropriate DBMS tool.

An executive report should be provided to justify your decisions along with the respective assumptions.

What knowledge and/or skills will I develop by undertaking the assessment?

Task(s) – format

The report must include the following:

- (1) Provide a complete Conceptual Entity-Relationship Diagram (ERD/EERD) for CoffeeCafe' database. This needs to include suitable entity types, relationship types, multiplicity constraints, attributes, and primary keys. The diagram needs to fit in to one page of the report and you need to maintain clarity. Mention all the appropriate assumptions you made. (30 marks)

Marking Scheme

Marks

Identification of suitable entities	5
Identification of suitable primary keys	5
Identification of suitable non-key attributes	5
Identification of suitable relationships between entities	5
Identification of suitable multiplicity constraints	5
Drawing the complete ER diagram & assumptions	5

- (2) Provide a complete Logical Relational Schema Diagram for CoffeeCafe` database. This needs to include all the relations, primary keys, foreign keys, and other attributes. This needs to fit in to one page of the report. Mention all the appropriate assumptions you made.

Also provide a justification with Data Normalization Forms and solve any issues in the Logical Relational Schema that you have generated. You need to provide a clear indication of the steps for each normalization form (UNF, 1NF, 2NF and 3NF). (20 marks)

Marking Scheme

Marks

Identification of suitable relations	4
Identification of suitable primary keys	4
Identification of suitable non-key attributes	4
Identification of suitable foreign keys	4
Justification with normalization forms	4

What knowledge and/or skills will I develop by undertaking the assessment?

- (3) Use proper SQL codes to implement the normalized relational schema in MySQL. Each table should consist of appropriate primary key constraints, foreign key constraints (if applicable) and other relevant attributes. Insert meaningful sample data to the created tables. Each table should consist of at least 5 sample data.

SQL scripts used for table creation, data insertion and the screenshots of the generated table with sample data should be included in the report. Database Diagram generated by the systems need to be included in the report. (20 marks)

Marking Scheme

Marks

Identification of proper SQL code for table creation

10

Identification of proper SQL code for data insertion

5

Adding meaningful sample data to tables

5

- (4) Generate suitable SQL queries to perform the below tasks. SQL script written for each sub question and the screenshots of the respective output should be included in the report. Make sure to include suitable fields and provide field names to display a meaningful output to the user.

(30 marks)

a) List down the name and the price of all the items below \$1. Order the results in the ascending order of the price. (5 marks)

b) Display the name and the contact details of the delivery staff whose surname contains the letter 'o' as the 2nd letter. (eg: John) (5 marks)

c) Display the total number of orders placed by the customer named 'Henry Jayden'. (6 marks)

d) Find the most expensive item in each category and display the item type, item name and the price. (eg: Hot Beverage - Cappuccino - \$8) (6 marks)

e) Find the details of the orders handled by **all** the stewards within the month of December 2022. Display the Staff ID, Order ID, Item ID, and Quantity of each order. (8 marks)

How will I be graded?

A grade will be provided for each criterion on the feedback grid which is specific to the assessment.

The overall grade for the assessment will be calculated using the algorithm below. *[Amend as appropriate to your module.]*

A	At least 50% of the feedback grid to be at Grade A, at least 75% of the feedback grid to be at Grade B or better, and normally 100% of the feedback grid to be at Grade C or better.
B	At least 50% of the feedback grid to be at Grade B or better, at least 75% of the feedback grid to be at Grade C or better, and normally 100% of the feedback grid to be at Grade D or better.
C	At least 50% of the feedback grid to be at Grade C or better, and at least 75% of the feedback grid to be at Grade D or better.
D	At least 50% of the feedback grid to be at Grade D or better, and at least 75% of the feedback grid to be at Grade E or better.
E	At least 50% of the feedback grid to be at Grade E or better.
F	Failing to achieve at least 50% of the feedback grid to be at Grade E or better.
NS	Non-submission.

Feedback grid

GRADE	A	B	C	D	E	F
DEFINITION / CRITERIA (WEIGHTING)	EXCELLENT Outstanding Performance	COMMENDABLE/VERY GOOD Meritorious Performance	GOOD Highly Competent Performance	SATISFACTORY Competent Performance	BORDERLINE FAIL	UNSATISFACTORY Fail
Conceptual Entity Relationship Diagram (30 %) Grade: <input type="text"/>	An excellent ERD has been produced. All relevant entities are correctly identified. Most relevant attributes and the primary key are correctly identified for each entity. All relevant relationships and multiplicities are correctly identified. Clarity, formatting, and structure of the complete ERD is excellent. Most appropriate assumptions are identified.	A very good ERD has been produced. Relevant entities are correctly identified. Relevant attributes and the primary key are correctly identified for each entity. Relevant relationships and multiplicities are correctly identified. Clarity, formatting, and structure of the complete ERD is very good. Appropriate assumptions are identified.	A good ERD has been produced. Number of relevant entities are correctly identified. Number of relevant attributes and the primary key are correctly identified for each entity. Number of relevant relationships and multiplicities are correctly identified. Clarity, formatting, and structure of the complete ERD is good. Number of appropriate assumptions are identified.	A reasonable ERD has been produced. 3 or 4 relevant entities are identified. 2 or 3 reasonable attributes and the primary key are identified for each entity. 2 or 3 reasonable relationships and multiplicities are identified. Clarity, formatting, and structure of the complete ERD is reasonable. 2 or 3 reasonable assumptions are identified.	An approximately reasonable ERD has been produced. 2 or 3 relevant entities are identified. 1 or 3 approximately reasonable attributes and the primary key are identified for each entity. 1 or 2 approximately reasonable relationships and multiplicities are identified. Clarity, formatting, and structure of the complete ERD need to be improved. 1 or 2 approximately reasonable assumptions are identified.	No ERD has been produced or a semantically poor ERD with inappropriate and/or incorrect entities and/or relationships and/or attributes and/or primary key and/or multiplicities. Clarity, formatting, and structure of the complete ERD is semantically poor. Appropriate assumptions need to be identified.
Logical Relational Schema Diagram & Data Normalization (20 %) Grade: <input type="text"/>	An excellent Logical Relational Schema Diagram has been produced. All relevant relations are correctly identified. Most relevant non-key attributes, primary key and foreign keys (if applicable) are	A very good Logical Relational Schema Diagram has been produced. Relevant relations are correctly identified. Relevant non-key attributes, primary key and foreign keys (if applicable) are correctly identified for each relation. Relevant relationships and	A good Logical Relational Schema Diagram has been produced. Number of relevant relations are correctly identified. Number of relevant non-key attributes, primary key and foreign keys (if applicable) are correctly	A reasonable Logical Relational Schema Diagram has been produced. 3 or 4 relevant relations are identified. 2 or 3 reasonable non-key attributes, primary key and foreign keys (if applicable) are correctly	An approximately reasonable Logical Relational Schema Diagram has been produced. 2 or 3 relevant relations are identified. 1 or 3 approximately reasonable non-key attributes, primary key	No Logical Relational Schema Diagram has been produced or a semantically poor diagram with inappropriate and/or incorrect relations and/or relationships and/or non-key attributes and/or

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	correctly identified for each relation. All the relationships and multiplicities are correctly mapped. An excellent justification with all the Data Normalization Forms has been produced. Clarity, formatting, and structure of the work is excellent.	multiplicities are correctly mapped. A good justification with all the Data Normalization Forms has been produced. Clarity, formatting, and structure of the work is very good.	identified for each relation. Number of relevant relationships and multiplicities are correctly mapped. A good justification with all the Data Normalization Forms has been produced. Clarity, formatting, and structure of the work is good.	identified for each relation. 2 or 3 reasonable relationships and multiplicities are mapped. A justification with all the Data Normalization Forms has been produced. Clarity, formatting, and structure of the work is reasonable.	and foreign keys (if applicable) are identified for each relation. 1 or 2 approximately reasonable relationships and multiplicities are mapped. An approximately reasonable justification with several Data Normalization Forms has been produced. Clarity, formatting, and structure of the work need to be improved.	primary key and/or multiplicities and/or foreign keys (if applicable). No justification with Data Normalization Forms has been produced and/or semantically poor justification with several Data Normalization Forms has been produced. Clarity, formatting, and structure of the complete work is semantically poor.
Table Creation and Population of data (20 %) Grade: <input type="text"/>	An excellent script of SQL codes with relevant comments has been produced to create and populate all the tables. All relevant data types, field sizes and constraints are correctly applied. Mostly relevant and meaningful sample data has been entered to each table which satisfy the table constraints. All the screenshot evidence and the DB diagram are included in the report. Clarity, formatting, and	A very good script of SQL codes with relevant comments has been produced to create and populate all the tables. Relevant data types, field sizes and constraints are correctly applied. Relevant and meaningful sample data has been entered to each table which satisfy the table constraints. Relevant screenshot evidence and the DB diagram are included in the report. Clarity, formatting, and structure of the work is very good.	A good script of SQL codes with comments has been produced to create and populate the tables. Number of relevant data types, field sizes and constraints are correctly applied. Relevant and meaningful sample data has been entered to number of tables which satisfy the table constraints. Number of relevant screenshot evidence and the DB diagram are included in the report. Clarity,	A reasonable script of SQL codes has been produced to create and populate the tables. 2 or 4 relevant data types, field sizes and constraints are applied. Reasonable sample data has been entered to 2 or 4 tables which satisfy the table constraints. Reasonable number of screenshot evidence and the DB diagram are included in the report. Clarity, formatting, and structure of the work is reasonable.	An approximately reasonable script of SQL codes has been produced to create and populate the tables. 2 or 3 relevant data types and field sizes are applied. Reasonable sample data has been entered to 1 or 2 tables which satisfy the table constraints. Approximately reasonable screenshot evidence is included in the report. No DB diagram is included in the report. Clarity, formatting, and structure	A semantically poor and/or inappropriate and/or incorrect and/or no script of SQL codes has been produced to create and populate the tables. Applied data types and field sizes are irrelevant. Sample data has entered to tables are irrelevant and/or meaningless and/or not satisfy the table constraints. No screenshot evidence and no DB diagram included in the report. Clarity, formatting, and structure

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	structure of the work is excellent.		formatting, and structure of the work is good.		of the work needs to be improved.	of the work is semantically poor.
Generate reports with SQL (30 %) Grade: <input type="text"/>	An excellent script of SQL codes with relevant conditions and comments to has been produced to generate the correct result-set to all the sub questions. All the screenshot evidence is included in the report. Clarity, formatting, and structure of the query result-set is excellent.	A very good script of SQL codes with relevant conditions has been produced to generate the correct result-set to for 4 or 5 sub questions. All the screenshot evidence is included in the report. Clarity, formatting, and structure of the query result-set is very good.	A good script of SQL codes with relevant conditions has been produced to generate the correct result-set for 3 or 4 sub questions. Relevant screenshot evidence is included in the report. Clarity, formatting, and structure of the query result-set is good.	A reasonable script of SQL codes has been produced to generate the correct result-set for 2 or 3 sub questions. Reasonable screenshot evidence is included in the report. Clarity, formatting, and structure of the query result-set is reasonable.	An approximately reasonable script of SQL codes has been produced to generate the correct result-set for 1 or 2 sub questions. Approximately reasonable screenshot evidence is included in the report. Clarity, formatting, and structure of the query result-set needs to be improved.	A semantically poor and/or inappropriate and/or incorrect and/or no script of SQL codes has been produced to generate the correct result-set for 1 or 2 sub questions. No screenshot evidence is included in the report. Clarity, formatting, and structure of the query result-set is semantically poor.

Coursework received late, without valid reason, will be regarded as a non-submission (NS) and one of your assessment opportunities will be lost.

What else is important to my assessment?

What is plagiarism?

"Plagiarism is the practice of presenting the thoughts, writings or other output of another or others as original, without acknowledgement of their source(s) at the point of their use in the student's work. All materials including text, data, diagrams or other illustrations used to support a piece of work, whether from a printed publication or from electronic media, should be appropriately identified and referenced and should not normally be copied directly unless as an acknowledged quotation. Text, opinions or ideas translated into the words of the individual student should in all cases acknowledge the original source" ([RGU 2022](#)).

What is collusion?

"Collusion is defined as two or more people working together with the intention of deceiving another. Within the academic environment this can occur when students work with others on an assignment, or part of an assignment, that is intended to be completed separately" ([RGU 2022](#)).

For further information please see [Academic Integrity](#).

What is the Assessment Word Limit Statement?

It is important that you adhere to the Word Limit specified above. The Assessment Word Limit Statement lists what is included and excluded from the word count, along with the penalty for exceeding the upper limit.

What if I'm unable to submit?

- The University operates a [Fit to Sit Policy](#) which means that if you undertake an assessment then you are declaring yourself well enough to do so.
- If you require an extension, you should complete and submit a [Coursework Extension Form](#). This form is available on the RGU [Student and Applicant Forms](#) page.
- Further support is available from your Course Leader.

What else is important to my assessment?

What additional support is available?

- [RGU Study Skills](#) provide advice and guidance on academic writing, study skills, maths and statistics and basic IT.
- [RGU Library guidance on referencing and citing](#).
- [The Inclusion Centre: Disability & Dyslexia](#).
- Your Module Coordinator, Course Leader and designated Personal Tutor can also provide support.

What are the University rules on assessment?

The University Regulation '[A4: Assessment and Recommendations of Assessment Boards](#)' sets out important information about assessment and how it is conducted across the University.