

MBIS403 Data Modelling and Database Development



Assessment Overview	
Assessment	AT3 – Practical and Written Assessment (Individual)
Mark	45% (Written Submission 35%, Practical Submission 10%)
Due Date	<p>Written submission due by 11.55 pm Friday, Week 12</p> <p>Practical demonstration in class during Week 11/12 (as advised by your Lecturer/Tutor).</p>
Submission format	<p>PDF file (.pdf) or Word (.doc) only for the written submission</p> <p>SQL script file (.sql) for the practical submission</p>
Submission method	<p>AT3 Written Submission Dropbox for the written component of the assessment (submit answers to both Part A and Part B in the same document)</p> <p>AT3 Practical Submission Dropbox for the practical component of the assessment (submit SQL script for Part A)</p>
Word limit	1500 words (for Part B only)
Other Requirements	<p>AT3 Written Submission (Part A & Part B):</p> <ul style="list-style-type: none"> ● Prepare a single document with answers to both Part A and Part B ● Include the recommended coversheet <p>Part A:</p> <ul style="list-style-type: none"> ● Q1. Include the SQL queries for creating tables and screenshots of all tables populated with data ● Q2. Include the SQL query and a screenshot of the query output for each question. <p>Part B:</p> <ul style="list-style-type: none"> ● Use 12 pt font ● Double-space your document to allow room for feedback. ● State the word count ● Include a bibliography that complies with the APA referencing style

	<p>AT3 Practical Submission (applies to Part A only):</p> <ul style="list-style-type: none"> ● Create the database (SQL queries for Q1 and Q2) using MySQL in a single script file ● Use MySQL Workbench as the SQL editing tool <p>AT3 Project Demonstration (applies to Part A only):</p> <ul style="list-style-type: none"> ● You must present the database project to the class at an allocated time during the Week 11 Tutorial or Week 12 Lecture/Tutorial (as advised by your Lecturer/Tutor) ● You must present the database and the related SQL script file in MySQL Workbench for the demonstration ● Powerpoint presentations/slides are not accepted ● Failure to present in class will result in 0 marks for the AT3 Practical Submission
Assessment Details	
<p>For Part A of this assessment, you are required to design and implement a relational database management system (RDBMS) using MySQL.</p> <p>For Part B of this assessment, you are required to discuss data integrity features for the given case study.</p>	
Marking Criteria	
Refer to the marking rubric below.	
What if I Miss the Assessment?	
<ul style="list-style-type: none"> ● If you miss the AT3 assessment ONLY for the following reasons, you may apply for special consideration: <ul style="list-style-type: none"> ○ acute illness or ○ loss or bereavement or ○ hardship/trauma or ○ technological problems which could not be anticipated or avoided ● To apply for special consideration, fill out the following form and attach evidence to support your reason for seeking special consideration (within 5 days of the due date). <ul style="list-style-type: none"> ○ Special Consideration Application Form Link ● If your reason is invalid, or if you do not provide evidence, or if your application is not made within 5 days of the due date, your application will be rejected. 	
Can I Use Generative Artificial Intelligence for this Assessment?	
<p>You may use generative AI tools such as ChatGPT or Microsoft Co Pilot ONLY to research and brainstorm ideas and approaches for completing your essay. Please make sure to properly acknowledge any use of generative AI using CIM APA Referencing Guide.</p>	

Assessment Description:

Part A: Design and implement a relational database management system (RDBMS)

Consider the following Case Study (from AT2).

Foodservice Australia is the leading exhibition for the food industry in Australia. Foodservice Australia has just run in Sydney and was a huge success, connecting thousands of industry buyers with the latest food. Next year, the exhibition will be running in Melbourne. There will be over 450 chefs (exhibitors), both established and lesser known, and special events, including the Chef of the Year. The Event Organiser has decided to assign you the task of building an IT product for the upcoming event in 2025. The core of this product is a database that captures all the information the food exhibition needs to maintain.

Foodservice Australia keeps information about chefs, each represented by their name (first name, last name), address (street, suburb, state, postcode), phone number, and email. Chefs prepare and present various dishes, and a chef may prepare at least one dish. Each dish is described by a short descriptive title, cuisine (e.g. Italian, Chinese, Indian), ingredients used for preparation, and unit price, and is prepared by only one chef.

Dishes are exhibited and sold at different food stalls, each identified by a name and a location. A food stall exhibits one or more dishes however, a particular dish is presented at only one food stall. Furthermore, a food stall is managed by at least one food stall keeper. A food stall keeper has a name (first name, last name), address (street, suburb, state, postcode), phone number and email and manages only one food stall.

A customer has a name (first name, last name), address (street, suburb, state, postcode), phone number and email. A customer may place any number of dine-in orders and any number of take-away orders, however, each dine-in order and each take-away order is placed by only one customer. For each order, a quantity and an order date must be recorded. Additionally, a dine-in order has a time for preparation and a service charge, and a take-away order has a time for collection. Furthermore, a dish may be included in any number of dine-in orders, and any number of take-away orders. However, it is required that each dine-in order includes only one dish, and each take-away order includes only one dish.

Suppose you were hired by Foodservice Australia to create a database for the above Food Exhibition, which ran for 5 days from 01-12-2024 to 05-12-2024. The corresponding relational database schema is as follows.

Chef (chefID, chefFirstName, chefLastName, chefPhoneNumber, chefStreet, chefSuburb, chefState, chefPostCode, chefEmail)

FoodStall (foodStallID, foodStallName, foodStallLocation)

Customer (customerID, customerFirstName, customerLastName, customerPhoneNumber, customerStreet, customerSuburb, customerState, customerPostCode, customerEmail)

FoodStallKeeper (foodStallKeeperID, foodStallKeeperFirstName, foodStallKeeperLastName, foodStallKeeperPhoneNumber, foodStallKeeperStreet, foodStallKeeperSuburb, foodStallKeeperState, foodStallKeeperPostCode, foodStallKeeperEmail, foodStallID)

Dish (dishID, dishTitle, dishCuisine, dishDescription, dishIngredients, dishUnitPrice, chefID, foodStallID)

DineInOrder (dineInOrderID, dishID, customerID, quantity, orderDate, timeForPreparation, serviceCharge)

TakeAwayOrder (takeAwayOrderID, dishID, customerID, quantity, orderDate, timeForCollection)

Q1. Create a MySQL database for the above relational database schema in MySQL Workbench (you may follow the Week 8 Tutorial to install MySQL and MySQL Workbench).

- a. Write SQL statements to create the tables in the above relational database schema, with suitable data types for different fields, primary keys, and foreign keys.
- b. Insert meaningful data into all the tables. Provide screenshots of all tables populated with data (SQL statements for inserting data into the tables are not required as answers).

Important: Make sure that you add enough data records to the tables such that the result (query output) is not an empty set for any of the questions below.

Q2. For each of the questions below, write the SQL statement and provide a screenshot of the result (query output).

- a. List all the Chefs in a specific suburb of your choice (e.g., Clayton).
- b. List the DineInOrder IDs that included Dishes belonging to a specific cuisine of your choice (e.g., Italian).
- c. List the Food Stall Keepers (foodStallKeeperID, foodStallKeeperFirstName and foodStallKeeperLastName concatenated as foodStallKeeperFullName) who managed a Food Stall that offered a dish of a specific cuisine of your choice (e.g., Italian).
- d. List the customers (customerID, customerFirstName and customerLastName concatenated as customerFullName) along with the number of dine-in orders they placed, naming the field as NumberOfDineInOrders. Note, NumberOfDineInOrders = 0 if a customer did not place any order for dine-in.

- e. List the customers (customerID, customerFirstName and customerLastName concatenated as customerFullName) along with the number of dine-in orders and take-away orders they placed, naming the fields as NumberOfDineInOrders and NumberOfTakeAwayOrders, respectively.
- f. List the chefs (chefID, chefFirstName, chefLastName) who prepared more than one dish, along with the number of Dishes made, naming the field as NumberOfDishes. Order the list from the greatest NumberOfDishes to the least. Add a secondary sort to order the list by the chefFirstName.
- g. Which dishes were ordered more than once for take-away during the period from the second day to the fourth day of the exhibition? Show the Dish ID, Dish title, and the number of times it was ordered for take-away, naming the field as NumberOfOrders.
- h. List the dishes (dishID, dishTitle) that did not have any orders.
- i. List the Food Stalls (foodStallID and foodStallName), along with the total sales from take-away orders, naming the field as TotalTakeAwayOrderSales. Note that the quantity of dishes and unit price for each dish are provided.

Part B:

Critically analyze and investigate the importance of enforcing database integrity features for the above case study and write a report of 1500 words presenting your analysis and recommendations.

Include an Introduction, Body, Conclusion, and References. Organize the Body with proper sections and subsections as needed.

Rubric for AT3 Written Submission

	Fail (0 - 49)	Pass (50 - 64)	Credit (65 - 74)	Distinction (75 - 84)	High Distinction (85 - 100)
Implementation of DB (create table queries)	The depth and credibility of your design and implementation are insufficient	The depth and credibility of your design and implementation are acceptable.	The depth and credibility of your design and implementation are above average	The depth and credibility of your design and implementation are very good	The depth and credibility of your design and implementation are exceptional
Populating tables with data	The depth and credibility of your tables are insufficient	The depth and credibility of tables are acceptable.	The depth and credibility of your tables are above average	The depth and credibility of your tables are very good	The depth and credibility of your tables are exceptional
SQL Query and outputs (2.a)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
SQL Query and outputs (2.b)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
SQL Query and outputs (2.c)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
SQL Query and outputs (2.d)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
SQL Query and outputs (2.e)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
SQL Query and outputs (2.f)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
SQL Query and outputs (2.g)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional

SQL Query and outputs (2.h)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
SQL Query and outputs (2.i)	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
Part (B) Depth and credibility of research	You have not demonstrated that you have conducted enough research (eg insufficient references to credible research or peer-reviewed academic literature), and/or you have relied on doubtful sources	You have demonstrated that you have conducted enough research (eg based on the number of references to credible research and/or peer-reviewed academic literature), and you have relied on credible sources	The depth and credibility of your research is above average (based on the number and quality of your sources)	The depth and credibility of your research is very good (based on the number and quality of your sources)	The depth and credibility of your research is very good (based on the number and quality of your sources)
Key integrity constraints	The explanation of key integrity constraints is insufficient	The explanation of key integrity constraints is acceptable	The explanation of key integrity constraints is above average	The explanation of key integrity constraints is very good	The explanation of key integrity constraints is exceptional
Data integrity constraints	The explanation of data integrity constraints is insufficient	The explanation of data integrity constraints is acceptable	The explanation of data integrity constraints is above average	The explanation of data integrity constraints is very good	The explanation of data integrity constraints is exceptional
Coherence of analysis	Your analysis is illogical and/or poorly reasoned (eg because it relies on unfounded assumptions or misunderstands the theories and concepts applied)	Your analysis is mostly logical and well-reasoned	Your analysis is logical and well-reasoned to an above average standard	Your analysis is logical and well-reasoned to a very good standard	Your analysis is logical and well-reasoned to an exceptional standard
Use of academically appropriate document style, writing style and referencing system	You have not used an academically appropriate writing style and/or referencing system (eg you have used colloquialisms or overly formal language or failed to use a recognised referencing system eg APA or Harvard)	You have used an academically appropriate writing style and referencing system	You have used an academically appropriate writing style and referencing system to an above average standard	You have used an academically appropriate writing style and referencing system to a very high standard	You have used an academically appropriate writing style and referencing system to an exceptionally high standard
Effectiveness of communication	Your written communication is poor	Your written communication is easy to follow	Your written communication is clear and succinct to an above average standard	Your written communication is clear and succinct to a very high standard	Your written communication is clear and succinct to an exceptionally high standard

Rubric for AT3 Practical Submission & Project Demonstration

	Fail (0 - 49)	Pass (50 - 64)	Credit (65 - 74)	Distinction (75 - 84)	High Distinction (85 - 100)
Implementation of DB	The depth and credibility of your design and implementation are insufficient	The depth and credibility of your design and implementation are acceptable.	The depth and credibility of your design and implementation are above average	The depth and credibility of your design and implementation are very good	The depth and credibility of your design and implementation are exceptional
SQL	The depth and credibility of your SQL and presentation are insufficient	The depth and credibility of your SQL and presentation are acceptable	The depth and credibility of your SQL and presentation are above average	The depth and credibility of your SQL and presentation are very good	The depth and credibility of your SQL and presentation are exceptional
Effectiveness of communication (randomly chosen queries)	Your oral communication is poor	Your oral communication is easy to follow	Your oral communication is clear and succinct to an above average standard	Your oral communication is clear and succinct to a very high standard	Your oral communication is clear and succinct to an exceptionally high standard
Creativity	Your presentation lacks creativity	Your presentation is appropriately creative.	Your presentation is appropriately creative to an above average standard	Your presentation is appropriately creative to a very good standard	Your presentation is appropriately creative to an exceptional standard