

Project

Faculty Name:	Information Technology
Module Code:	ITDAA3-B22
Module Name:	Advanced Database Systems Block 2
Module Leader:	Emmanuel Madarikiri
Internal Moderator:	Dr Oluwapelumi Giwa
Copy Editor:	Kevin Levy
Total Marks:	250
Submission Date:	12/07/2021 – 16/07/2021
Resources Required:	Student Resources folder

This module is presented on NQF level 7.

Mark deduction of 5% per day, to a maximum of three days, will be applied to late submissions. Assignments submitted later than three days after the deadline or not submitted will get 0%.¹ This is an individual project.

This project contributes 90% towards the final mark.

Instructions to Student

1. Please ensure that your answer file (where applicable) is named as follows before submission: **Module Code – Assessment Type – Campus Name – Student Number.**
2. Remember to keep a copy of all submitted projects.
3. All work must be typed.
4. Please note that you will be evaluated on your writing skills in all your projects.
5. All work must be submitted through Turnitin.² The full originality report will be automatically generated and available for the lecturer to assess. Negative marking will be applied if you

¹ Under no circumstances will assignments be accepted for marking after the assignments of other students have been marked and returned to the students.

² Refer to the Eduvos Policy for Intellectual Property, Copyright and Plagiarism Infringement, which is available on myLMS.

are found guilty of plagiarism, poor writing skills, or if you have applied incorrect or insufficient referencing. (See the table at the end of this document where the application of negative marking is explained.)

6. You are not allowed to offer your work for sale or to purchase the work of other students. This includes the use of professional assignment writers and websites, such as Essay Box. If this should happen, Eduvos reserves the right not to accept future submissions from you.

Assignment Format

You must fulfil the requirements when writing and submitting assignments as follows:

- Use Arial, font size 12.
- Include a title page, a table of contents, and page numbers.
- Include the completed Assessment/Project Coversheet (available on *myLMS*).
- Write no more than the maximum word limit.
- Ensure any diagrams, screenshots, and PowerPoint presentations fit correctly on the page and are referenced.
- Use the correct referencing method throughout the assignment.
- Include a bibliography based on the applicable referencing method at the end of the assignment.
- Check spelling, grammar, and punctuation.
- Run the assignment through Turnitin software.
- Print submissions on both sides of the page.

Essential Embedded Knowledge and Skills Required of Students

- Report-writing skills
- Ability to analyse scenarios/case studies
- Understanding of subject field concepts and definitions
- Ability to apply theoretical knowledge to propose solutions to real-world problems
- Referencing skills

Resource Requirements

- A device with internet access for research
- A desktop or personal computer for typing assignments
- Access to a library or resource centre
- Prescribed reading resources

Delivery Requirements (evidence to be presented by students)

- A typed assignment³
- A Turnitin originality report

Minimum Reference Requirements

At least five references for first year, ten references for second year, and fifteen references for third year.

Additional reading is required to complete this assignment successfully. You need to include the following additional information sources:

- Printed textbooks/e-books
- Printed/online journal articles
- Academic journals in electronic format accessed via ProQuest or other databases
- Periodical articles, e.g. business magazine articles
- Information or articles from relevant websites
- Other information sources, e.g. geographic information (maps), census reports, interviews

Note

- It is crucial that students reference all consulted information sources by means of in-text referencing and a bibliography, according to the applicable referencing method.
- Negative marking will be applied if a student commits plagiarism, i.e. using information from information sources without acknowledgement of and reference to the original source.
- In such cases, negative marking, also known as 'penalty scoring', is the practice of subtracting marks for insufficient/incorrect referencing.
- Consult the table at the end of this document, which outlines how negative marking will be applied as well as the way in which it will affect the assignment mark.

³ Refer to the *Conditions of Enrolment* for more guidance (available on myLMS).

Section A

Learning Objective

The purpose of this practical project is to design, document and implement a MySQL database system using procedures and events creation.

Project Topic

Use of MySQL advanced stored procedures for daily routines.

Scope

Use the attached MySQL dump file as a reference in writing your advanced stored procedures. All tables must be documented.

Technical Aspects

The deliverables of this project are as follows:

- Documentation
- Database
- 8 tables
- Views (at least 1)
- Queries and advanced stored procedures using a cursor where applicable

Marking Criteria

Please refer to the rubric in Section B for the mark allocations for the entire project.

Scenario

Study the scenario and complete the question(s) that follow:

Jarzin Supermarket has been in the retail (wholesale) business for the past 40 years. And over the years, the company has grown significantly. However, Jarzin has failed to greatly benefit from its growth due to the lack of a well-managed and maintained database management system that keeps the records of the business.

Jarzin has approached you as a DB administrator/designer to develop their database that will capture all their business processes. Mr Banda, who has been working with the organisation for the past 25 years, has been tasked by Jarzin to see to it that you get all the business requirements.

During your meeting with Mr Banda, you ask him to tell you how the business operates and what the business needs are. The following is the response Mr Banda gives you:

“As a retail company, we cater for the needs of various customers. Some customers are once off customers who visit the shop, buy their desired products, pay and leave. We also have regular customers. Our regular customers are those whose information we keep within our system. Each customer has a unique identification that is used each time they buy from the shop. The customer information kept in the system is the name, their phone numbers, email address, city, postal address, etc. A customer makes payment(s) to their account. There is a unique payment identification for the payment, a date of payment and an amount paid by the customer.

Each customer can make as many orders as possible, and for each order, an order number is generated, which also captures the date of order, required date when the order will be delivered, and a status of delivery (whether it was delivered, to be delivered). Each order has its own orderdetails, which are captured. The orderdetails captures the order number, product code, quantity ordered of each product, price of each item, order line number, etc. For each order, there is one order detail available.

For each productline we capture the unique product line id, text description of the productline. Each productline can have an infinite amount of products. This is optional for products. The products that are part of the productline have a one to one relationship. The orderdetails for the products also have a one to one relationship.

For all our products we keep the following information: product code (which is unique to each product), product name, productline, product scale, product vendor, product description, quantity in stock, price, etc.

Our customers are optionally served by an one employee at a time, while our employees can serve as many customers as possible. We keep employees' details such as the employee id, last and first name, extension, email, job title, etc. Each employee works only in one office, while our offices have many employees. Note that not all employees serve customers, because we have some who are supervisors.

Please note that we have many offices within the same region, and we have offices in 6 provinces. So, our offices have a unique code, and each is their own city/region. Information such as the office phone numbers, addresses are important to us.”

“This is all our business requires to be in the new database management system,” concluded Mr Banda.

Source: Madarikiri, E. (2021)

Based on the above scenario and requirements, create a database* using MySQL Workbench, which supports the Jarzin Supermarket's business processes.

**In your database table, insert pseudo data.*

End of Scenario

Deliverable 1: Conceptual Database Design

- 1.1 Undertake a thorough analysis of the scenario and identify:
- a. Entity types (10 Marks)
 - b. Relationship types (10 Marks)
 - c. Attributes and attributes domains (10 Marks)
 - d. Primary keys and alternate keys (10 Marks)
- 1.2 Draw the conceptual DB design. (10 Marks)

[Sub Total 50 Marks]

End of Deliverable 1

Deliverable 2: Logical and Physical Database Design

To account for the above exercise, provide a **logical data model** which is supported by documentation*, including ER diagrams drawn on MySQL Workbench, and a **data dictionary** which shows all **tuples in the database**, their field names and other relevant details.

**In your documentation be sure to show the SQL query used to create the tables.*

(100 Marks)

End of Deliverable 2

Deliverable 3: DML Basic and Advanced Query

Create the following queries and stored procedures:

- | | | |
|-----|---|------------|
| 3.1 | A query that displays order details linked to the customer (<i>use joints</i>) | (10 Marks) |
| 3.2 | A query that returns all customer information. | (10 Marks) |
| 3.3 | A view that displays customer, address and credit limit. | (10 Marks) |
| 3.4 | A stored procedure that returns all products. | (10 Marks) |
| 3.5 | A stored procedure that gets customer level. | (10 Marks) |

[Sub Total 50 Marks]

End of Deliverable 3

Section B

Mark Allocation

Overall Documentation	Mark Allocation
Cover Page	2
Table of Contents	3
Introduction	5
What is concurrency control? State and explain any 4 concurrency controls protocols and examine the protocols that can be used to prevent conflict.	20
Deliverable 1	50
Deliverable 2 <ul style="list-style-type: none">• Table of the Database• MySQL Script showing the created DB• Logical DB created in MySQL workbench• Show the MySQL Data dictionary	100
Deliverable 3	50
Presentation and neatness	10
Bibliography	10
PROJECT TOTAL	250

Section C

Plagiarism and Referencing

Eduvos places high importance on honesty in academic work submitted by students and adopts a zero-tolerance policy on cheating and plagiarism. In academic writing, any source material, e.g. journal articles, books, magazines, newspapers, reference material (dictionaries), or online resources (websites, electronic journals, or online newspaper articles), must be properly acknowledged. Failure to acknowledge such material is considered plagiarism; this is deemed an attempt to mislead and deceive the reader and is unacceptable.

Eduvos adopts a zero-tolerance policy on plagiarism; therefore, any submitted assessment that has been plagiarised will be subject to severe penalties. Students who are found guilty of plagiarism may be subject to disciplinary procedures, and outcomes may include suspension from the institution or even expulsion. Therefore, students are strongly encouraged to familiarise themselves with referencing techniques for academic work. Students can access the Eduvos referencing guides on *myLMS*.

Negative Marking

Third-year Students

- A minimum of 15 additional information sources must be consulted and correctly cited.
- If no additional information sources have been used, a full 15% must be deducted.
- Deduct 1% per missing resource of the required 15. For example:
 - If only five resources cited, deduct 10%.
 - If only three resources cited, deduct 12%.
- Markers to apply the penalties for Category A for insufficient sources and incorrect referencing style.
- To determine the actual overall similarity percentage and plagiarism, markers must interpret the Turnitin Originality Report with reference to credible sources used and then apply the penalties as per the scale in the Policy for Intellectual Property, Copyright and Plagiarism Infringement.
- The similarity report alone is not an assessment of whether work has or has not been plagiarised. Careful examination of both the submitted paper/assignment/project and the suspect sources must be done.

Category A

Minimum Reference Requirements	Deduction from Final Mark
No additional information sources have been used or referenced.	15%