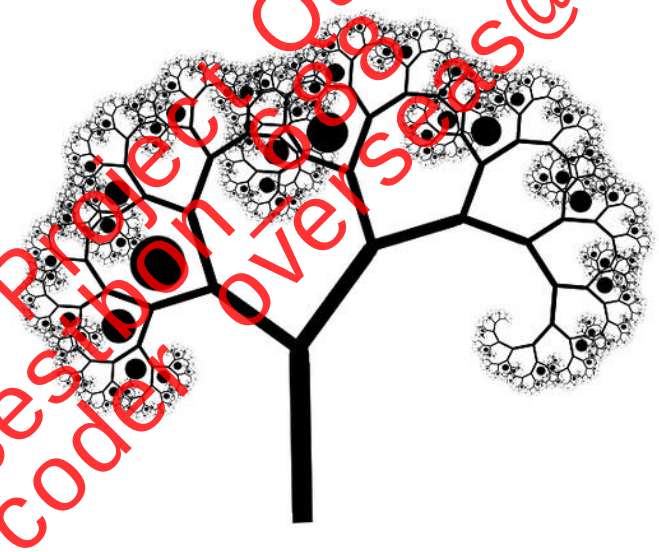
Computer Systems, Data Structures and Data Management

4CM508



4CM508 Assessment Brief – Coursework 1

UNIVERSITY OF DERBY

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UNIVERSITY OF DERBY

Computer systems, data structures and data management (4CM508)

Contents

1. Module Information

Module Leader

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Key dates and details

Assessment Type:	Individual
Assessment weighting:	50%
Learning Outcomes:	1
Submission Method:	Electronic Submission via Course Resources
Submission Date:	**20th Sep 2024**
Provisional Feedback Release Date:	**7th Oct 2024**

Description of the assessment

Design and analysis of a data engineering solution such as a database (table, structure, formats) for a given scenario.

Learning Outcomes

1. Design and analyse data management solutions.

Assessment Regulations

The University's regulations, policies and procedures for students define the framework within which teaching and assessment are conducted. Please make sure you are familiar with these regulations, policies and procedures.

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Guidance and Presentation

You are expected to write up your answers. Your write up should look professional and provide all the necessary information which will be marked via the Blackboard submission.

For more information you should see the rubrics provided.

Submission Requirements

Students are required to submit a word/pdf document that contains answers.

on Course Resources (Blackboard) before the deadline.

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2. Assignment

Please make sure you have read the marking rubrics for assignment. You will be marked using these.

NOTE: Any suspicion that the work is not your own, either through plagiarism, excessive collaboration or use of generative AI will result in an Oral Examination. This will require you to explain your work, failure to do so will result in a Fail mark.

CraftMasters Art Supplies is a mid-sized retail business located in Mumbai, specializing in selling high-quality art supplies such as paints, brushes, canvases, and crafting materials. They serve a diverse clientele, including professional artists, hobbyists, and art schools. The store employs 5 sales associates who assist customers in finding the right products and manage the day-to-day operations of the store.

Currently, CraftMasters Art Supplies captures all their sales transactions, inventory levels, and customer details using a paper-based system. This manual system has become increasingly inefficient as the business has expanded. They are facing challenges in managing inventory, tracking customer preferences, and processing sales, which often leads to delays, errors, and lost sales opportunities.

Recognizing these issues, CraftMasters Art Supplies has decided to digitize their entire operation. They aim to implement a modern, integrated digital solution that will allow them to streamline inventory management, enhance customer relationship management (CRM), and optimize sales processes.

You have been hired as an external consultant to help CraftMasters Art Supplies transition from their paper-based system to a digital platform. Your responsibilities include analyzing their current operations, designing a tailored digital solution, and overseeing the implementation process to ensure a seamless transition that supports their growing business needs.

Task

Produce a relational database design that captures the current data stored and provide a report (write up) that includes:

- Rationale of design choices.
- Entity Relationship Diagram (ERD) that reflects your design. This should include attributes and relationships (cardinality).
- The relational database design (Tables, connections between tables, keys, cardinality)
- The extensibility of your design that includes 4 SQL query examples working on the database

[50 Marks]

3. Marking Rubrics

Criteria	Excellent (8-10)	Good (6-8)	Satisfactory (4-6)	Needs Improvement (2-4)	Limited (0-2)
Relational Database Design **(25 marks)**	Accurately and comprehensively designs a relational database that effectively captures all current data aspects. Thoroughly considers extensibility, allowing for easy integration of additional data in the future.	Designs a relational database that captures most current data aspects. Demonstrates consideration of extensibility for future data needs.	Designs a relational database that captures key current data aspects. Limited consideration of extensibility for future data needs.	Designs a basic relational database capturing some current data aspects. Limited consideration of extensibility.	Fails to provide a meaningful relational database design.
Entity Relationship Diagram (ERD) **(15 marks)**	Creates a highly accurate and well-structured ERD that precisely reflects the designed relational database. Attributes, relationships, and cardinalities are all correctly represented.	Constructs an accurate ERD that effectively represents the designed relational database. Attributes, relationships, and cardinalities are mostly accurate.	Develops an ERD that accurately represents the designed relational database, but with some minor inaccuracies in attributes, relationships, or cardinalities.	Presents an ERD that captures basic elements of the designed relational database, but with significant inaccuracies in attributes, relationships, or cardinalities.	Provides an ERD with major inaccuracies, making it difficult to understand the designed relational database.
Extensibility of Design **(5 marks)**	Provides a comprehensive explanation of how the database design accommodates future data expansion. Demonstrates a deep understanding of extensibility considerations.	Clearly explains how the database design can accommodate future data expansion. Shows an understanding of extensibility considerations.	Briefly mentions how the database design might accommodate future data expansion. Limited demonstration of understanding extensibility.	Makes vague references to possible future data expansion without a clear understanding of extensibility principles.	Does not address extensibility in the design explanation.
Overall Presentation **(5 marks)**	Demonstrates an exceptional level of professionalism and presentation quality in the analysis. Ideas are exceptionally clear, well-structured, and supported.	Shows a high level of professionalism and presentation quality in the analysis. Ideas are clear, well-structured, and mostly supported.	Presents a professional and well-organized analysis. Ideas are clear and adequately structured.	Presents a somewhat organized analysis with room for improvement in professionalism and clarity.	Lacks professionalism and overall organization in the analysis.

SQL queries marks are included in the Extensibility of Design.