Unit Name: SIT772 Database and Information Retrieval
Trimester: 2021 T1
Assessment 1-Part A: Database Design and Professional Report

This document supplies the detailed information on assessment tasks for this unit.

Key information

- **Due:** 8:00pm (AEST), Sunday, 3 April 2022 (end of Week 4)
- **Weighting:** 20%
- **Submit:** Through CloudDeakin

Learning Outcomes

This assessment assesses the following Unit Learning Outcomes (ULO) and related Graduate Learning Outcomes (GLO):

Unit Learning Outcome (ULO)	Graduate Learning Outcome (GLO)
ULO 2: Explain the concept of data modelling and use Entity-Relationship (ER) models to represent data.	**GLO 1:** through student ability to apply ER modelling to an authentic business rule and ability to design a relational database system.
ULO 5: Demonstrate data retrieval skills in the context of a data processing system.	**GLO 4:** through student ability to analyze the requirements for a relational database.

Purpose

This task requires students to apply their understanding and ability to use Relational Database Management Systems (RDBMS) in the modelling of the physical world. Students will be provided with a set of business scenarios and are required to design a database and create a database system.

Instructions and Submission Guide

This is an **individual** assessment task. Student are required to submit ONE written report by following the below instructions.

- The written report must be in the PDF format
- The report should include your name, student ID, Unit Information 2022 T1.
- The PDF file is named as **studentID_Given-name_A1A.pdf**, e.g., **123456_Kevin_A1A.pdf**.
- **You must submit the two files via CloudDeakin assessment portal. The wrong submission venue or the wrong submitted files will lead to zero mark.**

Marking Criteria:

- Technical Correctness
- Notational Correctness
- Clarity of Diagram
- Presentation (including quality and writing of explanation in the report)

Note: We strongly recommend you to use an ER diagram drawing software, not hand-drawing.

Task 1: Application requirement analysis and ER diagram design [10 Marks]

Basic requirement analysis in the application: Suppose there is one online bank company – StarBank that requires to develop a relational database. The daily duty is to serve their customers managing their saving bank accounts, e.g., withdraw, deposit, etc. Additionally, the company also makes business for the home loan marketing, e.g., a customer may have a home loan account. To set up a home loan account for a customer, there are several information to be collected and recorded:

1) the customer needs to specify a property address.
2) a bank staff needs to be assigned to process the home loan application.

3) the property value should be assessed by using the average of the sold price of the properties located in the same suburb. Note: suppose there are sold properties in every suburb.
4) Each customer has her/his own home loan max limit that is calculated by his/her 10 years' annual salary. In general, the bank company used 10 years' salary to estimate, e.g., if the customer Kevin has annual income $60,000, then his home loan limit cannot exceed $600,000.
5) A customer may have more than one home loans because multiple properties can be bought by one customer.
6) For a given property, the maximum home loan on the property is the property value*0.8 where property value is based on avg sold price of that suburb.
7) For a customer, her or his requested home loan cannot exceed her or his home load limit.
8) A customer may have more than one back account, such as saving accounts, home loan accounts.
9) A home loan account may be associated with more than one customer as joint loan. In this case, the home loan limit of joint account depends on all the joint customers in the home loan.
10) Some customers may have home loan accounts, but some ones may only have saving accounts. For a customer who need to set up a home loan account, it must create a saving account first.

Task 1.1 [6] Draw the Entity Relationship Diagram (ERD) of the database designed for the above application scenario. In the ERD, you need to specify the main components including Entities, Attributes, Relationships, Primary Keys, and Constraints. Your design should reflect the practical requirement as much as possible, i.e., meeting the maximum business rules as listed above. [ER Diagram Example – Supply Chain ERD https://www.edrawmax.com/templates/1005158/ https://www.freeprojectz.com/entity-relationship/supply-chain-management-system-er-diagram]

Marking Rubric:

- ✓ 2 marks if all the required entities with attributes are correctly identified, 1 mark if most entities with attributes are identified, and 0 mark if only few ones are correctly identified;
- ✓ 2 marks if all the required relationships are correctly identified, 1 mark if most relationships are identified, and 0 mark if only few ones are correctly identified;
- ✓ 2 marks if all the primary keys and constraints are correctly specified, 1 mark if most primary keys and constraints are correctly specified, and 0 mark if only few ones are correctly specified.

Task 1.2 [2] Provide a clear explanation what kinds of requirements and transactions your designed ERD meets, and the limitations of your ERD.

Marking Rubric:

- ✓ 2 marks if the writing and explanation are professional and easy to understand, and there are no grammar mistakes;
- ✓ 1 mark if the explanation is understandable but the writing is not solid;
- ✓ and 0 mark if the explanation and writing are too short to clearly describe the above application scenario regarding your design ERD.

Task 1.3 [2] Write SQL queries to generate these tables and implement the database of your ERD in Oracle database server.

Marking Rubric:

- ✓ 2 marks if most tables required in the above application are correctly created;
- ✓ 1 mark if there are three or more tables that are not correctly created;
- ✓ and 0 mark if most tables are not correctly created.

Task 2: Open Question for Application requirement analysis and ER diagram design [10 Marks]

This Open Question is designed for HD tasks. The marking guide will base on your professional DB knowledge and professional presentation. For each subtask, we only give the perfect answer with the full marks, reasonable in most criteria with partial marks. If the solution didn't show well engagement in the practical application, it could be given lower mark depending on your exact work.

Task 2.1 [3 Marks] Students can choose one practical application scenario and interview your friends or

classmates for collecting the requirements. Based on the interview, you are required to write a requirement analysis report with clear business rules (no less than 300 words).

Marking Rubric:

- ✓ 3 marks if the description of the application scenario is clearly discussed and presented in a professional writing, and the business rules are easy to understand as well as meet the practical requirement, there are no grammar mistakes in the writing;
- ✓ 2 marks if the selected application is briefly explained with only a few business rules, and the writing is professional and doesn't contain grammar mistakes; 1 mark if only a few business rules are included and the writing is not professional;
- ✓ 0 mark if there are no clear business rules to be discussed and the description is bad in writing.

Task 2.2 [5 Marks] Students are required to design an ER diagram based on the business rules and application in your Task 2.1.

Marking Rubric:

- ✓ 2 marks if all the required entities with attributes are correctly identified, 1 mark if most entities with attributes are identified, and 0 mark if only few ones are correctly identified;
- ✓ 2 marks if all the required relationships are correctly identified, 1 mark if most relationships are identified, and 0 mark if only few ones are correctly identified;
- ✓ 1 mark if all the primary keys and constraints are correctly specified, and 0 mark if only few ones are correctly specified.

Task 2.3 [2 Marks] Write SQL queries to generate these tables and implement the database of your ERD in Oracle database server.

Marking Rubric:

- ✓ 2 marks if most tables required in the above application are correctly created;
- ✓ 1 mark if there are three or more tables that are not correctly created;
- ✓ and 0 mark if most tables are not correctly created.

Extension requests: Requests for extensions should be made to Unit/Campus Chairs 3 days early before the assessment due date.

Special consideration

You may be eligible for special consideration if circumstances beyond your control prevent you from undertaking or completing an assessment task at the scheduled time. See the following link for advice on the application process: http://www.deakin.edu.au/students/studying/assessment-and-results/special-consideration

Assessment feedback

Detailed written feedback and results will be provided in CloudDeakin within two weeks of submission.

Academic integrity, plagiarism and collusion

Plagiarism and collusion constitute extremely serious breaches of academic integrity. They are forms of cheating, and severe penalties are associated with them, including cancellation of marks for a specific assignment, for a specific unit or even exclusion from the course. If you are ever in doubt about how to properly use and cite a source of information refer to the referencing site above.

Plagiarism occurs when a student passes off as the student's own work, or copies without acknowledgement as to its authorship, the work of any other person or resubmits their own work from a previous assessment task.

Collusion occurs when a student obtains the agreement of another person for a fraudulent purpose, with the intent of obtaining an advantage in submitting an assignment or other work.

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