CM1603-Database Systems Assignment Specification (2021)

Module Leader	Prasan Yapa
Stage	Year 1
Unit (Group/Individual)	Individual
Weighing	40%
Qualifying Mark	40
Learning Outcomes Covered in this Assignment:	Implement and test a relational database using a query language with a suitable interface.
Handed Out Date	2nd Week 5th October 2021
Due Date	11th Week 10th December 2021
Expected Deliverable	Report [No word count]
Method of Submission	Soft copy of the report and SQL file with coding should be submitted to the Moodle
Method of Feedback and Due Date	Rubric based feedback
BCS Criteria (Pending) Met by this Assignment	

Assessment Regulations

Refer to the "How you are assessed section" in the Student Handbook for undergraduate students for a clarification of how you are assessed, penalties and late submissions, what constitutes plagiarism etc.

Penalty for Late Submission

Coursework received late without valid reason shall not be accepted and shall receive no grade but shall count as one of the assessment opportunities prescribed in paragraph 9 of **RGU Academic Regulation A4 section 4.3.**

It is recognized that on occasion, illness, personal crisis, or other valid circumstances can mean that you fail to submit and/or attend an assessment on time. In such cases you must inform the school of any extenuating circumstances through a *Coursework Extension Form* or a *Deferral Request Form*, with valid evidence for non-submission of an assessment up to a maximum of five working days after the assessment submission date. This information will be reported to the relevant Assessment Board that will decide whether a student should be allowed to reattempt without penalty (a deferral). For more detailed information regarding University Assessment Regulations and accessing forms, please refer to the following website: www.rgu.ac.uk/academicregulations www.rgu.ac.uk/academicregulations

Coursework Specification

Consider the following as a hypothetical scenario.

The Anna Centenary Library (ACL), a state-of the-art library was inaugurated on September 15, 2010, on the occasion of the 102nd birth anniversary of the former Chief Minister of Tamil Nadu Dr. C N Annadurai popularly called '**ANNA'**. By reason of his great interest towards the books and library, this library is named as 'Anna Centenary Library'. The foundation stone laid on August 16, 2008, completed in a short span and declared open to the public from 20th September 2010.

ACL employs a number of librarians. ACL offers many academic books, and every book title can have several copies. Librarians are responsible for placing orders for new books or new copies of already existing titles. It is essential that a record is kept of which librarian orders which copies of which book title. As for ACL users, they can place a reservation for a book title and, if the book is available, they can then borrow a copy of that book.

Books are only one type of publications offered by ACL. Apart from books, ACL also offers academic journals online. For each journal, a description, the year of creation and the subscription cost needs to be stored. Every journal presents a number of articles and for every article the following details need to be recorded: the title, the abstract, the authors and the volume and issue of the journal in which this article appears.

You have been hired by ACL as a database management architect to undertake a database project to support the data needs required by the business processes of the organization. Your goal in here 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.

(1)   Provide a complete Conceptual Entity-Relationship Diagram for ACL. This needs to include all the entity types, relationship types, multiplicity constraints, attributes, and primary keys. This needs to fit on one page of the report. Mention all the appropriate assumptions which you have made.

Marking Scheme	Mark
Identification of each main entities	5
Identification of each correct relationship between entities	5
Identification of each correct primary key	5

Identification of relevant multiplicity constraints	5
Drawing the correct ER diagram	5

(2) Provide a complete Logical Relational Schema Diagram for ACL. This needs to include all the correct relations, relationships, multiplicity constraints, attributes, primary keys, and foreign keys. This needs to fit on one page of the report. Mention all the appropriate assumptions which you have made.

Marking Scheme	**Mark**
Identification of all relevant relations	4
Identification and mapping primary keys	4
Identification and mapping other attributes	4
Identification and mapping of multiplicities	4
Identification and mapping of foreign keys	4
Adapting normalization techniques appropriately	5

(3) Use proper SQL code to implement the relational schema in MySQL database. Each table should be consisted with a primary key and other relevant attributes. Appropriate foreign key constraints should be used. SQL code and generated table screenshots should be included in the report.

Marking Scheme	**Mark**
Identification of proper SQL code for table creation	10
Application of primary key and foreign key constraints	10

(4) Insert sample data to the created tables. Each table should be consisted with at least 5 sample data.

Marking Scheme	**Mark**
Identification of the SQL scripts for data insertion	5
Adding relevant screenshots of the tables to the report	5

(5) Perform the following questions with respective SQL codes and their output (code and output screenshots should be provided). Marking schema has been aligned with the respective sub questions.

(a) List down all the title of books which have been released in the year of 2000.   5

(b) List down the respective publisher's name and publication description for the journal, 'The Wisdom'.   5

(c) List down all the title of books which has been reserved by the user, 'Amal Perera'.   5

(d) Count the number of book copies which has been ordered by the Librarian, 'Ann Fernando' on or before April 2000.   5