UNIVERSITI TUNKU ABDUL RAHMAN
FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UCCD2303 DATABASE TECHNOLOGY / UCCD2203 DATABASE SYSTEMS

Session 202201
January 2022 Trimester

Group Assignment

(100 marks)

Deadline: 15 April 2022 (Friday) @ 5pm

Submission Channel: Group Leaders are required to upload the assignment report and related files as one zip file per group to your own Google Drive (with permission for me to access your files). Please email me the Google Drive Link with email subject as follows: UCCD2303/UCCD2203 Group #Number Assignment Submission.

This assignment is worth 15% of the overall assessment of the course.

PART 1: (Group Assessment – 50 marks)	
1	• Identify your group members. • 4 students per group (1 student not allowed, maximum 4 members) • Study the user requirements of the UTAR Library Management System given in this document.
2	**Scope of Work (5 marks)** • Analyse requirements study (briefly explain the requirements / office / business rules in the system). • Please Include **Any Assumptions** That You Make.
3	**ER model (10 marks)** • You are required to design an ER diagram for the case study given, identify entities, identify relationships, identify associate attribute and determine keys.

	• Check your ERD with the transaction requirements stated in the case.
4	**Redesign and EER (10 marks)** • Redesign your ER diagram with the new requirements and extending the ERD to EER model, if any.
5	**Data Dictionary (10 marks)** • Based on EER diagram that you created in part 4, create a data dictionary for the solution. Make sure the data types (Oracle) selected are appropriate.
6	**Tables and records (5 marks)** • Create all relations in ERD, EERD and insert the necessary records. (Minimum 5 record for each table)
7	**Script (10 marks)** • You are required to submit the **SQL schema script with proper codes**. Should include Integrity and referential integrity constraints.
PART 2: (Individual Assessment - 50%)	
8	**Queries (20 marks)** Think of 10 useful real office-like queries that will help UTAR Library Management System to perform their operations. Indicate the operation performed and include an explanation on how the user can use the corresponding SQL commands. *Softcopy: Show the results.* * **Transaction** are required for each query. ** No duplication queries should be listed among the group members. ***Same query applied to differences table are considered as only one query.
9	**Stored Procedure (10 marks)** Create 5 Stored Procedure that will help UTAR Library Management System to perform their operation. Indicate the operation performed and include an explanation on how the user can use the stored procedure.

	Softcopy: Show the results. **No duplication queries should be listed among the group members. ***Same query applied to differences table are considered as only one query.
10	**Function (10 marks)** Create 5 Functions that will help UTAR Library Management System to perform their operation. Indicate the operation performed and include an explanation on how the user can use the function. *Softcopy: Show the results.* **No duplication queries should be listed among the group members. ***Same query applied to differences table are considered as only one query.
11	Submit your Soft copy final report with proper technical report writing skills (cover page, marking scheme, headers & footers, page numbering, headings, sections numbering, proper fonts, spell checked, proper alignments, etc.). Every student should attach the signed assessment sheet. Each group should submit all the related report and related scripts as one zip file.
12	**Presentation (10 marks)** Every group has to present their assignment work in **Week 13 or Week 14**. Presentation schedule will be released after Week 10. Presentation marks will be given based on **individual presentation and contribution**. Each group member must present his/her work as individual and as part of the group. Students are required to present a working database system, queries, stored procedures, and functions. Presentation will be held via **MS Teams**. During the presentation, the Student's video must be ON and the audio must be clear. **Formal attire** during the presentation is a must. Each group will be given maximum **20 minutes** to present their assignment work.

**** Indicates**

- Indicate the operation performed and include an explanation on how the user can use the corresponding SQL commands.
- Show the result.
- No duplication queries should be listed among the group members.

Assignment Question

Database Design for UTAR Library Management System

UTAR Library has many genres of books for various fields of study. It has more than 2000 members who uses the library facilities. With the increased number of members, the library management decided to develop a bigger database to manage the members, and the availability of books. UTAR library operates in two locations: Kampar Campus and Sungai Long Campus. Both campuses share the same database.

Database design is one of the important criteria in the design of a library management system. Assume that UTAR Library Management System has the following functionalities: membership and user management module, books catalogue module, books transactions (borrow and renewal) module, and books reservation module.

The proposed database should have the related Oracle objects to facilitate data retrieval and time savings for communication across the two campuses and its members. The proposed database should be able to register and manage the members, promote availability and access to the books, keep track of lending and renewal of books and books reservation. The database should allow different categories of login privilege to different levels of users (members, library staff, etc.) and to have greater flexibility in the administration and management of users, and services.

Library users can apply for library membership (staff and students) and members are entitled to borrow books. Each staff can borrow 10 books for one month. Each student can borrow 5 books for two weeks. Late penalties of RM 1 per day will be imposed if a member does not return or renew the books within the due date. Members can borrow books which are in any of the campuses. All the members, books and transaction details should be stored in the database.

As a database designer in the system development team, you are required to design and develop a database to support the functionalities as mentioned above for the use of relevant parties in the library settings.

Attention:

- The proposed database system must be designed to keep track of all records.

- Identify all the important concepts represented in given scenario as described here.
- In particular, identify the abstraction of classification (entity types and relationship types), aggregation, identification, and specialization/generalization. Specify (min, max) cardinality constraints whenever possible.
- List details that will affect the eventual design, but which have no bearing on the conceptual design.

FINAL SOFT COPY FORMAT FOR SUBMISSION

The final softcopy should adhere to this below word guidelines:

1. Font type: Arial
2. Font Size:
    a) General Text: 12 point (single spacing)
    b) Section Headings: 14 point (bold)
3. Page should be NUMBERED.
4. All Students should attach the signed assessment sheet (Digital Signature) confirming that, the report is not plagiarized (in Soft Copy).
   The Word file is attached in the same folder as this Assignment Question under the following name: UCCD2303UCCD2203_assignment_cover.doc
5. The sample cover sheet, marking scheme and Table of contents for the group is shown below (Sample only).
6. Name the group assignment report in MS Word format as follows:

   UCCD2303UCCD2203_202201_Assignment_GroupNumber.docx
7. Each member name their individual oracle SQL scripts as follows:

   UCCD2303_202201_Assignment_GroupNumber_StudentID_MemberName.sql

   OR

   UCCD2203_202201_Assignment_GroupNumber_StudentID_MemberName.sql
8. Group leader is responsible to **upload** the assignment report and related files as **one zip file** per group to your own **Google Drive** (with permission for me to access your files).
   Zip File Name: **UCCD2303UCCD2203_202201_Assignment_GroupNumber.zip**

9. Please email me the Google Drive Link with email subject as follows:
   UCCD2303/UCCD2203 Group #Number Assignment Submission.

(SAMPLE) TABLE OF CONTENTS

1.0 Scope of Work....2
1.1 Business Rule....2

2.0 ER Model....6

3.0 Redesign and EER....7

4.0 Data Dictionary....8

5.0 Tables and Records....11

6.0 SQL script....14

7.0 Individual Assessment (Student-1 name, Student ID)....16
7.1 Queries....17
7.2 Stored Procedure....20
7.3 Function....22

8.0 Individual Assessment (Student-2 name, Student ID))....24
8.1 Queries....25
8.2 Stored Procedure....27
8.3 Function....29

9.0 Individual Assessment (Student-3 name, Student ID))....30
9.1 Queries....31
9.2 Stored Procedure....33
9.3 Function....35

10.0 Individual Assessment (Student-4 name, Student ID))....37
10.1 Queries....38
10.2 Stored Procedure....40
10.3 Function....42

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Group No.	
Group Leader Name:	

No.	Name (in ascending order)	Student ID	UTAR Email Address	Course Code	Practical Group	Signature**
1					P ( )	
2					P ( )	
3					P ( )	
4					P ( )	

**All members should attach their individual signature confirming that the report is not plagiarized

Assignment Marking Scheme		
PART 1: (Group Assessment - 50%)		**Marks**
1.	**Scope of Work (5 marks)** Analyse requirements study (briefly explain the requirements/ office / business rules in the system). PLEASE INCLUDE ANY ASSUMPTIONS THAT YOU MAKE.	
2.	**ER model (10 marks)** You are required to design an ER diagram for the case study given, identify entities, identify relationships, identify associate attribute and determine keys. Check your ERD with the transaction requirements stated in the case.	
3.	**Redesign and EER (10 marks)** Redesign your ER diagram with the new requirements and extending the ERD to EER model, if any.	
4.	**Data Dictionary (10 marks)** Based on EER diagram that you created in part 4, create a data dictionary for the solution. (Make sure the data types (Oracle) selected are appropriate)	
5.	**Tables and records (5 marks)** Create all relations in ERD and insert the necessary records (Minimum 5 record for each table)	
6.	**Script (10 marks)** You are required to submit the SQL schema script with proper codes. Should include Integrity and referential integrity constraints. **Softcopy:** *Include the scripts in the submission*	
PART 1: Total Group Assessment - 50%		

PART 2: (Individual Assessment - 50%)
(Fill in all your group members name and ID)

Student Name	**1. (Your Name)**	**2.**	**3.**	**4.**	
Student ID	**(Your ID)**				
Queries (20 marks)					
Stored Procedure (10 marks)					
Function (10 marks)					
Presentation (10 marks)					
PART 2: Total Individual Assessment – 50 marks					
PART 1 + PART 2 = 100 marks					