BST-BCS-23A – Data Bases
Project Final Report & Files
[Guideline]

Project Final Report
Table of Contents (ToC)

HOW TO DO?

1. Requirements Collection
How did you gather data? (methods, approaches, etc.)
Briefly provide information on Data Gathering Methods used for the project.

2. Database Initial Study and Analysis
Expand the given use case "Career Office Management Systems" in terms of *organization* (objectives, actors/roles (users), business operations) and *system* (scope, user information requirements (information -query/report- needs for various users).

3. Database Design

a. Conceptual Design

i. Initial ER Model:

The (Enhanced) Entity-Relationship model should contain six entities and an appropriate number of relationships. The model only displays entities, relationships, and connectivities (one-to-many, one-to-one, and many-to-many). You can use one of the following notations: Chen, Crow's foot, or UML Class Diagrams. Just state your preference in the report. *Do not add cardinalities*. *(Do not add attributes to the Chen ERD*. Attributes will be in the *Logical Design* part).

ii. Business rules:

Describe the relationships as the following;

A VENDOR supplies one or many ITEMs.
An ITEM is supplied by only one VENDOR.

iii. Data Dictionary

Describe attributes in a tabular format. Use **the template** provided by the lecturer.
Example:

TABLE 3.6 A sample data dictionary

Table Name	Attribute Name	Contents	Type	Format	Domain	Required	PK or FK	FK Referenced Table
CUSTOMER	CUS_CODE	Customer account code	CHAR(5)	99999	10000–99999	Y	PK	
	CUS_LNAME	Customer last name	VARCHAR2(20)	Xxxxxxxx	100–999	Y	FK	AGENT
	CUS_FNAME	Customer first name	VARCHAR2(20)	Xxxxxxxx		Y		
	CUS_INITIAL	Customer initial	CHAR(1)	X				
	CUS_RENEW_DATE	Customer insurance renewal date	DATE	dd-mmm-yyyy				
	AGENT_CODE	Agent code	CHAR(3)	999				
AGENT	AGENT_CODE	Agent code	CHAR(3)	999		Y	PK	
	AGENT_AREACODE	Agent area code	CHAR(4)	999	0.00–9 999 999.99	Y		
	AGENT_PHONE	Agent telephone number	CHAR(14)	999-9999		Y		
	AGENT_LNAME	Agent last name	VARCHAR2(20)	Xxxxxxxx		Y		
	AGENT_YTD_SLS	Agent year-to-date sales	NUMBER(9,2)	9 999 999.99		Y		

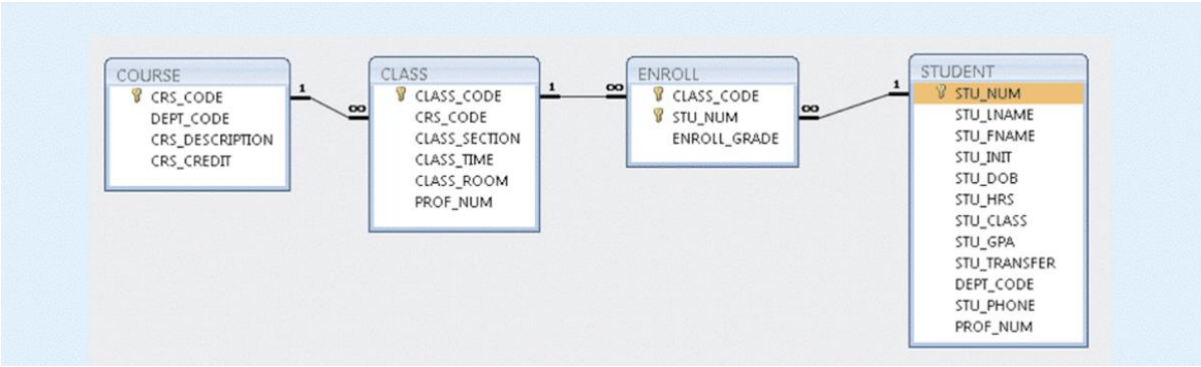
FK = Foreign key
PK = Primary key
CHAR = Fixed character length data (1–255 characters)
VARCHAR2 = Variable character length data (1–4 000 characters)
NUMBER = Numeric data (NUMBER(9,2) is used to specify numbers with two decimal places and up to nine digits, including the decimal places. Some RDBMSs permit the use of a MONEY or CURRENCY data type.)

b. Logical Design

Generate a relational database design by EER-to-Relational Mapping. (The relational schema is created). It should include normalized tables that are in the 3rd Normal Form.

Make sure that you apply the *systematic algorithm of relational mapping* and *normalization*.

Example:



4. Physical Design/Implementation:

Implementation of the proposed design in SQLLiteStudio.

1. Organize your data into tables,
2. Establish relationships and enforce referential integrity,
3. Enter sufficient amount of data into tables so that the queries display meaningful information,

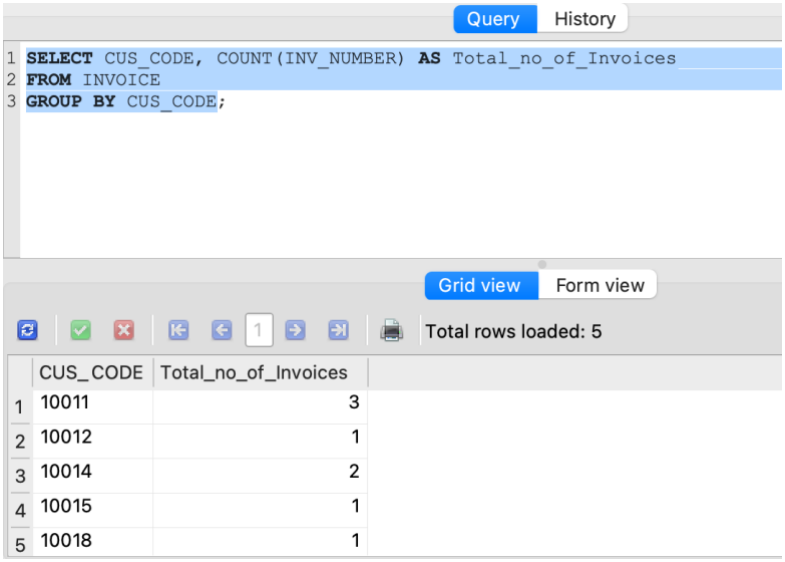
5. Querying/Reporting:

1. Using SQL statements, create 10 queries.
    a. List queries in the final report
        i. SQL statements

        For instance:

        SELECT CUS_CODE, COUNT(INV_NUMBER) AS Total_no_of_Invoices
        FROM INVOICE
        GROUP BY CUS_CODE;

ii. Screenshots after the SQL statements are run
For instance:



iii. Query specifications

Add query specifications by briefly explaining the followings:

1. what is the name of the query,
2. who will use the query,
3. what is the purpose of the query, and
4. what each query displays.

Notes:

- Queries should contain *advanced features* (nested/subquery, different types of joins, group by, having, aggregate functions, etc.).
- Ensure a link between the user information requirements (*2.b*) and queries/reports *(5)*. While creating queries, be creative and build scenarios relevant to the user information requirements.

6. Work Effectively In Teams Form

1. Use the provided template and evaluate your performance & the other team members' performances, and
2. Send the form, in ***confidentiality***, to the instructor by e-mail. Do not attach the evaluations to your final report.

Final report and database file submission - Due 30 June 2023, at 09:00 am
Project Presentations + Question & Answer – 30 June 2023, between 09:00 am - 01:00pm

Files to submit:

1. The final report as a *Word* document (group submission),
2. The database file (group submission),
3. *"Work Effectively in Teams Form*" (individually).

GOOD LUCK!