

School: Computer Science
Institution: University of Windsor
Term: Fall 2024
Course: Comp 4150: Advanced and Practical Database Systems
Instructor: Dr. Ezeife, C. I.
Project Phase: 1: Total: **100 marks**
Due date: Project Phase 1 (Given: Sept. 16, 2024 Due: Oct. 7, 2024)

Objective of Phase 1: going through this project phase enables students learn use of DBMS database and its components like SQL as well as Sqlplus statements in building real life application. Materials from Lab 1 can be totally re-used to advance phase 1.

Project Phase 1: design a company information system, the tables, the queries, the interfaces, the constraints, indexes, views, relating your design to components of the DBMS. Store your database using Oracle Sqlplus/SQL Developer, etc.

Electronic Assignment Submission: Done through <http://brightspace.uwindsor.ca>

Marking Scheme: The mark for each of the questions is indicated beside each question.

Academic Integrity Statement: Submit only work that is yours and include the following confidentiality agreement and statement at the beginning of your assignment.

CONFIDENTIALITY AGREEMENT & STATEMENT OF HONESTY

I confirm that I will keep the content of this assignment/examination confidential.

I confirm that I have not received any unauthorized assistance in preparing for or doing this assignment/examination. I confirm knowing that a mark of 0 may be assigned for copied work.

Student Signature

Student Name (please print)

Student I.D. Number

Date

For office Use only

Question	Mark
1	/20
2	/20
3	/30
4	/10
5	/20
Total	/100

Hand in an electronic copy of :

1. Your full Company information system database schema. (20 marks)

Marking scheme: assign 10 marks for correct design of normalized tables and 10 marks for correct specification of database schema.

2. Sample database queries you used for creating each table and inserting data in each table (e.g. just 1 or 2 sample insert statements for each table). (20 marks)

Marking scheme: assign 10 marks for correct creation with correct constraints of tables and 10 marks for correct insertion of data values to those tables.

3. The interface design for the system drawn in MSword or any other. The interface tasks and transitions can also be presented in menu form (typed).

(30marks)

Marking scheme: assign 10 marks for meaningful complete interface design, 10 marks for reasonable number of functionalities, and 10 marks interface effectiveness, ease of use, attractiveness.

4. Constraints, indexes or views defined in the database should be presented.

(10 marks)

Marking scheme: assign 5 marks for correct listing of adequate constraints and business rules, and 5 marks for some use of indexes or views in the design.

5. Queries designed to be posed on the database.

(20 marks)

Marking scheme: assign 10 marks for correct design of queries that are useful in the system design, 5 marks for use of advanced features like built_in functions in the queries and 5 marks for complete listing of 10 – 15 queries per student designed previously.

6. Submit all solution files and scripts through the blackboard for marking.

GA: Make comments to let them know where they are losing marks.

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Marking scheme: Items to hand in are:

1. Your full database schema (20 marks)
2. Sample database queries you used for creating each table (20 marks)
and inserting data in each table (e.g. just 1 or 2 insert statements).
3. The interface design for the system drawn in MSword or any other. (30 marks)
4. Constraints, indexes or views defined in the database should be

- presented. (10 marks)
5. Queries designed to be posed on the database. (20 marks)
6. Submit all solution files and scripts through the blackboard for marking.

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Marking scheme Item Details:

1. Check for correct normalized tables that connect well together for answering queries in the application domain. Tables should be free of anomalies brought by functional dependencies caused by non-key attributes. (20 marks)
2. Use of SQL DDL/DML instructions CREATE TABLE, INSERT INTO TABLE .. VALUES ..., to correctly create the database schema. Award marks for correct creation of at least 10 tables. (20 marks)
3. Interface Design should have the minimal set of features with one student team and more features with students working in a team of two. A minimal set of features is looks similar but not necessarily exactly the following draft for a student database application. Student can create a reasonable interface for the company database application and present it so they can build it later. An example for a student information system is listed below.

(30 marks)

Main Menu

1. Administrator Functions
2. Student Functions
3. Instructor Functions
4. Quit

Administrator Functions Main Menu

1. Create/delete a new course
2. Prepare term schedule
3. Add/drop instructor
4. Modify(add/drop/update) term schedule
5. Add/Drop student
6. Quit

Student Functions Main Menu

1. Register for a course
2. Change Personal Information
3. Add/drop a course
4. View grade report
5. Pay fees (get a fee report)
6. Quit

Instructor Functions Main Menu

1. Update Personal Information
2. View course schedule
3. Add/delete grade
4. Quit

4. Constraints, Indexes, Sequences etc. (10 marks)

List all the constraints. Also, give marks if they are included already in the queries for creating the database tables. There must be at least the primary key and foreign key constraints.

5. SQL Database Queries (20 marks)

Assign marks for the 10 queries got correct.

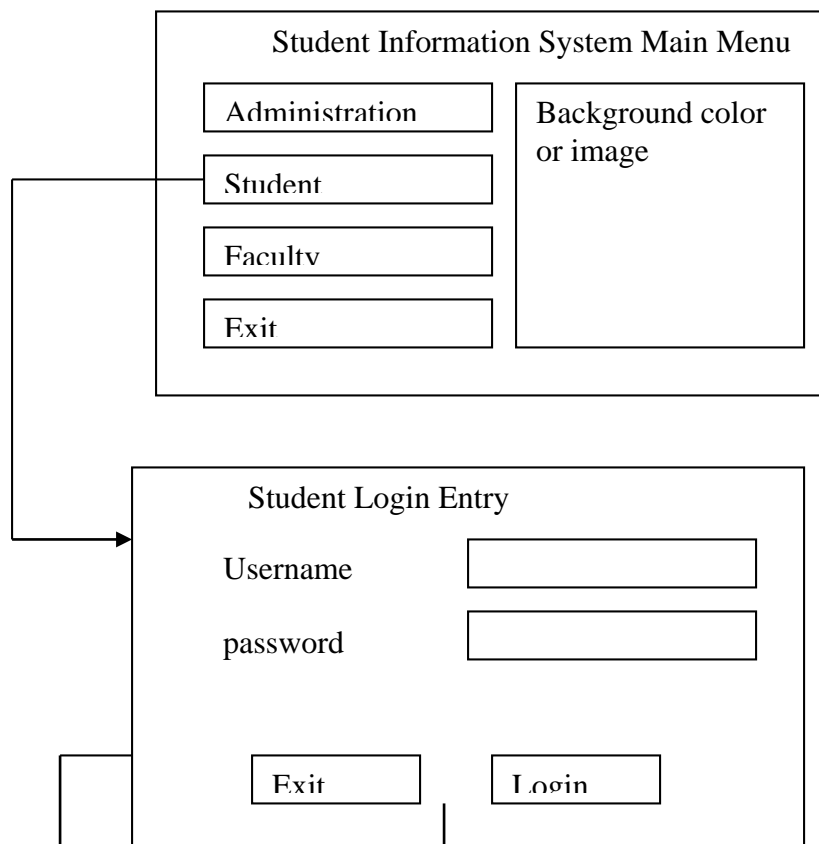
.....

Solution

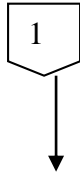
The attached file similar to [newstudents_schema.txt](#) provide the database schema while the queries answering questions in project phase 1 are as given in Lab01solution.

A Sample Interface Design for Student Information System.

Note that this shows the link through only one button and the entire system interface design or near complete design is expected for phase 1. Students should give a more complete interface design.



If login successful the following alert message will appear



Student Functions Main Menu

Register a course

Add/dron a course

View grade report

Change Personal data

View transcript

View fee report

Exit

Background color or image

View Grade Report

Term: Winter 2024

Course#	Section	Grade
:		

Semester gpa

Return