

University Of Engineering and Technology, Lahore
Computer Engineering Department

Course Name: Database Systems	Course Code: CMPE-332L
Assignment Type: Lab	Dated: 23-10-2023
Semester: 5th	Session: 2021
Lab/Project/Assignment #: Lab 8	CLOs to be covered: CLO1,CLO2 and CLO4
Lab Title: Lab Quiz	Teacher Name: Ms. Darakhshan

Open Ended Lab (OEL):

An open-ended lab is where students are given the freedom to develop their own experiments, instead of merely following the already set guidelines from a lab manual or elsewhere.

#	CLOs Covered	Taxonomy Domain /Level	PLOs
1	Construct DML queries to retrieve and store data in different relations.	Cognitive Two	Lifelong Learning High
2	Construct DDL queries to manage relations, constraints, triggers and indexes.	Cognitive Two	Problem Analysis
3	Develop projects using learned techniques to solve real world problem with small/large data and learn how to query, visualize, report and make prediction on it.	Cognitive Two	Problem Analysis Medium

Open Ended Lab Description:

CASE STUDY:

Department of Computer Engineering UET Lahore follows the Outcome Based Education where each subject is mapped with multiple CLOs. For the Lab work, these CLOs are further mapped to multiple rubrics. Rubrics are the rules that measure the students at different levels in particular component of an assessment. Example of rubrics for object-oriented programming are as follow:

Criteria	Sub-criteria	Exceptional	Good	Fair	Unsatisfactory
Level		4	3	2	1
CLO 2: Implement abstraction and encapsulation to develop reusable classes for objects of real world problems	Design Program should be properly decomposed in reusable components. That either be functions, classes or files or any other paradigm as per the course requirement	Functionalities are divided properly in coherent and cohesive components	Functionalities are divided into proper coherent units but the are either redundant or lack cohesion	Code is divided into modules but no consideration is put into reusability and cohesion of the modules	No such division of responsibility is visible in the code structure
	Execution Code is correct, the required programming techniques are implemented accurately according to rules of language.	No Errors, programs compiles and executes perfectly and efficiently	Program does compiles but could have been coded in more efficient way	Program does not compiles have minor errors due to missing semicolons or mis-alignments or missing brackets or any such issue	Program does not compile or interpret due to lack of syntax knowledge
	Testing Program executes and all scenarios are tested with no logical errors	All test cases are clear for functionalities and their boundary conditions	All test cases are clear for functionalities but might show erroneous behaviour on boundary conditions	Majority of the test cases are clear, but there might be few failed ones	Majority test cases are failed

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Each student is being evaluated against rubrics in each assessment. For example, Lab1 has three components/Questions with 10 total marks and these questions are mapped with the rubrics as follow:

Component	Rubric	Component Marks
Question 1	Design	3
Question 2	Execution	4
Question 3	Testing	3

Now the student X is evaluated against assessment and student will be assigned with the rubric level. Based on the rubric level, obtained marks will be automatically calculated according to following formula.

$$\text{ObtainedMarks} = \frac{\text{ObtainedRubricLevel}}{\text{MaxRubricLevel}} \times \text{Component Marks}$$

Component	Rubric	Component Marks	Student Level	Rubric	Obtained Marks (Automatically calculated)
Question 1	Design	3	2		1.5
Question 2	Execution	4	3		3
Question 3	Testing	2	3		1.5

Currently, the above process is being managed manually. You are supposed to streamline the above process and **develop its database** which will be operated by the teacher (via desktop an application) to manage data at one place. You will not create desktop application in this lab. You also need to identify project requirements clearly. Note its attributes, constraints, cardinalities, and participations etc. For your designed relations, see if they can be normalized or not. If required, normalize them and make sure that client's requirements are being fulfilled in every relation via FDs. After that, create its ERD diagrams using available tools. Finally, create the database, tables and their schemas in MS SQL SERVER and add dummy data in it using Data Definition Language of SQL.

Expected Outcome:

Following features will be implemented in the application.

- Manage Students
- Manage CLOs
- Manage Rubrics
- Manage Assessments
- Manage Rubric Levels
- Mark the evaluations against a student

And any other feature that can be helpful for the management of evaluations.

Instructor also requires multiple reports in pdf form that may include.

- CLO wise class result
- Assessment wise class result

And any other reports that you can help the committee to streamline the process.