Course: CS345: Database Lab
Type of database: Relational
Implementation: MYSQL

Stage 2: ***Designing of the database with appropriate ER Diagram, Implementation of the ER diagram with relevant tables. Learn to create SQL queries for retrieving data from the database.***

Note: A set of practice queries is given. It is expected that you get familiar with the practice queries before coming to Lab. Otherwise, TAs will also be helping you to formulate these queries in the Lab. Once you are able to formulate SQL queries for those practice queries, you will be given another five queries similar to the ones given in practice set. You should complete those five queries your own. You can attempt the new set of queries, only if you complete the practice queries. You should not use JOIN and aggregate functions

ER diagram may be prepared before coming to Lab. The required tables for the relevant entities and relations can also be pre-created. Submit the ER Diagram and Table schemas to the TAs, either by hard copy or email.

Stage -3 will use the database that you have created in the Stage 2.

Marks:

(i) 5 for ER Diagram and Table schemas (To be evaluated after the Lab)
(ii) 5 for practice queries.
(iii) 5 for additional queries.
(iv) Total: 15.

A university consists of a number of departments. A student belongs to only one department. A lecturer belongs to only one department. Each department offers several courses. Students enrol in a particular course. A course may be taught by more than one lecturer from the appropriate department, and a lecturer may teach more than one course. A student can enrol courses offered in any department. However, a lecture can teach the courses that are offered only in his department.

(a) Given a course (Say, CS345), find the list of students who have enrolled the course.
(b) Find the list of students who have enrolled the course taught by a lecture.
(c) Given a student, find the list of courses that (s)he enrolls from other department.
(d) Show by inserting an invalid data that student can not enroll a course that is not offered in any department. (Checking Integrity Constraints)
(e) Show by deleting a course from the relevant table that a course from a department can not be deleted without removing the references. (Checking Integrity Constraints)

Ref: ER Diagram

1. Chapter 3: Database Management System, Ramakrishnan, Gehrke
2. Chapter 12: Entity–Relationship Modeling, Database System, Thomas C, C Begg