NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES

Lab Exercise 03

For

CL2005- Database Systems Lab

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Lab Task 1 – Draw an ER Diagram

Draw an ERD for the following scenario. In a university, there are several departments and each department has a head of department who belongs to Faculty. Department have a name, phone extension, specific mailing address and Students that belong to the department. Students can belong to only one Department at a time and Department can have more than one or no Student.

Students and faculty have names and unique identification numbers, with address, age, gender, and other information. Student studies different Courses offered by university. Faculty teaches these Courses. In each semester one student can take more than one course and Faculty can teach more than one course. The attributes of courses are course id, course name, number of hours. some courses are prerequisite of other courses. Teachers want to keep the record of assessment and calculate total marks based on all assignments and find grades of the student in particular course. Faculty members can teach in multiple Departments. Each course can be taught by many faculty members or no one.

Faculty members are also working on multiple research projects. These projects are funded by the government and university. One project can have more than one faculty member and one faculty member can work on more than one project. The attributes of projects are project identification number, project name, location etc.

Lab Task 2 – Draw an ER Diagram

The Country Bus Company owns several buses. The attributes of the bus are Registration number, Engine number, vehicle id, no of seats, capacity and single or double desk,
Each bus is allocated to a particular route, although some routes may have several buses.
The route has the following characteristics route id, name and average number of passengers carry on each route, Each route pass through number of towns.
Towns have id, name attributes. One or more drivers are allocated to each stage of the route, which corresponds to the journey through some or all the towns on a route.
Drivers have the following attributes (driver id, name, address, contact number, driver license number, address experience). Some of the towns have garages, where buses are kept.
Garage has the following attributes id, name and location, capacity. Each bus has a schedule for the departure from one location to another. Schedule contain bus id, departure location, arrival location, departure time and arrival time.

Lab Task 3 – Draw an ER Diagram

A university database contains information about professors (identified by social security number, or SSN) and courses (identified by course_id). Professors teach courses; each of the following situations concerns the Teaches relationship set. Foreach situation, draw an ER diagram that describes it.
1. Professors can teach the same course in several semesters, and each offering must be recorded.

2. Professors can teach the same course in several semesters, and only the most recent such offering needs to be recorded (assume this condition applies in all subsequent questions)
3. Every professor must teach some course.
4. Every professor teaches exactly one course.
5. Every professor teaches exactly one course and every course must be taught by some professor.
6. Now suppose that certain courses can be taught by the team of professors jointly, but it is possible that no one professor in a team can teach the course.

Model this situation introducing additional entity set and relationship sets if necessary.

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GOOD LUCK