Database systems (1)
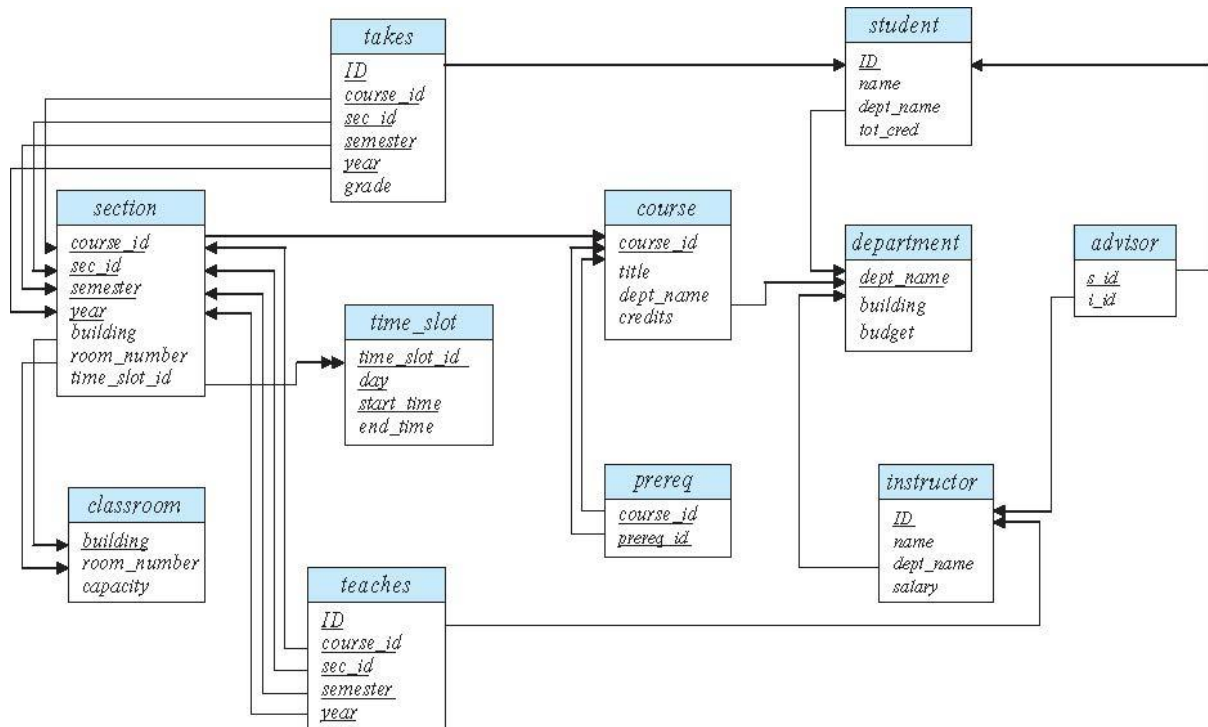## Database for Multimedia &Web Development
Homework #3
Chapter 4 Intermediate SQL

1. Write the following queries in SQL:
   o Display a list of all instructors, showing each instructor's ID and the number of sections taught. Make sure to show the number of sections as 0 for instructors who have not taught any section. Your query should use an outer join, and should not use subqueries.
   o Write the same query as in part a, but using a scalar subquery and not using outer join.
   o Display the list of all course sections offered in Spring 2018, along with the ID and name of each instructor teaching the section. If a section has more than one instructor, that section should appear as many times in the result as it has instructors. If a section does not have any instructor, it should still appear in the result with the instructor's name set to "—".
   o Display the list of all departments, with the total number of instructors in each department, without using subqueries. Make sure to show departments that have no instructors, and list those departments with an instructor count of zero.

2. Rewrite the query

   select *
   from *section* natural join *classroom*

   • without using a natural join but instead using an inner join with a using condition.
   • without using a natural join but instead using an inner join with a on condition.

3. Create a materialized view that contains the students and their GPAs
4. In SQL Authorization do the following
    o Create a role called register with
        • full permissions on takes table
        • read and update on student table
        • read on section table.
    o Grant the register role to users Ahmed, Khalid and Ali.
    o Remove the permission of deleting on the takes table from register role.
    o Add the permission of viewing instructor data to register role.
    o Remove the register role from the user called Ali.