



United International University (UIU)

Department of Computer Science & Engineering (CSE)

Course Title: Database Management Systems

Course Code: CSI 221 Fall 2021 Section: A/B

Assignment 02

1. Consider the following **University** database.

student(student_name, dept_name)
department(dept_name, location_name)
subject(student_name, subject_name)
teacher(teacher_name, dept_name, salary)
group(teacher_name, group_name)

Write the **SQL statements** and their corresponding **Relational Algebra expressions** for the following queries.

- Show the students' names who are from the "CSE" department.
 - $\sigma_{dept_name="CSE"}(student)$
- Show the students' dept names and their subject names.
 - $\Pi_{dept_name, subject_name}(\sigma_{student.student_name=subject.student_name}(student \times subject))$
- Show the students' names who are only studying in the subject that the student "King" is studying.
 - $\Pi_{subject.student_name}(\sigma_{subject.subject_name=other.subject_name}(subject \times \rho_{other}(\sigma_{student_name="King"}(subject))))$
- Show the teachers' names who are at least in one of the groups of the teacher "Zeb" is in.
 - $\Pi_{group.teacher_name}(\sigma_{group.group_name=other.group_name}(group \times \rho_{other}(\sigma_{teacher_name="Zeb"}(group))))$

