
Question 1
Consider the following database schema.

\[
\text{COURSES} = \{\text{CourseNo, Title, Credits}\} \\
\text{STUDENTS} = \{\text{IDNo, Name, DOB, Department}\} \\
\text{TRANSCRIPTS} = \{\text{IDNo, CourseNo, Semester, Year, Grade}\}
\]

Write the following queries in SQL and in Relational Algebra.

**Q1:** List names of all students in the Computer Science department.

**Q2:** List names of all students in the Computer Science department who were born in 1990 or earlier.

**Q3:** List all courses (course numbers and titles) taken by John Doe.

**Q4:** List all courses (course numbers and titles) taken by John Doe in which he has a grade of A.

**Q5:** List all courses (course numbers and titles) taken by John Doe in Spring 2015 in which he has a grade of A.

**Q6:** List all courses (course numbers and titles) taken by Computer Science students.

**Q7:** List all courses (course numbers and titles) with a credit hour larger than 3 taken by Computer Science students.

**Q8:** Write a query to list all departments, and for each department lists the total number of credit hours its students have taken since 2014.