COMP9120 Relational Database Systems   **Semester 2, 2016**

Tutorial Week 6 : Complex SQL and NULL Values

Exercise 1. Three-Valued Logic in SQL

Let a and b be integer-valued attributes that may be NULL in some tuples. For each of the following conditions (as may appear in a WHERE clause), describe exactly the set of (a, b) tuples that satisfy the condition, including the case where a and/or b is NULL.

a) a = 10

b) a = 10 OR b = 20

c) a = 10 AND b = 20

d) a < 10 AND NOT b = 20

Exercise 2. Grouping and Nested SQL Queries

Consider the University relational database schema from Week 5. You can find the University Schema sql file under Schemas on the left-hand side navigation bar on eLearning. If you haven't done so already, create this schema by running all the sql statements in the downloaded file on Oracle. Then try writing queries to answer the following questions based on this university schema:

a) Which lecturers (by ID and name) have already taught both 'INFO2120' and 'INFO3404'?

Write a SQL query to answer this question using a SET operator.

b) Which lecturers (by instructorId) have already taught both 'INFO2120' and 'INFO3404'. Answer this using a sub-query. Make sure your result doesn't include duplicates.

c) Write a SQL query to give the SIDs of all students who have enrolled in only one lecture using a set operator.

d) Write a SQL query to give the SIDs of all students who have enrolled in only one lecture using a sub-query.

e) Write a SQL query to give the SIDs of all students who have enrolled in only one lecture using GROUP BY.