IS 441 SQL Handout 3 – More Joining Tables; Subqueries

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This handout will provide guidance and “thought stimuli” in the form of questions.

**I. JOINING TABLES**

1. Joining multiple tables – Study PP. 295-297

Assuming there are four tables A, B, C, and D, with common columns A.Ka, B.Ka, B.Kb, C.Kb, C.Kc, D.Kc. If the intended result of the query contains fields from A, B, and D but not C,

* Should the query contain a clause stating the join condition involving C?
* ANSWER: Yes. W/o table C, B and D won’t join.

OUTER JOIN revisit - Study P. 294

In “A LEFT JOIN B”, which table will have all its records appearing in the result? - A

In “A RIGHT JOIN B”, which table will have all its records appearing in the result? - B

Can OUTER JOIN condition be easily applied to a join condition of three tables? - NO

1. Self-Join (using “Employee” and “Manager” as example – PP. 297-298)
2. In a self-join, how can one table be used as two? – how is that implemented in a query?
   * *Table* AS *Alias1*, *Table* AS *Alias2*
3. How would one relate two records in a self-join?
   * WHERE *Alias1.common\_column* = *Alias2.common\_column*
4. Did you find a typo in the lower portion of P. 297? – should be “Prefix”, NOT “Suffix”
5. In P. 298, what is the application situation of self-join other than in a unary relationship? - read

**II. SUBQUERIES**

1. Subquery basics

In a subquery, there is an outer query, and there is at least one inner query. Where (in which clause) can a subquery be used? (P. 305)

ANSWER: (1) FROM; (2) WHERE; (3) HAVING

Note: (2) and (3) are more obvious; but (1) is very legitimate, especially when you want to display the outcome of the subquery – in (2) or (3), the outcomes of the subquery will only be used as the input for the criteria but NOT as displayed outcomes.

2. If subquery is used in WHERE clause, will the results of the subquery be displayed in final output? (P. 299) - NO

3. What is the difference between JOIN and subquery? (PP. 299-301) - read

1. In the example on P. 301 (Logic 1: “Which customers have not placed any order for computer desk”), what if one uses the logic (Logic 2) “Which customers have placed orders for NOT computer desk” – would the results be same?
   * The outputs are logically different. Example with fictitious data:

|  |  |  |  |
| --- | --- | --- | --- |
| CustID | Items Purchased | Logic 1 display | Logic 2 display |
| 1001 | Computer desk, Coffee table | No | Yes |
| 1002 | Computer desk | No | No |
| 1003 | Coffee table, End table  Some questions in HW6 have similar situation (4th qtr” etc.) | Yes | Yes |

1. What is the difference between EXIST and IN? (P. 302)

ANSWER:

* When using EXIST, subquery returns TRUE as long as there exists a row that satisfies the subquery (even there’re some columns having NULL values);
* When using IN, the designated column must not be NULL, and must have values falling w/in the range of values listed in the IN parentheses, for the subquery to return TRUE

1. In the example of P. 305, why could the result of the subquery be displayed in final output?
   * The subquery is used in the FROM clause; so its output are like contents of a table that can be selected from.
2. What is the difference between the alias of a column and that of a table in terms of their use?
   * Alias of a column is HEADING for display only, and cannot be used in any further computation or comparison (like Price > AVG\_Price – cannot);
   * Alias of a table can be used just as an existing table, and it can even be used in the SELECT clause which appears before the FROM clause where the alias is defined.