Session 6-10 Subqueries 2
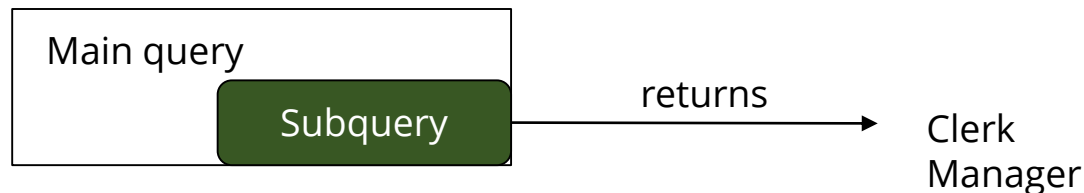
Kyunghee Lee, PhD

Multiple-Row Subqueries

- Return more than one row of results
  - i.e., a list of values
- Require use of IN, ANY, ALL operators (the operators handling lists, not single values)

Main query		
	Subquery	

returns → Clerk
Manager

WAYNE STATE
Mike Ilitch School of Business

IN Operator

- WHERE X IN (2, 6, 8, 10, 12)
    - X=1; False
    - X=6; True (will be returned)
    - To be returned, X should be listed in the parentheses

WAYNE STATE
Mike Ilitch School of Business

ANY and ALL Operators Example

- WHERE X > ANY (2, 6, 8, 10, 12)
  - X=1; False
  - X=5; True (will be returned)
  - To be returned, X should be greater than 2
- WHERE X > ALL (2, 6, 8, 10, 12)
  - X=1; False
  - X=5; False
  - X=13; True (will be returned)
  - To be returned, X should be greater than 12

WAYNE STATE
Mike Ilitch School of Business

ANY and ALL Operators

- Combine with arithmetic operators

OPERATOR	DESCRIPTION
>ALL	More than the highest value returned by the subquery
<ALL	Less than the lowest value returned by the subquery
<ANY	Less than the highest value returned by the subquery
>ANY	More than the lowest value returned by the subquery
=ANY	Equal to any value returned by the subquery (same as IN)

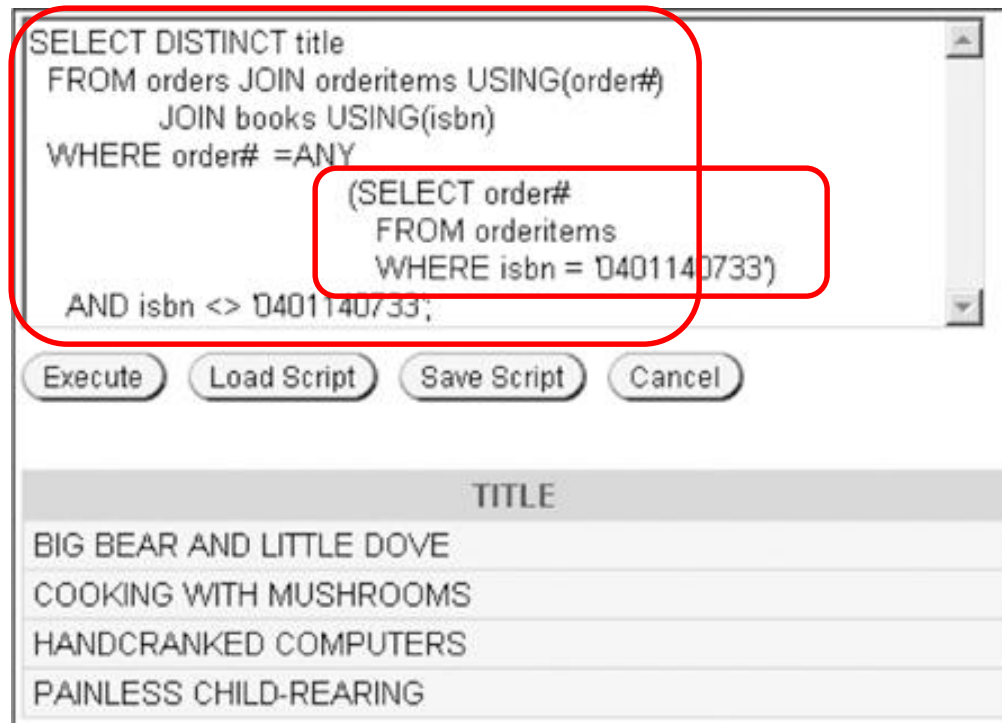**FIGURE 12-11**   Descriptions of ALL and ANY operator combinations

WAYNE STATE
Mike Ilitch School of Business

Frequently-bought-together Suggestion

Q) List the title of all books that were purchased together with the book with ISBN of '0401140733'

Get all book titles that were included in that order numbers

```
SELECT DISTINCT title
FROM orders JOIN orderitems USING(order#)
        JOIN books USING(isbn)
WHERE order# =ANY
                (SELECT order#
                    FROM orderitems
                    WHERE isbn = '0401140733')
        AND isbn <> '0401140733';
```

Get all order# that includes this ISBN

(Execute) (Load Script) (Save Script) (Cancel)

TITLE
BIG BEAR AND LITTLE DOVE
COOKING WITH MUSHROOMS
HANDCRANKED COMPUTERS
PAINLESS CHILD-REARING

WAYNE STATE
Mike Ilitch School of Business

Multiple-Row Subquery in WHERE Clause


```
SELECT title, retail
  FROM books
  WHERE retail <ANY
              (SELECT retail
                 FROM books
                 WHERE category = 'COOKING');
```

Execute   Load Script   Save Script   Cancel

TITLE	RETAIL
BIG BEAR AND LITTLE DOVE	8.95
COOKING WITH MUSHROOMS	19.95
REVENGE OF MICKEY	22
HANDCRANKED COMPUTERS	25

FIGURE 12-15   The <ANY operator

WAYNE STATE
Mike Ilitch School of Business

Multiple-Row Subquery in HAVING Clause

Q) List the order # and revenue of all orders with revenue higher than any values of the average revenues by state

FIGURE 12-20 Multiple-row subquery in a HAVING clause

Wrap-up

- Multiple-row subquery
- IN
- ANY
- ALL

WAYNE STATE
Mike Ilitch School of Business