

# Session 4-4 Restricting Rows with a Single Condition

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# Scope

```
SELECT [ALL/DISTINCT] column_list  
FROM table_list
```

```
[WHERE conditional expression]
```

```
[GROUP BY group_by_column_list]
```

```
[HAVING conditional expression]
```

```
[ORDER BY order_by_column_list]
```



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# WHERE Clause Syntax

- A WHERE clause is used to retrieve rows based on a stated condition
- Requires:
  - Column name
  - Comparison operator
  - Value or column for comparison
- Values are *case sensitive*



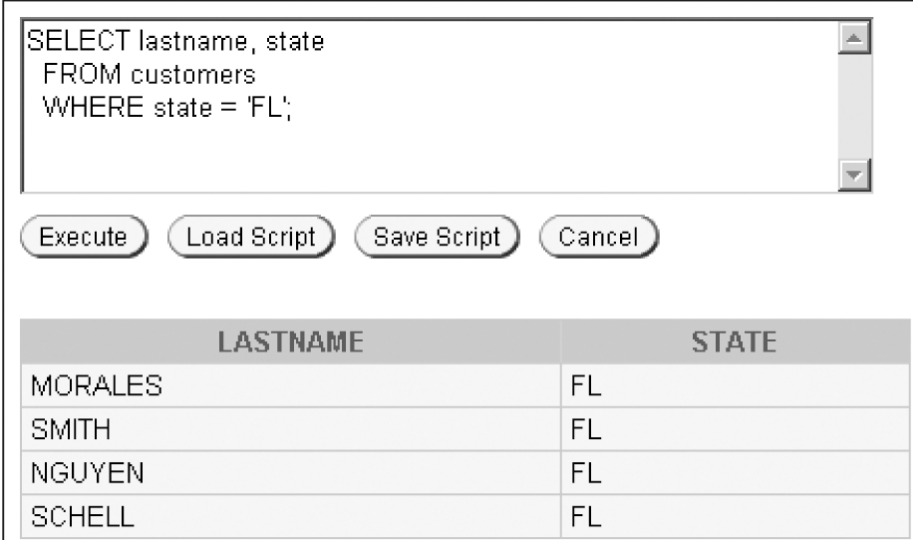
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# WHERE Clause Example

- List WHERE clause after FROM clause
- Enclose nonnumeric data in single quotes



The screenshot shows a database query interface. At the top, a text box contains the SQL query: `SELECT lastname, state  
FROM customers  
WHERE state = 'FL';`. Below the text box are four buttons: **Execute**, **Load Script**, **Save Script**, and **Cancel**. Below the buttons is a table with two columns: **LASTNAME** and **STATE**. The table contains four rows of data.

LASTNAME	STATE
MORALES	FL
SMITH	FL
NGUYEN	FL
SCHELL	FL

**FIGURE 8-4** Results of a state-based search



# WHERE Clause Example

- Case sensitive

```
select lastname, state  
from customers  
where state = 'fl'
```

Execute

Load Script

Save Script

Cancel

no rows selected

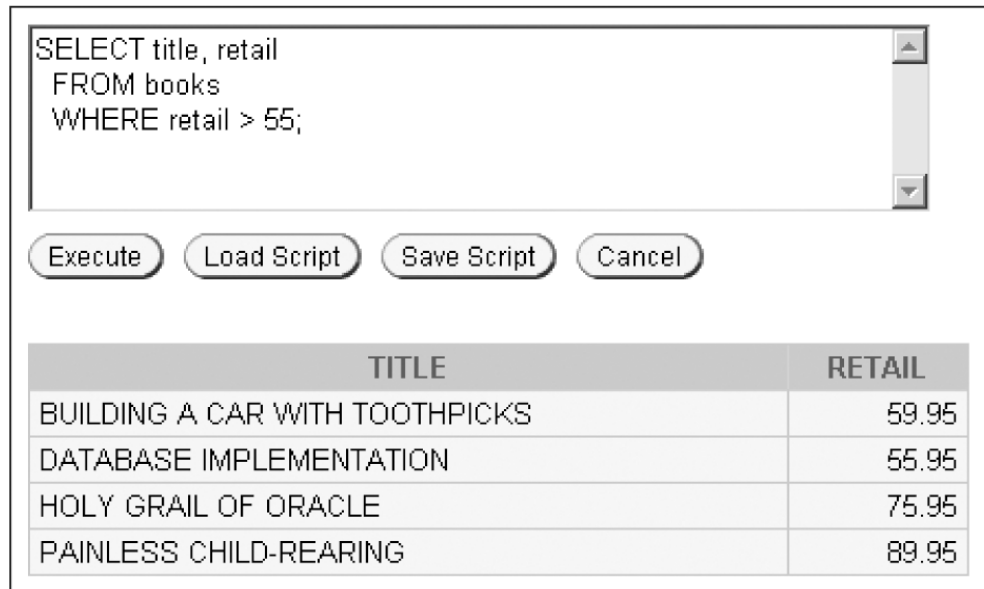


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# Comparison Operators

- Indicate how the data should relate to the given search value



```
SELECT title, retail
FROM books
WHERE retail > 55;
```

Execute Load Script Save Script Cancel

TITLE	RETAIL
BUILDING A CAR WITH TOOTHPICKS	59.95
DATABASE IMPLEMENTATION	55.95
HOLY GRAIL OF ORACLE	75.95
PAINLESS CHILD-REARING	89.95



**FIGURE 8-8** Searching for books with a retail price greater than \$55

# Arithmetic Comparison Operators

COMPARISON OPERATORS	
Mathematical Comparison Operators	
=	Equality or “equal to”—for example, cost = 55.95
>	Greater than—for example, cost > 20
<	Less than—for example, cost < 20
<>, !=, or ^=	Not equal to—for example, cost <> 55.95 or cost != 55.95 or cost ^=55.95
<=	Less than or equal to—for example, cost <= 20
>=	Greater than or equal to—for example, cost >= 20



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# Other Comparison Operators

Other Comparison Operators	
[NOT] BETWEEN x AND y	Used to express a range—for example, searching for numbers BETWEEN 5 and 10. The optional NOT is used when searching for numbers that are NOT BETWEEN 5 AND 10.
[NOT] IN(x,y,...)	Similar to the OR logical operator. Can search for records which meet at least one condition contained within the parentheses—for example, Pubid IN (1, 4, 5) will return only books with a publisher id of 1, 4, or 5. The optional NOT keyword instructs Oracle to return books not published by Publisher 1, 4, or 5.
[NOT] LIKE	Used when searching for patterns if you are not certain how something is spelled—for example, title LIKE 'TH%'. Using the optional NOT indicates that records that do contain the specified pattern should not be included in the results.
IS [NOT] NULL	Used to search for records that do not have an entry in the specified field—for example, Shipdate IS NULL. Include the optional NOT to find records that do have an entry in the field—for example, Shipdate IS NOT NULL.



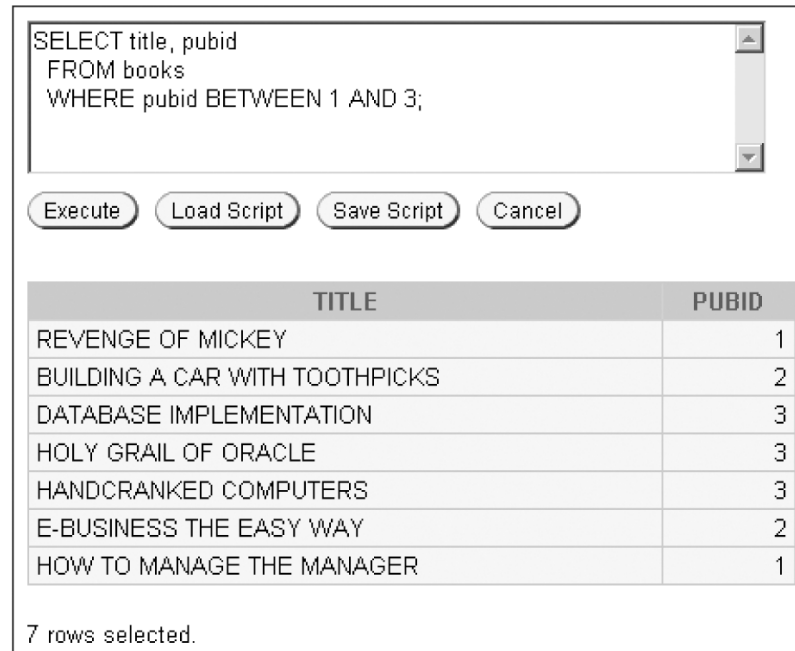
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# BETWEEN...AND Operator

- Finds values in a specified range



The screenshot shows a database query window. At the top, a text area contains the following SQL query:

```
SELECT title, pubid  
FROM books  
WHERE pubid BETWEEN 1 AND 3;
```

Below the text area are four buttons: "Execute", "Load Script", "Save Script", and "Cancel".

Below the buttons is a table with two columns: "TITLE" and "PUBID". The table contains the following data:

TITLE	PUBID
REVENGE OF MICKEY	1
BUILDING A CAR WITH TOOTHPICKS	2
DATABASE IMPLEMENTATION	3
HOLY GRAIL OF ORACLE	3
HANDCRANKED COMPUTERS	3
E-BUSINESS THE EASY WAY	2
HOW TO MANAGE THE MANAGER	1

At the bottom of the window, it says "7 rows selected."

**FIGURE 8-16** Searching Pubid using the BETWEEN...AND operator



# IN Operator

- Returns records that match a value in a specified list
- List must be in parentheses
- Values are separated by commas



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# IN Operator Example

```
SELECT title, pubid
FROM books
WHERE pubid IN (1, 2, 5);
```

Execute

Load Script

Save Script

Cancel

TITLE	PUBID
REVENGE OF MICKEY	1
BUILDING A CAR WITH TOOTHPICKS	2
E-BUSINESS THE EASY WAY	2
PAINLESS CHILD-REARING	5
BIG BEAR AND LITTLE DOVE	5
HOW TO MANAGE THE MANAGER	1
SHORTEST POEMS	5

7 rows selected.

**FIGURE 8-18** Searching Pubid using the IN operator



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# LIKE Operator

- Performs pattern searches
- Used with wildcard characters:
  - Underscore (\_) for exactly one character in the indicated position
  - Percent sign (%) represents any number of characters



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# LIKE Operator Example

```
select *  
from customers  
where customer# like '10_1';
```

Execute

Load Script

Save Script

Cancel

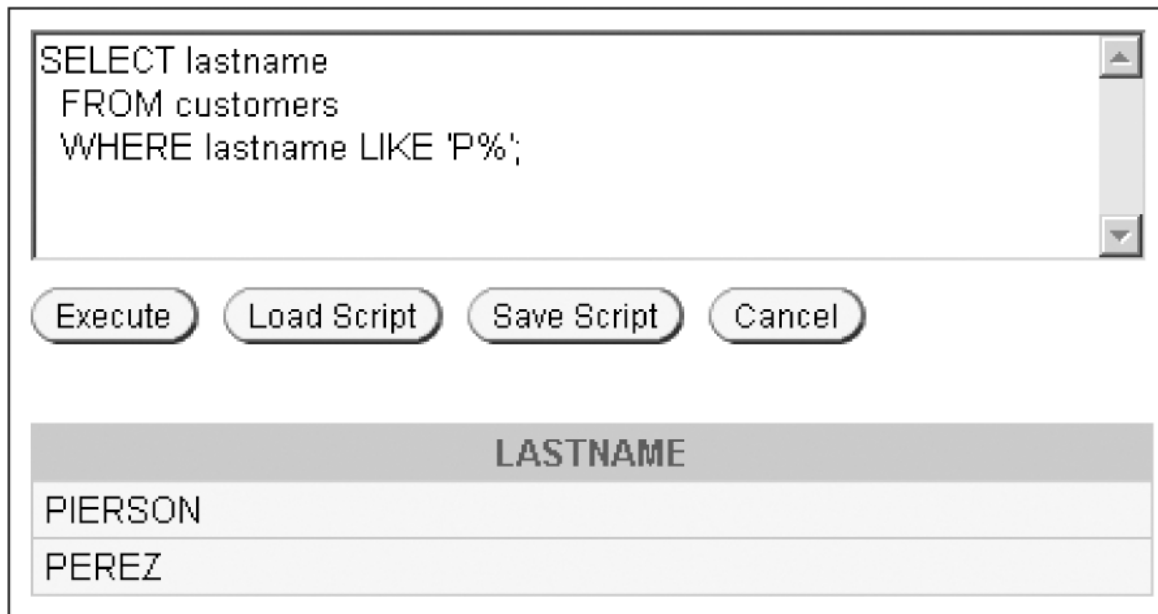
CUSTOMER#	LASTNAME	FIRSTNAME	ADDRESS	CITY	ST	ZIP	REFERRED	RE
1001	MORALES	BONITA	P.O. BOX 651	EASTPOINT	FL	32328		SE
1011	MCGOVERN	REESE	P.O. BOX 18	CHICAGO	IL	60606		N



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# LIKE Operator Example



```
SELECT lastname
FROM customers
WHERE lastname LIKE 'P%';
```

Execute Load Script Save Script Cancel

LASTNAME
PIERSON
PEREZ

**FIGURE 8-20** Searching using the LIKE operator with the % wildcard character



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# Arithmetic operation in WHERE clause

```
select *  
from books  
where cost + retail > 50  
or pubid=4  
and cost > 15
```

Execute

Load Script

Save Script

Cancel

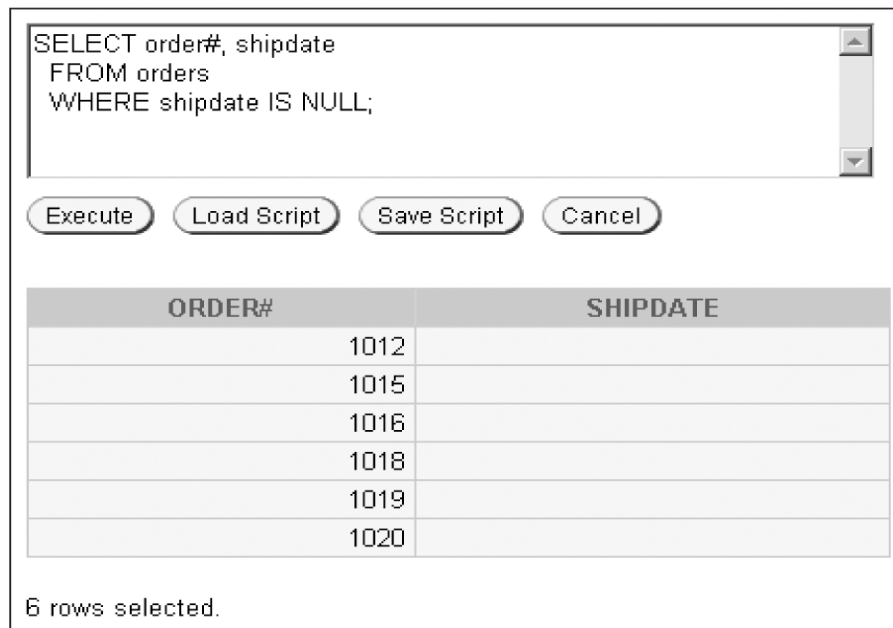
ISBN	TITLE	PUBDATE	PUBID	COST	RETAIL	DISCOUNT	CATEGORY
1059831198	BODYBUILD IN 10 MINUTES A DAY	21-JAN-05	4	18.75	30.95		FITNESS
4981341710	BUILDING A CAR WITH TOOTHPICKS	18-MAR-06	2	37.8	59.95	3	CHILDREN
8843172113	DATABASE IMPLEMENTATION	04-JUN-03	3	31.4	55.95		COMPUTER
3957136468	HOLY GRAIL OF ORACLE	31-DEC-05	3	47.25	75.95	3.8	COMPUTER
9959789321	E-BUSINESS THE EASY WAY	01-MAR-06	2	37.9	54.5		COMPUTER
2491748320	PAINLESS CHILD-REARING	17-JUL-04	5	48	89.95	4.5	FAMILY LIFE
0299282519	THE WOK WAY TO COOK	11-SEP-04	4	19	28.75		COOKING
0132149871	HOW TO GET FASTER PIZZA	11-NOV-06	4	17.85	29.95	1.5	SELF HELP
2147428890	SHORTEST POEMS	01-MAY-05	5	21.85	39.95		LITERATURE

9 rows selected.



# Treatment of NULL Values

- Absence of data
- Requires use of IS NULL operator



The screenshot shows a SQL query execution window. The query text is: `SELECT order#, shipdate  
FROM orders  
WHERE shipdate IS NULL;` Below the query text are four buttons: **Execute**, **Load Script**, **Save Script**, and **Cancel**. Below the buttons is a table with two columns: **ORDER#** and **SHIPDATE**. The table contains 6 rows of data, all with NULL values in the SHIPDATE column. Below the table, it says "6 rows selected."

ORDER#	SHIPDATE
1012	
1015	
1016	
1018	
1019	
1020	

6 rows selected.

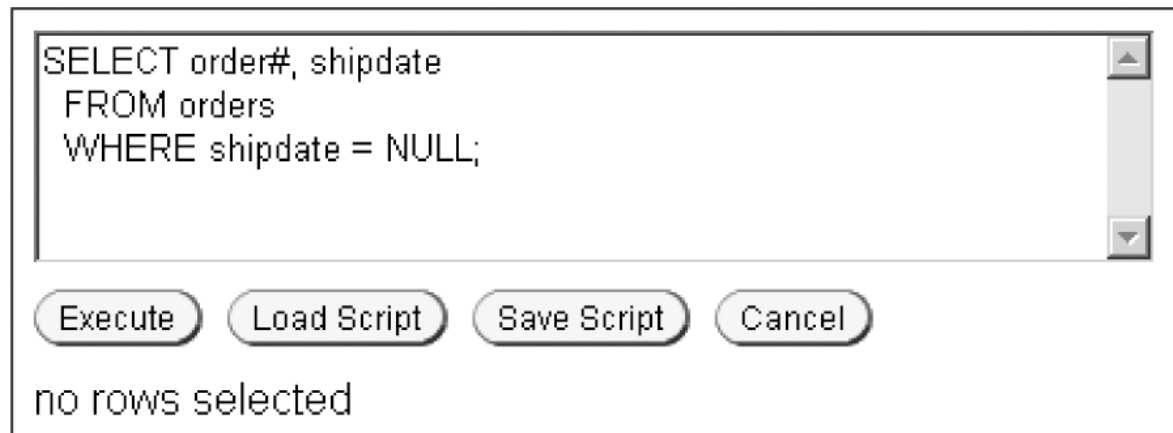


**FIGURE 8-27** Searching for NULL values with the IS NULL operator



# Treatment of NULL Values (cont'd)

- A common error is using “= NULL” which does not raise an Oracle error but it also does not return any rows



**FIGURE 8-29** Erroneously using the “= NULL” operator



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# Wrap-up

- Restricting rows: WHERE clause
- Comparison operators
  - Arithmetic
  - Between
  - IN
  - Like
  - IS NULL



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