

LESSON 3.1a

98-364 Database Administration Fundamentals

Selecting Data

Lesson Overview

In this lesson, you will learn:

- SELECT
- DISTINCT
- WHERE
- ORDER BY
- The basic logical operators AND and OR
- Truth tables

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SELECT

- The **SELECT** statement is used to select data from a database.
- It can retrieve data from one or more tables, temporary tables, or views.
- The selection is stored in a result table, called the *result set*.
- **SELECT** is the most commonly used data manipulation language (DML) command

Remember this example used in Review Lesson 1.3:

```
SELECT column_name(s)
FROM table_name
WHERE conditional
```

Example:

```
SELECT *
FROM Grant_info
WHERE aid_awarded > 36000
```

Yields students from the `Grant_info` table who awarded more than \$36,000.

SELECT DISTINCT

- Some of the fields in a table may contain duplicate values.
- DISTINCT can be used to return only unique values.
- The first occurrence of the DISTINCT data in the search is shown.
- DISTINCT returns only distinct (unique) values.

```
SELECT DISTINCT column_name(s)  
FROM table_name
```

Example of SELECT DISTINCT:

```
SELECT DISTINCT Teacher  
FROM table_Grades
```

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SELECT DISTINCT (Continued)**Table Grades**

Teacher	Hour	Subject	Grade	Fee
Smith	1	English	A	0
Jones	2	Math	B	0
Smith	3	Science	C	0

Results from:

```
SELECT DISTINCT Teacher  
FROM table_Grades
```

Teacher
Smith
Jones

WHERE

The WHERE clause is used to extract only those records that meet a specified set of criteria.

WHERE—specifies which rows to retrieve.

```
SELECT column_name(s)
FROM table_name
WHERE column_name = variable
```

Example:

```
SELECT *
FROM Grant_info
WHERE aid_āwarded > 36000
```

Selects students who have been awarded more than \$36,000 from the Grant_info table.

ORDER BY

Sorts the result set by a specified column or the records in ascending (ASC) order (by default) or descending order (DESC).

ORDER BY—specifies an order in which to return the rows.

```
SELECT column_name(s)
FROM table_name
ORDER BY column_name(s) ASC|DESC
```

Example:

```
SELECT *
FROM table_grades
ORDER BY teacher ASC
```

ORDER BY (continued)

Results from:

```
SELECT *  
FROM table_grades  
ORDER BY teacher ASC
```

Results:

Teacher	Hour	Subject	Grade	Fee
Jones	2	Math	B	0
Smith	1	English	A	0
Vann	3	Science	C	0

Logical Operators: AND and OR

• Boolean operators

- Designed to work with Boolean values of true or false.
- Four most common Boolean operators in programming are AND (logical conjunction), OR (logical inclusion), XOR (exclusive OR), and NOT (logical negation).
- Often used as qualifiers in database searches.
- Example:

teacher = “*Smith*” AND subject = “*English*”

Truth Tables

- A truth table is made up of two columns with 1's and 0's or T's and F's for True or False.

Logical And:

ITEM 1	ITEM 2	RESULT
T	T	T
T	F	F
F	F	F

Logical Or:

ITEM 1	ITEM 2	RESULT
T	T	T
T	F	T
F	F	F

- And = All items must be true to get a “True” result.
- Or = Only one of the items must be true to get a “True” result.
- The order of items has no influence on the result of a truth table.

AND Operator

- Displays a record if both the first condition and the second condition are true.

```
SELECT column_name FROM table_name  
WHERE column_name_1 = variable_1  
AND column_name_2 = variable_2
```

Example:

```
SELECT * FROM table Grades  
WHERE teacher = "Smith"  
AND Grade = "A"
```

This code returns one record from the grade table:

Smith	1	English	A	0
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OR Operator

- Displays a record if either the first condition or the second condition is true.

```
SELECT column_name FROM table_name  
WHERE column_name_1 = variable_1  
OR column_name_2 = variable_2
```

Example:

```
SELECT * FROM table Grades  
WHERE teacher = "Smith"  
OR Grade = "A"
```

This logic returns the following records from the grade table:

Smith	1	English A	0
Smith	3	Science C	0

Lesson Review

1. What is the difference between AND and OR?
2. Write an SELECT example that arranges students' letter grades in the table_grades in ascending order.
3. Write an SELECT example with a WHERE condition based upon data that might reside in a Scholarship_info table ?