

## Database Programming with SQL

### 1-3: Anatomy of a SQL Statement

### Practice Activities

#### Objectives

- Match projection, selection, and join with their correct functions capabilities
- Create a basic SELECT statement
- Use the correct syntax to display all rows in a table
- Use the correct syntax to select specific columns in a table, modify the way data is displayed, and perform calculations using arithmetic expressions and operators
- Formulate queries using correct operator precedence to display desired results
- Define a null value
- Demonstrate the effect null values create in arithmetic expressions
- Construct a query using a column alias

#### Vocabulary

Identify the vocabulary word for each definition below.

JOIN	Display data from two or more related tables.
Arithmetic Operator	A symbol used to perform an operation on some values.
FOREIGN	An implementation of an attribute or relationship in a table.
Project	The capability in SQL to choose the columns in a table that you want returned from a query.
NULL	A value that is unavailable, unassigned, unknown, or inapplicable.
Alias	Renames a column heading.
Arithmetic Expression	A mathematical equation.
Selection	The capability in SQL to choose the rows in a table returned from a query.
SELECT	Retrieves information from the database
SELECT clause	Specifies the columns to be displayed
FROM clause	Specifies the table containing the column listed in the select clause
keyword?	An individual SQL command

clause	Part of a SQL statement
Statement	A combination of the two clauses

## Try It / Solve It

Now you know the basics of a SELECT statement, It's time to practice what you've learned.

1. Write a SQL statement that demonstrates projection.

```
SELECT salary
FROM employees
```

2. Write a query that displays the last\_name and email addresses for all the people in the DJs on Demand d\_client table. The column headings should appear as "Client" and "Email Address."

```
SELECT FIRST_NAME AS "Client",EMAIL AS "Email Address"
FROM D_CLIENTS
```

3. The manager of Global Fast Foods decided to give all employees at 5%/hour raise + a \$.50 bonus/hour. However, when he looked at the results, he couldn't figure out why the new raises were not as he predicted. Ms. Doe should have a new salary of \$7.59, Mr. Miller's salary should be \$11.00, and Monique Tuttle should be \$63.50. He used the following query. What should he have done?

```
SELECT last_name, salary *.05 +.50
FROM f_staffs;
```

```
SELECT last_name, salary + salary*.05 +.50
FROM f_staffs;
```

4. Which of the following would be the easiest way to see all rows in the d\_songs table?
  - a. SELECT id, title, duration, artist, type\_code
  - b. SELECT columns
  - c. SELECT \*
  - d. SELECT all

C)

5. If  $\text{tax} = 8.5\% * \text{car\_cost}$  and  $\text{license} = \text{car\_cost} * .01\%$ , which value will produce the largest car payment?
  - a.  $\text{Payment} = (\text{car\_cost} * 1.25) + 5.00 - (\text{tax}) - (\text{license})$
  - b.  $\text{Payment} = \text{car\_cost} * 1.25 + 5.00 - (\text{tax} - \text{license})$

b)

6. In the example below, identify the keywords, the clause(s), and the statement(s):

```
SELECT employee_id, last_name
FROM employees
```

keyword: SELECT, FROM  
 clause: employee\_id,last\_name,employees  
 statement: both lines of command

7. Label each example as SELECTION or PROJECTION.
  - a. Please give me Mary Adam's email address. SELECTION
  - b. I would like only the manager\_id column, and none of the other columns. PROJECTION

8. Which of the following statements are true?

- a.  $\text{null} * 25 = 0$ ; False
- b.  $\text{null} * 6.00 = 6.00$  False
- c.  $\text{null} * .05 = \text{null}$  True
- d.  $(\text{null} + 1.00) + 5.00 = 5.00$  True

9. How will the column headings be labeled in the following example?

```
SELECT bear_id bears, color AS Color, age "age"  
FROM animals;
```

- a. bears, color, age c)
- b. BEARS, COLOR, AGE
- c. BEARS, COLOR, age
- d. Bears, Color, Age

10. Which of the following words must be in a SELECT statement in order to return all rows?

- a. SELECT only
- b. SELECT and FROM b)
- c. FROM only
- d. SELECT \* only