

EXERCISE-4

Writing Basic SQL SELECT Statements

OBJECTIVES

After the completion of this exercise, the students will be able to do the following:

- List the capabilities of SQL SELECT Statement
- Execute a basic SELECT statement

Capabilities of SQL SELECT statement

A SELECT statement retrieves information from the database. Using a select statement, we can perform

- ✓ Projection: To choose the columns in a table
- ✓ Selection: To choose the rows in a table
- ✓ Joining: To bring together the data that is stored in different tables

Basic SELECT Statement

Syntax

```
SELECT *|DISTINCT Column_name| alias  
      FROM table_name;
```

NOTE:

DISTINCT—Suppr
ess the duplicates.

Alias—gives selected columns different headings.

Example:1

```
SELECT * FROM departments;
```

Example: 2

```
SELECT location_id, department_id FROM departments;
```

Writing SQL Statements

- SQL statements are not case sensitive
- SQL statements can be on one or more lines.
- Keywords cannot be abbreviated or split across lines
- Clauses are usually placed on separate lines
- Indents are used to enhance readability

Using Arithmetic Expressions

Basic Arithmetic operators like *, /, +, -can be used

Example:1

```
SELECT last_name, salary, salary+300 FROM employees;
```

Example:2

```
SELECT last_name, salary, 12*salary+100 FROM employees;
```

The statement is not same as

```
SELECT last_name, salary, 12*(salary+100) FROM employees;
```

Example:3

```
SELECT last_name, job_id, salary, commission_pct FROM employees;
```

Example:4

```
SELECT last_name, job_id, salary, 12*salary*commission_pct FROM employees;
```

Using Column Alias

- To rename a column heading with or without AS keyword.

Example:1

```
SELECT last_name AS Name  
FROM employees;
```

Example: 2

```
SELECT last_name "Name" salary*12 "Annual Salary"  
FROM employees;
```

Concatenation Operator

- Concatenates columns or character strings to other columns
- Represented by two vertical bars (||)
- Creates a resultant column that is a character expression

Example:

```
SELECT last_name||job_id AS "EMPLOYEES JOB" FROM employees;
```

Using Literal Character String

- A literal is a character, a number, or a date included in the SELECT list.
- Date and character literal values must be enclosed within single quotation marks.

Example:

```
SELECT last_name||'is a'||job_id AS "EMPLOYEES JOB" FROM employees;
```

Eliminating Duplicate Rows

- Using DISTINCT keyword.

Example:

```
SELECT DISTINCT department_id FROM employees;
```

Displaying Table Structure

- Using DESC keyword.

Syntax

```
DESC table_name;
```

Example:

```
DESC employees;
```

Find the Solution for the following:

True OR False

- I. The following statement executes successfully.

Identify the Errors

```
SELECT employee_id, last_name  
sal*12 ANNUAL SALARY
```

FROM employees;
Queries
SELECT employee_id, last_name, sal*12 AS "ANNUAL SALARY"
FROM employees;
Output:

EMPLOYEE_ID	LAST_NAME	ANNUAL SALARY
101	King	288000

2. Show the structure of departments the table. Select all the data from it.

DESC departments;
SELECT * FROM departments;
Output (Structure Example):

COLUMN_NAME	DATA_TYPE	NULLLABLE
DEPARTMENT_ID	NUMBER	No
DEPARTMENT_NAME	VARCHAR2	No
MANAGER_ID	NUMBER	Yes
LOCATION_ID	NUMBER	Yes

Output (Data Example):

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700

3. Create a query to display the last name, job code, hire date, and employee number for each employee, with employee number appearing first.

SELECT employee_id, last_name, job_id, hire_date
FROM employees;
Output:

EMPLOYEE_ID	LAST_NAME	JOB_ID	HIRE_DATE
101	King	AD_PRES	17-JUN-1987

4. Provide an alias STARTDATE for the hire date.

SELECT employee_id, last_name, hire_date AS "STARTDATE"
FROM employees;
Output:

EMPLOYEE_ID	LAST_NAME	STARTDATE
101	King	17-JUN-1987

101 King 17-JUN-1987

5. Create a query to display unique job codes from the employee table.

```
SELECT DISTINCT job_id  
FROM employees;
```

Output:

JOB_ID
AD_PRES
ST_CLERK
IT_PROG

6. Display the last name concatenated with the job ID , separated by a comma and space, and name the column EMPLOYEE and TITLE.

```
SELECT last_name || ',' || job_id AS "EMPLOYEE AND TITLE"  
FROM employees;
```

Output:

EMPLOYEE AND TITLE

King, AD_PRES
Kochhar, AD_VP

7. Create a query to display all the data from the employees table. Separate each column by a comma. Name the column THE_OUTPUT.

```
SELECT employee_id || ',' || first_name || ',' || last_name || ',' ||  
job_id || ',' || salary AS "THE_OUTPUT"  
FROM employees;
```

Output:

THE_OUTPUT
101, Steven, King, AD_PRES, 24000