



UNIVERSIDAD AUTÓNOMA DE ZACATECAS
INGENIERÍA DE SOFTWARE
LABORATORIO DE SISTEMAS DE BASE DE DATOS II
FORMATO DE PRÁCTICAS

PRÁCTICA:	10
TÍTULO:	Using Subqueries to Solve Queries
OBJETIVO:	Realizar ejercicios sobre los temas del capítulo 7: Using Subqueries to Solve Queries
DURACIÓN:	4 horas
FECHA:	
FECHA DE ENTREGA:	

ACTIVIDADES A REALIZAR:

Practices for Lesson 7

In this practice, you write complex queries using nested `SELECT` statements. For practice questions, you may want to create the inner query first. Make sure that it runs and produces the data that you anticipate before you code the outer query.

Practice 7-1: Using Subqueries to Solve Queries

- 1) The HR department needs a query that prompts the user for an employee last name. The query then displays the last name and hire date of any employee in the same department as the employee whose name they supply (excluding that employee). For example, if the user enters `Zlotkey`, find all employees who work with Zlotkey (excluding Zlotkey).

	LAST_NAME	HIRE_DATE
1	Abel	11-MAY-96
2	Taylor	24-MAR-96

- 2) Create a report that displays the employee number, last name, and salary of all employees who earn more than the average salary. Sort the results in order of ascending salary.

	EMPLOYEE_ID	LAST_NAME	SALARY
1	103	Hunold	9000
2	149	Zlotkey	10500
3	174	Abel	11000
4	205	Higgins	12000
5	201	Hartstein	13000
6	102	De Haan	17000
7	101	Kochhar	17000
8	100	King	24000

- 3) Write a query that displays the employee number and last name of all employees who work in a department with any employee whose last name contains the letter "u."
Save your SQL statement as lab_07_03.sql. Run your query.

	EMPLOYEE_ID	LAST_NAME
1	124	Mourgos
2	141	Rajs
3	142	Davies
4	143	Matos
5	144	Vargas
6	103	Hunold
7	104	Emst
8	107	Lorentz

- 4) The HR department needs a report that displays the last name, department number, and job ID of all employees whose department location ID is 1700.

	LAST_NAME	DEPARTMENT_ID	JOB_ID
1	Whalen	10	AD_ASST
2	King	90	AD_PRES
3	Kochhar	90	AD_VP
4	De Haan	90	AD_VP
5	Higgins	110	AC_MGR
6	Gietz	110	AC_ACCOUNT

Modify the query so that the user is prompted for a location ID. Save this to a file named lab_07_04.sql.

- 5) Create a report for HR that displays the last name and salary of every employee who reports to King.

	LAST_NAME	SALARY
1	Hartstein	13000
2	Kochhar	17000
3	De Haan	17000
4	Mourgos	5800
5	Zlotkey	10500

- 6) Create a report for HR that displays the department number, last name, and job ID for every employee in the Executive department.

	DEPARTMENT_ID	LAST_NAME	JOB_ID
1	90	King	AD_PRES
2	90	Kochhar	AD_VP
3	90	De Haan	AD_VP

- 7) Create a report that displays a list of all employees whose salary is more than the salary of any employee from department 60.

If you have the time, complete the following exercise:

- 8) Modify the query in lab_07_03.sql to display the employee number, last name, and salary of all employees who earn more than the average salary, and who work in a department with any employee whose last name contains a "u." Save lab_07_03.sql as lab_07_08.sql again. Run the statement in lab_07_08.sql.

	EMPLOYEE_ID	LAST_NAME	SALARY
1	103	Hunold	9000

Ejercicio 2:

The following questions will help you measure your understanding of the material presented in this unit. Read all the choices carefully because there might be more than one correct answer. Choose all the correct answers for each question.

DEFINE SUBQUERIES

1. Consider this generic description of a SELECT statement:

SELECT select_list

FROM table

WHERE condition

GROUP BY expression_1

HAVING expression_2

ORDER BY expression_3 ;

Where could subqueries be used? (Choose all correct answers.)

- A. select_list
- B. table
- C. condition
- D. expression_1
- E. expression_2
- F. expression_3

2. A query can have a subquery embedded within it. Under what circumstances could there be more than one subquery? (Choose the best answer.)

- A. The outer query can include an inner query. It is not possible to have another query within the inner query.

B. It is possible to embed a single-row subquery inside a multiple-row subquery, but not the other way around.

C. The outer query can have multiple inner queries, but they must not be embedded within each other.

D. Subqueries can be embedded within each other with no practical limitations on depth.

3. Consider this statement:

```
select employee_id, last_name from employees where  
salary > (select avg(salary) from employees);
```

When will the subquery be executed? (Choose the best answer.)

A. It will be executed before the outer query.

B. It will be executed after the outer query.

C. It will be executed concurrently with the outer query.

D. It will be executed once for every row in the EMPLOYEES table.

4. Consider this statement:

```
select o.employee_id, o.last_name from employees o where  
o.salary > (select avg(i.salary) from employees i  
where i.department_id=o.department_id);
```

When will the subquery be executed? (Choose the best answer.)

A. It will be executed before the outer query.

B. It will be executed after the outer query.

C. It will be executed concurrently with the outer query.

D. It will be executed once for every row in the EMPLOYEES table.

DESCRIBE THE TYPES OF PROBLEMS THAT THE SUBQUERIES CAN SOLVE

5. Consider the following statement:

```
select last_name from employees join departments  
on employees.department_id = departments.department_id  
where department_name='Executive';
```

and this statement:

```
select last_name from employees where department_id in  
(select department_id from departments where department_name='Executive');
```

What can be said about the two statements? (Choose two correct answers.)

A. The two statements should generate the same result.

- B. The two statements could generate different results.
- C. The first statement will always run successfully; the second statement will error if there are two departments with DEPARTMENT_NAME 'Executive.'
- D. Both statements will always run successfully, even if there are two departments with DEPARTMENT_NAME 'Executive.'

LIST THE TYPES OF SUBQUERIES

6. What are the distinguishing characteristics of a scalar subquery? (Choose two correct answers.)

- A. A scalar subquery returns one row.
- B. A scalar subquery returns one column.
- C. A scalar subquery cannot be used in the SELECT LIST of the parent query.
- D. A scalar subquery cannot be used as a correlated subquery.

7. Which comparison operator can be used with multiple-row subqueries? (Choose the best answer.)

- A. ALL
- B. ANY
- C. IN
- D. NOT IN
- E. All the above can be used.

WRITE SINGLE-ROW AND MULTIPLE-ROW SUBQUERIES

8. Consider this statement:

```
select last_name, (select count(*) from departments) from employees
where salary = (select salary from employees);
```

What is wrong with it? (Choose the best answer.)

- A. Nothing is wrong—the statement should run without error.
- B. The statement will fail because the subquery in the SELECT list references a table that is not listed in the FROM clause.
- C. The statement will fail if the second query returns more than one row.
- D. The statement will run but is extremely inefficient because of the need to run the second subquery once for every row in EMPLOYEES.

9. Which of the following statements are equivalent? (Choose two answers.)

- A. select employee_id from employees where salary < all (select salary from employees where department_id=10);
- B. select employee_id from employees where salary < (select min(salary) from

employees where department_id=10);

C. select employee_id from employees where salary not >= any (select salary from employees where department_id=10);

D. select employee_id from employees e join departments d on e.department_id=d.department_id where e.salary < (select min(salary) from employees) and d.department_id=10;

10. Consider this statement, which is intended to prompt for an employee's name and then find all employees who have the same job as the first employee:

**select last_name,employee_id from employees where job_id =
(select job_id from employees where last_name = '&Name');**

What would happen if a value were given for &Name that did not match with any row in EMPLOYEES? (Choose the best answer.)

- A. The statement would fail with an error.
- B. The statement would return every row in the table.
- C. The statement would return no rows.
- D. The statement would return all rows where JOB_ID is NULL.

Ejercicio 3: Para la base de datos de "Hotel"

Elaborar 3 sentencias de subconsultas con operadores de un sólo registro.

Elaborar 3 sentencias de subconsultas con operadores de múltiples registros.

Elaborar 3 sentencias de subconsultas en la cláusula HAVING.

Elaborar 3 sentencias de subconsultas con el operador EXISTS.