

Nepal College of Information Technology

Balkumari , Lalitpur

Database Management System

Lab 4

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Title: Sub queries and Join queries

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Objective:

To perform sub queries and join queries using DML.

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Procedure:

Sub query or inner query or nested query is a query within another SQL query and embedded within WHERE clause.

Sub query returns data that will be used in main query as a condition to further restrict data to be retrieved.

Sub queries can be used with the SELECT, INSERT, UPDATE, and DELETE statements along with the operators like =, <, >, >=, <=, IN, BETWEEN etc.

The SQL Joins clause is used to combine records from two or more tables in a database.

A JOIN is a means for combining fields from two tables by using values common to each.

SQL JOIN types:

- INNER JOIN
 - Returns rows when there is a match in both tables.

- **LEFT JOIN**
 - Returns all rows from the left table, even if there are no matches in the right table.
 - **RIGHT JOIN**
 - Returns all rows from the right table, even if there are no matches in the left table.
 - **INNER JOIN**
 - Returns rows when there is a match in one of the tables.
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SQL Command:

1. Sub query with SELECT statement

- Syntax:

```
SELECT column_name [, column_name ]  
FROM table1 [, table2 ]  
WHERE column_name OPERATOR  
(SELECT column_name [, column_name ]  
FROM table1 [, table2 ]  
[WHERE])
```

- Example:

```
SELECT * FROM customer  
WHERE cid IN (SELECT cid FROM customer  
WHERE salary > 10000)
```

2. Sub query with INSERT statement

- Syntax:

```
INSERT INTO table_name [ (column1 [, column2 ]) ]  
SELECT [ * | column1 [, column2 ]  
FROM table1 [, table2 ]  
[ WHERE VALUE OPERATOR ]
```

- Example:

```
INSERT INTO customer1  
SELECT * FROM customer  
WHERE cid IN (SELECT cid FROM customer)
```

3. Sub query with UPDATE statement

- Syntax:

```
UPDATE table  
SET column_name = new_value  
[ WHERE OPERATOR [ VALUE ]  
(SELECT COLUMN_NAME  
FROM TABLE_NAME)  
[ WHERE) ]
```

- Example:

```
UPDATE customer  
SET salary = salary* 0.25  
WHERE age IN (SELECT age FROM customer1  
WHERE age >= 27 )
```

4. Sub query with DELETE statement

- Syntax:

```
DELETE FROM TABLE_NAME  
[ WHERE OPERATOR [ VALUE ]  
(SELECT COLUMN_NAME  
FROM TABLE_NAME)  
[ WHERE) ]
```

- Example:

```
DELETE FROM customer  
WHERE age IN (SELECT age FROM customer1  
WHERE age > 27 )
```

5. INNER JOIN

- Syntax:

```
SELECT table1.column1, table2.column2...  
FROM table1  
INNER JOIN table2  
ON table1.common_field = table2.common_field;
```

- Example:

```
SELECT cid, name, amount, date  
FROM customer  
INNER JOIN order  
ON customer.cid = order.cid
```

6. LEFT JOIN

- Syntax:

```
SELECT table1.column1, table2.column2...  
FROM table1  
LEFT JOIN table2  
ON table1.common_field = table2.common_field;
```

- Example:

```
SELECT cid, name, amount, date  
FROM customer  
LEFT JOIN order  
ON customer.cid = order.cid
```

7. RIGHT JOIN

- Syntax:

```
SELECT table1.column1, table2.column2...  
FROM table1  
RIGHT JOIN table2  
ON table1.common_field = table2.common_field;
```

- Example:

```
SELECT cid, name, amount, date  
FROM customer  
RIGHT JOIN order  
ON customer.cid = order.cid
```

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LAB EXERCISE:

1. Display all employee names and salary whose salary is greater than minimum salary and job title starts with 'J'
 2. Find all employees who work in the same job as 'arjun'
 3. Display information about employees who earn more than employee in dept 1.
 4. Implement JOIN queries.
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Table1: customer

cid	name	age	address	salary
1	ram	32	kathmandu	2000.00
2	shyam	25	patan	1500.00
3	hari	23	dharan	2000.00
4	gopal	25	pokhara	6500.00
5	sita	27	bhaktapur	8500.00
6	gita	22	illam	4500.00
7	rita	24	banepa	10000.00

Table 2: order

oid	o_date	cid	amount
102	2015-10-08 00:00:00	3	3000
100	2014-10-08 00:00:00	3	1500
101	2014-11-20 00:00:00	2	1560
103	2013-05-20 00:00:00	4	2060

Table 3: employee

eid	ename	job	did	salary
1	arjun	AP	1	10000.00
2	rabi	JP	2	12000.00
3	rohan	AP	2	15000.00
4	krishna	AP	1	20000.00

Table 4: department

did	dname	location
1	accounting	kathmandu
2	sales	patan
3	research	banepa
4	operations	bhaktapur