

**Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)**



**School of Computing
B.Tech. – Computer Science and Engineering**

VTR UGE2021- (CBCS)



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Course Code : 10211CS207

Course Name : Database Management Systems

Slot No : S4-L5

DBMS TASK - 4 REPORT

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ABSTRACT

The objective of this task is to demonstrate the use of **nested queries (subqueries)** and **different types of joins** in SQL.

Subqueries enable users to retrieve data by embedding one query inside another, which helps in performing advanced filtering and data comparison. Joins are used to combine rows from two or more tables based on related columns.

This task uses examples of **simple subqueries**, **multiple subqueries**, **correlated subqueries**, and **join operations** such as **Equi-Join**, **Outer Join**, and **Self Join** on the branch and cust2 tables.

1. Create Tables

```
CREATE TABLE Branch (
```

```
    b_code NUMBER(10) PRIMARY KEY,
```

```
    b_loc VARCHAR2(20),
```

```
    manager VARCHAR2(20)
```

```
);
```

```
SQL> DESC BRANCH;
```

Name	Null?	Type
B_CODE	NOT NULL	NUMBER(10)
B_LOC		VARCHAR2(20)
MANAGER		VARCHAR2(20)

```

CREATE TABLE Cust2 (
    c_id NUMBER(10) PRIMARY KEY,
    c_name VARCHAR2(20),
    c_age NUMBER(10),
    b_code NUMBER(10),
    CONSTRAINT fk_branch FOREIGN KEY (b_code) REFERENCES Branch(b_code)
);

```

```
SQL> DESC CUST2;
```

Name	Null?	Type
C_ID	NOT NULL	NUMBER(10)
C_NAME		VARCHAR2(20)
C_AGE		NUMBER(10)
B_CODE		NUMBER(10)

2. Insert Records

```
INSERT INTO Branch VALUES (1001, 'Chennai', 'Shree');
```

```
INSERT INTO Branch VALUES (1002, 'Tambaram', 'Raja');
```

```
INSERT INTO Branch VALUES (1003, 'Chengalpat', 'Uday');
```

```
INSERT INTO Branch VALUES (1004, 'Bangalore', 'Abii');
```

```
SQL> SELECT*FROM BRANCH;
```

B_CODE	B_LOC	MANAGER
1001	Chennai	Shree
1002	Tambaram	Raja
1003	Chengalpat	Uday
1004	Bangalore	Abii

```
INSERT INTO Cust2 VALUES (11, 'Ramesh', 19, 1001);
```

```
INSERT INTO Cust2 VALUES (13, 'Kiran', 25, 1001);
```

```
INSERT INTO Cust2 VALUES (14, 'Kannan', 25, 1002);
```

```
INSERT INTO Cust2 VALUES (15, 'Vino', 24, 1003);
```

```
SQL> SELECT*FROM CUST2;
```

C_ID	C_NAME	C_AGE	B_CODE
11	Ramesh	19	1001
13	Kiran	25	1001
14	Kannan	25	1002
15	Vino	24	1003

NESTED QUERIES

a. Simple Subquery

```
SELECT c_name
FROM Cust2
WHERE c_age = (SELECT c_age FROM Cust2 WHERE c_id = 15);
```

C_NAME

Vino

b. Subquery Returning Multiple Values

```
SELECT c_name, c_age, c_id
FROM Cust2
WHERE c_age < ANY (SELECT c_age FROM Cust2 WHERE c_id >= 14);
```

C_NAME	C_AGE	C_ID
--------	-------	------

Ramesh	19	11
--------	----	----

Vino	24	15
------	----	----

c. Multiple Subqueries

```
SELECT b_code, c_age, c_id
FROM Cust2
WHERE c_age = ANY (
```

```

SELECT c_age FROM Cust2
WHERE c_id = (
    SELECT c_id FROM Cust2 WHERE c_name = 'Vino'
)
);

```

B_CODE	C_AGE	C_ID
1003	24	15

d. Correlated Subquery

```

SELECT c_name, c_age, c_id
FROM Cust2 c
WHERE c_age = ANY
( SELECT c2.c_age
  FROM Cust2 c2, Branch b
  WHERE b.b_code = c2.b_code
);

```

C_NAME	C_AGE	C_ID
Ramesh	19	11
Kiran	25	13
Kannan	25	14
Vino	24	15

JOINS

a. Simple (Equi) Join

```
SELECT c.c_id, c.c_name, c.c_age, c.b_code,  
       b.b_loc, b.manager  
FROM Cust2 c  
JOIN Branch b ON c.b_code = b.b_code;
```

C_ID	C_NAME	C_AGE	B_CODE	B_LOC
11	Ramesh	19	1001	Chennai
Shree				
13	Kiran	25	1001	Chennai
Shree				
14	Kannan	25	1002	Tambaram
Raja				
15	Vino	24	1003	Chengalpat
Uday				

b. Outer Join

```
SELECT c.c_id, c.c_name, c.c_age, c.b_code,  
       b.b_loc, b.manager  
FROM Cust2 c
```

RIGHT OUTER JOIN Branch b ON c.b_code = b.b_code;

C_ID	C_NAME	C_AGE	B_CODE	B_LOC
------	--------	-------	--------	-------

MANAGER

11	Ramesh	19	1001	Chennai
----	--------	----	------	---------

Shree

13	Kiran	25	1001	Chennai
----	-------	----	------	---------

Shree

14	Kannan	25	1002	Tambaram
----	--------	----	------	----------

Raja

15	Vino	24	1003	Chengalpat
----	------	----	------	------------

Uday

Bangalore

Abii

c. Left Outer Join (Alternative Example)

SELECT c.c_id, c.c_name, c.c_age, c.b_code,

b.b_loc, b.manager

FROM Cust2 c

LEFT OUTER JOIN Branch b ON c.b_code = b.b_code;

C_ID	C_NAME	C_AGE	B_CODE	B_LOC
------	--------	-------	--------	-------

MANAGER

11	Ramesh	19	1001	Chennai
----	--------	----	------	---------

Shree

13	Kiran	25	1001	Chennai
----	-------	----	------	---------

Shree\

14	Kannan	25	1002	Tambaram
----	--------	----	------	----------

Raja

15	Vino	24	1003	Chengalpat
----	------	----	------	------------

Uday

e. Self Join

```
SELECT a.c_id AS Customer_ID, a.c_name AS Customer_Name,
```

```
       b.c_id AS Ref_ID, b.c_name AS Ref_Name
```

```
FROM Cust2 a, Cust2 b
```

```
WHERE a.b_code = b.b_code AND a.c_id > 13;
```

CUSTOMER_ID	CUSTOMER_NAME	REF_ID	REF_NAME
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14	Kannan	14	Kannan
----	--------	----	--------

15	Vino	15	Vino
----	------	----	------

RESULT:- The queries are executed successfully