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Experiment No.	**4**
Aim	**Data retrieval using subqueries.**
Problem Statement	Nested queries using 'where>', '>some', '>any', 'all', '=', 'in', 'notin'.
Commands	

Donor Table.

```
mysql> Select * from Donor;
+-----+-----------+-----------+------------+-------------------------------+-----------+-----+--------------+
| id  | firstname | lastname  | contact    | email                         | bloodgroup| Age | healthstatus |
+-----+-----------+-----------+------------+-------------------------------+-----------+-----+--------------+
| 101 | Sujal     | Dingankar | 7798802841 | sujal.dingankar@spit.ac.in    | O+        |  20 | Healthy      |
| 102 | Shreeya   | Nemade    | 7698231082 | shreeya.nemade@spit.ac.in     | A+        |  19 | Healthy      |
| 103 | Harsha    | Surwase   | 5612798561 | harsha.surwase@spit.ac.in     | B+        |  21 | Healthy      |
| 104 | Avi       | Patil     | 1234598745 | avinash.patil@spit.ac.in      | AB+       |  18 | Healthy      |
| 105 | Shruti    | Bhuvad    | 455612345  | shruti.bhuvad@spit.ac.in      | A+        |  22 | Healthy      |
+-----+-----------+-----------+------------+-------------------------------+-----------+-----+--------------+
5 rows in set (0.00 sec)
```

Donne Table.

```
mysql> Select * from Donne;
+-----+------------+----------+------------+-----------------------------+-----------+--------------+------------+--------------+
| id  | firstname  | lastname | contact    | email                       | bloodgroup| healthstatus | request_id | request_date |
+-----+------------+----------+------------+-----------------------------+-----------+--------------+------------+--------------+
| 101 | Shubham    | Bhuvad   | 7798521123 | shubham.bhuvad@spit.ac.in   | A+        | Healthy      | R001       | 2024-10-05   |
| 102 | Sanjay     | Kadam    | 4568912345 | sanjay.bhuvad@spit.ac.in    | AB+       | Healthy      | R002       | 2024-10-06   |
| 103 | Harshvardan| Nemade   | 777894561  | harshavardan.nemade@spit.ac.in | O+     | Healthy      | R003       | 2024-10-14   |
| 104 | Soham      | Bhojane  | 564781234  | soham.bhojane@spit.ac.in    | A+        | Healthy      | R004       | 2024-10-20   |
+-----+------------+----------+------------+-----------------------------+-----------+--------------+------------+--------------+
4 rows in set (0.00 sec)
```

Blood Table.

```
mysql> Select * from Blood;
+-----+-----------+----------+-------------+-------------+
| id  | bloodgroup| quantity | expiry_date | bloodStatus |
+-----+-----------+----------+-------------+-------------+
| 101 | A+        |       50 | 2024-10-13  | Available   |
| 102 | B+        |      100 | 2024-10-09  | Available   |
| 103 | AB+       |      150 | 2024-10-15  | Expired     |
| 104 | O+        |      170 | 2024-10-20  | Available   |
| 105 | A+        |       60 | 2024-10-14  | Available   |
+-----+-----------+----------+-------------+-------------+
5 rows in set (0.00 sec)
```

Blood_Donation Table

```
mysql> Select * from blood_donation;
+-----+----------+----------+----------+---------------+--------------+
| id  | donar_id | blood_id | donee_id | donation_date | receive_date |
+-----+----------+----------+----------+---------------+--------------+
|   1 |      101 |      101 |      101 | 2024-10-01    | 2024-10-05   |
|   2 |      102 |      102 |     NULL | 2024-10-15    | NULL         |
|   3 |      103 |      103 |     NULL | 2024-10-20    | NULL         |
|   4 |      104 |      104 |      104 | 2024-10-16    | 2024-10-12   |
+-----+----------+----------+----------+---------------+--------------+
4 rows in set (0.00 sec)
```

```
mysql> SELECT firstname, lastname
    -> FROM Donor
    -> WHERE id IN (
    ->     SELECT donar_id
    ->     FROM blood_donation
    ->     WHERE donee_id IS NOT NULL
    -> );
+-----------+-----------+
| firstname | lastname  |
+-----------+-----------+
| Sujal     | Dingankar |
| Avi       | Patil     |
+-----------+-----------+
2 rows in set (0.00 sec)
```

This query retrieves the first and last names of donors who have made blood donations to a recipient.

```
mysql> SELECT *
    -> FROM Donor
    -> WHERE bloodgroup NOT IN (
    ->     SELECT bloodgroup
    ->     FROM Donne
    -> );
+-----+-----------+----------+------------+------------------------+-----------+-----+-------------+
| id  | firstname | lastname | contact    | email                  | bloodgroup | Age | healthstatus |
+-----+-----------+----------+------------+------------------------+-----------+-----+-------------+
| 103 | Harsha    | Surwase  | 5612798561 | harsha.surwase@spit.ac.in | B+      |  21 | Healthy     |
+-----+-----------+----------+------------+------------------------+-----------+-----+-------------+
1 row in set (0.00 sec)
```

This query retrieves the details of donors whose blood group does not match any blood group from the `Donne` table.

```
mysql> SELECT *
    -> FROM Donor
    -> WHERE bloodgroup IN (
    ->     SELECT bloodgroup
    ->     FROM Donne
    -> );
+-----+-----------+-----------+------------+---------------------------+-----------+-----+-------------+
| id  | firstname | lastname  | contact    | email                     | bloodgroup | Age | healthstatus |
+-----+-----------+-----------+------------+---------------------------+-----------+-----+-------------+
| 101 | Sujal     | Dingankar | 7798802841 | sujal.dingankar@spit.ac.in | O+        |  20 | Healthy     |
| 102 | Shreeya   | Nemade    | 7698231082 | shreeya.nemade@spit.ac.in  | A+        |  19 | Healthy     |
| 104 | Avi       | Patil     | 1234598745 | avinash.patil@spit.ac.in   | AB+       |  18 | Healthy     |
| 105 | Shruti    | Bhuvad    | 455612345  | shruti.bhuvad@spit.ac.in   | A+        |  22 | Healthy     |
+-----+-----------+-----------+------------+---------------------------+-----------+-----+-------------+
4 rows in set (0.00 sec)
```

This query retrieves the details of donors whose blood group matches any blood group from the `Donne` table.

```
mysql> SELECT *
    -> FROM Donor
    -> WHERE id IN (
    ->     SELECT donar_id
    ->     FROM blood_donation
    ->     WHERE blood_id IN (
    ->         SELECT id
    ->         FROM Blood
    ->         WHERE quantity >= 90
    ->     )
    -> );
+-----+-----------+----------+------------+---------------------------+-----------+-----+-------------+
| id  | firstname | lastname | contact    | email                     | bloodgroup | Age | healthstatus |
+-----+-----------+----------+------------+---------------------------+-----------+-----+-------------+
| 102 | Shreeya   | Nemade   | 7698231082 | shreeya.nemade@spit.ac.in  | A+        |  19 | Healthy     |
| 103 | Harsha    | Surwase  | 5612798561 | harsha.surwase@spit.ac.in  | B+        |  21 | Healthy     |
| 104 | Avi       | Patil    | 1234598745 | avinash.patil@spit.ac.in   | AB+       |  18 | Healthy     |
+-----+-----------+----------+------------+---------------------------+-----------+-----+-------------+
3 rows in set (0.00 sec)
```

This query retrieves the details of donors who have donated blood with a blood quantity of 90 or more units. It uses nested subqueries to first find the blood donations where the blood quantity is at least 90, and then matches those donations to the respective donors.

```
mysql> Select * from Donor;
+-----+-----------+----------+------------+-----------------------------+------------+------+--------------+
| id  | firstname | lastname | contact    | email                       | bloodgroup | Age  | healthstatus |
+-----+-----------+----------+------------+-----------------------------+------------+------+--------------+
| 101 | Sujal     | Dingankar| 7798802841 | sujal.dingankar@spit.ac.in  | O+         |   20 | Healthy      |
| 102 | Shreeya   | Nemade   | 7698231082 | shreeya.nemade@spit.ac.in   | A+         |   19 | Healthy      |
| 103 | Harsha    | Surwase  | 5612798561 | harsha.surwase@spit.ac.in   | B+         |   21 | Healthy      |
| 104 | Avi       | Patil    | 1234598745 | avinash.patil@spit.ac.in    | AB+        |   18 | Healthy      |
| 105 | Shruti    | Bhuvad   | 455612345  | shruti.bhuvad@spit.ac.in    | A+         |   22 | Healthy      |
| 106 | John      | Doe      | 7894561230 | john.doe@example.com        | O+         |   25 | Healthy      |
| 107 | Jane      | Smith    | 7894567890 | jane.smith@example.com      | O+         |   30 | Healthy      |
| 108 | Mark      | Taylor   | 7894563456 | mark.taylor@example.com     | O+         |   19 | Healthy      |
| 109 | Lucy      | Brown    | 7894569876 | lucy.brown@example.com      | A+         |   35 | Healthy      |
+-----+-----------+----------+------------+-----------------------------+------------+------+--------------+
9 rows in set (0.00 sec)
```

This above is Donor Table..

ALL :

```
mysql> Select id,firstname, lastname from Donor
    -> where age > ALL (Select age FROM Donor WHERE Bloodgroup = 'O+');
+-----+-----------+----------+
| id  | firstname | lastname |
+-----+-----------+----------+
| 109 | Lucy      | Brown    |
+-----+-----------+----------+
1 row in set (0.00 sec)
```

ANY:

```
mysql> Select id,firstname, lastname from Donor
    -> where age > ANY (Select age FROM Donor WHERE Bloodgroup = 'O+');
+-----+-----------+----------+
| id  | firstname | lastname |
+-----+-----------+----------+
| 101 | Sujal     | Dingankar|
| 103 | Harsha    | Surwase  |
| 105 | Shruti    | Bhuvad   |
| 106 | John      | Doe      |
| 107 | Jane      | Smith    |
| 109 | Lucy      | Brown    |
+-----+-----------+----------+
6 rows in set (0.00 sec)
```

SOME:

```
mysql> Select id,firstname, lastname from Donor
    -> where age > SOME (Select age FROM Donor WHERE Bloodgroup = 'O+');
+-----+-----------+----------+
| id  | firstname | lastname |
+-----+-----------+----------+
| 101 | Sujal     | Dingankar|
| 103 | Harsha    | Surwase  |
| 105 | Shruti    | Bhuvad   |
| 106 | John      | Doe      |
| 107 | Jane      | Smith    |
| 109 | Lucy      | Brown    |
+-----+-----------+----------+
6 rows in set (0.00 sec)
```

Conclusion	From this experiment I learnt to implement subqueries in MySql