



Bhartiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

NAME:	Vaishnavi Borkar, Utsav Avaiya, Deepanshu Aggarwal
UID:	2021300016, 2021300005, 2021300002
SUBJECT	DBMS (Database Management System)
EXPERIMENT NO :	Experiment 5
DATE OF PERFORMANCE	5/11/22
DATE OF SUBMISSION:	12/11/22
AIM:	To study queries or commands related to Subqueries in the where clause.
THEORY:	<p>A Subquery or Inner query or a Nested query is a query within another SQL query and embedded within the WHERE clause. A subquery is used to return data that will be used in the main query as a condition to further restrict the data to be retrieved. Subqueries can be used with the SELECT, INSERT, UPDATE, and DELETE statements along with the operators like =, <, >, >=, <=, IN, BETWEEN, etc.</p> <p>The basic syntax is as follows –</p> <pre>SELECT column_name [, column_name] FROM table1 [, table2] WHERE column_name OPERATOR (SELECT column_name [, column_name] FROM table1 [, table2] [WHERE])</pre>



Bhartiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

**SQL QUERIES/
COMMANDS:**

The sub-queries are as follows:

1) WHERE + > :

```
SELECT * FROM FACULTY  
WHERE SALARY >  
(SELECT AVG(SALARY) FROM FACULTY);
```

2) WHERE + < :

```
SELECT * FROM FACULTY  
WHERE AGE <  
(SELECT AVG(AGE) FROM FACULTY);
```

3) WHERE + = :

```
SELECT * FROM FACULTY  
WHERE AGE = (SELECT MIN(AGE) FROM  
FACULTY);
```

4) WHERE + IN :

```
SELECT * FROM FACULTY  
WHERE F_ID IN  
(SELECT F_ID FROM TAUGHT_BY);
```

5) WHERE + NOT IN :

```
SELECT * FROM FACULTY WHERE F_ID NOT IN  
(SELECT F_ID FROM FACULTY WHERE  
SALARY > 64000);
```



Bhartiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

RESULT:

Modified faculty table:

```
mysql> select * from faculty;
```

F_id	Subject	Name	age	salary
1	MATHEMATICS	GAJENDRA PUROHIT	50	100000
2	PHYSICS	AMAN AGGARWAL	35	85000
3	CHEMISTRY	RONAK PATEL	40	90000
4	MATHEMATICS	NEHA AGRAWAL	30	70000
5	SCIENCE	ALAKH PANDEY	36	120000
6	ZOOLOGY	SAKSHI PANDEY	29	50000
7	BOTANY	POONAM RAWAT	29	38000
8	ZOOLOGY ADV	ANKIT SHARMA	48	55000
9	BOTANY ADV	POOJA MATRE	41	80000
10	ENG MATHEMATICS	VAISHNAVI BORKAR	58	46000
11	ENG PHYSICS	UTSAV AVAIYA	28	82000
12	COMP PROGRAMMING	DEEPANSHU AGGARWAL	24	96000

```
12 rows in set (0.00 sec)
```

Modified taught_by table:

```
mysql> select * from taught_by;
```

Course_Code	F_id
1011	9
1011	12
1013	2
1011	4
1014	6
1015	7
1011	10

```
7 rows in set (0.01 sec)
```



Bhartiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

1)

```
mysql> select * from faculty where salary > (select avg(salary) from faculty);
```

F_id	Subject	Name	age	salary
1	MATHEMATICS	GAJENDRA PUROHIT	50	100000
2	PHYSICS	AMAN AGGARWAL	35	85000
3	CHEMISTRY	RONAK PATEL	40	90000
5	SCIENCE	ALAKH PANDEY	36	120000
9	BOTANY ADV	POOJA MATRE	41	80000
11	ENG PHYSICS	UTSAV AVAIYA	28	82000
12	COMP PROGRAMMING	DEEPANSHU AGGARWAL	24	96000

```
7 rows in set (0.01 sec)
```

```
mysql> select avg(salary) from faculty;
```

avg(salary)
76000.0000

```
1 row in set (0.00 sec)
```

2)

```
mysql> select * from faculty where age < (select avg(age) from faculty);
```

F_id	Subject	Name	age	salary
2	PHYSICS	AMAN AGGARWAL	35	85000
4	MATHEMATICS	NEHA AGRAWAL	30	70000
5	SCIENCE	ALAKH PANDEY	36	120000
6	ZOOLOGY	SAKSHI PANDEY	29	50000
7	BOTANY	POONAM RAWAT	29	38000
11	ENG PHYSICS	UTSAV AVAIYA	28	82000
12	COMP PROGRAMMING	DEEPANSHU AGGARWAL	24	96000

```
7 rows in set (0.00 sec)
```

```
mysql> (select avg(age) from faculty);
```

avg(age)
37.3333

```
1 row in set (0.00 sec)
```



3)

```
mysql> SELECT * FROM FACULTY
-> WHERE AGE=(SELECT MIN(AGE) FROM FACULTY);
+-----+-----+-----+-----+-----+
| F_id | Subject          | Name              | age | salary |
+-----+-----+-----+-----+-----+
| 12   | COMP PROGRAMMING | DEEPANSHU AGGARWAL | 24  | 96000  |
+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)
```

```
mysql> SELECT MIN(AGE) FROM FACULTY;
+-----+
| MIN(AGE) |
+-----+
| 24       |
+-----+
1 row in set (0.00 sec)
```

4)

```
mysql> select * from faculty where f_id in (select f_id from taught_by);
+-----+-----+-----+-----+-----+
| F_id | Subject          | Name              | age | salary |
+-----+-----+-----+-----+-----+
| 2    | PHYSICS          | AMAN AGGARWAL    | 35  | 85000  |
| 4    | MATHEMATICS      | NEHA AGRAWAL     | 30  | 70000  |
| 6    | ZOOLOGY          | SAKSHI PANDEY    | 29  | 50000  |
| 7    | BOTANY           | POONAM RAWAT     | 29  | 38000  |
| 9    | BOTANY ADV       | POOJA MATRE      | 41  | 80000  |
| 10   | ENG MATHEMATICS  | VAISHNAVI BORKAR | 58  | 46000  |
| 12   | COMP PROGRAMMING | DEEPANSHU AGGARWAL | 24  | 96000  |
+-----+-----+-----+-----+-----+
7 rows in set (0.01 sec)
```



Bhartiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

```
mysql> select f_id from taught_by;
+-----+
| f_id |
+-----+
| 2 |
| 4 |
| 6 |
| 7 |
| 9 |
| 10 |
| 12 |
+-----+
7 rows in set (0.00 sec)
```

5)

```
mysql> select * from faculty where f_id not in (select f_id from faculty where salary> 64000);
+-----+-----+-----+-----+-----+
| F_id | Subject | Name | age | salary |
+-----+-----+-----+-----+-----+
| 6 | ZOOLOGY | SAKSHI PANDEY | 29 | 50000 |
| 7 | BOTANY | POONAM RAWAT | 29 | 38000 |
| 8 | ZOOLOGY ADV | ANKIT SHARMA | 48 | 55000 |
| 10 | ENG MATHEMATICS | VAISHNAVI BORKAR | 58 | 46000 |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

```
mysql> select f_id from faculty where salary>64000;
+-----+
| f_id |
+-----+
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 9 |
| 11 |
| 12 |
+-----+
8 rows in set (0.00 sec)
```

CONCLUSION:

By performing the experiment, I understood the implementation of subqueries in WHERE clause with > ,<, =, IN and NOT IN.