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Class / Branch:SE(IT)
Subject: SQL Lab
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Experiment No. 5

Aim:- To study and implement basic and complex SQL queries

Queries for SET Operator:

Q1: Display all the dept numbers available with the dept and emp tables avoiding duplicates.

Ans: SQL> select dept from emp union select deptno from dept;

DEPTNO
.....
1
2
30
40

```
mysql> select dept from emp union select deptno from dept;
+------+
| dept |
+------+
|    1 |
|    2 |
|   30 |
|   40 |
+------+
4 rows in set (0.00 sec)
```

Q2: Display all the dept numbers available with the dept and emp tables.

Ans: SQL> select dept from emp union all select deptno from dept;

DEPTNO

1
2
2
1
12
1
2
30
40

9 rows selected.

```
mysql> select dept from emp union all select deptno from dept;
+------+
| dept |
+------+
|    1 |
|    2 |
|    2 |
|    1 |
|    1 |
|    2 |
|   30 |
|   40 |
+------+
8 rows in set (0.00 sec)
```

Q3: **Display all the dept numbers available in emp and not in dept tables and vice versa.**

Ans:

SQL> select dept from emp minus select deptno from dept;

DEPTNO

12

SQL> select dept from dept minus select deptno from emp;

DEPTNO

30
40

e) Queries for JOINS:

Tables used

SQL> select * from emp;

EMPNO	ENAME	JOB	DEPTNO	SAL
1	Mathi	AP	1	10000
2	Arjun	ASP	2	12000
3	Gugan	ASP	2	20000
4	Karthik	AP	1	15000

SQL> select * from dept;

DEPTNO	DNAME	LOC
1	ACCOUNTING	NEW YORK
2	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

```
mysql> select* from emp;
+-------+---------+------+------+-------+
| empno | ename   | job  | dept | sal   |
+-------+---------+------+------+-------+
|     1 | Mathi   | AP   |    1 | 10000 |
|     2 | Arjun   | ASP  |    2 | 12000 |
|     3 | Gugan   | ASP  |    2 | 20000 |
|     4 | Karthik | AP   |    1 | 15000 |
+-------+---------+------+------+-------+
4 rows in set (0.00 sec)

mysql> select* from dept;
+--------+------------+----------+
| deptno | dName      | Loc      |
+--------+------------+----------+
|      1 | ACCOUNTING | NEW YORK |
|      2 | RESEARCH   | DALLAS   |
|     30 | SALES      | CHICAGO  |
|     40 | OPERATIONS | BOSTON   |
+--------+------------+----------+
4 rows in set (0.00 sec)

mysql>
```

EQUI-JOIN

Q1: Display the employee details, departments that the departments are same in both the emp and dept.

Ans:

SQL> select * from emp,dept
where emp.dept=dept.deptno;

EMPNO	ENAME	JOB	DEPTNO	SAL	DEPTNO	DNAME	LOC
1	Mathi	AP	1	10000	1	ACC	NEW YORK
2	Arjun	ASP	2	12000	2	RESEARCH	DALLAS
3	Gugan	ASP	2	20000	2	RESEARCH	DALLAS
4	Karthik	AP	1	15000	1	ACC	NEW YORK

```
mysql> select* from emp, dept where emp.dept=dept.deptno;
+-------+---------+------+------+-------+--------+------------+----------+
| empno | ename   | job  | dept | sal   | deptno | dName      | Loc      |
+-------+---------+------+------+-------+--------+------------+----------+
|     1 | Mathi   | AP   |    1 | 10000 |      1 | ACCOUNTING | NEW YORK |
|     4 | Karthik | AP   |    1 | 15000 |      1 | ACCOUNTING | NEW YORK |
|     2 | Arjun   | ASP  |    2 | 12000 |      2 | RESEARCH   | DALLAS   |
|     3 | Gugan   | ASP  |    2 | 20000 |      2 | RESEARCH   | DALLAS   |
+-------+---------+------+------+-------+--------+------------+----------+
4 rows in set (0.00 sec)
```

NON-EQUIJOIN

Q2: Display the employee details, departments that the departments are ame in both the emp and dept.

Ans:

SQL> select * from emp,dept where emp.dept!=dept.deptno;

EMPNO	ENAME	JOB	DEPTNO	SALARY	DEPTNO	DNAME	LOC
2	Arjun	ASP	2	12000	1	ACCOUNTING	NEW YORK
3	Gugan	ASP	2	20000	1	ACCOUNTING	NEW YORK
1	Mathi	AP	1	10000	2	RESEARCH	DALLAS
4	Karthik	AP	1	15000	1	ACCOUNTING	NEW YORK

```
mysql> select* from emp, dept where emp.dept=dept.deptno;
+-------+---------+------+------+-------+--------+------------+----------+
| empno | ename   | job  | dept | sal   | deptno | dName      | Loc      |
+-------+---------+------+------+-------+--------+------------+----------+
|     1 | Mathi   | AP   |    1 | 10000 |      1 | ACCOUNTING | NEW YORK |
|     4 | Karthik | AP   |    1 | 15000 |      1 | ACCOUNTING | NEW YORK |
|     2 | Arjun   | ASP  |    2 | 12000 |      2 | RESEARCH   | DALLAS   |
|     3 | Gugan   | ASP  |    2 | 20000 |      2 | RESEARCH   | DALLAS   |
+-------+---------+------+------+-------+--------+------------+----------+
4 rows in set (0.00 sec)
```

LEFTOUT-JOIN

Tables used

SQL> select * from stud1;

Regno	Name	Mark2	Mark3	Result
101	john	89	80	pass
102	Raja	70	80	pass
103	Sharin	70	90	pass
104	sam	90	95	pass

SQL> select * from stud2;

NAME	GRA
john	s

raj s
sam a
sharin a

```
mysql> select* from stud1;
+-------+--------+-------+-------+--------+
| Regno | Name   | Mark2 | Mark3 | Result |
+-------+--------+-------+-------+--------+
|   101 | john   |    89 |    80 | pass   |
|   102 | Raja   |    70 |    80 | pass   |
|   103 | Sharin |    70 |    90 | pass   |
|   104 | sam    |    90 |    95 | pass   |
+-------+--------+-------+-------+--------+
4 rows in set (0.00 sec)

mysql> select* from stud2;
+--------+------+
| NAME   | GRA  |
+--------+------+
| john   | s    |
| Raja   | s    |
| sam    | a    |
| Sharin | a    |
+--------+------+
4 rows in set (0.00 sec)
```

Q3: Display the Student name and grade by implementing a left outer join.

SQL> select stud1.name, GRA from stud3 left join stud1 on stud1.Name=stud3.Name;

Name	Gra
john	s
Raja	s
sam	a
Sharin	a

```
mysql> select stud1.Name, GRA from stud3 left join stud1 on stud1.Name=stud3.Nam
e;
+--------+------+
| Name   | GRA  |
+--------+------+
| john   | s    |
| Raja   | s    |
| sam    | a    |
| Sharin | a    |
+--------+------+
4 rows in set (0.01 sec)
```

RIGHTOUTER-JOIN

Q4: Display the Student name, register no, and result by implementing a right outer join.

Ans:

SQL> select stud1.Name, Regno, Result from stud1 right join stud3 on stud1.name = stud3.name;

Name	Regno	Result
john	101	pass
raj	102	pass
sam	103	pass
sharin	104	pass

```
mysql> select stud1.Name, Regno, Result from stud1 right join stud3 on stud1.Nam
e=stud3.Name;
+--------+-------+--------+
| Name   | Regno | Result |
+--------+-------+--------+
| john   |   101 | pass   |
| Raja   |   102 | pass   |
| sam    |   104 | pass   |
| Sharin |   103 | pass   |
+--------+-------+--------+
4 rows in set (0.00 sec)
```

FULLOUTER-JOIN

Q5: Display the Student name register no by implementing a full outer join.

Ans:

SQL> select stud1.name, regno from stud1 full outer join stud2 on (stud1.name= stud2.name);

Name	Regno
john	101
raj	102
sam	103
sharin	104

SELFJOIN

Q6: Write a query to display their employee names.

Ans:

SQL> select distinct ename from emp x, dept y where x.deptno=y.deptno;

ENAME

.....

Arjun
Gugan

```
mysql> select distinct ename from emp x, dept y where x.dept=y.deptno;
+---------+
| ename   |
+---------+
| Mathi   |
| Karthik |
| Arjun   |
| Gugan   |
+---------+
4 rows in set (0.00 sec)
```

Karthik
Mathi

Q7: Display the details of those who draw the salary greater than the average salary.
Ans:

SQL> select distinct * from emp x where x.sal >= (select avg(sal) from emp);

EMPNO	ENAME	JOB	DEPTNO	SAL
3	Gugan	ASP	2	20000
4	Karthik	AP	1	15000

```
mysql> select distinct* from emp x where x.sal>=(select avg(sal) from emp);
+-------+---------+------+------+-------+
| empno | ename   | job  | dept | sal   |
+-------+---------+------+------+-------+
|     3 | Gugan   | ASP  |    2 | 20000 |
|     4 | Karthik | AP   |    1 | 15000 |
+-------+---------+------+------+-------+
2 rows in set (0.00 sec)
```

```
mysql> select*from first union select*from second;
+------+-------+
| id   | name  |
+------+-------+
|    1 | Jash  |
|    2 | Harsh |
|    3 | Adam  |
+------+-------+
3 rows in set (0.00 sec)

mysql> select*from first union all select*from second;
+------+-------+
| id   | name  |
+------+-------+
|    1 | Jash  |
|    2 | Harsh |
|    2 | Harsh |
|    3 | Adam  |
+------+-------+
4 rows in set (0.00 sec)
```

```
mysql> select * from customers;
+------+-------+-------------+
| cid  | cname | cemail      |
+------+-------+-------------+
|    1 | alen  | ale@23.com  |
|    2 | adam  | ada@92.com  |
|    3 | arun  | ar18@23.com |
|    4 | aman  | am12@24.com |
+------+-------+-------------+
4 rows in set (0.00 sec)
```

```
mysql> select*from orders;
+------+------------+---------+------+
| oid  | odate      | oamount | cid  |
+------+------------+---------+------+
|    1 | 2021-09-20 |     205 |    1 |
|    2 | 2021-10-13 |     335 |    2 |
|    3 | 2021-08-14 |     334 |    3 |
|    4 | 2021-09-18 |     234 |    4 |
+------+------------+---------+------+
4 rows in set (0.00 sec)
```

```
mysql> select customers.cid,cemail from customers right join orders on customers
.cid=orders.cid;
+------+-------------+
| cid  | cemail      |
+------+-------------+
|    1 | ale@23.com  |
|    2 | ada@92.com  |
|    3 | ar18@23.com |
|    4 | am12@24.com |
+------+-------------+
4 rows in set (0.00 sec)
```

conclusion: In this experiment we studied different set operators like union,union all, minus, intersect and also join operator in three different such as inner join, right join,left join