

## Database Management Systems Lab CS691

### Assignments

1. Create the following tables:

a) Table Name: DEPT (representing Department)

Column Name	Data Type	Size	Constraints
Dno	Number	3	Primary key
Dname	Varchar	10	

```
mysql> create table DEPT
```

```
-> (Dno int(3) primary key,
```

```
-> Dname varchar(10));
```

Query OK, 0 rows affected, 1 warning (0.10 sec)

```
mysql> desc DEPT;
```

```
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Dno   | int           | NO   | PRI | NULL    |       |
| Dname | varchar(10)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+

  2 rows in set (0.06 sec)
```

b) Table Name: EMP (representing Employee)

Column Name	Data Type	Size	Constraints
Eno	Varchar	5	Primary key and first character must be 'E'
Ename	Varchar	10	Not null
City	Char	10	Cities allowed 'delhi','kolkata','chennai','mumbai'
Salary	Integer		
JoinDate	Date		
Dno	Number	3	Foreign key reference DEPT table

```
mysql> create table EMP(
```

```
-> Eno varchar(5) primary key check(Eno like 'E%'),
```

```
-> Ename varchar(10) not null,
```

```
-> City char(10) check(City in ('delhi','kolkata','chennai','mumbai')),
```

```
-> Salary int,
```

```
-> JoinDate int,
-> Dno int(3),
-> foreign key EMP(Dno) references DEPT(Dno));
```

Query OK, 0 rows affected, 1 warning (0.08 sec)

```
mysql> desc EMP;
```

```
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Eno        | varchar(5)    | NO   | PRI | NULL    |       |
| Ename      | varchar(10)   | NO   |     | NULL    |       |
| City       | char(10)      | YES  |     | NULL    |       |
| Salary     | int           | YES  |     | NULL    |       |
| JoinDate   | int           | YES  |     | NULL    |       |
| Dno        | int           | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+

  6 rows in set (0.00 sec)
```

c) Table Name: PROJECT (representing Project)

Column Name	Data Type	Size	Constraints
Pno	Varchar	5	Primary key and first character must be 'P'
Eno	Varchar	5	Primary key and foreign key reference EMP

```
mysql> create table PROJECT
```

```
-> (Pno varchar(5) primary key check(Pno like 'P%'),
-> Eno varchar(5),
-> foreign key PROJECT(Eno) references EMP(Eno));
```

Query OK, 0 rows affected (0.07 sec)

```
mysql> desc PROJECT;
```

```
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Pno   | varchar(5)    | NO   | PRI | NULL    |       |
| Eno   | varchar(5)    | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+

  2 rows in set (0.00 sec)
```

2.Insert the following data into the corresponding table:

a) Table: DEPT

<u>Dno</u>	Dname
1	research
2	finance

```
mysql> insert into DEPT values(1, 'reasearch');
```

Query OK, 1 row affected (0.03 sec)

```
mysql> insert into DEPT values(2, 'finance');
```

Query OK, 1 row affected (0.02 sec)

```
mysql> select * from DEPT;
```

```
+-----+-----+
| Dno | Dname      |
+-----+-----+
|  1  | reasearch  |
|  2  | finance    |
+-----+-----+
```

2 rows in set (0.01 sec)

b) Table: EMP

<u>Eno</u>	Ename	City	Salary	JoinDate	Dno
E1	ashim	kolkata	2. 18000	01-jan-14	1
E2	kamal	mumbai	10000	01-jun-14	2
E3	tamal	chennai	7000	01-jan-15	1
E4	asha	kolkata	8000	01-jun-15	2
E5	timir	delhi	7000	01-jan-16	1

```
mysql> insert into EMP values
```

```
-> ('E1','ashim','kolkata',18000,'2014-01-01',1),
-> ('E2','kamal','mumbai',10000,'2014-06-01',2),
-> ('E3','tamal','chennai',7000,'2015-01-01',1),
-> ('E4','asha','kolkata',8000,'2015-06-01',2),
-> ('E5','timir','delhi',7000,'2016-01-01',1);
```

Query OK, 5 rows affected (0.02 sec)

Records: 5 Duplicates: 0 Warnings: 0

```
mysql> select * from EMP;
```

```
+-----+-----+-----+-----+-----+-----+
| Eno | Ename | City    | Salary | JoinDate   | Dno |
+-----+-----+-----+-----+-----+-----+
| E1  | ashim | kolkata | 18000  | 2014-01-01 | 1   |
| E2  | kamal | mumbai  | 10000  | 2014-06-01 | 2   |
| E3  | tamal | chennai | 7000   | 2015-01-01 | 1   |
| E4  | asha  | kolkata | 8000   | 2015-06-01 | 2   |
| E5  | timir | delhi   | 7000   | 2016-01-01 | 1   |
+-----+-----+-----+-----+-----+-----+

      5 rows in set (0.01 sec)
```

c) Table: PROJECT

<u>Pno</u>	<u>Eno</u>
P1	E1
P2	E3
P1	E5
P2	E1

```
mysql> INSERT INTO PROJECT (Pno, Eno) VALUES ('P1', 'E1');
```

Query OK, 1 row affected (0.02 sec)

```
mysql> INSERT INTO PROJECT (Pno, Eno) VALUES ('P2', 'E3');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> INSERT INTO PROJECT (Pno, Eno) VALUES ('P1', 'E5');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> INSERT INTO PROJECT (Pno, Eno) VALUES ('P2', 'E1');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> SELECT * FROM PROJECT;
```

```
+-----+-----+
| Pno | Eno |
+-----+-----+
| P1  | E1  |
| P2  | E3  |
| P1  | E5  |
| P2  | E1  |
+-----+-----+
```

4 rows in set (0.00 sec)

3. Write SQL for following queries:

a. Display the structure of table EMP.

```
mysql> desc EMP;
```

Field	Type	Null	Key	Default	Extra
Eno	varchar(5)	NO	PRI	NULL	
Ename	varchar(10)	NO		NULL	
City	char(10)	YES		NULL	
Salary	int	YES		NULL	
JoinDate	date	YES		NULL	
Dno	int	YES	MUL	NULL	

6 rows in set (0.01 sec)

b) Modify the data type size of Ename to varchar 15.

```
mysql> alter table EMP modify Ename varchar (15);
```

Query OK, 0 rows affected (0.16 sec)

Records: 0 Duplicates: 0 Warnings: 0

c) Display the user constraints of table EMP.

```
mysql> SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE FROM INFORMATION_SCHEMA.TABLE_CONSTRAINTS  
WHERE TABLE_NAME='EMP';
```

CONSTRAINT_NAME	CONSTRAINT_TYPE
PRIMARY	PRIMARY KEY
emp_ibfk_1	FOREIGN KEY
emp_chk_1	CHECK
emp_chk_2	CHECK
PRIMARY	PRIMARY KEY
emp_ibfk_1	FOREIGN KEY
emp_chk_1	CHECK

emp_chk_2	CHECK
PRIMARY	PRIMARY KEY
emp_ibfk_1	FOREIGN KEY
emp_chk_1	CHECK
emp_chk_2	CHECK

+-----+

12 rows in set (0.01 sec)

4.a) Add a new column Mobileno which is unique (candidate key) of table EMP.

```
mysql> alter table EMP add Mobileno int (10);
```

Query OK, 0 rows affected, 1 warning (0.05 sec)

Records: 0 Duplicates: 0 Warnings: 1

```
mysql> alter table EMP add CONSTRAINT unique_mobileno UNIQUE(Mobileno);
```

Query OK, 0 rows affected (0.07 sec)

Records: 0 Duplicates: 0 Warnings: 0

b) Add the constraint for Mobileno which is exactly of 10 digits.

```
mysql> alter table EMP
```

```
-> add CONSTRAINT chk_mobile_length CHECK(LENGTH(Mobileno)=10);
```

Query OK, 5 rows affected (0.13 sec)

Records: 5 Duplicates: 0 Warnings: 0

c) Drop all constraints of Mobileno.

```
mysql> alter table EMP
```

```
-> drop CONSTRAINT unique_mobileno;
```

Query OK, 0 rows affected (0.04 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> alter table EMP
```

```
-> drop CONSTRAINT chk_mobile_length;
```

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

d) Drop the column Mobileno of table EMP.

```
mysql> alter table EMP
```

```
-> drop COLUMN Mobileno;
```

Query OK, 0 rows affected (0.04 sec)

Records: 0 Duplicates: 0 Warnings: 0

5. a) Add a new column MgrId (representing ManagerId) of data size varchar 5 and MgrId values should reference from Eno of table EMP.

```
mysql> alter table EMP
```

```
-> add MgrId varchar(5);
```

Query OK, 0 rows affected (0.04 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> alter table EMP
```

```
-> add CONSTRAINT fk_mgr FOREIGN KEY (MgrId) REFERENCES EMP(Eno);
```

Query OK, 5 rows affected (0.14 sec)

Records: 5 Duplicates: 0 Warnings: 0

b) Update the table EMP with following MgrId values:

Eno	Ename	City	Salary	JoinDate	Dno	Mobileno	MgrId
E1	ashim	kolkata	18000	01-jan-14	1	9876543211	E1
E2	kamal	mumbai	10000	01-jun-14	2	9876543212	E2
E3	tamal	chennai	7000	01-jan-15	1	9876543213	E1
E4	asha	kolkata	8000	01-jun-15	2	9876543214	E2
E5	timir	delhi	7000	01-jan-16	1	9876543215	E1

```
mysql> alter table EMP add Mobileno varchar(10);
```

Query OK, 0 rows affected (0.04 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> UPDATE EMP
```

```
-> SET
```

```
-> Mobileno = CASE Eno
```

```
-> WHEN 'E1' THEN '9876543211'
```

```
-> WHEN 'E2' THEN '9876543212'
```

```
-> WHEN 'E3' THEN '9876543213'
```

```

->         WHEN 'E4' THEN '9876543214'
->         WHEN 'E5' THEN '9876543215'
->     END,
->     Mgrld = CASE Eno
->         WHEN 'E1' THEN 'E1'
->         WHEN 'E2' THEN 'E2'
->         WHEN 'E3' THEN 'E1'
->         WHEN 'E4' THEN 'E2'
->         WHEN 'E5' THEN 'E1'
->     END
-> WHERE Eno IN ('E1', 'E2', 'E3', 'E4', 'E5');

```

Query OK, 5 rows affected (0.02 sec)

Rows matched: 5 Changed: 5 Warnings: 0

```
mysql> select * from EMP;
```

Eno	Ename	City	Salary	JoinDate	Dno	Mgrld	Mobileno
E1	ashim	kolkata	18000	2014-01-01	1	E1	9876543211
E2	kamal	mumbai	10000	2014-06-01	2	E2	9876543212
E3	tamal	chennai	7000	2015-01-01	1	E1	9876543213
E4	asha	kolkata	8000	2015-06-01	2	E2	9876543214
E5	timir	delhi	7000	2016-01-01	1	E1	9876543215

5 rows in set (0.00 sec)

6. a) Display list of all employees in department no 2.

```
mysql> select * from EMP where Dno = 2;
```

Eno	Ename	City	Salary	JoinDate	Dno	Mgrld	Mobileno
E2	kamal	mumbai	10000	2014-06-01	2	E2	9876543212
E4	asha	kolkata	8000	2015-06-01	2	E2	9876543214



2 rows in set (0.00 sec)

b) Display name and salary of employees in department number 1 and 2.

```
mysql> select Ename, Salary from EMP where Dno IN(1,2);
```

Ename	Salary
ashim	18000
tamal	7000
timir	7000
kamal	10000
asha	8000

5 rows in set (0.00 sec)

c) Display name of employees having 'a' as the second letter in their name.

```
mysql> select Ename from EMP where Ename LIKE '_a%';
```

Ename
kamal
tamal

2 rows in set (0.01 sec)

d) Display list of all employees who have name exactly 4 characters.

```
mysql> select * from EMP where LENGTH(Ename)=4;
```

Eno	Ename	City	Salary	JoinDate	Dno	Mgrld	Mobileno
E4	asha	kolkata	8000	2015-06-01	2	E2	9876543214

1 row in set (0.00 sec)

e) Display employee names and department no for those who joined in the month of June.

```
mysql> select Ename, JoinDate from EMP where JoinDate LIKE '%06%';
```

```
+-----+-----+
| Ename | JoinDate |
+-----+-----+
| kamal | 2014-06-01 |
| asha  | 2015-06-01 |
+-----+-----+
2 rows in set (0.00 sec)
```

f) Display the list of all employees who were joined during 2015.

```
mysql> select * from EMP where year(JoinDate)=2015;
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+
| Eno | Ename | City    | Salary | JoinDate | Dno | Mgrld | Mobileno |
+-----+-----+-----+-----+-----+-----+-----+-----+
| E3  | tamal | chennai | 7000   | 2015-01-01 | 1   | E1    | 9876543213 |
| E4  | asha  | kolkata | 8000   | 2015-06-01 | 2   | E2    | 9876543214 |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

g) Display the joining date of all employees in dd/mm/yy format.

```
mysql> select Ename, date_format(JoinDate, '%d/%m/%y') as formatted_join_date
-> from EMP;
```

```
+-----+-----+
| Ename | formatted_join_date |
+-----+-----+
| ashim | 01/01/14            |
| kamal | 01/06/14            |
| tamal | 01/01/15            |
| asha  | 01/06/15            |
| timir | 01/01/16            |
+-----+-----+
5 rows in set (0.01 sec)
```

7. a) Display names of all employees in the alphabetic order.

```
mysql> select Ename from EMP order by Ename ASC;
```

```
+-----+
```

```
| Ename |
```

```
+-----+
```

```
| asha  |
```

```
| ashim |
```

```
| kamal |
```

```
| tamal |
```

```
| timir |
```

```
+-----+
```

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

b) List the name and the salary of all employee sorted by salary descending order.

```
mysql> select Ename,Salary from EMP order by Salary DESC;
```

```
+-----+-----+
```

```
| Ename | Salary |
```

```
+-----+-----+
```

```
| ashim | 18000 |
```

```
| kamal | 10000 |
```

```
| asha  | 8000  |
```

```
| tamal | 7000  |
```

```
| timir | 7000  |
```

```
+-----+-----+
```

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

c) List all the employee names whose salary is greater than 7000 and less than 18000.

```
mysql> select Ename from EMP where Salary > 7000 and Salary < 18000;
```

```
+-----+
```

```
| Ename |
```

```
+-----+
```

```
| kamal |
```

```
| asha  |
```

```
+-----+
```

2 rows in set (0.01 sec)

d) List of all employees who have salary between 7000 and 8000.

```
mysql> select Ename from EMP where Salary between 7000 and 8000;
```

```
+-----+
```

```
| Ename |
```

```
+-----+
```

```
| tamal |
```

```
| asha  |
```

```
| timir |
```

```
+-----+
```

3 rows in set (0.00 sec)

e) Display employee names and department nos of all employees who belong to either 'chennai', or 'kolkata', or 'mumbai'.

```
mysql> select Ename, Dno from EMP where City IN('chennai', 'kolkata', 'mumbai');
```

```
+-----+-----+
```

```
| Ename | Dno |
```

```
+-----+-----+
```

```
| ashim | 1 |
```

```
| kamal | 2 |
```

```
| tamal | 1 |
```

```
| asha  | 2 |
```

```
+-----+-----+
```

4 rows in set (0.00 sec)

8. a) Find the average salary of all employees.

```
mysql> select avg(Salary) as AvgSalary from EMP;
```

```
+-----+
```

```
| AvgSalary |
```

```
+-----+
```

```
| 10000.0000 |
```

```
+-----+
```

1 row in set (0.02 sec)

b) Find the difference between highest and lowest salary of employee.

```
mysql> select (max(Salary) - min(Salary)) as SalaryDifference from EMP;
```

```
+-----+
```

```
| SalaryDifference |
```

```
+-----+
```

```
|          11000 |
```

```
+-----+
```

```
1 row in set (0.01 sec)
```

c) Display the department no and no. of employees in each department.

```
mysql> select Dno, COUNT(Eno) as NumberOfEmployees from EMP group by Dno;
```

```
+-----+-----+
```

```
| Dno | NumberOfEmployees |
```

```
+-----+-----+
```

```
|  1 |           3 |
```

```
|  2 |           2 |
```

```
+-----+-----+
```

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

d) Display employee no, employee name and salary for employee with lowest salary.

```
mysql> select Eno, Ename, Salary from EMP where Salary = (select min(Salary)from EMP);
```

```
+-----+-----+-----+
```

```
| Eno | Ename | Salary |
```

```
+-----+-----+-----+
```

```
| E3 | tamal |  7000 |
```

```
| E5 | timir |  7000 |
```

```
+-----+-----+-----+
```

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

e) List only the names of all other employees who get the same salary as that of 'tamal'.

```
mysql> select Ename from EMP where Salary = (select Salary from EMP where Ename = 'tamal') and Ename <> 'tamal';
```

```

+-----+
| Ename |
+-----+
| timir |
+-----+
1 row in set (0.00 sec)

```

9. a) Find all department numbers that have more than two employees.

```

mysql> SELECT Dno
-> FROM EMP
-> GROUP BY Dno
-> HAVING COUNT(*) > 2;

```

```

+-----+
| Dno |
+-----+
| 1 |
+-----+
1 row in set (0.00 sec)

```

b) Display the names of all employees who engaged in two or more projects.

```

mysql> SELECT Ename
-> FROM EMP
-> WHERE Eno IN (
->     SELECT Eno
->     FROM PROJECT
->     GROUP BY Eno
->     HAVING COUNT(*) >= 2
-> );

```

```

+-----+
| Ename |
+-----+
| ashim |
+-----+
1 row in set (0.01 sec)

```

c) List no. of projects undertaken in the department 1.

```

mysql> SELECT COUNT(*)
-> FROM PROJECT P
-> JOIN EMP E ON P.Eno = E.Eno
-> WHERE E.Dno = 1;

```

```

+-----+
| COUNT(*) |
+-----+
| 4 |
+-----+
1 row in set (0.01 sec)

```

d) Display name and salary for all employees who are engaged with at least one project.

```
mysql> SELECT DISTINCT E.Ename, E.Salary
-> FROM EMP E
-> JOIN PROJECT P ON E.Eno = P.Eno;
+-----+-----+
| Ename | Salary |
+-----+-----+
| ashim | 18000  |
| tamal | 7000   |
| timir | 7000   |
+-----+-----+
3 rows in set (0.00 sec)
```

e) Display employee names and department names of all employees who belong to either

```
    'chennai',or 'kolkata', or 'mumbai'.
mysql> SELECT E.Ename, D.Dname
-> FROM EMP E
-> JOIN DEPT D ON E.Dno = D.Dno
-> WHERE E.City IN ('chennai', 'kolkata', 'mumbai');
+-----+-----+
| Ename | Dname   |
+-----+-----+
| ashim | research|
| kamal | finance |
| tamal | research|
| asha  | finance |
+-----+-----+
4 rows in set (0.01 sec)
```

10. a) Display employee name who get the highest salary.

```
mysql> SELECT Ename
-> FROM EMP
-> WHERE Salary = (SELECT MAX(Salary) FROM EMP);
+-----+
| Ename |
+-----+
| ashim |
+-----+
1 row in set (0.00 sec)
```

b) Display employee name who get the 2<sup>ND</sup> highest salary.

```
mysql> select Ename from EMP where Salary = (select max(Salary) from EMP where
Salary < (select max(Salary) from EMP));
+-----+
| Ename |
```

```
+-----+
```

```
| kamal |
```

```
+-----+
```

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

c) Display department number having most number of employees.

```
mysql> select Dno from EMP group by Dno order by count(Eno) desc limit 1;
```

```
+-----+
```

```
| Dno |
```

```
+-----+
```

```
| 1 |
```

```
+-----+
```

```
1 row in set (0.01 sec)
```

d) Display employee name along with their manager name using self-join concept.

```
mysql> select e1.Ename Employee, e2.Ename Manager from EMP e1 join EMP e2 on  
e1.MgrId = e2.Eno;
```

```
+-----+-----+
```

```
| Employee | Manager |
```

```
+-----+-----+
```

```
| ashim    | ashim    |
```

```
| kamal    | kamal    |
```

```
| tamal    | ashim    |
```

```
| asha     | kamal    |
```

```
| timir    | ashim    |
```

```
+-----+-----+
```

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

e) Display employee name along with their department name using natural join and inner join.

using natural join:

```
mysql> select Ename, Dname from EMP natural join DEPT;
```

```
+-----+-----+
```

```
| Ename | Dname |
```

```
+-----+-----+
```

```
| ashim | research |
```

```
| kamal | finance |
```



```
| tamal | research |
| asha  | finance  |
| timir | research |
+-----+-----+
5 rows in set (0.01 sec)
```

using inner join:

```
mysql> select Ename, Dname from EMP inner join DEPT on EMP.Dno = DEPT.Dno;
```

```
+-----+-----+
| Ename | Dname  |
+-----+-----+
| ashim | research |
| kamal | finance |
| tamal | research |
| asha  | finance |
| timir | research |
+-----+-----+
5 rows in set (0.00 sec)
```

11. a) Create the following tables:

Table Name: STUDENT

Column Name	Data Type	Size	Constraints
Rollno	Number	3	Primary key
Sname	Varchar	10	

Table Name: PLACEMENT

Column Name	Data Type	Size	Constraints
Rollno	Number	3	Foreign key reference STUDENT
CompanyName	Varchar	10	
CampusDate	Date		

TABLE STUDENT:

```
mysql> create table Student (
-> Rollno int primary key,
-> Sname varchar(10)
-> );
Query OK, 0 rows affected (0.06 sec)
```

TABLE PLACEMENT:

```
mysql> create table Placement (
```

```

-> Rollno int,
-> CompanyName varchar(10),
-> CampusDate date,
-> foreign key(Rollno) references Student(Rollno) on delete set null);
Query OK, 0 rows affected (0.06 sec)

```

b) Insert the following data into the corresponding table:

Table: STUDENT

<u>Rollno</u>	Sname
1	Ram
2	Shyam
3	Rahim

Table: PLACEMENT

Rollno	CompanyName	CampusDate
1	TCS	10-Nov-19
1	CTS	20-Dec-19
2	TCS	10-Nov-19
3	CTS	20-Dec-19
	GOOGLE	26-Dec-19

TABLE STUDENT:

```

mysql> insert into Student values(1, 'Ram');
Query OK, 1 row affected (0.02 sec)

```

```

mysql> insert into Student values(2, 'Shyam');
Query OK, 1 row affected (0.01 sec)

```

```

mysql> insert into Student values(3, 'Rahim');
Query OK, 1 row affected (0.02 sec)

```

TABLE PLACEMENT:

```

mysql> insert into Placement values(1, 'TCS', '2019-11-10');
Query OK, 1 row affected (0.02 sec)

```

```

mysql> insert into Placement values(1, 'CTS', '2019-12-20');
Query OK, 1 row affected (0.02 sec)

```

```

mysql> insert into Placement values(2, 'TCS', '2019-11-10');
Query OK, 1 row affected (0.01 sec)

```

```

mysql> insert into Placement values(3, 'CTS', '2019-12-20');
Query OK, 1 row affected (0.02 sec)

```

```

mysql> insert into Placement(CompanyName, CampusDate) values('GOOGLE', '2019-12-26');
Query OK, 1 row affected (0.01 sec)

```

c) Display student rollno, sname, company name, campus date where they got job using left, right and full outer join on student and placement table having common attribute rollno.

USING LEFT JOIN:

```
mysql> select Student.Rollno, Student.Sname, Placement.CompanyName,
Placement.CampusDate from Student left join Placement on Student.Rollno =
Placement.Rollno;
```

Rollno	Sname	CompanyName	CampusDate
1	Ram	TCS	2019-11-10
1	Ram	CTS	2019-12-20
2	Shyam	TCS	2019-11-10
3	Rahim	CTS	2019-12-20

4 rows in set (0.00 sec)

USING RIGHT JOIN:

```
mysql> select Student.Rollno, Student.Sname, Placement.CompanyName,
Placement.CampusDate from Student right join Placement on Student.Rollno =
Placement.Rollno;
```

Rollno	Sname	CompanyName	CampusDate
1	Ram	TCS	2019-11-10
1	Ram	CTS	2019-12-20
2	Shyam	TCS	2019-11-10
3	Rahim	CTS	2019-12-20
NULL	NULL	GOOGLE	2019-12-26

5 rows in set (0.00 sec)

USING FULL OUTER JOIN:

```
mysql> SELECT Student.Rollno, Student.Sname, Placement.CompanyName,
Placement.CampusDate
-> FROM Student
-> LEFT JOIN Placement ON Student.Rollno = Placement.Rollno
-> UNION
-> SELECT Student.Rollno, Student.Sname, Placement.CompanyName,
Placement.CampusDate
-> FROM Placement
-> RIGHT JOIN Student ON Student.Rollno = Placement.Rollno;
```

Rollno	Sname	CompanyName	CampusDate
1	Ram	TCS	2019-11-10
1	Ram	CTS	2019-12-20
2	Shyam	TCS	2019-11-10
3	Rahim	CTS	2019-12-20

4 rows in set (0.00 sec)

12. a) Display name of employees whose either salary>=8000 or resides in city kolkata using union operation.

```
mysql> select Ename from EMP where Salary >= 8000
-> union
-> select Ename from EMP where City = 'kolkata';
+-----+
| Ename |
+-----+
| ashim |
| kamal |
| asha  |
+-----+
3 rows in set (0.00 sec)
```

b) Display name of employees whose salary>=8000 and resides in city kolkata using intersect operation.

```
mysql> select Ename from EMP where Salary >= 8000
-> intersect
-> select Ename from EMP where City = 'kolkata';
+-----+
| Ename |
+-----+
| ashim |
| asha  |
+-----+
2 rows in set (0.00 sec)
```