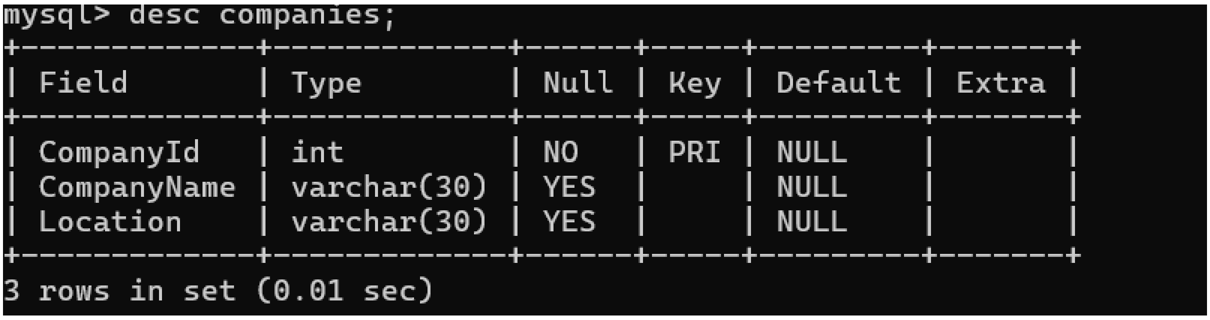
1. Table companies

create table companies(CompanyId integer(10),

-> CompanyName varchar(30),

-> Location varchar(30),

-> constraint companies_CompanyId_pk primary key (CompanyId));



```
mysql> desc companies;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| CompanyId   | int         | NO   | PRI | NULL    |       |
| CompanyName | varchar(30) | YES  |     | NULL    |       |
| Location    | varchar(30) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

2. Table Jobs

create table Jobs(JobId integer(10),

-> CompanyId integer(10),

-> JobTitle Varchar(20),

-> JobDescription Text(50),

-> JobLocation varchar(30),

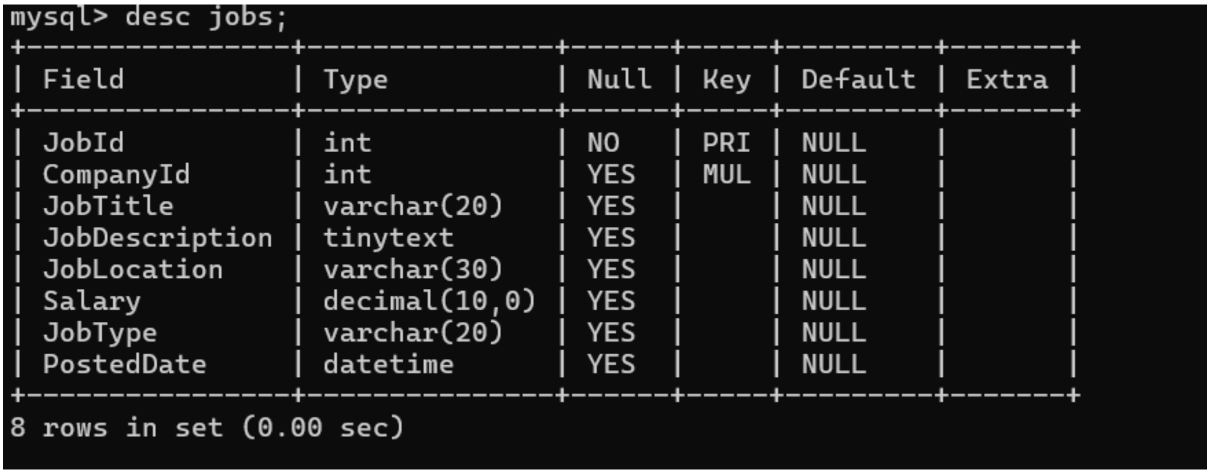
-> Salary Decimal(10),

-> JobType varchar(20),

-> PostedDate DateTime ,

-> constraint Jobs_JobId_pk primary key(JobId),

-> constraint Jobs_CompanyId_fk foreign key(CompanyId) references companies(CompanyId));



```
mysql> desc jobs;
+----------------+---------------+------+-----+---------+-------+
| Field          | Type          | Null | Key | Default | Extra |
+----------------+---------------+------+-----+---------+-------+
| JobId          | int           | NO   | PRI | NULL    |       |
| CompanyId      | int           | YES  | MUL | NULL    |       |
| JobTitle       | varchar(20)   | YES  |     | NULL    |       |
| JobDescription | tinytext      | YES  |     | NULL    |       |
| JobLocation    | varchar(30)   | YES  |     | NULL    |       |
| Salary         | decimal(10,0) | YES  |     | NULL    |       |
| JobType        | varchar(20)   | YES  |     | NULL    |       |
| PostedDate     | datetime      | YES  |     | NULL    |       |
+----------------+---------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

3 . Table Applicants

create table Applicants(ApplicatId integer(10),

-> FirstName varchar(20),

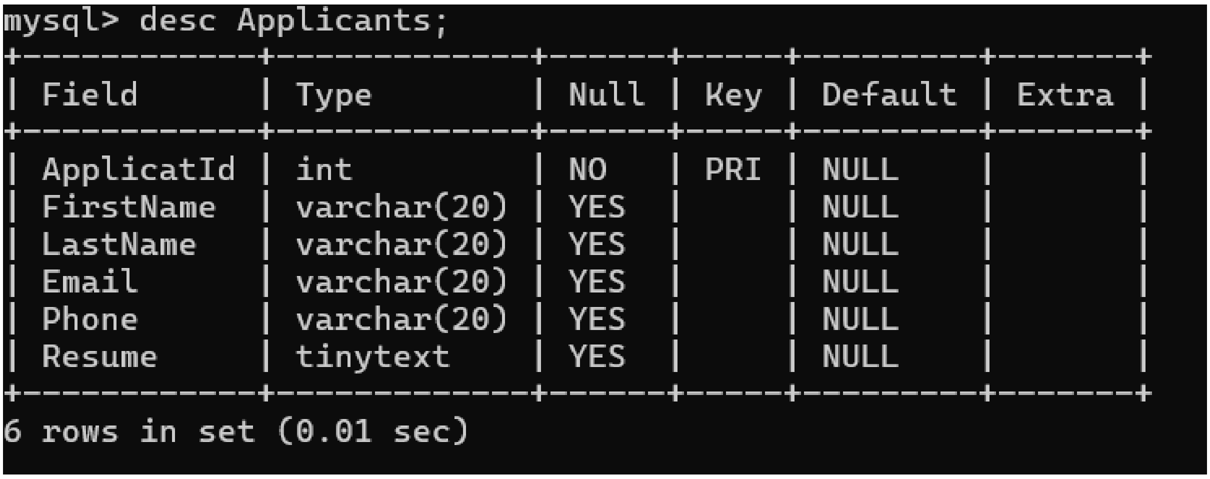
-> LastName varchar(20),

-> Email varchar(20),

-> Phone varchar(20),

-> Resume Text(50),

-> constraint Applicants_ApplicatId_pk primary key(ApplicatId));



```
mysql> desc Applicants;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| ApplicatId | int         | NO   | PRI | NULL    |       |
| FirstName  | varchar(20) | YES  |     | NULL    |       |
| LastName   | varchar(20) | YES  |     | NULL    |       |
| Email      | varchar(20) | YES  |     | NULL    |       |
| Phone      | varchar(20) | YES  |     | NULL    |       |
| Resume     | tinytext    | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

4. Table Applications

create table Applications(ApplicationID integer(10),

-> JobID integer(10),

-> ApplicantId integer(10),

-> ApplicationDate DateTime,

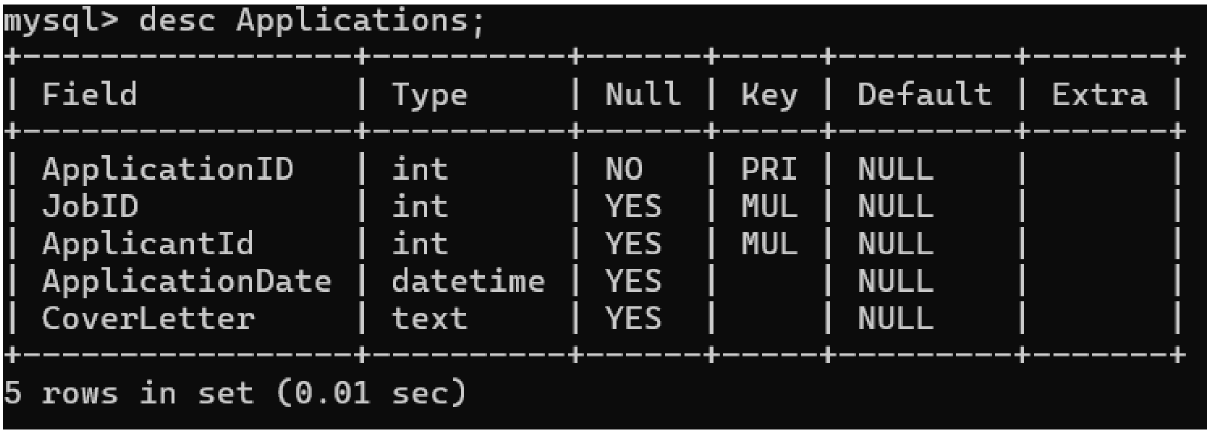
-> CoverLetter Text,

-> constraint Applications_ApplicationID_pk primary key (ApplicationID),

-> constraint Applications_JobID_fk foreign key(JobID) references jobs(j

obId),

-> constraint Applications_ApplicantId_fk foreign key(ApplicantId) references Applicants(ApplicatId));



```
mysql> desc Applications;
+-----------------+----------+------+-----+---------+-------+
| Field           | Type     | Null | Key | Default | Extra |
+-----------------+----------+------+-----+---------+-------+
| ApplicationID   | int      | NO   | PRI | NULL    |       |
| JobID           | int      | YES  | MUL | NULL    |       |
| ApplicantId     | int      | YES  | MUL | NULL    |       |
| ApplicationDate | datetime | YES  |     | NULL    |       |
| CoverLetter     | text     | YES  |     | NULL    |       |
+-----------------+----------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```

Inserting values :

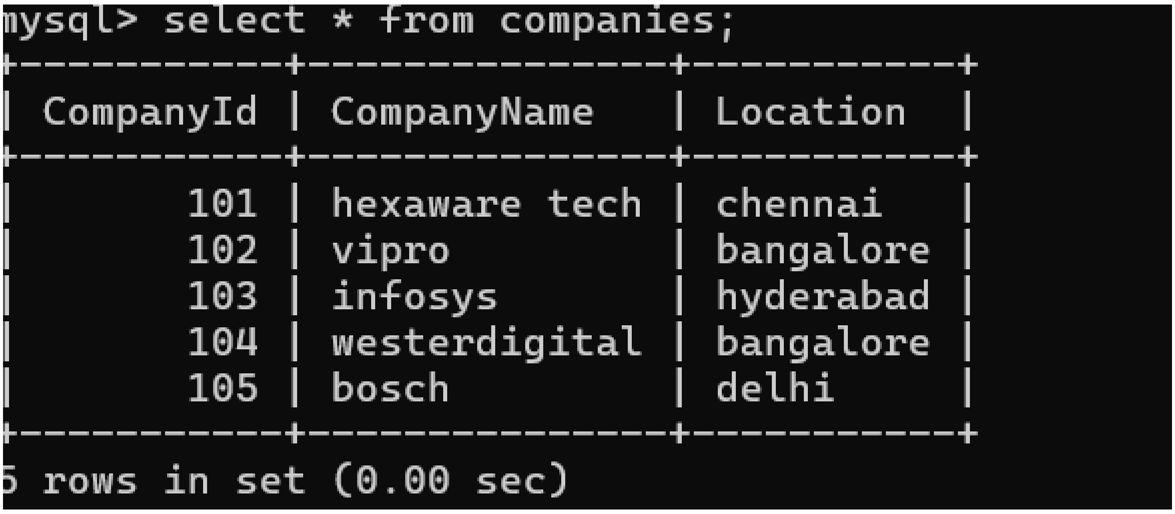
->insert into companies values(101,'hexaware tech','chennai');

-> insert into companies values(102,'vipro','bangalore');

->insert into companies values(103,'infosys','hyderabad');

->insert into companies values(104,'westerdigital','bangalore');

->insert into companies values(105,'bosch','delhi');



```
mysql> select * from companies;
+-----------+---------------+-----------+
| CompanyId | CompanyName   | Location  |
+-----------+---------------+-----------+
|       101 | hexaware tech | chennai   |
|       102 | vipro         | bangalore |
|       103 | infosys       | hyderabad |
|       104 | westerdigital | bangalore |
|       105 | bosch         | delhi     |
+-----------+---------------+-----------+
5 rows in set (0.00 sec)
```

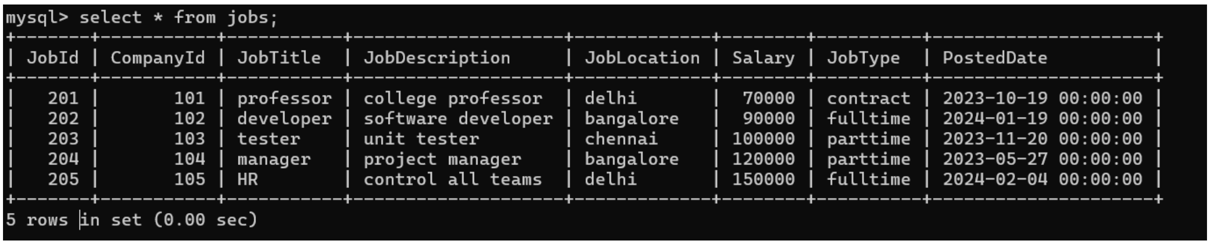
->insert into jobs values(201,101,'professor','college professor','delhi',70000,'contract','2023-10-19');

->insert into jobs values(202,102,'developer','software developer','bangalore',90000,'fulltime','2024-01-19');

->insert into jobs values(203,103,'tester','unit tester','chennai',100000,'parttime','2023-11-20');

-> insert into jobs values(204,104,'manager','project manager','bangalore',120000,'parttime','2023-05-27');

-> insert into jobs values(205,105,'HR','control all teams','delhi',150000,'fulltime','2024-02-04');



```
mysql> select * from jobs;
+-------+-----------+-----------+--------------------+-------------+--------+----------+---------------------+
| JobId | CompanyId | JobTitle  | JobDescription     | JobLocation | Salary | JobType  | PostedDate          |
+-------+-----------+-----------+--------------------+-------------+--------+----------+---------------------+
|   201 |       101 | professor | college professor  | delhi       |  70000 | contract | 2023-10-19 00:00:00 |
|   202 |       102 | developer | software developer | bangalore   |  90000 | fulltime | 2024-01-19 00:00:00 |
|   203 |       103 | tester    | unit tester        | chennai     | 100000 | parttime | 2023-11-20 00:00:00 |
|   204 |       104 | manager   | project manager    | bangalore   | 120000 | parttime | 2023-05-27 00:00:00 |
|   205 |       105 | HR        | control all teams  | delhi       | 150000 | fulltime | 2024-02-04 00:00:00 |
+-------+-----------+-----------+--------------------+-------------+--------+----------+---------------------+
5 rows in set (0.00 sec)
```

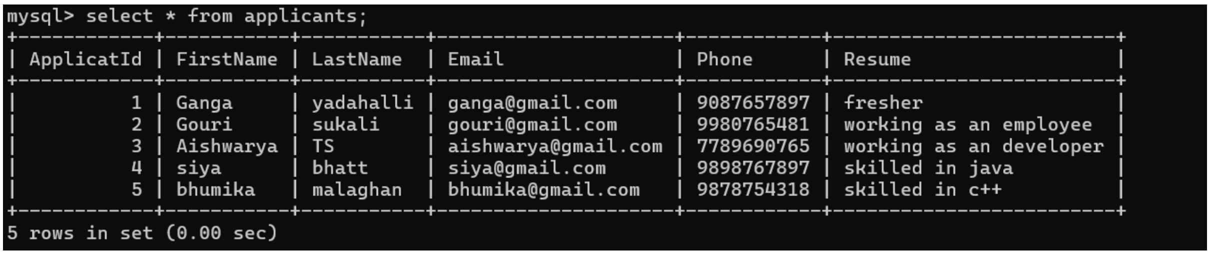
->insert into applicants values(1,'Ganga','yadahalli','ganga@gmail.com',9087657897,'fresher');

->insert into applicants values(2,'Gouri','sukali','gouri@gmail.com',9980765481,'working as an employee');

->insert into applicants values(3,'Aishwarya','TS','aishwarya@gmail.com',7789690765,'working as an developer');

->insert into applicants values(4,'siya','bhatt','siya@gmail.com',9898767897,'skilled in java');

-> insert into applicants values(5,'bhumika','malaghan','bhumika@gmail.com',9878754318,'skilled in c++');



```
mysql> select * from applicants;
+------------+-----------+-----------+---------------------+------------+-------------------------+
| ApplicatId | FirstName | LastName  | Email               | Phone      | Resume                  |
+------------+-----------+-----------+---------------------+------------+-------------------------+
|          1 | Ganga     | yadahalli | ganga@gmail.com     | 9087657897 | fresher                 |
|          2 | Gouri     | sukali    | gouri@gmail.com     | 9980765481 | working as an employee  |
|          3 | Aishwarya | TS        | aishwarya@gmail.com | 7789690765 | working as an developer |
|          4 | siya      | bhatt     | siya@gmail.com      | 9898767897 | skilled in java         |
|          5 | bhumika   | malaghan  | bhumika@gmail.com   | 9878754318 | skilled in c++          |
+------------+-----------+-----------+---------------------+------------+-------------------------+
5 rows in set (0.00 sec)
```

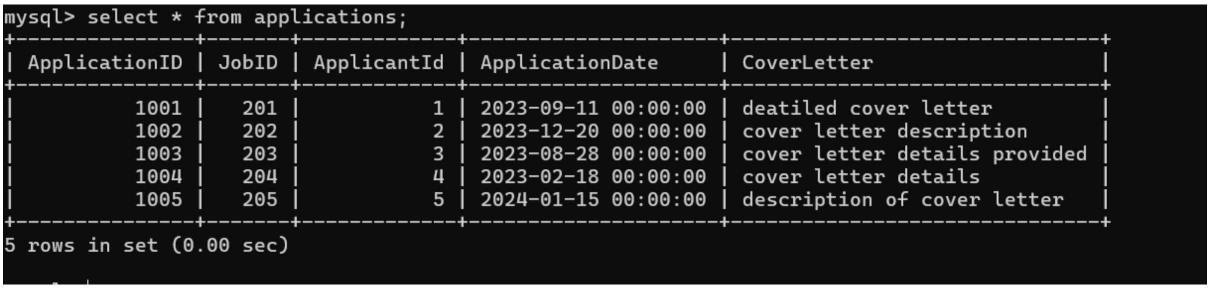
-> insert into applications values(1001,201,1,'2023-09-11','deatiled cover letter');

->insert into applications values(1002,202,2,'2023-12-20','cover letter description');

->insert into applications values(1003,203,3,'2023-08-28','cover letter details provided');

->insert into applications values(1004,204,4,'2023-02-18','cover letter details');

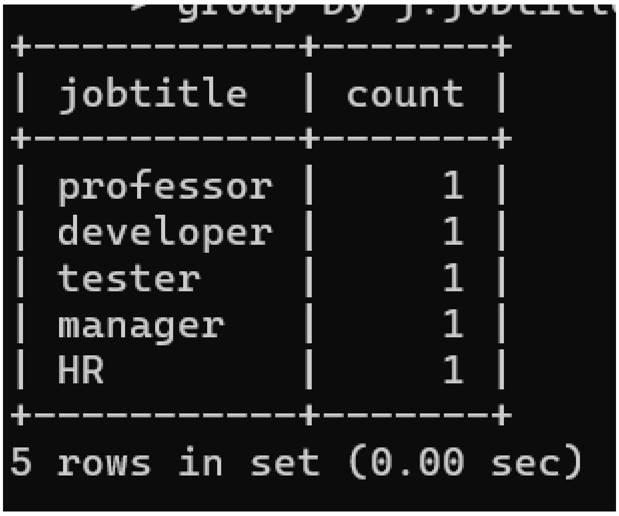
-> insert into applications values(1005,205,5,'2024-01-15','description of cover letter ');



```
mysql> select * from applications;
+---------------+-------+-------------+---------------------+------------------------------+
| ApplicationID | JobID | ApplicantId | ApplicationDate     | CoverLetter                  |
+---------------+-------+-------------+---------------------+------------------------------+
|          1001 |   201 |           1 | 2023-09-11 00:00:00 | deatiled cover letter        |
|          1002 |   202 |           2 | 2023-12-20 00:00:00 | cover letter description     |
|          1003 |   203 |           3 | 2023-08-28 00:00:00 | cover letter details provided |
|          1004 |   204 |           4 | 2023-02-18 00:00:00 | cover letter details         |
|          1005 |   205 |           5 | 2024-01-15 00:00:00 | description of cover letter  |
+---------------+-------+-------------+---------------------+------------------------------+
5 rows in set (0.00 sec)
```

5.=> Write an SQL query to count the number of applications received for each job listing in the "Jobs" table. Display the job title and the corresponding application count. Ensure that it lists all jobs, even if they have no applications.

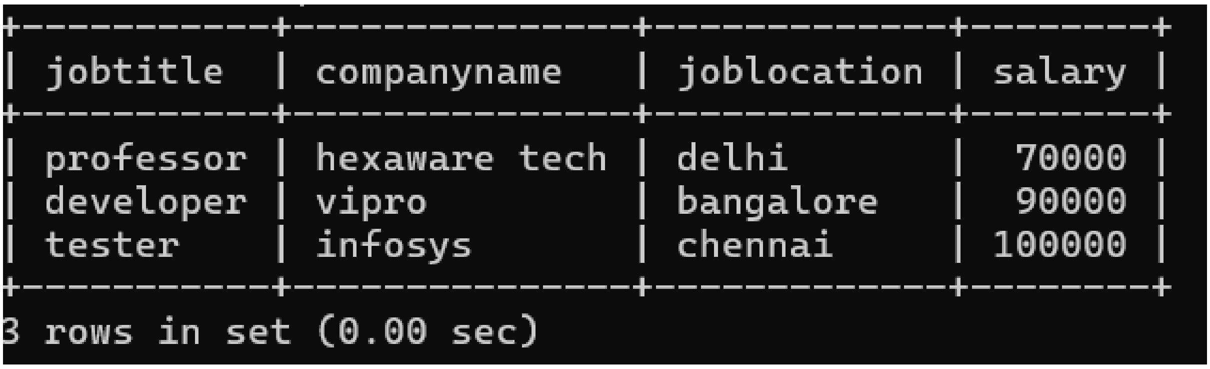
```
select j.jobtitle , count(a.applicationId) as count from jobs j
   -> left join applications a on j.jobId=a.jobId
   -> group by j.jobtitle;
```



```
     > group by j.jobtitle
+-----------+-------+
| jobtitle  | count |
+-----------+-------+
| professor |     1 |
| developer |     1 |
| tester    |     1 |
| manager   |     1 |
| HR        |     1 |
+-----------+-------+
5 rows in set (0.00 sec)
```

6.=> Develop an SQL query that retrieves job listings from the "Jobs" table within a specified salary range. Allow parameters for the minimum and maximum salary values. Display the job title, company name, location, and salary for each matching job.

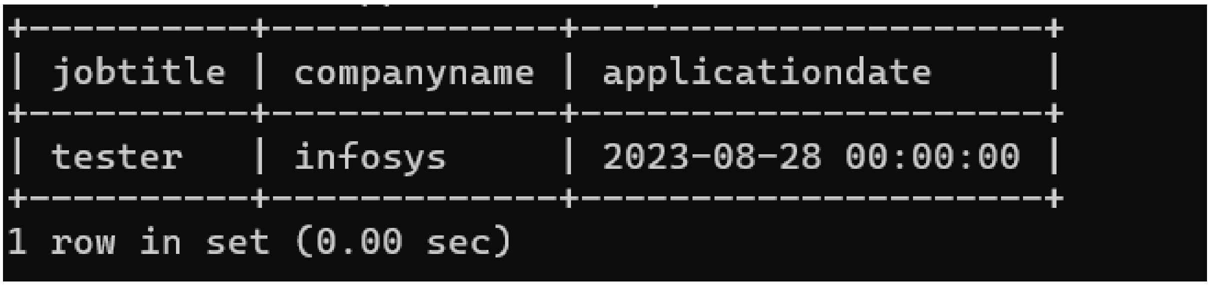
```
select j.jobtitle ,  c.companyname ,  j.joblocation,  j.salary from jobs as j
->join companies c ON j.CompanyId = c.CompanyId
->where j.salary between 10000 and 100000;
```



```
+-----------+---------------+-------------+--------+
| jobtitle  | companyname   | joblocation | salary |
+-----------+---------------+-------------+--------+
| professor | hexaware tech | delhi       |  70000 |
| developer | vipro         | bangalore   |  90000 |
| tester    | infosys       | chennai     | 100000 |
+-----------+---------------+-------------+--------+
3 rows in set (0.00 sec)
```

7.=> Write an SQL query that retrieves the job application history for a specific applicant. Allow a parameter for the ApplicantID, and return a result set with the job titles, company names, and application dates for all the jobs the applicant has applied to.

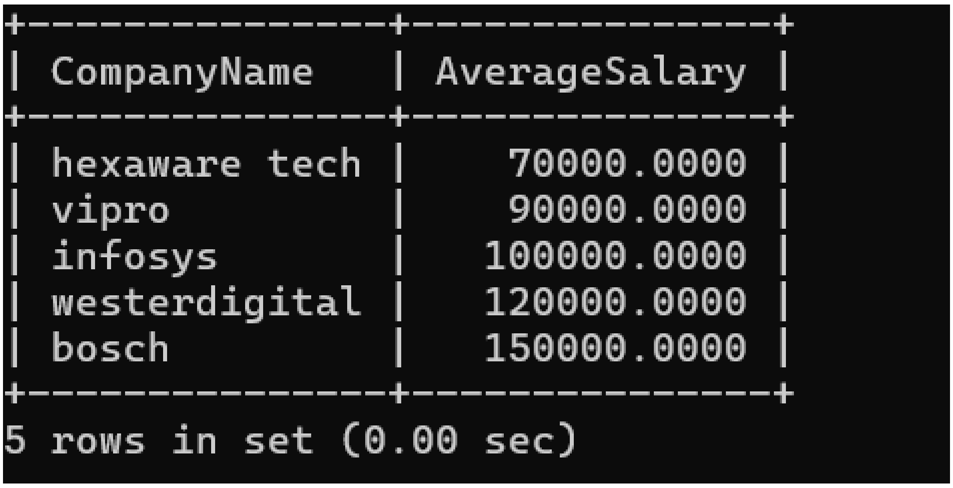
```
select j.jobtitle ,c.companyname ,a.applicationdate from applications as a
    -> join jobs as j on a.jobId=j.jobid
    ->  join companies as c on c.companyId=j.companyid
    -> where a.applicantId =3;
```



```
+----------+-------------+---------------------+
| jobtitle | companyname | applicationdate     |
+----------+-------------+---------------------+
| tester   | infosys     | 2023-08-28 00:00:00 |
+----------+-------------+---------------------+
1 row in set (0.00 sec)
```

8.=> Create an SQL query that calculates and displays the average salary offered by all companies for job listings in the "Jobs" table. Ensure that the query filters out jobs with a salary of zero.

```
SELECT  c.CompanyName, AVG(j.Salary) AS AverageSalary
    -> FROM companies c  INNER JOIN jobs j ON c.CompanyId = j.CompanyId
    -> WHERE j.Salary > 0
    -> GROUP BY  c.CompanyName;
```



```
+---------------+---------------+
| CompanyName   | AverageSalary |
+---------------+---------------+
| hexaware tech |    70000.0000 |
| vipro         |    90000.0000 |
| infosys       |   100000.0000 |
| westerdigital |   120000.0000 |
| bosch         |   150000.0000 |
+---------------+---------------+
5 rows in set (0.00 sec)
```

10. . Find the applicants who have applied for positions in companies located in 'CityX' and have at least 3 years of experience.

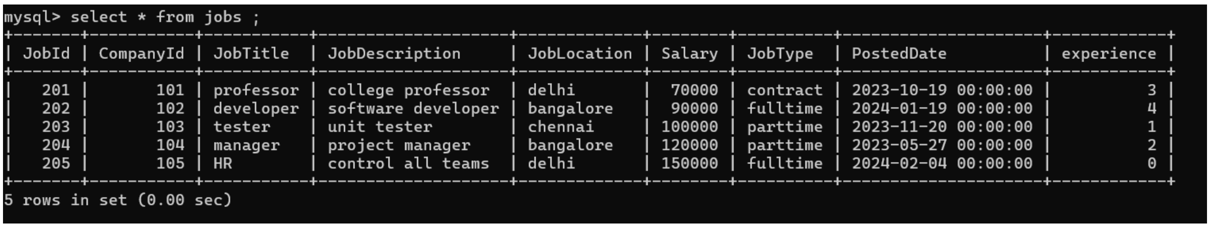
=> alter table jobs add (experience integer(20));

-> update jobs set experience=3 where jobId=201;

->update jobs set experience=4 where jobId=202;

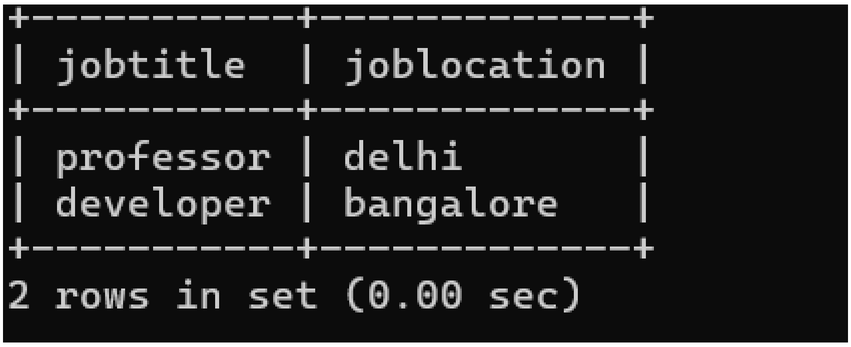
->update jobs set experience=1 where jobId=203;

-> update jobs set experience=2 where jobId=204;



```
mysql> select * from jobs ;
+-------+-----------+-----------+--------------------+-------------+--------+----------+---------------------+------------+
| JobId | CompanyId | JobTitle  | JobDescription     | JobLocation | Salary | JobType  | PostedDate          | experience |
+-------+-----------+-----------+--------------------+-------------+--------+----------+---------------------+------------+
|   201 |       101 | professor | college professor  | delhi       |  70000 | contract | 2023-10-19 00:00:00 |          3 |
|   202 |       102 | developer | software developer | bangalore   |  90000 | fulltime | 2024-01-19 00:00:00 |          4 |
|   203 |       103 | tester    | unit tester        | chennai     | 100000 | parttime | 2023-11-20 00:00:00 |          1 |
|   204 |       104 | manager   | project manager    | bangalore   | 120000 | parttime | 2023-05-27 00:00:00 |          2 |
|   205 |       105 | HR        | control all teams  | delhi       | 150000 | fulltime | 2024-02-04 00:00:00 |          0 |
+-------+-----------+-----------+--------------------+-------------+--------+----------+---------------------+------------+
5 rows in set (0.00 sec)
```

->select jobtitle,joblocation from jobs where experience >= 3;

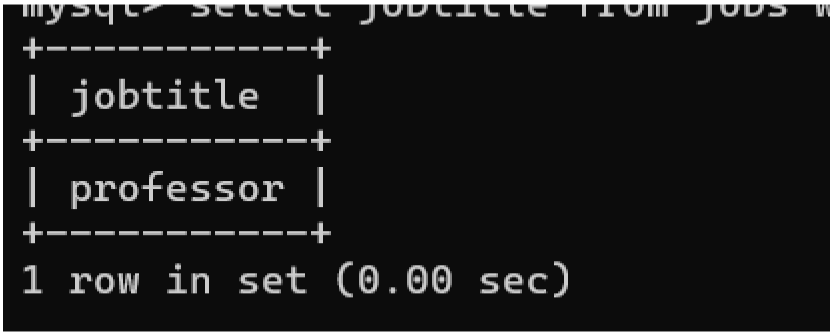


```
+-----------+-------------+
| jobtitle  | joblocation |
+-----------+-------------+
| professor | delhi       |
| developer | bangalore   |
+-----------+-------------+
2 rows in set (0.00 sec)
```

11.=>

11.=> Retrieve a list of distinct job titles with salaries between $60,000 and $80,000

select distinct(jobtitle) from jobs where salary between 60000 and 80000;



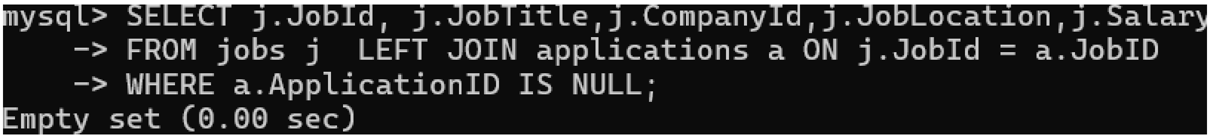
```
mysql> select jobtitle from jobs w
+-----------+
| jobtitle  |
+-----------+
| professor |
+-----------+
1 row in set (0.00 sec)
```

12 .=> Find the jobs that have not received any applications.

SELECT j.JobId, j.JobTitle,j.CompanyId,j.JobLocation,j.Salary

-> FROM jobs j LEFT JOIN applications a ON j.JobId = a.JobID

-> WHERE a.ApplicationID IS NULL;



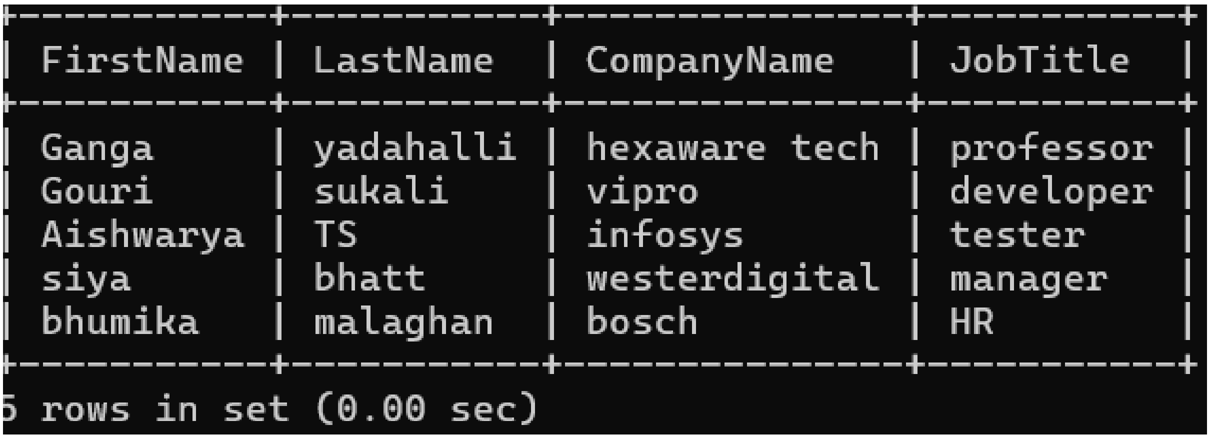
```
mysql> SELECT j.JobId, j.JobTitle,j.CompanyId,j.JobLocation,j.Salary
    -> FROM jobs j  LEFT JOIN applications a ON j.JobId = a.JobID
    -> WHERE a.ApplicationID IS NULL;
Empty set (0.00 sec)
```

13.=> . Retrieve a list of job applicants along with the companies they have applied to and the positions they have applied for.

SELECT a.FirstName, a.LastName, c.CompanyName, j.JobTitle

->FROM applicants a INNER JOIN applications app ON a.ApplicatId = app.ApplicantId -> INNER JOIN jobs j ON app.JobID = j.JobId

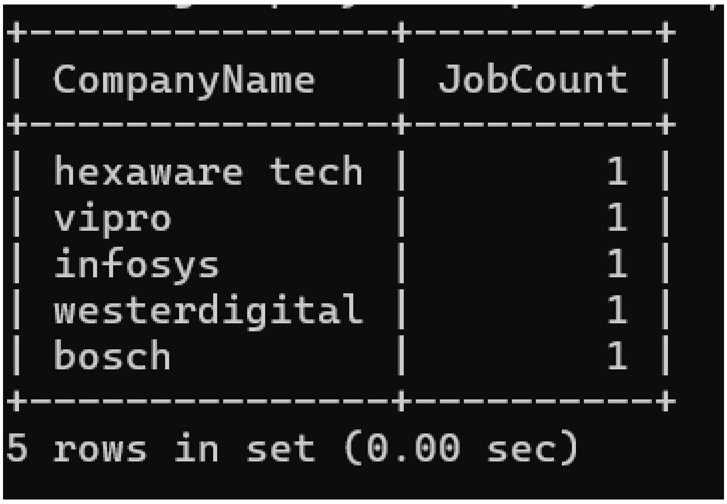
->INNER JOIN companies c ON j.CompanyId = c.CompanyId;



```
+-----------+-----------+---------------+-----------+
| FirstName | LastName  | CompanyName   | JobTitle  |
+-----------+-----------+---------------+-----------+
| Ganga     | yadahalli | hexaware tech | professor |
| Gouri     | sukali    | vipro         | developer |
| Aishwarya | TS        | infosys       | tester    |
| siya      | bhatt     | westerdigital | manager   |
| bhumika   | malaghan  | bosch         | HR        |
+-----------+-----------+---------------+-----------+
5 rows in set (0.00 sec)
```

14. =>Retrieve a list of companies along with the count of jobs they have posted, even if they have not received any applications.

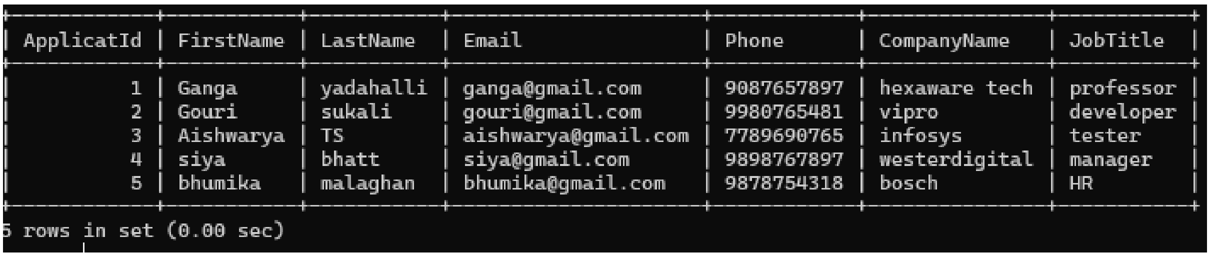
```
SELECT  c.CompanyName, COUNT(j.JobId) AS JobCount
    -> FROM companies c  LEFT JOIN jobs j ON c.CompanyId = j.CompanyId
    -> group by c.CompanyName;
```



```
+---------------+----------+
| CompanyName   | JobCount |
+---------------+----------+
| hexaware tech |        1 |
| vipro         |        1 |
| infosys       |        1 |
| westerdigital |        1 |
| bosch         |        1 |
+---------------+----------+
5 rows in set (0.00 sec)
```

15. . List all applicants along with the companies and positions they have applied for, including those who have not applied.

```
SELECT a.ApplicatId, a.FirstName, a.LastName, a.Email, a.Phone, c.CompanyName, j.JobTitle
->FROM Applicants a LEFT JOIN Applications ap ON a.ApplicatId = ap.ApplicantId
-> LEFT JOIN Jobs j ON ap.JobID = j.JobId
->LEFT JOIN Companies c ON j.CompanyId = c.CompanyId ORDER BY a.ApplicatId;
```



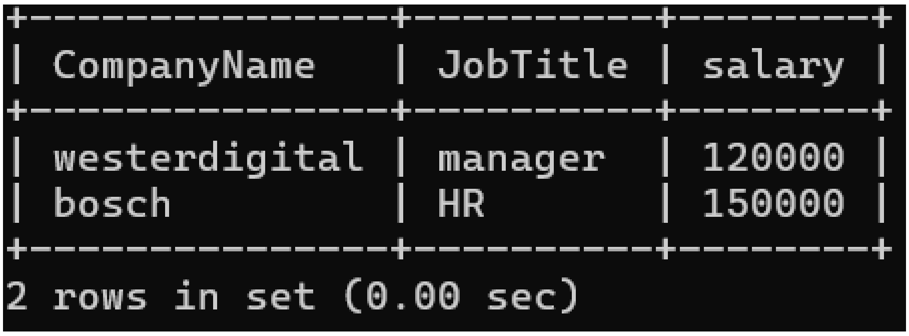
```
+------------+-----------+-----------+---------------------+------------+---------------+-----------+
| ApplicatId | FirstName | LastName  | Email               | Phone      | CompanyName   | JobTitle  |
+------------+-----------+-----------+---------------------+------------+---------------+-----------+
|          1 | Ganga     | yadahalli | ganga@gmail.com     | 9087657897 | hexaware tech | professor |
|          2 | Gouri     | sukali    | gouri@gmail.com     | 9980765481 | vipro         | developer |
|          3 | Aishwarya | TS        | aishwarya@gmail.com | 7789690765 | infosys       | tester    |
|          4 | siya      | bhatt     | siya@gmail.com      | 9898767897 | westerdigital | manager   |
|          5 | bhumika   | malaghan  | bhumika@gmail.com   | 9878754318 | bosch         | HR        |
+------------+-----------+-----------+---------------------+------------+---------------+-----------+
5 rows in set (0.00 sec)
```

16. => Find companies that have posted jobs with a salary higher than the average salary of all jobs.

```
SELECT c.CompanyName,j.JobTitle,j.salary from
```

-> companies c INNER JOIN jobs j ON c.CompanyId = j.CompanyId

-> WHERE j.Salary > (SELECT AVG(Salary) FROM jobs);



```
+---------------+----------+--------+
| CompanyName   | JobTitle | salary |
+---------------+----------+--------+
| westerdigital | manager  | 120000 |
| bosch         | HR       | 150000 |
+---------------+----------+--------+
2 rows in set (0.00 sec)
```

17.=> Display a list of applicants with their names and a concatenated string of their city and state.

-> alter table applicants add(state varchar(20));

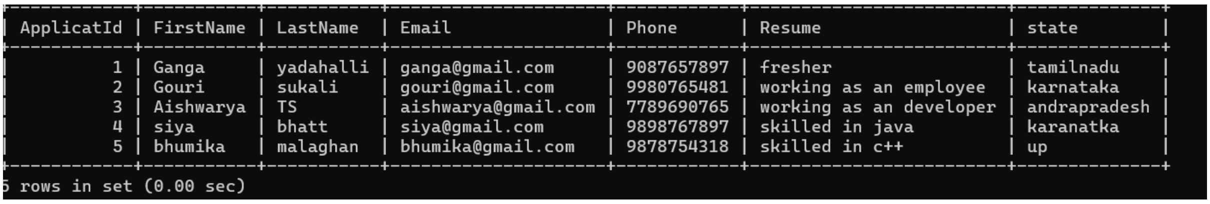
mysql> update applicants set state='tamilnadu' where applicatId=1;

mysql> update applicants set state='karnataka' where applicatId=2;

mysql> update applicants set state='andrapradesh' where applicatId=3;

mysql> update applicants set state='karanatka' where applicatId=4;

mysql> update applicants set state='up' where applicatId=5;

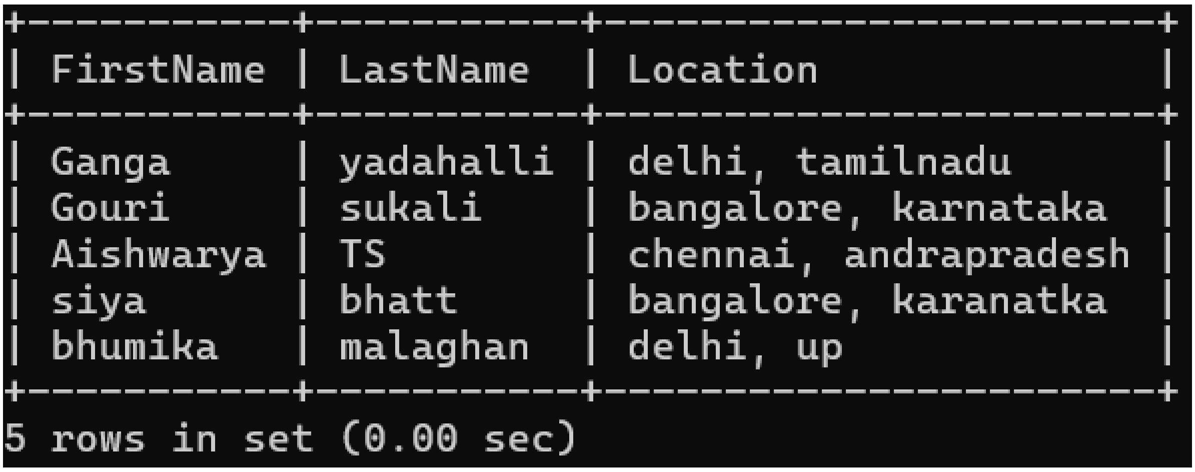


```
+------------+-----------+-----------+---------------------+------------+--------------------------+--------------+
| ApplicatId | FirstName | LastName  | Email               | Phone      | Resume                   | state        |
+------------+-----------+-----------+---------------------+------------+--------------------------+--------------+
|          1 | Ganga     | yadahalli | ganga@gmail.com     | 9087657897 | fresher                  | tamilnadu    |
|          2 | Gouri     | sukali    | gouri@gmail.com     | 9980765481 | working as an employee   | karnataka    |
|          3 | Aishwarya | TS        | aishwarya@gmail.com | 7789690765 | working as an developer  | andrapradesh |
|          4 | siya      | bhatt     | siya@gmail.com      | 9898767897 | skilled in java          | karanatka    |
|          5 | bhumika   | malaghan  | bhumika@gmail.com   | 9878754318 | skilled in c++           | up           |
+------------+-----------+-----------+---------------------+------------+--------------------------+--------------+
5 rows in set (0.00 sec)
```

SELECT a.FirstName,a.LastName,CONCAT(j.JobLocation, ', ', a.State) AS Location

-> FROM applicants a INNER JOIN applications app ON a.ApplicatId = app.ApplicantId

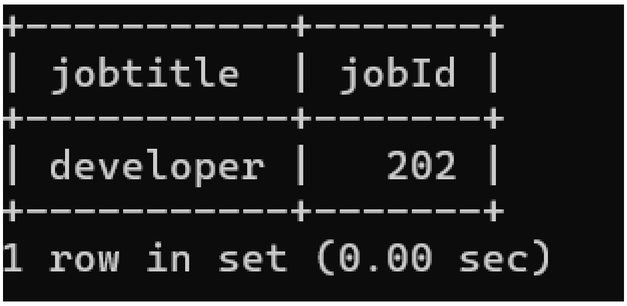
-> INNER JOIN jobs j ON app.JobID = j.JobId;



```
+-----------+-----------+-----------------------+
| FirstName | LastName  | Location              |
+-----------+-----------+-----------------------+
| Ganga     | yadahalli | delhi, tamilnadu      |
| Gouri     | sukali    | bangalore, karnataka  |
| Aishwarya | TS        | chennai, andrapradesh |
| siya      | bhatt     | bangalore, karanatka  |
| bhumika   | malaghan  | delhi, up             |
+-----------+-----------+-----------------------+
5 rows in set (0.00 sec)
```

18 .=> Retrieve a list of jobs with titles containing either 'Developer' or 'Engineer.

->select jobtitle ,jobId from jobs where jobTitle='developer' or jobtitle='engineer';



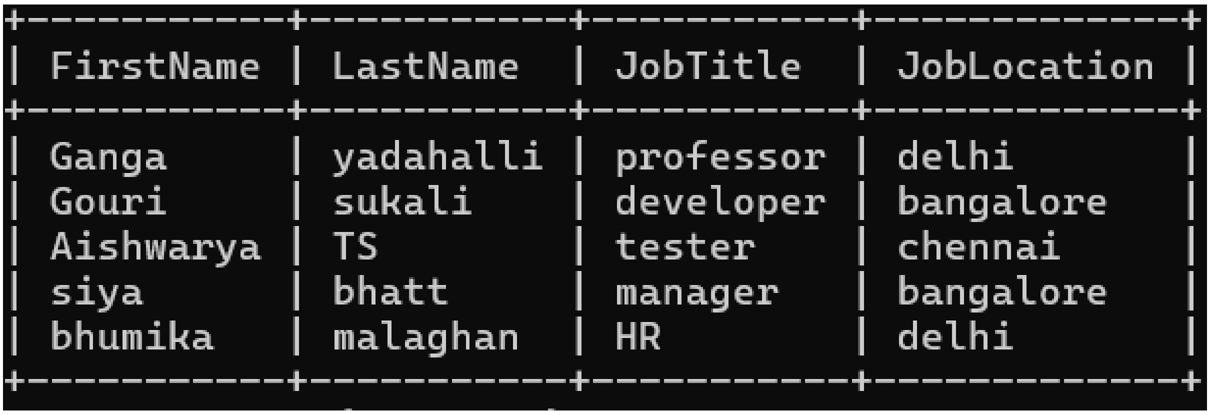
```
+-----------+-------+
| jobtitle  | jobId |
+-----------+-------+
| developer |   202 |
+-----------+-------+
1 row in set (0.00 sec)
```

19.=> Retrieve a list of applicants and the jobs they have applied for, including those who have not applied and jobs without applicants

SELECT a.FirstName, a.LastName, j.JobTitle, j.JobLocation FROM applicants a LEFT JOIN applications app ON a.ApplicatId = app.ApplicantId LEFT JOIN jobs j ON app.JobID = j.JobId

-> UNION

-> SELECT a.FirstName, a.LastName, j.JobTitle, j.JobLocation FROM applicants a RIGHT JOIN applications app ON a.ApplicatId = app.ApplicantId RIGHT JOIN jobs j ON app.JobID = j.JobId;



```
+-----------+-----------+-----------+-------------+
| FirstName | LastName  | JobTitle  | JobLocation |
+-----------+-----------+-----------+-------------+
| Ganga     | yadahalli | professor | delhi       |
| Gouri     | sukali    | developer | bangalore   |
| Aishwarya | TS        | tester    | chennai     |
| siya      | bhatt     | manager   | bangalore   |
| bhumika   | malaghan  | HR        | delhi       |
+-----------+-----------+-----------+-------------+
```

20 .=> List all combinations of applicants and companies where the company is in a specific city and the applicant has more than 2 years of experience. For example: city=Chennai.

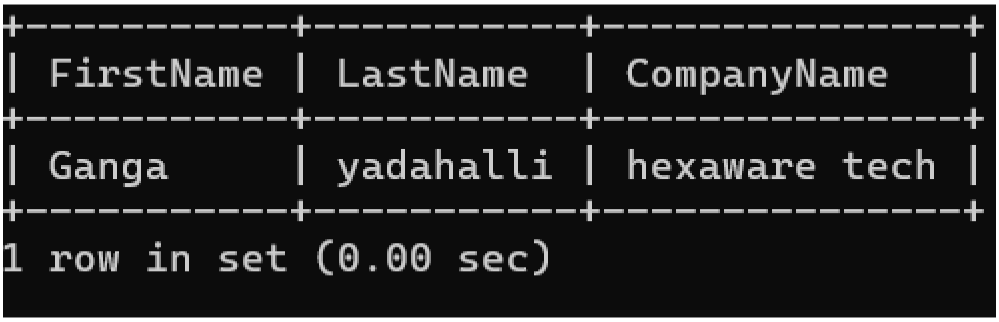
```
SELECT a.FirstName, a.LastName, c.CompanyName FROM applicants a

-> INNER JOIN applications app ON a.ApplicatId = app.ApplicantId

->INNER JOIN jobs j ON app.JobID = j.JobId

->INNER JOIN companies c ON j.CompanyId = c.CompanyId

WHERE c.Location = 'Chennai' AND j.Experience > 2;
```



```
+-----------+-----------+---------------+
| FirstName | LastName  | CompanyName   |
+-----------+-----------+---------------+
| Ganga     | yadahalli | hexaware tech |
+-----------+-----------+---------------+
1 row in set (0.00 sec)
```