1.**Provide a SQL script that initializes the database for the Job Board scenario "CareerHub".**

```
create database CareerHub;
```

2. Create tables for Companies, Jobs, Applicants and Applications.

Table: companies

```
create table companies ( companyid int  primary key,
 companyname varchar(255),
companylocation varchar(255));
```

Table: Jobs

```
create table jobs( jobid int primary key,
companyid int, jobtitle varchar(255),
jobdescription varchar(255), joblocation
varchar(255), salary decimal, jobtype
varchar(255),
postedDate datetime);
```

Table:applicants

```
create table applicants( applicationid int primary key,
firstname varchar(255),
lastname varchar(255),
email varchar(300),
phone varchar(200),
resumes varchar(400));
```

Table:applications

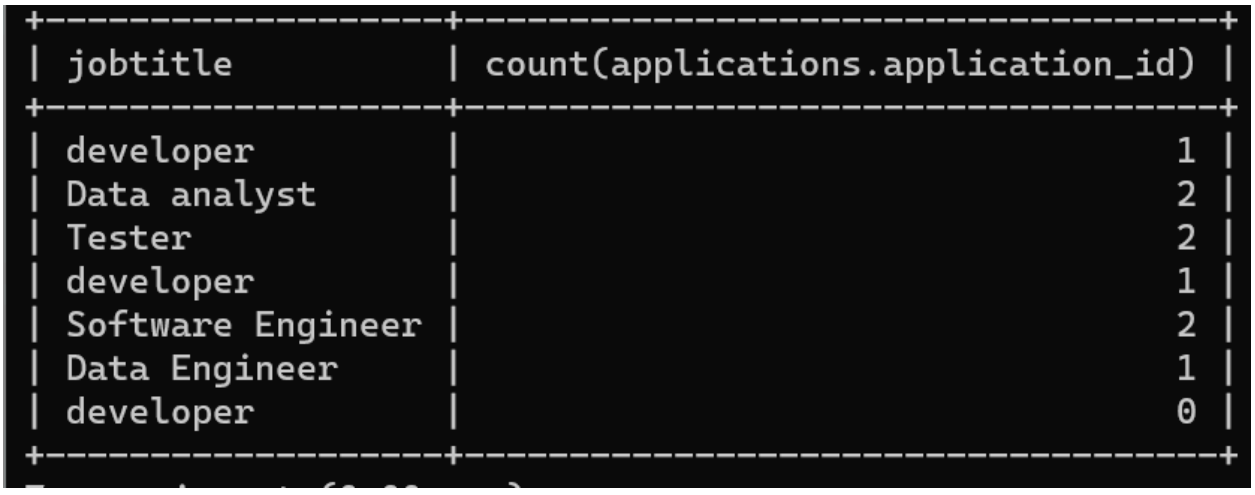
```
create table applications( application_id int primary
key,
jobid int, applicationid int,
applicationdate datetime,
coverletter varchar(300));
```

3. Define appropriate primary keys, foreign keys, and constraints.

```
alter table jobs  add foreign key(companyid) references
companies(companyid);
alter table applications add foreign key(applicationid)
references applicants(applicationid);
```

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

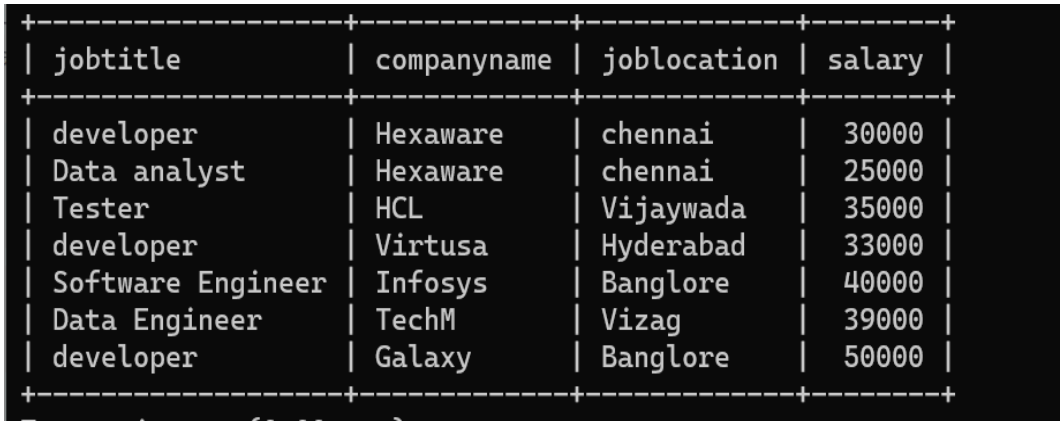
```
Select jobs.jobtitle,count(applications.application_id)
from jobs left join applications  on
jobs.jobid=applications.jobid group by jobs.jobid;
```



jobtitle	count(applications.application_id)
developer	1
Data analyst	2
Tester	2
developer	1
Software Engineer	2
Data Engineer	1
developer	0

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.

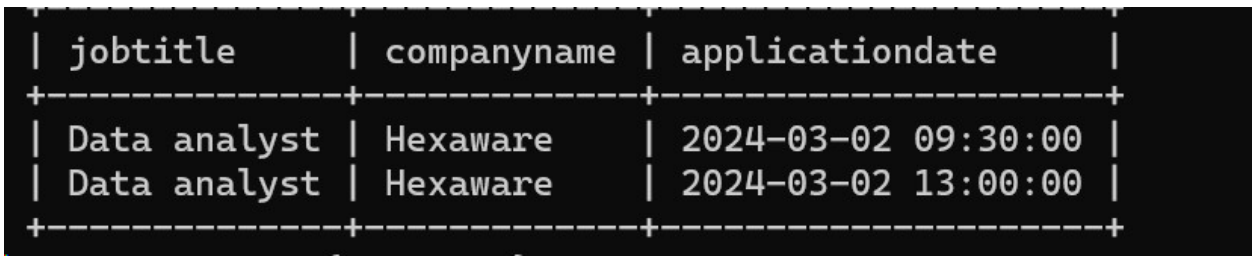
```
select j.jobtitle,c.companyname,j.joblocation,
j.salary  from jobs j
inner join companies c  on
j.companyid=c.companyid
where salary between  (select min(salary)
from jobs) and
(select max(salary) from jobs);
```



jobtitle	companyname	joblocation	salary
developer	Hexaware	chennai	30000
Data analyst	Hexaware	chennai	25000
Tester	HCL	Vijaywada	35000
developer	Virtusa	Hyderabad	33000
Software Engineer	Infosys	Banglore	40000
Data Engineer	TechM	Vizag	39000
developer	Galaxy	Banglore	50000

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 jobs j
inner join companies c on j.companyid=c.companyid
inner join applications a on j.jobid=a.jobid where j.jobid=102;
```



jobtitle	companyname	applicationdate
Data analyst	Hexaware	2024-03-02 09:30:00
Data analyst	Hexaware	2024-03-02 13:00:00

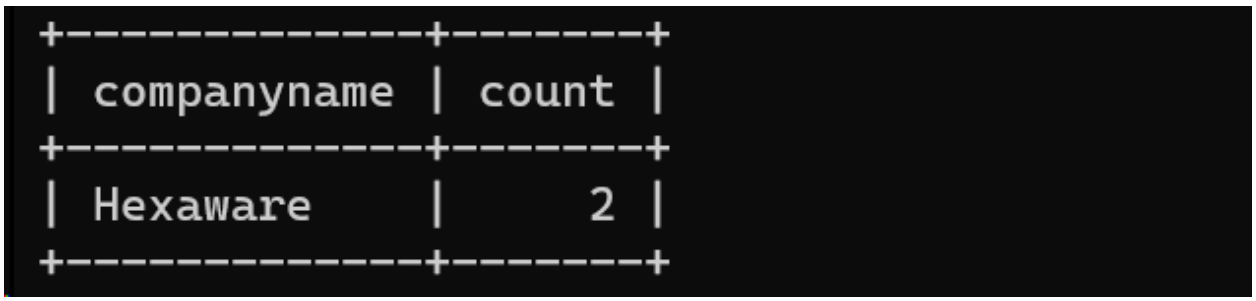
8.**Create an SQL query that calculates and displays the average salary offered by all companies for job listings in the "Jobs" table. Ensure that the query filters out jobs with a salary of zero.**

```
select avg(j.salary) from jobs j left join companies c
on j.companyid=c.companyid
where salary>0;
```

```
+---------------+
| avg(j.salary) |
+---------------+
|    36000.0000 |
+---------------+
```

9. Write an SQL query to identify the company that has posted the most job listings. Display the company name along with the count of job listings they have posted. Handle ties if multiple companies have the same maximum count.

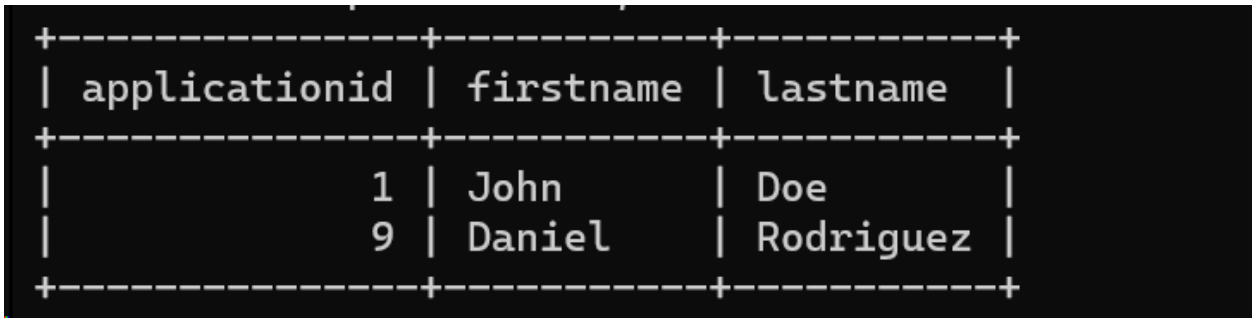
```
select c.companyname,count(j.jobid) as count from companies c
join jobs j on c.companyid=j.companyid group by c.companyname
having count(j.jobid)=(select count(jobid) from jobs group by
companyid order by count(jobid) desc limit 1 );
```



```
+-------------+-------+
| companyname | count |
+-------------+-------+
| Hexaware    |     2 |
+-------------+-------+
```

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

```
select  a.applicationid,a.firstname,a.lastname
from applicants a
join applications ap ON a.applicationid = ap.applicationid
join jobs j ON ap.jobid = j.jobid
where j.joblocation = 'Tamilnadu'
and experience>=3;
```

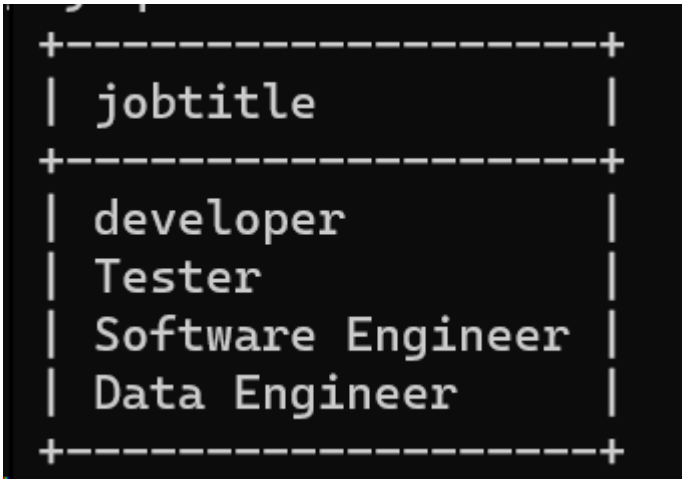


applicationid	firstname	lastname
1	John	Doe
9	Daniel	Rodriguez

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

select distinct jobtitle from jobs where salary between 30000 and 50000;

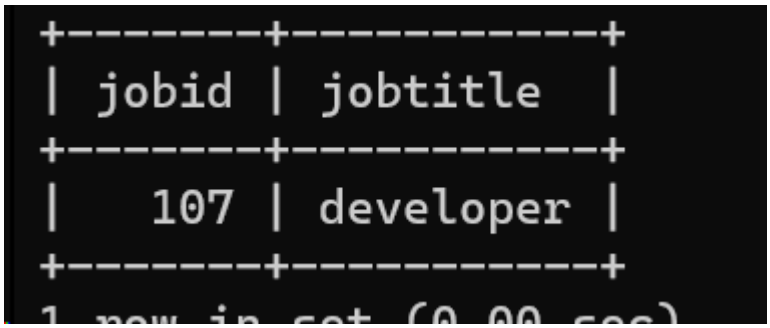
note: table doesn't have salaries between 60,000 and 80,000



jobtitle
developer
Tester
Software Engineer
Data Engineer

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

```
select j.jobid,j.jobtitle from jobs j where  j.jobid
 not in(select jobid from  applications);
```



jobid	jobtitle
107	developer

1 row in set (0.00 sec)

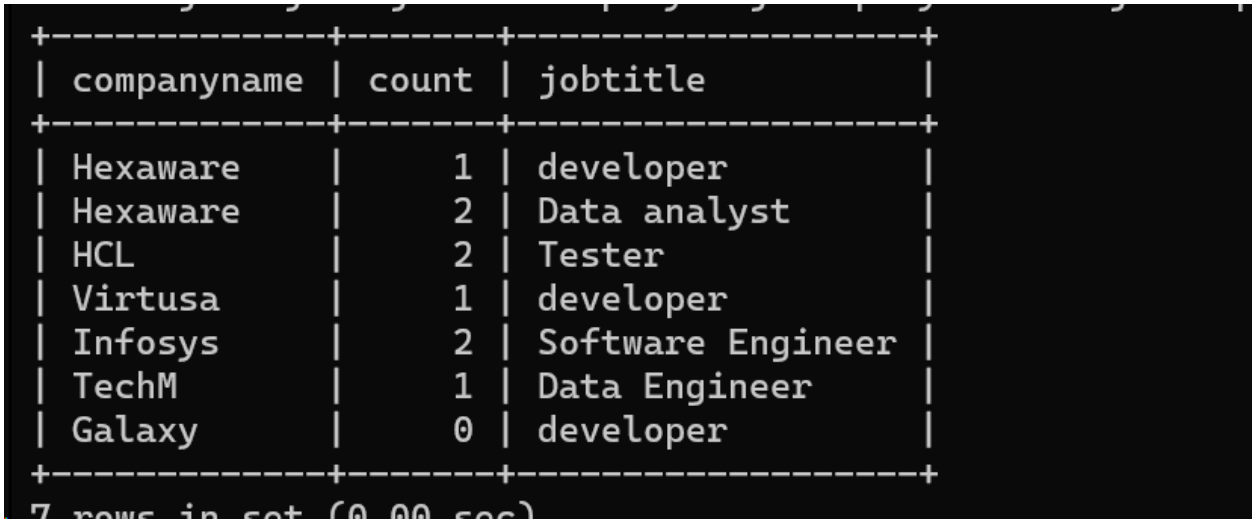
13.Retrieve a list of job applicants along with the companies they have applied to and the positions they have applied for.

```
select ap.applicationid,c.companyname,j.jobtitle from
applicants ap inner join applications a on
ap.applicationid=a.applicationid
inner join jobs j on a.jobid=j.jobid inner join companies c
on c.companyid=j.companyid;
```

applicationid	companyname	jobtitle
3	Hexaware	developer
1	Hexaware	Data analyst
3	HCL	Tester
4	Virtusa	developer
5	Infosys	Software Engineer
6	TechM	Data Engineer
8	HCL	Tester
9	Hexaware	Data analyst
10	Infosys	Software Engineer

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(a.application_id) as
count,j.jobtitle from companies c
join jobs j on
c.companyid=j.companyid left join
applications a on a.jobid=j.jobid
group by j.jobid;
```



companyname	count	jobtitle
Hexaware	1	developer
Hexaware	2	Data analyst
HCL	2	Tester
Virtusa	1	developer
Infosys	2	Software Engineer
TechM	1	Data Engineer
Galaxy	0	developer

7 rows in set (0.00 sec)

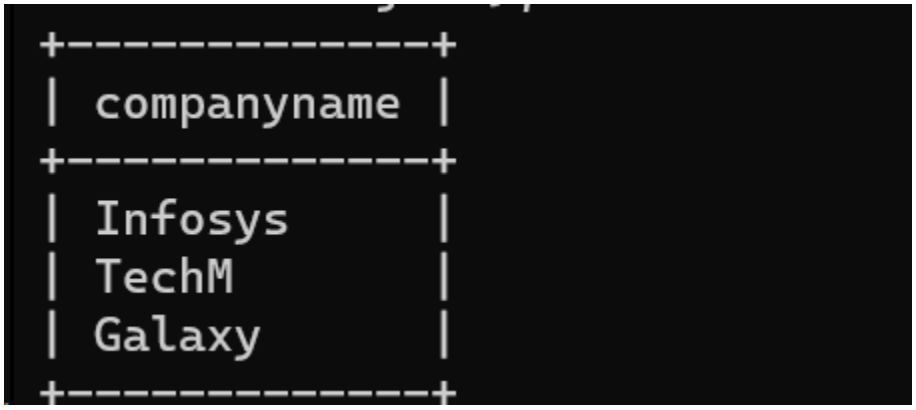
15. List all applicants along with the companies and positions they have applied for, including those who have not applied.

```
select ap.applicationid,c.companyname,j.jobtitle from applicants ap
left join applications a on ap.applicationid=a.applicationid
left join jobs j on a.jobid=j.jobid
left join companies c on c.companyid=j.companyid;
```

applicationid	companyname	jobtitle
1	Hexaware	Data analyst
2	NULL	NULL
3	Hexaware	developer
3	HCL	Tester
4	Virtusa	developer
5	Infosys	Software Engineer
6	TechM	Data Engineer
7	NULL	NULL
8	HCL	Tester
9	Hexaware	Data analyst
10	Infosys	Software Engineer

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

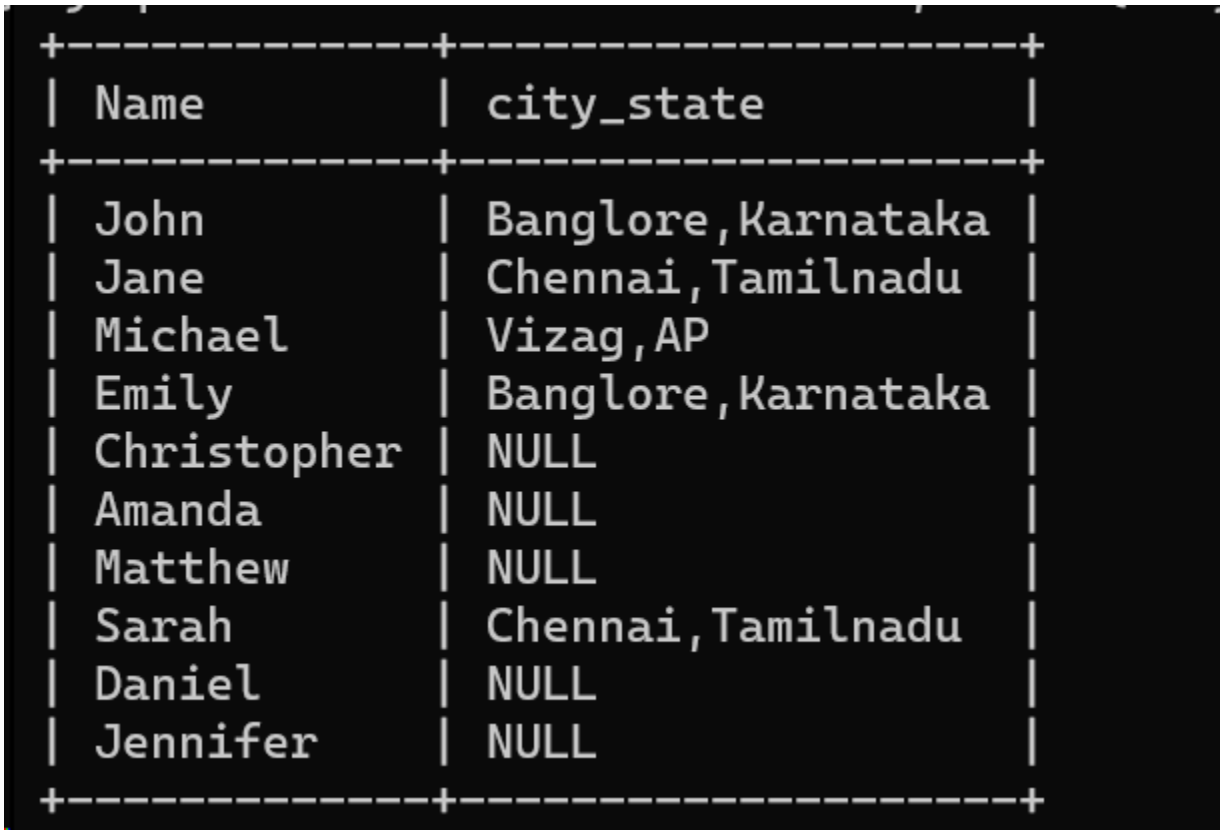
select c.companyname from companies c join jobs j
on c.companyid=j.companyid where j.salary>(select avg(salary) from jobs);



companyname
Infosys
TechM
Galaxy

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

select firstname as Name,concat(city,',',state) as city_state from applicants;



Name	city_state
John	Banglore,Karnataka
Jane	Chennai,Tamilnadu
Michael	Vizag,AP
Emily	Banglore,Karnataka
Christopher	NULL
Amanda	NULL
Matthew	NULL
Sarah	Chennai,Tamilnadu
Daniel	NULL
Jennifer	NULL

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

select jobid,jobtitle from jobs
where jobtitle='developer' or jobtitle='Software Engineer';

jobid	jobtitle
101	developer
104	developer
105	Software Engineer
107	developer

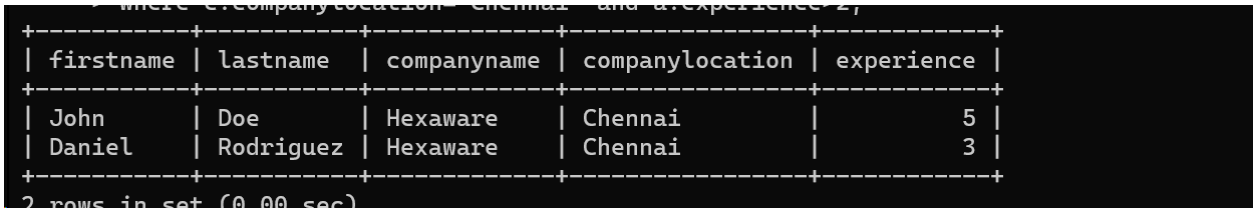
19. Retrieve a list of applicants and the jobs they have applied for, including those who have not applied and jobs without applicants.

select a.applicationid,j.jobtitle,j.jobid from applicants a
left join applications ap on a.applicationid=ap.applicationid
left join jobs j on j.jobid=ap.jobid;

applicationid	jobtitle	jobid
1	Data analyst	102
2	NULL	NULL
3	developer	101
3	Tester	103
4	developer	104
5	Software Engineer	105
6	Data Engineer	106
7	NULL	NULL
8	Tester	103
9	Data analyst	102
10	Software Engineer	105

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,c.companylocation,
a.experience from applicants a
right join applications ap on a.applicationid=ap.applicationid
right join jobs j on j.jobid=ap.jobid
join companies c on c.companyid=j.companyid
where c.companylocation='Chennai' and a.experience>2;
```



```
+-----------+-----------+-------------+-----------------+------------+
| firstname | lastname  | companyname | companylocation | experience |
+-----------+-----------+-------------+-----------------+------------+
| John      | Doe       | Hexaware    | Chennai         |          5 |
| Daniel    | Rodriguez | Hexaware    | Chennai         |          3 |
+-----------+-----------+-------------+-----------------+------------+
2 rows in set (0.00 sec)
```