HEXAWARE-PYTHON FOUNDATION TRAINING

CODING CHALLENGE – MYSQL

CARRER HUB

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Batch: 04

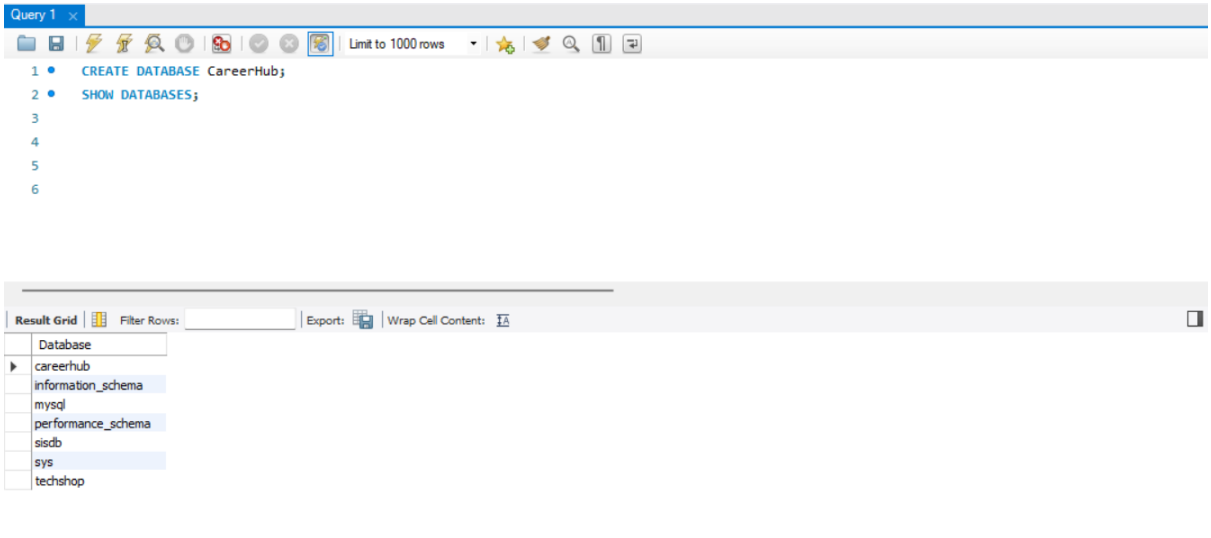
TASKS

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

Querry:

CREATE DATABASE CareerHub;

SHOW DATABASES;



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

Query:

USE CareerHub;

CREATE TABLE Companies

(

CompanyID INT,

CompanyName VARCHAR(50)NOT NULL,

Location VARCHAR(200)

);

CREATE TABLE Jobs

(

JobID INT,

```
CompanyID INT,
JobTitle varchar(100),
JobDescription TEXT,
JobLocation VARCHAR(200),
Salary DECIMAL(10,2) NOT NULL,
JobType VARCHAR(100),
PostedDate DATETIME
);

CREATE TABLE Applicants
(
ApplicantID INT,
FirstName VARCHAR(100) NOT NULL,
LastName VARCHAR(100) ,
Email VARCHAR(200) UNIQUE NOT NULL,
Phone VARCHAR(20),
Resume TEXT
);

CREATE TABLE Applications
(
ApplicationID INT,
JobID INT,
ApplicantID INT,
ApplicationDate DATETIME,
CoverLetter TEXT
);

SHOW TABLES;
```

```
USE CareerHub;
CREATE TABLE Companies
(
CompanyID INT,
CompanyName VARCHAR(50)NOT NULL,
Location VARCHAR(200)
);

CREATE TABLE Jobs
(
JobID INT,
CompanyID INT,
JobTitle varchar(100),
JobDescription TEXT,
JobLocation VARCHAR(200),
Salary DECIMAL(10,2) NOT NULL,
JobType VARCHAR(100),
PostedDate DATETIME
);

CREATE TABLE Applicants
```

```
CREATE TABLE Applicants
(
ApplicantID INT,
FirstName VARCHAR(100) NOT NULL,
LastName VARCHAR(100) ,
Email VARCHAR(200) UNIQUE NOT NULL,
Phone VARCHAR(20),
Resume TEXT
);

CREATE TABLE Applications
(
ApplicationID INT,
JobID INT,
ApplicantID INT,
ApplicationDate DATETIME,
CoverLetter TEXT
);

SHOW TABLES;
```

Tables_in_careerhub
applicants
applications
companies
jobs

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

Query:

Primary Key and Foreign Key:

ALTER TABLE Companies ADD CONSTRAINT PRIMARY KEY(CompanyID);

ALTER TABLE Jobs ADD CONSTRAINT PRIMARY KEY(JobID);

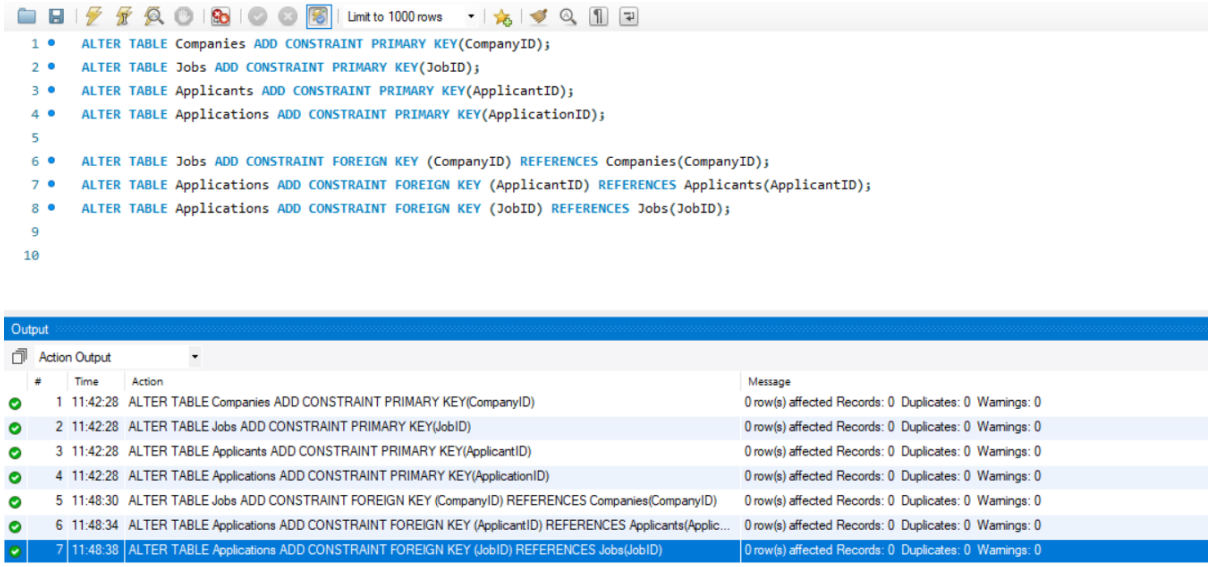
ALTER TABLE Applicants ADD CONSTRAINT PRIMARY KEY(ApplicantID);

ALTER TABLE Applications ADD CONSTRAINT PRIMARY KEY(ApplicationID);

ALTER TABLE Jobs ADD CONSTRAINT FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID);

ALTER TABLE Applications ADD CONSTRAINT FOREIGN KEY (ApplicantID) REFERENCES Applicants(ApplicantID);

ALTER TABLE Applications ADD CONSTRAINT FOREIGN KEY (JobID) REFERENCES Jobs(JobID);



```
ALTER TABLE Companies ADD CONSTRAINT PRIMARY KEY(CompanyID);
ALTER TABLE Jobs ADD CONSTRAINT PRIMARY KEY(JobID);
ALTER TABLE Applicants ADD CONSTRAINT PRIMARY KEY(ApplicantID);
ALTER TABLE Applications ADD CONSTRAINT PRIMARY KEY(ApplicationID);

ALTER TABLE Jobs ADD CONSTRAINT FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID);
ALTER TABLE Applications ADD CONSTRAINT FOREIGN KEY (ApplicantID) REFERENCES Applicants(ApplicantID);
ALTER TABLE Applications ADD CONSTRAINT FOREIGN KEY (JobID) REFERENCES Jobs(JobID);
```

Output

Action Output

#	Time	Action	Message
1	11:42:28	ALTER TABLE Companies ADD CONSTRAINT PRIMARY KEY(CompanyID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
2	11:42:28	ALTER TABLE Jobs ADD CONSTRAINT PRIMARY KEY(JobID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
3	11:42:28	ALTER TABLE Applicants ADD CONSTRAINT PRIMARY KEY(ApplicantID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
4	11:42:28	ALTER TABLE Applications ADD CONSTRAINT PRIMARY KEY(ApplicationID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
5	11:48:30	ALTER TABLE Jobs ADD CONSTRAINT FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
6	11:48:34	ALTER TABLE Applications ADD CONSTRAINT FOREIGN KEY (ApplicantID) REFERENCES Applicants(Applic...	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
7	11:48:38	ALTER TABLE Applications ADD CONSTRAINT FOREIGN KEY (JobID) REFERENCES Jobs(JobID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0

4. Ensure the script handles potential errors, such as if the database or tables already exist.

Query:

```
CREATE DATABASE IF NOT EXISTS CareerHub;

USE CareerHub;


DROP TABLE IF EXISTS Applications;

DROP TABLE IF EXISTS Jobs;

DROP TABLE IF EXISTS Applicants;

DROP TABLE IF EXISTS Companies;


CREATE TABLE IF NOT EXISTS Companies (

    CompanyID INT PRIMARY KEY,

    CompanyName VARCHAR(100) NOT NULL,
```

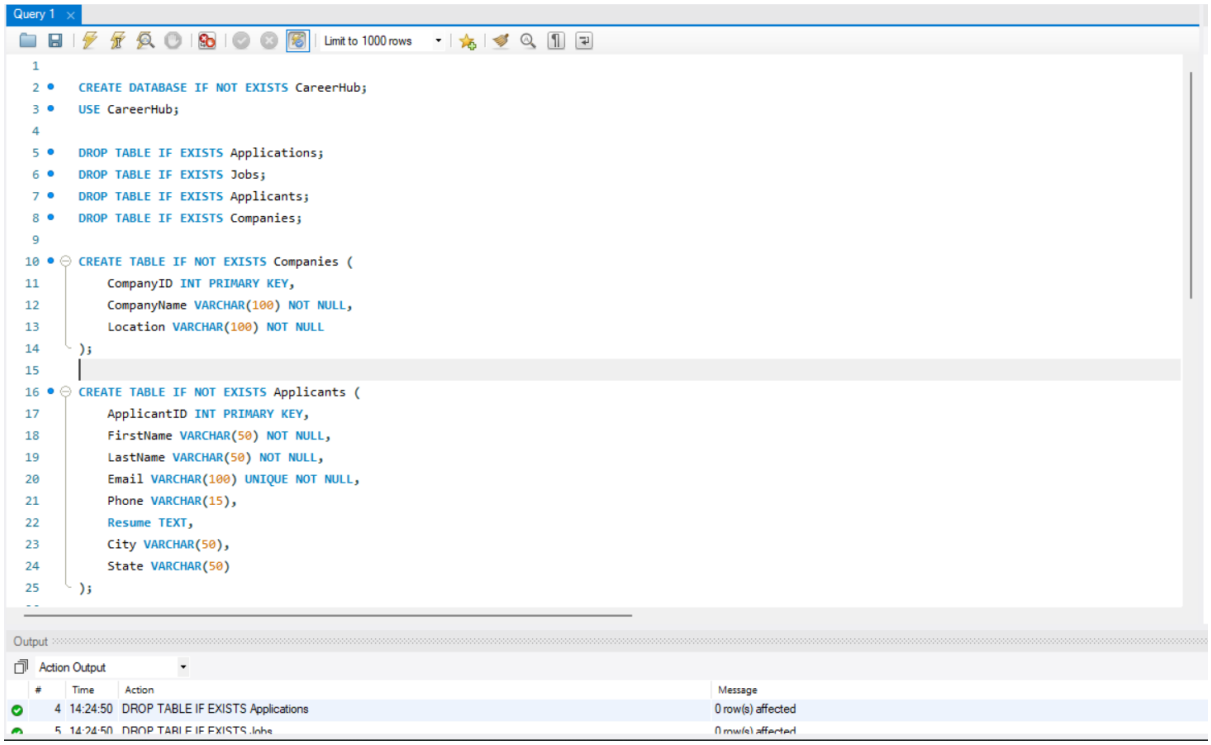
```
    Location VARCHAR(100) NOT NULL
);

CREATE TABLE IF NOT EXISTS Applicants (
    ApplicantID INT PRIMARY KEY,
    FirstName VARCHAR(50) NOT NULL,
    LastName VARCHAR(50) NOT NULL,
    Email VARCHAR(100) UNIQUE NOT NULL,
    Phone VARCHAR(15),
    Resume TEXT,
    City VARCHAR(50),
    State VARCHAR(50)
);

CREATE TABLE IF NOT EXISTS Jobs (
    JobID INT PRIMARY KEY,
    CompanyID INT,
    JobTitle VARCHAR(100) NOT NULL,
    JobDescription TEXT,
    JobLocation VARCHAR(100),
    Salary DECIMAL(10, 2) CHECK (Salary >= 0),
    JobType VARCHAR(50),
    PostedDate DATETIME,
    FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);

CREATE TABLE IF NOT EXISTS Applications (
```

```
    ApplicationID INT PRIMARY KEY,
    JobID INT,
    ApplicantID INT,
    ApplicationDate DATETIME,
    CoverLetter TEXT,
    FOREIGN KEY (JobID) REFERENCES Jobs(JobID)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
    FOREIGN KEY (ApplicantID) REFERENCES Applicants(ApplicantID)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
```



```
);

CREATE TABLE IF NOT EXISTS Jobs (
    JobID INT PRIMARY KEY,
    CompanyID INT,
    JobTitle VARCHAR(100) NOT NULL,
    JobDescription TEXT,
    JobLocation VARCHAR(100),
    Salary DECIMAL(10, 2) CHECK (Salary >= 0),
    JobType VARCHAR(50),
    PostedDate DATETIME,
    FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);

CREATE TABLE IF NOT EXISTS Applications (
    ApplicationID INT PRIMARY KEY,
    JobID INT,
    ApplicantID INT,
    ApplicationDate DATETIME,
    CoverLetter TEXT,
    FOREIGN KEY (JobID) REFERENCES Jobs(JobID)
        ON DELETE CASCADE
        ON UPDATE CASCADE,
```

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Action Output

	Time	Action	Message
4	14:24:50	DROP TABLE IF EXISTS Applications	0 row(s) affected
5	14:24:50	DROP TABLE IF EXISTS Jobs	0 row(s) affected

Query 1

Limit to 1000 rows

```
33      Salary DECIMAL(10, 2) CHECK (Salary >= 0),
34      JobType VARCHAR(50),
35      PostedDate DATETIME,
36      FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID)
37          ON DELETE CASCADE
38          ON UPDATE CASCADE
39  );
40
41  CREATE TABLE IF NOT EXISTS Applications (
42      ApplicationID INT PRIMARY KEY,
43      JobID INT,
44      ApplicantID INT,
45      ApplicationDate DATETIME,
46      CoverLetter TEXT,
47      FOREIGN KEY (JobID) REFERENCES Jobs(JobID)
48          ON DELETE CASCADE
49          ON UPDATE CASCADE,
50      FOREIGN KEY (ApplicantID) REFERENCES Applicants(ApplicantID)
51          ON DELETE CASCADE
52          ON UPDATE CASCADE
53  );
54
55
56
57
```

Output

Action Output

#	Time	Action	Message
4	14:24:50	DROP TABLE IF EXISTS Applications	0 row(s) affected

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.

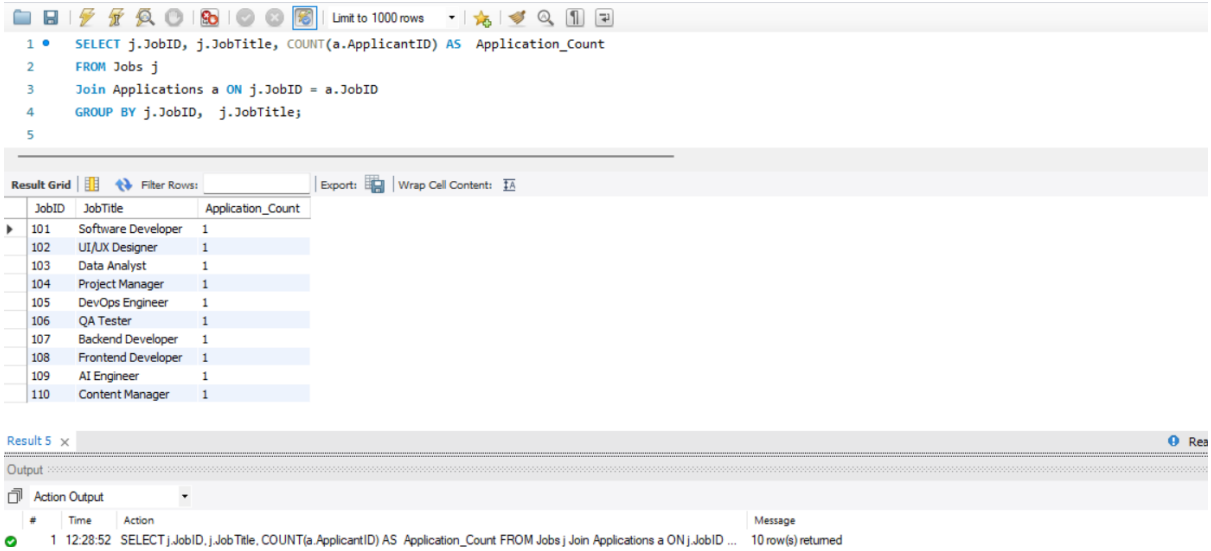
Query:

SELECT j.JobID, j.JobTitle, COUNT(a.ApplicantID) AS Application_Count

FROM Jobs j

Join Applications a ON j.JobID = a.JobID

GROUP BY j.JobID, j.JobTitle;



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.

Query:

SELECT j.JobTitle, c.CompanyName, j.JobLocation, j.Salary

FROM Jobs j

JOIN Companies c

ON j.CompanyID = c.CompanyID

WHERE j.Salary BETWEEN 40000 AND 80000;

Query 1

```
SELECT j.JobTitle, c.CompanyName, j.JobLocation, j.Salary
FROM Jobs j
JOIN Companies c
ON j.CompanyID = c.CompanyID
WHERE j.Salary BETWEEN 40000 AND 80000;
```

Result Grid

JobTitle	CompanyName	JobLocation	Salary
UI/UX Designer	GreenLeaf Solutions	Chennai	60000.00
Data Analyst	DataForge Systems	Hyderabad	75000.00
QA Tester	BrightWave Tech	Pune	65000.00
Backend Developer	QuantumLeap Ltd	Chennai	80000.00
Frontend Developer	CodeVerse Solutions	Noida	72000.00
Content Manager	Zentrix Digital	Kolkata	55000.00

Result 7

Output

Action Output

#	Time	Action	Message
1	12:39:30	SELECT j.JobTitle, c.CompanyName, j.JobLocation, j.Salary FROM Jobs j JOIN Companies c ON j.CompanyID = c.Com...	6 row(s) returned

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.

Query:

SELECT j.JobTitle, j.CompanyID, c.CompanyName, a.ApplicationDate

FROM Jobs j

JOIN Companies c ON j.CompanyID = c.CompanyID

JOIN Applications a ON j.JobID = a.JobID

WHERE ApplicantID = '205';

Query 1

```
SELECT  j.JobTitle, j.CompanyID, c.CompanyName, a.ApplicationDate
FROM Jobs j
JOIN Companies c ON j.CompanyID = c.CompanyID
JOIN Applications a ON j.JobID = a.JobID
WHERE ApplicantID = '205';
```

Result Grid

JobTitle	CompanyID	CompanyName	ApplicationDate
DevOps Engineer	5	CloudNest Corp.	2025-06-13 14:00:00
Frontend Developer	8	CodeVerse Solutions	2025-06-16 11:15:00
Content Manager	10	Zentrix Digital	2025-06-17 13:00:00

Result 14

Output

Action Output

#	Time	Action	Message
1	12:51:59	SELECT j.JobTitle, j.CompanyID, c.CompanyName, a.ApplicationDate FROM Jobs j JOIN Companies c ON j.Companyl...	3 row(s) returned
2	12:52:13	SELECT j.JobTitle, j.CompanyID, c.CompanyName, a.ApplicationDate FROM Jobs j JOIN Companies c ON j.Companyl...	3 row(s) returned

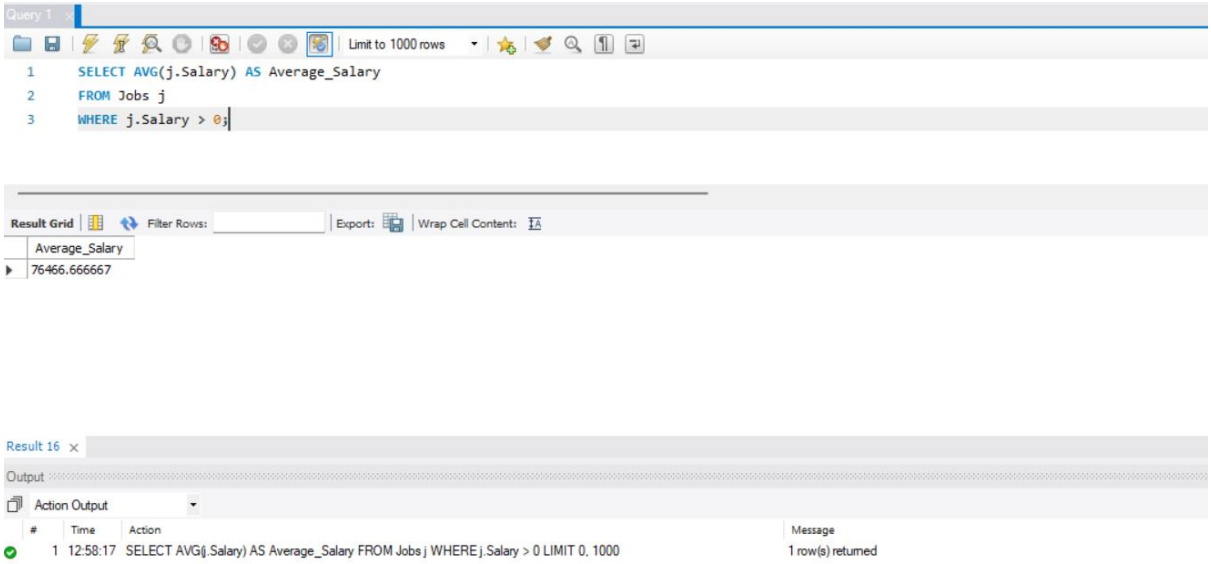
8. Create an SQL query that calculates and displays the average salary offered by all companies for job listings in the "Jobs" table. Ensure that the query filters out jobs with a salary of zero.

Query:

```
SELECT AVG(j.Salary) AS Average_Salary

FROM Jobs j

WHERE j.Salary > 0;
```



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.

Query:

```
SELECT c.CompanyName, COUNT(j.JobID) AS JobCount

FROM Companies c

JOIN Jobs j ON c.CompanyID = j.CompanyID

GROUP BY c.CompanyID, c.CompanyName

HAVING COUNT(j.JobID) = (

    SELECT MAX(JobCount)

    FROM (

        SELECT COUNT(JobID) AS JobCount

        FROM Jobs
```

GROUP BY CompanyID

) As Subquery

);

```
SELECT c.CompanyName, COUNT(j.JobID) AS JobCount
FROM Companies c
JOIN Jobs j ON c.CompanyID = j.CompanyID
GROUP BY c.CompanyID, c.CompanyName
HAVING COUNT(j.JobID) = (
    SELECT MAX(JobCount)
    FROM (
        SELECT COUNT(JobID) AS JobCount
        FROM Jobs
        GROUP BY CompanyID
    ) As Subquery
);
```

Result Grid

CompanyName	JobCount
TechNova Inc.	2
GreenLeaf Solutions	2
InnovaSoft Pvt Ltd	2
QuantumLeap Ltd	2
NeuraLogic AI	2

Result 24

Output

Action Output

#	Time	Action	Message
1	13:21:43	SELECT c.CompanyName, COUNT(j.JobID) AS JobCount FROM Companies c JOIN Jobs j ON c.CompanyID = j.Compa...	5 row(s) returned

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

Explanation :

Step 1: To find the year of experience of applicants we need to add another column named as Experience in Applicant Table and Update the values.

Query:

ALTER TABLE Applicants ADD COLUMN Experience INT;

UPDATE Applicants SET Experience = 4 WHERE ApplicantID IN(201,202,203);

UPDATE Applicants SET Experience = 2 WHERE ApplicantID IN (204, 205);

UPDATE Applicants SET Experience = 5 WHERE ApplicantID IN (206, 207);

UPDATE Applicants SET Experience = 1 WHERE ApplicantID IN (208);

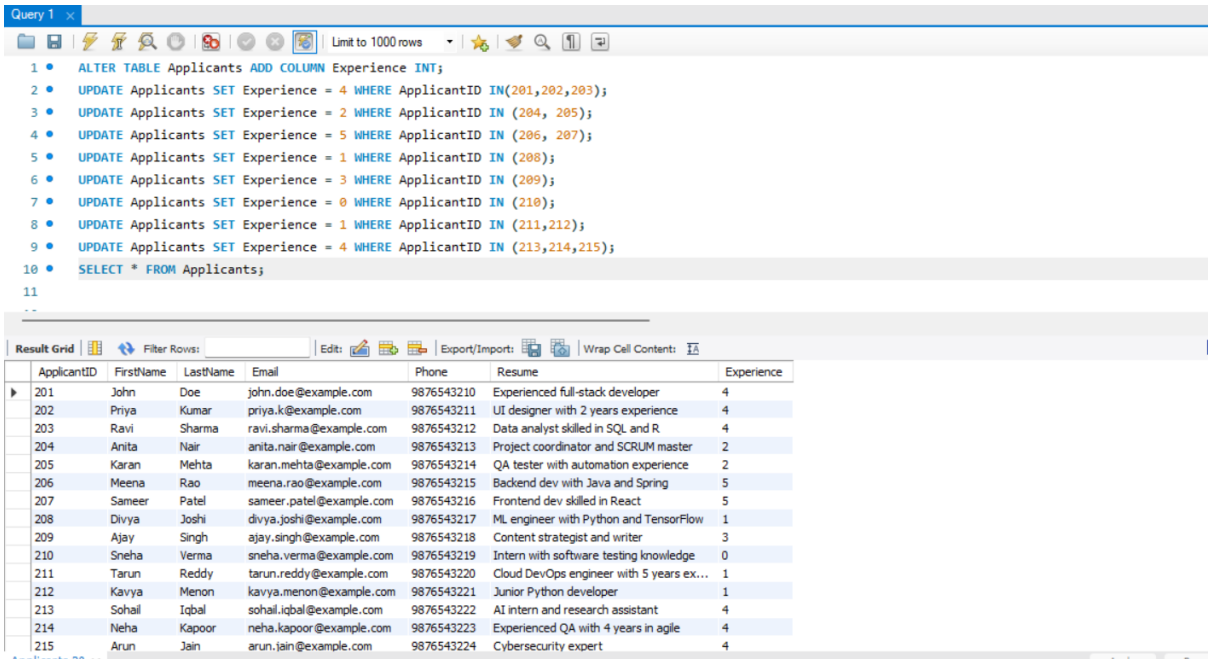
UPDATE Applicants SET Experience = 3 WHERE ApplicantID IN (209);

UPDATE Applicants SET Experience = 0 WHERE ApplicantID IN (210);

UPDATE Applicants SET Experience = 1 WHERE ApplicantID IN (211,212);

UPDATE Applicants SET Experience = 4 WHERE ApplicantID IN (213,214,215);

SELECT * FROM Applicants;



```
ALTER TABLE Applicants ADD COLUMN Experience INT;
UPDATE Applicants SET Experience = 4 WHERE ApplicantID IN(201,202,203);
UPDATE Applicants SET Experience = 2 WHERE ApplicantID IN (204, 205);
UPDATE Applicants SET Experience = 5 WHERE ApplicantID IN (206, 207);
UPDATE Applicants SET Experience = 1 WHERE ApplicantID IN (208);
UPDATE Applicants SET Experience = 3 WHERE ApplicantID IN (209);
UPDATE Applicants SET Experience = 0 WHERE ApplicantID IN (210);
UPDATE Applicants SET Experience = 1 WHERE ApplicantID IN (211,212);
UPDATE Applicants SET Experience = 4 WHERE ApplicantID IN (213,214,215);
SELECT * FROM Applicants;
```

ApplicantID	FirstName	LastName	Email	Phone	Resume	Experience
201	John	Doe	john.doe@example.com	9876543210	Experienced full-stack developer	4
202	Priya	Kumar	priya.k@example.com	9876543211	UI designer with 2 years experience	4
203	Ravi	Sharma	ravi.sharma@example.com	9876543212	Data analyst skilled in SQL and R	4
204	Anita	Nair	anita.nair@example.com	9876543213	Project coordinator and SCRUM master	2
205	Karan	Mehta	karan.mehta@example.com	9876543214	QA tester with automation experience	2
206	Meena	Rao	meena.rao@example.com	9876543215	Backend dev with Java and Spring	5
207	Sameer	Patel	sameer.patel@example.com	9876543216	Frontend dev skilled in React	5
208	Divya	Joshi	divya.joshi@example.com	9876543217	ML engineer with Python and TensorFlow	1
209	Ajay	Singh	ajay.singh@example.com	9876543218	Content strategist and writer	3
210	Sneha	Verma	sneha.verma@example.com	9876543219	Intern with software testing knowledge	0
211	Tarun	Reddy	tarun.reddy@example.com	9876543220	Cloud DevOps engineer with 5 years ex...	1
212	Kavya	Menon	kavya.menon@example.com	9876543221	Junior Python developer	1
213	Sohail	Iqbal	sohail.iqbal@example.com	9876543222	AI intern and research assistant	4
214	Neha	Kapoor	neha.kapoor@example.com	9876543223	Experienced QA with 4 years in agile	4
215	Arun	Jain	arun.jain@example.com	9876543224	Cybersecurity expert	4

Step 2: Now we can analyse and find the applicant who have applied for positions in companies, locations and have at least 3 years of experiences.

SELECT a.ApplicantID, CONCAT(a.FirstName," ", a.LastName) AS Name, a.Experience, c.CompanyName, j.JobTitle,j.JobLocation

FROM Applicants a

JOIN Applications ap ON a.ApplicantID = ap.ApplicantID

JOIN Jobs j ON ap.JobID = j.JobID

JOIN Companies c ON j.CompanyID = c.CompanyID

WHERE j.Joblocation ='Chennai'

AND a.Experience >=3;

Query 1

```
SELECT a.ApplicantID, CONCAT(a.FirstName," ", a.LastName) AS Name, a.Experience, c.CompanyName, j.JobTitle,j.JobLocation
FROM Applicants a
JOIN Applications ap ON a.ApplicantID = ap.ApplicantID
JOIN Jobs j ON ap.JobID = j.JobID
JOIN Companies c ON j.CompanyID = c.CompanyID
WHERE j.Joblocation ='Chennai'
AND a.Experience >=3;
```

Result Grid

ApplicantID	Name	Experience	CompanyName	JobTitle	JobLocation
202	Priya Kumar	4	GreenLeaf Solutions	UI/UX Designer	Chennai
202	Priya Kumar	4	GreenLeaf Solutions	UI/UX Designer	Chennai
207	Sameer Patel	5	QuantumLeap Ltd	Backend Developer	Chennai
203	Ravi Sharma	4	QuantumLeap Ltd	Backend Developer	Chennai

Result 30

Output

Action Output

#	Time	Action	Message
1	13:32:15	SELECT * FROM Applicants LIMIT 0, 1000	15 row(s) returned
2	13:40:13	SELECT c.CompanyName, COUNT(j.JobID) AS JobCount FROM Companies c JOIN Jobs j ON c.CompanyID = j.Compa...	5 row(s) returned
3	13:44:49	SELECT a.ApplicantID, CONCAT(a.FirstName," ", a.LastName) AS Name, a.Experience, c.CompanyName, j.JobTitle,j.J...	4 row(s) returned

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

Query:

SELECT DISTINCT JobTitle

FROM Jobs

WHERE Salary BETWEEN 60000 AND 80000;

Query 1

```
SELECT DISTINCT JobTitle
FROM Jobs
WHERE Salary BETWEEN 60000 AND 80000;
```

Result Grid

JobTitle
UI/UX Designer
Data Analyst
QA Tester
Backend Developer
Frontend Developer
Security Analyst

Jobs 31

Output

Action Output

#	Time	Action	Message
1	13:32:15	SELECT * FROM Applicants LIMIT 0, 1000	15 row(s) returned
2	13:40:13	SELECT c.CompanyName, COUNT(j.JobID) AS JobCount FROM Companies c JOIN Jobs j ON c.CompanyID = j.Compa...	5 row(s) returned
3	13:44:49	SELECT a.ApplicantID, CONCAT(a.FirstName," ", a.LastName) AS Name, a.Experience, c.CompanyName, j.JobTitle,j.J...	4 row(s) returned
4	13:47:04	SELECT DISTINCT JobTitle FROM Jobs WHERE Salary BETWEEN 60000 AND 80000 LIMIT 0, 1000	6 row(s) returned

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

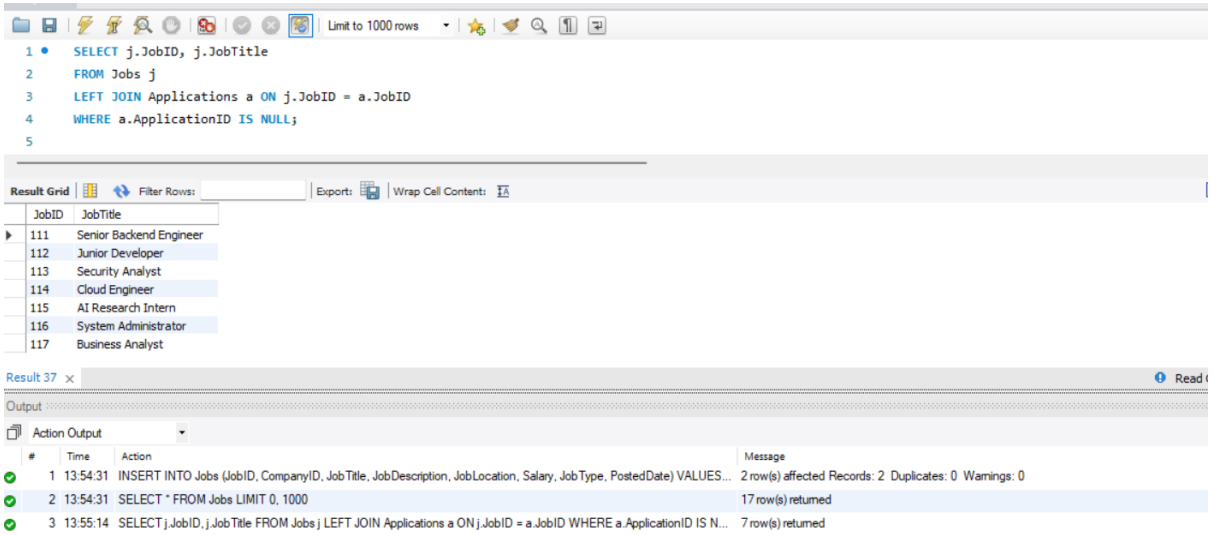
Query:

SELECT j.JobID, j.JobTitle

FROM Jobs j

LEFT JOIN Applications a ON j.JobID = a.JobID

WHERE a.ApplicationID IS NULL;



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

Query:

SELECT a.ApplicantID, CONCAT(a.FirstName," ", a.LastName) AS Applicant_Name, c.CompanyName, j.JobTitle

FROM Applicants a

JOIN Applications ap ON a.ApplicantID = ap.ApplicantID

JOIN Jobs j ON ap.JobID = j.JobID

JOIN Companies c ON j.CompanyID = c.CompanyID;

```
SELECT a.ApplicantID, CONCAT( a.FirstName," ", a.LastName) AS Applicant_Name, c.CompanyName, j.JobTitle
FROM Applicants a
JOIN Applications ap ON a.ApplicantID = ap.ApplicantID
JOIN Jobs j ON ap.JobID = j.JobID
JOIN Companies c ON j.CompanyID = c.CompanyID;
```

ApplicantID	Applicant_Name	CompanyName	JobTitle
201	John Doe	TechNova Inc.	Software Developer
202	Priya Kumar	GreenLeaf Solutions	UI/UX Designer
203	Ravi Sharma	DataForge Systems	Data Analyst
204	Anita Nair	InnovaSoft Pvt Ltd	Project Manager
205	Karan Mehta	CloudNest Corp.	DevOps Engineer
206	Meena Rao	BrightWave Tech	QA Tester
207	Sameer Patel	QuantumLeap Ltd	Backend Developer
208	Divya Joshi	CodeVerse Solutions	Frontend Developer
209	Ajay Singh	NeuraLogic AI	AI Engineer
210	Sneha Verma	Zentrix Digital	Content Manager
202	Priya Kumar	GreenLeaf Solutions	UI/UX Designer
202	Priya Kumar	InnovaSoft Pvt Ltd	Project Manager
202	Priya Kumar	BrightWave Tech	QA Tester
203	Ravi Sharma	DataForge Systems	Data Analyst
203	Ravi Sharma	QuantumLeap Ltd	Backend Developer
204	Anita Nair	TechNova Inc.	Software Developer
204	Anita Nair	NeuraLogic AI	AI Engineer
205	Karan Mehta	CodeVerse Solutions	Frontend Developer
205	Karan Mehta	Zentrix Digital	Content Manager
210	Sneha Verma	BrightWave Tech	QA Tester
210	Sneha Verma	InnovaSoft Pvt Ltd	Project Manager

Result 39

Output

Action Output

#	Time	Action	Message
1	13:59:12	SELECT a.ApplicantID, CONCAT(a.FirstName," ", a.LastName) AS Applicant_Name, c.CompanyName, j.JobTitle FRO...	21 row(s) returned

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

Query:

SELECT c.CompanyName, COUNT(j.JobID) AS JobCount

FROM Companies c

LEFT JOIN Jobs j ON c.CompanyID = j.CompanyID

GROUP BY c.CompanyID, c.CompanyName

```
SELECT c.CompanyName, COUNT(j.JobID) AS JobCount
FROM Companies c
LEFT JOIN Jobs j ON c.CompanyID = j.CompanyID
GROUP BY c.CompanyID, c.CompanyName;
```

CompanyName	JobCount
TechNova Inc.	3
GreenLeaf Solutions	2
DataForge Systems	1
InnovaSoft Pvt Ltd	3
CloudNest Corp.	1
BrightWave Tech	1
QuantumLeap Ltd	2
CodeVerse Solutions	1
NeuraLogic AI	2
Zentrix Digital	1

Result 41

Output

Action Output

#	Time	Action	Message
1	14:01:04	SELECT c.CompanyName, COUNT(j.JobID) AS JobCount FROM Companies c LEFT JOIN Jobs j ON c.CompanyID = j....	10 row(s) returned

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

Query:

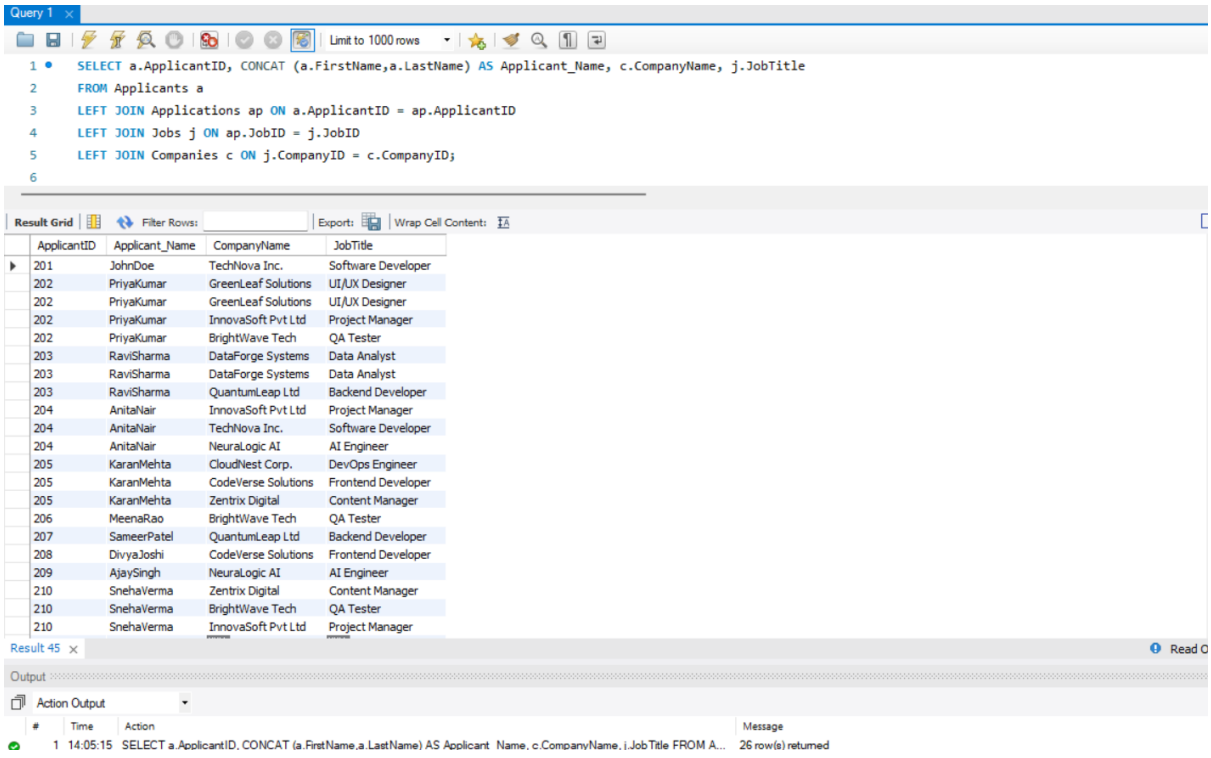
SELECT a.ApplicantID, CONCAT (a.FirstName,a.LastName) AS Applicant_Name, c.CompanyName, j.JobTitle

FROM Applicants a

LEFT JOIN Applications ap ON a.ApplicantID = ap.ApplicantID

LEFT JOIN Jobs j ON ap.JobID = j.JobID

LEFT JOIN Companies c ON j.CompanyID = c.CompanyID;



```
SELECT a.ApplicantID, CONCAT (a.FirstName,a.LastName) AS Applicant_Name, c.CompanyName, j.JobTitle
FROM Applicants a
LEFT JOIN Applications ap ON a.ApplicantID = ap.ApplicantID
LEFT JOIN Jobs j ON ap.JobID = j.JobID
LEFT JOIN Companies c ON j.CompanyID = c.CompanyID;
```

ApplicantID	Applicant_Name	CompanyName	JobTitle
201	JohnDoe	TechNova Inc.	Software Developer
202	PriyaKumar	GreenLeaf Solutions	UI/UX Designer
202	PriyaKumar	GreenLeaf Solutions	UI/UX Designer
202	PriyaKumar	InnovaSoft Pvt Ltd	Project Manager
202	PriyaKumar	BrightWave Tech	QA Tester
203	RaviSharma	DataForge Systems	Data Analyst
203	RaviSharma	DataForge Systems	Data Analyst
203	RaviSharma	QuantumLeap Ltd	Backend Developer
204	AnitaNair	InnovaSoft Pvt Ltd	Project Manager
204	AnitaNair	TechNova Inc.	Software Developer
204	AnitaNair	NeuraLogic AI	AI Engineer
205	KaranMehta	CloudNest Corp.	DevOps Engineer
205	KaranMehta	CodeVerse Solutions	Frontend Developer
205	KaranMehta	Zentrix Digital	Content Manager
206	MeenaRao	BrightWave Tech	QA Tester
207	SameerPatel	QuantumLeap Ltd	Backend Developer
208	DivyaJoshi	CodeVerse Solutions	Frontend Developer
209	AjaySingh	NeuraLogic AI	AI Engineer
210	SnehaVerma	Zentrix Digital	Content Manager
210	SnehaVerma	BrightWave Tech	QA Tester
210	SnehaVerma	InnovaSoft Pvt Ltd	Project Manager

#	Time	Action	Message
1	14:05:15	SELECT a.ApplicantID, CONCAT (a.FirstName,a.LastName) AS Applicant_Name, c.CompanyName, j.JobTitle FROM A...	26 row(s) returned

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

Query:

SELECT DISTINCT c.CompanyName

FROM Companies c

JOIN Jobs j ON c.CompanyID = j.CompanyID

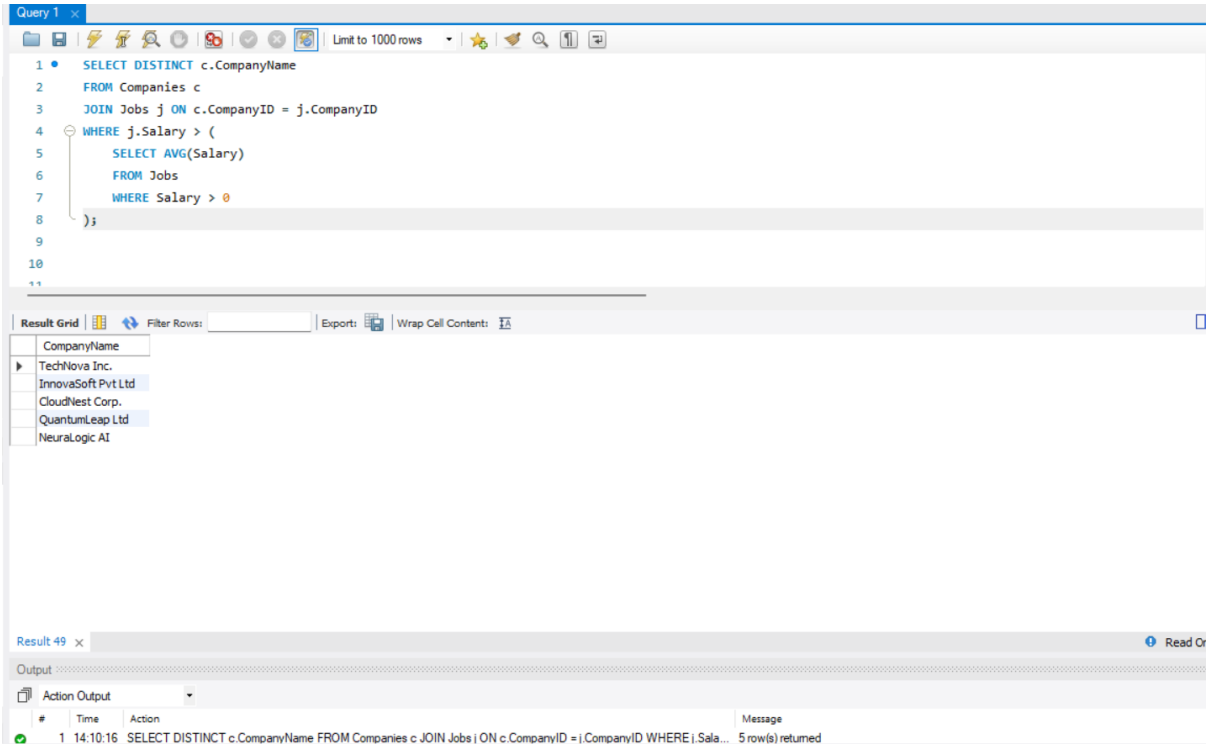
WHERE j.Salary > (

SELECT AVG(Salary)

FROM Jobs

WHERE Salary > 0

);



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

Explanation: Adding extra columns to table Applications as City and State . Also display the output with Concat.

Query:

ALTER TABLE Applicants ADD City VARCHAR(50), ADD State VARCHAR(50);

UPDATE Applicants SET City='Bangalore', State='KA' WHERE ApplicantID = 201;

UPDATE Applicants SET City='Chennai', State='TN' WHERE ApplicantID = 202;

UPDATE Applicants SET City='Hyderabad', State='TS' WHERE ApplicantID = 203;

UPDATE Applicants SET City='Mumbai', State='MH' WHERE ApplicantID = 204;

UPDATE Applicants SET City='Delhi', State='DL' WHERE ApplicantID = 205;

UPDATE Applicants SET City='Pune', State='MH' WHERE ApplicantID = 206;

UPDATE Applicants SET City='Chennai', State='TN' WHERE ApplicantID = 207;

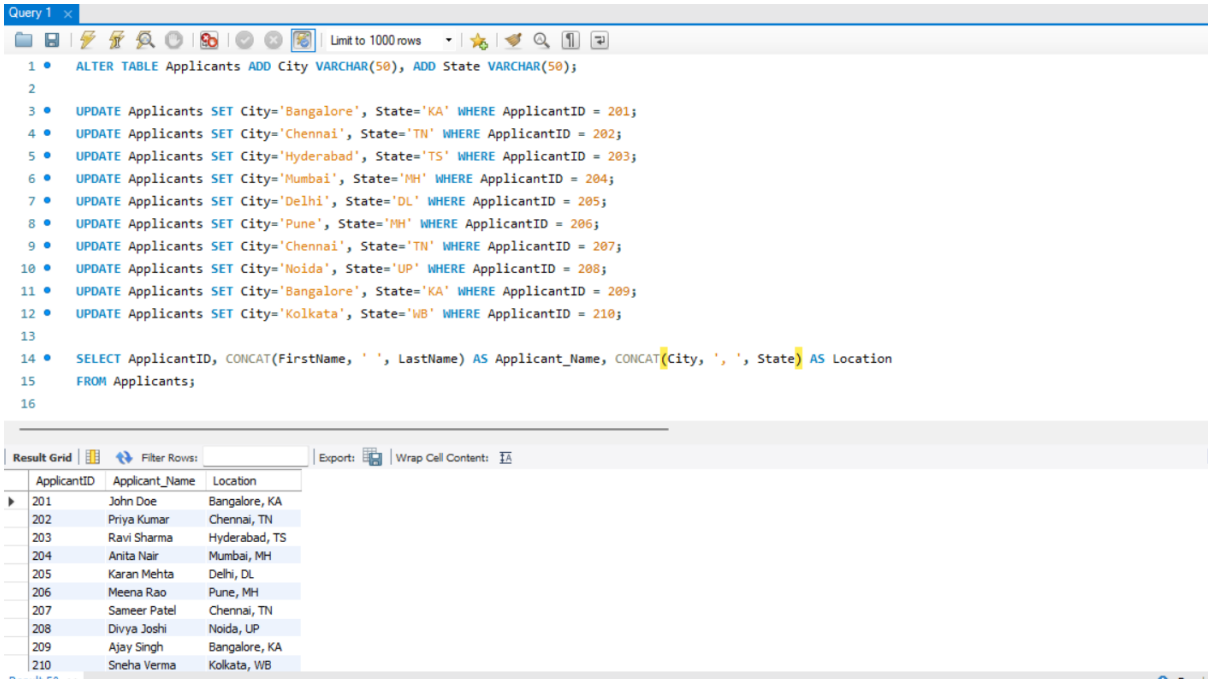
UPDATE Applicants SET City='Noida', State='UP' WHERE ApplicantID = 208;

UPDATE Applicants SET City='Bangalore', State='KA' WHERE ApplicantID = 209;

UPDATE Applicants SET City='Kolkata', State='WB' WHERE ApplicantID = 210;

SELECT ApplicantID, CONCAT(FirstName, ' ', LastName) AS Applicant_Name, CONCAT(City, ', ', State) AS Location

FROM Applicants;



```
ALTER TABLE Applicants ADD City VARCHAR(50), ADD State VARCHAR(50);

UPDATE Applicants SET City='Bangalore', State='KA' WHERE ApplicantID = 201;
UPDATE Applicants SET City='Chennai', State='TN' WHERE ApplicantID = 202;
UPDATE Applicants SET City='Hyderabad', State='TS' WHERE ApplicantID = 203;
UPDATE Applicants SET City='Mumbai', State='MH' WHERE ApplicantID = 204;
UPDATE Applicants SET City='Delhi', State='DL' WHERE ApplicantID = 205;
UPDATE Applicants SET City='Pune', State='MH' WHERE ApplicantID = 206;
UPDATE Applicants SET City='Chennai', State='TN' WHERE ApplicantID = 207;
UPDATE Applicants SET City='Noida', State='UP' WHERE ApplicantID = 208;
UPDATE Applicants SET City='Bangalore', State='KA' WHERE ApplicantID = 209;
UPDATE Applicants SET City='Kolkata', State='WB' WHERE ApplicantID = 210;

SELECT ApplicantID, CONCAT(FirstName, ' ', LastName) AS Applicant_Name, CONCAT(City, ', ', State) AS Location
FROM Applicants;
```

ApplicantID	Applicant_Name	Location
201	John Doe	Bangalore, KA
202	Priya Kumar	Chennai, TN
203	Ravi Sharma	Hyderabad, TS
204	Anita Nair	Mumbai, MH
205	Karan Mehta	Delhi, DL
206	Meena Rao	Pune, MH
207	Sameer Patel	Chennai, TN
208	Divya Joshi	Noida, UP
209	Ajay Singh	Bangalore, KA
210	Sneha Verma	Kolkata, WB

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

Query:

SELECT JobID, JobTitle, Salary

FROM Jobs

WHERE JobTitle LIKE '%Developer%' OR JobTitle LIKE '%Engineer%';

Query 1

```
SELECT JobID, JobTitle, Salary
FROM Jobs
WHERE JobTitle LIKE '%Developer%' OR JobTitle LIKE '%Engineer%';
```

Result Grid

JobID	JobTitle	Salary
101	Software Developer	85000.00
105	DevOps Engineer	90000.00
107	Backend Developer	80000.00
108	Frontend Developer	72000.00
109	AI Engineer	100000.00
111	Senior Backend Engineer	120000.00
112	Junior Developer	50000.00
114	Cloud Engineer	105000.00

Jobs 52

Output

Action Output

#	Time	Action	Message
1	14:18:44	SELECT JobID, JobTitle, Salary FROM Jobs WHERE JobTitle LIKE '%Developer%' OR JobTitle LIKE '%Engineer%' LIMI...	8 row(s) returned

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

Query:

SELECT a.ApplicantID, CONCAT(a.FirstName, ' ', a.LastName) AS ApplicantName, j.JobID, j.JobTitle

FROM Applicants a

LEFT JOIN Applications ap ON a.ApplicantID = ap.ApplicantID

LEFT JOIN Jobs j ON ap.JobID = j.JobID;

Query 1

```
SELECT a.ApplicantID, CONCAT(a.FirstName, ' ', a.LastName) AS ApplicantName, j.JobID, j.JobTitle
FROM Applicants a
LEFT JOIN Applications ap ON a.ApplicantID = ap.ApplicantID
LEFT JOIN Jobs j ON ap.JobID = j.JobID;
```

Result Grid

ApplicantID	ApplicantName	JobID	JobTitle
201	John Doe	101	Software Developer
202	Priya Kumar	102	UI/UX Designer
202	Priya Kumar	102	UI/UX Designer
202	Priya Kumar	104	Project Manager
202	Priya Kumar	106	QA Tester
203	Ravi Sharma	103	Data Analyst
203	Ravi Sharma	103	Data Analyst
203	Ravi Sharma	107	Backend Developer
204	Anita Nair	104	Project Manager
204	Anita Nair	101	Software Developer
204	Anita Nair	109	AI Engineer
205	Karan Mehta	105	DevOps Engineer
205	Karan Mehta	108	Frontend Developer
205	Karan Mehta	110	Content Manager
206	Meena Rao	106	QA Tester
207	Sameer Patel	107	Backend Developer
208	Divya Joshi	108	Frontend Developer
209	Ajay Singh	109	AI Engineer
210	Sneha Verma	110	Content Manager
210	Sneha Verma	106	QA Tester
210	Sneha Verma	104	Project Manager

Result 53

Output

Action Output

#	Time	Action	Message
1	14:20:15	SELECT a.ApplicantID, CONCAT(a.FirstName, ' ', a.LastName) AS ApplicantName, j.JobID, j.JobTitle FROM Applicants ...	26 row(s) returned

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

Query:

SELECT a.ApplicantID, CONCAT(a.FirstName, ' ', a.LastName) AS ApplicantName, c.CompanyName, c.Location

FROM Applicants a

CROSS JOIN Companies c

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

Query 1

```sql
SELECT a.ApplicantID, CONCAT(a.FirstName, ' ', a.LastName) AS ApplicantName, c.CompanyName, c.Location
FROM Applicants a
CROSS JOIN Companies c
WHERE c.Location = 'Chennai' AND a.Experience > 2;
```

Result Grid

ApplicantID	ApplicantName	CompanyName	Location
201	John Doe	QuantumLeap Ltd	Chennai
201	John Doe	GreenLeaf Solutions	Chennai
202	Priya Kumar	QuantumLeap Ltd	Chennai
202	Priya Kumar	GreenLeaf Solutions	Chennai
203	Ravi Sharma	QuantumLeap Ltd	Chennai
203	Ravi Sharma	GreenLeaf Solutions	Chennai
206	Meena Rao	QuantumLeap Ltd	Chennai
206	Meena Rao	GreenLeaf Solutions	Chennai
207	Sameer Patel	QuantumLeap Ltd	Chennai
207	Sameer Patel	GreenLeaf Solutions	Chennai
209	Ajay Singh	QuantumLeap Ltd	Chennai
209	Ajay Singh	GreenLeaf Solutions	Chennai
213	Sohail Iqbal	QuantumLeap Ltd	Chennai
213	Sohail Iqbal	GreenLeaf Solutions	Chennai
214	Neha Kapoor	QuantumLeap Ltd	Chennai
214	Neha Kapoor	GreenLeaf Solutions	Chennai
215	Arun Jain	QuantumLeap Ltd	Chennai
215	Arun Jain	GreenLeaf Solutions	Chennai

Result 55

Output

Action Output

#	Time	Action	Message
1	14:23:05	SELECT a.ApplicantID, CONCAT(a.FirstName, ' ', a.LastName) AS ApplicantName, c.CompanyName, c.Location FROM...	18 row(s) returned