CAREERHUB – The Job Board

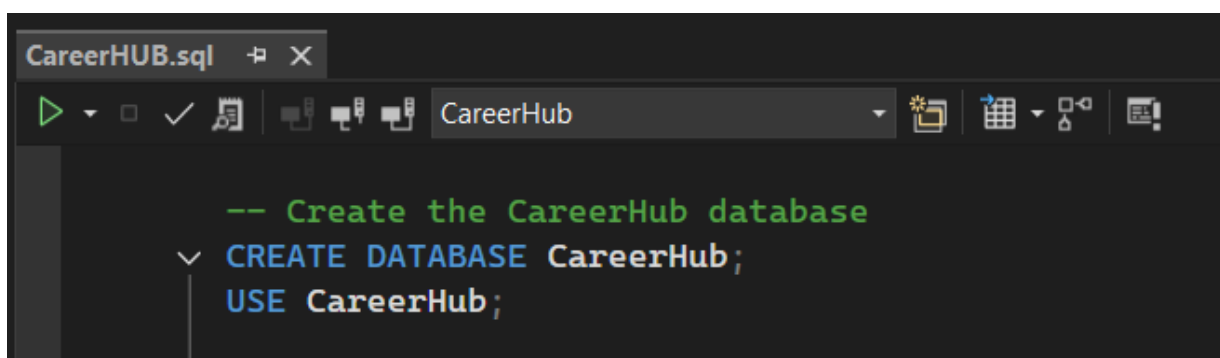## (SQL Queries and Data Handling)

Description:

The CareerHub database is a relational database designed to manage a job board system, connecting companies, job listings, applicants, and applications through four core tables: Companies, Jobs, Applicants, and Applications.

The Companies table stores organization details (CompanyID, CompanyName, Location), while the Jobs table lists roles (JobID, JobTitle, JobDescription, Salary, JobType, PostedDate) linked to Companies via a foreign key. The Applicants table holds candidate data (ApplicantID, FirstName, LastName, Email, Phone, Resume, ExperienceYears, City, State), and the Applications table links applicants to jobs (ApplicationID, JobID, ApplicantID, ApplicationDate, CoverLetter) with referential integrity. Initialized by a script that drops existing databases to avoid errors, it creates tables with constraints and inserts 10 records each, featuring companies like Tata Consultancy Services, diverse roles like Software Engineer, and candidates with emails like aaradhyasharma@example.com.

Modifications ensure full column names (e.g., Jobs.JobTitle), correct "Salary" spelling, and date formats without time (e.g., '2023-02-15'). Supporting 16 queries, it enables functionalities like counting applications per job (including unapplied jobs via LEFT JOIN), retrieving jobs within salary ranges ($30,000–$90,000), tracking applicant histories, calculating average salaries (excluding zeros), identifying top job-posting companies, and listing applicants with 3+ years of experience in cities like Chennai. Using SQL features like JOINs, GROUP BY, and subqueries, CareerHub provides robust insights for recruitment analysis, salary benchmarking, and applicant tracking.

Tasks:

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


```sql
-- Create the CareerHub database
CREATE DATABASE CareerHub;
USE CareerHub;
```

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

```sql
-- Create the CareerHub database
CREATE DATABASE CareerHub;
USE CareerHub;

-- Create Companies table
CREATE TABLE Companies (
    CompanyID INT PRIMARY KEY,
    CompanyName VARCHAR(50),
    Location VARCHAR(50)
);

-- Create Jobs table
CREATE TABLE Jobs (
    JobID INT PRIMARY KEY,
    CompanyID INT,
    JobTitle VARCHAR(50),
    JobDescription TEXT,
    JobLocation VARCHAR(50),
    Salary DECIMAL(10,2),
    JobType VARCHAR(50),
    PostedDate DATETIME,
    FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID)
);

-- Create Applicants table
CREATE TABLE Applicants (
    ApplicantID INT PRIMARY KEY,
    FirstName VARCHAR(50),
    LastName VARCHAR(50),
    Email VARCHAR(50),
    Phone VARCHAR(50),
    Resume TEXT,
    ExperienceYears INT,
    City VARCHAR(50),
    State VARCHAR(50)
);

-- Create Applications table
CREATE TABLE Applications (
    ApplicationID INT PRIMARY KEY,
    JobID INT,
    ApplicantID INT,
    ApplicationDate DATETIME,
    CoverLetter TEXT,
    FOREIGN KEY (JobID) REFERENCES Jobs(JobID),
    FOREIGN KEY (ApplicantID) REFERENCES Applicants(ApplicantID)
);
```

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

```sql
-- Insert 10 records into Companies table
INSERT INTO Companies (CompanyID, CompanyName, Location)
VALUES
(1, 'Tata Consultancy Services', 'Mumbai'),
(2, 'Infosys', 'Bangalore'),
(3, 'Wipro', 'Hyderabad'),
(4, 'HCL Technologies', 'Noida'),
(5, 'Accenture', 'Gurgaon'),
(6, 'IBM India', 'Pune'),
(7, 'Cognizant Technology Solutions', 'Chennai'),
(8, 'Capgemini', 'Mumbai'),
(9, 'Oracle India', 'Bangalore'),
(10, 'Microsoft India', 'Hyderabad');

-- Insert 10 records into Jobs table
INSERT INTO Jobs (JobID, CompanyID, JobTitle, JobDescription, JobLocation, Salary, JobType, PostedDate)
VALUES
(101, 1, 'Software Engineer', 'Design, develop, and test software applications for TCS clients.', 'Mumbai', 60000.00, 'Full Time', '2023-02-15'),
(102, 5, 'Sales Manager', 'Manage sales team and meet sales targets for Accenture products.', 'Gurgaon', 80000.00, 'Full Time', '2023-03-20'),
(103, 10, 'Data Scientist', 'Analyze and interpret complex data to inform business decisions at Microsoft.', 'Hyderabad', 85000.00, 'Full Time', '2023-01-10'),
(104, 2, 'Network Engineer', 'Design, implement, and manage network infrastructure for Infosys.', 'Bangalore', 55000.00, 'Full Time', '2023-02-22'),
(105, 8, 'HR Generalist', 'Handle recruitment, employee relations, and benefits for Capgemini.', 'Mumbai', 45000.00, 'Full Time', '2023-05-10'),
(106, 6, 'Database Administrator', 'Manage and maintain databases for IBM India clients.', 'Pune', 70000.00, 'Full Time', '2024-02-20'),
(107, 4, 'Software Developer', 'Develop software applications for HCL Technologies clients.', 'Noida', 60000.00, 'Full Time', '2024-03-01'),
(108, 9, 'UX Designer', 'Design user interfaces for Oracle India products.', 'Bangalore', 65000.00, 'Full Time', '2024-04-10'),
(109, 7, 'Night Shift Support Engineer', 'Provide technical support to Cognizant clients during night shifts.', 'Chennai', 40000.00, 'Night Shift', '2023-02-10'),
(110, 3, 'Full Stack Developer', 'Develop full-stack applications for Wipro clients.', 'Hyderabad', 75000.00, 'Full Time', '2024-05-01');
```

```sql
-- Insert 10 records into Applicants table
INSERT INTO Applicants (ApplicantID, FirstName, LastName, Email, Phone, Resume, ExperienceYears, City, State)
VALUES
(201, 'Aaradhya', 'Sharma', 'aaradhyasharma@example.com', '9876543210', 'Resume for Aaradhya Sharma', 2, 'Chennai', 'Tamil Nadu'),
(202, 'Rahul', 'Kumar', 'rahulkumar@example.com', '9832112345', 'Resume for Rahul Kumar', 3, 'Bangalore', 'Karnataka'),
(203, 'Priya', 'Singh', 'priyasingh@example.com', '9421876543', 'Resume for Priya Singh', 4, 'Hyderabad', 'Andhra Pradesh'),
(204, 'Aryan', 'Verma', 'aryanverma@example.com', '9834567890', 'Resume for Aryan Verma', 5, 'Chennai', 'Tamil Nadu'),
(205, 'Nalini', 'Jain', 'nalinijain@example.com', '9212345678', 'Resume for Nalini Jain', 2, 'Chennai', 'Tamil Nadu'),
(206, 'Siddharth', 'Gupta', 'siddharthgupta@example.com', '9543210987', 'Resume for Siddharth Gupta', 3, 'Bangalore', 'Karnataka'),
(207, 'Ananya', 'Mishra', 'ananyamishra@example.com', '9837654321', 'Resume for Ananya Mishra', 4, 'Bangalore', 'Karnataka'),
(208, 'Vedant', 'Pandey', 'vedantpandey@example.com', '9421567890', 'Resume for Vedant Pandey', 2, 'Mumbai', 'Maharashtra'),
(209, 'Kavya', 'Tiwari', 'kavyatiwari@example.com', '9834987654', 'Resume for Kavya Tiwari', 5, 'Pune', 'Maharashtra'),
(210, 'Aman', 'Yadav', 'amanyadav@example.com', '9210987654', 'Resume for Aman Yadav', 3, 'Noida', 'Uttar Pradesh');

-- Insert 10 records into Applications table
INSERT INTO Applications (ApplicationID, JobID, ApplicantID, ApplicationDate, CoverLetter)
VALUES
(301, 101, 201, '2023-01-10', 'Cover letter for Software Engineer position at TCS'),
(302, 104, 202, '2023-02-15', 'Cover letter for Network Engineer position at Infosys'),
(303, 106, 203, '2023-03-20', 'Cover letter for Database Administrator position at IBM India'),
(304, 107, 204, '2023-04-01', 'Cover letter for Software Developer position at HCL Technologies'),
(305, 109, 205, '2023-05-05', 'Cover letter for Night Shift Support Engineer position at Cognizant'),
(306, 102, 206, '2023-01-20', 'Cover letter for Sales Manager position at Accenture'),
(307, 108, 207, '2023-02-25', 'Cover letter for UX Designer position at Oracle India'),
(308, 110, 208, '2023-03-15', 'Cover letter for Full Stack Developer position at Wipro'),
(309, 103, 209, '2023-04-10', 'Cover letter for Data Scientist position at Microsoft India'),
(310, 105, 210, '2023-05-20', 'Cover letter for HR Generalist position at Capgemini');
```

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

To ensure all queries produce valid results, additional records have been inserted where necessary to account for jobs with no applications, filtering, and company-wise grouping.

SELECT * FROM Companies;

SELECT * FROM Jobs;

SELECT * FROM Applicants;

SELECT * FROM Applications;

This set of queries retrieves all records from the core tables of the CareerHub system. It provides a comprehensive view of companies, job listings, applicants, and applications, and helps validate relationships and data integrity for downstream analysis.

```
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        SELECT * FROM Companies;
        SELECT * FROM Jobs;
        SELECT * FROM Applicants;
        SELECT * FROM Applications;

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  ᠍ T-SQL  ᠍   ᠍ Results   ᠍ Message
```

	ApplicantID	FirstName	LastName	Email	Phone	Resume	ExperienceYears	City	State
1	201	Aaradhya	Sharma	aaradhyasharma@example.com	9876543210	Resume for Aaradhya Sharma	2	Chennai	Tamil Nadu
2	202	Rahul	Kumar	rahulkumar@example.com	9832112345	Resume for Rahul Kumar	3	Bangalore	Karnataka
3	203	Priya	Singh	priyasingh@example.com	9421876543	Resume for Priya Singh	4	Hyderabad	Andhra Pradesh
4	204	Aryan	Verma	aryanverma@example.com	9834567890	Resume for Aryan Verma	5	Chennai	Tamil Nadu
5	205	Nalini	Jain	nalinijain@example.com	9212345678	Resume for Nalini Jain	2	Chennai	Tamil Nadu
6	206	Siddharth	Gupta	siddharthgupta@example.com	9543210987	Resume for Siddharth Gupta	3	Bangalore	Karnataka
7	207	Ananya	Mishra	ananyamishra@example.com	9837654321	Resume for Ananya Mishra	4	Bangalore	Karnataka
8	208	Vedant	Pandey	vedantpandey@example.com	9421567890	Resume for Vedant Pandey	2	Mumbai	Maharashtra
9	209	Kavya	Tiwari	kavyatiwari@example.com	9834987654	Resume for Kavya Tiwari	5	Pune	Maharashtra
10	210	Aman	Yadav	amanyadav@example.com	9210987654	Resume for Aman Yadav	3	Noida	Uttar Pradesh

	ApplicationID	JobID	ApplicantID	ApplicationDate	CoverLetter
1	301	101	201	2023-01-10 00:00:00.000	Cover letter for Software Engineer position at TCS
2	302	104	202	2023-02-15 00:00:00.000	Cover letter for Network Engineer position at Infosys
3	303	106	203	2023-03-20 00:00:00.000	Cover letter for Database Administrator position at IBM India
4	304	107	204	2023-04-01 00:00:00.000	Cover letter for Software Developer position at HCL Technologies
5	305	109	205	2023-05-05 00:00:00.000	Cover letter for Night Shift Support Engineer position at Cognizant
6	306	102	206	2023-01-20 00:00:00.000	Cover letter for Sales Manager position at Accenture
7	307	108	207	2023-02-25 00:00:00.000	Cover letter for UX Designer position at Oracle India
8	308	110	208	2023-03-15 00:00:00.000	Cover letter for Full Stack Developer position at Wipro
9	309	103	209	2023-04-10 00:00:00.000	Cover letter for Data Scientist position at Microsoft India
10	310	105	210	2023-05-20 00:00:00.000	Cover letter for HR Generalist position at Capgemini

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.

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        -- Query 5: Count the number of applications received for each job listing, including jobs with no applications
      ∨ SELECT Jobs.JobTitle, COUNT(Applications.ApplicationID) AS ApplicationCount
        FROM Jobs
        LEFT JOIN Applications ON Jobs.JobID = Applications.JobID
        GROUP BY Jobs.JobTitle
        ORDER BY ApplicationCount DESC;

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```
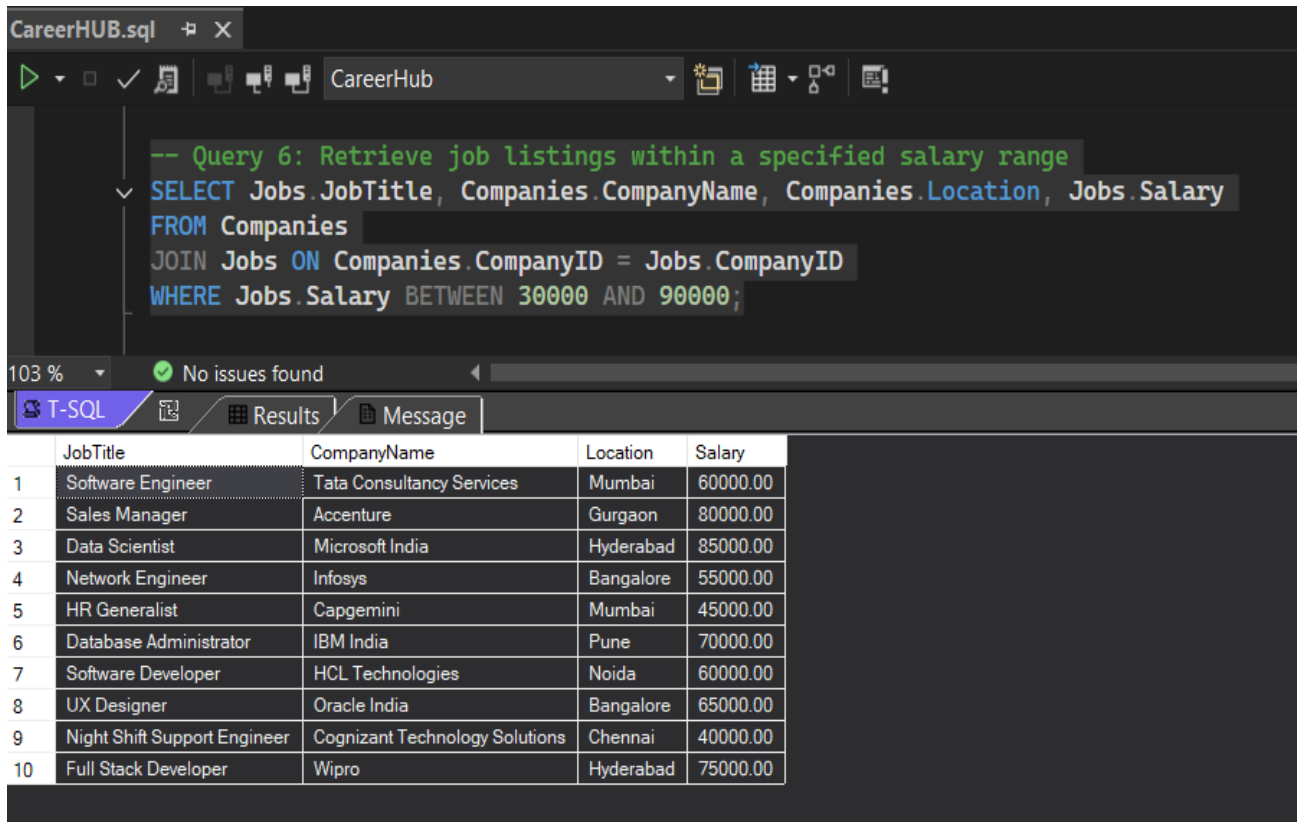
	JobTitle	ApplicationCount
1	Data Scientist	1
2	Database Administrator	1
3	Full Stack Developer	1
4	HR Generalist	1
5	Network Engineer	1
6	Night Shift Support Engineer	1
7	Sales Manager	1
8	Software Developer	1
9	Software Engineer	1
10	UX Designer	1
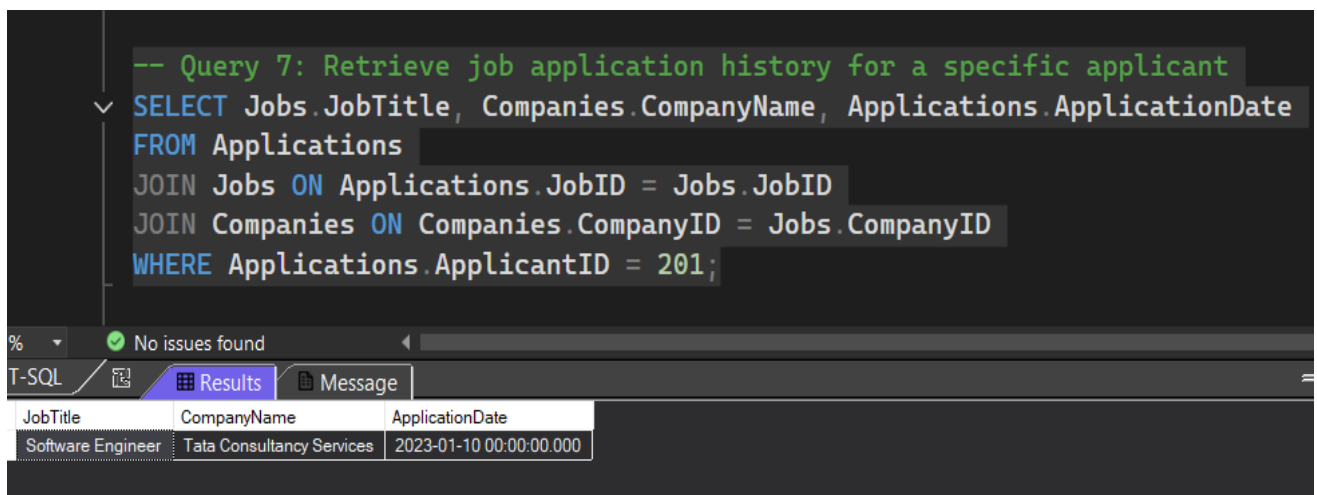
6. Develop an SQL query that retrieves job listings from the "Jobs" table within a specified salary range. Allow parameters for the minimum and maximum salary values. Display the job title, company name, location, and salary for each matching job.

```sql
-- Query 6: Retrieve job listings within a specified salary range
SELECT Jobs.JobTitle, Companies.CompanyName, Companies.Location, Jobs.Salary
FROM Companies
JOIN Jobs ON Companies.CompanyID = Jobs.CompanyID
WHERE Jobs.Salary BETWEEN 30000 AND 90000;
```

	JobTitle	CompanyName	Location	Salary
1	Software Engineer	Tata Consultancy Services	Mumbai	60000.00
2	Sales Manager	Accenture	Gurgaon	80000.00
3	Data Scientist	Microsoft India	Hyderabad	85000.00
4	Network Engineer	Infosys	Bangalore	55000.00
5	HR Generalist	Capgemini	Mumbai	45000.00
6	Database Administrator	IBM India	Pune	70000.00
7	Software Developer	HCL Technologies	Noida	60000.00
8	UX Designer	Oracle India	Bangalore	65000.00
9	Night Shift Support Engineer	Cognizant Technology Solutions	Chennai	40000.00
10	Full Stack Developer	Wipro	Hyderabad	75000.00
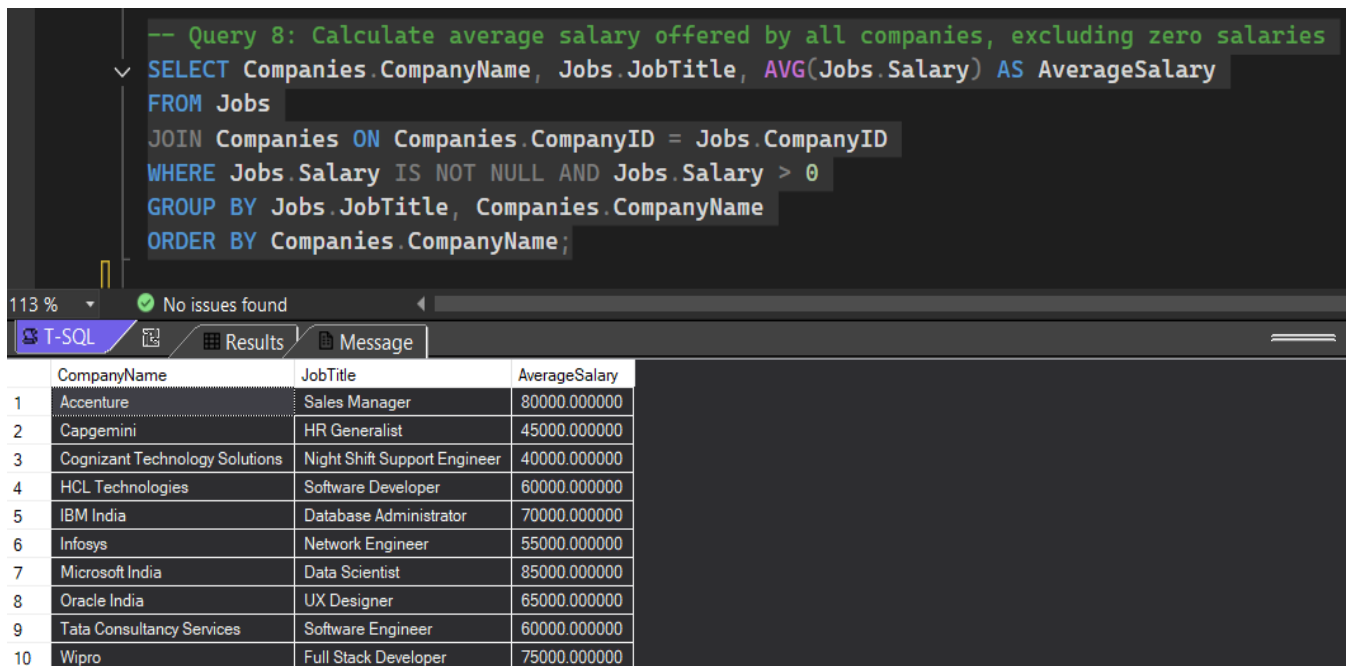
7. Write an SQL query that retrieves the job application history for a specific applicant. Allow a parameter for the ApplicantID, and return a result set with the job titles, company names, and application dates for all the jobs the applicant has applied to.

```sql
-- Query 7: Retrieve job application history for a specific applicant
SELECT Jobs.JobTitle, Companies.CompanyName, Applications.ApplicationDate
FROM Applications
JOIN Jobs ON Applications.JobID = Jobs.JobID
JOIN Companies ON Companies.CompanyID = Jobs.CompanyID
WHERE Applications.ApplicantID = 201;
```

JobTitle	CompanyName	ApplicationDate
Software Engineer	Tata Consultancy Services	2023-01-10 00:00:00.000
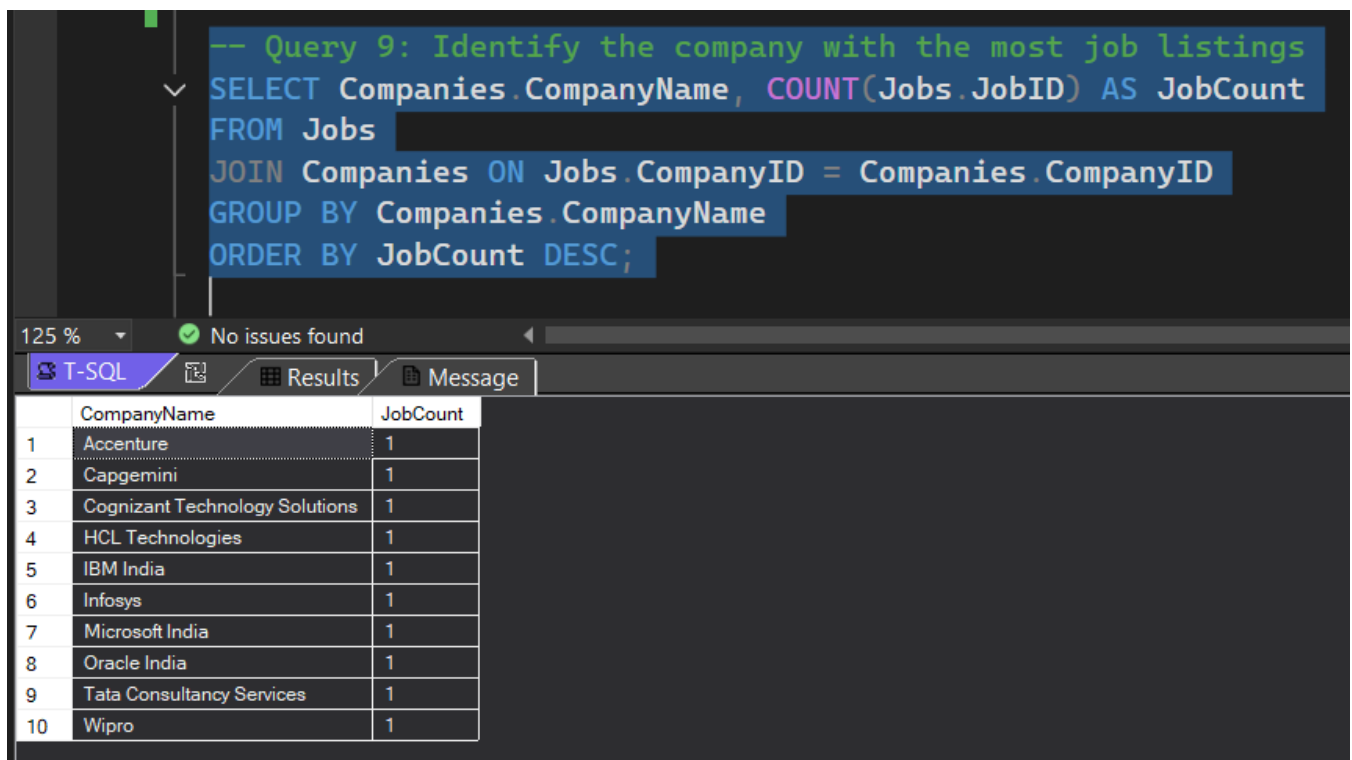
8. Create an SQL query that calculates and displays the average salary offered by all companies for job listings in the "Jobs" table. Ensure that the query filters out jobs with a salary of zero.

```
-- Query 8: Calculate average salary offered by all companies, excluding zero salaries
SELECT Companies.CompanyName, Jobs.JobTitle, AVG(Jobs.Salary) AS AverageSalary
FROM Jobs
JOIN Companies ON Companies.CompanyID = Jobs.CompanyID
WHERE Jobs.Salary IS NOT NULL AND Jobs.Salary > 0
GROUP BY Jobs.JobTitle, Companies.CompanyName
ORDER BY Companies.CompanyName;
```

113 %   ✅ No issues found

T-SQL   Results   Message

	CompanyName	JobTitle	AverageSalary
1	Accenture	Sales Manager	80000.000000
2	Capgemini	HR Generalist	45000.000000
3	Cognizant Technology Solutions	Night Shift Support Engineer	40000.000000
4	HCL Technologies	Software Developer	60000.000000
5	IBM India	Database Administrator	70000.000000
6	Infosys	Network Engineer	55000.000000
7	Microsoft India	Data Scientist	85000.000000
8	Oracle India	UX Designer	65000.000000
9	Tata Consultancy Services	Software Engineer	60000.000000
10	Wipro	Full Stack Developer	75000.000000

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 9: Identify the company with the most job listings
SELECT Companies.CompanyName, COUNT(Jobs.JobID) AS JobCount
FROM Jobs
JOIN Companies ON Jobs.CompanyID = Companies.CompanyID
GROUP BY Companies.CompanyName
ORDER BY JobCount DESC;
```

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T-SQL   Results   Message

	CompanyName	JobCount
1	Accenture	1
2	Capgemini	1
3	Cognizant Technology Solutions	1
4	HCL Technologies	1
5	IBM India	1
6	Infosys	1
7	Microsoft India	1
8	Oracle India	1
9	Tata Consultancy Services	1
10	Wipro	1

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

```sql
-- Query 10: Find applicants who applied for positions in companies located in 'CityX'
-- with at least 3 years of experience

SELECT Applicants.FirstName, Companies.CompanyName, Applicants.ExperienceYears
FROM Applications
JOIN Applicants ON Applications.ApplicantID = Applicants.ApplicantID
JOIN Jobs ON Jobs.JobID = Applications.JobID
JOIN Companies ON Companies.CompanyID = Jobs.CompanyID
WHERE Companies.Location = 'Bangalore' AND Applicants.ExperienceYears >= 3;
```

	FirstName	CompanyName	ExperienceYears
1	Rahul	Infosys	3
2	Ananya	Oracle India	4

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

```sql
-- Query 11: Retrieve distinct job titles with salaries between $60,000 and $80,000
SELECT DISTINCT Jobs.JobTitle, Jobs.Salary
FROM Jobs
WHERE Jobs.Salary BETWEEN 60000 AND 80000;
```

	JobTitle	Salary
1	Database Administrator	70000.00
2	Full Stack Developer	75000.00
3	Sales Manager	80000.00
4	Software Developer	60000.00
5	Software Engineer	60000.00
6	UX Designer	65000.00

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

```sql
-- Remove any one of the record from application table
DELETE FROM Applications WHERE ApplicationID = 301;

-- Query 12: Find jobs that have not received any applications

SELECT Jobs.JobID, Jobs.JobTitle, Companies.CompanyName
FROM Jobs
JOIN Companies ON Jobs.CompanyID = Companies.CompanyID
WHERE Jobs.JobID NOT IN (SELECT JobID FROM Applications);
```

	JobID	JobTitle	CompanyName
1	101	Software Engineer	Tata Consultancy Services

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

```sql
-- Query 13: Retrieve job applicants with companies and positions they applied for
SELECT Applicants.FirstName, Jobs.JobTitle, Companies.CompanyName
FROM Applications
JOIN Applicants ON Applicants.ApplicantID = Applications.ApplicantID
JOIN Jobs ON Jobs.JobID = Applications.JobID
JOIN Companies ON Companies.CompanyID = Jobs.CompanyID;
```

	FirstName	JobTitle	CompanyName
1	Rahul	Network Engineer	Infosys
2	Priya	Database Administrator	IBM India
3	Aryan	Software Developer	HCL Technologies
4	Nalini	Night Shift Support Engineer	Cognizant Technology Solutions
5	Siddharth	Sales Manager	Accenture
6	Ananya	UX Designer	Oracle India
7	Vedant	Full Stack Developer	Wipro
8	Kavya	Data Scientist	Microsoft India
9	Aman	HR Generalist	Capgemini

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

```sql
-- Query 14: Retrieve companies with count of jobs posted, including those with no applications
SELECT Companies.CompanyName, COUNT(Jobs.JobID) AS JobCount
FROM Companies
LEFT JOIN Jobs ON Companies.CompanyID = Jobs.CompanyID
GROUP BY Companies.CompanyName;
```

	CompanyName	JobCount
1	Accenture	1
2	Capgemini	1
3	Cognizant Technology Solutions	1
4	HCL Technologies	1
5	IBM India	1
6	Infosys	1
7	Microsoft India	1
8	Oracle India	1
9	Tata Consultancy Services	1
10	Wipro	1

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

```sql
-- Query 15: List all applicants with companies and positions applied for, including those who have not applied
SELECT Applicants.FirstName, Jobs.JobTitle, Companies.CompanyName
FROM Applicants
CROSS JOIN Jobs
JOIN Companies ON Jobs.CompanyID = Companies.CompanyID
LEFT JOIN Applications ON Applicants.ApplicantID = Applications.ApplicantID AND Jobs.JobID = Applications.JobID
WHERE Applications.ApplicationID IS NULL OR Applications.ApplicationID IS NOT NULL;
```

	FirstName	JobTitle	CompanyName
1	Aaradhya	Software Engineer	Tata Consultancy Services
2	Rahul	Software Engineer	Tata Consultancy Services
3	Priya	Software Engineer	Tata Consultancy Services
4	Aryan	Software Engineer	Tata Consultancy Services
5	Nalini	Software Engineer	Tata Consultancy Services
6	Siddharth	Software Engineer	Tata Consultancy Services
7	Ananya	Software Engineer	Tata Consultancy Services
8	Vedant	Software Engineer	Tata Consultancy Services
9	Kavya	Software Engineer	Tata Consultancy Services
10	Aman	Software Engineer	Tata Consultancy Services
11	Aaradhya	Sales Manager	Accenture
12	Rahul	Sales Manager	Accenture
13	Priya	Sales Manager	Accenture
14	Aryan	Sales Manager	Accenture
15	Nalini	Sales Manager	Accenture
16	Siddharth	Sales Manager	Accenture
17	Ananya	Sales Manager	Accenture
18	Vedant	Sales Manager	Accenture
19	Kavya	Sales Manager	Accenture
20	Aman	Sales Manager	Accenture
21	Aaradhya	Data Scientist	Microsoft India
22	Rahul	Data Scientist	Microsoft India
23	Priya	Data Scientist	Microsoft India
24	Aryan	Data Scientist	Microsoft India
25	Nalini	Data Scientist	Microsoft India
26	Siddharth	Data Scientist	Microsoft India
27	Ananya	Data Scientist	Microsoft India
28	Vedant	Data Scientist	Microsoft India
29	Kavya	Data Scientist	Microsoft India
30	Aman	Data Scientist	Microsoft India
31	Aaradhya	Network Engineer	Infosys
32	Rahul	Network Engineer	Infosys
33	Priya	Network Engineer	Infosys
34	Aryan	Network Engineer	Infosys
35	Nalini	Network Engineer	Infosys
36	Siddharth	Network Engineer	Infosys
37	Ananya	Network Engineer	Infosys
38	Vedant	Network Engineer	Infosys
39	Kavya	Network Engineer	Infosys
40	Aman	Network Engineer	Infosys

	FirstName	JobTitle	CompanyName
62	Rahul	Software Develo...	HCL Technologies
63	Priya	Software Develo...	HCL Technologies
64	Aryan	Software Develo...	HCL Technologies
65	Nalini	Software Develo...	HCL Technologies
66	Siddharth	Software Develo...	HCL Technologies
67	Ananya	Software Develo...	HCL Technologies
68	Vedant	Software Develo...	HCL Technologies
69	Kavya	Software Develo...	HCL Technologies
70	Aman	Software Develo...	HCL Technologies
71	Aaradhya	UX Designer	Oracle India
72	Rahul	UX Designer	Oracle India
73	Priya	UX Designer	Oracle India
74	Aryan	UX Designer	Oracle India
75	Nalini	UX Designer	Oracle India
76	Siddharth	UX Designer	Oracle India
77	Ananya	UX Designer	Oracle India
78	Vedant	UX Designer	Oracle India
79	Kavya	UX Designer	Oracle India
80	Aman	UX Designer	Oracle India
81	Aaradhya	Night Shift Supp...	Cognizant Technology S...
82	Rahul	Night Shift Supp...	Cognizant Technology S...
83	Priya	Night Shift Supp...	Cognizant Technology S...
84	Aryan	Night Shift Supp...	Cognizant Technology S...
85	Nalini	Night Shift Supp...	Cognizant Technology S...
86	Siddharth	Night Shift Supp...	Cognizant Technology S...
87	Ananya	Night Shift Supp...	Cognizant Technology S...
88	Vedant	Night Shift Supp...	Cognizant Technology S...
89	Kavya	Night Shift Supp...	Cognizant Technology S...
90	Aman	Night Shift Supp...	Cognizant Technology S...
91	Aaradhya	Full Stack Devel...	Wipro
92	Rahul	Full Stack Devel...	Wipro
93	Priya	Full Stack Devel...	Wipro
94	Aryan	Full Stack Devel...	Wipro
95	Nalini	Full Stack Devel...	Wipro
96	Siddharth	Full Stack Devel...	Wipro
97	Ananya	Full Stack Devel...	Wipro
98	Vedant	Full Stack Devel...	Wipro
99	Kavya	Full Stack Devel...	Wipro
100	Aman	Full Stack Devel...	Wipro

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

```sql
-- Query 16: Find companies with jobs having salary higher than the average salary
SELECT Companies.CompanyName
FROM Companies
JOIN Jobs ON Companies.CompanyID = Jobs.CompanyID
WHERE Jobs.Salary > (SELECT AVG(Salary) FROM Jobs WHERE Salary > 0);
```

	CompanyName
1	Accenture
2	Microsoft India
3	IBM India
4	Oracle India
5	Wipro

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

```sql
-- Query 17: Display applicants with concatenated city and state
SELECT Applicants.FirstName, Applicants.LastName, CONCAT(Applicants.City, ', ', Applicants.State) AS Location
FROM Applicants
WHERE Applicants.City IS NOT NULL AND Applicants.State IS NOT NULL;
```

	FirstName	LastName	Location
1	Aaradhya	Sharma	Chennai, Tamil Nadu
2	Rahul	Kumar	Bangalore, Karnataka
3	Priya	Singh	Hyderabad, Andhra Pradesh
4	Aryan	Verma	Chennai, Tamil Nadu
5	Nalini	Jain	Chennai, Tamil Nadu
6	Siddharth	Gupta	Bangalore, Karnataka
7	Ananya	Mishra	Bangalore, Karnataka
8	Vedant	Pandey	Mumbai, Maharashtra
9	Kavya	Tiwari	Pune, Maharashtra
10	Aman	Yadav	Noida, Uttar Pradesh

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

```sql
-- Query 18: Retrieve jobs with titles containing 'Developer' or 'Engineer'
SELECT Jobs.JobTitle
FROM Jobs
WHERE Jobs.JobTitle LIKE '%Developer%' OR Jobs.JobTitle LIKE '%Engineer%';
```

	JobTitle
1	Software Engineer
2	Network Engineer
3	Software Developer
4	Night Shift Support Engineer
5	Full Stack Developer

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

```sql
-- Query 19: Retrieve applicants and jobs they applied for, including those who haven't applied and jobs without applicants
SELECT Applicants.ApplicantID, Applicants.FirstName, Applicants.LastName, Jobs.JobID, Jobs.JobTitle, Applications.ApplicationID
FROM Applicants
CROSS JOIN Jobs
LEFT JOIN Applications ON Applicants.ApplicantID = Applications.ApplicantID AND Jobs.JobID = Applications.JobID
ORDER BY Applicants.ApplicantID, Jobs.JobID;
```

ApplicantID	FirstName	LastName	JobID	JobTitle	ApplicationID
201	Aaradhya	Sharma	101	Software Engineer	NULL
201	Aaradhya	Sharma	102	Sales Manager	NULL
201	Aaradhya	Sharma	103	Data Scientist	NULL
201	Aaradhya	Sharma	104	Network Engineer	NULL
201	Aaradhya	Sharma	105	HR Generalist	NULL
201	Aaradhya	Sharma	106	Database Administrator	NULL
201	Aaradhya	Sharma	107	Software Developer	NULL
201	Aaradhya	Sharma	108	UX Designer	NULL
201	Aaradhya	Sharma	109	Night Shift Support Engineer	NULL
201	Aaradhya	Sharma	110	Full Stack Developer	NULL
202	Rahul	Kumar	101	Software Engineer	NULL
202	Rahul	Kumar	102	Sales Manager	NULL
202	Rahul	Kumar	103	Data Scientist	NULL
202	Rahul	Kumar	104	Network Engineer	302
202	Rahul	Kumar	105	HR Generalist	NULL
202	Rahul	Kumar	106	Database Administrator	NULL
202	Rahul	Kumar	107	Software Developer	NULL
202	Rahul	Kumar	108	UX Designer	NULL
202	Rahul	Kumar	109	Night Shift Support Engineer	NULL
202	Rahul	Kumar	110	Full Stack Developer	NULL
203	Priya	Singh	101	Software Engineer	NULL
203	Priya	Singh	102	Sales Manager	NULL
203	Priya	Singh	103	Data Scientist	NULL
203	Priya	Singh	104	Network Engineer	NULL
203	Priya	Singh	105	HR Generalist	NULL
203	Priya	Singh	106	Database Administrator	303
203	Priya	Singh	107	Software Developer	NULL
203	Priya	Singh	108	UX Designer	NULL
203	Priya	Singh	109	Night Shift Support Engineer	NULL
203	Priya	Singh	110	Full Stack Developer	NULL
204	Aryan	Verma	101	Software Engineer	NULL
204	Aryan	Verma	102	Sales Manager	NULL
204	Aryan	Verma	103	Data Scientist	NULL
204	Aryan	Verma	104	Network Engineer	NULL
204	Aryan	Verma	105	HR Generalist	NULL
204	Aryan	Verma	106	Database Administrator	NULL
204	Aryan	Verma	107	Software Developer	304
204	Aryan	Verma	108	UX Designer	NULL
204	Aryan	Verma	109	Night Shift Support Engineer	NULL
204	Aryan	Verma	110	Full Stack Developer	NULL

ApplicantID	FirstName	LastName	JobID	JobTitle	ApplicationID
206	Siddharth	Gupta	109	Night Shift Support Engineer	NULL
206	Siddharth	Gupta	110	Full Stack Developer	NULL
207	Ananya	Mishra	101	Software Engineer	NULL
207	Ananya	Mishra	102	Sales Manager	NULL
207	Ananya	Mishra	103	Data Scientist	NULL
207	Ananya	Mishra	104	Network Engineer	NULL
207	Ananya	Mishra	105	HR Generalist	NULL
207	Ananya	Mishra	106	Database Administrator	NULL
207	Ananya	Mishra	107	Software Developer	NULL
207	Ananya	Mishra	108	UX Designer	307
207	Ananya	Mishra	109	Night Shift Support Engineer	NULL
207	Ananya	Mishra	110	Full Stack Developer	NULL
208	Vedant	Pandey	101	Software Engineer	NULL
208	Vedant	Pandey	102	Sales Manager	NULL
208	Vedant	Pandey	103	Data Scientist	NULL
208	Vedant	Pandey	104	Network Engineer	NULL
208	Vedant	Pandey	105	HR Generalist	NULL
208	Vedant	Pandey	106	Database Administrator	NULL
208	Vedant	Pandey	107	Software Developer	NULL
208	Vedant	Pandey	108	UX Designer	NULL
208	Vedant	Pandey	109	Night Shift Support Engineer	NULL
208	Vedant	Pandey	110	Full Stack Developer	308
209	Kavya	Tiwari	101	Software Engineer	NULL
209	Kavya	Tiwari	102	Sales Manager	NULL
209	Kavya	Tiwari	103	Data Scientist	309
209	Kavya	Tiwari	104	Network Engineer	NULL
209	Kavya	Tiwari	105	HR Generalist	NULL
209	Kavya	Tiwari	106	Database Administrator	NULL
209	Kavya	Tiwari	107	Software Developer	NULL
209	Kavya	Tiwari	108	UX Designer	NULL
209	Kavya	Tiwari	109	Night Shift Support Engineer	NULL
209	Kavya	Tiwari	110	Full Stack Developer	NULL
210	Aman	Yadav	101	Software Engineer	NULL
210	Aman	Yadav	102	Sales Manager	NULL
210	Aman	Yadav	103	Data Scientist	NULL
210	Aman	Yadav	104	Network Engineer	NULL
210	Aman	Yadav	105	HR Generalist	310
210	Aman	Yadav	106	Database Administrator	NULL
210	Aman	Yadav	107	Software Developer	NULL
210	Aman	Yadav	108	UX Designer	NULL

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 20: List combinations of applicants and companies in specific city with more than 2 years of experience

SELECT Applicants.ApplicantID, Applicants.FirstName, Applicants.LastName, Companies.CompanyID, Companies.CompanyName
FROM Applicants
CROSS JOIN Companies
WHERE (
    Companies.Location = 'Chennai' OR Companies.Location = 'Bangalore' OR Companies.Location = 'Hyderabad'
)
AND Applicants.ExperienceYears > 2;
```

	ApplicantID	FirstName	LastName	CompanyID	CompanyName
1	202	Rahul	Kumar	2	Infosys
2	203	Priya	Singh	2	Infosys
3	204	Aryan	Verma	2	Infosys
4	206	Siddharth	Gupta	2	Infosys
5	207	Ananya	Mishra	2	Infosys
6	209	Kavya	Tiwari	2	Infosys
7	210	Aman	Yadav	2	Infosys
8	202	Rahul	Kumar	3	Wipro
9	203	Priya	Singh	3	Wipro
10	204	Aryan	Verma	3	Wipro
11	206	Siddharth	Gupta	3	Wipro
12	207	Ananya	Mishra	3	Wipro
13	209	Kavya	Tiwari	3	Wipro
14	210	Aman	Yadav	3	Wipro
15	202	Rahul	Kumar	7	Cognizant Technology Solutions
16	203	Priya	Singh	7	Cognizant Technology Solutions
17	204	Aryan	Verma	7	Cognizant Technology Solutions
18	206	Siddharth	Gupta	7	Cognizant Technology Solutions
19	207	Ananya	Mishra	7	Cognizant Technology Solutions
20	209	Kavya	Tiwari	7	Cognizant Technology Solutions
21	210	Aman	Yadav	7	Cognizant Technology Solutions
22	202	Rahul	Kumar	9	Oracle India
23	203	Priya	Singh	9	Oracle India
24	204	Aryan	Verma	9	Oracle India
25	206	Siddharth	Gupta	9	Oracle India
26	207	Ananya	Mishra	9	Oracle India
27	209	Kavya	Tiwari	9	Oracle India
28	210	Aman	Yadav	9	Oracle India
29	202	Rahul	Kumar	10	Microsoft India
30	203	Priya	Singh	10	Microsoft India
31	204	Aryan	Verma	10	Microsoft India
32	206	Siddharth	Gupta	10	Microsoft India
33	207	Ananya	Mishra	10	Microsoft India
34	209	Kavya	Tiwari	10	Microsoft India
35	210	Aman	Yadav	10	Microsoft India