Coding Challenge 2 - Answers

- 1. Provide a SQL script that initialises the database for the Job Board scenario "CareerHub".
- create database Careerhub;
- show databases;
- use Careerhub;
- 2. Create tables for Companies, Jobs, Applicants and Applications. Define appropriate primary keys, foreign keys, and constraints.

```
    use Careerhub;

CompanyID INT PRIMARY KEY AUTO_INCREMENT,
    CompanyName VARCHAR(255) NOT NULL,
    Location VARCHAR(255) NOT NULL
  );
· CREATE TABLE Jobs (
    JobID INT PRIMARY KEY AUTO_INCREMENT,
   CompanyID INT NOT NULL,
   FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID),
    JobTitle VARCHAR(255) NOT NULL,
    JobDescription TEXT NOT NULL,
    JobLocation VARCHAR(255) NOT NULL,
   Salary DECIMAL(10,2),
    JobType VARCHAR(50) NOT NULL,
    PostedDate DATETIME NOT NULL DEFAULT CURRENT_TIMESTAMP
  );
• © CREATE TABLE Applicants (
    ApplicantID INT PRIMARY KEY AUTO_INCREMENT,
    FirstName VARCHAR(255) NOT NULL,
    LastName VARCHAR(255) NOT NULL,
    Email VARCHAR(255) NOT NULL UNIQUE,
    Phone VARCHAR(20),
    Resume TEXT
  );
```

```
CREATE TABLE Applications (
   ApplicationID INT PRIMARY KEY AUTO_INCREMENT,
   JobID INT NOT NULL,
   ApplicantID INT NOT NULL,
   FOREIGN KEY (JobID) REFERENCES Jobs(JobID),
   FOREIGN KEY (ApplicantID) REFERENCES Applicants(ApplicantID),
   ApplicationDate DATETIME NOT NULL DEFAULT CURRENT_TIMESTAMP,
   CoverLetter TEXT
);
```

4. 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.

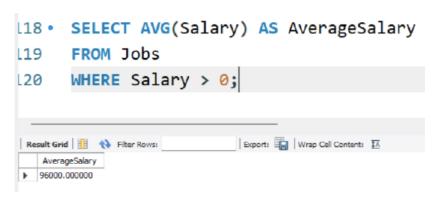


5. Develop an SQL query that retrieves job listings from the "Jobs" table within a specified salary range. Allow parameters for the minimum and maximum salary values. Display the job title, company name, location, and salary for each matching job.

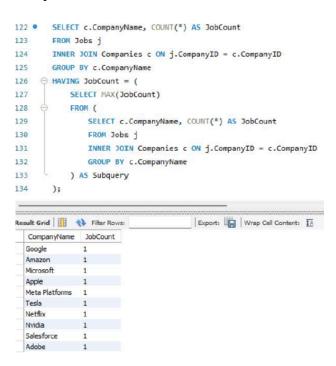


6. Write an SQL query that retrieves the job application history for a specific applicant. Allow a parameter for the ApplicantID, and return a result set with the job titles, company names, and application dates for all the jobs the applicant has applied to.

7. 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.



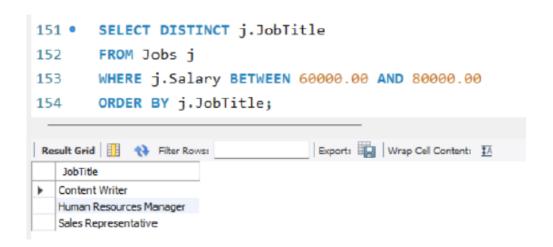
8. Write an SQL query to identify the company that has posted the most job listings. Display the company name along with the count of job listings they have posted. Handle ties if multiple companies have the same maximum count.



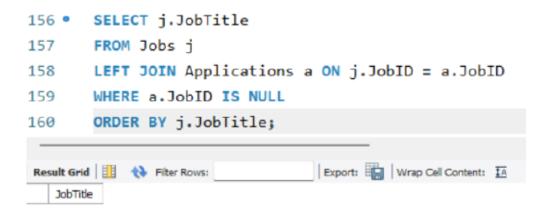
9. Find the applicants who have applied for positions in companies located in 'CityX and have at least 3 years of experience.

```
SELECT a.ApplicantID, a.FirstName, a.LastName, j.JobTitle, c.CompanyName
FROM Applicants a
INNER JOIN Applications ap ON a.ApplicantID = ap.ApplicantID
INNER JOIN Jobs j ON ap.JobID = j.JobID
INNER JOIN Companies c ON j.CompanyID = c.CompanyID
WHERE c.Location = 'Los Gatos, CA'
AND (
    -- Calculate and compare applicant experience here
    -- e.g., (YEAR(CURDATE()) - YEAR(a.StartDate)) >= 3
    -- or based on a dedicated experience field
    a.Experience >= 3
)
ORDER BY a.LastName;
```

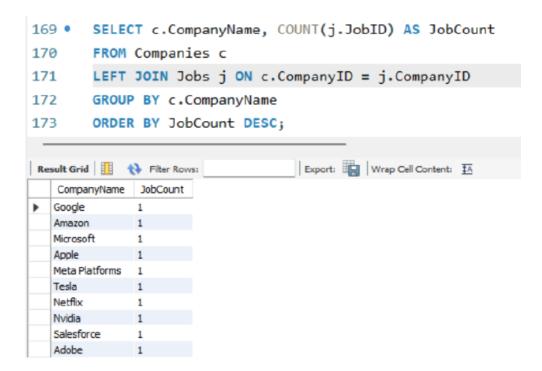
10. Retrieve a list of distinct job titles with salaries between \$60,000 and \$80,000.



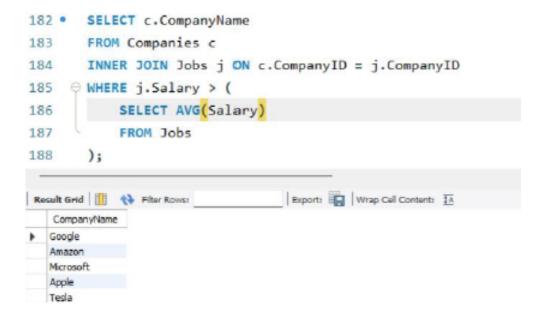
11. Find the jobs that have not received any applications.



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



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

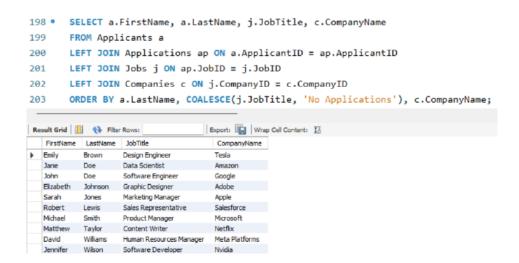


14. Display a list of applicants with their names and a concatenated string of their city and state.

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

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

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



17. 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 = Los Gatos, CA

