Coding Challenges: CareerHub

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

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

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

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

	CompanyID	CompanyName	Location
1	1	Hexaware	Chennai
2	2	CTS	Bangalore
3	3	TCS	Chennai
4	4	Capgemini	Kochi
5	5	HCL	Bangalore
6	6	L&T	Chennai
7	7	Infosys	Mysore
8	8	Wipro	Hyderbad
9	9	Accenture	Chennai
10	10	Sutherland	Bangalore

	JobID	CompanyID	Job Title	Job Description	Job Location	Salary	Job Type	Posted Date
1	1	1	Software Engineer	Develops software applications	Chennai	70000.00	Full-time	2025-03-17
2	2	2	Product Manager	Oversees product development lifecycle	Bangalore	50000.00	Contract	2025-03-22
3	3	3	Data Analyst	Manages computer systems infrastructure	Chennai	40000.00	Part-time	2025-03-10
4	4	4	Cloud Engineer	Manages cloud infrastructure	Kochi	50000.00	Full-time	2025-03-20
5	5	5	UX/UI Designer	Designs user interfaces and experiences	Bangalore	70000.00	Part-time	2025-03-25
6	6	6	QA Engineer	Ensures software quality standards	Chennai	35000.00	Part-time	2025-03-12
7	7	7	Software Engineer	Develops software applications	Mysore	70000.00	Full-time	2025-03-23
8	8	8	Web Developer	Builds and maintains websites	Hyderabad	33000.00	Part-time	2025-03-19
9	9	9	Artificial Intelligence Engineer	Develops AI models and systems	Chennai	80000.00	Full-time	2025-03-14
10	10	10	Network Engineer	Designs and maintains networks	Bangalore	35000.00	Contract	2025-03-24

	ApplicantID	FirstName	LastName	Email	Phone	Resume
1	1	Emma	Watson	emmawatson@mail.com	8838187734	Resume
2	2	Leo	Das	leodas@mail.com	8838187731	CV
3	3	Rose	Dawson	rosedawson@mail.com	8838187732	CV
4	4	Jack	Dawson	jackdawson@mail.com	8838187733	CV
5	5	Tom	Holland	tomholland@mail.com	8838187735	Resume
6	6	Peter	Parker	peterparker@mail.com	8838187736	Resume
7	7	Gwen	Stacy	gwenstacy@mail.com	8838187737	Resume
8	8	Mary	Jane	maryjane@mail.com	8838187738	CV
9	9	Tony	Stark	tonystark@mail.com	8838187739	Resume
10	10	Sara	Ali	saraali@mail.com	8838187710	CV

	ApplicationID	JobID	ApplicantID	ApplicationDate	CoverLetter
1	1	1	1	2025-03-25	I am very excited about the opportunity to join your co...
2	2	2	2	2025-03-25	As an experienced Product Manager, I am confident t...
3	3	3	3	2025-03-25	I am eager to contribute my expertise in data analyst t...
4	4	4	4	2025-03-25	With a solid background in cloud engineering, I look f...
5	5	5	5	2025-03-25	I am passionate about UX/UI and would love to help ...
6	6	6	6	2025-03-25	I am highly motivated to provide exceptional QA supp...
7	7	7	7	2025-03-25	I am very excited about the opportunity to join your co...
8	8	8	8	2025-03-25	My experience as a Web Developer makes me an ide...
9	9	9	9	2025-03-25	With a passion for AI and machine learning, I am excit...
10	10	10	10	2025-03-25	As an experienced Network Engineer, I am confident ...

-- 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.

	JobID	JobTitle	tot_applicants
1	1	Software Engineer	1
2	2	Product Manager	1
3	3	Data Analyst	1
4	4	Cloud Engineer	1
5	5	UX/UI Designer	1
6	6	QA Engineer	1
7	7	Software Engineer	1
8	8	Web Developer	1
9	9	Artificial Intelligence Engineer	1
10	10	Network Engineer	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.

	CompanyName	JobTitle	JobLocation	Salary
1	Wipro	Web Developer	Hyderabad	33000.00
2	L&T	QA Engineer	Chennai	35000.00
3	Sutherland	Network Engineer	Bangalore	35000.00
4	TCS	Data Analyst	Chennai	40000.00
5	Capgemini	Cloud Engineer	Kochi	50000.00
6	CTS	Product Manager	Bangalore	50000.00
7	HCL	UX/UI Designer	Bangalore	70000.00
8	Hexaware	Software Engineer	Chennai	70000.00
9	Infosys	Software Engineer	Mysore	70000.00
10	Accenture	Artificial Intelligence Engineer	Chennai	80000.00

-- 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.

	ApplicantID	CompanyName	JobTitle	ApplicationDate
1	1	Hexaware	Software Engineer	2025-03-25
2	2	CTS	Product Manager	2025-03-25
3	3	TCS	Data Analyst	2025-03-25
4	4	Capgemini	Cloud Engineer	2025-03-25
5	5	HCL	UX/UI Designer	2025-03-25
6	6	L&T	QA Engineer	2025-03-25
7	7	Infosys	Software Engineer	2025-03-25
8	8	Wipro	Web Developer	2025-03-25
9	9	Accenture	Artificial Intelligence Engineer	2025-03-25
10	10	Sutherland	Network Engineer	2025-03-25

-- 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.

	CompanyName	Avg_salary
1	Wipro	33000.000000
2	L&T	35000.000000
3	Sutherland	35000.000000
4	TCS	40000.000000
5	Capgemini	50000.000000
6	CTS	50000.000000
7	HCL	70000.000000
8	Hexaware	70000.000000
9	Infosys	70000.000000
10	Accenture	80000.000000

-- 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.

	CompanyName	JobTitle	tot_jobs
1	Accenture	Artificial Intelligence Engineer	1
2	Capgemini	Cloud Engineer	1
3	TCS	Data Analyst	1
4	Sutherland	Network Engineer	1
5	CTS	Product Manager	1
6	L&T	QA Engineer	1
7	Hexaware	Software Engineer	1
8	Infosys	Software Engineer	1
9	HCL	UX/UI Designer	1
10	Wipro	Web Developer	1

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

	ApplicantID	FirstName	LastName	CompanyName	JobTitle
1	1	Emma	Watson	Hexaware	Software Engineer
2	3	Rose	Dawson	TCS	Data Analyst
3	6	Peter	Parker	L&T	QA Engineer
4	9	Tony	Stark	Accenture	Artificial Intelligence Engineer

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

	JobTitle	Salary
1	Artificial Intelligence Engineer	80000.00
2	Software Engineer	70000.00
3	UX/UI Designer	70000.00

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

JobID	JobTitle	ApplicantID

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

	ApplicantID	FirstName	LastName	CompanyName
1	1	Emma	Watson	Hexaware
2	2	Leo	Das	CTS
3	3	Rose	Dawson	TCS
4	4	Jack	Dawson	Capgemini
5	5	Tom	Holland	HCL
6	6	Peter	Parker	L&T
7	7	Gwen	Stacy	Infosys
8	8	Mary	Jane	Wipro
9	9	Tony	Stark	Accenture
10	10	Sara	Ali	Sutherland

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

	CompanyName	JobTitle	tot_jobs
1	Accenture	Artificial Intelligence Engineer	1
2	Capgemini	Cloud Engineer	1
3	TCS	Data Analyst	1
4	Sutherland	Network Engineer	1
5	CTS	Product Manager	1
6	L&T	QA Engineer	1
7	Hexaware	Software Engineer	1
8	Infosys	Software Engineer	1
9	HCL	UX/UI Designer	1
10	Wipro	Web Developer	1

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

	ApplicantID	FirstName	LastName	CompanyName	JobTitle
1	1	Emma	Watson	Hexaware	Software Engineer
Shop	2	Leo	Das	CTS	Product Manager
3	3	Rose	Dawson	TCS	Data Analyst
4	4	Jack	Dawson	Capgemini	Cloud Engineer
5	5	Tom	Holland	HCL	UX/UI Designer
6	6	Peter	Parker	L&T	QA Engineer
7	7	Gwen	Stacy	Infosys	Software Engineer
8	8	Mary	Jane	Wipro	Web Developer
9	9	Tony	Stark	Accenture	Artificial Intelligence Engineer
10	10	Sara	Ali	Sutherland	Network Engineer

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

	CompanyName	Salary
1	Hexaware	70000.00
2	HCL	70000.00
3	Infosys	70000.00
4	Accenture	80000.00

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

	FirstName	LastName	Name
1	Emma	Watson	Emma Watson
2	Leo	Das	Leo Das
3	Rose	Dawson	Rose Dawson
4	Jack	Dawson	Jack Dawson
5	Tom	Holland	Tom Holland
6	Peter	Parker	Peter Parker
7	Gwen	Stacy	Gwen Stacy
8	Mary	Jane	Mary Jane
9	Tony	Stark	Tony Stark
10	Sara	Ali	Sara Ali

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

	JobID	Job Title
1	1	Software Engineer
2	4	Cloud Engineer
3	6	QA Engineer
4	7	Software Engineer
5	8	Web Developer
6	9	Artificial Intelligence Engineer
7	10	Network Engineer

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

	ApplicantID	FirstName	LastName	JobTitle
1	1	Emma	Watson	Software Engineer
2	2	Leo	Das	Product Manager
3	3	Rose	Dawson	Data Analyst
4	4	Jack	Dawson	Cloud Engineer
5	5	Tom	Holland	UX/UI Designer
6	6	Peter	Parker	QA Engineer
7	7	Gwen	Stacy	Software Engineer
8	8	Mary	Jane	Web Developer
9	9	Tony	Stark	Artificial Intelligence Engineer
10	10	Sara	Ali	Network Engineer

-- 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

	ApplicantID	FirstName	LastName	CompanyName	JobTitle
1	2	Leo	Das	CTS	Product Manager
2	5	Tom	Holland	HCL	UX/UI Designer
3	10	Sara	Ali	Sutherland	Network Engineer