

# SQL CODING CHALLENGE J223

```
create database careerhub;
```

```
use 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.
```

```
create table companies(
```

```
companyID int primary key auto_increment,
```

```
companyName varchar(50),
```

```
location varchar(100));
```

```
create table jobs(
```

```
jobid int primary key auto_increment,
```

```
companyid int,
```

```
jobtitle varchar(50),
```

```
jobDescription varchar(200),
```

```
joblocation varchar(50),
```

```
jobsalary decimal(10,2),
```

```
jobtype varchar(100),
```

```
jobpostdate date,
```

```
foreign key(companyid) references companies(companyid)
```

```
on delete cascade
```

```
);
```

```
alter table jobs auto_increment=100;
```

```
create table applicants(
```

```
applicantid int primary key auto_increment,
```

```
firstname varchar(100),
```

```
lastname varchar(100),
```

```
email varchar(50),
```

```
phone varchar(9),
```

```
aresume varchar(200));
```

```
alter table applicants auto_increment=1000;
```

```
alter table applicants add column experience int;
```

```
create table applications(
```

```
applicationid int primary key auto_increment,
```

```
jobid int,
```

```
applicantid int,
```

```
applicationdate datetime,
```

```
coverletter varchar(200),
```

```
foreign key(jobid) references jobs(jobid),
```

foreign key(jobid) references jobs(jobid) on delete cascade

);

alter table applications auto\_increment=2000;

ALTER TABLE applications ADD CONSTRAINT fk\_applicant

FOREIGN KEY (applicantid) REFERENCES applicants(applicantid)

ON DELETE CASCADE;

```
mysql> use careerhub;
Database changed
mysql> show tables;
+-----+
| Tables_in_careerhub |
+-----+
| applicants            |
| applications          |
| companies             |
| jobs                  |
+-----+
4 rows in set (0.01 sec)
```

```
mysql> select*from applicants;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| applicantid | firstname | lastname | email | phone | aresume | experience | city | state |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1000 | Ross | Geller | rahul.sharma@email.com | 912345678 | resume_rahul.pdf | 3 | New York | NY |
| 1001 | Monica | Geller | soojin.kim@email.com | 923456789 | resume_soojin.pdf | 2 | Los Angeles | CA |
| 1002 | Chandler | Bing | daniel.lee@email.com | 934567890 | resume_daniel.pdf | 4 | Chicago | IL |
| 1003 | Rachel | Green | emily.clark@email.com | 945678901 | resume_emily.pdf | 1 | Houston | TX |
| 1004 | Joe | Tibbiyani | john.doe@email.com | 956789012 | resume_john.pdf | 8 | Miami | FL |
| 1005 | Phoebe | Buffae | sophia.martinez@email.com | 967890123 | resume_sophia.pdf | 4 | San Francisco | CA |
| 1006 | Amir | Kahn | amir.khan@email.com | 978901234 | resume_amir.pdf | 10 | Dallas | TX |
| 1007 | Harini | Suresh | hana.yamamoto@email.com | 989012345 | resume_hana.pdf | 10 | Seattle | WA |
| 1008 | Girha | Lekshmi | carlos.gomez@email.com | 990123456 | resume_carlos.pdf | 6 | Denver | CO |
| 1009 | Gautham | M | linda.scott@email.com | 901234567 | resume_linda.pdf | 6 | Boston | MA |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> select*from applications;
+-----+-----+-----+-----+-----+-----+
| applicationid | jobid | applicantid | applicationdate | coverletter |
+-----+-----+-----+-----+-----+-----+
| 2030 | 100 | 1000 | 2024-04-02 10:30:05 | I have 5 years of experience in software engineering |
| 2031 | 101 | 1001 | 2024-03-16 11:45:01 | I have experience producing albums for K-pop artists. |
| 2032 | 102 | 1002 | 2024-03-21 09:15:01 | I have 5 years of experience in talent management |
| 2033 | 103 | 1003 | 2024-02-11 14:20:07 | I have 5 years of experience in content analysis |
| 2034 | 104 | 1004 | 2024-01-26 16:00:09 | I have 5 years of experience in data analyssis |
| 2035 | 105 | 1005 | 2024-02-29 13:10:50 | I have 5 years of experience in UX design. |
| 2036 | 106 | 1006 | 2024-03-06 08:30:50 | I have 5 years of experience in AI develeopment. |
| 2037 | 107 | 1007 | 2024-03-13 15:45:05 | I have 5 years of experience in AI development. |
| 2038 | 108 | 1008 | 2024-02-21 10:00:00 | I have 5 years of experience in social media management |
| 2039 | 109 | 1009 | 2024-01-31 12:25:50 | I have 5 years of experience in ecom management |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> select*From companies;
```

companyID	companyName	location
1	Hexaware	Mumbai
2	Hybe	South Korea
3	YG	South Korea
4	Netflix	Los Angeles
5	Google	Chicago
6	Apple	California
7	Tesla	Austin
8	IBM	NYC
9	Facebook	Seattle
10	Amazon	Mexico
11	AGC	San Tiago
12	RCB	India
13	Fifa	Israel

```
13 rows in set (0.00 sec)
```

```
mysql> select*From jobs;
```

jobid	companyid	jobtitle	jobDescription	joblocation	jobsalary	jobtype	jobpostdate
100	1	Software Engineer	maintain software applications	Mumbai	80000.00	Full-Time	2024-04-01
101	2	Music Producer	Manage artist coordination	Seoul	95000.00	Full-Time	2024-03-15
102	3	Talent Manager	Handle contracts and schedule for artists	Seoul	75000.00	Full-Time	2024-03-20
103	4	Content Analyst	recommend digital content	Los Angeles	8500.00	Full-Time	2024-02-10
104	5	Data Scientist	Work with large datasets	Chicago	11000.00	Full-Time	2024-01-25
105	6	UX Designer	Design interfaces	California	10000.00	Full-Time	2024-02-28
106	7	Automotive Engineer	Develop new car designs	Austin	1200.00	Full-Time	2024-03-05
107	8	AI Researcher	Work on AI models	NYC	1150.00	Full-Time	2024-03-12
108	9	Social Media Manager	Manage social media engagement	Seattle	6500.00	Full-Time	2024-02-20
109	10	E-commerce Analyst	digital strategies	Mexico	7000.00	Full-Time	2024-01-30
110	11	E-com analyst	digital strategies	Mexico	60000.00	Full-time	2024-01-21
111	11	E-com analyst	digital strategies	Mexico	74000.00	Full-time	2024-04-23
112	9	software engineer	digital strategies	Mexico	74000.00	Full-time	2024-04-23

```
13 rows in set (0.00 sec)
```

-- 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 j.jobtitle as job, count(a.applicationid) as JCount from jobs j
left join applications a on j.jobid=a.jobid group by j.jobtitle;
```

```
+-----+-----+
| job | JCount |
+-----+-----+
```

Software Engineer	1
Music Producer	1
Talent Manager	1
Content Analyst	1
Data Scientist	1
UX Designer	1
Automotive Engineer	1
AI Researcher	1
Social Media Manager	1
E-commerce Analyst	1
E-com analyst	0

```
+-----+-----+
11 rows in set (0.00 sec)
```

-- 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.jobsalary
```

```
from jobs j join companies c on c.companyid=j.companyid
```

```
where j.jobsalary between 10000 and 50000;
```

jobtitle	companyname	joblocation	jobsalary
Data Scientist	Google	Chicago	11000.00
UX Designer	Apple	California	10000.00

2 rows in set (0.00 sec)

-- 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
```

```
join applications a on j.jobid=a.jobid
```

```
join companies c on c.companyid=j.companyid
```

```
where applicantid=1008;
```

jobtitle	companyname	applicationdate
Social Media Manager	Facebook	2024-02-21 10:00:00

1 row in set (0.00 sec)

-- 8. 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 c.companyname, j.jobtitle, avg(j.jobsalary) from companies c
```

```
join jobs j on c.companyid=j.companyid
```

```
where j.jobsalary>0
```

```
group by c.companyname, j.jobtitle;
```

companyname	jobtitle	avg(j.jobsalary)
Hexaware	Software Engineer	80000.000000
Hybe	Music Producer	95000.000000
YG	Talent Manager	75000.000000
Netflix	Content Analyst	8500.000000
Google	Data Scientist	11000.000000
Apple	UX Designer	10000.000000
Tesla	Automotive Engineer	1200.000000
IBM	AI Researcher	1150.000000
Facebook	Social Media Manager	6500.000000
Amazon	E-commerce Analyst	7000.000000
AGC	E-com analyst	67000.000000
Facebook	software engineer	74000.000000

12 rows in set (0.00 sec)

-- 9 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 jobCount from companies c
```

```
join jobs j on c.companyid=j.companyid group by c.companyname
```

```
order by jobCount desc limit 1;
```

companyname	jobCount
AGC	2

1 row in set (0.00 sec)

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

```
select a.firstname, a.lastname from applicants a
```

```
join applications ap on ap.applicantid=a.applicantid
```

```
join jobs j on j.jobid=ap.jobid
```

join companies c on c.companyid=j.companyid

where c.location="South Korea" and a.experience>=3;

```
--> where c.location="South Korea" and a.experience>=3;
+-----+-----+
| firstname | lastname |
+-----+-----+
| Chandler  | Bing     |
+-----+-----+
1 row in set (0.00 sec)
```

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

select distinct(jobtitle) from jobs where jobsalary between

60000 and 80000;

```
+-----+
| jobtitle |
+-----+
| Software Engineer |
| Talent Manager   |
| E-com analyst    |
+-----+
3 rows in set (0.00 sec)
```

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

select j.jobtitle, j.joblocation from jobs j left join applications a

on j.jobid=a.jobid where a.jobid is null;

```
+-----+-----+
| jobtitle | joblocation |
+-----+-----+
| E-com analyst | Mexico |
| E-com analyst | Mexico |
| software engineer | Mexico |
+-----+-----+
3 rows 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 a.firstname, c.companyname, j.jobtitle from applications ap

```
join jobs j on ap.jobid=j.jobid
```

```
join companies c on c.companyid= j.companyid
```

```
join applicants a on a.applicantid=ap.applicantid;
```

firstname	companyname	jobtitle
Ross	Hexaware	Software Engineer
Monica	Hybe	Music Producer
Chandler	YG	Talent Manager
Rachel	Netflix	Content Analyst
Joe	Google	Data Scientist
Phoebe	Apple	UX Designer
Amir	Tesla	Automotive Engineer
Harini	IBM	AI Researcher
Girha	Facebook	Social Media Manager
Gautham	Amazon	E-commerce Analyst

10 rows in set (0.00 sec)

-- 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(j.jobid) from companies c
```

```
left join jobs j on j.companyid=c.companyid group by c.companyname;
```

companyname	count(j.jobid)
Hexaware	1
Hybe	1
YG	1
Netflix	1
Google	1
Apple	1
Tesla	1
IBM	1
Facebook	2
Amazon	1
AGC	2
RCB	0
Fifa	0

13 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.firstname, c.companyname, j.jobtitle from applicants ap
```

```
left join applications a on a.applicantid=ap.applicantid
```

```
left join jobs j on j.jobid=a.jobid
```

```
left join companies c on c.companyid=j.companyid;
```

firstname	companyname	jobtitle
Ross	Hexaware	Software Engineer
Monica	Hybe	Music Producer
Chandler	YG	Talent Manager
Rachel	Netflix	Content Analyst
Joe	Google	Data Scientist
Phoebe	Apple	UX Designer
Amir	Tesla	Automotive Engineer
Harini	IBM	AI Researcher
Girha	Facebook	Social Media Manager
Gautham	Amazon	E-commerce Analyst

10 rows in set (0.00 sec)

-- 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.jobsalary>(select avg(jobsalary) from jobs j);
```

companyname
Hexaware
Hybe
YG
AGC
AGC
Facebook

6 rows in set (0.00 sec)

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

```
select a.firstname, concat(city,";",state)as location from applicants a;
```



firstname	location
Ross	New York, NY
Monica	Los Angeles, CA
Chandler	Chicago, IL
Rachel	Houston, TX
Joe	Miami, FL
Phoebe	San Francisco, CA
Amir	Dallas, TX
Harini	Seattle, WA
Girha	Denver, CO
Gautham	Boston, MA

10 rows in set (0.00 sec)

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

```
select *from jobs where jobtitle like "%engineer%" or jobtitle
like "%developer%";
```

jobid	companyid	jobtitle	jobDescription	joblocation	jobsalary	jobtype	jobpostdate
100	1	Software Engineer	maintain software applications	Mumbai	80000.00	Full-Time	2024-04-01
106	7	Automotive Engineer	Develop new car designs	Austin	1200.00	Full-Time	2024-03-05
112	9	software engineer	digital strategies	Mexico	74000.00	Full-time	2024-04-23

3 rows in set (0.00 sec)

-- 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.applicantid, a.firstname, a.lastname, j.jobid, j.jobtitle, c.companyname
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
union
select a.applicantid, a.firstname, a.lastname, j.jobid, j.jobtitle, c.companyname
from jobs j
left join applications ap on j.jobid = ap.jobid
left join applicants a on ap.applicantid = a.applicantid
left join companies c on j.companyid = c.companyid
where a.applicantid is null;
```

applicantid	firstname	lastname	jobid	jobtitle	companyname
1000	Ross	Geller	100	Software Engineer	Hexaware
1001	Monica	Geller	101	Music Producer	Hybe
1002	Chandler	Bing	102	Talent Manager	YG
1003	Rachel	Green	103	Content Analyst	Netflix
1004	Joe	Tibiyani	104	Data Scientist	Google
1005	Phoebe	Buffae	105	UX Designer	Apple
1006	Amir	Kahn	106	Automotive Engineer	Tesla
1007	Harini	Suresh	107	AI Researcher	IBM
1008	Girha	Lekshmi	108	Social Media Manager	Facebook
1009	Gautham	M	109	E-commerce Analyst	Amazon
NULL	NULL	NULL	110	E-com analyst	AGC
NULL	NULL	NULL	111	E-com analyst	AGC
NULL	NULL	NULL	112	software engineer	Facebook

13 rows in set (0.00 sec)

-- 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, c.companyname, a.experience from
applications ap
join applicants a on a.applicantid=ap.applicantid
join jobs j on j.jobid=ap.jobid
join companies c on c.companyid=j.companyid
where experience>2 and j.joblocation="Mexico";
```

firstname	companyname	experience
Gautham	Amazon	6

1 row in set (0.00 sec)