MSDS 7330

File Organization and Database Management
Mini Project 2

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This is a mini project for MSDS 7330, File Organization and Database Management. For this assignment, turn in a single pdf file containing all of your answers. The file should be named "yourLastNameMiniProject-Number.pdf". For example, the file name for my mini project 1 would be 'RafiqiMiniProject-1.pdf'.

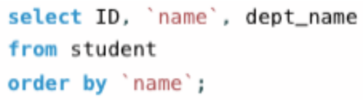
MySQL Database

Question 1: Create a database called "University". Load the data and execute SQL queries.

I have attached scripts to create the University relations and also to add data. Once you have created the schema and loaded the data. Create SQL queries to answer the following questions:

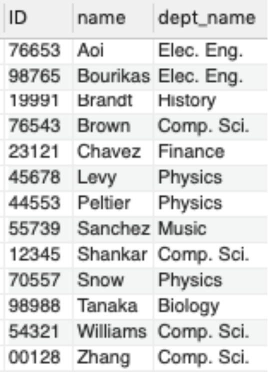
1) Produce a list of all the students in the student relation, including their ID, name and department name, sorted into ascending order by their name.

a)



```
select ID, `name`, dept_name
from student
order by `name`;
```

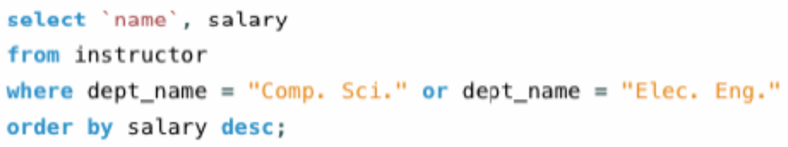
b)



ID	name	dept_name
76653	Aoi	Elec. Eng.
98765	Bourikas	Elec. Eng.
19991	Brandt	History
76543	Brown	Comp. Sci.
23121	Chavez	Finance
45678	Levy	Physics
44553	Peltier	Physics
55739	Sanchez	Music
12345	Shankar	Comp. Sci.
70557	Snow	Physics
98988	Tanaka	Biology
54321	Williams	Comp. Sci.
00128	Zhang	Comp. Sci.

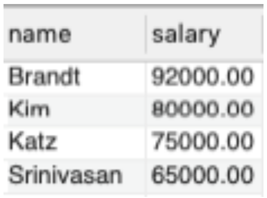
2) Produce a list of the names and salaries of professors in the Comp. Sci. and Elec. Eng. departments ordered by decreasing salary.

a)



```
select `name`, salary
from instructor
where dept_name = "Comp. Sci." or dept_name = "Elec. Eng."
order by salary desc;
```

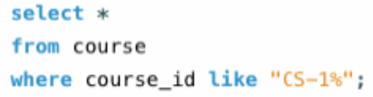
b)



name	salary
Brandt	92000.00
Kim	80000.00
Katz	75000.00
Srinivasan	65000.00

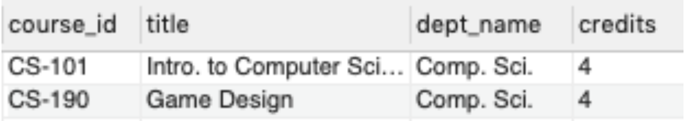
3) Find all courses whose identifier starts with the string ”CS-1”

a)



```
select *
from course
where course_id like "CS-1%";
```

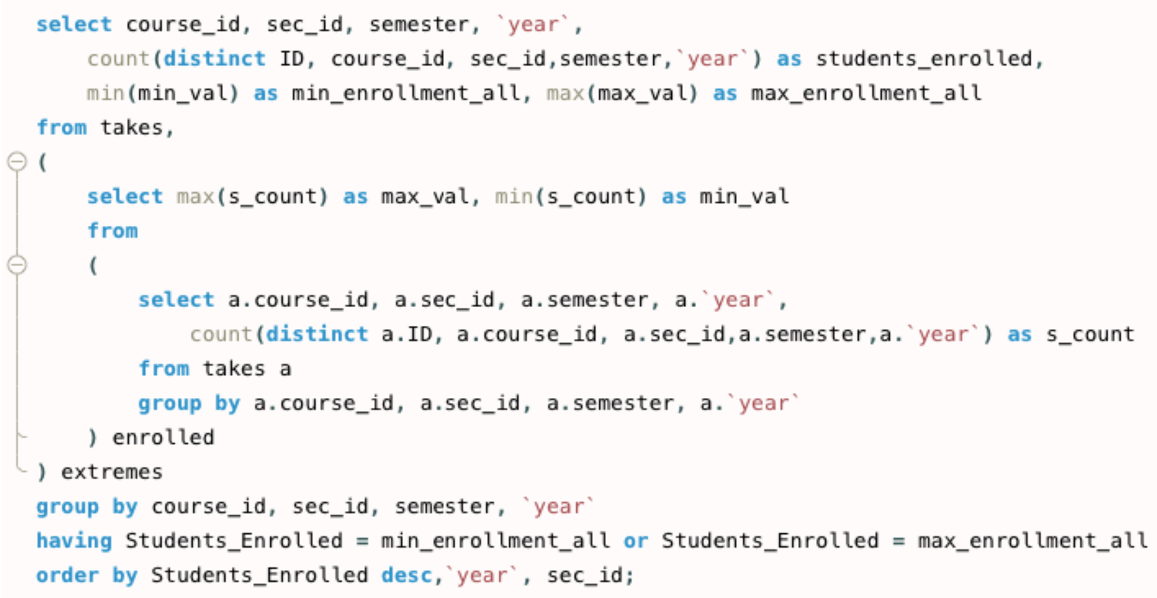
b)



course_id	title	dept_name	credits
CS-101	Intro. to Computer Sci...	Comp. Sci.	4
CS-190	Game Design	Comp. Sci.	4

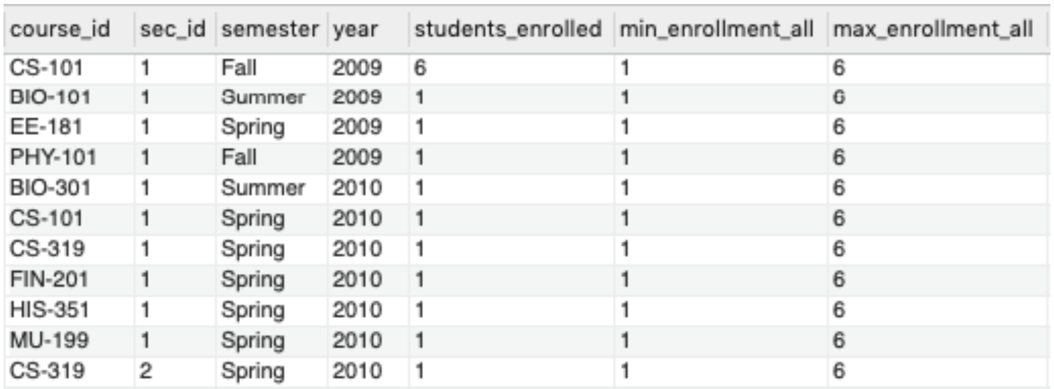
4) Find the maximum and minimum enrollment across all sections, considering only sections that had some enrollment, don’t worry about those that had no students taking that section

a)



```
select course_id, sec_id, semester, `year`,
    count(distinct ID, course_id, sec_id,semester,`year`) as students_enrolled,
    min(min_val) as min_enrollment_all, max(max_val) as max_enrollment_all
from takes,
(
    select max(s_count) as max_val, min(s_count) as min_val
    from
    (
        select a.course_id, a.sec_id, a.semester, a.`year`,
            count(distinct a.ID, a.course_id, a.sec_id,a.semester,a.`year`) as s_count
        from takes a
        group by a.course_id, a.sec_id, a.semester, a.`year`
    ) enrolled
) extremes
group by course_id, sec_id, semester, `year`
having Students_Enrolled = min_enrollment_all or Students_Enrolled = max_enrollment_all
order by Students_Enrolled desc,`year`, sec_id;
```

b)



course_id	sec_id	semester	year	students_enrolled	min_enrollment_all	max_enrollment_all
CS-101	1	Fall	2009	6	1	6
BIO-101	1	Summer	2009	1	1	6
EE-181	1	Spring	2009	1	1	6
PHY-101	1	Fall	2009	1	1	6
BIO-301	1	Summer	2010	1	1	6
CS-101	1	Spring	2010	1	1	6
CS-319	1	Spring	2010	1	1	6
FIN-201	1	Spring	2010	1	1	6
HIS-351	1	Spring	2010	1	1	6
MU-199	1	Spring	2010	1	1	6
CS-319	2	Spring	2010	1	1	6

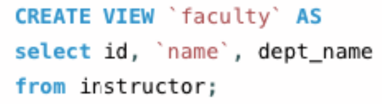
i) Note: This table shows the courses with the min and max enrollment in one table. The top row is the course with the max enrollment and the bottom 10 rows tied for minimum enrollment.

ii) Note: min_enrollment_all and max_enrollment_all attributes represent the min and max for all sections and is repeated for each row as a reference for comparing the current students_enrolled.

5) Create a view faculty showing only the ID, name, and department of instructors.

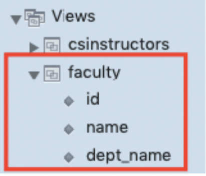
a) Create View

i)



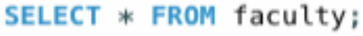
```
CREATE VIEW `faculty` AS
select id, `name`, dept_name
from instructor;
```

ii)



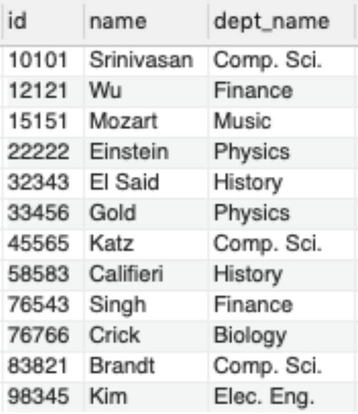
b) Inside the View

i)



```
SELECT * FROM faculty;
```

ii)

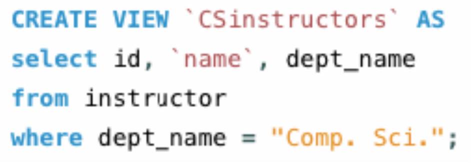


id	name	dept_name
10101	Srinivasan	Comp. Sci.
12121	Wu	Finance
15151	Mozart	Music
22222	Einstein	Physics
32343	El Said	History
33456	Gold	Physics
45565	Katz	Comp. Sci.
58583	Califieri	History
76543	Singh	Finance
76766	Crick	Biology
83821	Brandt	Comp. Sci.
98345	Kim	Elec. Eng.

6) Create a view “CSinstructors”, showing all information about instructors from the Comp. Sci. department.

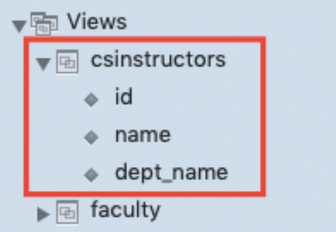
a) Create View

i)



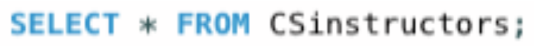
```
CREATE VIEW `CSinstructors` AS
select id, `name`, dept_name
from instructor
where dept_name = "Comp. Sci.";
```

ii)



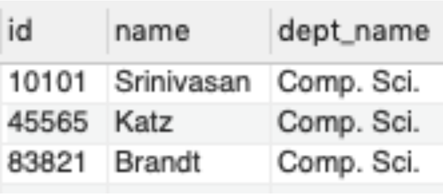
b) Inside the View

i)



```
SELECT * FROM CSinstructors;
```

ii)



id	name	dept_name
10101	Srinivasan	Comp. Sci.
45565	Katz	Comp. Sci.
83821	Brandt	Comp. Sci.

Capture the sequence of queries and resulting output thereby demonstrating your database in operation. Turn in a pdf of screenshots of your database in operation.