COMPSCI 751 S1 C – Lab 04

Name: Yixuan Li

UPI: yil845

Q1,

(a)

SELECT * FROM STUDENT WHERE Major = ‘CS’;

Showing rows 0 - 1 (2 total, Query took 0.0006 seconds.)

```
SELECT * FROM STUDENT WHERE Major = 'CS'
```

Name	Student_number	Class	Major
Brown	8	5	CS
Smith	17	1	CS

(b)

SELECT C.Course_name FROM COURSE AS C, SECTION AS S WHERE S.Instructor = “King” AND (S.Year = 85 OR S.Year = 86) AND C.Course_number = S.Course_number;

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0012 seconds.)

```
SELECT C.Course_name FROM COURSE AS C, SECTION AS S WHERE S.Instructor = 'King' AND (S.Year = 85 OR S.Year = 86) AND C.Course_number = S.Course_number
```

(c)

SELECT Course_number, Semester, Year, Student_number FROM SECTION INNER JOIN GRADE_REPORT ON GRADE_REPORT.Section_identifier = SECTION.Section_identifier WHERE Instructor = ‘King’;

Showing rows 0 - 0 (1 total, Query took 0.0019 seconds.)

```
SELECT Course_number, Semester, Year, Student_number FROM SECTION
INNER JOIN GRADE_REPORT ON GRADE_REPORT.Section_identifier =
SECTION.Section_identifier WHERE Instructor = 'King'
```

Course_number	Semester	Year	Student_number
MATH2410	Fall	07	8

(d)

SELECT S.Name, C.Course_name, C.Course_number, C.Credit_hours, SE.Semester, SE.Year, G.Grade FROM COURSE C JOIN SECTION SE ON C.Course_number = SE.Course_number JOIN GRADE_REPORT G ON SE.Section_identifier = G.Section_identifier JOIN STUDENT S ON S.Student_number = G.Student_number WHERE S.Class = '5' AND S.Major = "CS";

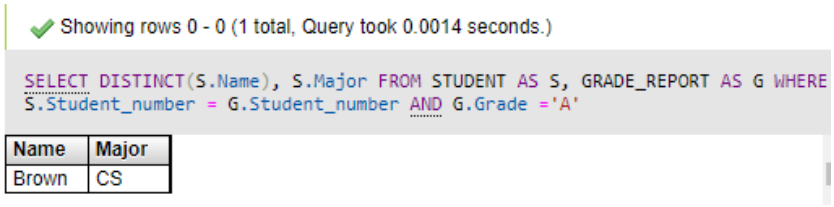
Showing rows 0 - 3 (4 total, Query took 0.0020 seconds.)

```
SELECT S.Name, C.Course_name, C.Course_number, C.Credit_hours, SE.Semester, SE.Year,
G.Grade FROM COURSE C JOIN SECTION SE ON C.Course_number = SE.Course_number JOIN
GRADE_REPORT G ON SE.Section_identifier = G.Section_identifier JOIN STUDENT S ON
S.Student_number = G.Student_number WHERE S.Class = '5' AND S.Major = "CS"
```

Name	Course_name	Course_number	Credit_hours	Semester	Year	Grade
Brown	Discrete Mathematics	MATH2410	3	Fall	07	A
Brown	Intro to Computer Science	CS1310	4	Fall	07	A
Brown	Data Structures	CS3320	4	Spring	08	B
Brown	Database	CS3380	3	Fall	08	A

(e)

SELECT DISTINCT(S.Name), S.Major FROM STUDENT AS S, GRADE_REPORT AS G WHERE S.Student_number = G.Student_number AND G.Grade ='A';



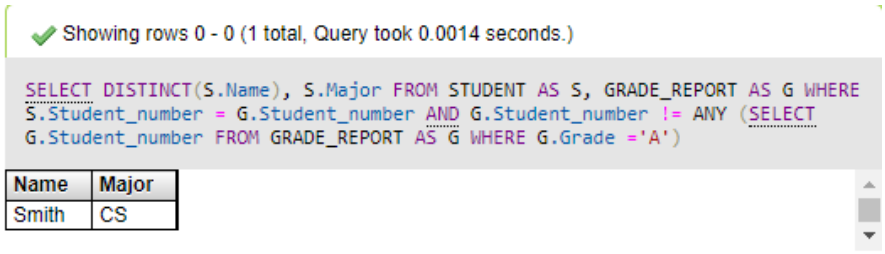
Showing rows 0 - 0 (1 total, Query took 0.0014 seconds.)

```
SELECT DISTINCT(S.Name), S.Major FROM STUDENT AS S, GRADE_REPORT AS G WHERE
S.Student_number = G.Student_number AND G.Grade ='A'
```

Name	Major
Brown	CS

(f)

SELECT DISTINCT(S.Name), S.Major FROM STUDENT AS S, GRADE_REPORT AS G WHERE S.Student_number = G.Student_number AND G.Student_number != ANY (SELECT G.Student_number FROM GRADE_REPORT AS G WHERE G.Grade ='A');



Showing rows 0 - 0 (1 total, Query took 0.0014 seconds.)

```
SELECT DISTINCT(S.Name), S.Major FROM STUDENT AS S, GRADE_REPORT AS G WHERE
S.Student_number = G.Student_number AND G.Student_number != ANY (SELECT
G.Student_number FROM GRADE_REPORT AS G WHERE G.Grade ='A')
```

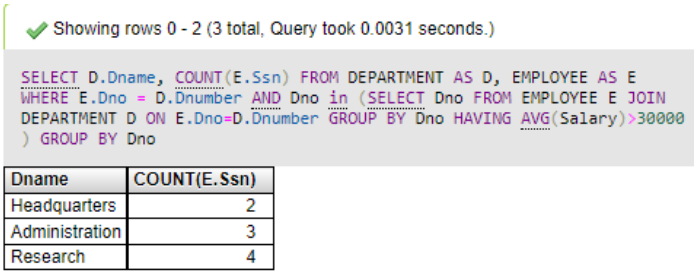
Name	Major
Smith	CS

Q2 More SQL: Complex Queries, Triggers, Views, and Schema Modification

2.

(a)

SELECT D.Dname, COUNT(E.Ssn) FROM DEPARTMENT AS D, EMPLOYEE AS E WHERE E.Dno = D.Dnumber AND Dno in (SELECT Dno FROM EMPLOYEE E JOIN DEPARTMENT D ON E.Dno=D.Dnumber GROUP BY Dno HAVING AVG(Salary)>30000) GROUP BY Dno;



Showing rows 0 - 2 (3 total, Query took 0.0031 seconds.)

```
SELECT D.Dname, COUNT(E.Ssn) FROM DEPARTMENT AS D, EMPLOYEE AS E
WHERE E.Dno = D.Dnumber AND Dno in (SELECT Dno FROM EMPLOYEE E JOIN
DEPARTMENT D ON E.Dno=D.Dnumber GROUP BY Dno HAVING AVG(Salary)>30000
) GROUP BY Dno
```

Dname	COUNT(E.Ssn)
Headquarters	2
Administration	3
Research	4

(b)

Yes, we can specify this query in SQL. If we add sex='M' as parallel condition as AVG(Salary)>30000, the result is not accurate, because Having function should be executed based on Employee with only male. We need to do,

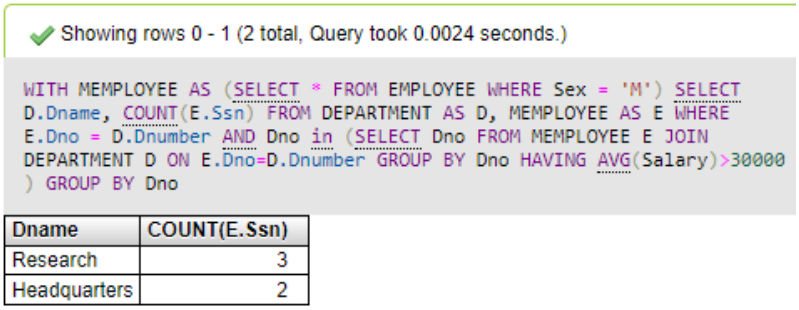
1, create a temporary view table of Employee with Sex = "M",

WITH MEMPLOYEE AS (SELECT * FROM EMPLOYEE WHERE Sex = 'M')

2, then perform the same query as in (a).

Therefore, the resulting SQL is:

WITH MEMPLOYEE AS (SELECT * FROM EMPLOYEE WHERE Sex = 'M') SELECT D.Dname, COUNT(E.Ssn) FROM DEPARTMENT AS D, MEMPLOYEE AS E WHERE E.Dno = D.Dnumber AND Dno in (SELECT Dno FROM MEMPLOYEE E JOIN DEPARTMENT D ON E.Dno=D.Dnumber GROUP BY Dno HAVING AVG(Salary)>30000) GROUP BY Dno;



Dname	COUNT(E.Ssn)
Research	3
Headquarters	2