

# 16337341(朱志儒)数据库系统作业 1

3.11

a.

```
SELECT DISTINCT name
FROM student NATURAL JOIN takes NATURAL JOIN course
WHERE title = 'Comp. Sci';
```

b.

```
SELECT ID, name
FROM student NATURAL JOIN takes
WHERE year > 2009 or year = 2009 and semester <> 'Spring';
```

c.

```
SELECT dept_name, max(salary)
FROM instructor
GROUP BY dept_name;
```

d.

```
SELECT min(max_salary)
FROM (SELECT dept_name, max(salary) AS max_salary
      FROM instructor
      GROUP BY dept_name);
```

3.12

a.

```
INSERT INTO course
VALUE('CS-001', 'Weekly Seminar', 'Comp. Sci', 0);
```

b.

```
INSERT INTO section
VALUE('CS-001', 1, 'Fall', 2009);
```

c.

```
INSERT INTO takes(ID, course_id, sec_id, semester, year)
SELECT ID, 'CS-001', 1, 'Fall', 2009
FROM student
WHERE dept_name = 'Comp. Sci';
```

d.

```
DELETE FROM takes
WHERE ID IN (SELECT ID
```

```
FROM student
WHERE name = 'Chavez')
AND course_id = 'CS-001';
```

e.

```
DELETE FROM course
WHERE course_id = 'CS-001'
```

如果在运行此删除语句之前，没有先删除这门课程的授课信息，该删除操作将被系统拒绝。

f.

```
DELETE FROM takes
WHERE course_id IN (SELECT course_id
FROM course
WHERE title = '%database%');
```

### 3.21

a.

```
SELECT name
FROM member NATURAL JOIN borrowed NATURAL JOIN book
WHERE publisher = 'McGraw-Hill';
```

b.

```
SELECT S.name
FROM member AS S
WHERE NOT EXISTS ((SELECT isbn
FROM book
WHERE publisher = 'McGraw-Hill')
EXCEPT
(SELECT T.isbn
FROM borrowed AS T
WHERE S.memb_no = T.memb_no));
```

c.

```
SELECT M.name
FROM member M
WHERE 5 < (SELECT count(isbn)
FROM book NATURAL JOIN borrowed AS T
WHERE M.memb_no = T.memb_no
GROUP BY T.publisher);
```

d.

```
SELECT name, avg_books
FROM member M, LATERAL (SELECT avg(isbn) AS avg_books
                        FROM borrowed NATURAL JOIN book AS N
                        WHERE M.memb_no = N.memb_no
                        GROUP BY memb_no);
```

3.22

```
WHERE NOT EXISTS ((SELECT title FROM course) EXCEPT (SELECT DISTINCT
title FROM course))
```