

```

a. SELECT COUNT (DISTINCT p.driver_id)
    FROM person p
    JOIN owns o ON p.driver_id = o.driver_id
    JOIN participated part ON o.license_plate = part.license_plate
    JOIN accident a ON part.report_number = a.report_number
    WHERE a.year = 2017

```

```

b. DELETE FROM participated
    WHERE license_plate IN (
        SELECT c.license_plate
        FROM car c
        JOIN owns o ON c.license_plate = o.license_plate
        WHERE c.year = 2010 AND o.driver_id = '12345'
    );
DELETE FROM owns
    WHERE driver_id = '12345' AND license_plate IN (
        SELECT license_plate
        FROM car
        WHERE year = 2010

```

```

);

```

```

DELETE FROM car
    WHERE license_plate IN
        SELECT o.license_plate
        FROM owns o
        WHERE o.driver_id = '12345'
    | AND year = 2010

```



3.11

```
c. SELECT dept-name, MAX(salary) AS max-salary
   FROM instructor
   GROUP BY dept-name
```

→ {
 SELECT MIN(max-salary) AS lowest-max-salary
 FROM (
 SELECT ---
 --- // 同 C
) AS --

3.12

```
b. INSERT INTO section (course-id, sec-id, semester, year)
VALUES ('CS-001', '1', 'Fall', 2017);
```

```
c. INSERT INTO takes (ID, course-id, sec-id, semester, year, grade)
   SELECT s.ID, 'CS-001', '1', 'Fall', 2017, Null
   FROM student s
   WHERE s.dept-name = 'Comp. Sci';
```

```
e. DELETE FROM course
   WHERE course-id = 'CS-001'
```

会报错，section 中引用了 course-id
删除破坏数据库一致性

```
f. DELETE FROM takes
   WHERE course-id IN (
     SELECT course-id
     FROM course
     WHERE UPPER(title) LIKE '%ADVANCED%'
```

};



```

a. SELECT c.customer_name
FROM customer c
WHERE NOT EXISTS(
    SELECT branch_name
    FROM branch
    WHERE branch_city = 'Brooklyn'
    AND branch_name NOT IN(
        SELECT a.branch_name
        FROM account a, depositor d
        WHERE a.account_number = d.account_number
        AND d.ID = c.ID
    )
);

```

```

c. SELECT b1.branch_name
FROM branch b1
WHERE b1.assets > ANY(
    SELECT branch
    FROM branch b2
    WHERE b2.branch_city = 'Brooklyn'
);

```

3.30 如若 Null 值 count 会大于本身值

ID	name	salary
1	K1	9000
2	K2	8500
3	K3	Null

4.36



4.36 SELECT

... NULL JOIN takes

UNION

SELECT student.x, NULL AS course_id, NULL AS sec_id NULL AS semester
NULL AS year, NULL AS grade

FROM student

WHERE student.ID NOT IN

SELECT ID FROM takes

WHERE ID IS NOT NULL

)

UNION

SELECT NULL AS ID, NULL AS name, NULL AS dept_name,
NULL AS tot_cred, takes.course_id, takes.sec_id, takes.semester,
takes.year, takes.grade

FROM takes.

WHERE takes.ID NOT IN

SELECT ID FROM student

WHERE ID IS NOT NULL.

/

4.18

SELECT e.ID

FROM employee e LEFT OUTER JOIN manager m ON e.ID=m.ID
WHERE m.manager_id IS NULL;

SELECT ID

FROM employee

WHERE ID NOT IN

SELECT ID

FROM managers

WHERE manager_id IS NOT NULL

);



4.25 r_1 to r_2 $\begin{cases} \text{SELECT} \\ \text{INSERT} \end{cases}$

必要性: 保证数据的完整与安全, 否则可能有冲突

5.19 1. 创建触发器: 在S上创建一个触发器, 在删除时触发

2. 定义触发器: 当触发删除S中相关元组

```
BEFORE  
DELETE FROM V
```

✓

```
WHERE B=O.D.P.A
```

```
END;
```

