데이터베이스 HW6

2018320212 김상엽

1.

Foreign key constraints (Data Science는, referencing relation인 department에 없는 값임)

```
[hw6=# insert into student values('99999', 'sangyeob', 'Data Science', 135);
ERROR:  insert or update on table "student" violates foreign key constraint "student_dept_name_fkey"
DETAIL:  Key (dept_name)=(Data Science) is not present in table "department".
```

Not null constraints ('id'라는 attribute는 not null로 정의되있는데, null이 입력됨.

```
[hw6=# insert into student values(null, null, 'Comp. Sci.', 135);
ERROR:  null value in column "id" of relation "student" violates not-null constraint
DETAIL:  Failing row contains (null, null, Comp. Sci., 135).
```

Primary key constraints (primary key인 s_id와 중복되는 값을 가지는 tuple이 입력됨)

```
[hw6=# insert into advisor values('00128', '12345');
ERROR:  duplicate key value violates unique constraint "advisor_pkey"
DETAIL:  Key (s_id)=(00128) already exists.
```

2.

첫 번째 transaction에서 student table에 tuple을 insert

```
hw6=# begin transaction;
BEGIN
hw6=*# insert into student values('99999', 'sangyeob', 'Comp. Sci.', 135);
INSERT 0 1
hw6=*# commit;
COMMIT
```

두 번째 transaction에서는 그 tuple을 삭제 시도, 첫 번째 transaction이 commit되기 전에 delete 0으로 삭제를 할 수 없는 모습을 볼 수 있음. 하지만 commit 이후, 같은 sql 문장으로 그 tuple을 삭제할 수 있음.

```
hw6=# begin transaction;
BEGIN
[hw6=*# delete from student where name = 'sangyeob';
DELETE 0
[hw6=*# delete from student where name = 'sangyeob';
DELETE 1
[hw6=*# commit;
COMMIT
```

3.

User 생성

```
[hw6=# create user sangyeob password '9240'
;
CREATE ROLE
hw6=#
```

Non authorized : 유저에게 grant 전에 select문 시도 -> 실패

```
[hw6=> select * from student
[hw6-> ;
ERROR:  permission denied for table student
```

User에게 select, insert에 대한 권한 부여 후 정상적으로 실행되는 것을 확인.

```
[hw6=# grant select, insert on student to sangyeob;
GRANT
hw6=> insert into student values('99999', 'sangyeob', 'Comp. Sci.', 135);
INSERT 0 1
```

```
[hw6=> select * from student;
  id    |   name    |  dept_name  | tot_cred
--------+-----------+-------------+----------
 00128 | Zhang     | Comp. Sci.  |      102
 12345 | Shankar   | Comp. Sci.  |       32
 19991 | Brandt    | History     |       80
 23121 | Chavez    | Finance     |      110
 44553 | Peltier   | Physics     |       56
 45678 | Levy      | Physics     |       46
 54321 | Williams  | Comp. Sci.  |       54
 55739 | Sanchez   | Music       |       38
 70557 | Snow      | Physics     |        0
 76543 | Brown     | Comp. Sci.  |       58
 76653 | Aoi       | Elec. Eng.  |       60
 98765 | Bourikas  | Elec. Eng.  |       98
 98988 | Tanaka    | Biology     |      120
(13 rows)
```

Authorized 되지 않은 delete의 경우, 실행되지 않음.

```
[hw6=> delete from student where name = 'sangyeob';
ERROR:  permission denied for table student
hw6=>
```

Insert 권한 revoke 후, 실행되지 않은 모습

```
[hw6=# revoke insert on student from sangyeob;
REVOKE
hw6=#

[hw6=> insert into student values('99998', 'yeobsang', 'Comp. Sci.', 135);
ERROR:  permission denied for table student
hw6=>
```

4.

1) 하나의 테이블에서 view 생성. 후, view에 data insert하는 경우 -> 원래의 table에서 view가 갖지 않은 attribute는 null로 대체되어 table에 insert 됨을 확인 할 수 있음.

```
hw6=# create view student_info as
hw6-#     select id, name, dept_name from student;
CREATE VIEW
```

```
[hw6=# insert into student_info values ('99999', 'sangyeob', 'Comp. Sci.');
INSERT 0 1
[hw6=# select * from student;
   id  |   name    |  dept_name  | tot_cred
-------+-----------+-------------+----------
 00128 | Zhang     | Comp. Sci.  |      102
 12345 | Shankar   | Comp. Sci.  |       32
 19991 | Brandt    | History     |       80
 23121 | Chavez    | Finance     |      110
 44553 | Peltier   | Physics     |       56
 45678 | Levy      | Physics     |       46
 54321 | Williams  | Comp. Sci.  |       54
 55739 | Sanchez   | Music       |       38
 70557 | Snow      | Physics     |        0
 76543 | Brown     | Comp. Sci.  |       58
 76653 | Aoi       | Elec. Eng.  |       60
 98765 | Bourikas  | Elec. Eng.  |       98
 98988 | Tanaka    | Biology     |      120
 99999 | sangyeob  | Comp. Sci.  |
(14 rows)
```

2) 두 개의 table로부터 view를 생성한 후, data를 삽입하는 경우. -> 모호성이 생겨 update를 할 수 없음.

```
hw6=# create view student_info2 as
hw6-#     select id, name, budget
hw6-#     from student, department
hw6-#     where student.dept_name = department.dept_name;
CREATE VIEW
```

```
[hw6=# insert into student_info2 values ('99999', 'sangyeob', 100000);
ERROR:  cannot insert into view "student_info2"
DETAIL:  Views that do not select from a single table or view are not automatically updatable.
HINT:  To enable inserting into the view, provide an INSTEAD OF INSERT trigger or an unconditional O
N INSERT DO INSTEAD rule.
```

3) group by를 사용하여 view를 생선한 후, data를 삽입하는 경우 -> update 할 수 없음.

```
hw6=# create view dept_tot_cred as
hw6-#     select dept_name, avg(tot_cred)
hw6-#     from student
[hw6-#     group by dept_name;
CREATE VIEW
```

```
[hw6=# insert into dept_tot_cred values('Data Science', '100');
ERROR:  cannot insert into view "dept_tot_cred"
DETAIL:  Views containing GROUP BY are not automatically updatable.
HINT:  To enable inserting into the view, provide an INSTEAD OF INSERT trigger or an unconditional O
N INSERT DO INSTEAD rule.
```

4) view의 생성시 조건과(where절) 다른 조건의 tuple을 insert한 경우. (view는 Comp. Sci과 학생에 대한 view이지만, History 학생을 삽입하였음.)

-> source table에 정상적으로 insert되지만, view의 모습은 달라지지 않음을 확인.

```
hw6=# create view student_comp as
hw6-#     select id, name, dept_name
hw6-#     from student
[hw6-#     where dept_name = 'Comp. Sci.';
CREATE VIEW
```

```
[hw6=# insert into student_comp values ('99999', 'sangyeob', 'History');
INSERT 0 1
[hw6=# select * from student_comp;
   id   |   name    | dept_name
--------+-----------+------------
 00128 | Zhang     | Comp. Sci.
 12345 | Shankar   | Comp. Sci.
 54321 | Williams  | Comp. Sci.
 76543 | Brown     | Comp. Sci.
(4 rows)

[hw6=# select * from student;
   id   |   name    | dept_name  | tot_cred
--------+-----------+------------+----------
 00128 | Zhang     | Comp. Sci. |      102
 12345 | Shankar   | Comp. Sci. |       32
 19991 | Brandt    | History    |       80
 23121 | Chavez    | Finance    |      110
 44553 | Peltier   | Physics    |       56
 45678 | Levy      | Physics    |       46
 54321 | Williams  | Comp. Sci. |       54
 55739 | Sanchez   | Music      |       38
 70557 | Snow      | Physics    |        0
 76543 | Brown     | Comp. Sci. |       58
 76653 | Aoi       | Elec. Eng. |       60
 98765 | Bourikas  | Elec. Eng. |       98
 98988 | Tanaka    | Biology    |      120
 99999 | sangyeob  | History    |
(14 rows)
```