数据库实验九

张天祎 18340215 计科8班

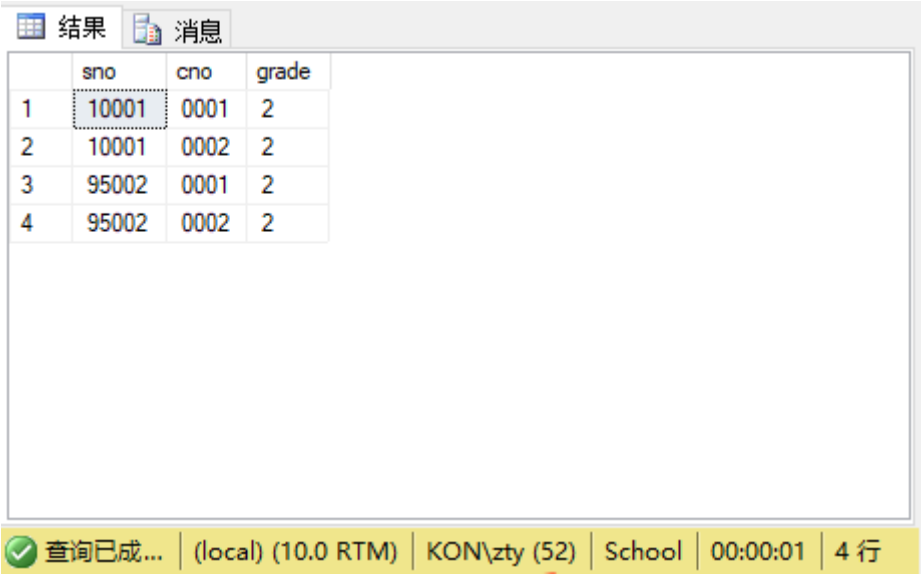
实验任务

在school数据库中：
(1)用alter table语句将SC表中的on delete cascade改为on delete no action,重新插入SC的数据（按照实验一）。再删除Stu_Union中sno为'10001'的数据。观察结果，并分析原因。
(2)用alter table语句将SC表中的on delete no action改为on delete set NULL,重新插入SC的数据（按照实验一）。再删除Stu_Union中sno为'10001'的数据。观察结果，并分析原因。
(3)建立事务T3，修改ICBC_Card表的外键属性，使其变为on delete set NULL,尝试删除students表中一条记录。观察结果，并分析原因。
(4)创建一个班里的学生互助表，规定：包括学生编号，学生姓名，学生的帮助对象，每个学生有且仅有一个帮助对象，帮助对象也必须是班里的学生。（表的自参照问题）
(5)学校学生会的每个部门都有一个部长，每个部长领导多个部员，每个部只有一个部员有评测部长的权利，请给出体现这两种关系（领导和评测）的两张互参照的表的定义。（两个表互相参照的问题）

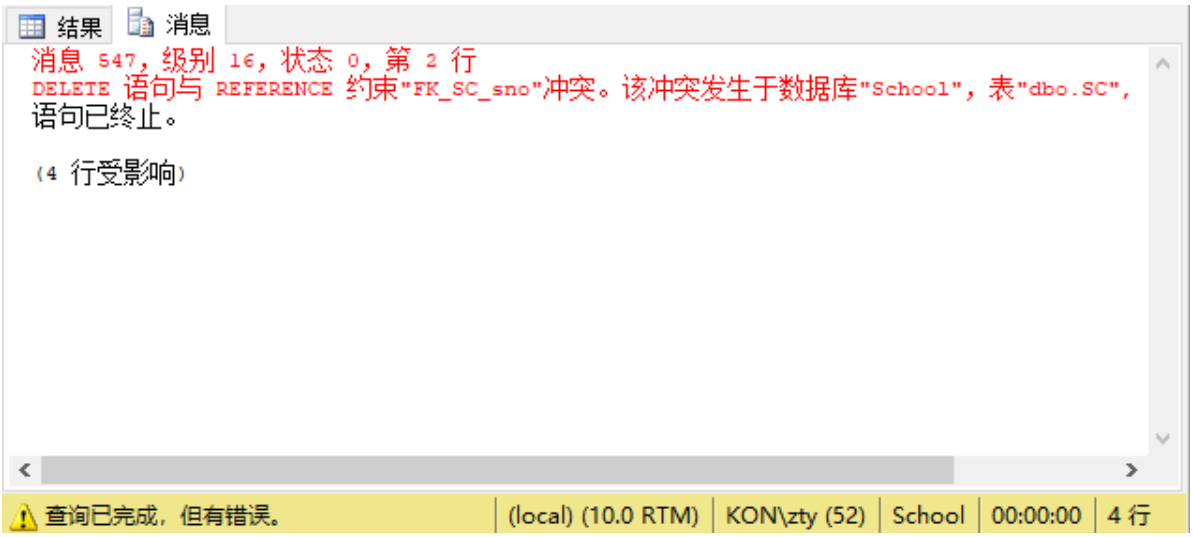
解决方案

(1)

```
alter table SC drop FK__SC__cno__3F466844;
alter table SC drop FK__SC__sno__3E52440B;
alter table SC add
    CONSTRAINT FK_SC_cno FOREIGN KEY (cno)
    references Course(cno) on delete no action;
alter table SC add
    CONSTRAINT FK_SC_sno FOREIGN KEY (sno)
    references Stu_Union(sno) on delete no action;
insert into Stu_Union values('95002','李华','M',22,'CS')
insert into Stu_Union values('10001','韩梅梅','o',23,'CS')
insert into SC values('95002','0001',2);
insert into SC values('95002','0002',2);
insert into SC values('10001','0001',2);
insert into SC values('10001','0002',2);
select * from SC;
```



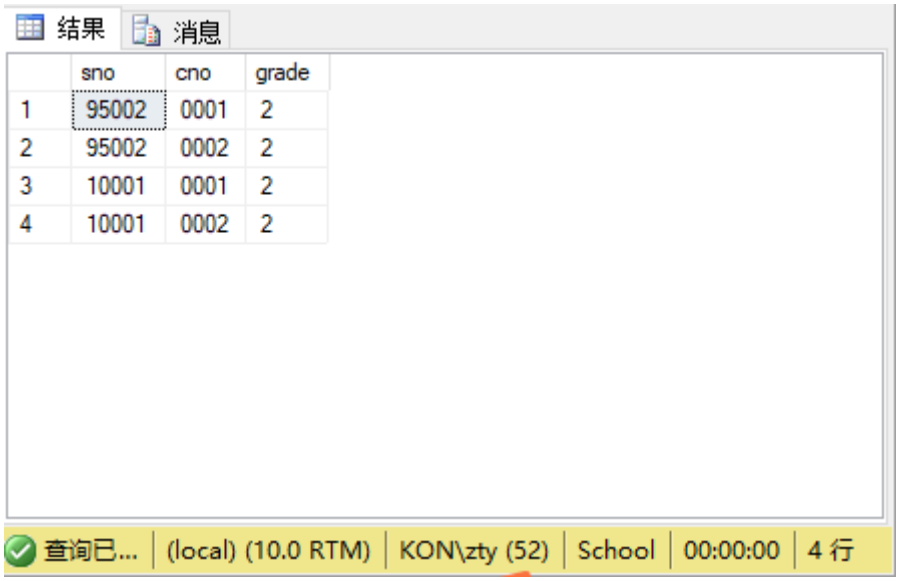

```
delete from Stu_Union where sno = '10001';
select * from SC;
```



删除不成功，两个表都没有变化。因为外键约束改为了“on delete no action”，当删除和外键约束冲突时，删除失败。

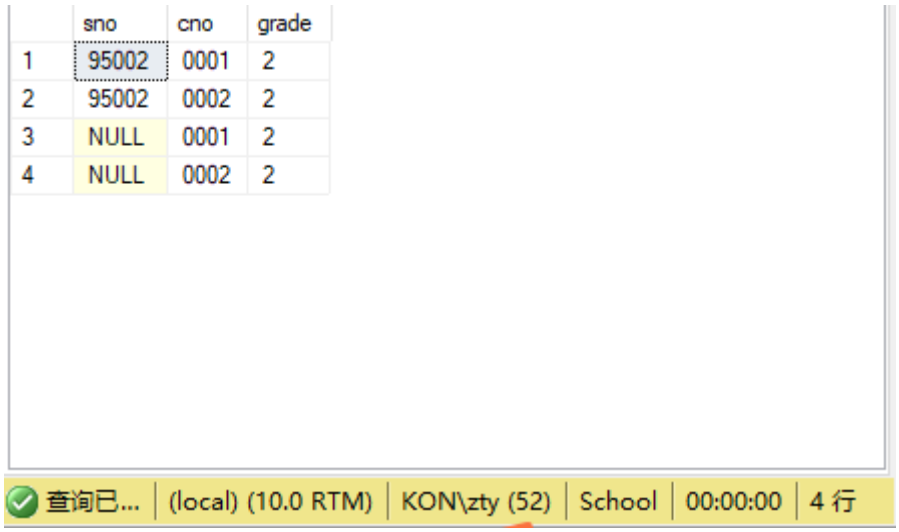
(2)

```
delete from SC;
alter table SC drop FK_SC_cno;
alter table SC drop FK_SC_sno;
alter table SC drop PK_SC;
alter table SC alter column cno char(4) null
alter table SC alter column sno char(5) null
alter table SC add
    CONSTRAINT FK_SC_cno FOREIGN KEY (cno)
    references Course(cno) on delete set NULL;
alter table SC add
    CONSTRAINT FK_SC_sno FOREIGN KEY (sno)
    references Stu_Union(sno) on delete set NULL;
insert into SC values('95002','0001',2);
insert into SC values('95002','0002',2);
insert into SC values('10001','0001',2);
insert into SC values('10001','0002',2);
select * from SC;
```



使用“on delete set NULL”之前，要先删除主键，还要更改两个属性的非NULL值域。

```
delete from Stu_Union where sno = '10001';
select * from SC;
```



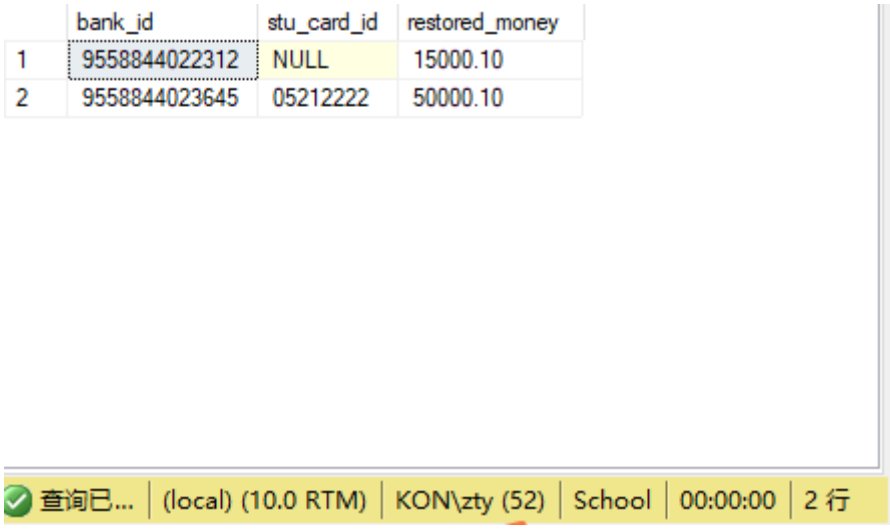
删除成功，SC表因为外键依赖，相应值变成了NULL。

(3)

```
set XACT_ABORT ON
Begin transaction T3
alter table CHOICES drop FK_CHOICES_STUDENTS;
alter table CHOICES add
    CONSTRAINT FK_CHOICES_STUDENTS FOREIGN KEY (sid)
    references STUDENTS(sid) on delete cascade;
alter table ICBC_Card drop FK__ICBC_Card__stu_c__44FF419A;
alter table ICBC_Card add
    CONSTRAINT FK__ICBC_Card__stu_c FOREIGN KEY (stu_card_id)
    references Stu_Card(card_id) on delete set NULL;
delete STUDENTS where sid = '800001216'
Commit transaction T3
```

注意要把CHOICES中的外键约束设为级联删除。

```
select * from ICBC_Card
```



	bank_id	stu_card_id	restored_money
1	9558844022312	NULL	15000.10
2	9558844023645	05212222	50000.10

查询已... (local) (10.0 RTM) KON\zty (52) School 00:00:00 2 行

Stu_Card是级联删除，而ICBC_Card会把删除的外键设为NULL。故删除STUDENTS项后相应ICBC_Card变为了NULL。

(4)

```
create table zty(
    sid char(10) PRIMARY KEY,
    sname char(10),
    target_id char(10))
alter table zty add
    CONSTRAINT FK_ZTY FOREIGN KEY(target_id)
    references zty(sid)
```

(5)

```
create table leader(
    sid char(10) PRIMARY KEY,
    sname char(10),
    eval_id char(10))
create table eval(
    sid char(10) PRIMARY KEY,
    sname char(10),
    leader_id char(10),
    Foreign KEY(leader_id) references leader(sid))
alter table leader add
    CONSTRAINT LEADER_EVAL FOREIGN KEY(eval_id)
    references eval(sid)
```