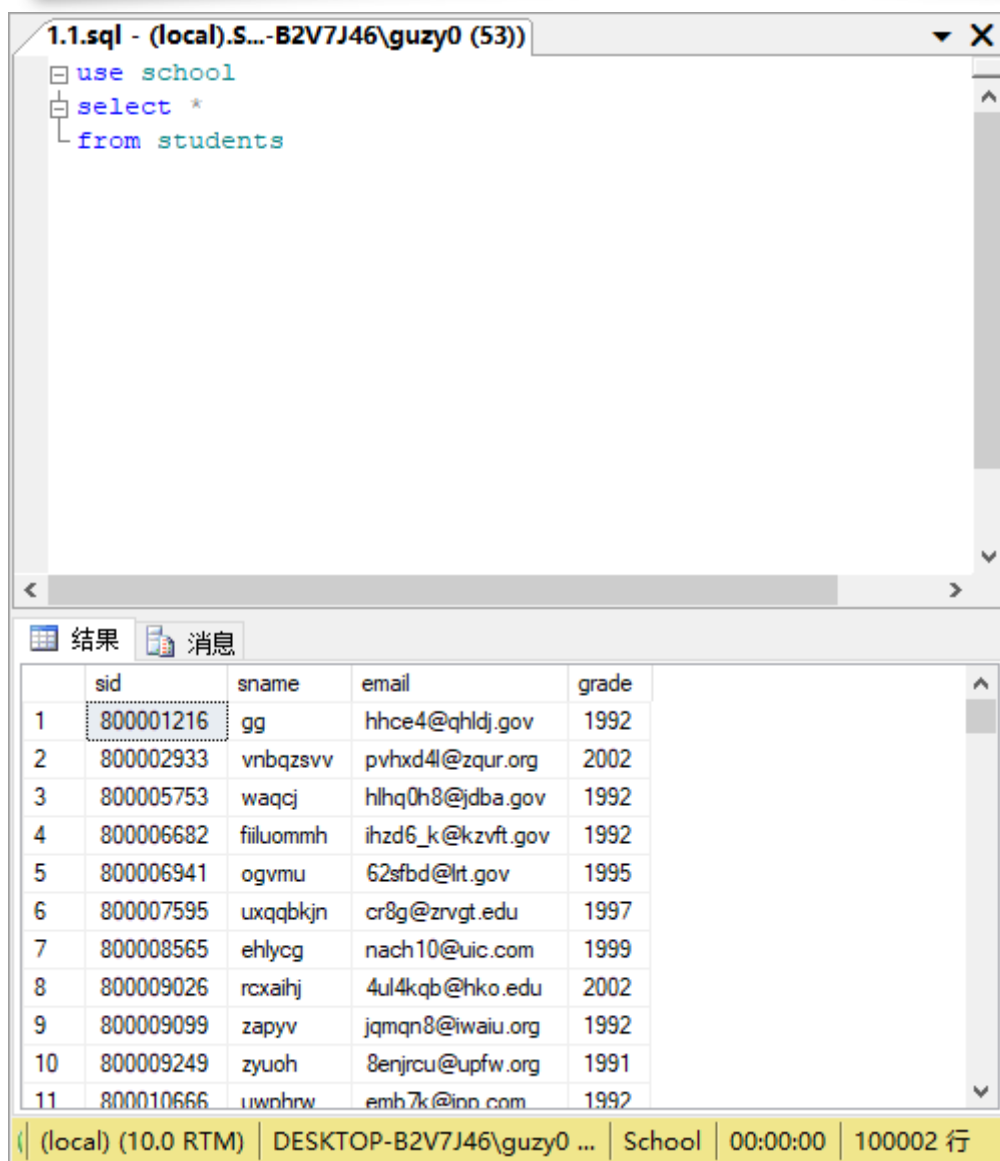


# EX12

## 练习1

1. 查看students表。

```
use school
select *
from students
```



1.1.sql - (local).S...-B2V7J46\guzy0 (53)

```
use school
select *
from students
```

|    | sid       | sname     | email             | grade |
|----|-----------|-----------|-------------------|-------|
| 1  | 800001216 | gg        | hhce4@qhldj.gov   | 1992  |
| 2  | 800002933 | vnbqzsvv  | pvhxd4l@zqur.org  | 2002  |
| 3  | 800005753 | waqcj     | hlhq0h8@jdba.gov  | 1992  |
| 4  | 800006682 | fiiluommh | ihzd6_k@kzvft.gov | 1992  |
| 5  | 800006941 | ogvmu     | 62sfbdl@lft.gov   | 1995  |
| 6  | 800007595 | uxqqbkjn  | cr8g@zrvgt.edu    | 1997  |
| 7  | 800008565 | ehlycg    | nach10@uic.com    | 1999  |
| 8  | 800009026 | rcxaihj   | 4ul4kqb@hko.edu   | 2002  |
| 9  | 800009099 | zapyv     | jmqn8@iwaiu.org   | 1992  |
| 10 | 800009249 | zyuoh     | 8enjrcu@upfw.org  | 1991  |
| 11 | 800010666 | uwphrw    | emb7k@inn.com     | 1992  |

(local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 100002 行

可以看到有sid为800002933，后面更新它。

2. 查看teachers表。

```
use school
select *
from teachers
```

1.2.sql - (local).S...-B2V7J46\guzy0 (52)

```
use school
select *
from teachers
```

结果 消息

|    | tid       | tname    | email            | salary |
|----|-----------|----------|------------------|--------|
| 1  | 200003125 | fqmmmyi  | wcjcg@glq.net    | 3928   |
| 2  | 200005322 | udjom    | gd5l8@ppmlf.gov  | 873    |
| 3  | 200009423 | jhoulvtr | 12cj@pzc.gov     | 3286   |
| 4  | 200010493 | xzgkflko | zcf_m@def.com    | 3332   |
| 5  | 200011899 | lwujzim  | s4zrck@pew.net   | NULL   |
| 6  | 200016731 | rfgrod   | dprcy@qxqi.com   | 3819   |
| 7  | 200017039 | qibsy    | b8mtpe@enbba.edu | 4179   |
| 8  | 200023671 | zfuxiahq | lr_32t@cfo.net   | 3677   |
| 9  | 200025513 | mupx     | c7ce@ayt.org     | 2524   |
| 10 | 200026895 | nuyyoq   | xibl@izd.edu     | 4830   |
| 11 | 200033112 | awhoica  | hict6a@izom.edu  | 3632   |

(local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 15000 行

可以看到tid为200003125，后面插入它以演示失败。

- 编写一个嵌套事务。外层修改students表某记录，内层在teachers表插入一条记录。演示内层插入操作失败后，外层修改操作回滚。

```

use school
go
begin tran t1
    update students
    set sname = 'kk'
    where sid = '800002933'
    begin tran t2
        insert into teachers
        values ('200003125', 'gk', 'gk', 0)
        if @@error != 0
            begin
                rollback tran t1
                print 'hahahahaha'
                return
            end
    end
    commit tran t2
commit tran t1

```

1.3.sql - (local).S...-B2V7J46\guzy0 (56)

```

update students
set sname = 'kk'
where sid = '800002933'
begin tran t2
    insert into teachers
    values ('200003125', 'gk', 'gk', 0)
    if @@error != 0
        begin
            rollback tran t1
            print 'hahahahaha'
            return
        end
    end
    commit tran t2
commit tran t1

```

消息

(1 行受影响)  
 消息 2627, 级别 14, 状态 1, 第 6 行  
 违反了 PRIMARY KEY 约束 'PK\_TEACHERS'。不能在对象 'dbo.TEACHERS'  
 语句已终止。  
 hahahahaha

4. 查看students表。

1.1.sql - (local).S...-B2V7J46\guzy0 (53))

use school

select \*

from students

结果 消息

|    | sid       | sname     | email             | grade |
|----|-----------|-----------|-------------------|-------|
| 1  | 800001216 | gg        | hhce4@qhldj.gov   | 1992  |
| 2  | 800002933 | vnbqzsvv  | pvhxd4l@zqur.org  | 2002  |
| 3  | 800005753 | waqcj     | hlhq0h8@jdba.gov  | 1992  |
| 4  | 800006682 | fiiluommh | ihzd6_k@kzvft.gov | 1992  |
| 5  | 800006941 | ogvmu     | 62sfbdlrt.gov     | 1995  |
| 6  | 800007595 | uxqqbkjn  | cr8g@zrvgt.edu    | 1997  |
| 7  | 800008565 | ehlycg    | nach10@uic.com    | 1999  |
| 8  | 800009026 | rcxaihj   | 4ul4kqb@hko.edu   | 2002  |
| 9  | 800009099 | zapyv     | jmqn8@iwaiu.org   | 1992  |
| 10 | 800009249 | zyuoh     | 8enjrcu@upfw.org  | 1991  |
| 11 | 800010666 | uwobow    | emb7k@inn.com     | 1992  |

(local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 100002 行

发现更新被回滚。

5. 查看teachers表。

1.2.sql - (local).S...-B2V7J46\guzy0 (52))

```
use school
select *
from teachers
```

结果 消息

|    | tid       | tname    | email            | salary |
|----|-----------|----------|------------------|--------|
| 1  | 200003125 | fqmmyi   | wcjcg@glq.net    | 3928   |
| 2  | 200005322 | udjom    | gd5l8@ppmif.gov  | 873    |
| 3  | 200009423 | jhoulvtr | 12cj@pzc.gov     | 3286   |
| 4  | 200010493 | xzgkflko | zcf_m@def.com    | 3332   |
| 5  | 200011899 | lwujzim  | s4zrck@pew.net   | NULL   |
| 6  | 200016731 | nfgrod   | dprcy@qxqi.com   | 3819   |
| 7  | 200017039 | qibsy    | b8mtpe@enbba.edu | 4179   |
| 8  | 200023671 | zfuxiahq | lr_32t@cfo.net   | 3677   |
| 9  | 200025513 | mupx     | c7ce@ayt.org     | 2524   |
| 10 | 200026895 | nuyoq    | xibl@izd.edu     | 4830   |
| 11 | 200033112 | awhoica  | hict6a@izom.edu  | 3632   |

(local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 15000 行

发现插入未成功。

## 练习2

1. 查看courses表。

```
use school
select *
from courses
```

2.1.sql - (local).S...-B2V7J46\guzy0 (54)

```
use school
select *
from courses
```

结果 消息

|    | cid   | cname                 | hour |
|----|-------|-----------------------|------|
| 1  | 10001 | database              | 96   |
| 2  | 10002 | operating system      | 88   |
| 3  | 10003 | computer graphics     | 48   |
| 4  | 10004 | java                  | 48   |
| 5  | 10005 | c++                   | 60   |
| 6  | 10006 | design pattern        | 48   |
| 7  | 10007 | uml                   | 30   |
| 8  | 10008 | data structure        | 60   |
| 9  | 10009 | cryptology            | 36   |
| 10 | 10010 | software engineering  | 50   |
| 11 | 10011 | distributed computing | 36   |

✓ (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 50 行

可以看到cid为10001，后面插入它以演示失败。

2. 编写一个带有保存点的事务。更新teachers表中数据后，设置事务保存点，然后在表courses中插入数据，如果courses插入数据失败，则回滚到事务保存点。演示courses插入失败，但teachers表更新成功的操作。

```

begin tran t1
    update teachers
    set salary = 0
    where tid = '200003125'
    save tran t2
    insert into courses
    values ('10001', 'gg', 0)
    if @@ERROR != 0
    begin
        rollback tran t2
        print 'hahahahah'
        return
    end
    commit tran t1

```

2.2.sql - (local).S...-B2V7J46\guzy0 (57)

```

begin tran t1
    update teachers
    set salary = 0
    where tid = '200003125'
    save tran t2
    insert into courses
    values ('10001', 'gg', 0)
    if @@ERROR != 0
    begin
        rollback tran t2
        print 'hahahahah'
        return
    end
    commit tran t1

```

消息

(1 行受影响)  
 消息 2627, 级别 14, 状态 1, 第 6 行  
 违反了 PRIMARY KEY 约束 'PK\_COURSES'。不能在对象 'dbo.COURSES' 中  
 语句已终止。  
 hahahahah

查 (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 0 行

3. 查看teachers表。

1.2.sql - (local).S...-B2V7J46\guzy0 (52)

```

use school
select *
from teachers

```

结果 消息

|    | tid       | tname    | email            | salary |
|----|-----------|----------|------------------|--------|
| 1  | 200003125 | fqmmyi   | wjcg@glq.net     | 0      |
| 2  | 200005322 | udjom    | gd5l8@ppmlf.gov  | 873    |
| 3  | 200009423 | jhoulvtr | 12cj@pzc.gov     | 3286   |
| 4  | 200010493 | xzgkflko | zcf_m@def.com    | 3332   |
| 5  | 200011899 | lwujzim  | s4zrck@pew.net   | NULL   |
| 6  | 200016731 | nfgrod   | dprcy@qxqi.com   | 3819   |
| 7  | 200017039 | qibsy    | b8mtpe@enbba.edu | 4179   |
| 8  | 200023671 | zfuxiahq | lr_32t@cfo.net   | 3677   |
| 9  | 200025513 | mupx     | c7ce@ayt.org     | 2524   |
| 10 | 200026895 | nuyoq    | xibl@izd.edu     | 4830   |
| 11 | 200033112 | awhoica  | hict6a@izam.edu  | 3632   |

(local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 15000 行

发现更新200003215的salary成功。

4. 查看courses表。



2.1.sql - (local).S...-B2V7J46\guzy0 (53))

use school

select \*

from courses

结果

消息

|    | cid   | cname                 | hour |
|----|-------|-----------------------|------|
| 1  | 10001 | database              | 96   |
| 2  | 10002 | operating system      | 88   |
| 3  | 10003 | computer graphics     | 48   |
| 4  | 10004 | java                  | 48   |
| 5  | 10005 | c++                   | 60   |
| 6  | 10006 | design pattern        | 48   |
| 7  | 10007 | uml                   | 30   |
| 8  | 10008 | data structure        | 60   |
| 9  | 10009 | cryptology            | 36   |
| 10 | 10010 | software engineering  | 50   |
| 11 | 10011 | distributed computing | 36   |

✓

(local) (10.0 RTM)

DESKTOP-B2V7J46\guzy0 ...

School

00:00:00

50 行

发现插入未成功。

## 练习3

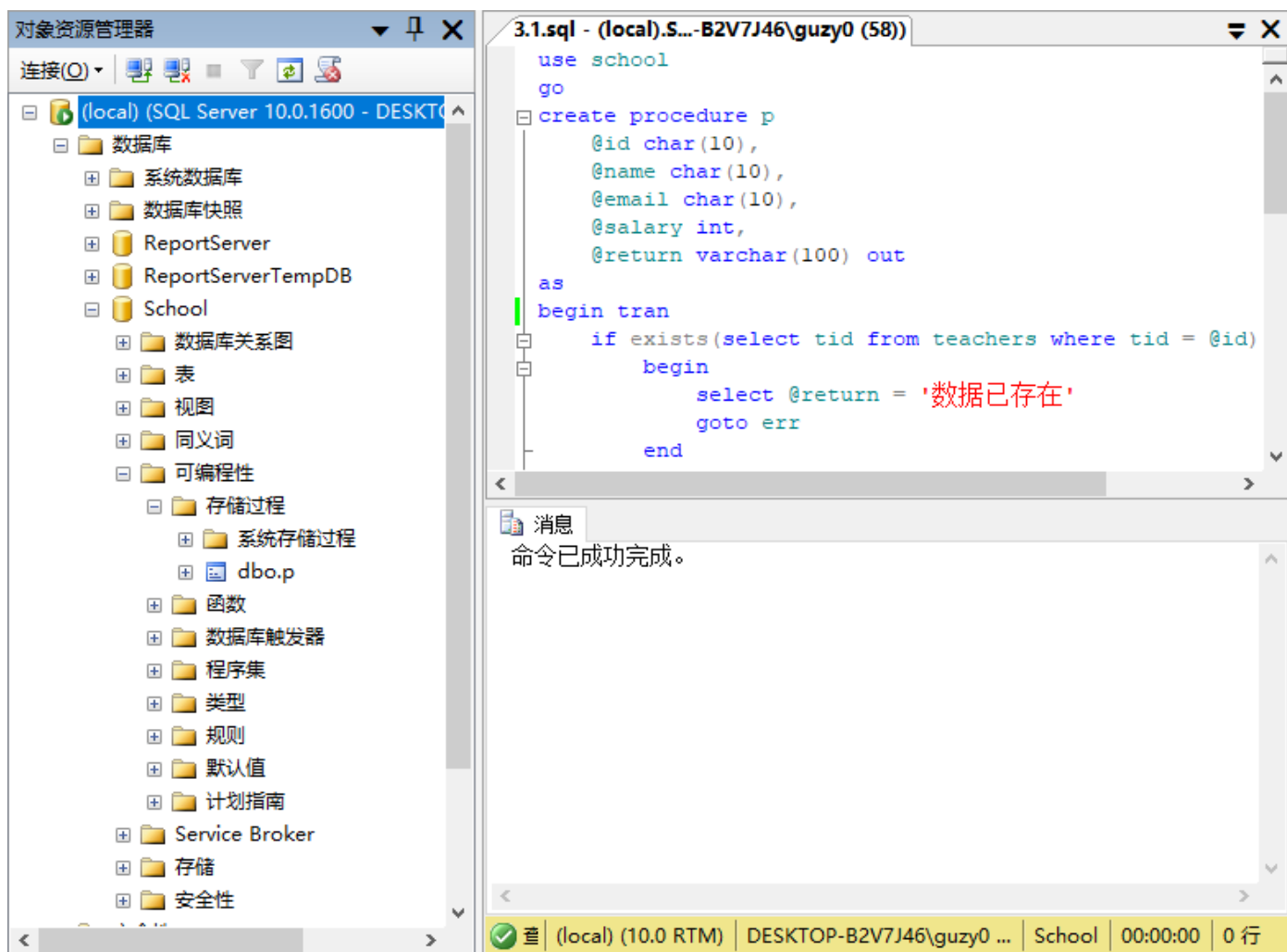
- 编写一个包含事务的存储过程，用于插入teachers表数据。如果插入记录的tid已存在，则输出“数据已存在”，其他错误输出“插入数据失败”，如果执行成功，则输出“插入数据成功”。

```

use school
go
create procedure p
    @id char(10),
    @name char(10),
    @email char(10),
    @salary int,
    @return varchar(100) out
as
begin tran
    if exists(select tid from teachers where tid = @id)
        begin
            select @return = '数据已存在'
            goto err
        end
    insert into teachers values(@id, @name, @email, @salary)
    if @@error != 0
        begin
            select @return = '插入数据失败'
            goto err
        end
    select @return = '插入数据成功'
    print @return
    commit tran
    goto succ
err:
    print @return
    commit tran
succ:

```

注意这里我多设置了一个succ的label，防止插入成功仍执行一遍err的label下的指令。



可以看到存储过程dbo.p成功建立。

2. 调用该存储过程，演示插入成功的操作。

```
use school
declare @id char(10)
declare @name char(10)
declare @email char(30)
declare @salary int
declare @return varchar(100)
exec p '1', '0', '0', 0, @return out
```



3. 调用该存储过程，演示插入失败的操作。

```
use school
declare @id char(10)
declare @name char(10)
declare @email char(30)
declare @salary int
declare @return varchar(100)
exec p '2', null, '0', 0, @return out
```

```
3.3.sql - (local).S...-B2V7J46\guzy0 (54)
use school
declare @id char(10)
.sql - (local).School (DESKTOP-B2V7J46\guzy0 (54))
declare @email char(30)
declare @salary int
declare @return varchar(100)
exec p '2', null, '0', 0, @return out
```

消息

消息 515，级别 16，状态 2，过程 p，第 14 行  
不能将值 NULL 插入列 'tname'，表 'School.dbo.TEACHERS'；列不允许有 NULL 值。  
语句已终止。  
插入数据失败

⚠ (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 0 行

4. 查看teachers表。

1.2.sql - (local).S...-B2V7J46\guzy0 (52)

```

use school
select *
from teachers

```

结果 消息

|    | tid       | tname    | email            | salary |
|----|-----------|----------|------------------|--------|
| 1  | 1         | 0        | 0                | 0      |
| 2  | 200003125 | fqmmyi   | wcjcg@glq.net    | 0      |
| 3  | 200005322 | udjom    | gd5l8@ppmif.gov  | 873    |
| 4  | 200009423 | jhoulvtr | 12cj@pzc.gov     | 3286   |
| 5  | 200010493 | xzgkflko | zcf_m@def.com    | 3332   |
| 6  | 200011899 | lwujzim  | s4zrck@pew.net   | NULL   |
| 7  | 200016731 | nfgrod   | dprcy@qxqi.com   | 3819   |
| 8  | 200017039 | qibsy    | b8mtpe@enbba.edu | 4179   |
| 9  | 200023671 | zfuxiahq | lr_32t@cfo.net   | 3677   |
| 10 | 200025513 | mupx     | c7ce@ayt.org     | 2524   |
| 11 | 200026895 | nuvon    | xibl@izd.edu     | 4830   |

(local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:00 | 15001 行

发现(1,0,0,0)插入成功，(2,null,0,0)插入未成功。