

EX13

练习1

1. 显示students表。

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

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

```

use school
select * from students

```

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991
2	889358804	nlrccv	3int@vob.org	1996
3	889358932	lkfqf	vl5v@txsmk.net	NULL
4	889359632	zsreu	v0oalvb@pbo.gov	2001
5	889365374	xrvhmaeq	wrs2tph@oeh.gov	1995
6	889368257	dzegki	_m2b6ab@hht.org	2004
7	889368728	oasbvumk	vlbu@lnprc.org	1999
8	889370945	qvcyxrenp	qu6i3l@zqu.net	2001
9	889371495	ctunnyx	niv6@ncxvp.com	2002
10	889371972	lxphn	o04gyw@nnm.gov	2004
11	889372777	quioqahv	fmwim@wnt.gov	1993

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

发现有sid='889358356'。

2. 设置“未提交读”隔离级别（READ UNCOMMITTED），在students表上演示读“脏”数据。
 - 创建事务，更新sid='889358356'的学生的grade为0并等待并回滚，查看更新后和回滚后。

```

use school
go
begin tran T1
    update students set grade=0 where sid='889358356'
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
    rollback tran
    select * from students where sid='889358356'

```

1.2.sql - (local).S...-B2V7J46\guzy0 (55)

```


use school
go
begin tran T1
    update students set grade=0 where sid='889358356'
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
    rollback tran
    select * from students where sid='889358356'

```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	0

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

 (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:10 | 2 行

更新成功。

- 不创建事务，设置未提交读，读脏数据。在执行1.2.sql等待时执行这个代码。

```

use school
go
set transaction isolation level read uncommitted
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end

```

1.3.sql - (local).S...-B2V7J46\guzy0 (51)

```


use school
go
set transaction isolation level read uncommitted
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end

```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	0

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

 (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:10 | 2 行

发现读到脏数据，得知在未提交读会在1.2.sql的事务未提交（等待）时读到中间结果。

练习2

1. 设置“提交读”隔离级别(READ COMMITTED)，在students表上演示避免读“脏”数据。
 - 不创建事务，设置提交读，避免读脏数据。在执行1.2.sql等待时执行这个代码。

```
use school
go
set transaction isolation level read committed
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end
```

2.sql - (local).Sch....-B2V7J46\guzy0 (56)

```
use school
go
set transaction isolation level read committed
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end
```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

✓ (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:13 | 2 行

发现没读到脏数据，得知在提交读不会在1.2.sql事务未提交（等待）时读到中间结果。

练习3

1. 设置“可重复读”隔离级别(REPEATABLE READ)，在students表上演示避免读“脏”数据。
 - 不创建事务，设置可重复读读，避免读脏数据。在执行1.2.sql等待时执行这个代码。

```

use school
go
set transaction isolation level repeatable read
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end

```

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

```


use school
go
set transaction isolation level repeatable read
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end

```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

 (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:17 | 2 行

发现没读到脏数据，得知在可重复读不会在1.2.sql事务未提交（等待）时读到中间结果。

2. 设置“可重复读”隔离级别(REPEATABLE READ), 在students表上演示不可重复读。
- 设置可重复读, 创建事务, 查询sid='889358356'并等待然后再次查询。在执行这个代码等待时执行3.3.sql。

```
use school
go
set transaction isolation level repeatable read
begin tran
select * from students where sid='889358356'
if @@rowcount<>0
    begin
        waitfor delay '00:00:10'
        select * from students where sid='889358356'
    end
end
commit tran
```


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

```
use school
go
set transaction isolation level repeatable read
begin tran
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end
commit tran
```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

🟢 (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:10 | 2 行

发现没读到重复数据，得知在可重复读不会在事务未提交（等待）时读到非事务3.3.sql的更新。

- 设置可重复读，不创建事务，更新sid='889358356'的学生的grade为0，查看更新前和更新后。

```
use school
set transaction isolation level repeatable read
select * from students where sid='889358356'
update students set grade=0 where sid='889358356'
select * from students where sid='889358356'
```

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

```

use school
set transaction isolation level repeatable read
select * from students where sid='889358356'
update students set grade=0 where sid='889358356'
select * from students where sid='889358356'

```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	0

(local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:04 | 2 行

更新成功。

- 设置“可重复读”隔离级别(REPEATABLE READ), 在students表上演示不能避免幻象读。
 - 设置可重复读, 不创建事务, 删除sid='889358356'的学生记录, 查看删除前和删除后。

```

use school
set transaction isolation level repeatable read
select * from students where sid='889358356'
delete from students where sid='889358356'
select * from students where sid='889358356'

```

3.3.sql - (local).S...-B2V7J46\guzy0 (55)

```
use school
set transaction isolation level repeatable read
select * from students where sid='889358356'
delete from students where sid='889358356'
select * from students where sid='889358356'
```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	0

sid	sname	email	grade
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✓ (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:03 | 1 行

删除成功。

- 在执行3.2.sql等待时执行3.4.sql。

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

```
use school
go
set transaction isolation level repeatable read
begin tran
select * from students where sid='889358356'
if @@rowcount<>0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end
commit tran
```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	0

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	0

✓ (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:10 | 2 行

发现幻像读，得知在可重复读会在事务未提交（等待）时读到非事务3.4.sql的删除。

4. 设置“可串行化”隔离级别(SERIALIZABLE)，在students表上演示防止其他用户在事务提交之前更新数据。
 - 设置可串行化，创建事务，查询sid='889358356'并等待然后再次查询。在执行这个代码等待时执行4.2.sql。

```
use school
go
set transaction isolation level serializable
begin tran
select * from students where sid='889358356'
if @@rowcount=0
    begin
        waitfor delay '00:00:10'
        select * from students where sid='889358356'
    end
end
commit tran
```

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

```
use school
go
set transaction isolation level serializable
begin tran
select * from students where sid='889358356'
if @@rowcount=0
begin
    waitfor delay '00:00:10'
    select * from students where sid='889358356'
end
commit tran
```

结果 消息

sid	sname	email	grade
-----	-------	-------	-------

sid	sname	email	grade
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✓ (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:10 | 0 行

- 发现避免幻像读，得知在可重复读不会在事务未提交（等待）时读到非事务4.1.sql的插入。
- 。设置可串行化，不创建事务，插入sid='889358356'的学生记录，查看插入前和插入后。

```
use school
set transaction isolation level serializable
select * from students where sid='889358356'
insert students values ('889358356', 'cqkqv', 'ij4vnx@dvde.com', 1991)
select * from students where sid='889358356'
```

4.2.sql - (local).S...-B2V7J46\guzy0 (55)

```
use school
set transaction isolation level serializable
select * from students where sid='889358356'
insert students values ('889358356', 'cqkqv', 'ij4vnx@d
select * from students where sid='889358356'
```

结果 消息

	sid	sname	email	grade
1	889358356	cqkqv	ij4vnx@dvde.com	1991

✓ (local) (10.0 RTM) | DESKTOP-B2V7J46\guzy0 ... | School | 00:00:03 | 1 行

插入成功。