# DBS-LAB4:SQL安全性

实验目的：

1. 熟悉通过SQL进行数据完整性控制的方法。

实验平台：

1. 数据库管理系统：Navicat for MySQL
2. 操作系统：windows 10

实验内容和要求：

1. 建立表，考察表的生成者拥有该表的哪些权限。

- 建立如下数据表

```
create database test;
use test;
create table student(
    stu_id varchar(20),
    stu_name varchar(20),
    grade int,
    primary key(stu_id)
);
```

- 在Mysql命令行中可以查询到这张表的存在
- 查看当前用户对Mysql的所有权限，由于本账号是root账号，因此查询得到其拥有所有的权限

```
show PRIVILEGES;
```

信息 结果 1 剖析 状态

| Privilege | Context | Comment |
|---|---|---|
| Alter | Tables | To alter the table |
| Alter routine | Functions,Procedure | To alter or drop stor |
| Create | Databases,Tables,Inc | To create new datab |
| Create routine | Databases | To use CREATE FUNC |
| Create role | Server Admin | To create new roles |
| Create temporary ta | Databases | To use CREATE TEMI |
| Create view | Tables | To create new views |
| Create user | Server Admin | To create new users |
| Delete | Tables | To delete existing rc |
| Drop | Databases,Tables | To drop databases, t |
| Drop role | Server Admin | To drop roles |
| Event | Server Admin | To create, alter, drop |
| Execute | Functions,Procedure | To execute stored rc |
| File | File access on server | To read and write file |
| Grant option | Databases,Tables,Fui | To give to other use |
| Index | Tables | To create or drop in |
| Insert | Tables | To insert data into ta |

2. 使用SQL 的grant 和revoke命令对其他用户进行授权和权力回收，考察相应的作用。

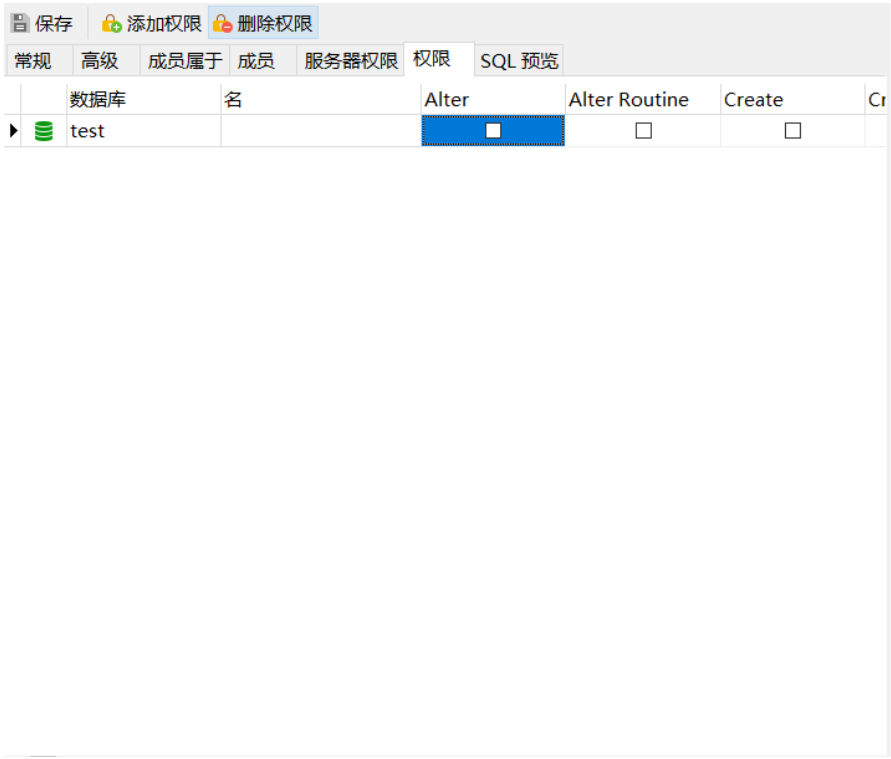
- 新建一个用户zhang，不进行任何设置

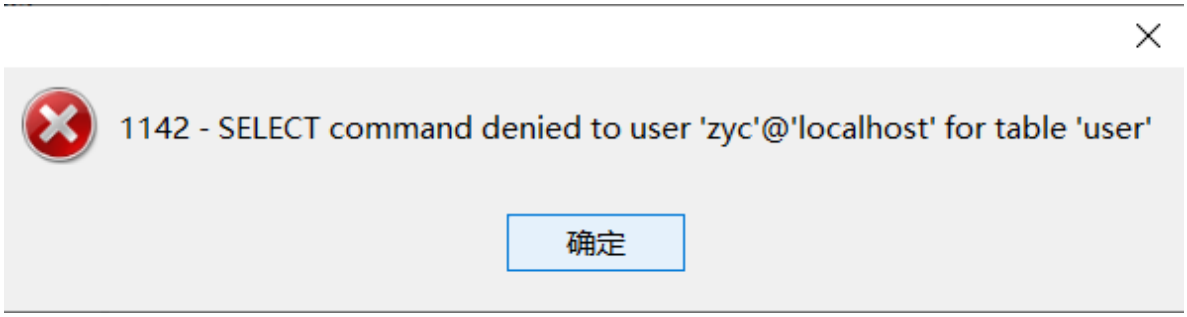
```
1  create user 'zhang'@'localhost' identified by '123456'
```

信息 | 剖析 | 状态

```
create user 'zhang'@'localhost' identified by '123456'
> OK
> 时间: 0.014s
```

- 我们发现新建的用户没有任何的权限，也无法进行连接




- 尝试用grant语句赋予权限

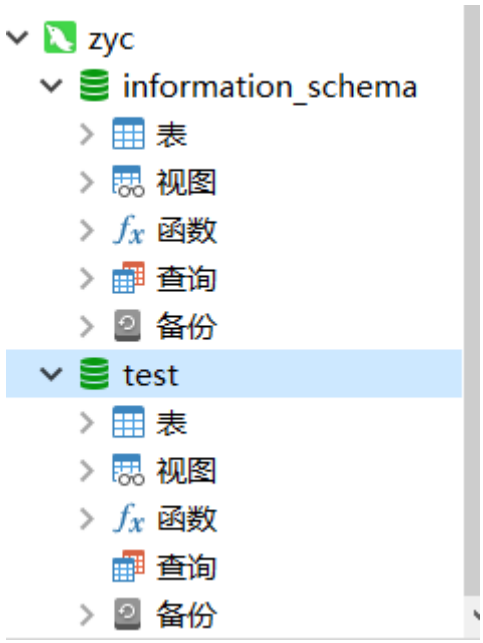
Zhang-Each | test | 运行 | 停止 | 解释

```
1  GRANT SELECT,INSERT on test.* to 'zhang'@'localhost';
```

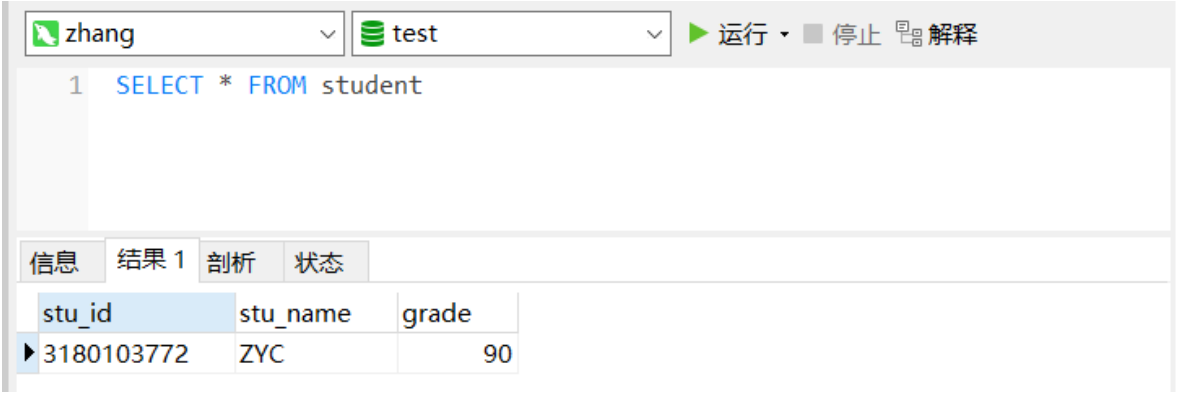
信息 | 剖析 | 状态

```
GRANT SELECT,INSERT on test.* to 'zhang'@'localhost'
> Affected rows: 0
> 时间: 0.004s
```

- 在root账号下对用户zhang进行授权和权力回收，之后发现zhang账号可以连接到数据表test




- 测试zhang的权限，发现插入等操作都可以成功


- 再用root账号登陆，收回select权限

```
1  REVOKE SELECT ON test.* FROM 'zhang'@'localhost';
```

信息 剖析 状态

```
REVOKE SELECT ON test.* FROM 'zhang'@'localhost'
> OK
> 时间: 0.004s
```

- 检查zhang用户是否有select的权限，发现没有

```
1  SELECT * FROM STUDENT;
```

信息 状态

```
SELECT * FROM STUDENT
> 1142 - SELECT command denied to user 'zhang'@'localhost' for table 'student'
> 时间: 0s
```

3. 建立视图，并把该视图的查询权限授予其他用户，考察通过视图进行权限控制的作用。

- 现在主用户下创建视图

Zhang-Each | test | 运行 | 停止 | 解释

```
1  create view view1 as
2  select stu_id,stu_name
3  from student;
```

信息 剖析 状态

```
create view view1 as
select stu_id,stu_name
from student
> OK
> 时间: 0.019s
```

- 赋予zhang用户权限并在zhang用户下查看视图，成功

zhang | test | 运行 | 停止 | 解释

```
1  select *
2  from view1;
```

信息 结果 1 剖析 状态

| stu_id | stu_name |
| --- | --- |
| 3180103772 | ZYC |

4. 完成实验报告。