

数据库系统实验  
实验报告

题目	(实验 11)
姓名	俞泽斌
学号	20337263
班级	计科 2 班

## 一、实验环境

- 1、操作系统：Windows 10
- 2、DBMS：mysql

## 二、实验内容

创建一个教工表teacher(tno,tname,tadd,telephone,tsex,id)，将教工号tno设为主键，性别默认值为“男”

输入命令

```
create table teacher(  
    tno varchar(7) primary key,  
    tname varchar(6),  
    tadd int,  
    telephone varchar(15),  
    tsex char(2) default '男',  
    id varchar(20)  
)engine=InnoDB;
```

输出

```
Query OK, 0 rows affected (0.03 sec)
```

根据教工表 teacher 完成以下任务：

1.设置 telephone 默认值为 00000000。

```
alter table teacher modify telephone char(12)default '00000000';
```

输出

```
Query OK, 0 rows affected (0.07 sec)  
Records: 0 Duplicates: 0 Warnings: 0
```

检验

```
insert into teacher
(tno,tname,tadd,id)values('0000001','Mike','12','0000000001')
```

输出

```
Query OK, 1 row affected (0.04 sec)
```

查看

```
select * from teacher;
```

输出

```
+-----+-----+-----+-----+-----+-----+
| tno    | tname | tadd | telephone | tsex | id          |
+-----+-----+-----+-----+-----+-----+
| 0000001 | Mike  | 12   | 00000000  | 男   | 0000000001 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.04 sec)
```

可以看到此时telephone有默认值

## 2.设置 tsex 的 check 检查约束为：输入值只能为“男”或“女”。

首先使用check后发现出错，查找资料后发现只能用alter操作的modify，enum为枚举函数

输入代码

```
alter table teacher modify tsex enum('男','女') default '男';
```

输出

```
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

检验

输入代码

```
insert into teacher
(tno,tname,tadd,tsex,id)values('0000001','Mike','12','女','0000000001');
insert into teacher
(tno,tname,tadd,tsex,id)values('0000002','Try','12','中','0000000002');
```

第一行插入成功

```
Query OK, 1 row affected (0.04 sec)
```

第二行不符合约束，插入失败

```
ERROR 1265 (01000): Data truncated for column 'tsex' at row 1
```

查看此时的表格

```
select * from teacher;
+-----+-----+-----+-----+-----+-----+
| tno    | tname | tadd | telephone | tsex | id          |
+-----+-----+-----+-----+-----+-----+
| 0000001 | Mike  | 12   | 00000000  | 女   | 0000000001 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

符合上述要求

**3.设置 id 的位数为 15 位或 18 位，每位都是数字。**

使用触发器来实现

```
delimiter //
create trigger id_check after insert on teacher
  for each row
  begin
    declare tempcheck int default 0;
    if (length(new.id)!=15 and length(new.id)!=18) then
      signal sqlstate'45000' set message_text = 'length error';
    end if;
    select new.id regexp '^[0-9]*$' into tempcheck;
    if(tempcheck=0) then
      signal sqlstate'45000' set message_text='no such number';
    end if;
  end //
```

输出结果

```
Query OK, 0 rows affected (0.04 sec)
```

检验

```
insert into teacher
(tno,tname,tadd,tsex,id)values('0000001','Mike','12','女','1');
insert into teacher
(tno,tname,tadd,tsex,id)values('0000002','Tom','12','男','abc0000000000000');
insert into teacher
(tno,tname,tadd,tsex,id)values('0000003','Alice','12','女','0000000000000001');
```

结果

```
mysql> insert into teacher
(tno,tname,tadd,tsex,id)values('0000001','Mike','12','女','1');
ERROR 1644 (45000): length error
mysql> insert into teacher
(tno,tname,tadd,tsex,id)values('0000002','Tom','12','男','abc000000000000');
ERROR 1644 (45000): no such number
mysql> insert into teacher
(tno,tname,tadd,tsex,id)values('0000003','Alice','12','女','000000000000001');
Query OK, 1 row affected (0.04 sec)
```

可以看到成功引发了定义的两个错误，检验成功

**设有订报管理子系统数据库DingBao中的表PAPER,表内容如下表：请在掌握数据库完整性知识的基础上，根据表内容设定尽可能多的完整性规则于该表，用于保障该表的正确性与完整性。**

输入代码,首先创建表格，此时设置约束

- 1、编号为主键且长度固定为7
- 2、报纸名称不为空且不重复
- 3、报纸价格不为空

```
create table paper
(
    pno char(7) primary key,
    pna varchar(20) unique not null,
    ppr float not null
)engine=InnoDB;
```

输出

```
Query OK, 0 rows affected (0.05 sec)
```

还可以做一个与上面实验差不多的约束，即让pno的每一项都规定为数字，同样使用触发器来进行

```
delimiter //
create trigger pno_check after insert on paper
for each row
begin
    declare tempcheck int default 0;
    if (length(new.pno)!=7 ) then
        signal sqlstate'45000' set message_text = 'length error';
    end if;
    select new.pno regexp '^[0-9]*$' into tempcheck;
    if(tempcheck=0) then
        signal sqlstate'45000' set message_text='no such number';
    end if;
end //
```

```
Query OK, 0 rows affected (0.01 sec)
```

检验，输入一个错误记录

```
insert into paper(pno,pna,ppr)values('abc1234','实验报','8.8');
```

报错为

```
ERROR 1644 (45000): no such number
```

输入一个正确记录

```
insert into paper(pno,pna,ppr)values('1111234','实验报','8.8');
```

```
Query OK, 1 row affected (0.04 sec)
```

```
select * from paper//
+-----+-----+-----+
| pno    | pna      | ppr |
+-----+-----+-----+
| 1111234 | 实验报   | 8.8 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

实验成功，约束制定完成。