MySQL

```
mysql -u root -p --local-infile=1
```

TASK 1

```
create database db;

use db

create table student (
    number char(20) primary key,
    name varchar(50),
    sex tinyint,
    age int,
    class int,
    score double,
    time date,
    constraint stu_score_range check (score >= 0 and score <= 10)
);
```

> 约定 男/女 分别为 0/1。

```
mysql> describe student;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| number | char(20)    | NO   | PRI | NULL    |       |
| name   | varchar(50) | YES  |     | NULL    |       |
| sex    | tinyint     | YES  |     | NULL    |       |
| age    | int         | YES  |     | NULL    |       |
| class  | int         | YES  |     | NULL    |       |
| score  | double      | YES  |     | NULL    |       |
| time   | date        | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
7 rows in set (0.01 sec)
```

Q1

节省存储空间，使用 1 个字节的整型而不是多个字节的字符串；保证数据的一致性与统一性，方便格式的转换，而不是与语言、地区、表达习惯相关（男/女、male/female、man/woman、M/F 等）。

Q2

```
alter table student add column phone char(20) unique;
```

```
mysql> describe student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| number  | char(20)    | NO   | PRI | NULL    |       |
| name    | varchar(50) | YES  |     | NULL    |       |
| sex     | tinyint     | YES  |     | NULL    |       |
| age     | int         | YES  |     | NULL    |       |
| class   | int         | YES  |     | NULL    |       |
| score   | double      | YES  |     | NULL    |       |
| time    | date        | YES  |     | NULL    |       |
| phone   | char(20)    | YES  | UNI | NULL    |       |
+---------+-------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

Q3

```
insert into student values
('17373422', '胡哲宇', 0, 21, 172114, 0.0, '2021-3-30', '13323332333'),
('27373423', 'Dante', 0, 21, 172114, 0.0, '2021-3-30', '13323332334'),
('17373424', 'Nero', 0, 18, 172114, 0.0, '2021-3-30', '13323332335'),
('17373425', 'V', 0, 21, 1, 0.0, '2021-3-30', '13323332336'),
('10373426', 'Nico', 1, 21, 172114, 0.0, '2021-3-30', '13323332337'),
('17373427', 'Vergil', 0, 21, 172114, 0.0, '2021-3-30', '13323332338'),
('17373428', '张三', 0, 21, 172114, 0.0, '2021-3-30', '13323332339');
```

```
mysql> select * from student;
+----------+--------+------+------+--------+-------+------------+-------------+
| number   | name   | sex  | age  | class  | score | time       | phone       |
+----------+--------+------+------+--------+-------+------------+-------------+
| 10373426 | Nico   |    1 |   21 | 172114 |     0 | 2021-03-30 | 13323332337 |
| 17373422 | 胡哲宇  |    0 |   21 | 172114 |     0 | 2021-03-30 | 13323332333 |
| 17373424 | Nero   |    0 |   18 | 172114 |     0 | 2021-03-30 | 13323332335 |
| 17373425 | V      |    0 |   21 |      1 |     0 | 2021-03-30 | 13323332336 |
| 17373427 | Vergil |    0 |   21 | 172114 |     0 | 2021-03-30 | 13323332338 |
| 17373428 | 张三    |    0 |   21 | 172114 |     0 | 2021-03-30 | 13323332339 |
| 27373423 | Dante  |    0 |   21 | 172114 |     0 | 2021-03-30 | 13323332334 |
+----------+--------+------+------+--------+-------+------------+-------------+
7 rows in set (0.01 sec)
```

Q4

```
update student set score = score + 1;
```

```
mysql> select * from student;
+-----------+---------+------+------+---------+--------+------------+--------------+
| number    | name    | sex  | age  | class   | score  | time       | phone        |
+-----------+---------+------+------+---------+--------+------------+--------------+
| 10373426  | Nico    |    1 |   21 | 172114  |      1 | 2021-03-30 | 13323332337  |
| 17373422  | 胡哲宇  |    0 |   21 | 172114  |      1 | 2021-03-30 | 13323332333  |
| 17373424  | Nero    |    0 |   18 | 172114  |      1 | 2021-03-30 | 13323332335  |
| 17373425  | V       |    0 |   21 |      1  |      1 | 2021-03-30 | 13323332336  |
| 17373427  | Vergil  |    0 |   21 | 172114  |      1 | 2021-03-30 | 13323332338  |
| 17373428  | 张三    |    0 |   21 | 172114  |      1 | 2021-03-30 | 13323332339  |
| 27373423  | Dante   |    0 |   21 | 172114  |      1 | 2021-03-30 | 13323332334  |
+-----------+---------+------+------+---------+--------+------------+--------------+
7 rows in set (0.00 sec)
```

Q5

```
select name, age from student where number like '2%' or (age >= 10 and age <= 20);
```

```
mysql> select name, age from student where number like '2%' or (age >= 10 and age <= 20);
+-------+------+
| name  | age  |
+-------+------+
| Nero  |   18 |
| Dante |   21 |
+-------+------+
2 rows in set (0.00 sec)
```

Q6

```
select name from student where name like '%三%';
```

```
mysql> select name from student where name like '%三%';
+--------+
| name   |
+--------+
| 张三   |
+--------+
1 row in set (0.00 sec)
```

Q7

```
select name from student where class = 1 and sex = 0;
```

```
mysql> select name from student where class = 1 and sex = 0;
+------+
| name |
+------+
| V    |
+------+
1 row in set (0.00 sec)
```

Q8

```
delete from student where number like '10%';
```

```
mysql> select * from student;
+----------+--------+------+------+--------+-------+------------+-------------+
| number   | name   | sex  | age  | class  | score | time       | phone       |
+----------+--------+------+------+--------+-------+------------+-------------+
| 17373422 | 胡哲宇  |    0 |   21 | 172114 |     1 | 2021-03-30 | 13323332333 |
| 17373424 | Nero   |    0 |   18 | 172114 |     1 | 2021-03-30 | 13323332335 |
| 17373425 | V      |    0 |   21 |      1 |     1 | 2021-03-30 | 13323332336 |
| 17373427 | Vergil |    0 |   21 | 172114 |     1 | 2021-03-30 | 13323332338 |
| 17373428 | 张三    |    0 |   21 | 172114 |     1 | 2021-03-30 | 13323332339 |
| 27373423 | Dante  |    0 |   21 | 172114 |     1 | 2021-03-30 | 13323332334 |
+----------+--------+------+------+--------+-------+------------+-------------+
6 rows in set (0.00 sec)
```

TASK 2

```
create table student2 (
    number char(20) primary key,
    name varchar(50),
    sex char(4),
    age int,
    class int,
    score double,
    time date
);

set global local_infile = 1;

load data local infile
'/Users/hzy/Desktop/2021数据库/LAB02/数据库第2次实验/student.csv'
```

```
into table student2 character set gb2312
fields terminated by ',' ignore 1 lines;
```

```
mysql> select * from student2;
+----------+---------+------+------+-------+-------+------------+
| number   | name    | sex  | age  | class | score | time       |
+----------+---------+------+------+-------+-------+------------+
| 10000001 | 测试    | 男   |    1 |     1 |    10 | 2020-03-11 |
| 10000002 | 测试1   | 女   |    2 |     2 |    11 | 2020-03-12 |
| 12345618 | 孙三    | 女   |   18 |     3 |     3 | 2020-03-21 |
| 12345628 | 周五    | 女   |   22 |     2 |     4 | 2020-03-10 |
| 12345638 | 李四    | 女   |   21 |     1 |     2 | 2020-03-21 |
| 12378121 | 许五    | 男   |   10 |     1 |     3 | 2020-03-21 |
| 15041091 | 褚一    | 男   |   21 |     3 |     8 | 2020-03-11 |
| 15131049 | 蒋三    | 男   |   21 |     2 |     9 | 2020-03-11 |
| 15211001 | 陈五    | 女   |   20 |     1 |     3 | 2020-03-11 |
| 15271139 | 沈四    | 男   |   18 |     2 |     6 | 2020-03-11 |
| 16011083 | 韩五    | 男   |   17 |     2 |     8 | 2020-03-11 |
| 16011123 | 杨一    | 男   |   25 |     2 |     5 | 2020-03-11 |
| 16011133 | 朱二    | 男   |   19 |     1 |     9 | 2020-03-11 |
| 16031141 | 秦三    | 男   |   10 |     3 |     4 | 2020-03-11 |
| 16031171 | 尤四    | 男   |   30 |     1 |     2 | 2020-03-11 |
| 17123456 | 赵一    | 男   |   19 |     1 |   1.8 | 2020-03-30 |
| 17123465 | 钱二    | 女   |   19 |     2 |     2 | 2020-03-31 |
| 17123678 | 郑二    | 男   |   20 |     2 |     2 | 2020-03-31 |
| 17182105 | 吴一    | 男   |   19 |     3 |     5 | 2020-03-21 |
| 17182107 | 王三    | 男   |   16 |     2 |     6 | 2020-03-21 |
| 17182108 | 冯四    | 男   |   15 |     2 |     7 | 2020-03-21 |
| 75211104 | 卫二    | 男   |   20 |     1 |     2 | 2020-03-17 |
+----------+---------+------+------+-------+-------+------------+
22 rows in set (0.00 sec)
```

Q9

```
select count(*) as 学生人数 from student2;
```

```
mysql> select count(*) as 学生人数 from student2;
+--------------+
| 学生人数     |
+--------------+
|           22 |
+--------------+
1 row in set (0.00 sec)
```

Q10

```
select * from student2 where class = 1;
```

```
mysql> select * from student2 where class = 1;
+----------+--------+------+------+-------+-------+------------+
| number   | name   | sex  | age  | class | score | time       |
+----------+--------+------+------+-------+-------+------------+
| 10000001 | 测试   | 男   |    1 |     1 |    10 | 2020-03-11 |
| 12345638 | 李四   | 女   |   21 |     1 |     2 | 2020-03-21 |
| 12378121 | 许五   | 男   |   10 |     1 |     3 | 2020-03-21 |
| 15211001 | 陈五   | 女   |   20 |     1 |     3 | 2020-03-11 |
| 16011133 | 朱二   | 男   |   19 |     1 |     9 | 2020-03-11 |
| 16031171 | 尤四   | 男   |   30 |     1 |     2 | 2020-03-11 |
| 17123456 | 赵一   | 男   |   19 |     1 |   1.8 | 2020-03-30 |
| 75211104 | 卫二   | 男   |   20 |     1 |     2 | 2020-03-17 |
+----------+--------+------+------+-------+-------+------------+
8 rows in set (0.00 sec)
```

Q11

```
select max(score) as 2班最高成绩, min(score) as 2班最低成绩 from student2 where class = 2;
```

```
mysql> select max(score) as 2班最高成绩, min(score) as 2班最低成绩 from student2 where class = 2;
+-----------------+-----------------+
| 2班最高成绩      | 2班最低成绩      |
+-----------------+-----------------+
|              11 |               2 |
+-----------------+-----------------+
1 row in set (0.01 sec)
```

Q12

```
select avg(score) as 平均成绩 from student2;
```

```
mysql> select avg(score) as 平均成绩 from student2;
+------------------+
| 平均成绩          |
+------------------+
| 5.127272727272727 |
+------------------+
1 row in set (0.00 sec)
```

Q13

```
select avg(age) as 平均年龄 from student2;
```

```
mysql> select avg(age) as 平均年龄 from student2;
+--------------+
| 平均年龄      |
+--------------+
|      17.4091 |
+--------------+
1 row in set (0.00 sec)
```

Q14

```
select distinct
date_format(time, '%Y-%m-%d') as 'year-month-day',
date_format(time, '%Y%m%d') as yearmonthday
from student2;
```

```
mysql> select distinct date_format(time, '%Y-%m-%d') as 'year-month-day',
date_format(time, '%Y%m%d') as yearmonthday from student2;
+----------------+--------------+
| year-month-day | yearmonthday |
+----------------+--------------+
| 2020-03-11     | 20200311     |
| 2020-03-12     | 20200312     |
| 2020-03-21     | 20200321     |
| 2020-03-10     | 20200310     |
| 2020-03-30     | 20200330     |
| 2020-03-31     | 20200331     |
| 2020-03-17     | 20200317     |
+----------------+--------------+
7 rows in set (0.01 sec)
```