

# 实验1 DBMS的安装和使用

## 实验目的：

1. 通过安装某个数据库管理系统，初步了解DBMS的运行环境
2. 了解DBMS交互界面、图形界面和管理工具的使用
3. 搭建实验平台

## 实验平台：

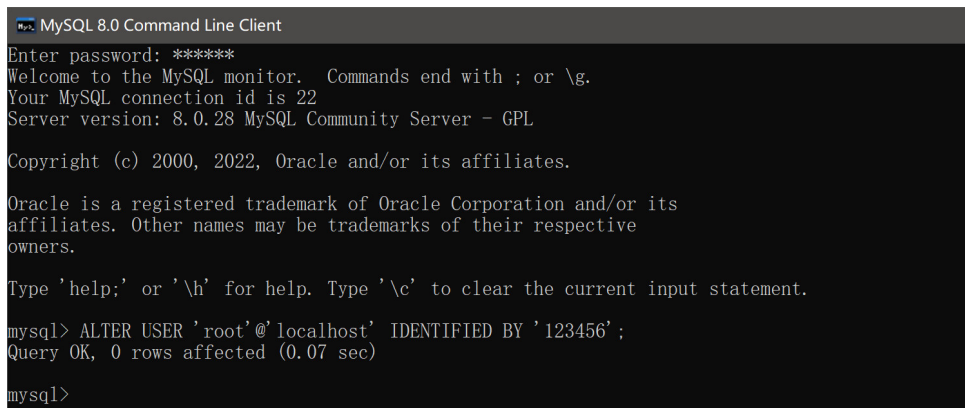
1. 操作系统：Windows 10
2. 数据库管理系统：MySQL 8.0.28

## 实验内容和要求：

1. 下载安装 MySQL。
2. 更改账户密码

登录后，执行指令以更改指定用户的密码

```
ALTER USER 'user_name'@'host' IDENTIFIED BY 'newpassword';
```



```
MySQL 8.0 Command Line Client
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 22
Server version: 8.0.28 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> ALTER USER 'root'@'localhost' IDENTIFIED BY '123456';
Query OK, 0 rows affected (0.07 sec)

mysql>
```

此处输入 `ALTER USER 'root'@'localhost' IDENTIFIED BY '123456'` 将 root 的密码更改为 123456

3. 创建表

首先输入 `CREATE DATABASE db01` 创建新数据库 db01，通过输入 `SHOW DATABASES` 指令验证创建结果

```
MySQL 8.0 Command Line Client
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 29
Server version: 8.0.28 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE db01;
Query OK, 1 row affected (0.03 sec)

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| db01     |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
+-----+
5 rows in set (0.04 sec)
```

随后输入以下指令，创建包含：ID，Name，Course，Age 四个字段的表 test

```
CREATE TABLE test
(
    ID INT(11),
    Name VARCHAR(25),
    Course VARCHAR(25),
    Age INT(10)
);
```

通过 `SHOW TABLES` 指令验证结果

```
mysql> USE db01;
Database changed
mysql> CREATE TABLE test
-> (
-> ID INT(11),
-> Name VARCHAR(25),
-> Course VARCHAR(25),
-> Age INT(10)
-> );
Query OK, 0 rows affected, 2 warnings (0.03 sec)

mysql> SHOW TABLES;
+-----+
| Tables_in_db01 |
+-----+
| test            |
+-----+
1 row in set (0.05 sec)
```

#### 4. 执行语句

```
select * from [table];
select * from [user].[table];
```

首先通过 `INSERT INTO` 指令向表 test 中插入三条记录

```
mysql> INSERT INTO test
-> (ID, Name, Course, Age)
-> VALUES
-> (4392, "Shen", "DB", 20);
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO test
-> (ID, Name, Course, Age)
-> VALUES
-> (2258, "Zhao", "DS", 19);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO test
-> (ID, Name, Course, Age)
-> VALUES
-> (0239, "Huang", "OOP", 19);
Query OK, 1 row affected (0.04 sec)
```

执行 `select * from` 指令，得到查询结果

```
mysql> select * from test;
+----+-----+-----+-----+
| ID | Name | Course | Age |
+----+-----+-----+-----+
| 4392 | Shen | DB | 20 |
| 2258 | Zhao | DS | 19 |
| 239 | Huang | OOP | 19 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)
```

因为MySQL没有 `select * from [user].[table]` 指令而进行的迷惑操作：

执行 `select ID from test` 指令，单独查询字段 ID

```
mysql> select ID from test;
+----+
| ID |
+----+
| 4392 |
| 2258 |
| 239 |
+----+
3 rows in set (0.01 sec)
```

执行 `select ID, Course from test` 指令，查询多个字段 (ID, Course)

```
mysql> select ID, Course from test;
+----+-----+
| ID | Course |
+----+-----+
| 4392 | DB |
| 2258 | DS |
| 239 | OOP |
+----+-----+
3 rows in set (0.00 sec)
```

执行 `select _ from _ where _` 指令，显示符合要求的记录

```
mysql> select Age from test
-> where Age > 19;
+-----+
| Age |
+-----+
| 20 |
+-----+
1 row in set (0.00 sec)
```

## 实验心得：

### 1. 声明式编程真香

C语言写昏了头之后跑来做数据库作业有一种“江山别人替你打好了，只要旅游观光就行”的感动，稍微查一下相关的指令格式就可以简单上手了。

在实际应用中的成效也是显著的 —— 降低了DBMS使用者的学习成本。

### 2. 我爱 GUI

虽然控制台上已经用 '+' '-' '|' 画了表格，但多少有点简陋且劝退新手。

事实证明，GUI 相较于控制台对用户更加友好（尤其是用户普遍更加熟悉鼠标操作，而非键盘操作），有利于提升软件普及度。

### 3. root 密码应熟记

由于是时隔数月对 MySQL 进行重装，之前设置的 root 账户密码已经忘记了，导致一边冥思苦想、捶胸顿足，一边 google 解决方案。

虽然暴力重置 / 彻底删除的操作并不繁琐，但是我再也不会忘记 root 密码了