

简单介绍MySQL基本概念

利用phpMyAdmin可以很好的学习MySQL

## 01 基本概念

A MySQL database contains one or more tables, each of which contains records or rows. Within these rows are various columns or fields that contain the data itself.

Author	Title	Type	Year
Mark Twain	The Adventures of Tom Sawyer	Fiction	1876
Jane Austen	Pride and Prejudice	Fiction	1811
Charles Darwin	The Origin of Species	Nonfiction	1856
Charles Dickens	The Old Curiosity Shop	Fiction	1841
William Shakespeare	Romeo and Juliet	Play	1594

Database: The overall container for a collection of MySQL data

Table: A subcontainer within a database that stores the actual data

Row: A single record within a table, which may contain several fields

Column: The name of a field within a row

There are three main ways in which you can interact with MySQL:

1. using a command line
2. via web interface such as phpMyadmin
3. through a programming language

### 1.1 通过命令行访问数据库

假设客户端使用的是wamp，默认账号为root，密码为空。

在windows命令行中键入以下命令，直接以root账户登陆MySQL:

```
D:\wamp64\bin\mysql\mysql5.7.14\bin\mysql -u root
```

在有密码的情况下使用下列命令登陆并键入密码:

```
D:\wamp64\bin\mysql\mysql5.7.14\bin\mysql -u root -p
```

```
sheng@SHENG-LAPTOP C:\Users\sheng
> D:\wamp64\bin\mysql\mysql5.7.14\bin\mysql -u root
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 5.7.14 MySQL Community Server (GPL)

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owners.

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

mysql> SHOW databases;
+-----+
| Database          |
+-----+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+-----+
4 rows in set (0.44 sec)
```

## 1.2 Using the Command-Line Interface

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The semicolon

The semicolon is used by MySQL to separate or end commands.

Canceling a command

取消命令用 `\c`, 避免使用 `Control-C`

SQL commands and keywords are case-insensitive. `CREATE`, `create`, and `CrEaTe` all mean the same thing. However, for the sake of clarity, the recommended style is to use uppercase.

Table names are case-sensitive on Linux and OS X, but case-insensitive on Windows. So for portability purposes, you should always choose a case and stick to it. The recommended style is to use lowercase for tables.

## 1.2 Common MySQL commands

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```
\c - Cancel input
EXIT (CTRL-C) - Exit
QUIT (\q) - Same as EXIT
HELP (\h, \?) - Display help
STATUS (\s) - Display the current status
DESC (DESCRIBE) tablename;
SHOW databases;
SHOW tables;
```

## 02 基本操作

### 2.1 Creating a database

我们以创建一个publications数据库为例：

```
CREATE DATABASE publications;
```

使用新创建的数据库：

```
USE publications;
```

可以使用 `\s` 查看当前使用的数据库。

### 2.2 Creating a table

以创建的表名为classics为例。

```
CREATE TABLE classics (
  author VARCHAR(128),
  title VARCHAR(128),
  type VARCHAR(16),
  year CHAR(4)
) ENGINE MyISAM;
```

使用 `DESCRIBE classics;` 查看表的信息。

### 2.3 ALTER

ALTER命令可以做很多事情，但基本都和修改有关。

#### 添加字段

```
ALTER TABLE classics ADD id INT UNSIGNED NOT NULL AUTO_INCREMENT KEY;
```

上面的代码为classics表添加一个自增长的id.

INT UNSIGNED - 无符号整型

NOT NULL - 该字段不允许为空

AUTO\_INCREMENT - 自增 1

KEY - 设为主键

### 删除字段

```
ALTER TABLE classics DROP id;
```

### 修改表名

```
ALTER TABLE classics RENAME pre1900;
```

### Changing the data type of a column

```
ALTER TABLE classics MODIFY year SMALLINT;
```

### Adding a new column

```
ALTER TABLE classics ADD pages SMALLINT UNSIGNED;
```

### Renaming a column

```
ALTER TABLE classics CHANGE type category VARCHAR(16);
```

### Removing a column

```
ALTER TABLE classics DROP pages;
```

### Deleting a table

```
CREATE TABLE disposable(trash INT);  
DESCRIBE disposable;  
DROP TABLE disposable;  
SHOW tables;
```

## 2.4 Adding data to a table

---

Example. Populating the classics table

```
INSERT INTO classics(author, title, type, year)
VALUES('Mark Twain', 'The Adventures of Tom Sawyer', 'Fiction', '1876');
INSERT INTO classics(author, title, type, year)
VALUES('Jane Austen', 'Pride and Prejudice', 'Fiction', '1811');
INSERT INTO classics(author, title, type, year)
VALUES('Charles Darwin', 'The Origin of Species', 'Non-Fiction', '1856');
INSERT INTO classics(author, title, type, year)
VALUES('Charles Dickens', 'The Old Curiosity Shop', 'Fiction', '1841');
INSERT INTO classics(author, title, type, year)
VALUES('William Shakespeare', 'Romeo and Juliet', 'Play', '1594');
```

使用 `SELECT * FROM classics;` 查看表的内容。

## 2.5 Creating the table classics with a primary key

```
CREATE TABLE classics (
  author VARCHAR(128),
  title VARCHAR(128),
  category VARCHAR(16),
  year SMALLINT,
  isbn CHAR(13),
  INDEX(author(20)),
  INDEX(title(20)),
  INDEX(category(4)),
  INDEX(year),
  PRIMARY KEY (isbn)
) ENGINE MyISAM;
```

# 03 Querying a MySQL Database

## 3.1 SELECT

Example:

```
SELECT * FROM tablename;
SELECT something FROM tablename;
SELECT author,title FROM classics;
SELECT title,isbn FROM classics;
```

Counting rows

```
SELECT COUNT(*) FROM classics;
```

## 3.2 DELETE

删除某一行。

```
DELETE FROM classics WHERE title='Little Dorrit';
```

## 3.3 UPDATE...SET

```
UPDATE classics SET author='Mark Twain (Samuel Langhorne Clemens)'  
WHERE author='Mark Twain';  
UPDATE classics SET category='Classic Fiction'  
WHERE category='Fiction';
```

## 3.5 ORDER BY

```
SELECT author,title FROM classics ORDER BY author ASC;  
SELECT author,title FROM classics ORDER BY title DESC;
```

As you can see, the first query returns the publications by author in ascending alphabetical order (the default), and the second returns them by title in descending order.

# 04 简单测试

```
CREATE DATABASE school;  
USE school;  
  
CREATE TABLE student (  
    id INT(10) UNSIGNED AUTO_INCREMENT NOT NULL,  
    name VARCHAR(128),  
    num VARCHAR(8),  
    PRIMARY KEY (id)  
) ENGINE MyISAM;  
  
INSERT INTO student(id, name, num)  
VALUES('5', 'sheng', '2014');
```