

XAMPP. Basic objects of MySQL.

Data types of MySQL.

use the terms attribute, entity, index record, table and tuple to describe databases

know data types in DBMS

Main objects

Tables – Data collection objects

Queries – Questions of your data

Forms – Predefined format to display or enter data

Reports – Printable version of database information

Field (Column): a single piece of information. Could be a name, or a number.

Record (Row): a collection of related fields. A number of pieces of information that relate to the same object. Records on an employee, their name, address, social security number, phone number, etc. This would be the employee's record.

Table (File): a collection of related records. If you put all the employee records together, you have a table of employees.

MySQL is a database management system.

SQL stands for the Structured Query Language. It defines how to insert, retrieve, modify and delete data.

Basic MySQL Operations:

- Create table
- Insert records
- Load data
- Retrieve records
- Update records
- Delete records
- Modify table
- Join table
- Optimize table

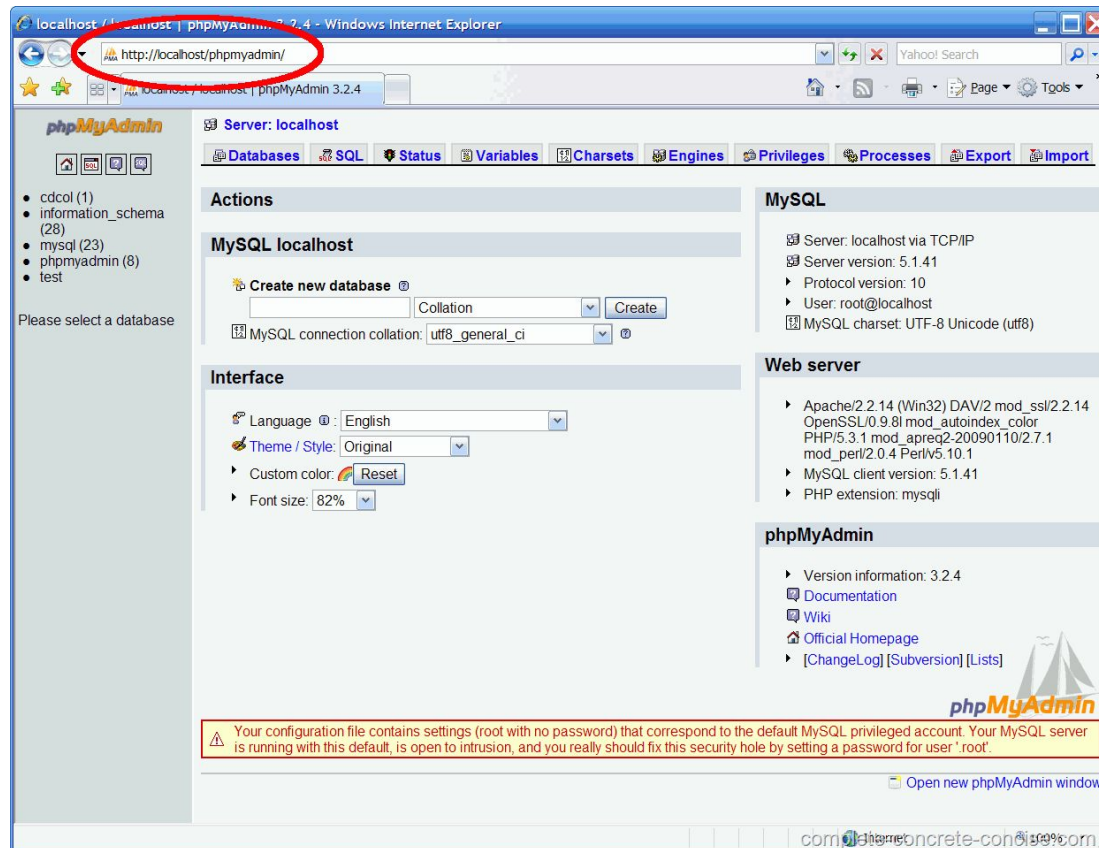
Local server XAMPP

XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MySQL(M), database, and interpreters for scripts written in the PHP and Perl programming languages.

XAMPP stands for Cross-Platform, XMP (X), Apache (A), MySQL(M), PHP (P) and Perl (P).

Creating a MySQL Database using XAMPP

1) Open your browser and enter **http://localhost/phpmyadmin**. This will bring you to the MySQL setup page:



localhost / localhost | phpMyAdmin 3.2.4 - Windows Internet Explorer

http://localhost/phpmyadmin/

localhost / localhost | phpMyAdmin 3.2.4

phpMyAdmin

- cdcol (1)
- information_schema (28)
- mysql (23)
- phpmyadmin (8)
- test

Please select a database

Server: localhost

Databases SQL Status Variables Charsets Engines Privileges Processes Export Import

Actions

MySQL localhost

Create new database

Collation:

MySQL connection collation: utf8_general_ci

Interface

Language: English

Theme / Style: Original

Custom color:

Font size: 82%

MySQL


- Server: localhost via TCP/IP
- Server version: 5.1.41
- Protocol version: 10
- User: root@localhost
- MySQL charset: UTF-8 Unicode (utf8)

Web server

- Apache/2.2.14 (Win32) DAV/2 mod_ssl/2.2.14 OpenSSL/0.9.8l mod_autoindex_color PHP/5.3.1 mod_apreq2-20090110/2.7.1 mod_perl/2.0.4 Perl/v5.10.1
- MySQL client version: 5.1.41
- PHP extension: mysqli

phpMyAdmin

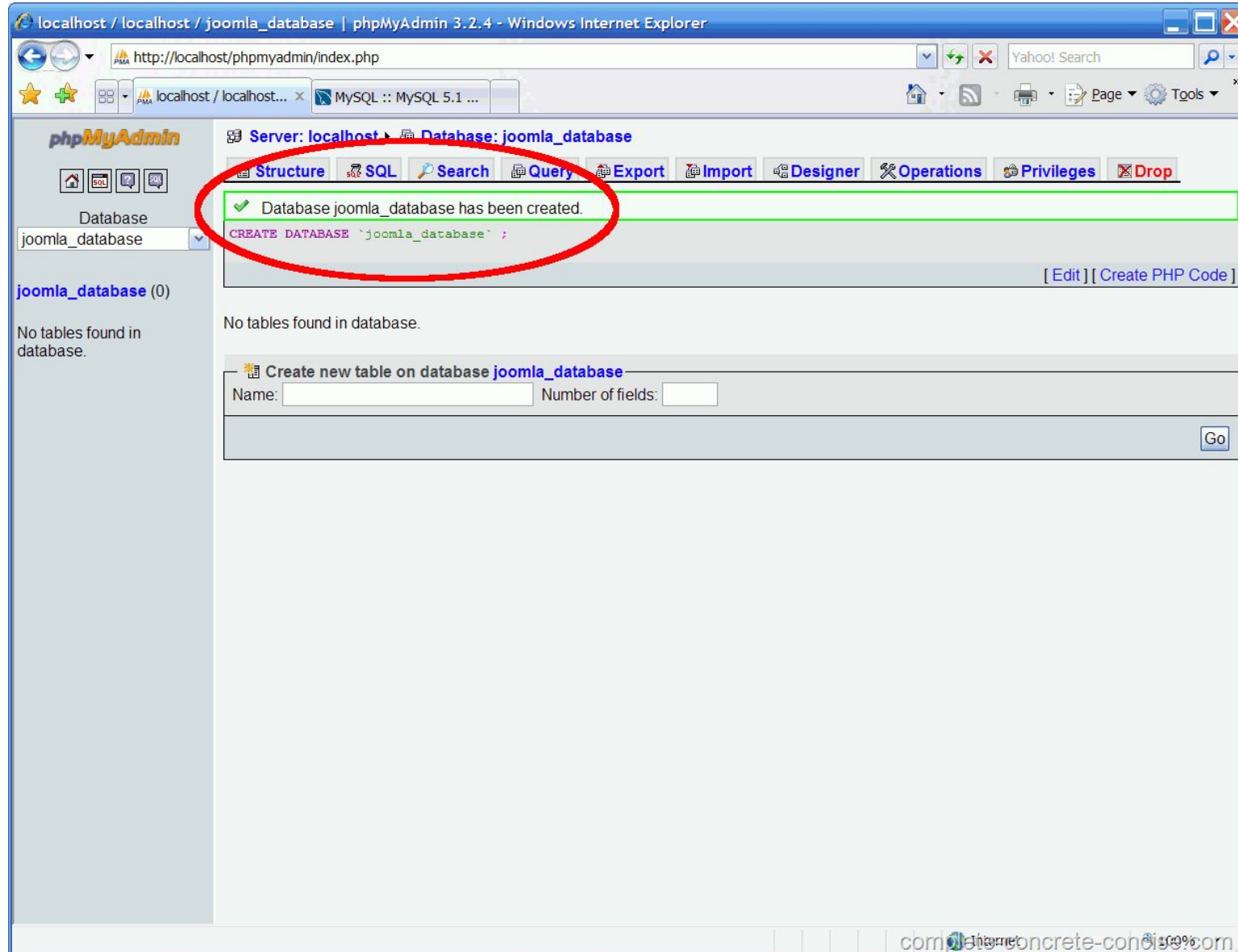
- Version information: 3.2.4
- [Documentation](#)
- [Wiki](#)
- [Official Homepage](#)
- [\[ChangeLog\]](#) [\[Subversion\]](#) [\[Lists\]](#)



Warning: Your configuration file contains settings (root with no password) that correspond to the default MySQL privileged account. Your MySQL server is running with this default, is open to intrusion, and you really should fix this security hole by setting a password for user 'root'.

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3) Ensure the database was successfully created:



The screenshot shows the phpMyAdmin interface in a browser window. The address bar indicates the URL is `http://localhost/phpmyadmin/index.php`. The page title is `localhost / localhost / joomla_database | phpMyAdmin 3.2.4 - Windows Internet Explorer`. The main content area shows the `Server: localhost` and `Database: joomla_database`. A red circle highlights a green message box that says "Database joomla_database has been created." Below this message, the SQL query `CREATE DATABASE `joomla_database` ;` is displayed. The left sidebar shows the database `joomla_database` selected, with a message "No tables found in database." The bottom right corner of the page contains the text `com3e-concrete-concrete.com`.

MySQL - Data Types

MySQL uses many different data types broken into three categories –

- Numeric
- Date and Time
- String Types.

Numeric Data Types

MySQL uses all the standard ANSI SQL numeric data types, so if you're coming to MySQL from a different database system, these definitions will look familiar to you. The following list shows the common numeric data types and their descriptions:

- **INT**
- **TINYINT**
- **SMALLINT**
- **MEDIUMINT**
- **BIGINT**
- **FLOAT(M,D)**
- **DOUBLE(M,D)**
- **DECIMAL(M,D)**

Date and Time Types

The MySQL date and time datatypes are as follows –

- **DATE** – A date in YYYY-MM-DD format
- **DATETIME** – A date and time combination in YYYY-MM-DD HH:MM:SS format
- **TIMESTAMP** - A timestamp between midnight, January 1st, 1970 and sometime in 2037. This looks like the previous DATETIME format, only without the hyphens between numbers; 3:30 in the afternoon on December 30th, 1973 would be stored as 19731230153000 (YYYYMMDDHHMMSS).
- **TIME** – Stores the time in a HH:MM:SS format.
- **YEAR(M)** – Stores a year in a 2-digit or a 4-digit format

String Types

Although the numeric and date types are fun, most data you'll store will be in a string format. This list describes the common string datatypes in MySQL.

- **CHAR(M)** – A fixed-length string between 1 and 255 characters
- **VARCHAR(M)** – A variable-length string between 1 and 255 characters in length.
- **BLOB or TEXT** – A field with a maximum length of 65535 characters.
- **TINYBLOB or TINYTEXT** – A BLOB or TEXT column with a maximum length of 255 characters
- **MEDIUMBLOB or MEDIUMTEXT** – A BLOB or TEXT column with a maximum length of 16777215 characters.
- **LOB or LONGTEXT** – A BLOB or TEXT column with a maximum length of 4294967295 characters.

Exercises

Create a database using XAMPP with 6 different data types (1-3 of each type)

Questions

- List the tables you might need to store a database on a football League.
- Choose one of the tables from above and write down all data types you will use.
- List the tables you might need to record details for an online store
- Choose one of the tables from above and write down all data types you will use.