

Database Management Systems

Session 8



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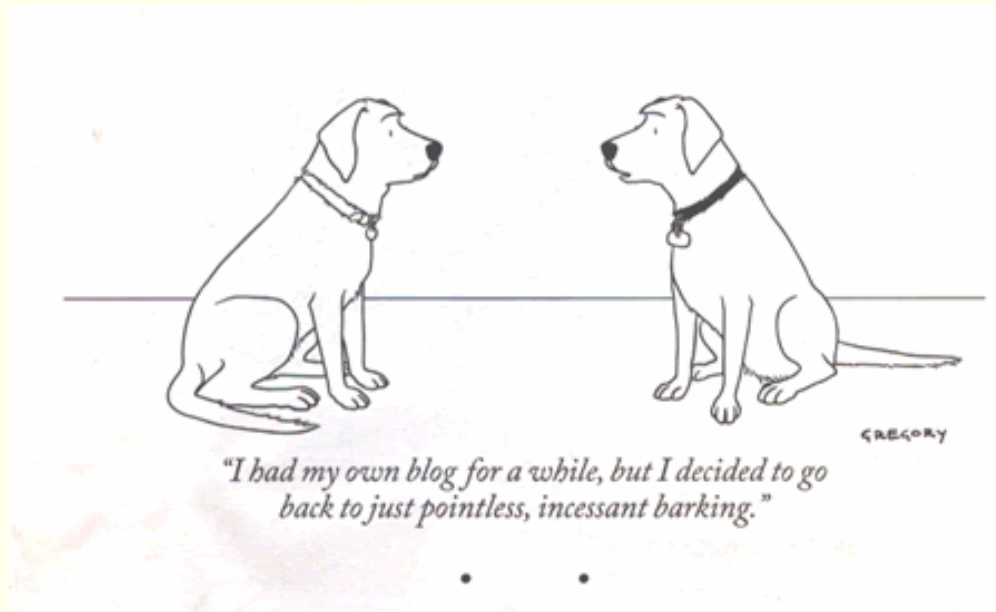
It's All In The Presentation!!!

After a summer-long delay, Eastman Kodak Co. has just begun shipping the groundbreaking digital camera that, within range of hotels, coffee shops, airport lounges, offices, homes and other wireless hot spots, can deliver high-quality pictures directly onto the Internet and into e-mail boxes around the globe.

Users of the new EasyShare-One, priced at \$599, can send photos directly through a Wi-Fi transmitter at home or work, or pay \$4.99 per month to connect the camera with any of T-Mobile USA's 6,000 hot spots at stores, airports, hotels and other establishments.



Internet Applications



Session 8

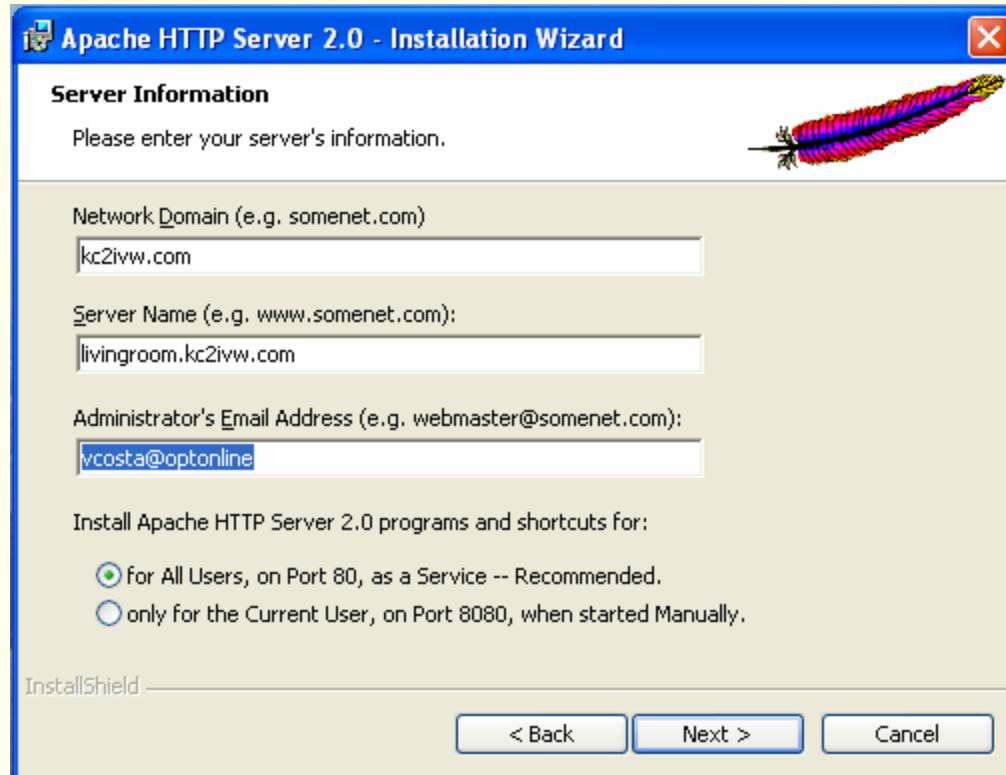
Lecture Overview

- ◆ Setup WAMP Environment
- ◆ Using FORMS With PHP
- ◆ Connecting To MySQL With PHP
- ◆ Some Handy Tools
- ◆ Getting Data From MySQL With PHP
- ◆ Other Things We Can Do From Tutorial

Install Apache

- ◆ <http://httpd.apache.org/docs/2.0/platform/windows.html>
- ◆ Installing apache is easy if you download the Microsoft Installer (.msi) package. Just double click on the icon to run the installation wizard. Click next until you see the Server Information window. You can enter localhost for both the Network Domain and Server Name. As for the administrator's email address you can enter anything you want.
- ◆ If using Windows XP, installed Apache as Service so every time I start Windows Apache is automatically started.

Installing Apache



Apache HTTP Server 2.0 - Installation Wizard

Server Information

Please enter your server's information.

Network Domain (e.g. somenet.com):
kc2ivw.com

Server Name (e.g. www.somenet.com):
livingroom.kc2ivw.com

Administrator's Email Address (e.g. webmaster@somenet.com):
vcosta@optonline

Install Apache HTTP Server 2.0 programs and shortcuts for:

for All Users, on Port 80, as a Service -- Recommended.

only for the Current User, on Port 8080, when started Manually.

InstallShield

< Back Next > Cancel

- ◆ Click the **Next** button and choose **Typical installation**. Click Next one more time and choose where you want to install Apache (I installed it in the default location C:\Program Files\Apache Group). Click the Next button and then the Install button to complete the installation process.

Installing Apache

- ◆ To see if your Apache installation was successful open up your browser and type `http://localhost` (or `http://127.0.0.1`) in the address bar. You should see something like this :

If you can see this, it means that the installation of the [Apache web server](#) software on this system was successful. You may now add content to this directory and replace this page.

Seeing this instead of the website you expected?

This page is here because the site administrator has changed the configuration of this web server. Please **contact the person responsible for maintaining this server with questions**. The Apache Software Foundation, which wrote the web server software this site administrator is using, has nothing to do with maintaining this site and cannot help resolve configuration issues.

The Apache [documentation](#) has been included with this distribution.

You are free to use the image below on an Apache-powered web server. Thanks for using Apache!



Installing Apache

- ◆ By default Apache's **document root** is set to **htdocs** directory. The document root is where you must put all your PHP or HTML files so it will be processed by Apache (and can be seen through a web browser). Of course you can change it to point to any directory you want. The configuration file for Apache is stored in `C:\Program Files\Apache Group\Apache2\conf\httpd.conf` (assuming you installed Apache in `C:\Program Files\Apache Group`). It's just a plain text file so you can use Notepad to edit it.
- ◆ For example, if you want to put all your PHP or HTML files in `C:\www` just find this line in the `httpd.conf` :
 `DocumentRoot "C:/Program Files/Apache Group/Apache2/htdocs"`
and change it to :
 `DocumentRoot "C:/www"`
- ◆ After making changes to the configuration file you have to restart Apache (Start > Programs > Apache HTTP Server 2.0 > Control Apache Server > Restart) to see the effect.

Installing Apache

- ◆ Another configuration you may want to change is the **directory index**. This is the file that Apache will show when you request a directory. As an example if you type <http://www.php-mysql-tutorial.com/> without specifying any file the [index.php](#) file will be automatically shown.
- ◆ Suppose you want apache to use `index.html`, `index.php` or `main.php` as the directory index you can modify the `DirectoryIndex` value like this :

```
DirectoryIndex index.html index.php main.php
```
- ◆ Now whenever you request a directory such as `http://localhost/` Apache will try to find the `index.html` file or if it's not found Apache will use `index.php`. In case `index.php` is also not found then `main.php` will be used.

Installing Nvu



- ◆ www.nvu.com/
- ◆ A complete Web Authoring System for Linux Desktop users as well as Microsoft Windows and Macintosh users to rival programs like FrontPage and Dreamweaver.
- ◆ **Nvu** (pronounced N-view, for a "new view") makes managing a web site a snap. Now anyone can create web pages and manage a website with no technical expertise or knowledge of HTML.

Make A Home Page

- ◆ Create an `index.html` page with Nvu
- ◆ Copy `C:\Program Files\Apache Group\Apache2\htdocs` to `old_htdocs`
- ◆ Put the `index.html` into `htdocs`
- ◆ Test with <http://localhost> or <http://127.0.0.1>
- ◆ Explore Cascading Style Sheets (CSS)

PHP



- ◆ www.php.net

- ◆ **PHP** is a popular open-source, reflective programming language used mainly for developing server-side applications and dynamic web content. It was originally developed in 1994 and PHP stood for "**P**ersonal **H**ome **P**age". In 2000 the Zend Engine was added and now the official meaning is the recursive acronym "**P**HP **H**ypertext **P**reprocessor".
- ◆ PHP is currently one of the most popular server-side scripting systems on the Web. It has been widely adopted since the release of version 4. On the desktop it has been favored by some new programmers as a rapid prototyping environment.

Installing PHP

- ◆ www.php.net/downloads.php#v4
- ◆ We want to install PHP 4.4.0 and use the ZIP package
- ◆ Extract the PHP package (PHP 4.4.0 zip package). Extract the package in the directory where Apache was installed (`C:\Program Files\Apache Group\Apache2`). Change the newly created directory name to `php` (just to make it shorter).
- ◆ Then copy the file `php.ini-dist` in PHP directory to you windows directory (`C:\Windows` or `C:\Winnt` depends on where you installed Windows) and rename the file to `php.ini`. This is the PHP configuration file and we'll take a look what's in it later on.
- ◆ Next, move the `php4ts.dll` file from the newly created `php` directory into the `sapi` subdirectory.

Installing PHP

- ◆ Apache doesn't know that you just installed PHP. We need to tell Apache about PHP and where to find it. Open the Apache configuration file in `C:\Program Files\Apache Group\Apache2\conf\httpd.conf` and add the following three lines :

```
LoadModule php4_module php/sapi/php4apache2.dll
AddType application/x-httpd-php .php
AddType application/x-httpd-php-source .phps
```
- ◆ The first line tells Apache where to load the dll required to execute PHP and the second line means that every file that ends with `.php` should be processed as a PHP file. The third line is added so that you can view your php file source code in the browser window.
- ◆ Now restart Apache for the changes to take effect (`Start > Programs > Apache HTTP Server 2.0.50 > Control Apache Server > Restart`).

Installing PHP

- ◆ Now we want to test PHP to verify our installation. Create a new file using Nvu, name it `hello.php`, and put it in document root directory (`C:\Program Files\Apache Group\Apache2\htdocs`). The content of this file should be:

```
<?php  
echo 'Hello World!';  
?>
```

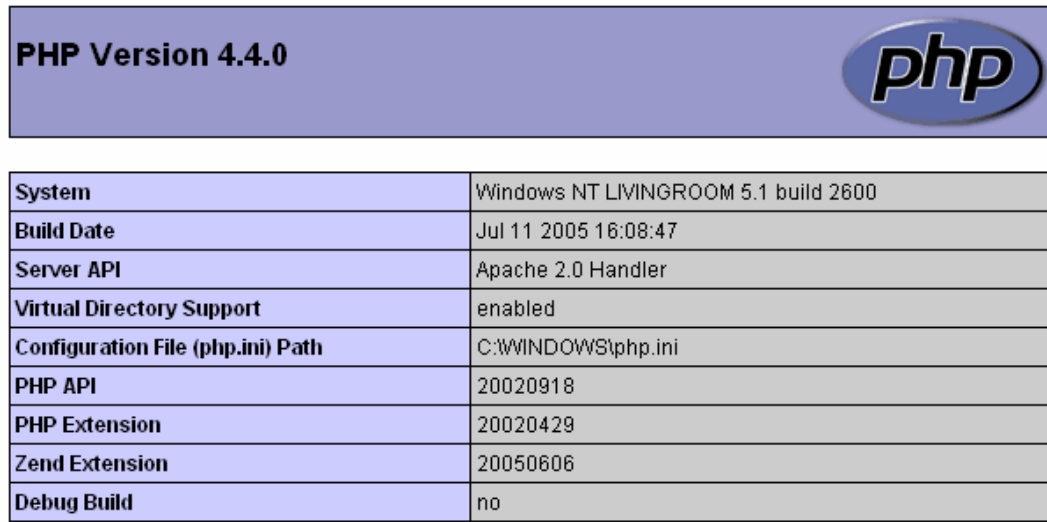
(Note: Nvu will do the php encapsulation for you)

- ◆ Type `http://localhost/hello.php` on your browser's address bar and if everything works well you should see the traditional “Hello World!” display in your browser.
- ◆ Another common test is to create a new file named `test.php` and put it in document root directory The content of this file is:

```
<?php  
phpinfo();  
?>
```


Installing PHP

- ◆ **phpinfo()** is the infamous PHP function which will spit out all kinds of stuff about PHP and your server configuration. Type `http://localhost/test.php` on your browser's address bar and if everything works well you should see something like this :



The image shows a screenshot of the PHP info page. At the top, there is a purple header bar with the text "PHP Version 4.4.0" on the left and the PHP logo on the right. Below the header is a table with 10 rows, each representing a different system or configuration parameter. The table has a light blue header row and alternating light blue and light gray body rows.

System	Windows NT LIVINGROOM 5.1 build 2600
Build Date	Jul 11 2005 16:08:47
Server API	Apache 2.0 Handler
Virtual Directory Support	enabled
Configuration File (php.ini) Path	C:\WINDOWS\php.ini
PHP API	20020918
PHP Extension	20020429
Zend Extension	20050606
Debug Build	no

MySQL



- ◆ www.mysql.com
- ◆ dev.mysql.com/doc/ - MySQL Reference Manual
- ◆ **MySQL** is a multithreaded, multi-user, SQL (Structured Query Language) Database Management System (DBMS) with an estimated six million installations. MySQL is open source software available either under the GNU General Public License (GPL) or under other licenses when the GPL is inapplicable to the intended use.¹
- ◆ Unlike projects such as Apache, where the software is developed by a public community, and is essentially not owned by anyone, MySQL is owned and sponsored by a single for-profit firm, the Swedish company MySQL AB. The company develops and maintains the system, selling support and service contracts, as well as commercially-licensed copies of MySQL, and employing people all over the world who work together via the Internet. Two Swedes and a Finn founded MySQL AB: David Axmark, Allan Larsson and Michael "Monty" Widenius.²

(1) - en.wikipedia.org/wiki/MySQL

(2) - [WikiPedia](http://en.wikipedia.org/wiki/Wikipedia:MySQL) is based on MySQL. There are more than 200 million queries and 1.2 million updates per day with peak loads of 11,000 queries per second

Installing MySQL

- ◆ <http://dev.mysql.com/downloads/>
- ◆ We want:
 - **MySQL database server & standard clients**
 - MySQL 4.1 -- Generally Available (GA) release (recommended)
- ◆ This should bring us to this page:
<http://dev.mysql.com/downloads/mysql/4.1.html>
- ◆ Scroll down to this section:

Windows downloads (platform notes)

The different packages for Microsoft Windows are explained in the article "[The all-new MySQL Server Windows Installer](#)". **Note:** When upgrading from versions of MySQL prior to 4.1.5, you must uninstall the existing version before installing a new version. Later versions may be upgraded with the installer without uninstalling.

Windows Essentials (x86)	4.1.14	16.4M	Pick a mirror Signature
	MD5: 0f53b0070c2901fd1a2da32992ca41d		
Windows (x86)	4.1.14	37.0M	Pick a mirror Signature
	MD5: d77df5da252e44716cbebb0e97f5ec9b		
Without installer (unzip in C:\)	4.1.14	38.8M	Pick a mirror Signature
	MD5: 20138f87444cf492dd028ccd915880b7		

This is what we want - Essentials



Installing MySQL

- ◆ We will be downloading: `mysql-essential-4.1.14-win32.msi`
- ◆ Fill in the form if you want and go to the closest US mirror. The download will take a few minutes. When finished, you should have the `.msi` file on your desktop.
- ◆ Double-Click the newly downloaded `.msi` file
- ◆ Accept the typical installation
- ◆ You'll be prompted to create a MySQL account (recommended) - monthly newsletter - save this info
- ◆ When the install finishes you'll get a configuration option window. Be sure it is checked.

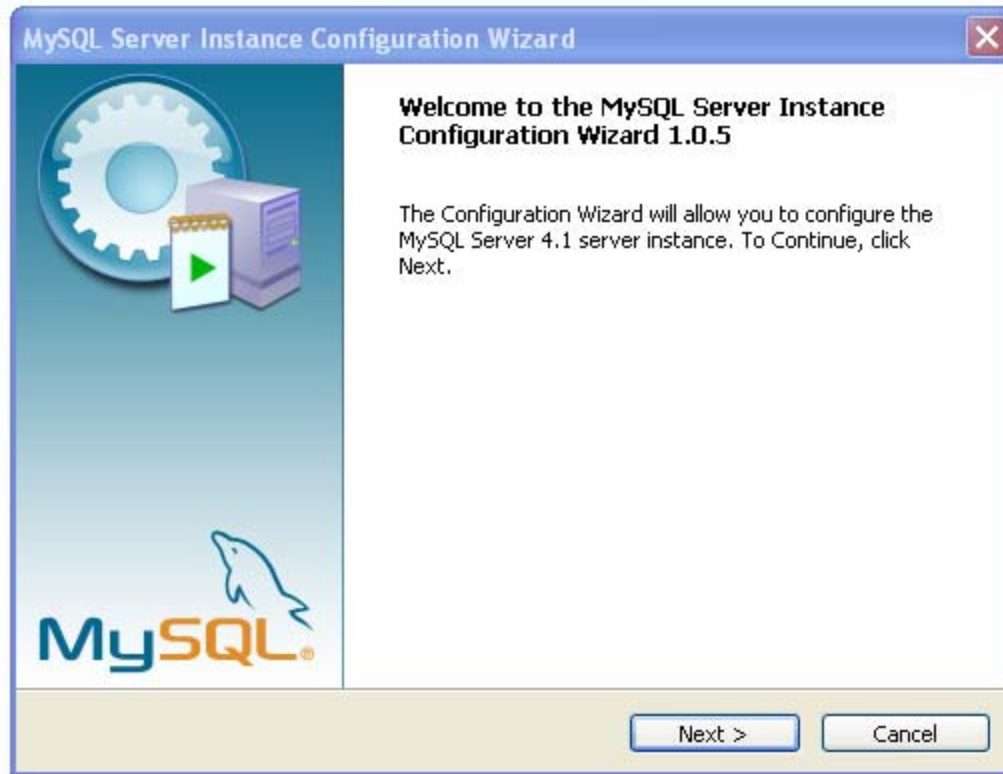
Installing MySQL

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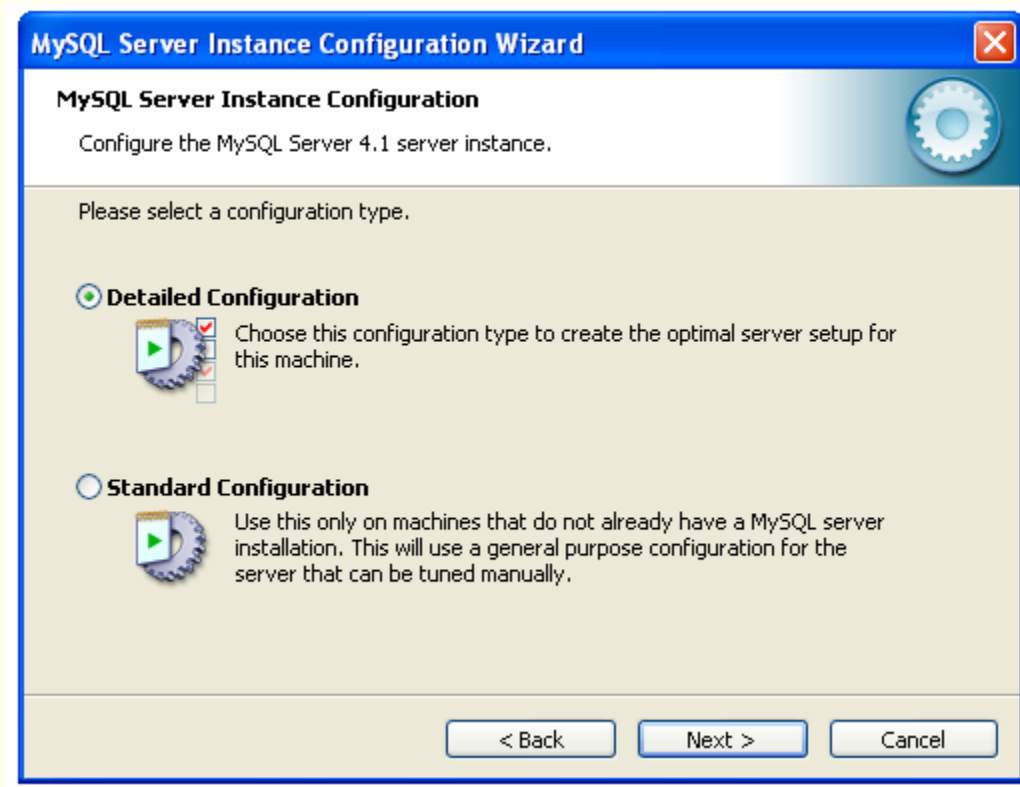
Installing MySQL



Installing MySQL



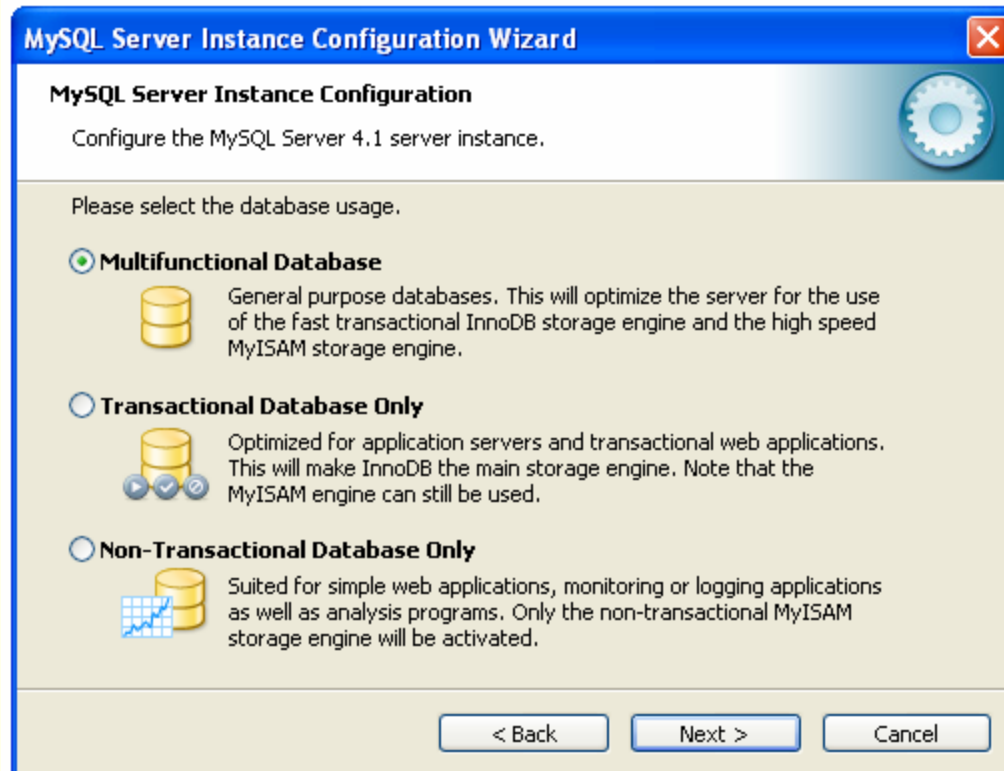
Installing MySQL



Installing MySQL



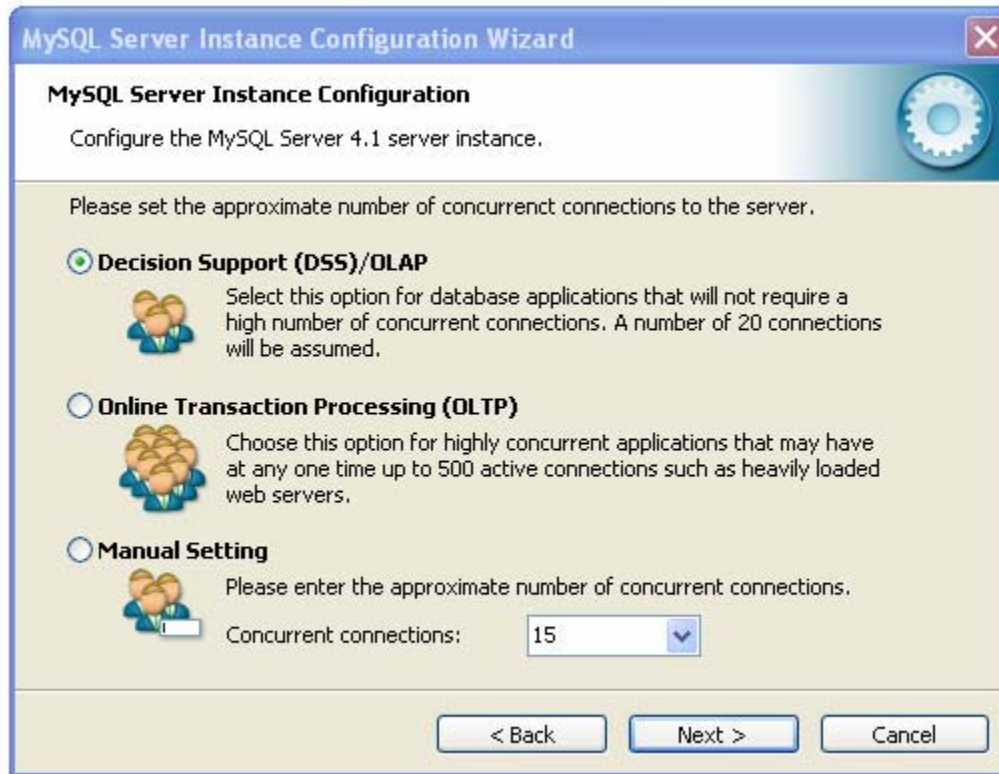
Installing MySQL



Installing MySQL



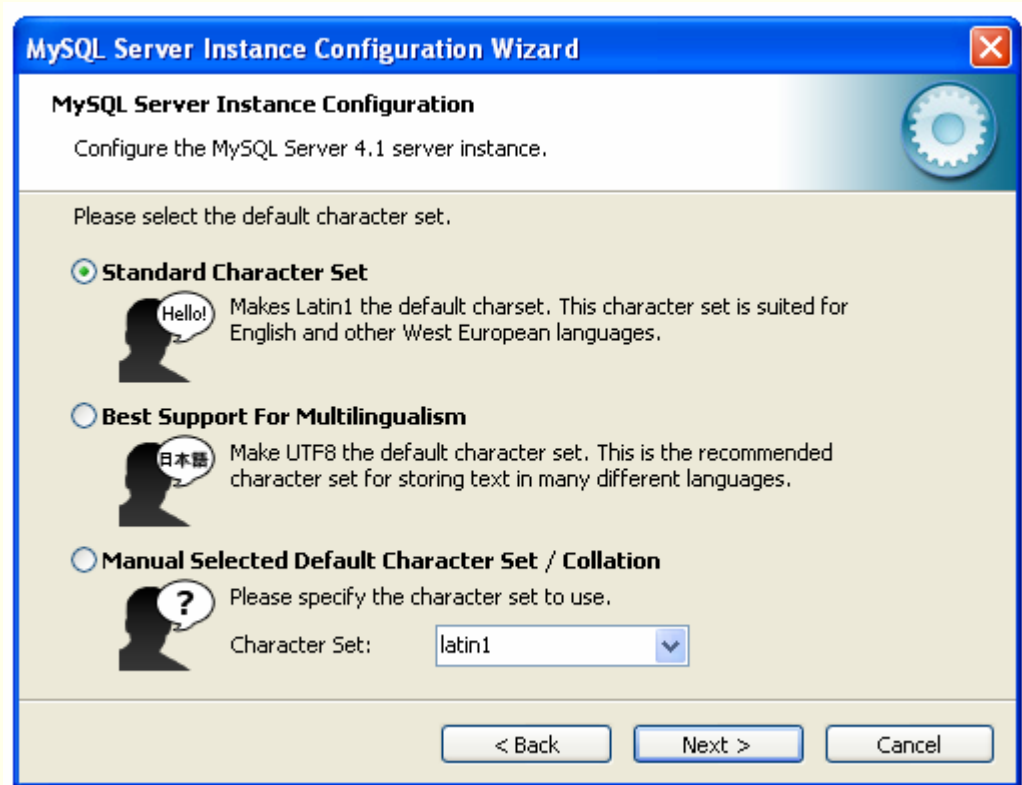
Installing MySQL



Installing MySQL



Installing MySQL



Installing MySQL



Installing MySQL



The screenshot shows the 'MySQL Server Instance Configuration Wizard' window. The title bar reads 'MySQL Server Instance Configuration Wizard' with a close button. The main title is 'MySQL Server Instance Configuration' and the subtitle is 'Configure the MySQL Server 4.1 server instance.' Below this, it says 'Please set the security options.' There are two main sections: 'Modify Security Settings' (checked) and 'Create An Anonymous Account' (unchecked). The 'Modify Security Settings' section includes a 'New root password' field (masked with asterisks), a 'Confirm' field (masked with asterisks), and an unchecked checkbox for 'Enable root access from remote machines'. The 'Create An Anonymous Account' section includes a warning icon and text: 'This option will create an anonymous account on this server. Please note that this can lead to an insecure system.' At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 4.1 server instance.

Please set the security options.

Modify Security Settings

 New root password: ***** Enter the root password.

 Confirm: ***** Retype the password.

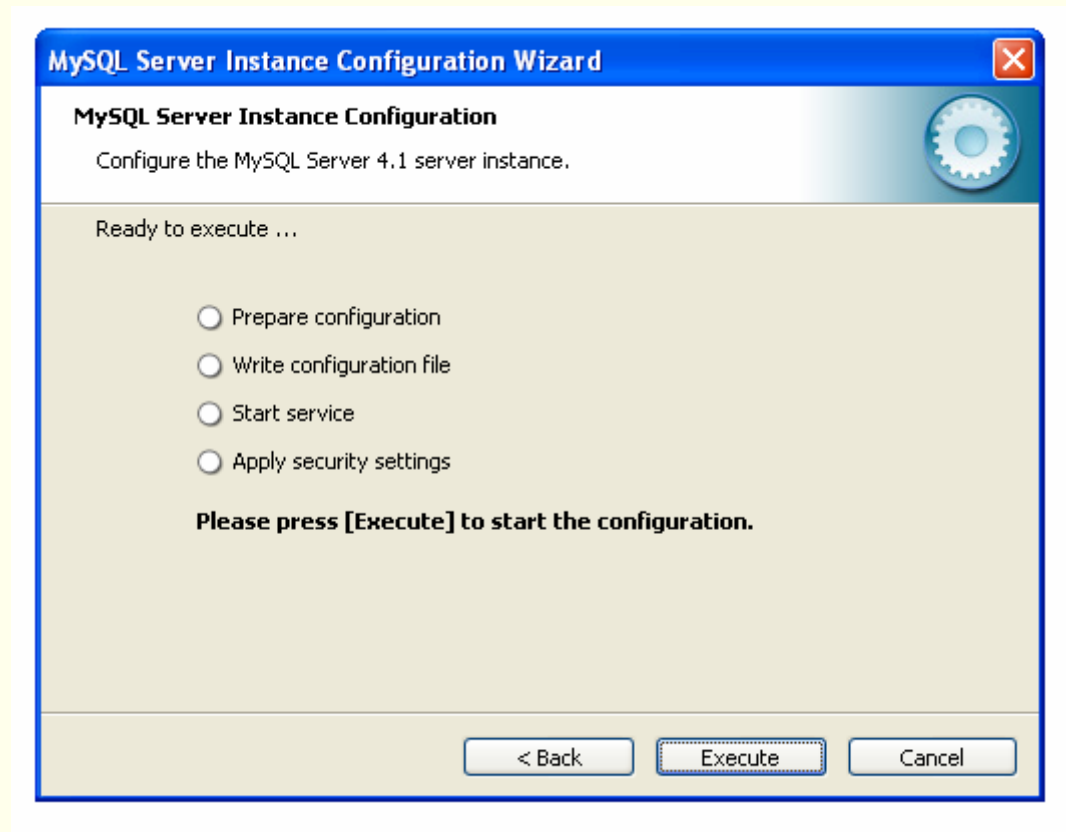
Enable root access from remote machines

Create An Anonymous Account

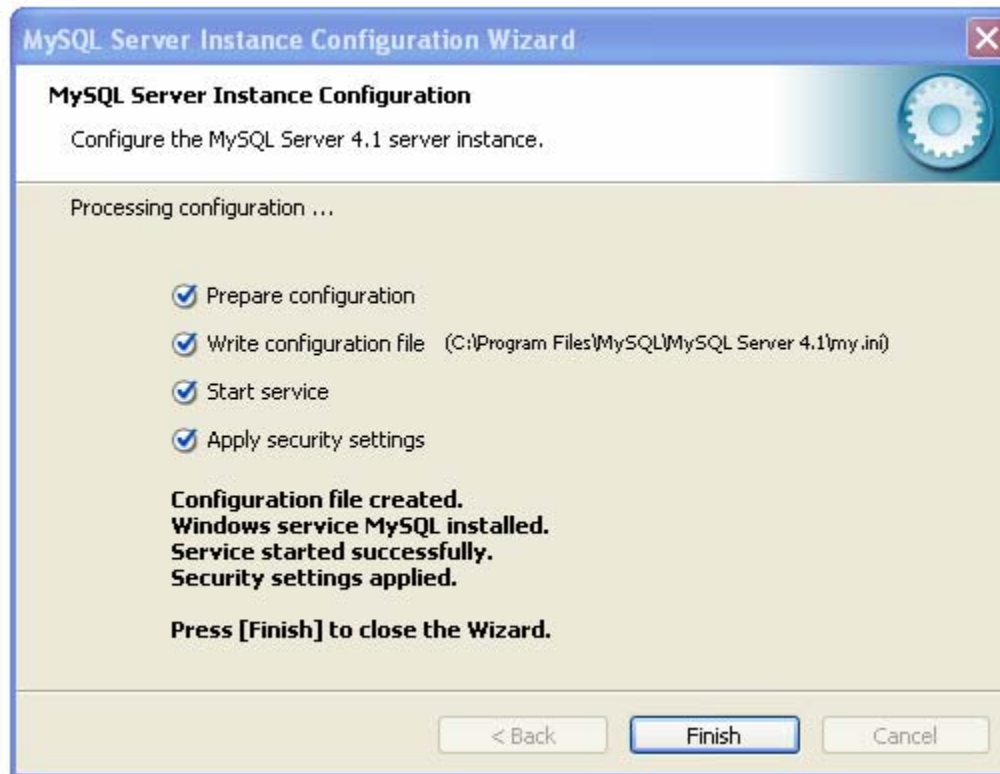
 This option will create an anonymous account on this server. Please note that this can lead to an insecure system.

< Back Next > Cancel

Installing MySQL

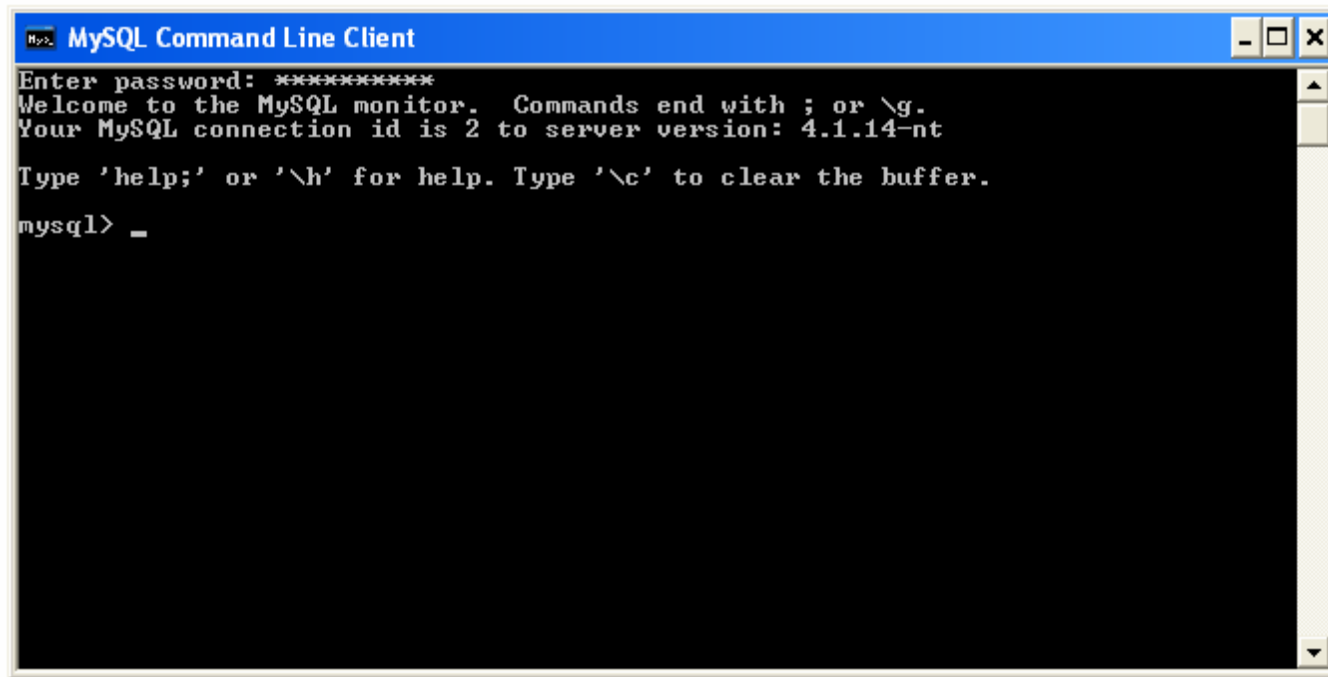
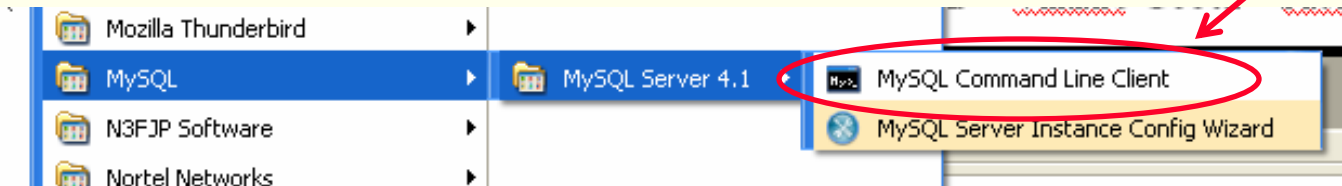


Installing MySQL



Installing MySQL

Command Line Interface



- ◆ Type “status” for info, then type “exit” to quit

Configuring PHP

- ◆ PHP stores all kinds of configuration information into a file called `php.ini`. Recall that we moved this to the `C:\Windows` directory.
- ◆ For now, **we do not need to alter this file.**
- ◆ If you are interested in the *systems* side of DBMS, then read this file carefully.
- ◆ The following two slides are for reference only!

Configuring PHP

- ◆ **error_reporting** and **display_errors** – the default values that come with the installation are fine for development. When you go to production you'll want to change to:

```
error_reporting = E_NONE  
display_errors = Off
```

This is because in a production environment you don't want too much detail about your errors because it may reveal security error.
- ◆ **register_globals** – this value should be set to `Off`, which is the default, otherwise it exposes possible security problems.
- ◆ **session.save_path** – If you use sessions, something you may want to do as an advanced function, but not now, then this configuration tells PHP where to save the session data. You will need to set this value to an existing directory or you will not be able to use session. In Windows you can set this value as

```
session.save_path = C:\WINDOWS\Temp\
```

Configuring PHP

- ◆ **extension** – PHP4 comes with many extensions such as Java, SSL, LDAP, Oracle, etc. These are not turned on automatically. If you need to use the extension, first you need to specify the location of the extensions and then uncomment the extension you want.

For Windows you will need to uncomment the extension you want to use. In `php.ini` a comment is started using a semicolon (;). As an example if you want to use OpenSSL, then you must remove the semicolon at the beginning of ;

```
;extension=php_openssl.dll to  
extension=php_openssl.dll
```

Note: MySQL and ODBC support is now built in, so *no dll is needed for it.*

- ◆ **max_execution_time** – the default is 30 seconds

WAMP Install Completed

- ◆ That's it!
- ◆ You have finish installing and configuring Apache, MySQL and PHP on Windows
- ◆ Now we are ready to create, modify, and query tables using SQL under the Relational Model

Lecture Overview

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- ◆ Connecting To MySQL With PHP
- ◆ Some Handy Tools
- ◆ Getting Data From MySQL With PHP
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Practicum: Apache, PHP & MySQL

- ◆ <http://www.php-mysql-tutorial.com/>
- ◆ I have been following this tutorial

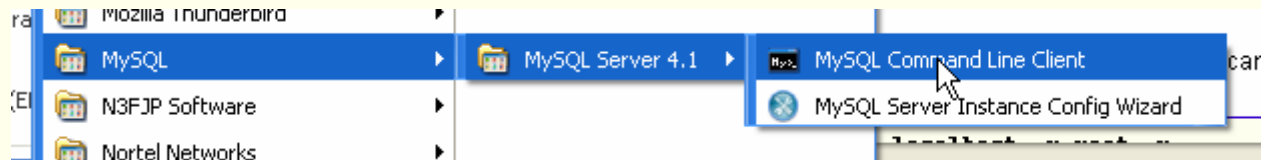
Using Forms With PHP

- ◆ <http://www.php-mysql-tutorial.com/php-tutorial/using-php-forms.php>
- ◆ Take a look at the demo at:
Example : [form.php](#)
- ◆ Start with a blank document in Nvu
- ◆ Copy the source code from:
Source code : [form.phps](#)
into Nvu, but on the source tab (overwrite any that was originally there)
- ◆ Notice what happens when you go to the **Normal** or **Preview** Tabs
- ◆ Save as: **form.php** in your htdocs
- ◆ Try it

Lecture Overview

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Starting MySQL



- ◆ Open the Command Line Client
- ◆ You'll mostly likely be prompted for a password
- ◆ Then you should get something like this:

A screenshot of the MySQL Command Line Client window. The title bar reads 'MySQL Command Line Client'. The window content shows the following text:

```
Enter password: *****  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 1 to server version: 4.1.14-nt  
  
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.  
  
mysql>
```

Connect To A Database - CLI



```
MySQL Command Line Client
For server side help, type 'help contents'
mysql> SHOW databases;
+-----+
| Database |
+-----+
| hardware_store |
| mysql |
| petstore |
| test |
+-----+
4 rows in set (0.00 sec)

mysql> USE petstore;
Database changed
mysql> SHOW tables;
+-----+
| Tables_in_petstore |
+-----+
| pet |
| species |
+-----+
2 rows in set (0.00 sec)

mysql>
```

Connect to MySQL With PHP

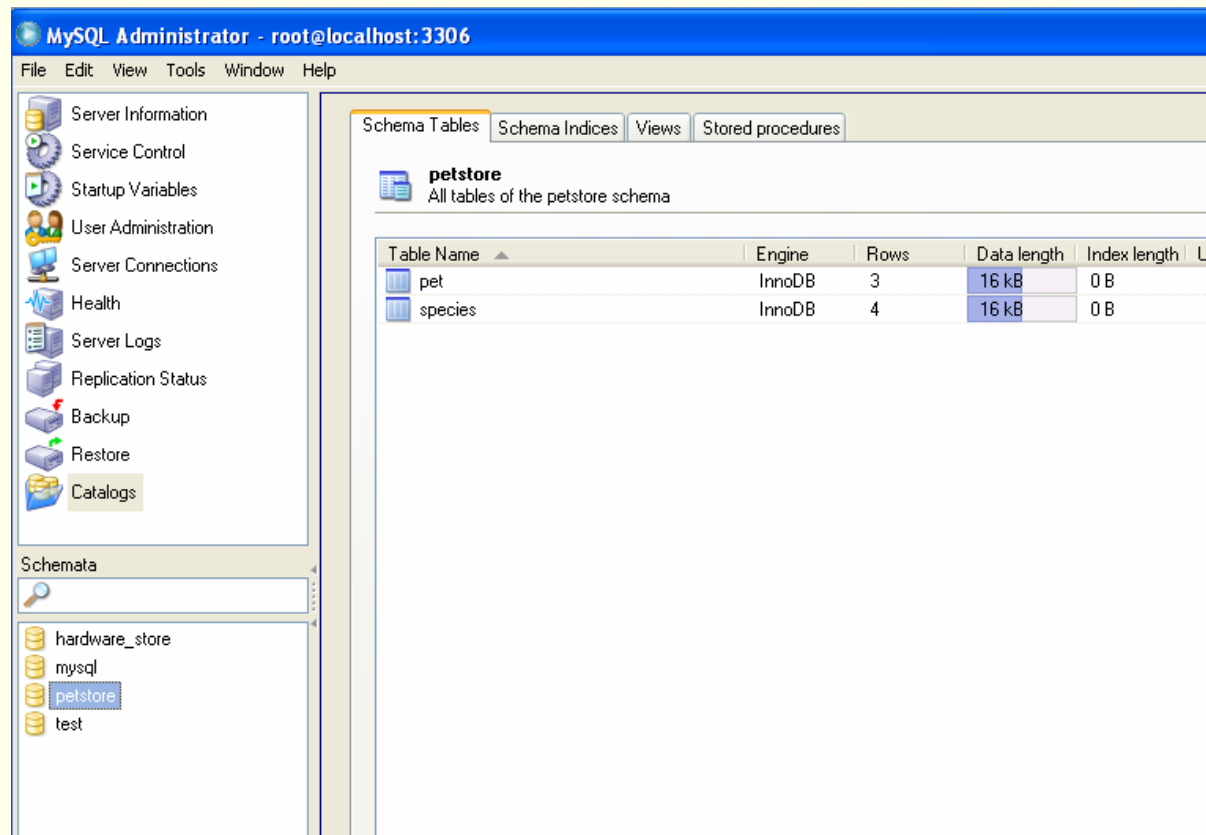
- ◆ <http://www.php-mysql-tutorial.com/connect-to-mysql-using-php.php>
- ◆ Opening a connection to MySQL database from PHP is easy. Just use the `mysql_connect()` function
- ◆ Start with a blank document in Nvu
- ◆ Copy the source code from the tutorial page (first section) into Nvu, but on the source tab (overwrite any that was originally there)
- ◆ Save as: **connect.php** in your htdocs
- ◆ Try it
- ◆ You may get something like this:
`Warning: mysql_connect(): Client does not support authentication protocol requested by server;`
- ◆ I'm working on it . It has to do with the root password
- ◆ For now, be sure password is blank

Lecture Overview

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- ◆ Getting Data From MySQL With PHP
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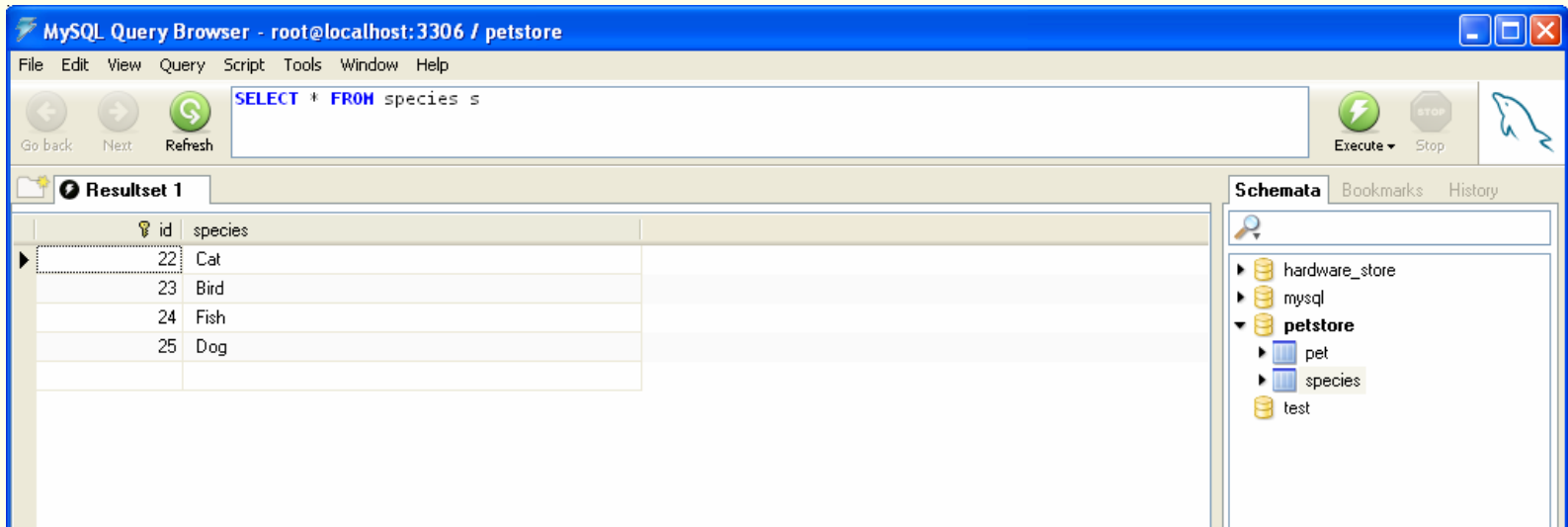
MySQL Administrator

- ◆ We may need this to change root password to “blank”
- ◆ <http://www.mysql.com/products/tools/administrator/>



MySQL Query Browser

- ◆ This is another handy tool
- ◆ <http://www.mysql.com/products/tools/query-browser/>



Lecture Overview

- ◆ Setup WAMP Environment
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- ◆ **Getting Data From MySQL With PHP**
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Get Data From MySQL With PHP

- ◆ <http://www.php-mysql-tutorial.com/php-mysql-select.php>
- ◆ Using PHP you can run a **MySQL SELECT** query to fetch the data out of the database. You have several options in fetching information from MySQL. PHP provides several functions for this. The one we will examine is `mysql_fetch_array()` which fetches a result row as an associative array.
- ◆ We proceed as before using Nvu and add the following code:

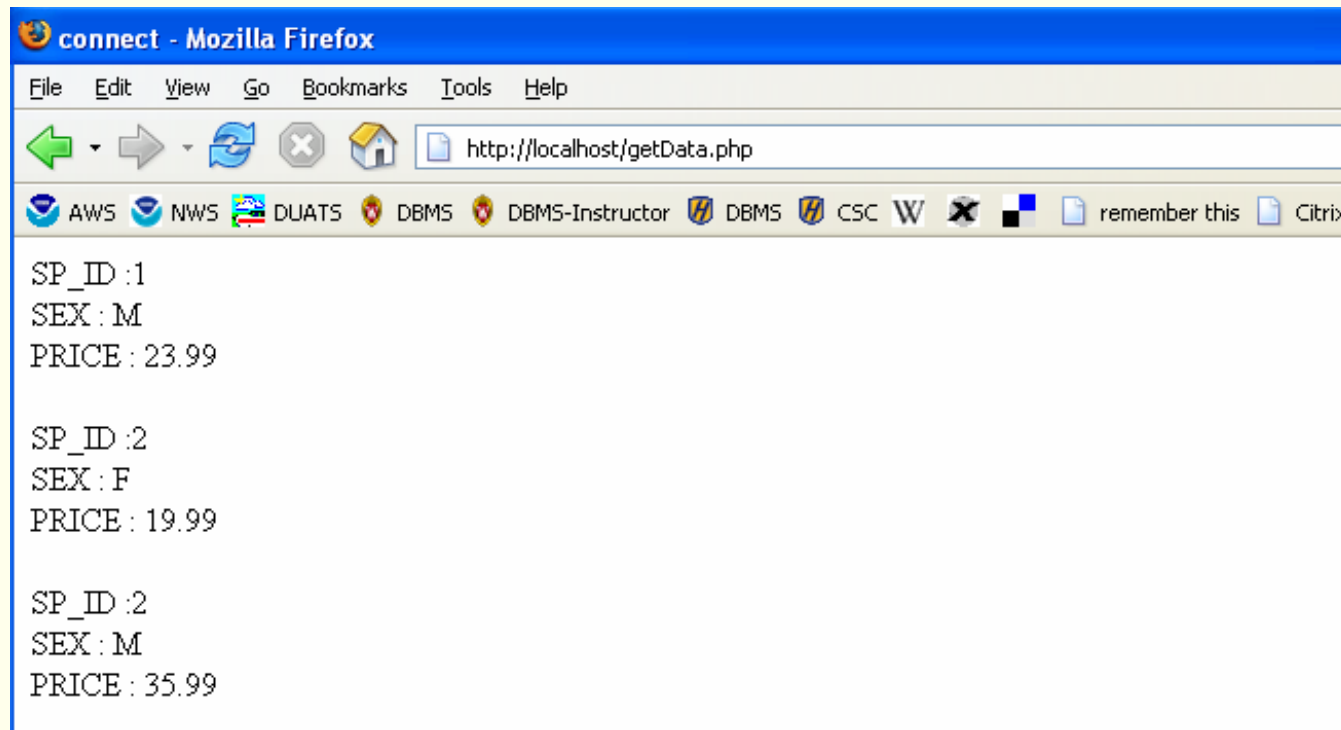
```
$query = "SELECT sp_id, sex, price FROM pet";
$result = mysql_query($query);

while($row = mysql_fetch_array($result, MYSQL_ASSOC))
{
    echo "SP_ID : {$row['sp_id']} <br>" .
        "SEX : {$row['sex']} <br>" .
        "PRICE : {$row['price']} <br><br>";
}
```

- ◆ Save as: `getData.php` in your htdocs

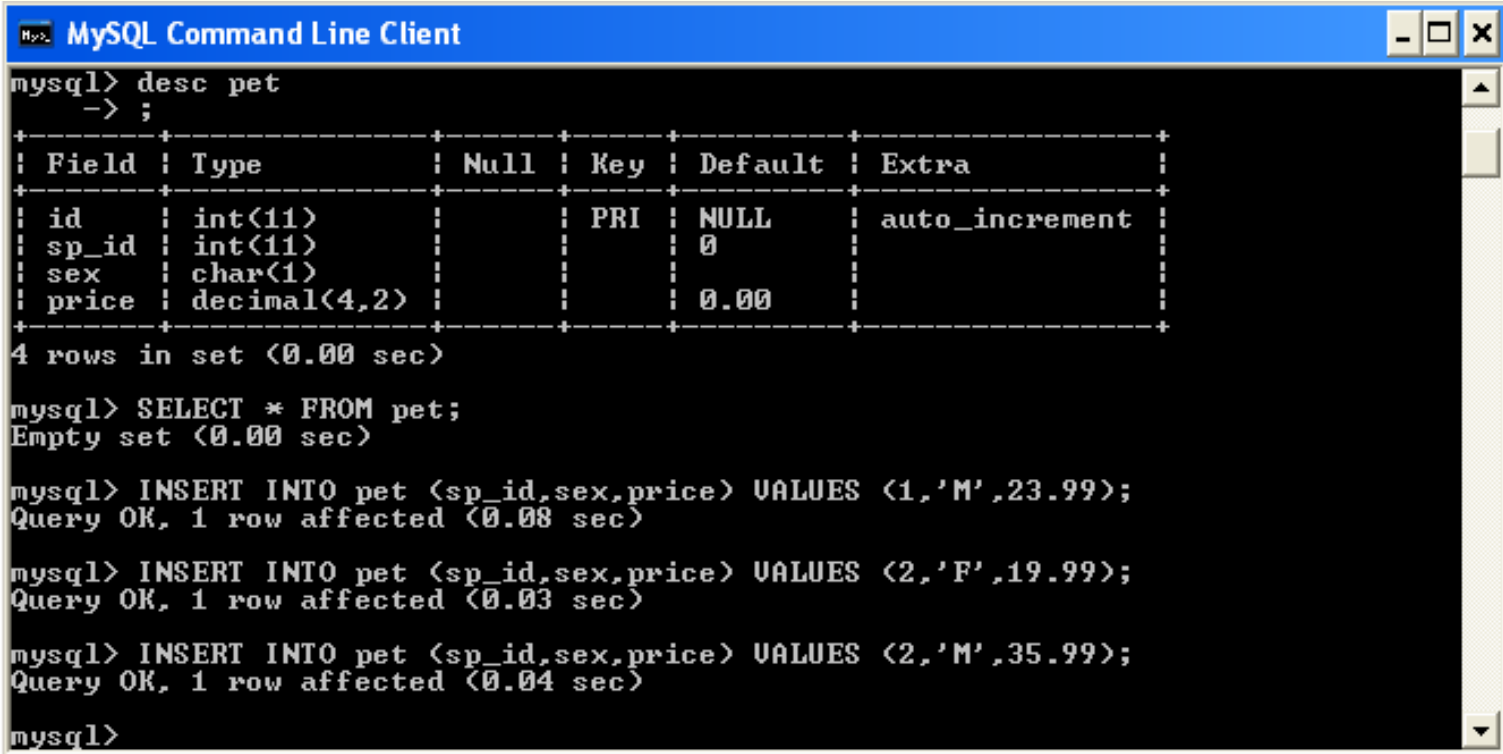
Get Data From MySQL With PHP

- ◆ You should get a result that looks like this:



Get Data From MySQL With PHP

- ◆ This reflect the rows that we inserted into the table “pet”



```
mysql> desc pet
-> ;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra          |
+-----+-----+-----+-----+-----+-----+
| id    | int(11)       |      | PRI | NULL    | auto_increment |
| sp_id | int(11)       |      |     | 0       |                |
| sex   | char(1)       |      |     |         |                |
| price | decimal(4,2)  |      |     | 0.00    |                |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> SELECT * FROM pet;
Empty set (0.00 sec)

mysql> INSERT INTO pet (sp_id,sex,price) VALUES (1,'M',23.99);
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO pet (sp_id,sex,price) VALUES (2,'F',19.99);
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO pet (sp_id,sex,price) VALUES (2,'M',35.99);
Query OK, 1 row affected (0.04 sec)

mysql>
```

Lecture Overview

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- ◆ **Other Things We Can Do From Tutorial**





Practicum: Apache, PHP & MySQL

- ◆ <http://www.php-mysql-tutorial.com/>
- ◆ Let's Look At Some Other Things We Can Do

Shopping Cart Tutorial

- ◆ <http://www.phpwebcommerce.com/php-mysql-shopping-cart-tutorial.php>
- ◆ Here is a simple demo site
- ◆ You can download the code as a zip file
- ◆ Examine the code in small chunks and adapt it to you needs
- ◆ Keep it simple!

[TOP]

All Category				Cart Content
Cars				1 x XC90 \$80,000
» Volvo	 C240 Price : \$50,000	 Coupe Price : \$70,000	 S60 Price : \$60,000	Sub-total \$80,000
» Mercedes-Benz				Shipping \$5
Manga				Total \$80,005
	 XC90 Price : \$80,000			Go To Shopping Cart

Useful Websites

- ◆ <http://www.php-mysql-tutorial.com/> - the MySQL tutorial we have been using in class
- ◆ <http://www.mysql.com/products/> - MySQL products, particularly MYSQL Administrator

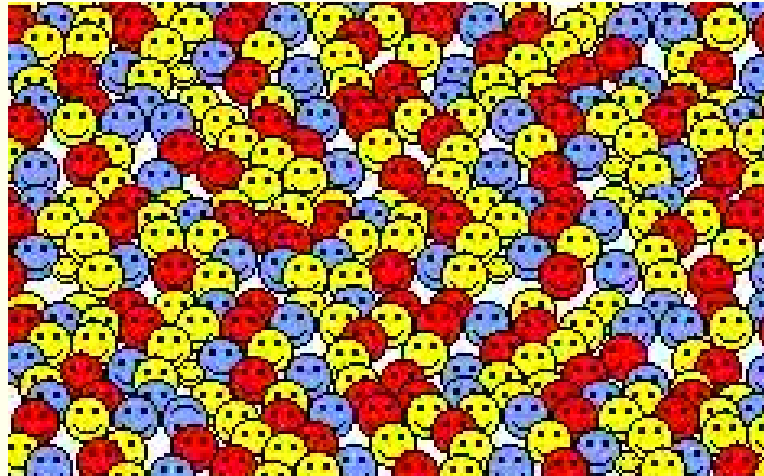
Term Paper

- ◆ Due Next Saturday, Oct 8
- ◆ Should be about 3-4 pages (9 or 10 font)

Homework

- ◆ Read Chapter Seven
- ◆ Try What We Just Did In Class

Go Forth And Program...



...But get some rest!!!