

CNT 4714: Enterprise Computing Fall 2009

Introduction to PHP – Part 3

Instructor : Dr. Mark Llewellyn
 markl@cs.ucf.edu
 HEC 236, 407-823-2790
 <http://www.cs.ucf.edu/courses/cnt4714/fall2009>

School of Electrical Engineering and Computer Science
University of Central Florida

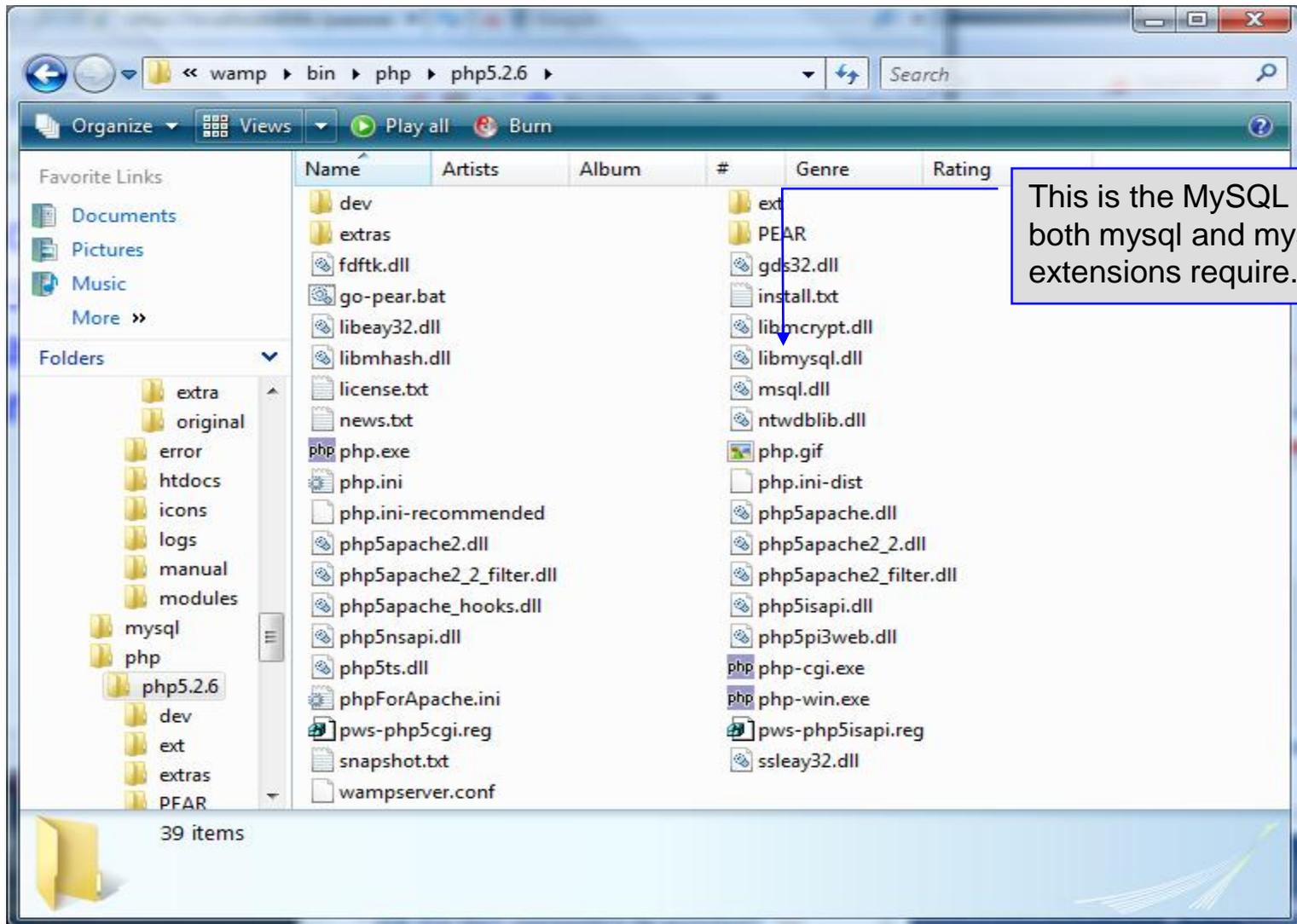


PHP and Database Connectivity

- PHP offers built-in support for a wide variety of database systems from Unix DBM through relational systems such as MySQL to full size commercial systems like Oracle.
- We'll continue to use MySQL as the underlying database system so that you can easily compare the work we've done with MySQL using Java servlets and JSPs.
- Before you go any further in these notes you must configure PHP to access MySQL databases. Beginning with PHP 5, MySQL is not enabled by default in PHP, nor is the MySQL library bundled with PHP.
 - Versions of MySQL greater than 4.1.0 use MySQLi extensions.
 - Versions of MySQL less than 4.1.0 use MySQL extensions.



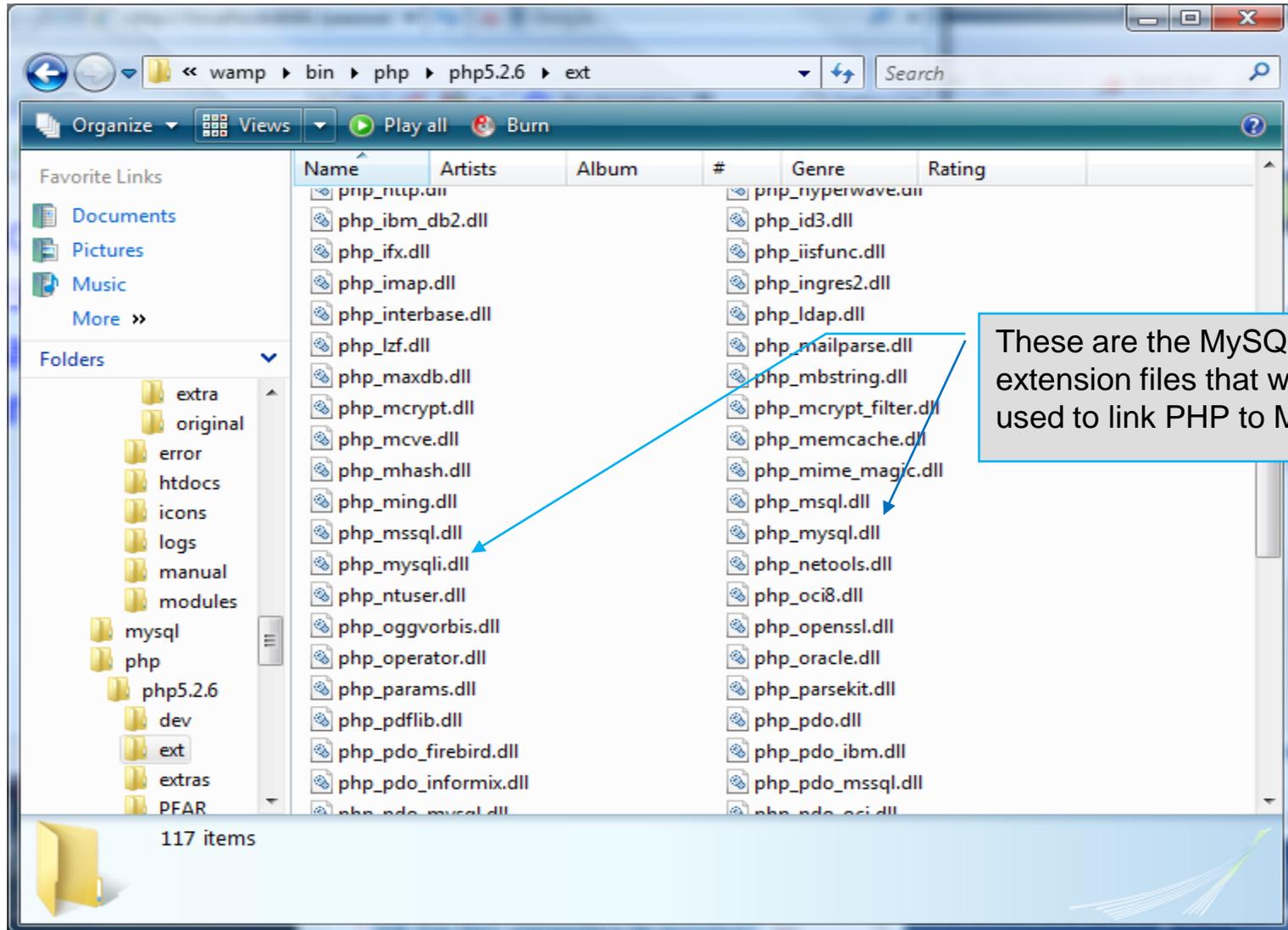
PHP and Database Connectivity (cont.)



This is the MySQL library that both mysql and mysqli extensions require.



PHP and Database Connectivity (cont.)



PHP and Database Connectivity (cont.)

```
File Edit Format View Help
;extension=php_ldap.dll
;extension=php_mcrypt.dll
;extension=php_mhash.dll
;extension=php_mime_magic.dll
;extension=php_ming.dll
;extension=php_mssql.dll
;extension=php_mysql.dll
extension=php_mysql.dll
extension=php_mysqli.dll
;extension=php_oci8.dll
;extension=php_openssl.dll
;extension=php_oracle.dll
;extension=php_pdf.dll
;extension=php_pgsq1.dll
;extension=php_sfmop.dll
;extension=php_snmp.dll
;extension=php_sockets.dll
;extension=php_sybase_ct.dll
;extension=php_tidy.dll
;extension=php_xmlrpc.dll
;extension=php_xsl.dll
;extension=php_zip.dll
extension=php_pdo.dll
extension=php_pdo_sqlite.dll
;extension=php_pdo_firebird.dll
;extension=php_pdo_mssql.dll
;extension=php_pdo_mysql.dll
;extension=php_pdo_oci.dll
;extension=php_pdo_oci8.dll
;extension=php_pdo_odbc.dll
;extension=php_pdo_pgsq1.dll
```

These two extensions will not be commented out. At loadtime, these extensions will now be included in the PHP environment, provided that the file php.ini is set..



http://localhost:8081/info.php

File Edit View Favorites Tools Help

Google G Go Bookmarks

A Simple PHP Document

PHP should be configured for MySQL. You can verify that the php.ini file was properly read and the MySQL extensions are loaded by running the info.php script and looking for these entries.

mysql

MySQL Support	enabled
Active Persistent Links	0
Active Links	0
Client API version	5.0.51a

Directive	Local Value	Master Value
mysql.allow_persistent	On	On
mysql.connect_timeout	60	60
mysql.default_host	no value	no value
mysql.default_password	no value	no value
mysql.default_port	no value	no value
mysql.default_socket	no value	no value
mysql.default_user	no value	no value
mysql.max_links	Unlimited	Unlimited
mysql.max_persistent	Unlimited	Unlimited
mysql.trace_mode	Off	Off

mysqli

Mysqli Support	enabled
Client API library version	5.0.51a



PHP and Database Connectivity (cont.)

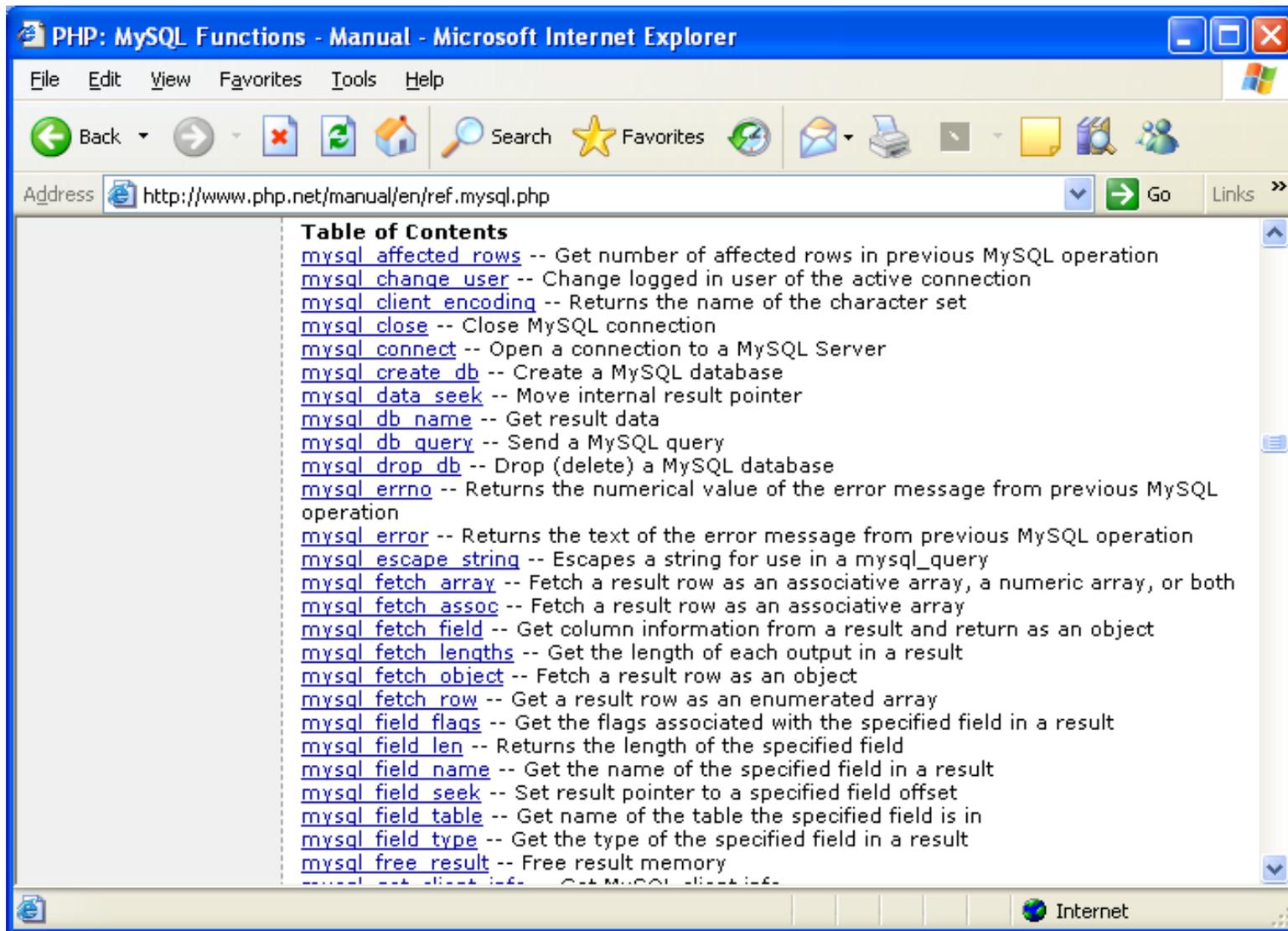
- PHP contains a fairly extensive set of commands that can be used to access and manipulate MySQL databases.
- A very brief listing of some of these commands appears on the next page.
- For a complete listing see:

<http://us2.php.net/manual/en/print/ref.mysql.php>.

<http://us2.php.net/manual/en/print/ref.mysql.php>.



Portion of `mysql.dll` Extension



PHP: MySQL Functions - Manual - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Recycle Bin Mail Print Folder Favorites People

Address <http://www.php.net/manual/en/ref.mysql.php> Go Links

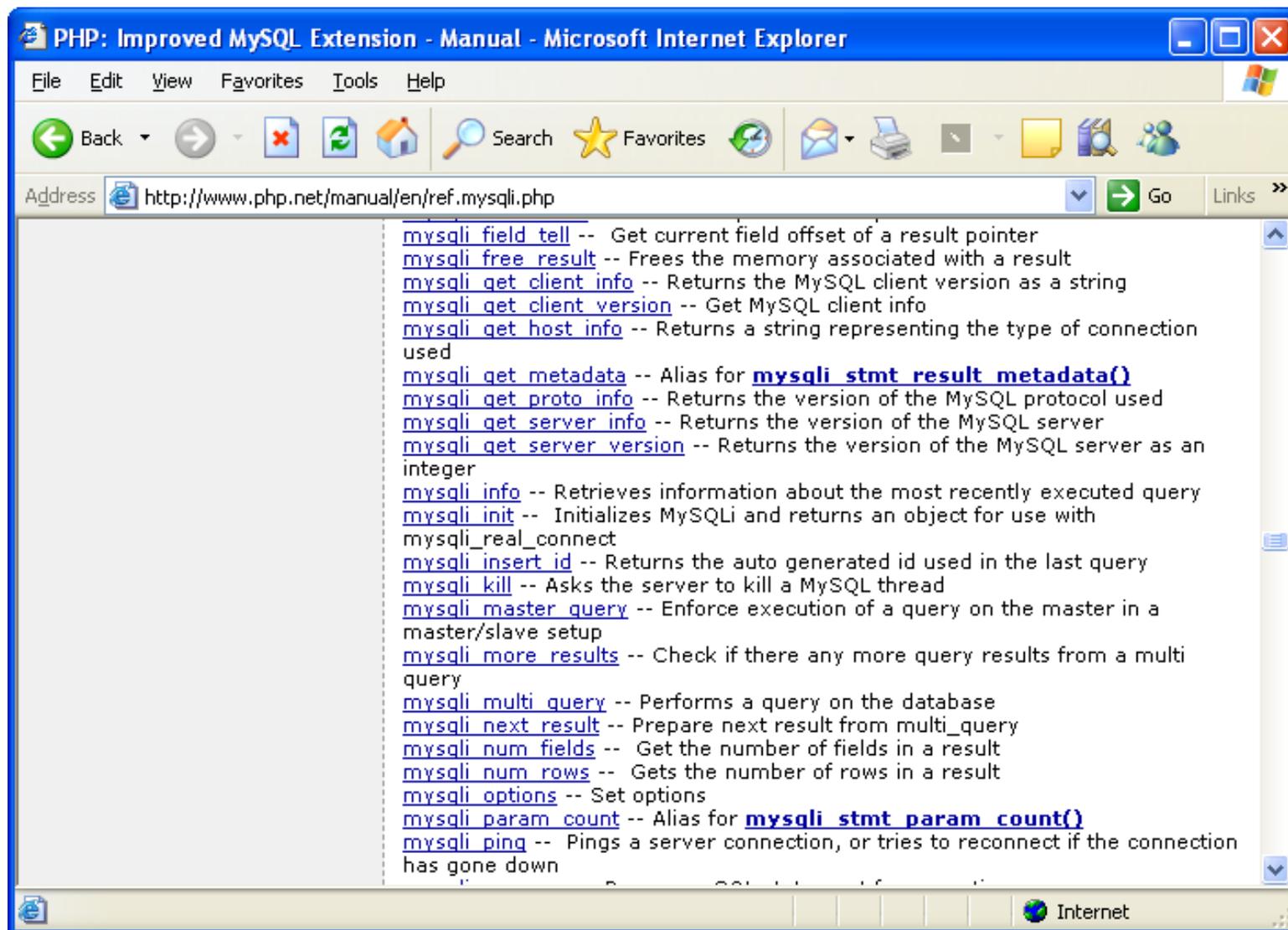
Table of Contents

- [mysql_affected_rows](#) -- Get number of affected rows in previous MySQL operation
- [mysql_change_user](#) -- Change logged in user of the active connection
- [mysql_client_encoding](#) -- Returns the name of the character set
- [mysql_close](#) -- Close MySQL connection
- [mysql_connect](#) -- Open a connection to a MySQL Server
- [mysql_create_db](#) -- Create a MySQL database
- [mysql_data_seek](#) -- Move internal result pointer
- [mysql_db_name](#) -- Get result data
- [mysql_db_query](#) -- Send a MySQL query
- [mysql_drop_db](#) -- Drop (delete) a MySQL database
- [mysql_errno](#) -- Returns the numerical value of the error message from previous MySQL operation
- [mysql_error](#) -- Returns the text of the error message from previous MySQL operation
- [mysql_escape_string](#) -- Escapes a string for use in a mysql_query
- [mysql_fetch_array](#) -- Fetch a result row as an associative array, a numeric array, or both
- [mysql_fetch_assoc](#) -- Fetch a result row as an associative array
- [mysql_fetch_field](#) -- Get column information from a result and return as an object
- [mysql_fetch_lengths](#) -- Get the length of each output in a result
- [mysql_fetch_object](#) -- Fetch a result row as an object
- [mysql_fetch_row](#) -- Get a result row as an enumerated array
- [mysql_field_flags](#) -- Get the flags associated with the specified field in a result
- [mysql_field_len](#) -- Returns the length of the specified field
- [mysql_field_name](#) -- Get the name of the specified field in a result
- [mysql_field_seek](#) -- Set result pointer to a specified field offset
- [mysql_field_table](#) -- Get name of the table the specified field is in
- [mysql_field_type](#) -- Get the type of the specified field in a result
- [mysql_free_result](#) -- Free result memory
- [mysql_get_client_info](#) -- Get MySQL client info

Internet



Portion of `mysqli.dll` Extension



The screenshot shows a Microsoft Internet Explorer browser window with the title "PHP: Improved MySQL Extension - Manual - Microsoft Internet Explorer". The address bar displays "http://www.php.net/manual/en/ref.mysqli.php". The main content area lists various `mysqli` functions and their descriptions:

- [mysqli_field_tell](#) -- Get current field offset of a result pointer
- [mysqli_free_result](#) -- Frees the memory associated with a result
- [mysqli_get_client_info](#) -- Returns the MySQL client version as a string
- [mysqli_get_client_version](#) -- Get MySQL client info
- [mysqli_get_host_info](#) -- Returns a string representing the type of connection used
- [mysqli_get_metadata](#) -- Alias for [mysqli_stmt_result_metadata\(\)](#)
- [mysqli_get_proto_info](#) -- Returns the version of the MySQL protocol used
- [mysqli_get_server_info](#) -- Returns the version of the MySQL server
- [mysqli_get_server_version](#) -- Returns the version of the MySQL server as an integer
- [mysqli_info](#) -- Retrieves information about the most recently executed query
- [mysqli_init](#) -- Initializes MySQLi and returns an object for use with `mysqli_real_connect`
- [mysqli_insert_id](#) -- Returns the auto generated id used in the last query
- [mysqli_kill](#) -- Asks the server to kill a MySQL thread
- [mysqli_master_query](#) -- Enforce execution of a query on the master in a master/slave setup
- [mysqli_more_results](#) -- Check if there any more query results from a multi query
- [mysqli_multi_query](#) -- Performs a query on the database
- [mysqli_next_result](#) -- Prepare next result from `multi_query`
- [mysqli_num_fields](#) -- Get the number of fields in a result
- [mysqli_num_rows](#) -- Gets the number of rows in a result
- [mysqli_options](#) -- Set options
- [mysqli_param_count](#) -- Alias for [mysqli_stmt_param_count\(\)](#)
- [mysqli_ping](#) -- Pings a server connection, or tries to reconnect if the connection has gone down



PHP and Database Connectivity (cont.)

- Now that you have PHP set to accept MySQL extensions, let's connect to the bike database that we used for examples with Java servlets and JSPs.
- The following example is a simple database connection process in PHP where the client interacts with the database from an XHTML form that simply asks them to select which attributes from the bikes table that they would like to display. This is done through the `data.html` file.
- When the client clicks the submit query button, the `database.php` script executes by connecting to the database, posting the query, retrieving the results, and displaying them to the client.



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<!-- data.html -->
<!-- Querying a MySQL Database From a PHP Script -->

<html xmlns = "http://www.w3.org/1999/xhtml">
  <head>    <title>Sample Database Query From PHP</title>  </head>
  <body style = "background-color: #545454" background=image1.jpg >
    <h2 style = "font-family: arial color: blue"> Querying a MySQL database from a PHP Script. </h2>
    <form method = "post" action = "database.php">
      <p>Select a field to display:
        <!-- add a select box containing options for SELECT query -->
        <select name = "select">
          <option selected = "selected">*</option>
          <option>bikename</option>
          <option>size</option>
          <option>color</option>
          <option>cost</option>
          <option>purchased</option>
          <option>mileage</option>
        </select>
      </p>
      <input type = "submit" value = "Send Query" style = "background-color: blue;
        color: yellow; font-weight: bold" />
    </form>
  </body> </html>
```



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<!-- database.php -->
```

```
<!-- Program to query a database and send results to the client. -->
```

```
<html xmlns = "http://www.w3.org/1999/xhtml">
```

```
<head> <title>Database Search Results</title> </head>
```

```
<body style = "font-family: arial, sans-serif"
```

```
style = "background-color: #4A766E" background=image1.jpg link=blue vlink=blue>
```

```
<?php
```

```
extract( $_POST );
```

```
// build SELECT query
```

```
$query = "SELECT " . $select . " FROM bikes";
```

```
// Connect to MySQL
```

```
if ( !( $database = mysqli_connect( "localhost",
"root", "root", bikedb ) ) )
```

```
die( "Could not connect to database" );
```

Default query is to select the attributes chosen by the client for use in a SELECT query.

Connect to MySQL database. URL, username, password, and database all specified.



```
// query bikedb database
if ( !( $result = mysql_query( $database, $query ) ) ) {
    print( "Could not execute query! <br />" );
    die( mysql_error() );
}
?>
```

```
<h3 style = "color: blue">
Database Search Results</h3>
<table border = "1" cellpadding = "3" cellspacing = "3"
style = "background-color: #00FFFF"> <!-- ADD8E6 -->
```

```
<?php
```

```
    // fetch meta-data
    $metadata = mysqli_fetch_fields( $result);
    print("<tr>");
    for ($i=0; $i<count($metadata); $i++){
        print("<td>");
        printf("%s", $metadata[$i]->name);
        print("</td>");
    }
    print("</tr>");
```

Get metadata for
the query

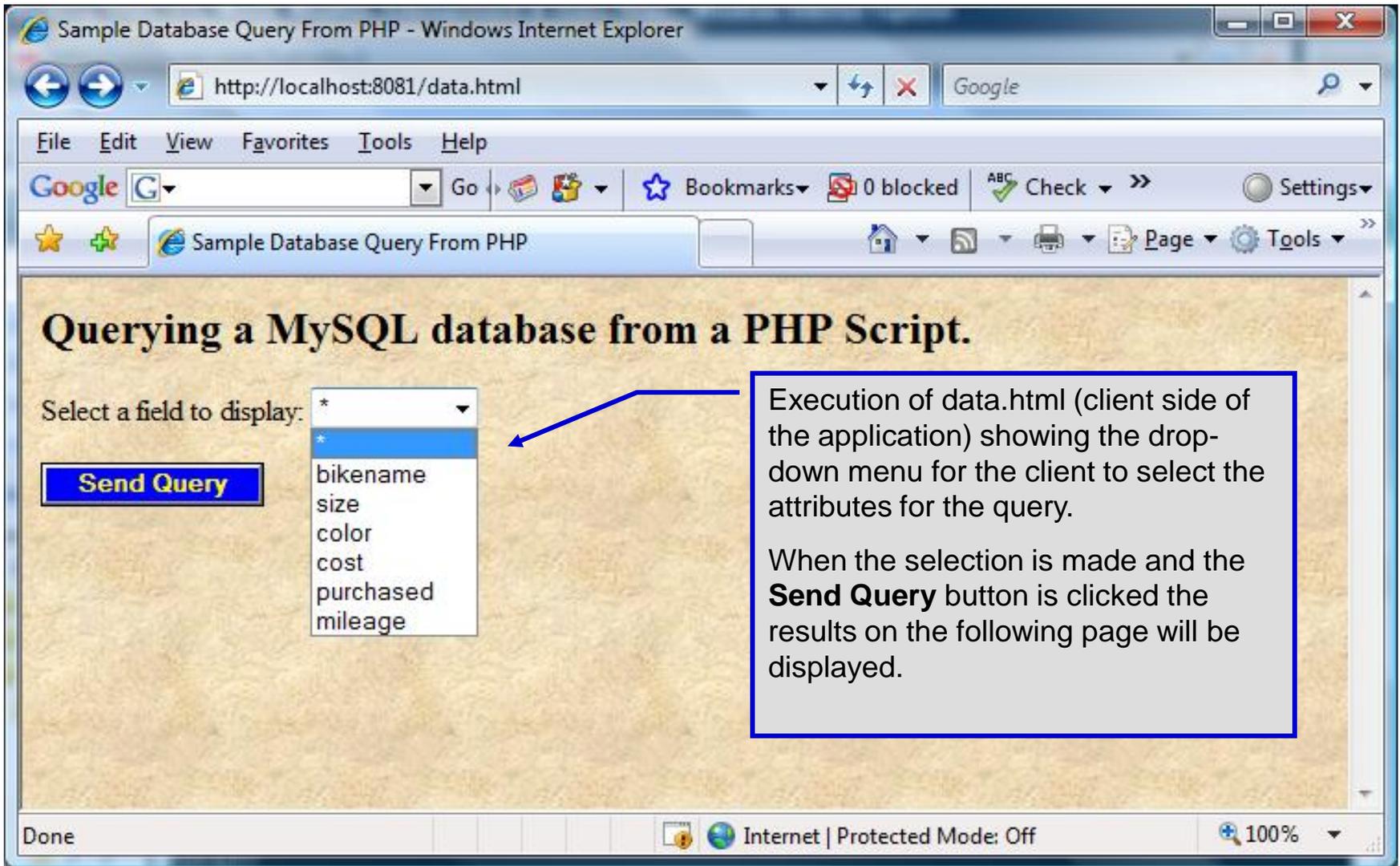
Display metadata in the
top row of the table



```
// fetch each record in result set
for ( $counter = 0;
    $row = mysql_fetch_row( $result );
    $counter++){
    // build table to display results
    print( "<tr>" );
    foreach ( $row as $key => $value )
        print( "<td>$value</td>" );
    print( "</tr>" );
}
mysql_close( $database );
?>
</table>
<br />Your search yielded <strong>
    <?php print( "$counter" ) ?> results.<br /><br /></strong>
<h5>Please email comments to
    <a href = "mailto:markl@cs.ucf.edu">
        markl@cs.ucf.edu
    </a>
</h5>
</body></html>
```



Execution of data.html – Client side



Sample Database Query From PHP - Windows Internet Explorer

http://localhost:8081/data.html

File Edit View Favorites Tools Help

Google G Go Bookmarks 0 blocked Check Settings

Sample Database Query From PHP

Querying a MySQL database from a PHP Script.

Select a field to display: *

Send Query

- *
- bikename
- size
- color
- cost
- purchased
- mileage

Execution of data.html (client side of the application) showing the drop-down menu for the client to select the attributes for the query.

When the selection is made and the **Send Query** button is clicked the results on the following page will be displayed.

Done Internet | Protected Mode: Off 100%



Database Search Results - Windows Internet Explorer

http://localhost:8081/database.php

File Edit View Favorites Tools Help

Google G Go Bookmarks 0 blocked Check Settings

Database Search Results

Database Search Results

bikename	size	color	cost	purchased	mileage
Battaglin Carrera	60	red/white	4000	2001-03-10	11200
Bianchi Corse Evo 4	58	celeste	5700	2004-12-02	300
Bianchi Evolution 3	58	celeste	4800	2003-11-12	2000
Colnago Dream Rabobank	60	blue/orange	5500	2002-07-07	4300
Colnago Superissimo	59	red	3800	1996-03-01	13000
Eddy Merckx Domo	58	blue/black	5300	2004-02-02	0
Eddy Merckx Molteni	58	orange	5100	2004-08-12	0
Gianni Motta Personal	59	red/green	4400	2000-05-01	8700
Gios Torino Super	60	blue	2000	1998-11-08	9000
Schwinn Paramount P14	60	blue	1800	1992-03-01	200

Your search yielded **10 results**.

Please email comments to markl@cs.ucf.edu

Done Internet | Protected Mode: Off 100%

Results of query **SELECT * FROM bikes**. Display indicates that 10 rows were included in the result.



Cookies

- A **cookie** is a text file that a Web site stores on a client's computer to maintain information about the client during and between browsing sessions.
- A Web site can store a cookie on a client's computer to record user preferences and other information that the Web site can retrieve during the client's subsequent visits. For example, many Web sites use cookies to store client's zipcodes. The Web site can retrieve the zipcode from the cookie and provide weather reports and news updates tailored to the user's region.
- Web sites also use cookies to track information about client activity. Analysis of information collected via cookies can reveal the popularity of Web sites or products.



Cookies (cont.)

- Marketers use cookies to determine the effectiveness of advertising campaigns.
- Web sites store cookies on users' hard drives, which raises issues regarding security and privacy. Web sites should not store critical information, such as credit-card numbers or passwords, in cookies, because cookies are just text files that anyone can read.
- Several cookie features address security and privacy concerns. A server can access only the cookies that it has placed on the client.
- A cookies has an expiration date, after which the Web browser deletes it.



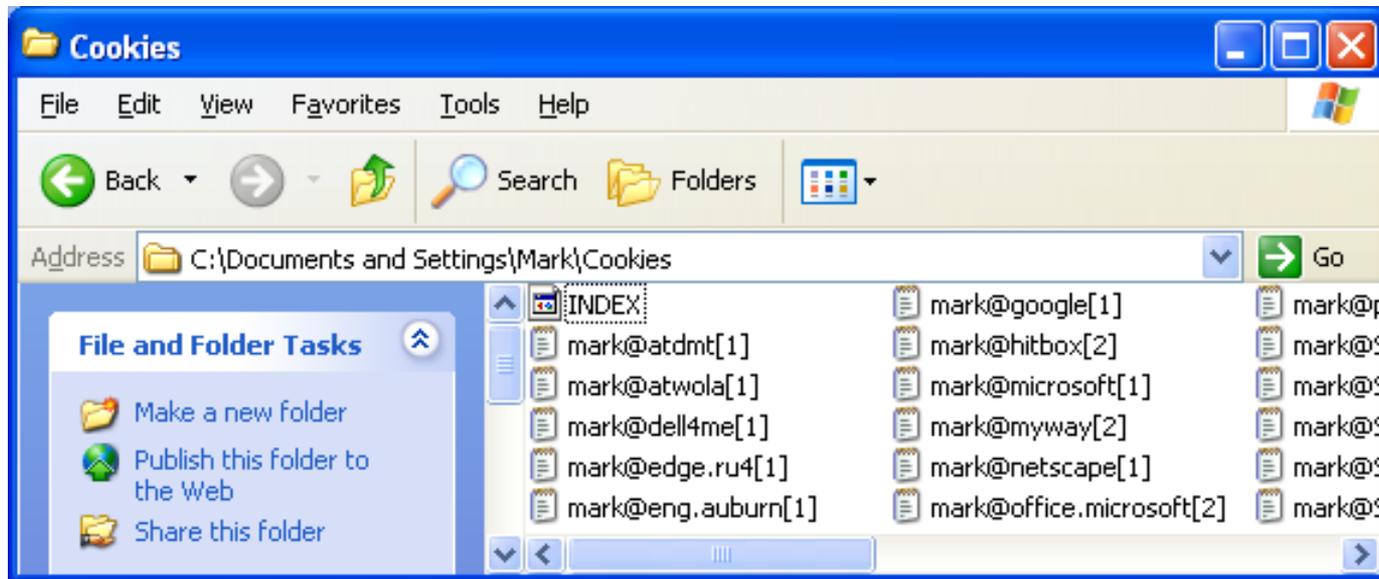
Cookies (cont.)

- Users who are concerned about the privacy and security implications of cookies can disable them in their Web browsers. However, the disabling of cookies can make it impossible for the user to interact with Web sites that rely on cookies to function properly.
- Information stored in the cookie is sent to the Web server from which it originated whenever the user requests a Web page from that particular server. The Web server can send the client XHTML output that reflects the preferences or information that is stored in the cookie.
- The location of the cookie file varies from browser to browser. Internet Explorer places cookies in the Cookies directory located at `C:\Documents and Settings\...\Cookies`



Cookies (cont.)

- After a cookie is created, a text file is added to this directory. While the name of the file will vary from user to user a typical example is shown below.



- The contents of a cookie are shown on page 74.



Cookies (cont.)

- Now let's create the code necessary to create our own cookie.
- In this example, a PHP script is invoked from a client-side HTML document. The HTML document creates a form for the user to enter the information that will be stored in the cookie. (Often the information that is stored in a cookie will be extracted from several different areas and may involved tracking the client's actions at the Web site.)
- Once the user has entered their information, when they click the Write Cookie button, the `cookies.php` script executes.
- The XHTML document and the PHP script are shown on the next pages. The XHTML document `cookies.html` is on page 36 and the PHP script `cookies.php` appears on page 37.



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<!-- cookies.html -->
```

```
<!-- Writing a Cookie -->
```

```
<html xmlns = "http://www.w3.org/1999/xhtml">
  <head> <title>Writing a cookie to the client computer</title> </head>
```

```
<body style = "font-family: arial, sans-serif;
background-color: #856363" background=image1.jpg>
  <h2>Click Write Cookie to save your cookie data.</h2>
```

```
<form method = "post" action = "cookies.php" style = "font-size: 10pt"
background-color: #856363">
```

```
<strong>Name:</strong><br />
```

```
<input type = "text" name = "NAME" /><br />
```

```
<strong>Height:</strong><br />
```

```
<input type = "text" name = "HEIGHT" /><br />
```

```
<strong>Favorite Color:</strong><br />
```

```
<input type = "text" name = "COLOR" /><br />
```

```
<p>
```

```
<input type = "submit" value = "Write Cookie" style = "background-color: #0000FF;
color: yellow; font-weight: bold" /></p>
```

```
</form>
```

```
</body> </html>
```



```

<?php
// cookies.php
// Program to write a cookie to a client's machine
extract( $_POST );
// write each form field's value to a cookie and set the
// cookie's expiration date
setcookie( "Name", $NAME, time() + 60 * 60 * 24 * 5 );
setcookie( "Height", $HEIGHT, time() + 60 * 60 * 24 * 5 );
setcookie( "Color", $COLOR, time() + 60 * 60 * 24 * 5 );
?>

```

Function setcookie sets the cookies to the values passed from the cookies.html form. Function setcookie prints XHTML header information and therefore it needs to be called before any other XHTML (including comments) is printed.

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

```

```

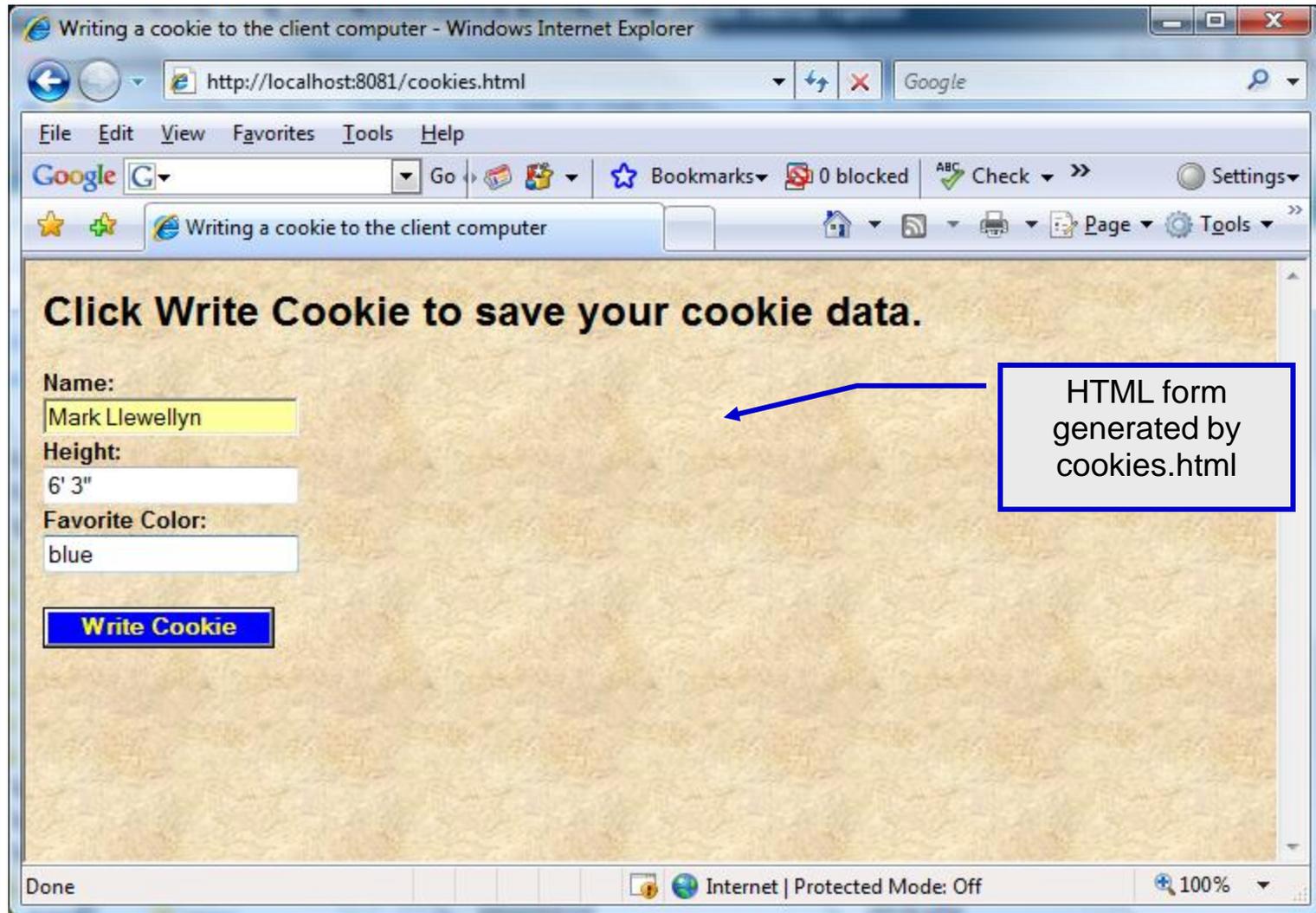
<html xmlns = "http://www.w3.org/1999/xhtml">
<head> <title>Cookie Saved</title> </head>
<body style = "font-family: arial, sans-serif", background=image1.jpg>
<p><b>The cookie has been set with the following data:</b></p>
<!-- print each form field's value -->
<br /><span style = "color: blue">Name:</span>
<?php print( $NAME ) ?><br />
<span style = "color: blue">Height:</span>
<?php print( $HEIGHT ) ?><br />
<span style = "color: blue">Favorite Color:</span>
<span style = "color: <?php print( "$COLOR\">$COLOR" ) ?>
</span><br />
<p>Click <a href = "readCookies.php">here</a> to read the saved cookie.</p>
</body> </html>

```

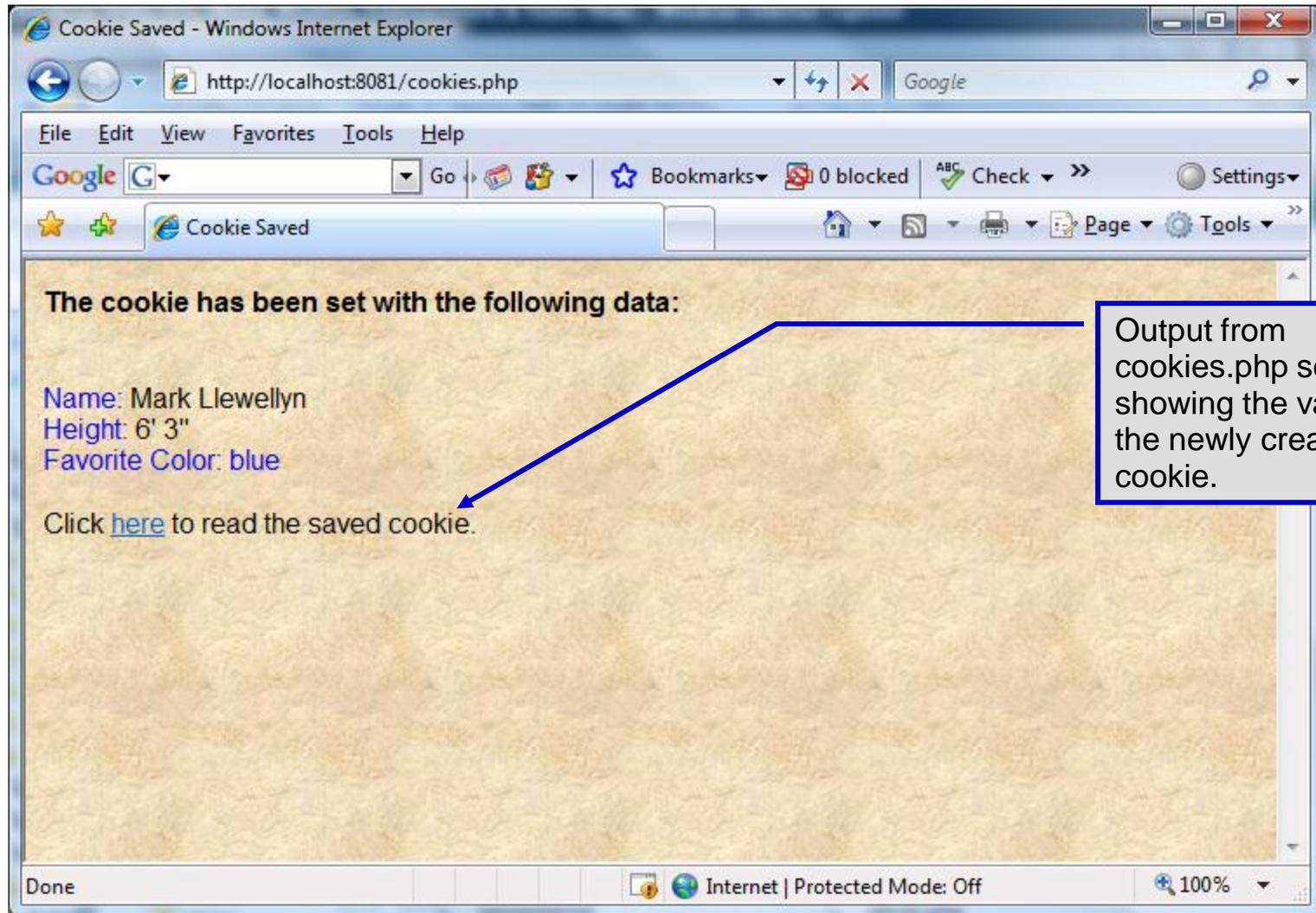
The third argument to setcookie is optional and indicates the expiration date of the cookie. In this case it is set to expire 5 days from the current time. Function time returns the current time and then we add to this the number of seconds after which the cookie is to expire.



Cookies (cont.)



Cookies (cont.)



Output from cookies.php script showing the values in the newly created cookie.



Cookies (cont.)

- Once the cookie has been created, the cookies.php script gives the user the chance to view the newly created cookie by invoking the readCookies.php script from within the cookies.php script by clicking on the link.
- The readCookies.php script code is illustrated on the next page followed by the output from the execution of this PHP script.



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<!-- readCookies.php -->
<!-- Program to read cookies from the client's computer -->
```

```
<html xmlns = "http://www.w3.org/1999/xhtml">
<head><title>Read Cookies</title></head>
```

```
<body style = "font-family: arial, sans-serif" background=image1.jpg>
<p>
<strong> The following data is saved in a cookie on your computer.
</strong>
</p>
<table border = "5" cellspacing = "0" cellpadding = "10">
```

```
<?php
// iterate through array $_COOKIE and print
// name and value of each cookie
foreach ( $_COOKIE as $key => $value )
    print( "<tr>
        <td bgcolor=\"#F0E68C\">$key</td>
        <td bgcolor=\"#FFA500\">$value</td>
        </tr>" );
?>
</table>
</body> </html>
```

← Superglobal array
holding cookie.



Cookies (cont.)

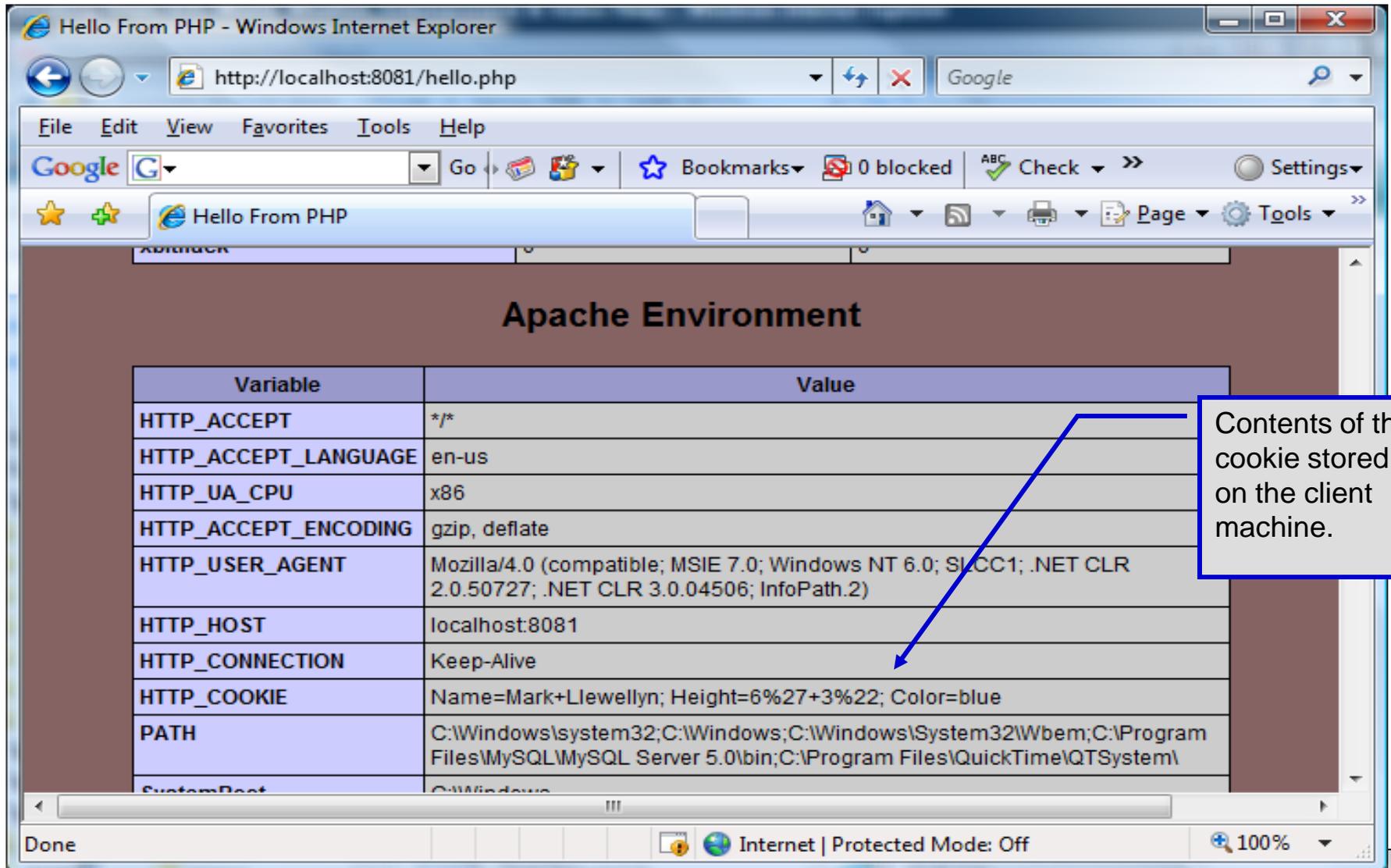
The following data is saved in a cookie on your computer.

Name	Mark Llewellyn
Height	6' 3"
Color	blue

Output from the readCookies.php script.



Cookies (cont.)

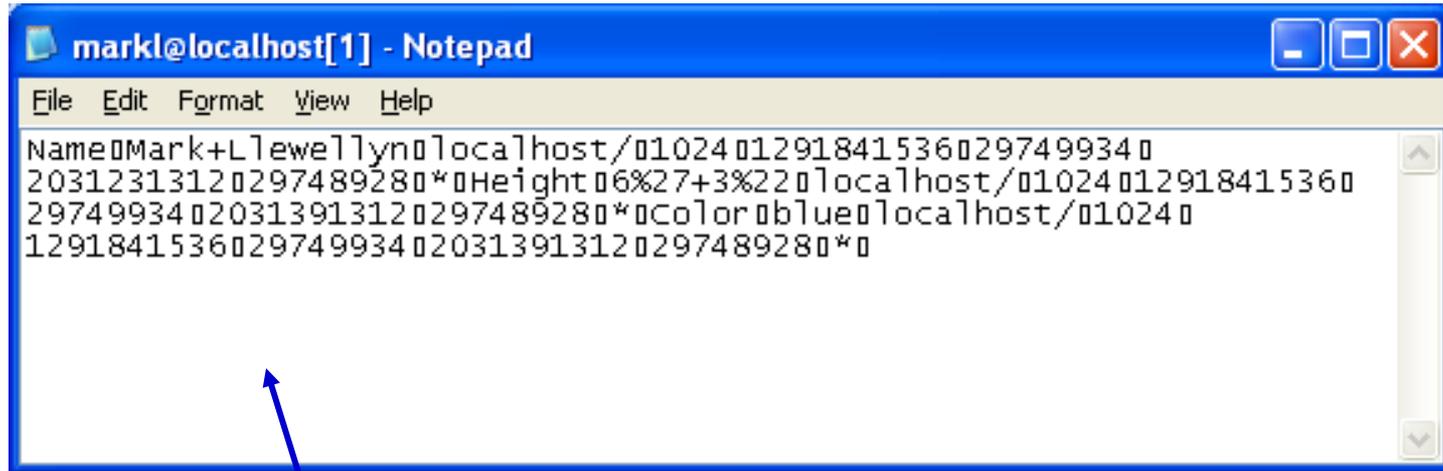


The screenshot shows a Windows Internet Explorer browser window displaying the 'Apache Environment' table. The table lists various HTTP headers and their values. A callout box with a blue arrow points to the 'HTTP_COOKIE' row, which contains the text 'Name=Mark+Llewellyn; Height=6%27+3%22; Color=blue'. The callout box contains the text: 'Contents of the cookie stored on the client machine.'

Variable	Value
HTTP_ACCEPT	*/*
HTTP_ACCEPT_LANGUAGE	en-us
HTTP_UA_CPU	x86
HTTP_ACCEPT_ENCODING	gzip, deflate
HTTP_USER_AGENT	Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 6.0; SLCC1; .NET CLR 2.0.50727; .NET CLR 3.0.04506; InfoPath.2)
HTTP_HOST	localhost:8081
HTTP_CONNECTION	Keep-Alive
HTTP_COOKIE	Name=Mark+Llewellyn; Height=6%27+3%22; Color=blue
PATH	C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Program Files\MySQL\MySQL Server 5.0\bin;C:\Program Files\QuickTime\QTSystem\
SystemRoot	C:\Windows



Cookies (cont.)

A screenshot of a Notepad window titled "markl@localhost[1] - Notepad". The window contains the following text:

```
Name=Mark+Llewellyn@localhost/01024012918415360297499340  
20312313120297489280*0Height=6%27+3%220localhost/01024012918415360  
29749934020313913120297489280*0Color=blue0localhost/010240  
1291841536029749934020313913120297489280*
```

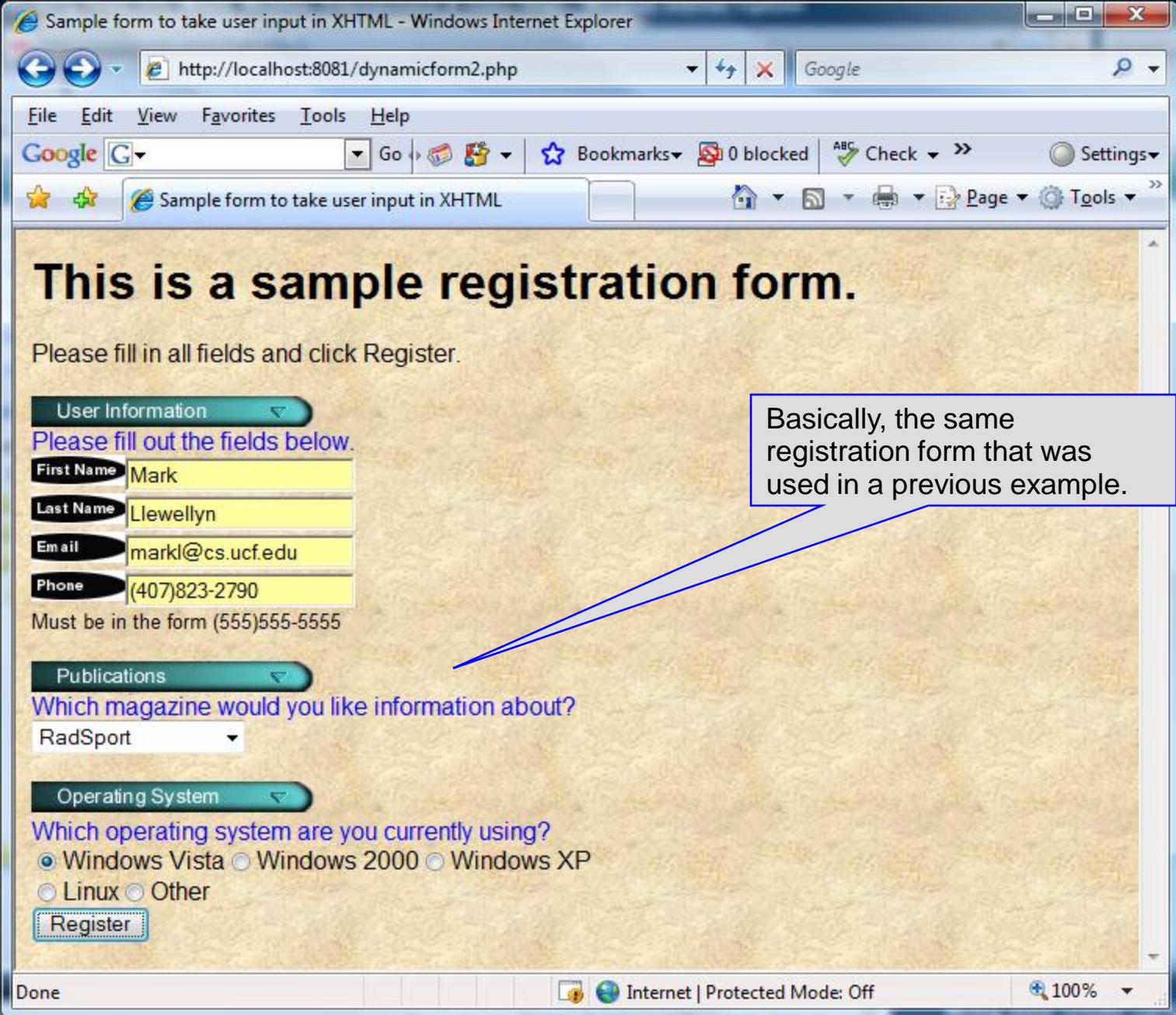
Actual text file holding cookie data for the cookie that was created in this example.



Dynamic Content in PHP

- Of all the strengths PHP exhibits as a server-side scripting language, perhaps its greatest strength lies in its ability to dynamically change XHTML output based on user input.
- In this final section of notes, we'll build on the examples we've constructed in the previous two sets of notes by combining `form.html` and `form.php` into one dynamic PHP document named `dynamicForm2.php`.
- We'll add error checking to the user input fields and inform the user of invalid entries on the form itself, rather than on an error page. If an error exists, the script maintains the previously submitted values in each form element.
- Finally, after the form has been successfully completed, we'll store the input from the user in a MySQL database.





Basically, the same registration form that was used in a previous example.



Sample form to take user input in XHTML - Windows Internet Explorer

http://localhost:8081/dynamicform2.php

File Edit View Favorites Tools Help

Google G Go Bookmarks 0 blocked Check Settings

Sample form to take user input in XHTML

This is a sample registration form.

Please fill in all fields and click Register.

User Information

Please fill out the fields below.

First Name

Last Name

Email

Phone

Must be in the form (555)555-5555

Publications

Which magazine would you like information about?

RadSport

Operating System

Which operating system are you currently using?

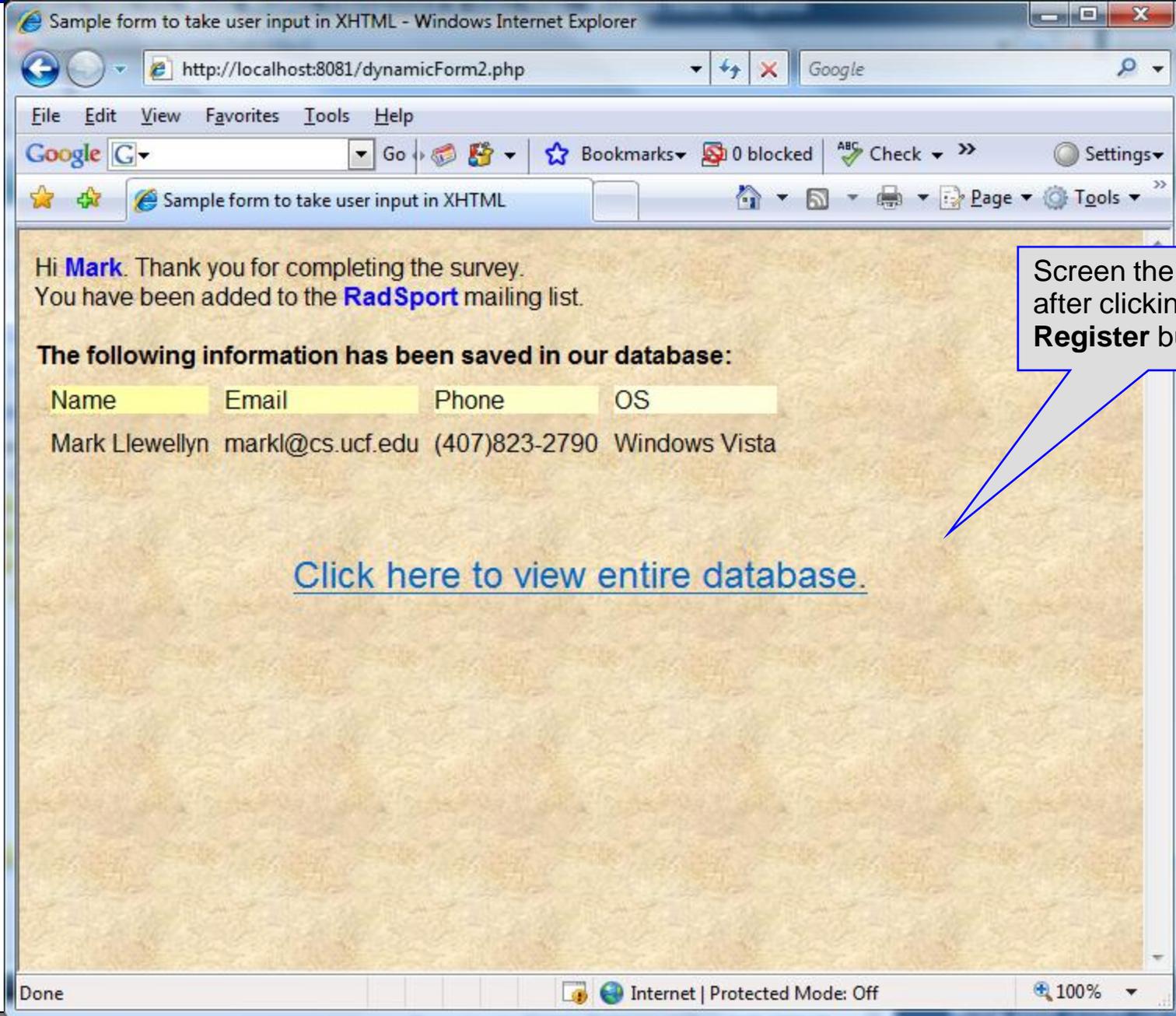
Windows Vista Windows 2000 Windows XP

Linux Other

Done Internet | Protected Mode: Off 100%

User fills in the form and clicks the Register button.





Database Search Results - Windows Internet Explorer

http://localhost:8081/formDatabase2.php

File Edit View Favorites Tools Help

Google G Go Bookmarks 0 blocked Check

Database Search Results

Mailing List Contacts

ID	Last Name	First Name	E-mail Address	Phone Number	Magazine	Operating System
0000000001	Llewellyn	Mark	markl@cs.ucf.edu	(407)823-2790	RadSport	Windows Vista
0000000003	Schumacher	Michael	michael@ferrari.it	(123)222-3333	Cycling Weekly	Windows 2000
0000000004	Panettiere	Hayden	savethe@cheeleader	(444)555-9999	Cycle Sport	Windows Vista
0000000005	Einstein	Albert	its_relative.com	(111)111-1111	Mirror du Cyclisme	Other
0000000006	Campbell	Kristi	im_not_sure	(333)321-9876	Pro Cycling	Linux

Done Internet | Protected Mode: Off 100%

Screen the user sees after clicking to see the entire database.



Sample form to take user input in XHTML - Windows Internet Explorer

http://localhost:8081/dynamicForm2.php

File Edit View Favorites Tools Help

Google G Go Bookmarks 0 blocked Check Settings

Sample form to take user input in XHTML

This is a sample registration form.

Please fill in all fields and click Register.
Fields with * need to be filled in properly.

User Information
Please fill out the fields below.

First Name *
Last Name
Email
Phone
Must be in the form (555)555-5555

Publications
Which magazine would you like information about?
Velo-News

Operating System
Which operating system are you currently using?
 Windows Vista Windows 2000 Windows XP
 Linux Other

Register

Done Internet | Protected Mode: Off 100%

Dynamic nature of the PHP form is illustrated when the user fails to enter proper information into the form. In this case, the user forgot to enter their first name. Error checking is in place on each user input location and the page is dynamically updated to reflect the error processing and correction capabilities. The database will not be updated until the user has correctly filled in all required fields.



MySQL Query Browser - Connection: root@localhost:3306 / mailinglist

File Edit View Query Script Tools Window MySQL Enterprise Help

Go back Next Refresh `SELECT * FROM contacts c;` Execute Stop

Resultset 1

ID	LastName	FirstName	Email	Phone	Magazine	OS
0000000001	Llewellyn	Mark	markl@cs.ucf.edu	(407)823-2790	RadSport	Windows Vista
0000000003	Schumacher	Michael	michael@ferrari.it	(123)222-3333	Cycling Weekly	Windows 2000
0000000004	Panettiere	Hayden	savethe@cheeleader	(444)555-9999	Cycle Sport	Windows Vista
0000000005	Einstein	Albert	its_relative.com	(111)111-1111	Mirror du Cyclisme	Other
0000000006	Campbell	Kristi	im_not_sure	(333)321-9876	Pro Cycling	Linux

5 rows fetched in 0.0046s (0.0004s)

1: 1

Screen shot from MySQL of the contacts relation after the inclusion of several users. Note that the values in the table are the same as those returned to the PHP document in the previous slide.



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<!-- dynamicForm2.php -->
```

```
<html xmlns = "http://www.w3.org/1999/xhtml">
  <head>
    <title>Sample form to take user input in XHTML</title>
  </head>
  <body style = "font-family: arial, sans-serif; background-color: #856363"
background=background.jpg>
    <?php
      extract ( $_POST );
      $iserror = false;
      // array of magazine titles
      $maglist = array( "Velo-News",
        "Cycling Weekly",
        "Pro Cycling",
        "Cycle Sport",
        "RadSport",
        "Mirror du Cyclisme" );
      // array of possible operating systems
      $systemlist = array( "Windows XP",
        "Windows 2000",
        "Windows 98",
        "Linux",
        "Other");
```



```
// array of name and alt values for the text input fields
$inputlist = array( "fname" => "First Name",
    "lname" => "Last Name",
    "email" => "Email",
    "phone" => "Phone" );
if ( isset ( $submit ) ) {
    if ( $fname == "" ) {
        $formerrors[ "fnameerror" ] = true;
        $iserror = true;
    }
    if ( $lname == "" ) {
        $formerrors[ "lnameerror" ] = true;
        $iserror = true;
    }
    if ( $email == "" ) {
        $formerrors[ "emailerror" ] = true;
        $iserror = true;
    }
    if ( !ereg( "^\([0-9]{3}\)[0-9]{3}-[0-9]{4}$", $phone ) ) {
        $formerrors[ "phoneerror" ] = true;
        $iserror = true;
    }
    if ( !$iserror ) {
        // build INSERT query
        $query = "INSERT INTO contacts " .
            "(ID, LastName, FirstName, Email, Phone, Magazine, OS ) " .
            "VALUES (null, '$lname', '$fname', '$email', " . "" . quotemeta( $phone ) . ", '$mag', '$os' )";
    }
}
```



```

// Connect to MySQL
if ( !( $database = mysql_connect( "localhost",
    "root", "root" ) ) )
    die( "Could not connect to database" );

// open MailingList database
if ( !mysql_select_db( "MailingList", $database ) )
    die( "Could not open MailingList database" );

// execute query in MailingList database
if ( !( $result = mysql_query( $query, $database ) ) ) {
    print( "Could not execute query! <br />" );
    die( mysql_error() );
}
print( "<p>Hi
    <span style = 'color: blue'> <strong>$fname</strong></span>.
    Thank you for completing the survey.<br />
    You have been added to the <span style = 'color: blue'>
    <strong>$mag</strong></span> mailing list.          </p>
    <strong>The following information has been saved in our database:</strong><br />

    <table border = '0' cellpadding = '0' cellspacing = '10'>
    <tr>
    <td bgcolor = '#ffffaa'>Name </td>
    <td bgcolor = '#ffffbb'>Email</td>
    <td bgcolor = '#ffffcc'>Phone</td>
    <td bgcolor = '#ffffdd'>OS</td>
    </tr>
    <tr>

```



```

<!-- print each form field's value -->
<td>$fname $lname</td>
<td>$email</td>
<td>$phone</td>
<td>$os</td>
</tr></table>
<br /><br /><br />
<div style = 'font-size : 10pt; text-align: center'>
    <div style = 'font-size : 18pt'>
        <a href = 'formDatabase2.php'>
            Click here to view entire database.</a>
        </div>
    </div></body></html>" );
die();
}
}
print( "<h1>This is a sample registration form.</h1>
Please fill in all fields and click Register." );
if ( $iserror ) {
    print( "<br /><span style = 'color : red'>
        Fields with * need to be filled in properly.</span>" );
}
print( "<!-- post form data to dynamicForm2.php -->
<form method = 'post' action = 'dynamicForm2.php'>
<img src = 'images/user.gif' alt = 'User' /><br />
<span style = 'color: blue'>
Please fill out the fields below.<br />
</span>

```

Invoke PHP script to see contents of entire database if user clicks this link. Code begins on page 14.

The form created is self-submitting (i.e., it posts to itself). This is done by setting the action to dynamicForm2.php



```

<!-- create four text boxes for user input -->" );
foreach ( $inputlist as $inputname => $inputalt ) {
    $inputtext = $inputvalues[ $inputname ];

    print( "<img src = 'images/$inputname.gif'
        alt = '$inputalt' /><input type = 'text' name = '$inputname' value = '' . $$inputname . '' />" );
    if ( $formerrors[ ( $inputname )."error" ] == true )
        print( "<span style = 'color : red'>*</span>" );
    print( "<br />" );
}
print( "<span style = 'font-size : 10pt" );
if ( $formerrors[ "phoneerror" ] ) print( "; color : red" );
print( "">Must be in the form (555)555-5555
    </span><br /><br />
    <img src = 'images/downloads.gif'
    alt = 'Publications' /><br />
    <span style = 'color: blue'>
    Which magazine would you like information about?
    </span><br />
    <!-- create drop-down list containing magazine names -->
    <select name = 'mag'>" );
foreach ( $maglist as $currmag ) {
    print( "<option" );
    if ( ( $currmag == $mag ) )
        print( " selected = 'true'" );
    print( ">$currmag</option>" );
}

```

The \$\$variable notation specifies variable variables. PHP permits the use of variable variables to allow developers to reference variables dynamically. The expression \$\$variable could also be written as \${\$variable} for added clarity.



```
print( "</select><br /><br />
<img src = 'images/os.gif' alt = 'Operating System' />
<br /><span style = 'color: blue'>
Which operating system are you currently using?
<br /></span>

<!-- create five radio buttons -->" );

$counter = 0;

foreach ( $systemlist as $currssystem ) {
    print( "<input type = 'radio' name = 'os'
        value = '$currssystem'" );

    if ( $currssystem == $os ) print( "checked = 'checked'" );
    if ( iserror && $counter == 0 ) print( "checked = 'checked'" );

    print( " />$currssystem" );

    if ( $counter == 2 ) print( "<br />" );
    $counter++;
}

print( "<!-- create a submit button -->
<br />
<input type = 'submit' name = 'submit' value = 'Register' />
</form></body></html>" );
?>
```



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<!-- formDatabase2.php -->
```

```
<!-- Program to query a database and send results to the client. -->
```

```
<html xmlns = "http://www.w3.org/1999/xhtml">
  <head>   <title>Database Search Results</title>  </head>
  <body style = "font-family: arial, sans-serif"
    style = "background-color: #F0E68C" background=image1.jpg>
    <?php
      extract( $_POST );
      // build SELECT query
      $query = "SELECT * FROM contacts";
      // Connect to MySQL
      if ( !( $database = mysqli_connect( "localhost", "root", "root", MailingList ) ) )
        die( "Could not connect to database" );
      // query MailingList database
      if ( !( $result = mysqli_query( $database, $query ) ) ) {
        print( "Could not execute query! <br />" );
        die( mysqli_error() );
      }
    ?>
    <h3 style = "color: blue">
    Mailing List Contacts</h3>
```



```
<table border = "1" cellpadding = "3" cellspacing = "2"
style = "background-color: #ADD8E6">
<tr>
  <td>ID</td>
  <td>Last Name</td>
  <td>First Name</td>
  <td>E-mail Address</td>
  <td>Phone Number</td>
  <td>Magazine</td>
  <td>Operating System</td>
</tr>
<?php
// fetch each record in result set
for ( $counter = 0;
  $row = mysqli_fetch_row( $result );
  $counter++ ){
  // build table to display results
  print( "<tr>" );
  foreach ( $row as $key => $value )
    print( "<td>$value</td>" );
  print( "</tr>" );
}
mysqli_close( $database );
?>

</table>
</body>
</html>
```



MySQL Table Editor

Table Name: Database: Comment:

Columns and Indices | Table Options | Advanced Options

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
ID	INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> UNSIGNED <input checked="" type="checkbox"/> ZEROFILL	<input type="text" value="NULL"/>	
LastName	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	<input type="text" value="NULL"/>	
FirstName	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	<input type="text" value="NULL"/>	
Email	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	<input type="text" value="NULL"/>	
Phone	VARCHAR(14)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	<input type="text" value="NULL"/>	
Magazine	VARCHAR(60)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	<input type="text" value="NULL"/>	
OS	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	<input type="text" value="NULL"/>	

Indices | Foreign Keys | Column Details

PRIMARY

Index Settings

Index Name:

Index Kind:

Index Type:

Index Columns (Use Dr)

ID

Close

Schema of the MailingList database table contacts required for the PHP database example to work. Script is available on the code page and shown on the next page.



```
File Edit Search View Format Language Settings Macro Run TextFX Plugins Window ?
MySQLServlet.java SQLFormatter.java mailing list script.sql
1 # SQL commands to create and populate the MySQL database for
2 # CNT 4714 - Fall 2009
3 #
4 # delete the database if it already exists
5 drop database if exists mailinglist;
6
7 #create a new database named mailinglist
8 create database mailinglist;
9
10 #switch to the new database
11 use mailinglist;
12
13 #create the schemas for the four relations in this database
14 create table contacts (
15     ID integer unsigned zerofill auto_increment not null,
16     LastName varchar(30),
17     FirstName varchar(30),
18     Email varchar(30),
19     Phone varchar(14),
20     Magazine varchar(60),
21     OS varchar(30),
22     primary key (ID)
23 );
Structured Query Language nb char : 622 nb line : 26 Ln : 2 Col : 23 Sel : 0 Dos\Windows ANSI INS
```

