**blackCSIS210 - Data Structures**

Web App. Dev.

### Laboratory 7

**Lab 1**

# Names \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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# General Lab Procedures

* You should create a directory (folder) in your home account called csis390. At the beginning of each lab, create a new sub-directory called labX, where X is the lab number.
* Files used in the lab can be found on the course canvas webpages.
* Turn in this lab sheet stapled to print outs of the code you produce as needed in each assigned section from the laboratory manual. These sheets should be in order. One lab submission is sufficient for each group.
* You can find documentation for the HTML 5 specification, the CSS, the Javascript, and php references respectively at

<https://html.spec.whatwg.org/>

<https://developer.mozilla.org/en-US/docs/Web/CSS/Reference>

<https://developer.mozilla.org/en-US/docs/Web/JavaScript>

<https://www.php.net/manual/en/langref.php>

**Lab Objectives**

* Practice using php
* Create and manage a table using SQL and MySQL

## Lab 7

#### Part 1 – Create Tables

In this part of the lab, you will create a table using MySQL and php.

* Open Notepad++ and create a new file called create\_table.php and be sure it is saved in your lab7 folder.
	+ Please do not use uppercase letters or spaces in **filenames** for this lab.
* **IMPORTANT: All code is based upon a database set up on sienaselbacks.com. If you are assigned to breimer.net, use breimern\_sbxusr instead of sienasel\_sbxusr and breimern\_sandbox instead of sienasel\_sandbox in the code examples in this lab. The password can stay the same.**
* Add the following code to the file:

<?php

if($\_GET['key']!="XXX") {

 die("Access denied");

}

$mysqli = new mysqli("localhost", "sienasel\_sbxusr", "Sandbox@)!&", "sienasel\_sandbox");

$sql = "CREATE TABLE ????? (

 username VARCHAR(64) NOT NULL,

 password VARCHAR(64) NULL,

 usertype VARCHAR(64) NOT NULL DEFAULT 'normal',

 games INT NOT NULL DEFAULT '0',

 points FLOAT NOT NULL DEFAULT '0.0',

 PRIMARY KEY (username)

 )";

$mysqli->query($sql);

$mysqli->close();

?>

* Replace XXX with a secret code, i.e., some sequence of letters or numbers that you will remember. Do not use spaces in your secret code.
* Replace ????? with a unique table name, e.g., "BreimersUsers" or "MyAwesomeTable"
* Do not use spaces in your table name. You can use uppercase letters.
* Save your file.
* Use WinSCP to connect to the server and upload your lab folder to the server.
* Connect to the uploaded php script, where yourlocation is the name of your assigned server ([www.sienasellbacks.com](http://www.sienasellbacks.com) or www.breimer.net)

<http://yourlocation/lab7/create_table.php?key=XXX>

where XXX is the secret code that you used.

* This will create the table on the server. We will verify that it worked in the next step.
* Notice how we use the URL parameters and the $\_GET variable to prevent others from running this code. You must know the key for the script to run.

#### Part 2 – Show Columns

In this part of the lab, you will verify that the table from part 1 was created on the server.

* In Notepad++, create a new file called show\_columns.php and be sure it is saved in your lab7 folder.
* Add the following code to the file:

<?php

$sql = "SHOW COLUMNS FROM ?????";

$mysqli = new mysqli("localhost", "sienasel\_sbxusr", "Sandbox@)!&", "sienasel\_sandbox");

$result = $mysqli->query($sql);

$mysqli->close();

echo '<table>';

echo '<tr><th>field name</th><th>data type</th><th>null?</th><th>index</th><th>default value</th></tr>';

while ($row = $result->fetch\_row()) {

 echo '<tr>';

 foreach ($row as $value) {

 echo '<td>'.$value.'</td>';

 }

 echo '</tr>';

}

echo '</table>';

?>

* Replace ????? with your unique table name.
* Save your file.
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/show\_columns.php

* Verify that the column names and field information for the table you created is properly displayed.
* Once completed, demonstrate your webpage for your instructor and have him initial here. If you do not finish during the lab period, then demonstrate your webpage at the beginning of the next lab period.

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#### Part 3 – Adding Data

In this part of the lab, you will populate your table with users.

* In Notepad++, create a new file called add\_users.php and be sure it is saved in your lab7 folder.
* Add the following code to the file:

<?php

if($\_GET['key']!="3587") {

 die("Access denied");

}

$sql = "INSERT INTO ????? VALUES

('alice', '".'$2y$10$rGSvwmvurEuoNgei6WSCCOs9A/WvXx0mwGGYrXIEJV4zlQo8vmGTq'."', 'admin', '20', '1257'),

('bob', '".'$2y$10$HCd2fhlZ2me.2ODcDYRyAui3kkxol1bSGI/WLRJd6WrAn8RDZwbSO'."', 'normal', '15', '2165')";

$mysqli = new mysqli("localhost", "sienasel\_sbxusr", "Sandbox@)!&", "sienasel\_sandbox");

$mysqli->query($sql);

$mysqli->close();

?>

* Important: $2y$10$rGSvwmvurEuoNgei6WSCCOs9A/WvXx0mwGGYrXIEJV4zlQo8vmGTq and

$2y$10$HCd2fhlZ2me.2ODcDYRyAui3kkxol1bSGI/WLRJd6WrAn8RDZwbSO are encrypted passwords for alice and bob, respectively. To make sure they work, you may replace them with passwords optained from the testhash.php code on canvas.

* Replace ????? with your unique table name. Replace “3587” with your secret key.
* Save your file.
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/add\_users.php?key=XXX

where XXX is the secret code you used.

* This manually inserts the users alice and bob into your table. We will verify that it worked in the next step.

#### Part 4 – Show Data

#### In this part of the lab, you will show the contents of the newly populated table using an SQL query.

* In Notepad++, create a new file called show\_data.php and be sure it is saved in your lab7 folder.
* Add the following code to the file:

<?php

$mysqli = new mysqli("localhost", "sienasel\_sbxusr", "Sandbox@)!&", "sienasel\_sandbox");

$result = $mysqli->query("SHOW COLUMNS FROM ?????");

echo '<table>';

echo '<tr>';

while ($row = $result->fetch\_row()) {

 echo '<th>'.$row[0]."</th>";

}

echo '</tr>';

$result->close();

$result = $mysqli->query("SELECT \* FROM ?????");

while ($row = $result->fetch\_row()) {

 echo '<tr>';

 foreach ($row as $value) {

 echo '<td>'.$value.'</td>';

 }

 echo '</tr>';

}

echo '</table>';

$result->close();

$mysqli->close();

?>

* Replace ????? with your unique table name
* Save your file
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/show\_data.php

* Verify that the two users are now in the table.
* Once completed, demonstrate your webpage for your instructor and have him initial here. If you do not finish during the lab period, then demonstrate your webpage at the beginning of the next lab period.

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#### Part 5 – Login

In this part of the lab, you will attempt to login into a system.

* Download **login.txt** from Canvas and save it as **login.php**.
* Replace ????? with your unique table name
* Save your file.
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/login.php

* Try to login. Ask you instructor for the passwords for alice and bob. Note that they are stored in the database using an encryption hash and the password\_verify function hashes the submitted password before doing the comparison.
	+ Your instructor can explain how password encryption works.
	+ Be sure to ask your instructor to explain why it is so important to check if submitted passwords are null.

#### Part 6 – Login

In this part of the lab, you will verify a login was successful using session variables.

* Download **verify\_login.txt** from Canvas and save it as **verify\_login.php**.
* Save your file.
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/verify\_login.php

* Verify that this page is only displayed if you properly logged in using the login script, otherwise you will get an access denied message.

#### Part 7 – Logout

In this part of the lab, you will write php code that will unset a session variable, thereby logging someone out.

* In Notepad++, create a new file called logout.php and be sure it is saved in your lab7 folder.
* Add the following code to the file:

<?php

session\_start();

session\_destroy();

unset($\_SESSION);

die("Session Destroyed");

?>

* Save your file.
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/logout.php

* Note that an application just needs to hyperlink to this script to logout. And, typically, a logout script will then redirect the user to the login page.
* Add the code above and test your login, logout and verify scripts to be sure your login is working.
	+ Here is the PHP function to redirect to your login page:

header("Location: http://yourlocation/lab7/login.php");

* + Redirects, i.e., the PHP header function should always be the 2nd to last line of code. The last line should be the die function.

#### Part 8 – Insert Users

In this part of the lab, you will be writing code that inserts a user into the table.

* Download the file insert\_user.txt from Canvas and save it as insert\_user.php. Save your file.
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/insert\_user.php

* This page should only be displayed if you properly logged in using the login script, otherwise you will get an access denied message.
* Use the insert user script and the show data script to verify that you are actually inserting users to your table.
* Notice that this script only adds the username and password.
* Notice that the password is encrypted using a hash function and the PASSWORD\_BCRYPT function.
* Modify this script so that it also adds the usertype, games and points.
	+ Add three new input type="text" tags to the form.
	+ Add PHP code retrieve the values for the usertype, games and points using the $\_POST variable.
	+ Modify the query to also insert usertype, games and points.

#### Part 9 – Delete User

In this part of the lab, you will create code that will remove a user from the table.

* Download the file delete\_user.txt from Canvas and save it as delete\_user.php. Save your file.
* Use WinSCP to connect to the server and upload the file you created to your lab7 folder on the server.
* Type the following URL into your browser:

http://yourlocation/lab7/delete\_user.php

* This page should only be displayed if you properly logged in using the login script, otherwise you will get an access denied message.
* Use the delete user script and the show data script to verify that you are actually deleting users to your table.
* Modify this script so you do not have to type the username. Instead, generate select and option tags, so the username can be selected from a drop-down menu.
	+ You will replace the username <input type="text" name="username"> tag with a block of PHP code that will dynamically generate the HTML tags for a drop-down menu.
	+ Your block of PHP code must reconnect to the server and execute a simply query (SELECT username FROM ?????) to get all the usernames.
	+ Use show\_data.php as a model. Generating a drop-down menu is similar to generating the column headers but instead of creating tr and th tags you will generate select and option where $row[0] is the inner value of the option tag.
	+ select tag the attribute name="username"

#### Part 10 – Full Integration

In this part of this lab, you will combine all of your scripts into a unified application.

* First, create login protected page with links to the show data, insert user and delete user scripts.
* The login script should redirect to this new page you created.
* Add a logout hyperlink to all the scripts that links to the logout script.
* Make sure the logout script redirects to the login page.
* Verify that your new page and the scripts are only accessible if you successfully login.
* Show your instructor that you can login and insert a new user where you can specify usertype, games and points. Use the show data functionality to demonstrate that the insert worked. Then, delete a user with the drop down menu. Again, use show data to demonstrate that the user was deleted. Finally, logout and show that all your scripts are protected.
* Instructor’s Initials \_\_\_\_\_\_\_\_
* **Create a zip file of your lab7 folder called lab7.zip and submit the file in Canvas. In the comment area of Canvas put your partner's name.**

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