

Csci 4131

PHP Continued

PHP

XML/PHP

Sessions/PHP

Lecture 26, December 3rd

Fall 2018

Dr. Dan Challou

Logistics

- Homework 7 out – Early submission date (for bonus) Monday December 10th ,at 11:55pm
- Late, without penalty through Friday, December 14th at 2pm
- No submissions will be accepted after that time, regardless of excuse.
- HW 8 will be posted tonight – it will be a PHP assignment (Connect to and Query DB, and require the use of Sessions, and XML).
- It will be due at 5pm Thursday December 20.
- No submissions accepted after that time, regardless of excuse
- NOTE, the capabilities required for assignment 8 (PHP + SQL + MySQL + reading XML with PHP and using PHP sessions) are in scope for Exam 2.

HW 8 Demo

- [HW 8 Demo](#)

Reading, PHP

- Do the **cseit** tutorial to make sure your account is configured to properly run PHP scripts:
 - <https://cseit.umn.edu/knowledge-help/php-tutorial>

Text Book Readings

- PHP
 - Sebesta – Chapter 9 – short section on Sessions
 - Sebesta – Chapter 13.1 – 13.5

Online References

- W3 Schools (www.w3schools.com) for
 - SQL (you knew that already)
 - PHP + MYSQL
 - PHP/ XML
 - PHP Sessions
 - And using PHP with a MySQL database

More Online References

- Tutorial on mysql at www.mysqltutorial.org (PHP PDO objects)
- Note however, the example we will cover use PHP's mysqli interface, which you should use – also has node.js / MySQL tutorial)
- Reference: www.mysql.org
- PHP + MySQL
- Reference: <http://php.net>

XML/PhP (PHP & AJAX)

- XML and PHP
http://www.w3schools.com/php/php_xml_simplexml_read.asp
- http://www.w3schools.com/php/php_xml_parser_expat.asp
- http://www.w3schools.com/php/php_xml_dom.asp
- http://www.w3schools.com/php/php_ref_xml.asp
- AJAX, PHP (shows how to call PhP script using AJAX)
https://www.w3schools.com/php/php_ajax_php.asp

PHP Sessions

- http://www.w3schools.com/php/php_sessions.asp

Last Time

- Review Exercise – Reading, Parsing and Getting data from XML file in node.js (Posted in Lecture 25)
- Getting to know PHP better – 1st Application Simple Interest (posted in Lecture 24 and 25)

Questions?

Today

- Constructs, Tools, and Tips for Debugging PHP
- PHP / SQL / MySQL
- PHP File I/O (links)

Compute Interest Example Revisited

- Interest = Loan Amount (Principal) * Interest Rate * Loan Duration (Term)
- [Computing Simple Interest](#)

Client (Browser) side HTML that uses a
Server-Side PHP script to calculate tip
for a meal

Demo

- [Tip Calculator \(HTML / PHP\)](#)

Exercise 2: Do alone or in groups, Label clearly with names/x500 ids turn in at the end of class

- Write the PhP Script that
 - A) calculates the tip from the values entered by the use on the form
 - B) Returns the HTML page with the answer to the client
 - Formula to calculate tip is:
 - $\text{Meal Cost} * (\text{Percent_tip} * 0.01)$

The name of the fields on the form that accept the values from the user:

Meal Cost is named mcost

and

Percent_tip is named ptip

Form sends those name/value pairs to a phpscript named “tipcalc.php” when submitted

The PhP script “tipcalc.php” will

1. get the values from the `$_POST` array
2. Calculate the tip
3. And return the HTML page with the
 - i. Meal Cost
 - ii. Percent Tip and
 - iii. Tip

Debugging PHP

Checking for Syntax Errors:

```
%php -l filename.php
```

To See Variable Values:

```
var_dump(variable1, variable 2, .... variable n)
```

https://www.w3resource.com/php/function-reference/var_dump.php

Display Error Commands:

```
ini_set('display_errors','1');  
error_reporting(E_ALL);
```

Debugging PHP

- Xdebug
 - <https://xdebug.org/>
- Chrome Logger:
<https://craig.is/writing/chrome-logger>
- FirePHP
 - <https://addons.mozilla.org/en-US/firefox/addon/firephp/>
- <http://php.net/manual/en/debugger-about.php>

More on Debugging PHP

- <http://blog.teamtreehouse.com/how-to-debug-in-php>
- <https://www.ibm.com/developerworks/library/os-debug/>
- Also – read the manual page on the CSELabs machines – type:
man php
at the command line prompt

Connecting to a Database in Php and Querying a MySQL Database

- Form to Query Database for information product from the database's **books** table is displayed
 - User can select:
 - The id of the books in the table
 - Or
 - The title of the books in the table
 - or
 - The category of the books in the table
 - Or
 - The ISBN of the books in the table

The books table

Id	Title	Category	ISBN
1	Visual Basic 2010 How to Program	Programming	0132152134
2	Visual C# How to Program	Programming	0132151421
3	Java How to Program	Programming	0132575663
4	C++ How to Program	Programming	0132662361
5	C How to Program	Programming	0136123562
6	Internet & WWW How to Program	Programming	0132151006
7	Operation Systems	Operating Sys	0131828274

Simple Example – PHP to DB

- PHP gets the form data
- Connects to the Database
- Queries the Database
- Builds an HTML table as a response

Simple Example: Form to Query DB

- <http://www-users.cs.umn.edu/~chal0006/QueryEx/data.html>

Form for MySQL Database Query

```
<html>
  <head>
    <meta charset = "utf-8">
    <title>Sample Database Query</title>
  </head>
  <body>
    <h1>Querying a MySQL database.</h1>
    <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>*</option>
          <option>ID</option>
          <option>Title</option>
          <option>Category</option>
          <option>ISBN</option>
        </select></p>
      <p><input type = "submit" value = "Send Query"></p>
    </form>
  </body>
</html>
```


database.php file

```

<!DOCTYPE html>

<!-- Fig. 19.16: database.php -->
<!-- Querying a database and displaying the results. -->
<html>
  <head>
    <meta charset = "utf-8">
    <title>Search Results</title>
    <style type = "text/css">
      body { font-family: sans-serif;
        background-color: lightyellow; }
      table { background-color: lightblue;
        border-collapse: collapse;
        border: 1px solid gray; }
      td { padding: 5px; }
      tr:nth-child(odd) {
        background-color: white; }
    </style>
  </head>
<body>
  <?php
    ini_set('display_errors','1');
    error_reporting(E_ALL);

    $select = $_POST["select"]; // creates variable $select

    // build SELECT query
    $squery = "SELECT " . $select . " FROM books";

    echo $squery.'<br>';

    $conn = new mysqli("cse-curly.cse.umn.edu", "C4131S18Uxxx", "xxxxx",
      "C4131S18Uxxx","3306");

    if ($conn->connect_error)
      echo die("Could not connect to database </body></html>" );
    else
      $result = $conn->query($squery);

?><!-- end PHP script ->

```

```

<table>
  <caption>Results of "SELECT <?php print( "$select" ) ?>
    FROM books"</caption>
  <?php
    // fetch each record in result set
    while ( $row = mysqli_fetch_row( $result ) )
    {
      // build table to display results
      print( "<tr>" );

      foreach ( $row as $value )
        print( "<td>$value</td>" );

      print( "</tr>" );
    } // end while
  ?><!-- end PHP script -->
</table>
<p>Your search yielded
  <?php print( mysqli_num_rows( $result ) ) ?> results.</p>
<p>Please email comments to <a href = "mailto:deitel@deitel.com">
  Deitel and Associates, Inc.</a></p>
</body>

```

Description of mysqli connect

Approach for Connecting to the MySQL Database (HW Assignment 8)

```
// Create a connection to a database
$conn = new mysqli ( $db_servername , $db_username ,
                    $db_password , $db_name , $db_port ) ;

if ( $conn->connect_error ) {
    // report error
}
else
{
    // set up your query
}
```

See: http://www.w3schools.com/php/php_mysql_connect.asp
for more info and a discussion.

Reading from and Writing to files on the Server side in PHP

- https://www.w3schools.com/php/php_file_open.asp
- https://www.w3schools.com/php/php_file_create.asp

XML and PHP

Consider XML File cars.xml

Want to get the contents of the file and use it in a PHP script program

- As always, more than 1 way
- One Simple Way
 - SimpleXML

The SimpleXML Parser

- SimpleXML is a tree based that enables PHP users to easily get and manipulate XML data.
- Part of PHP core
- Provides an easy way of getting an element's name, attributes and textual content PROVIDED you know the XML document's structure or layout.
- SimpleXML turns an XML document into a data structure you can iterate through like a collection of arrays and objects.
- Compared to DOM or the Expat parser, SimpleXML takes a fewer lines of code to read text data from an element.

Code to get and print out contents of file cars.xml

```
<?php
$xml=simplexml_load_file("cars.xml") or
die("Error: Cannot create object");
foreach($xml->children() as $cars) {
    echo $cars->make . ", ";
    echo $cars->model . ", ";
    echo $cars->year . ", ";
    echo $cars->price . "<br>";
}
?>
```

- <http://www-users.cs.umn.edu/~challou/XML/pNpCars.php>

Dealing with Errors when reading in XML

- Use the libxml functionality to retrieve all XML errors when loading the document and then iterate over the errors.

Example

```
<?php
libxml_use_internal_errors(true);

$myXMLData =
    "<?xml version='1.0' encoding='UTF-8'?>
    <document>
        <name>Jim Smith</nam>
        <address>jsmith1@lucent.com</addr>
    </document>";

$xml = simplexml_load_string($myXMLData);
if ($xml === false) {
    echo "Failed loading XML: ";
    foreach(libxml_get_errors() as $error) {
        echo "<br>", $error->message;
    }
} else {
    print_r($xml);
}

?>
```

- <http://www-users.cs.umn.edu/~challou/XML/phpXMLerr.php>

Exercise

- Consider the following XML file

```
<?xml version="1.0" encoding="utf-8"?>
<restaurants>
  <rinfo>
    <name>Everyday Italian Bistro</name>
    <loc>1542 University Avenue</loc>
  </rinfo>
  <rinfo>
    <name>The Little Cafe</name>
    <loc>1642 Hennepin Avenue</loc>
  </rinfo>
</restaurants>
```

Exercise: Write a PHP program to print out the names and locations of each restaurant on separate lines

Recall our Car example :

```
<?php
$xml=simplexml_load_file("cars.xml") or die("Error: Cannot create object");
foreach($xml->children() as $cars) {
    echo $cars->make . " " . "\n";
    echo $cars->model . " " . "\n";
    echo $cars->year . " " . "\n";
    echo $cars->price . " <br>";
}
?>
```

The XML with the name and location of each restaurant is in the file **restaurants.xml**, whose contents are below:

```
<?xml version="1.0" encoding="utf-8"?>
<restaurants>
  <rinfo>
    <name>Everyday Italian Bistro</name>
    <loc>1542 University Avenue</loc>
  </rinfo>
  <rinfo>
    <name>The Little Cafe</name>
    <loc>1642 Hennepin Avenue</loc>
  </rinfo>
</restaurants>
```


Next Time

- Recap
- PHP Sessions
- Security