Laboratory Exercise #13: Getting IP address of one browsing the site

In this exercise, make a program that will:

1. Get the IP address of the one browsing the site
2. Get the host of the returned IP address

Laboratory Exercise #14: Checking connections

1. Try running the program below:

```
<?php
 $to_check = array ( "www.corrosive.co.uk" => "/index.html",
          "www.virgin.com" => "/notthere.html",
           "www.4332blah.com" => "/nohost.html"
 );
 foreach ( $to_check as $host => $page )
 {
          $fp = fsockopen( "$host", 80, &$errno, &$errdesc, 10);
          print "Trying $host<BR>\n";
          if ( ! $fp )
          {
                   print "Couldn't connect to $host:\n<br>Error: $errno\n<br>Desc:
                   $errdesc\n";
                   print "<br><hr><br>\n";
                   continue;
          }
          print "Trying to get $page<br>\n";
          fputs( $fp, "HEAD $page HTTP/1.0\r\n\r\n" );
          print fgets( $fp, 1024 );
          print "<br><br><br>\n";
          fclose( $fp );
 }
 ?>
```

2. Based on the source code above, write a program that will expect an input of a url, then have it check if the site is available or not.

Laboratory Exercise #15: Sending Email

1. Windows php doesn’t have email sending by default. You’ll have to set it up.
2. In XAMPP, you’ll find the two lines in php.ini:
    a. smtp_server
    b. smtp_port
3. Set it up so that it will point to the following respectively:
    a. smtp.gmail.com
    b. 465

4. Add the following lines to php.ini
   a. auth_username =<your gmail username>
   b. auth_password = <your gmail password>
5. Restart your server
6. For your next program, make an app that will:
   a. Collect your inputs as subject, message, email
   b. And will send these inputs to the email specified in the input.

Laboratory #16: Resizing an Image

The most common use of php with images is to resize an image. Take a look at the code below:

```
function resize_image($file, $w, $h, $crop=FALSE) {
   list($width, $height) = getimagesize($file);
   $r = $width / $height;
   if ($crop) {
      if ($width > $height) {
         $width = ceil($width-($width*abs($r-$w/$h)));
      } else {
         $height = ceil($height-($height*abs($r-$w/$h)));
      }
      $newwidth = $w;
      $newheight = $h;
   } else {
      if ($w/$h > $r) {
         $newwidth = $h*$r;
         $newheight = $h;
      } else {
         $newheight = $w/$r;
         $newwidth = $w;
      }
   }
   $src = imagecreatefromjpeg($file);
   $dst = imagecreatetruecolor($newwidth, $newheight);
   imagecopyresampled($dst, $src, 0, 0, 0, 0, $newwidth, $newheight, $width,
$height);

   return $dst;
}
```

This function above resizes an image.

1. Using the function above, make a program that will:
   a. Accept a file input of an image
   b. Resize an image to 640 x 480

    c. Show the resized image as output.

2. In php 5.5+, the resizing of an image is done by the imagescale function (try searching for this in php.net). Make a similar program using this function instead.
3. Save the following code in a file named SimpleImage.php:

```
<?php

/*
* File: SimpleImage.php
* Author: Simon Jarvis
* Copyright: 2006 Simon Jarvis
* Date: 08/11/06
* Link: http://www.white-hat-web-design.co.uk/blog/resizing-images-with-php/
*
* This program is free software; you can redistribute it and/or
* modify it under the terms of the GNU General Public License
* as published by the Free Software Foundation; either version 2
* of the License, or (at your option) any later version.
*
* This program is distributed in the hope that it will be useful,
* but WITHOUT ANY WARRANTY; without even the implied warranty of
* MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
* GNU General Public License for more details:
* http://www.gnu.org/licenses/gpl.html
*
*/

class SimpleImage {

  var $image;
  var $image_type;

  function load($filename) {

    $image_info = getimagesize($filename);
    $this->image_type = $image_info[2];
    if( $this->image_type == IMAGETYPE_JPEG ) {

      $this->image = imagecreatefromjpeg($filename);
    } elseif( $this->image_type == IMAGETYPE_GIF ) {

      $this->image = imagecreatefromgif($filename);
    } elseif( $this->image_type == IMAGETYPE_PNG ) {

      $this->image = imagecreatefrompng($filename);
    }
  }
  function save($filename, $image_type=IMAGETYPE_JPEG, $compression=75,
$permissions=null) {

    if( $image_type == IMAGETYPE_JPEG ) {
      imagejpeg($this->image,$filename,$compression);
    } elseif( $image_type == IMAGETYPE_GIF ) {

      imagegif($this->image,$filename);
    } elseif( $image_type == IMAGETYPE_PNG ) {

      imagepng($this->image,$filename);
    }
    if( $permissions != null) {

      chmod($filename,$permissions);
    }
  }
  function output($image_type=IMAGETYPE_JPEG) {

    if( $image_type == IMAGETYPE_JPEG ) {
      imagejpeg($this->image);
    } elseif( $image_type == IMAGETYPE_GIF ) {

      imagegif($this->image);
    } elseif( $image_type == IMAGETYPE_PNG ) {

      imagepng($this->image);
    }
  }
  function getWidth() {

    return imagesx($this->image);
  }
  function getHeight() {

    return imagesy($this->image);
  }
  function resizeToHeight($height) {

    $ratio = $height / $this->getHeight();
    $width = $this->getWidth() * $ratio;
    $this->resize($width,$height);
  }
  function resizeToWidth($width) {
    $ratio = $width / $this->getWidth();
    $height = $this->getheight() * $ratio;
    $this->resize($width,$height);
  }

  function scale($scale) {
    $width = $this->getWidth() * $scale/100;
    $height = $this->getheight() * $scale/100;
    $this->resize($width,$height);
  }

  function resize($width,$height) {
    $new_image = imagecreatetruecolor($width, $height);
    imagecopyresampled($new_image, $this->image, 0, 0, 0, 0, $width, $height, $this-
>getWidth(), $this->getHeight());
    $this->image = $new_image;
  }

}
?>
```

4. Make a similar program, by including this file your program named resize.php (not copy and paste), and use the class to resize your image uploaded.
5. Go to https://github.com/eoghanobrien/php-simple-mail.
6. We will not use composer for this (this is out of our scope in this php beginner's course). Simply download the zip.
7. Uncompress the zip file then copy class.simple_mail.php into your project.
8. Make a program that will get email and your picture file as input and then send an email to the inputted email address. You can use any image resizing algorithm stated above.

Laboratory Exercise #17: Dates

1. Make a program that will output the current unix timestamp
2. Use the unix timestamp to output a date time representation like: July 10, 2016 10:40am

Laboratory Exercise #18: Using Implode and Explode

The implode() and explode() functions are often used in programs. Try doing the following:

1. From an input of comma delimited entries, output these entries one by one: for example, in an input of 1,2,3,4,5 – the program outputs:

```
1
2
3
4
5
```

2. Make an array of [1,2,3,4,5]. Output this array as a string of 1,2,3,4,5

Laboratory Exercise #19: Using the case functions

In a program, use the following functions to output the result on the browser an inputted user entry:

1. strtoupper()
2. strtolower()
3. ucwords()

Laboratory Exercise #20: Sanitizing User Input

PHP Coders often forget about security. Consider this code below:

```
<html>
<body>
        <form method=”post”>
                <input type=”text” name=”name” />
                <input type=”submit” value=”submit” name=”submit” />
        </form><br />
<?php
        if(isset($_POST[‘submit’]){
                echo $_POST[‘name’];
        }
?>
</body>
</html>
```

Try running this code, and input <script>alert(“hello”);</script>. What happens?

1. Change this code so that when you input the <script> code, the dialog box doesn’t appear (hint use a function that converts text to html entities equivalents).
2. Sometimes, use of quotes and double quotes can cause issues such as SQL Injection (causing the DB to be prone to these attacks)
3. Per #2, use the same program to use filter_vars, or mysqli_real_escape_string to filter the ouput.

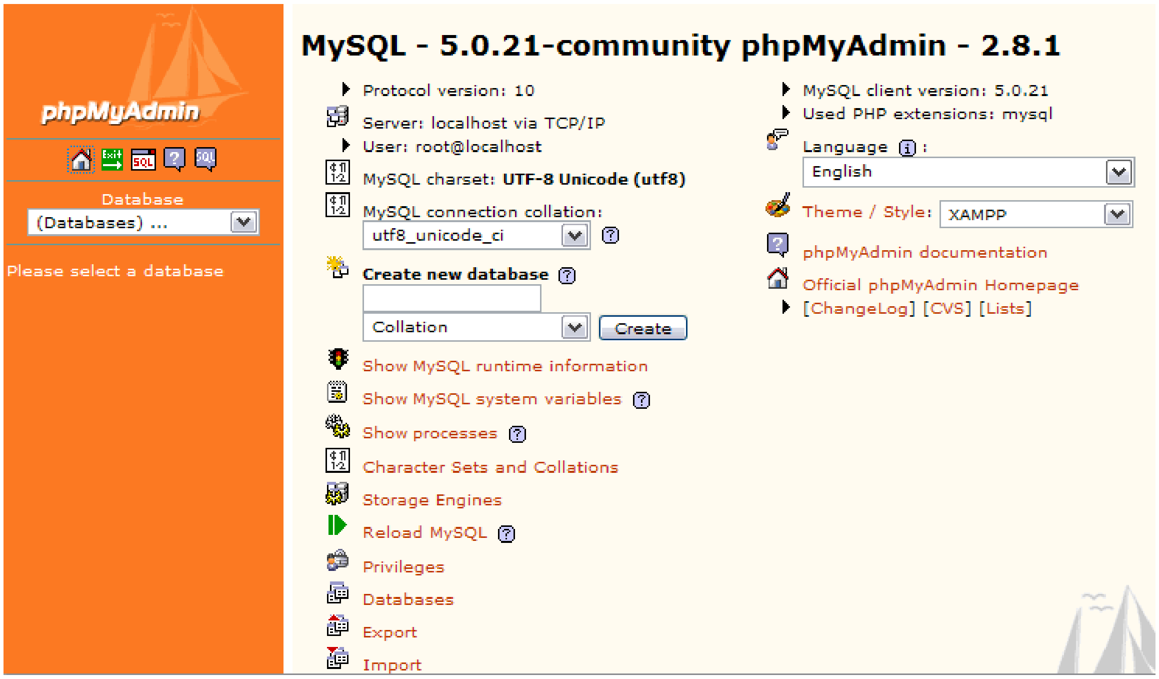
Laboratory Exercise #21: Cookies and Sessions

Remember, setcookie and session_start functions should always be called at the first line of your php code.

1. Make a file named input.php where the user inputs his name.
2. The submission of the input will be named result.php where the name will be saved in a cookie named name, and output the text: “Hello <name>!” using the $_POST variable named name.
3. Make a file named saved_cookie.php, which is accessed by the link placed in the result.php file and then output the same text, instead using the cookie value of “name”.
4. Repeat 1-3 now instead of using the cookie functions, use the session functions instead.

Laboratory Preparation for MySQLi exercises (using XAMPP):

1. Open up the browser to this url: http://localhost/phpmyadmin
2. You should come to this screen similar to this:



MySQL - 5.0.21-community phpMyAdmin - 2.8.1

- Protocol version: 10
- Server: localhost via TCP/IP
- User: root@localhost
- MySQL charset: **UTF-8 Unicode (utf8)**
- MySQL connection collation: utf8_unicode_ci
- MySQL client version: 5.0.21
- Used PHP extensions: mysql
- Language: English
- Theme / Style: XAMPP

3. Click on Create Database, and name your database dbentries, with Collation, utf-8_unicode_ci
4. Click on the database you created, and then click on create table
5. Name your table entries and the following fields:
    a. id – int, autoincrement, primary
    b. name – VARCHAR(150)

c. address – VARCHAR(255)

Laboratory Preparation in Ubuntu:

1. Let’s install the mysql client:
   ```
   sudo apt install mysql-client
   ```
2. Since we didn’t set up yet the root password, we need to set it up. The default root password is NO PASSWORD – this is a security risk. The simplest way to do it is to run:
   ```
   mysql_secure_installation
   ```
3. Restart mysql:
   ```
   systemctl mysql restart
   ```
4. Let us connect to mysql using the mysql client:
   ```
   mysql -u root -p
   ```
   Enter the password at the prompt
5. If you have set the password already, but want to reset it, do the following:

   a. Stop mysql
   ```
   systemctl mysqld stop
   ```
   b. create a /var/run/mysqld directory to be used by MySQL process to store and access socket file:
   ```
   sudo mkdir -p /var/run/mysqld
   sudo chown mysql:mysql /var/run/mysqld
   ```
   c. Run the following command:
   ```
   sudo /usr/sbin/mysqld --skip-grant-tables --skip-networking &
   ```
   d. Run mysql client:
   ```
   mysql -u root
   ```
   e. Run the following commands:
   ```
   FLUSH PRIVILEGES;
   USE mysql;
   UPDATE user SET authentication_string=PASSWORD("<your
   password>") WHERE User='root';
   UPDATE user SET plugin="mysql_native_password" WHERE
   User='root';
   quit;
   ```
   f. Kill the current mysqld process:
   ```
   sudo pkill mysqld
   ```
   g. Start mysql service
   ```
   systemctl mysqld start
   ```
6. Create a new user named guest:
   ```
   mysql -u root -p
   use mysql;
   INSERT INTO user
     (host, user, password,
     select_priv, insert_priv, update_priv)
     VALUES ('localhost', 'guest',
     PASSWORD('guest123'), 'Y', 'Y', 'Y');
   FLUSH PRIVILEGES;
   ```

7. Let’s create a table named entries on database dbentries:

   ```
   CREATE DATABASE dbentries;
   USE dbentries;
   CREATE TABLE entries(
       id INT NOT NULL AUTO_INCREMENT,
       name VARCHAR(150),
       address VARCHAR(255),
       PRIMARY KEY (id)
   );
   ```

8. For security measures, you can set guest to only access this table:

   ```
   GRANT DELETE, SELECT, UPDATE, INSERT ON dbentries.entries TO
   ‘guest’@’localhost’;
   FLUSH PRIVLEGES;
   ```

   The common permissions are:

   ALL PRIVILEGES – grants all privileges to the MySQL user

   CREATE – allows the user to create databases and tables

   DROP - allows the user to drop databases and tables

   DELETE - allows the user to delete rows from specific MySQL table

   INSERT - allows the user to insert rows into specific MySQL table

   SELECT – allows the user to read the database

   UPDATE - allows the user to update table rows

9. If you want to use phpmyadmin for administration, you can just run:

   ```
   sudo apt-get install phpMyAdmin
   ```

Laboratory Exercise #22: MySQL(i)

Create a program that does the following (this will require the student to research on the SQL statements in the web, at least in this exercise, instead of spoonfeeding the student, the student learns how to research to get the correct answer):

1. On the first page, make a menu that shows the following and links:
   a. Add Entry
   b. List Entries
   c. Delete Entry
2. On the Add Entry section, the user inputs the name and address, then when the user submits it, it saves it in the entries table and goes back to the first page.
3. On the List Entries section, the page lists down the entries with the following format:
   a. ID
   b. Name
   c. Address
4. At the very first of the listing, there is a link going back to the first page
5. At the Delete Entry section, it shows the same list, then at the very end, the user selects the ID of which to delete (use the <select> html tag). Upon selecting the ID, the program then deletes the entry with the corresponding id. Then goes back on the same delete entry section.

6. Before the listing, there should be a link to go back to the main page.

Additional Resources (for reference):

1. Setting up virtual hosts in XAMPP: https://delanomaloney.com/2013/07/10/how-to-set-up-virtual-hosts-using-xampp/
2. Codeigniter: https://codeigniter.com/userguide3/installation/
3. Setting up htaccess for codeigniter (place .htaccess in your htdocs folder and then place the following text in):

```
RewriteEngine On
RewriteCond %{REQUEST_FILENAME} !-f
RewriteCond %{REQUEST_FILENAME} !-d
RewriteRule ^(.*)$ index.php/$1 [L]
```

Day 5 Project: Guestbook

Guestbook has the following:

1. Entry – where one places his name and message and his email address
2. Listing – has the following listing fields:
    a. Name of the person
    b. Message
    c. IP Address
    d. Time and date of the message
3. Admin section (for simplicity sake, no login and security), where:
    a. The admin can delete the messages
    b. Email the user.