CMPS 401
Survey of Programming Languages

Programming Assignment #4
PHP Language
On the Ubuntu Operating System

Write a PHP program (P4.php) and create a HTML (P4.html) page under the Ubuntu operating system. The PHP page needs to **grade** the HTML quiz, **display** the user's score on the quiz, and **store** the results into a MySQL table.

1. The questions and answers for the HTML quiz are shown on page 4. In order to create the HTML page, you may need the html tags such as: <html>, <head>, <body>, <form>, <hr>, <ol>, <li> and
. The PHP scripts will be triggered when users click on the "Submit Answers" button. For example, the <form> tag will be:

   < form action="P4.php" method="post" >

2. The information from the above form will be sent via the POST method with named fields. When the user fills in this form and click on the submit button, the form data is send to the "P4.php" file.
3. **Your user name** on Ubuntu is the MySQL table name since we are going to use the same database account.

URL:	http://opencs2.selu.edu/phpmyadmin
Username:	cmps401
Password:	Mycmps401db
Database Name:	"cmps401"
Table Name:	"Your user name on Ubuntu"
Table fields:	"FirstName", "LastName", "Score", and "Time"

   - The same "FirstName" and "LastName" can have multiple attempts but **only one row** in your table
   - "Time" is the current system time

4. You need a CMPS401 account on the Ubuntu Operating System.
5. If you need help with this assignment, go to the following links:
   - PHP Manual (www.php.net)
   - PHP Tutorial (www.w3schools.com)
   - Learning PHP 7 (book by Antonio Lopez)
   - PHP & MySQL: Novice to Ninja 6th Ed (book by Butler and Yank)
   - PHP and MySQL Web Development 5th Ed (book by Welling & Thomson)
   - HTML Tutorial (www.w3schools)
   - MySQL 5.7 Reference Manual (mysql.com)
   - phpMyAdmin for MySQL at opencs2.selu.edu (opencs2.selu.edu)

6. PHP is one of pure interpretation languages; your program is not compiled before run.
7. Useful UNIX commands are on page 3.
8. There are 7 PHP programming examples to assist you on this assignment.
    1) A simple program to run (TSimple.php)
    2) Test data types and variables (TVar.php)
    3) Test selection statements (TSel.php)
    4) Test loops (TLoop.php)
    5) Test subprograms (TSub.php)
    6) Other concerns: Test POST method between HTML and PHP (TForm.html and TForm.php)
    7) Other concerns: Test MySQL database through PHP (TMysqli.php)
9. Your program assignment #4 consists of the following two files under "**public_html**" folder of your CMPS401 account:
    1) PHP program (P4.php)
    2) HTML file (P4.html)

    Note: Your files on the Ubuntu Operating System will be checked and should not be modified after due date.

Useful UNIX Commands

Command	Description
man	help menu
pico	simple text editor
gcc	compiles your source code “gnu C compiler”
a.out	executes your program
ls –al	displays a long list of files “includes hidden files i.e. dot files”
pwd	prints working directory “pathname”
cd	changes directory
mkdir	creates a directory
rmdir	removes a directory
cp file1 file2	copies contents of file1 into file2
mv file1 file2	moves a file from one place to another, or change its name
rm	removes a file
more	displays a file’s contents
grep	searches for a specified pattern in a file or list of files
ps	obtains the status of the active processes in the system
kill –9 pid	terminates all processes
passwd	modify a user's password
logout	terminates your session
who	display who is on the system
finger	displays the user information
date > myfile	“output redirection” saves the output of date command in myfile
cal >> myfile	**“**appends” calendar to myfile
cal	display a calendar and the date
wc file1	counts the number of lines, words, and characters in file1

P4.html

CMPS401 PHP Quiz

First Name: _____ Last Name: _____

1. What does PHP stand for?
   - a) PHP: Hypertext Preprocessor
   - b) Personal Hypertext Processor
   - c) Private Home Page
   - d) Personal Home Page

2. How do you write "Hello World" in PHP
   - a) "Hello World";
   - b) Document.Write("Hello World");
   - c) echo "Hello World";

3. All variables in PHP start with which symbol?
   - a) $
   - b) @
   - c) %
   - d) &

4. What is the correct way to add 1 to the $count variable?
   - a) $count++;
   - b) $count =+1
   - c) ++count
   - d) count++;

5. How do you get information from a form that is submitted using the "post" method?
   - a) Request.Form;
   - b) $_GET[ ];
   - c) $_POST[ ];
   - d) Request.QueryString;

6. When using the POST method, variables are displayed in the URL:
   - a) True
   - b) False

7. In PHP you can use both single quotes (' ') and double quotes (" ") for strings:
   - a) True
   - b) False

8. What is the correct way to create a function in PHP?
   - a) create myFunction()
   - b) new_function myFunction()
   - c) function myFunction()

9. What is the correct way to connect to a MySQL database?
   - a) mysql_connect("localhost");
   - b) mysql_query("localhost");
   - c) connect_mysql("localhost");
   - d) mysql_open("localhost");

10. The following HTML code will direct form information and control to what file?
    < form action="P4.php" method="post" >
    _____ (Note: case-sensitive)

Submit Answers

Answer: 1. a; 2. c; 3. a; 4. a; 5. c; 6. b; 7. a; 8. c; 9. a; 10. “P4.php”

Examples

A Simple Program to Run (TSimple.php)

```
<html>
   <head>
      <title>PHP Test Simple</title>
   </head>
   <body>
      <?php
         // Display "Hello" on your screen
         // Program-ID: TSimple.php
         // Author:     Kuo-pao Yang
         // OS:         Ubuntu 18
         // Parser:     PHP 7

         echo  'Hello <br>';
         print "Hello <br>";

         /* Output:
         Hello
         Hello
         */
      ?>
   </body>
</html>
```

Data Types and Variables (TVar.php)

```
<html>
   <head>
      <title>PHP Test Variables </title>
   </head>
   <body>
      <?php
         // Test variables: No declaration, ALL var $
         // Note: PHP is a "Loosely Typed Language"
         //   In PHP a variable does not need to be
         //   declared before being set.
         // Program-ID: TVar.php
         // Author:     Kuo-pao Yang
         // OS:         Ubuntu 18
         // Parser:     PHP 7

         $i1 = 1;   $i2 = 2;
         $f1 = 3.3; $f2 = 4.4;
         $c  = 'a';
         $s  = "bcd";
         $f1 = $i1;  // Loosely typed (no casting)
         $i2 = $f2;  // Loosely type (no type checking)
         $c  = $c.$s." "."efg"; // Concatenation Operator (.)
         $s  = strlen($s); // string function: length
         print "i1 = ".$i1."<br>";
         print "i2 = ".$i2."<br>";
         print "f1 = ".$f1."<br>";
         print "f2 = ".$f2."<br>";
         print "c = ".$c."<br>";
         print "s     = ".$s."<br>"; //output only 1 space

         /* Output:
         i1 = 1
         i2 = 4.4
         f1 = 1
         f2 = 4.4
         c = abcd efg
         s = 3
         */
      ?>
   </body>
</html>
```

Selection Statements (TSel.php)

```
<html>
   <head>
      <title>PHP Test Selections  </title>
   </head>
   <body>
      <?php
         // Test Selections:      if, if-else, nested if-else
         // Logical Operators:    &&, ||, !
         // Relational Operators: <, >, ==, <=, >=, !=
         // Program-ID: TSel.php
         // Author:     Kuo-pao Yang
         // OS:         Ubuntu 18
         // Parser:     PHP 7

         $i1=1; $i2=2; $i3=3; $i4=4; $i5=5; $i6=6;

         // Test a simple if
         if ($i4 > $i1) print "i4 > i1 <br>";

         // Test if-else
         if (($i5 < $i2) && ($i3 >= $i2))
            print "(i5 <  i2) && (i3 >= i2) <br>";
         else
            print "(i5 >= i2) || (i3 <  i2) <br>";

         // Test nested if-else
         if ($i1 != $i2) {
            print "(i1 != i2) <br>";
         }
         else {
            if (($i4 == $i5) || ($i5 != $i6)) {
               print "(i1 == i2)&& ((i4 == i5) || (i5 != i6)) <br>";
            }
         }

         /* Output:
         i4 > i1
         (i5 >= i2) || (i3 < i2)
         (i1 != i2)
         */
      ?>
   </body>
</html>
```

Loops (TLoop.php)

```
<html>
   <head>
     <title>PHP Test Loops </title>
   </head>
   <body>
      <?php
         // Test Loops: while, for, nested loops (1-D, 2-D, and
Associative Arrays)
         // Program-ID: TLoop.php
         // Author:     Kuo-pao Yang
         // OS:         Ubuntu 18
         // Parser:     PHP 7

         $a = array(1, 2, 3);
         $b = array( array(10, 20, 30),
                     array(40, 50, 60),
                     array(70, 80, 90));
         //Associative Arrays
         $c = array("p"=>100, "q"=>200, "r"=>300);
         $d = array("x"=>array(100, 200, 300),
                    "y"=>array(400, 500, 600),
                    "z"=>array(700, 800, 900));

         print "<br>Test while loop: 1-D Array<br>";
         $i = 0;
         while($i < 3) {
            print "a[".$i."]=".$a[$i]." ";
            $i++;
         }

         print "<br>Test for loop: 2-D Array<br>";
         for($j = 0; $j < 3; $j++) {
            print "b[1,".$j."]=".$b[1][$j]." ";
         }

         print "<br>Test nested loop: 2-D Array";
         for($i = 0; $i < 3; $i++) {
            print "<br>";
            for($j = 0; $j < 3; $j++) {
               print "b[".$i.",".$j."]=".$b[$i][$j]." ";
            }
         }

         print "<br>Test Associative 1-D and 2-D Arrays<br>";
         foreach ($c as $e => $f)
            print "c[".$e."]=".$f." ";
         foreach ($d as $e => $f) {
            print"<br>";
            for ($j = 0; $j < 3; $j++)
               print "d[".$e.",".$j."]=".$f[$j]." ";
         }

         /* Output:
         Test while loop: 1-D Array
```

```
            a[0]=1 a[1]=2 a[2]=3
            Test for loop: 2-D Array
            b[1,0]=40 b[1,1]=50 b[1,2]=60
            Test nested loop: 2-D Array
            b[0,0]=10 b[0,1]=20 b[0,2]=30
            b[1,0]=40 b[1,1]=50 b[1,2]=60
            b[2,0]=70 b[2,1]=80 b[2,2]=90
            Test Associative 1-D and 2-D Arrays
            c[p]=100 c[q]=200 c[r]=300
            d[x,0]=100 d[x,1]=200 d[x,2]=300
            d[y,0]=400 d[y,1]=500 d[y,2]=600
            d[z,0]=700 d[z,1]=800 d[z,2]=900
            */
        ?>
    </body>
</html>
```

Subprograms (TSub.php)

```
<html>
   <head>
      <title>PHP Test Subprograms </title>
   </head>
   <body>
      <?php
         // Test Subprograms: Php Call by Value only (Array also)
         // Program-ID: TSub.php
         // Author:     Kuo-pao Yang
         // OS:         Ubuntu 18
         // Parser:     PHP 7

         //Test call by value
         print "PHP: Call by Value only<br>";
         $m = 1;
         func1($m);
         print "m = ".$m."<br>";
         $n = func2($m);
         print "n = ".$n."<br>";

         //Test Array to Subprogram (Array also Call-By-Value)
         print "Test Array to Subprogram (Array also Call-By-Value)<br>";
         $a = array(10, 20, 30);
         func3($a[1], $a);
         for($i = 0; $i < 3; $i++) {
            print "a[".$i."] = ".$a[$i]." ";
         }
         print "<br>";
         $b = func4($a[1], $a);
         for($i = 0; $i < 3; $i++) {
            print "b[".$i."] = ".$b[$i]." ";
         }

         function func1($i) {
            $i = $i + 1;
         }
         function func2($i) {
            $i = $i + 2;
            return $i;
         }
         function func3($i, $j) {
            $i = $i + 3; $j[0] = $j[1] + 4;
         }
         function func4($i, $j) {
            $i = $i + 3; $j[0] = $j[1] + 4;
            return $j;
         }

         /* Output:
         PHP: Call by Value only
         m = 1
         n = 3
         Test Array to Subprogram (Array also Call-By-Value)
         a[0] = 10 a[1] = 20 a[2] = 30
         b[0] = 24 b[1] = 20 b[2] = 30
         */
      ?>
   </body>
</html>
```

Other concerns: Test Form (TForm.html + TForm.php)

TForm.html

```
<html>
   <head>
      <title>PHP Test Form</title>
   </head>
   <body>
      <form action="TForm.php" method="post">
         Name: <input type="text" name="name"><br>
         Age: <input type="text" name="age"><br>
         <input type="submit" name="submit" value="submit">
      </form>
  </body>
</html>
```

TForm.php

```
<html>
   <head>
      <title>PHP Test Form</title>
   </head>
   <body>
      <?php
         // Display "name" and "age" from user inputs in TPost.html
         // Program-ID: TForm.php
         // Author:     Kuo-pao Yang
         // OS:         Ubuntu 18
         // Parser:     PHP 7

         print "Welcome ".$_POST['name']."<br>";
         print "You are ".$_POST['age']." years old<br>";

         /* Output
         Welcome Rachel
         You are 18 years old
         */
      ?>
   </body>
</html>
```

Other concerns: Test MySql (TMysqli.php)

```
<html>
   <head>
      <title>PHP Test MySQL</title>
   </head>
   <body>
      <?php
         // Test MySQL Database
         //    Username:   cmps401
         //    Password:   Mycmps401db
         // Program-ID: TMysqli.php
         // Author:     Kuo-pao Yang
         // OS:         Ubuntu 18
         // Parser:     PHP 7

         // Connect and Select MySQL Database
         $conn = new mysqli("localhost", "cmps401", " Mycmps401db", "cmps401");
         if ($conn->connect_error)
             die("<br>Connection failed:".$conn->connect_error);
         else
            echo "<br>Connection Success: Database cmp401 Connected";

         // Test: Create MySQL Table
                  // Test: Create MySQL Table
         $q = "CREATE TABLE person (
                 Name varchar(20),
                 Age  int,
                 Date varchar(20),
                 PRIMARY KEY (Name)
              )";
         sendQuery($conn, $q);

         // Test: Insert 3 Rows
         $d = date("m/d/Y h:i A");
         $q = "INSERT INTO person VALUES('N1', '21', '$d')";
         sendQuery($conn, $q);
         $q = "INSERT INTO person VALUES('N2', '22', '$d')";
         sendQuery($conn, $q);
         $q = "INSERT INTO person VALUES('N3', '23', '$d')";
         sendQuery($conn, $q);

         // Test: Update Rows
         $q = "UPDATE person SET Age = '18' WHERE Name = 'N1'";
         sendQuery($conn, $q);

         // Test: Delete Rows
         $q = "DELETE FROM person WHERE Name = 'N2'";
         sendQuery($conn, $q);

         // Test: Select Rows
         print "<br><br>-- Display Table --";
         $q = "SELECT * FROM person";
         $r = sendQuery($conn, $q);
         for($i = 0; $row = mysqli_fetch_assoc($r); $i++)
            echo "<br> row".$i.": ".
               $row['Name']." ".$row['Age']." ".$row['Date'];

         // Test: Drop Table
         $q = "DROP TABLE person";
         sendQuery($conn, $q);
```

```
         mysqli_close($conn);
         print "<br>Bye! Bye!<br>";

         function sendQuery($conn, $q) {
            if ($r = mysqli_query($conn, $q))
               echo "<br>Success Query: ".$q;
            else
               echo "<br>Failure Query: ".$q;
            return $r;
         }
         /* Output:
Connection Success: Database cmp401 Connected
Success Query: CREATE TABLE person ( Name varchar(20), Age int, Date
varchar(20))
Success Query: INSERT INTO person VALUES('N1', '21', '08/14/2018 08:24 PM')
Success Query: INSERT INTO person VALUES('N2', '22', '08/14/2018 08:24 PM')
Success Query: INSERT INTO person VALUES('N3', '23', '08/14/2018 08:24 PM')
Success Query: UPDATE person SET Age = '18' WHERE Name = 'N1'
Success Query: DELETE FROM person WHERE Name = 'N2'

-- Display Table --
Success Query: SELECT * FROM person
row0: N1 18 08/14/2018 08:24 PM
row1: N3 23 08/14/2018 08:24 PM
Success Query: DROP TABLE person
Bye! Bye!
        */
      ?>
   </body>
</html>
```