CNT 4714: Enterprise Computing
Fall 2011

Introduction to PHP – Part 1

Instructor :   Dr. Mark Llewellyn
                  markl@cs.ucf.edu
                  HEC 236, 407-823-2790
                  http://www.cs.ucf.edu/courses/cnt4714/fall2011

Department of Electrical Engineering and Computer Science
Computer Science Division
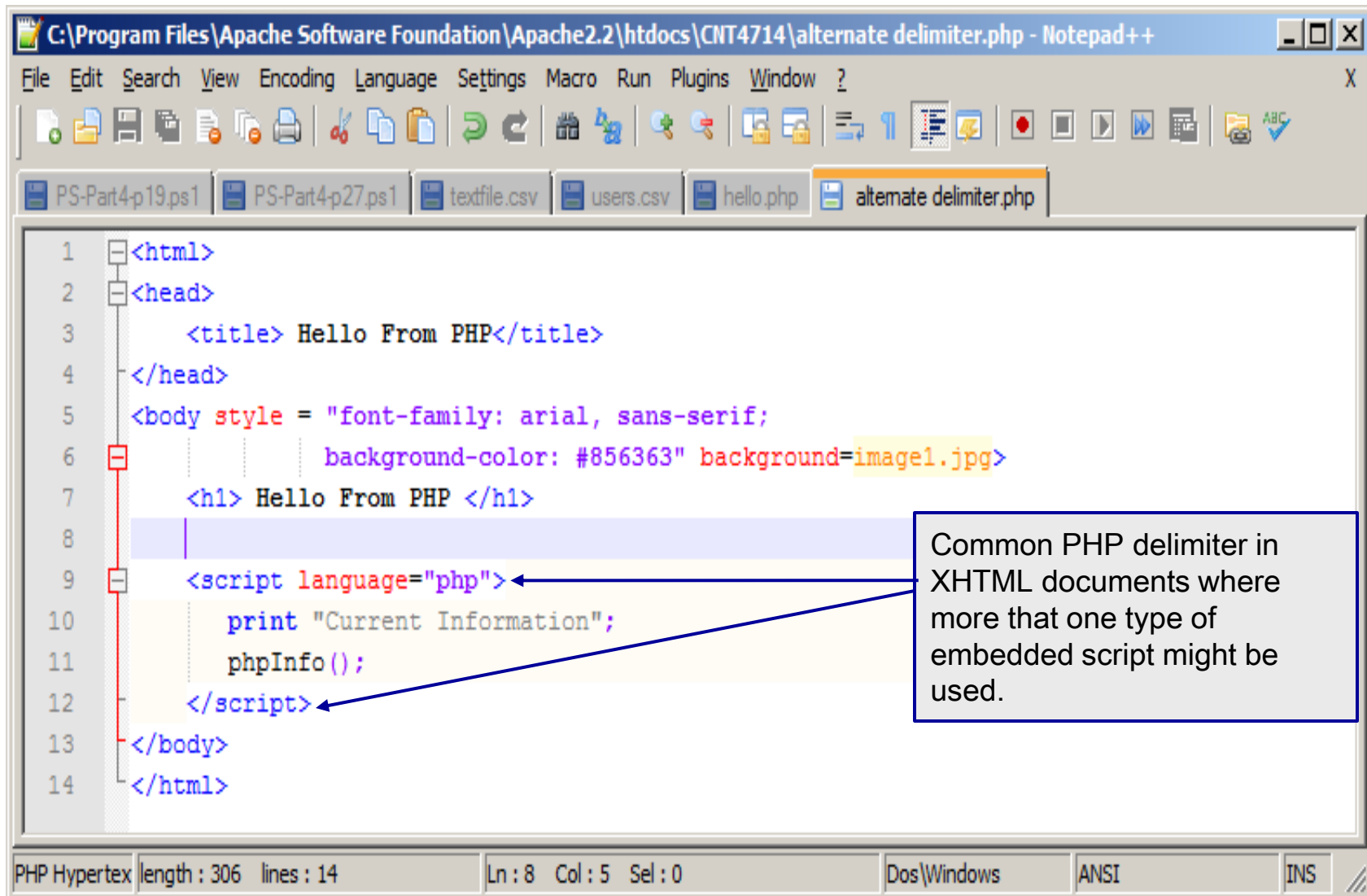University of Central Florida

Introduction to PHP

- We looked at a simple PHP example at the end of the set of notes that covered the installation of the Apache HTTP Server and PHP.

- PHP scripts can be created with any text editor, although Notepad++ is quite convenient for PHP scripting. I'll primarily use it in the examples.

- PHP script files should be saved with a `.php` extension.

- When PHP is embedded inside XHTML documents, as it commonly is, several different delimiters can be used. These are illustrated on the next page.

Introduction to PHP


```
1   <html>
2   <head>
3       <title> Hello From PHP</title>
4   </head>
5   <body style = "font-family: arial, sans-serif;
6                   background-color: #856363" background=image1.jpg>
7       <h1> Hello From PHP </h1>
8
9       <script language="php">
10          print "Current Information";
11          phpInfo();
12      </script>
13  </body>
14  </html>
```
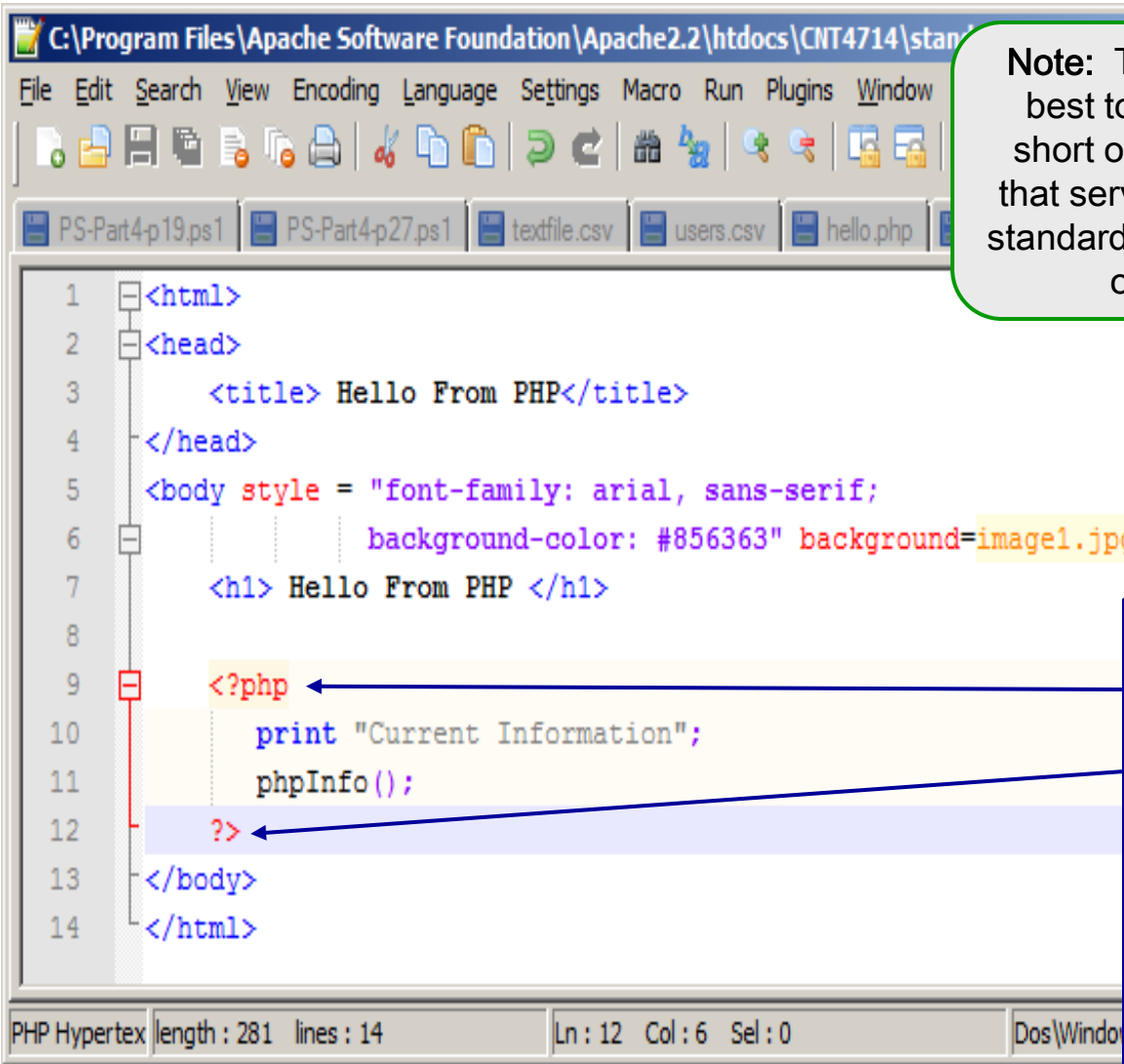
Common PHP delimiter in XHTML documents where more that one type of embedded script might be used.

Introduction to PHP

C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\stan...

File Edit Search View Encoding Language Settings Macro Run Plugins Window

PS-Part4-p19.ps1 | PS-Part4-p27.ps1 | textfile.csv | users.csv | hello.php |

```
 1  <html>
 2  <head>
 3      <title> Hello From PHP</title>
 4  </head>
 5  <body style = "font-family: arial, sans-serif;
 6               background-color: #856363" background=image1.jpg>
 7      <h1> Hello From PHP </h1>
 8
 9      <?php
10          print "Current Information";
11          phpInfo();
12      ?>
13  </body>
14  </html>
```

PHP Hypertex length : 281   lines : 14   Ln : 12   Col : 6   Sel : 0   Dos\Windo

Note: To ensure portable, reusable code, it is best to use the standard tags instead of the short or ASP-style tags for the simple reason that server configurations are unique - use the standard style because you know you can count on it as part of any configuration.

Standard PHP delimiter. If your PHP installation set-up has short_open_tag enabled, you can actually remove the php from the delimiter.
If asp_tags are enabled you cal use <% and %> as delimiters.

Introduction to PHP

- As with any programming language, good practice in writing scripts would require comments to be included within the script.

- In-line comments in PHP are indicated with two forward slashes (//).

- Comments can appear any where in the script file and can appear in any position on any line.

- Multiple line comments are delimited with /* and */

- Most PHP implementations also allow # to delimit in-line comments.

Variables In PHP

- You can select just about any set of characters for a variable name in PHP, but they must:
  - Use a dollar sign ($) as the first character.
  - Use a letter or an underscore character (_) as the second character.
- As with any programming/scripting language, good practice would suggest selecting variable names that help describe their function. For example `$counter` is more descriptive than `$c` or `$ctr`.
- You can use the `echo` statement or the `print()` function to output data in PHP. Which you use is more a matter of personal taste or style than anything else.

Variables In PHP

- To print out the value of a variable $x, write the following PHP statement:

  ```
  print ("$x");
  ```

- The following code will output "Candice is 26 years old".

  ```
  $age=26;

  print ("Candice is $age years old.");
  ```

- The next page illustrates a full example using PHP variables.

Note: Constants are defined in PHP using the built-in `define()` function. As its name would imply a constant's value cannot be changed once it is set.

```html
<html>
<head>
    <title> Data Types In PHP</title>
</head>
<body style = "font-family: arial, sans-serif;
                background-color: #856363" background=image1.j
    <h1> Defining and Using A Constant In PHP </h1>

    <?php
        define("YEAR", 2011);
        echo "Today is November 7, ". YEAR;
    ?>
</body>
</html>
```

Data Types In PHP - Opera

Opera | Data Types In PHP | x | +

Web | localhost:8081/CNT4 | Searc

Defining and Using A Constant In PHP

Today is November 7, 2011

Update Ready

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?   X

alternate delimiter.php | defining constants.php | variable example.php

```php
 1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 2      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
 3  <html xmlns="http://www.w3.org/1999/xhtml">
 4  <head>
 5      <title>Variable Examples</title>
 6      <meta http-equi="content-type" content="text/html'
 7  </head>
 8  <body  style = "font-family: arial, sans-serif;
 9          background-color: #856363"  background=image1.jpg>
10      <?php
11          $firstNum = 12;
12          $secondNum = 365;
13          $temp = $firstNum;
14          $firstNum = $secondNum;
15          $secondNum = $temp;
16          print("first number = $firstNum <br /> second number = $secondNum");
17      ?>
18  </body>
19  </html>
```

Variable Examples - Opera

Menu ∨   Va... X

first number = 365
second number = 12

View (100%)

PHP | length : 610   lines : 19   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

Data Types In PHP

- PHP is a dynamically typed language. This basically means that variables are not assigned a type when the variable is declared. Variable type is determined through assignment.

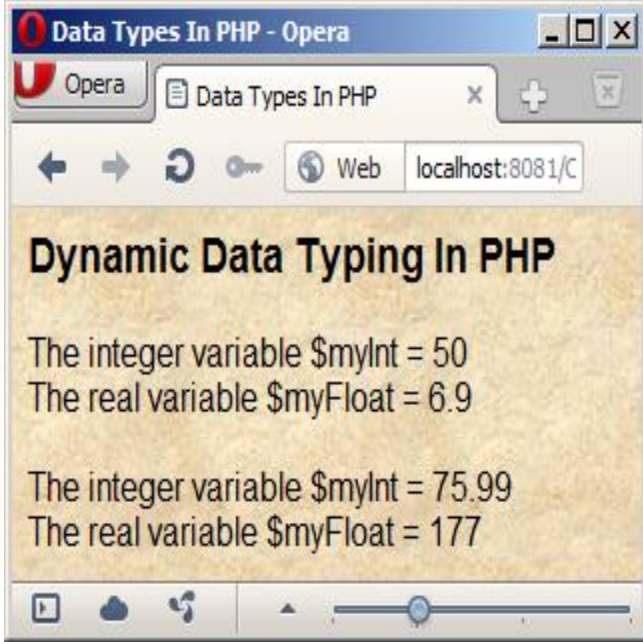- The standard data types in PHP are shown in the table below:

Data Type	Example	Description
Boolean	true	Either `true` or `false`
Integer	5	A whole number
Float or Double	3.14159	A floating-point number
String	"Hello"	A collection of characters
Object		An instance of a class
Array		An ordered set of keys and values
Resource		Reference to a 3rd party resource (e.g. a database)
NULL		An uninitialized variable

Dynamic Data Typing Example

```
C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\PHP\datatypes.php -...

File  Edit  Search  View  Encoding  Language  Settings  Macro  Run  Plugins  Window  ?

   multipurpose page template - alternate form.html      server.php      datatypes.php

 1   <html>
 2   <head>
 3    <title>Data Types In PHP</title>
 4   </head>
 5   <body  style = "font-family: arial, sans-serif;
 6          background-color: #856363"  background=image1.jpg>
 7   <h3> Dynamic Data Typing In PHP</h3>
 8   <?php
 9     $myInt = 50;
10     $myFloat = 6.9;
11     echo 'The integer variable $myInt = '. $myInt. "<br />";
12     echo 'The real variable $myFloat = '. $myFloat. "<br />";
13     echo "<br />";
14     $myInt = 75.99;
15     $myFloat = 177;
16     echo 'The integer variable $myInt = '. $myInt. "<br />";
17     echo 'The real variable $myFloat = '. $myFloat. "<br />";
18   ?>
19
20   </body>
21   </html>

length : 567   lines : 21   Ln : 21   Col : 8   Sel : 0          Dos\Windows          ANSI          INS
```

Data Types In PHP - Opera

Opera   Data Types In PHP

Web   localhost:8081/C

Dynamic Data Typing In PHP

The integer variable $myInt = 50
The real variable $myFloat = 6.9

The integer variable $myInt = 75.99
The real variable $myFloat = 177

The concatenation operator in PHP is the period.

Data Types In PHP

- Technically speaking, there are two types of strings in PHP: parsed and unparsed.

- Parsed strings are defined using double quotes and are parsed by PHP.

- Unparsed strings are defined using single quotes and are taken as is (they are not parsed).

- What's the difference? Within a parsed string, any references to variables within that string will be automatically replaced with their respective values, whereas within an unparsed string nothing is replaced.

- The example on the next page will clarify the differences.

Window title bar: C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\P...

Menu bar: File Edit Search View Encoding Language Settings Macro Run Plugins Window

Tabs: alternate delimiter.php | defining constants.php | parsed versus unparsed strings.ph

Browser title: Data Types In PHP - Opera

Browser tab: Data Types In PHP

Address bar: localhost/CIS9...

Browser content:

Parsed Versus Unparsed Strings In PHP

The integer variable 50 = 50
The integer variable $myInt = 50
Hi there
The value of $myInt = $myInt
The integer variable $myInt = 50

```php
1  <html>
2  <head>
3   <title>Data Types In PHP</title>
4  </head>
5  <body   style = "font-family: arial, sans-serif;
6        background-color: #856363"  background=imag
7   <h3> Parsed Versus Unparsed Strings In PHP</h3>
8  <?php
9     $myInt = 50;
10    $myString1 = "Hi there";
11    $myString2 = 'The value of $myInt = $myInt';
12    /* The next echo statement includes a reference to $myInt in a parsed string */
13    echo "The integer variable $myInt = ". $myInt. "<br />";
14    /* The next echo statement includes a reference to $myInt in an unparsed string */
15    echo 'The integer variable $myInt = '. $myInt. "<br />";
16    /* The next echo statement prints an unparsed string with no variable references */
17    echo $myString1. "<br />";
18    /* The next echo statement prints an unparsed string with a variable reference */
19    echo $myString2. "<br />";
20    /* The next echo statement contains both parsed and unparsed variable references */
21    echo "The integer variable ". '$myInt'. " = ". $myInt. "<br />";
22  ?>
23
24  </body>
```

Status bar: PHP Hypertext Preproce | length : 1013 | lines : 25 | Ln : 1 Col : 1 Sel : 0 | Dos\Windows | ANSI | INS

Arithmetic Operations In PHP

- PHP supports all normal arithmetic operators, with the normal semantic associated with each operator.

Operator	Effect	Example	Result
+	Addition	`$x = 2 + 2;`	`$x` is assigned 4.
–	Subtraction	`$y = 3;` `$y = $y – 1;`	`$y` is assigned 2.
/	Division	`$y = 14 / 2;`	`$y` is assigned 7.
*	Multiplication	`$z = 4;` `$y = $z * 4;`	`$y` is assigned 16.
%	Remainder	`$y = 14 % 3;`	`$y` is assigned 2.

- PHP supports automatic increment and decrement operations in both prefix and postfix form, i.e., -- and ++.

- Using an unassigned variable in an expression does not generate an error, the value is simply assumed to be null.

```php
<?php
   $y = 3;
   $y = $y + $x + 1;
   print("x=$x y=$y");
?>
```

The output is: `x=y=4`

String Variables In PHP

- PHP supports character string variables and this is a widely used aspect of PHP in handling form data.

- Be careful in PHP not to mix numeric and string types together in an expression.

- For example, you might expect the following statements to generate an error message, but they will not. Instead, they will output "y=1".

```php
<?php
    $x = "banana";
    $sum = 1 + $x'
    print("y=$sum");
?>
```

String Variables In PHP

- The string concatenation operator in PHP is the period as shown below:

```php
<?php
    $firstname = "Megan";
    $lastname = "Fox"
    $fullname = $firstname . $lastname;
    print("Full name = $fullname");
?>
```

The output of this script would be: `Fullname=MeganFox`

You can also use double quotation marks to create concatenation directly. Using the above example you could do the following: $fullname2 = "$firstname $lastname"; This would have the same effect as: $fullname2 = $firstname . $lastname;

String Variables In PHP

- PHP supports a large variety of string handling functions. A few of the more commonly used ones are illustrated on the next few pages.

- Most string functions require you to send them one or more arguments.

- Arguments are input values that functions use in the processing they do.

- Often functions return a value to the script based on the input arguments. For example:

```
$len = strlen($name);
```

Receives the number of characters in $name

Variable or value to work with

Name of function

String Variables In PHP

<u>strlen()</u> function:

- This function returns the number of characters in the string argument to the function. Consider the following script:

```php
<?php
        $comments = "Good Job";
        $len = strlen($comments);
        print ("Length=$len");
    ?>
```

This PHP script would output "Length=8".

String Variables In PHP

trim() function:

- This function removes any blank characters from the beginning and end of a string. For example, consider the following script:

```php
<?php
  $in_name = "     Megan  Fox  ";
  $name = trim($in_name);
  print ("name=$name$name");
?>
```

This PHP script would output "name=Megan FoxMegan Fox".

String Variables In PHP

strtolower() and strtoupper functions:

- These functions return the argument string in all uppercase or all lowercase letters, respectively. For example, consider the following script:

```php
<?php
    $inquote = "Now Is The Time";
    $lower = strtolower($inquote);
    $upper = strtoupper($inquote);
    print("upper=$upper lower=$lower");
?>
```

This PHP script would output "upper=NOW IS THE TIME lower = now is the time"

String Variables In PHP

substr() function:

• This function enables a PHP script to extract a portion of the characters in a string variable. The general syntax is:

Assign the extracted sub-string into this variable.

Starting position to start extraction from.

```
$part = substr( $name, 0, 5);
```

Extract from this string variable.

Number of characters to extract. (If omitted it will continue to extract until the end of the string.)

String Variables In PHP

<u>substr() function:</u>

- The substr() function enumerates character positions starting with 0 (not 1),

  - For example, in the string "Homer", the "H" would be position 0, the "o" would be position 1, the "m" position 2, and so on.

- For example, the following would output "Month=12 Day=25".

```php
<?php
  $date = "12/25/2002";
  $month = substr($date, 0, 2);
  $day = substr($date, 3, 2);
  print ("Month=$month Day=$day");
?>
```

String Variables In PHP

substr() function:

- This example does not include the third argument (and thus returns a substring from the starting position to the end of the search string).

```php
<?php
  $date = "12/25/2010";
  $year = substr($date, 6);
  print ("Year=$year");
?>
```

- The above script segment would output "Year=2010".

Controlling Script Flow In PHP

- PHP contains the normal control statements that handle decision making and iteration within a script.

- Normal logical operators are all supported with their standard semantics.

- As with many modern programming and scripting languages remember to use == in a logical comparison operation and not =. The single equal sign is an assignment operator and as such is always true. No syntax error is generated.

- The table on the following page illustrates the common logical operators in PHP.

Note: PHP also contains a === logical comparison operator (called the identical operatior). This binary operator returns true iff its two operands are equal in value and also have the same type.

Controlling Script Flow In PHP

Test Operator	Effect	Example	Result

==	Equal to	`if ($x == 6){`
		    `$x = $y + 1;`
		    `$y = $x + 1;`
		`}`
			Run the second and third statements if the value of `$x` *is equal to* 6.

!=	Not equal to	`if ($x != $y) {`
		    `$x = 5 + 1;`
		`}`
			Run the second statement if the value of `$x` *is not equal to* the value of `$y`.

<	Less than	`if ($x < 100) {`
		    `$y = 5;`
		`}`
			Run the second statement if the value of `$x` *is less than* 100.

>	Greater than	`if ($x > 51) {`
		    `print "OK";`
		`}`
			Run the second statement if the value of `$x` *is greater than* 51.

>=	Greater than or equal to	`if (16 >= $x) {`
		    `print "x=$x";`
		`}`
			Run the second statement if 16 *is greater than or equal to* the value of `$x`.

<=	Less than or equal to	`if ($x <= $y) {`
		    `print "y=$y";`
		    `print "x=$x";`
		`}`
			Run the second and third statements if the value of `$x` *is less than or equal to* the value of `$y`.

Controlling Script Flow In PHP

- PHP includes several different forms of logical control statements (decision statements).

- The `if` statement has the form:

```
if (expression) {

        //code to execute if expression evaluates to true

}
```

- The `if-else` statement has the form:

```
if (expression) {

        //code to execute if expression evaluates to true

} else {

        //code to execute when expression evaluates to false

}
```

Controlling Script Flow In PHP

- There is also an `elseif` clause that can be used with `if` statements for a nested stack of `if` statements. The basic syntax for this clause is:

```
if (expression) {

        //code to execute if expression evaluates to true

} elseif (another expression) {

        //code to execute when expression evaluates to false

        //and another expression evaluates to true

} else {

        //code to execute if all expressions evaluate to false

}
```

Controlling Script Flow In PHP

- PHP includes a `switch` statement which allows for multiple options for a single evaluation of an expression. The basic syntax for the `switch` statement is:

```
switch (expression) {
    case result1:
            //code to execute if expression evaluates to result1
            break;
    case result2:
            //code to execute if expression evaluates to result2
            break;

    . . .

    default:
            //code to execute if no break has been encountered
  }
```

Controlling Script Flow In PHP

- The following example uses an input form (XHTML) and two values are extracted from the form (`grade1` and `grade2`), passed to a PHP script which determines the average score, the maximum score and assigns a grade to the average for the student's scores.

- We'll get much more into forms and form handling in PHP later, but this simple example will illustrate several of the common threads that appear in form handling in PHP (and server side scripting in general).

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?   X
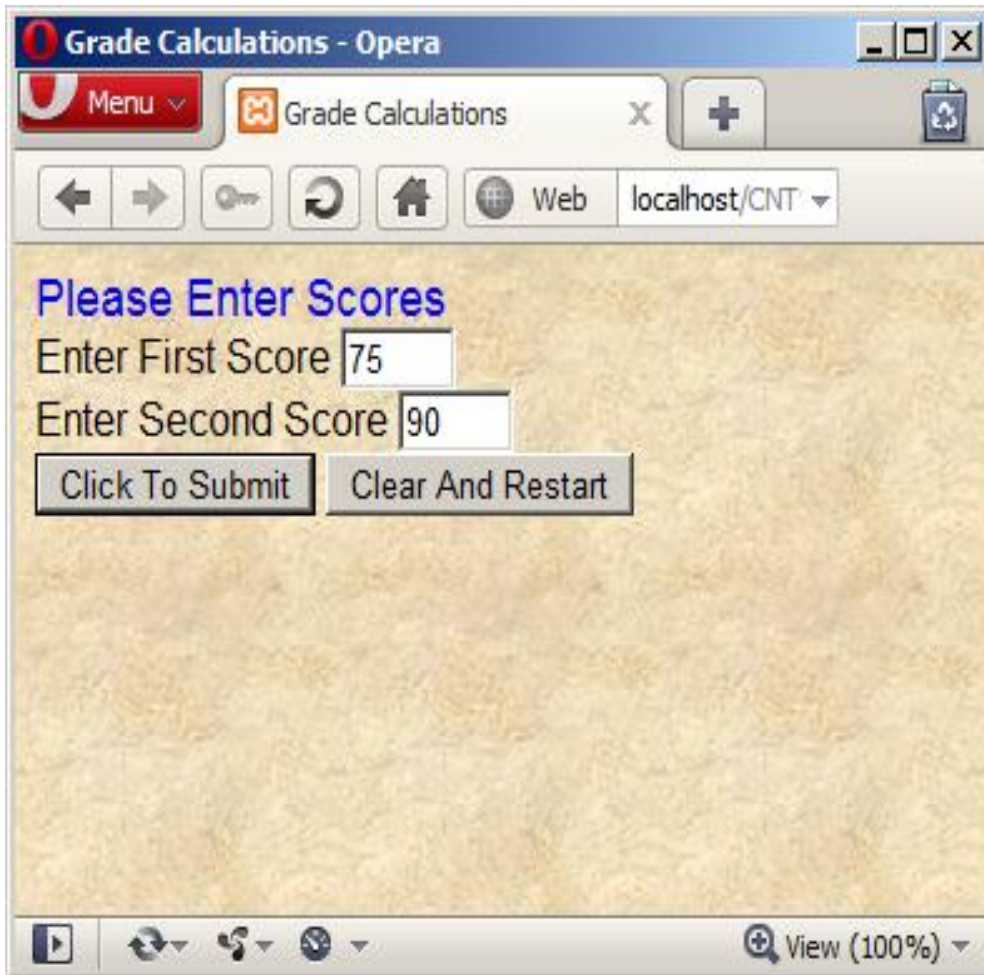
decisions.html

decisions.html

```
 1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 2      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
 3  <html xmlns="http://www.w3.org/1999/xhtml">
 4  <head>
 5      <title>Grade Calculations</title>
 6      <meta http-equi="content-type" content="text/html' charset=iso-8859-1" />
 7  </head>
 8  <body  style = "font-family: arial, sans-serif;
 9          background-color: #856363"  background=image1.jpg>
10      <form action="decisionsWithGlobals.php" method="post" >
11          <font size=4 color=blue>Please Enter Scores</font> <br />
12          First Name <input type="text" size="4" maxlength="7" name="grade1" /> <br />
13          Enter Second Score <input type="text" size="4" maxlength="7" name="grade2" /> <br />
14          <input type="submit" value="Click To Submit" >
15          <input type="reset" value="Clear And Restart" >
16      </form>
17  </body>
```

Hyper Text Markup Lang length : 812   lines : 18   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

Controlling Script Flow In PHP

Executing `decisions.html`
User enters two scores, clicks submit button.

Controlling Script Flow In PHP

Clicking the submit button triggers the action of the form and invokes the script `decisions.php` The script generates this page. The PHP script is shown on the next page.

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?   X

decisionsWithGlobals.php

```php
 8    <body  style = "font-family: arial, sans-serif;
 9              background-color: #856363"  background=image1.jpg>
10        <?php
11              $grade1 = $_POST["grade1"];
12              $grade2 = $_POST["grade2"];
13              $average = ($grade1 + $grade2)/2;
14              if ($average > 89){
15                  print ("Average = $average You got an A");
16              } elseif ($average > 79) {
17                print ("Average = $average You got a B");
18              } elseif ($average > 69) {
19                print ("Average = $average You got a C");
20              } elseif ($average > 59) {
21                print ("Average = $average You got a D");
22              } elseif ($average >= 0) {
23                print ("Average = $average You got an F ");
24              } else {
25                print ("Illegal average less than 0: Average = $average");
26              }
27              $max=$grade1;
28              if ($grade1 < $grade2) {
29                  $max = $grade2;
30              }
31            print ("<br /> Your maximum score was $max");
32        ?>
33    </body>
34    </html>
```

PHP Hypertext Preproce   length : 1115   lines : 34   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

Controlling Script Flow In PHP

- PHP supports three types of iterative constructs:

  - the `while` loop (both top and bottom tested versions are supported)

  - the `for` loop

  - and the `foreach` loop.

- The `for` and `while` loops act as you would expect given your knowledge of other programming languages. The `foreach` loop applies specifically to arrays in PHP. We'll look at the `foreach` loop later.

- The next couple of pages show the basic syntax for each of the iterative constructs in PHP.

Controlling Script Flow In PHP

- The syntax for the top tested version of the `while` loop is:

```
while (expression) {

        //statements to execute

}
```

- The syntax for the bottom tested version of the `while` loop is:

```
do {

        //statements to execute

} while (expression);
```
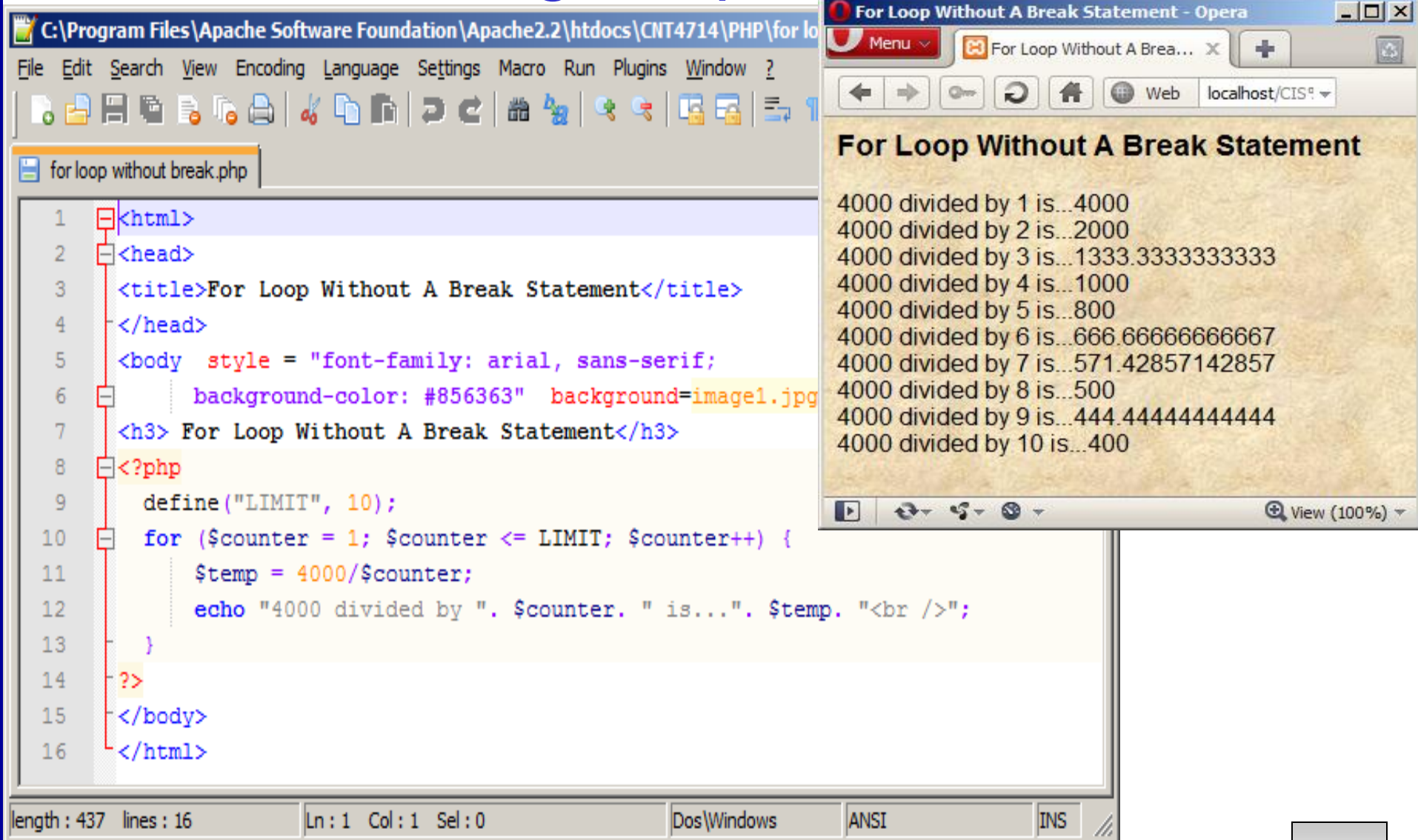
Controlling Script Flow In PHP

- The basic syntax `for` the for statement is:

```
for (initialization expr; test expr; modifying expr) {

        //statements to be executed

}
```

- The next couple of pages illustrates some of the nuances of dealing with counted loops in PHP.

Controlling Script Flow In PHP

```
     C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\PHP\for lo
     File  Edit  Search  View  Encoding  Language  Settings  Macro  Run  Plugins  Window  ?

     for loop without break.php

 1    <html>
 2    <head>
 3    <title>For Loop Without A Break Statement</title>
 4    </head>
 5    <body  style = "font-family: arial, sans-serif;
 6          background-color: #856363"  background=image1.jpg
 7    <h3> For Loop Without A Break Statement</h3>
 8    <?php
 9       define("LIMIT", 10);
10       for ($counter = 1; $counter <= LIMIT; $counter++) {
11          $temp = 4000/$counter;
12          echo "4000 divided by ". $counter. " is...". $temp. "<br />";
13       }
14    ?>
15    </body>
16    </html>

length : 437   lines : 16        Ln : 1   Col : 1   Sel : 0        Dos\Windows      ANSI       INS
```

For Loop Without A Break Statement - Opera

For Loop Without A Break Statement

4000 divided by 1 is...4000
4000 divided by 2 is...2000
4000 divided by 3 is...1333.3333333333
4000 divided by 4 is...1000
4000 divided by 5 is...800
4000 divided by 6 is...666.66666666667
4000 divided by 7 is...571.42857142857
4000 divided by 8 is...500
4000 divided by 9 is...444.44444444444
4000 divided by 10 is...400

Controlling Script Flow In PHP

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?

for loop without break V2.php   for loop with break.php

```
1    <html>
2    <head>
3    <title>For Loop Without A Break Statement</title>
4    </head>
5    <body   style = "font-family: arial, sans-serif;
6           background-color: #856363"   background=image1.jpg>
7    <h3> For Loop Without A Break Statement</h3>
8    <?php
9       define("LIMIT", 10);
10      $counter = -4;
11      for (; $counter <= LIMIT; $counter++) {
12          $temp = 4000/$counter;
13          echo "4000 divided by ". $counter. " is...". $temp. "<br />";
14      }
15    ?>
16    </body>
17    </html>
```

What do you expect will happen when $counter == 0?

length : 443   lines : 17   Ln : 11   Col : 10   Sel : 0   Dos\Windows   ANSI   INS

For Loop Without A Break Statement

4000 divided by -4 is...-1000
4000 divided by -3 is...-1333.3333333333
4000 divided by -2 is...-2000
4000 divided by -1 is...-4000

Warning: Division by zero in **C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\PHP \for loop without break V2.php** on line **12**
4000 divided by 0 is...
4000 divided by 1 is...4000
4000 divided by 2 is...2000
4000 divided by 3 is...1333.3333333333
4000 divided by 4 is...1000
4000 divided by 5 is...800
4000 divided by 6 is...666.66666666667
4000 divided by 7 is...571.42857142857
4000 divided by 8 is...500
4000 divided by 9 is...444.44444444444
4000 divided by 10 is...400

Division by zero is not a fatal error in PHP. Instead a warning is generated an execution continues. (Note that this warning is only displayed if `display_errors = On` in your php.ini file. Otherwise it looks like the following page.

The possible fixes are shown on the next two pages.

Opera | For Loop Without A Brea... ✕
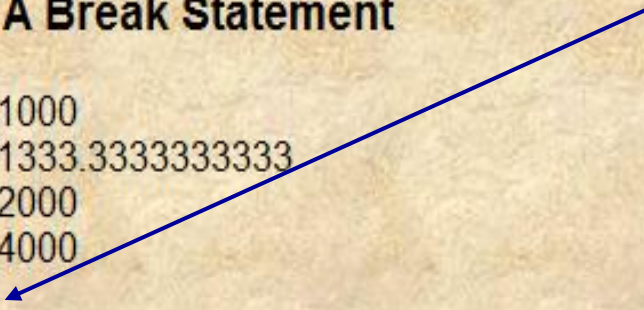
localhost:8081/CNT4714/PHP/for%20loop%20withou

For Loop Without A Break Statement

4000 divided by -4 is...-1000
4000 divided by -3 is...-1333.3333333333
4000 divided by -2 is...-2000
4000 divided by -1 is...-4000
4000 divided by 0 is...
4000 divided by 1 is...4000
4000 divided by 2 is...2000
4000 divided by 3 is...1333.3333333333
4000 divided by 4 is...1000
4000 divided by 5 is...800
4000 divided by 6 is...666.66666666667
4000 divided by 7 is...571.42857142857
4000 divided by 8 is...500
4000 divided by 9 is...444.44444444444
4000 divided by 10 is...400

If `display_errors = Off` in your php.ini file (which is the typical default setting), you'll see this page.

The possible fixes are shown on the next two pages.

Controlling Script Flow In PHP

```
 1  <html>
 2  <head>
 3  <title>For Loop With A Break Statement</title>
 4  </head>
 5  <body  style = "font-family: arial, sans-seri
 6          background-color: #856363"  background=
 7  <h3> For Loop With A Break Statement</h3>
 8  <?php
 9     define("LIMIT", 10);
10     $counter = -4;
11     for (; $counter <= LIMIT; $counter++) {
12        if ($counter == 0) {
13           break;
14        } else {
15              $temp = 4000/$counter;
16              echo "4000 divided by ". $counter. " is...". $temp. "<br />";
17        }
18     }
19  ?>
20  </body>
21  </html>
```

length : 508   lines : 21   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

For Loop With A Break Statement

4000 divided by -4 is...-1000
4000 divided by -3 is...-1333.3333333333
4000 divided by -2 is...-2000
4000 divided by -1 is...-4000

Use a break statement to terminate the loop in a division by zero case.

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window

for loop without break V2.php | for loop with break.php | for loop with continue.php

```php
1   <html>
2   <head>
3   <title>For Loop With A Continue Statement</title>
4   </head>
5   <body  style = "font-family: arial, sans-serif;
6          background-color: #856363"  background=image
7   <h3> For Loop With A Continue Statement</h3>
8   <?php
9      define("LIMIT", 10);
10     $counter = -4;
11     for (; $counter <= LIMIT; $counter++) {
12        if ($counter == 0) {
13           continue;
14        } else {
15              $temp = 4000/$counter;
16              echo "4000 divided by ". $counter. " is...". $temp. "<br />";
17        }
18     }
19  ?>
20  </body>
21  </html>
```

length : 517   lines : 21   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

For Loop With A Continue Statement - Opera

Menu | For Loop With A Continu... X | +

Web | localhost/CIS⁹

For Loop With A Continue Statement

4000 divided by -4 is...-1000
4000 divided by -3 is...-1333.3333333333
4000 divided by -2 is...-2000
4000 divided by -1 is...-4000
4000 divided by 1 is...4000
4000 divided by 2 is...2000
4000 divided by 3 is...1333.3333333333
4000 divided by 4 is...1000
4000 divided by 5 is...800
4000 divided by 6 is...666.66666666667
4000 divided by 7 is...571.42857142857
4000 divided by 8 is...500
4000 divided by 9 is...444.44444444444
4000 divided by 10 is...400

View (100%)

Use a continue statement to skip the division by zero case.

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?   X

Nested Loop Example

for loop without break V2.php | for loop with break.php | for loop with continue.php | nested lo

```php
 1  <html>
 2  <head>
 3   <title>For Loop With A Continue Statement</title>
 4  </head>
 5  <body  style = "font-family: arial, sans-serif;
 6        background-color: #856363"  background=image1.jpg>
 7  <h3> Nested Loops</h3>
 8  <?php
 9    define("LOWER_LIMIT", 1);
10    define("UPPER_LIMIT", 12);
11    echo "<table style=\"border: 1px solid black; \"> \n";
12    for ($i = LOWER_LIMIT; $i <= UPPER_LIMIT; $i++) {
13      echo "<tr> \n";
14      for ($j = LOWER_LIMIT; $j <= UPPER_LIMIT; $j++) {
15         echo "<td style=\"border: 1px solid black; width:25px; padding:4px; text-align:cent
16         echo( $i * $j);
17         echo "<td> \n";
18      }
19      echo "<tr> \n";
20    }
21    echo "</table?";
22  ?>
23  </body>
24  </html>
```

PHP Hypertext Pr | length : 667   lines : 24   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

localhost:8081/CNT4714/PHP/nested%20loops.

Nested Loop Example - Output

Nested Loops

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

Controlling Script Flow In PHP

- The example on the next couple of pages illustrates a while loop. Again, I've used a form to extract user input. This time the user input sets the lower and upper limit on the loop.
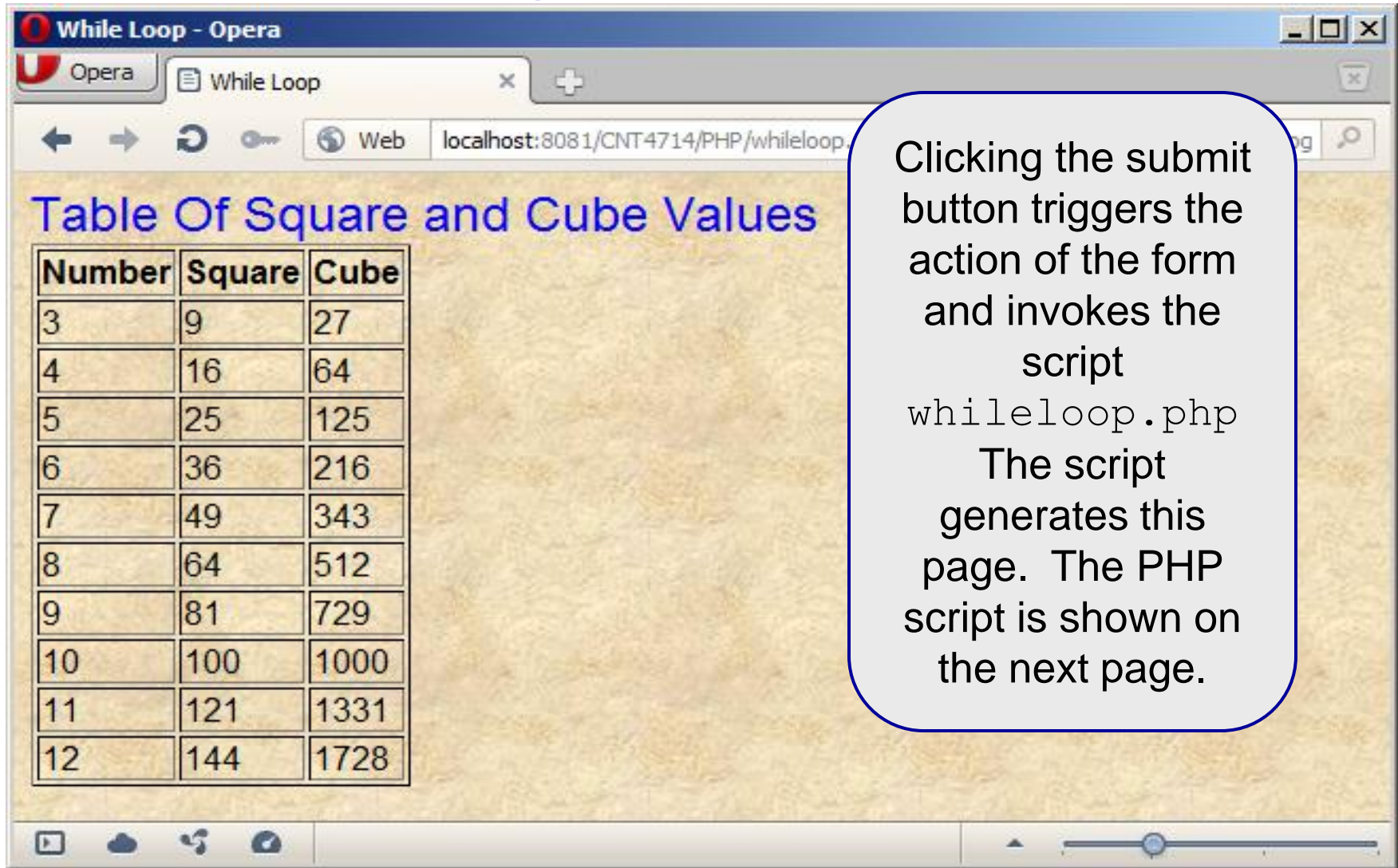
File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?   X

📁 for loop without break V2.php | 📁 for loop with break.php | 📁 for loop with continue.php | 📁 nested loops

whileloop.html

```
 1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 2         "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
 3  <html xmlns="http://www.w3.org/1999/xhtml">
 4  <head>
 5      <title>While Loop Demo</title>
 6      <meta http-equi="content-type" content="text/html' charset=iso-8859-1" />
 7  </head>
 8  <body  style = "font-family: arial, sans-serif;
 9          background-color: #856363"  background=image1.jpg>
10      <form action="whileloop.php" method="post" >
11          Select Starting Number
12          <select name="start"><option>0</option> <option>1</option> <option>2</option>
13              <option>3</option> <option>4</option> <option>5</option> <option>6</option>
14              <option>7</option> <option>8</option> <option>9</option>
15          </select> <br />
16          Select Ending Number
17          <select name="end"><option>0</option> <option>10</option> <option>11</option>
18              <option>12</option> <option>13</option> <option>14</option> <option>15</option>
19              <option>16</option> <option>17</option> <option>18</option> <option>19</option
20          </select> <br />
21          <input type="submit" value="Submit" >
22          <input type="reset" value="Clear And Restart" >
23      </form>
24  </body>
25  </html>
```

Hyper Text Markup Language file | length : 1121   lines : 25 | Ln : 1   Col : 1   Sel : 0 | Dos\Windows | ANSI | INS

Controlling Script Flow In PHP

Executing `whileloop.html` User enters lower and upper limits, clicks submit button.

Controlling Script Flow In PHP

While Loop - Opera

Opera | While Loop | × | +

Web | localhost:8081/CNT4714/PHP/whileloop...

Table Of Square and Cube Values

Number	Square	Cube
3	9	27
4	16	64
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000
11	121	1331
12	144	1728

Clicking the submit button triggers the action of the form and invokes the script `whileloop.php` The script generates this page. The PHP script is shown on the next page.

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?   X

[Tabs: for loop without break V2.php | for loop with break.php | for loop with continue.php | nested loops.php | whileloop.html | **whileloop.php**]

whileloop.php

```php
 1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 2      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
 3  <html xmlns="http://www.w3.org/1999/xhtml">
 4  <head>
 5      <title>While Loop</title>
 6      <meta http-equi="content-type" content="text/html' charset=iso-8859-1" />
 7  </head>
 8  <body  style = "font-family: arial, sans-serif;
 9          background-color: #856363"  background=image1.jpg">
10      <font size=5 color=blue> Table Of Square and Cube Values </font> <br />
11      <table border=1>
12          <th> Number </th> <th> Square </th> <th> Cube </th>
13          <?php
14              $start = $_POST["start"];
15              $end = $_POST["end"];
16              $i = $start;
17              while ($i <= $end) {
18                  $square = $i * $i;
19                  $cube = $i * $i * $i;
20                  print ("<tr><td>$i</td><td>$square</td><td>$cube</td></tr>");
21                  $i++;
22              }
23          ?>
24      </table>
25  </body>
26  </html>
```

PHP Hypertext Preprocessor file | length : 821 lines : 26 | Ln : 1 Col : 1 Sel : 0 | Dos\Windows | ANSI | INS
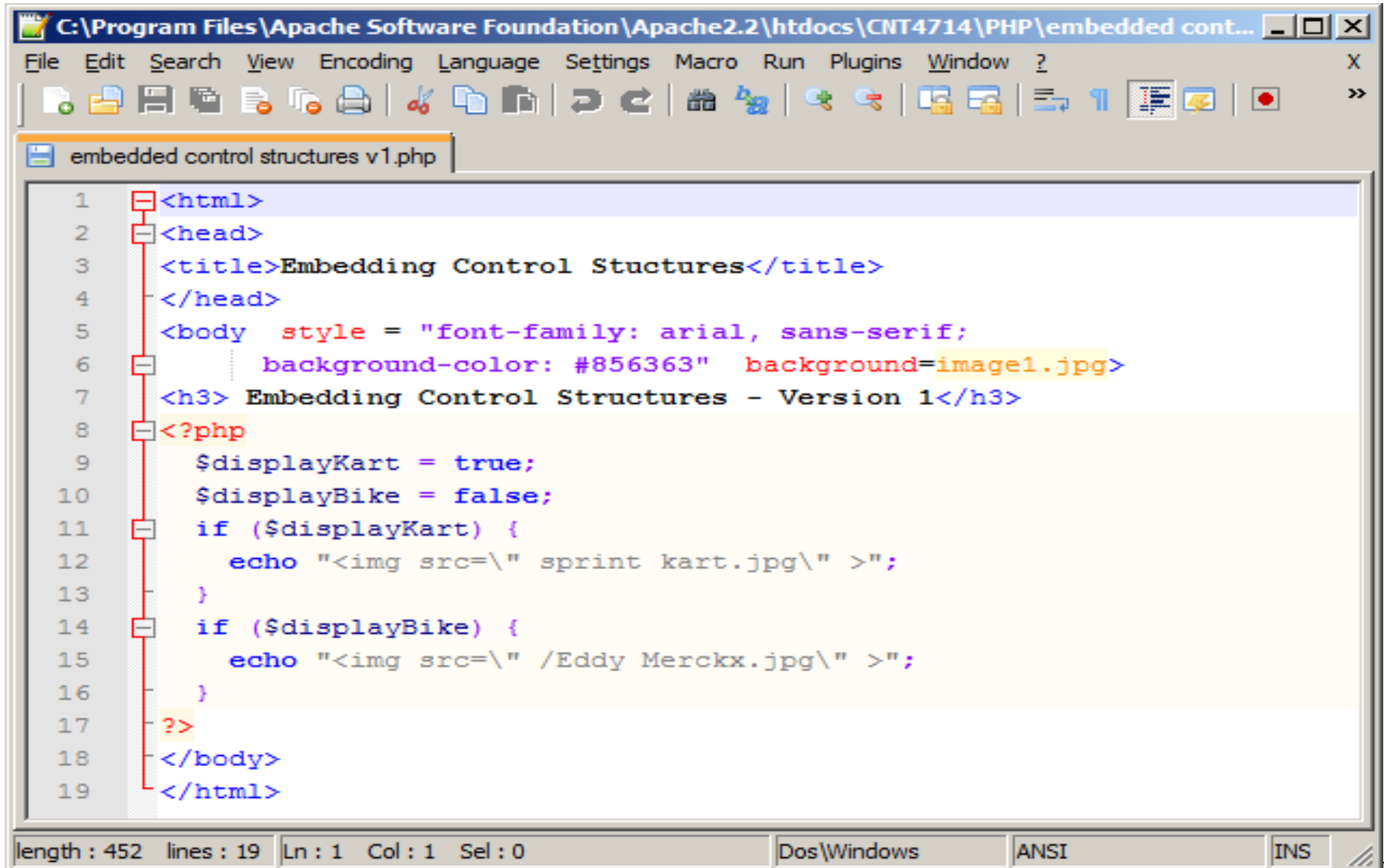
Embedding Control Structures

- Now that we've seen most of the control structures in PHP, we need to see how these control structures can be used more effectively to produce XHTML elements (or any other output).

- PHP is an embedded language that enables you to code both your XHTML and the supporting script in the same document.

- PHP takes this concept a bit further by allowing you to "turn off" the PHP parser during a control structure and embed non-PHP output without losing the logic provided by the control structure.

- The following example, illustrates this concept by displaying an image in your XHTML document only when a variable is set to true.

Embedding Control Structures


```
C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\PHP\embedded cont...
File  Edit  Search  View  Encoding  Language  Settings  Macro  Run  Plugins  Window  ?

embedded control structures v1.php

 1    <html>
 2    <head>
 3     <title>Embedding Control Stuctures</title>
 4     </head>
 5    <body  style = "font-family: arial, sans-serif;
 6          background-color: #856363"  background=image1.jpg>
 7     <h3> Embedding Control Structures - Version 1</h3>
 8    <?php
 9       $displayKart = true;
10       $displayBike = false;
11       if ($displayKart) {
12          echo "<img src=\" sprint kart.jpg\" >";
13       }
14       if ($displayBike) {
15          echo "<img src=\" /Eddy Merckx.jpg\" >";
16       }
17    ?>
18    </body>
19    </html>

length : 452   lines : 19   Ln : 1   Col : 1   Sel : 0        Dos\Windows      ANSI        INS
```
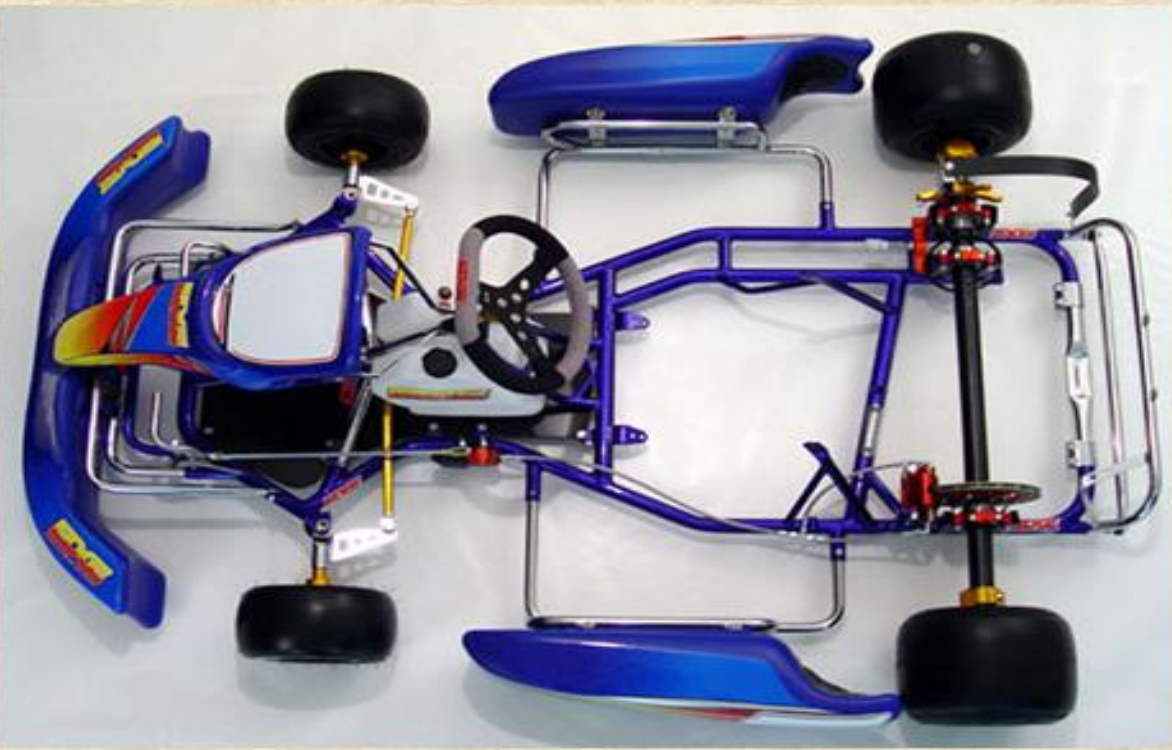
Embedding Control Structures

Embedding Control Structures

- Although the previous solution works and for novice PHP programmers it seems to be the most obvious technique, PHP provides an alternate syntax that is actually allows the embedding of the control structure into the markup.

- This alternative syntax is:

```
<?php . . .

    if (conditional): ?>

        - text/whatever that should be output but not parsed

<?php endif;

 ?>
```

- This is shown in the next version of this example on the following page.

C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\PHP\embedded cont...

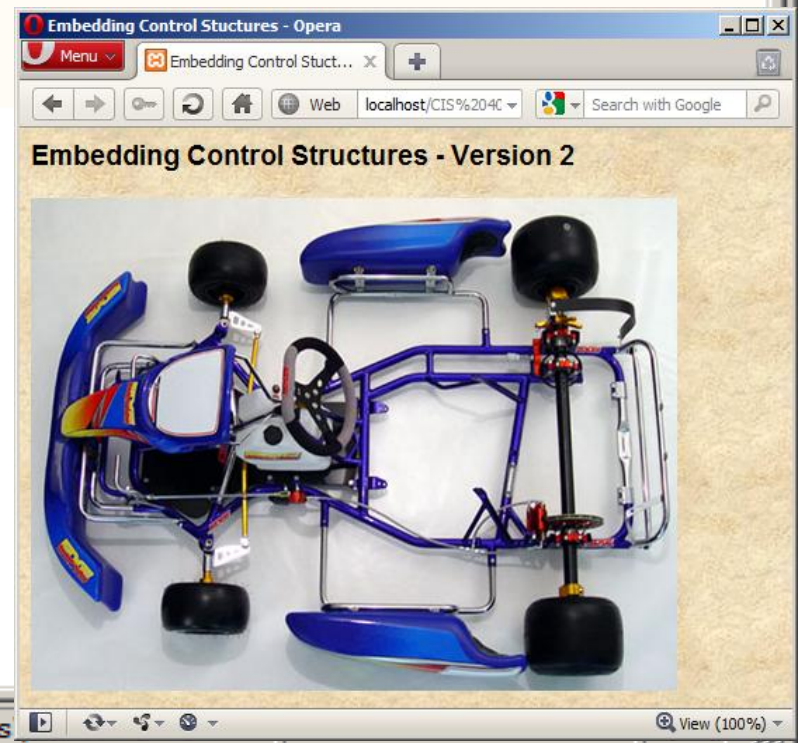File Edit Search View Encoding Language Settings Macro Run Plugins Window ?   X

embedded control structures v1.php   embedded control structures v2.php

```php
1  <html>
2  <head>
3  <title>Embedding Control Stuctures</title>
4  </head>
5  <body  style = "font-family: arial, sans-serif;
6         background-color: #856363"  background=image1.jpg>
7  <h3> Embedding Control Structures - Version 2</h3>
8  <?php
9      $displayKart = true;
10     $displayBike = false;
11  ?>
12    <?php if ($displayKart): ?>
13       <img src="sprint kart.jpg">
14     <?php endif; ?>
15    <?php if ($displayBike): ?>
16       <img src="Eddy Merckx.jpg">
17     <?php endif; ?>
18
19  </body>
20  </html>
```
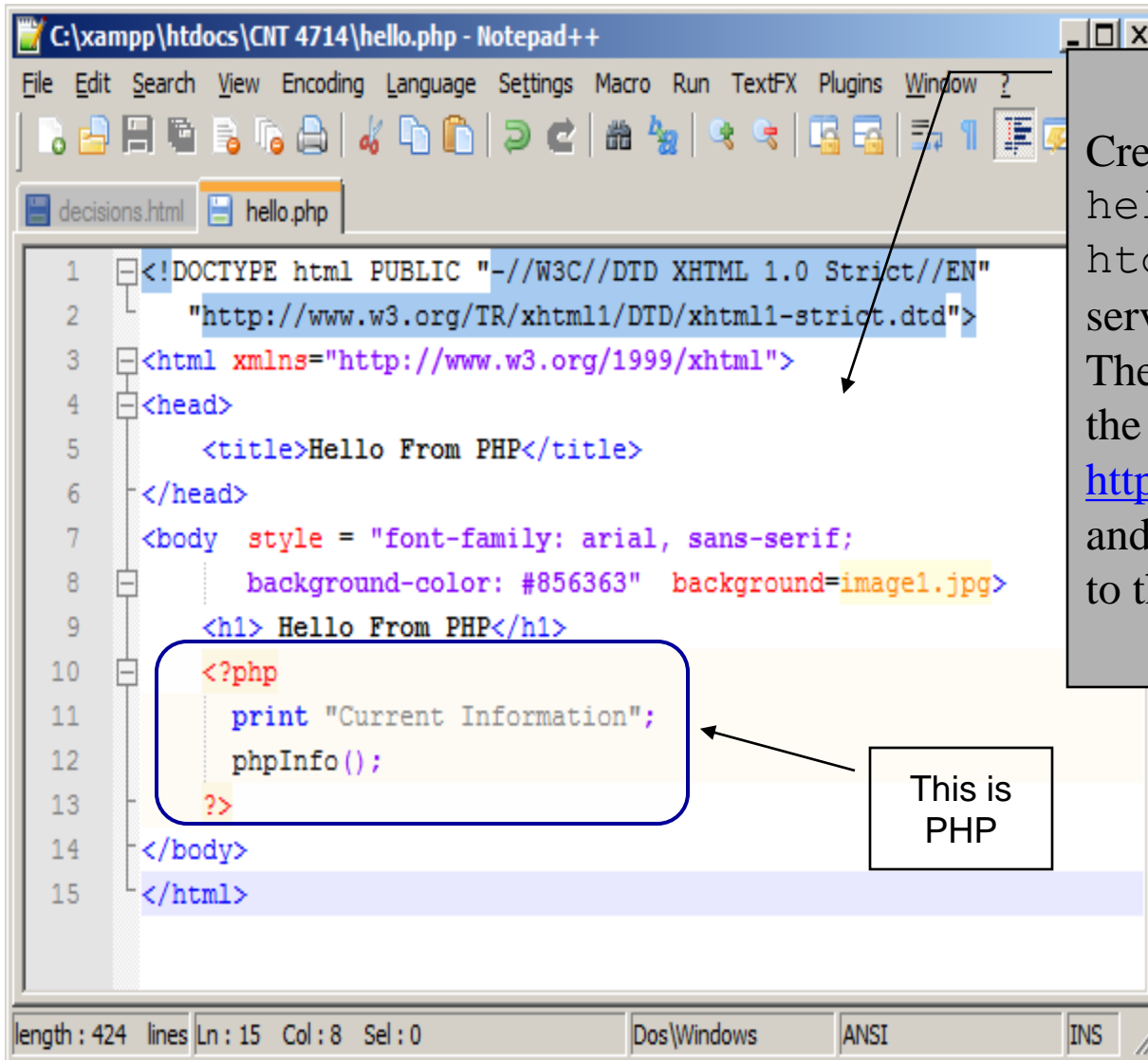
Embedding Control Stuctures - Opera

Menu   Embedding Control Stuct...   +

Web   localhost/CIS%2040   Search with Google

Embedding Control Structures - Version 2

length : 477   lines : 20   Ln : 1   Col : 1   Sel : 0   Dos

Using PHP With REGISTER_GLOBALS OFF

- Since PHP 4.2.0, PHP is shipped with the REGISTER_GLOBALS configuration variable set to OFF. Prior to version 4.2.0 this variable was set to ON, but represented a fairly large security concern, so since that time the default setting is OFF. While this setting can be overridden by local system administrators, it is wise not to do so.

- When PHP is configured with REGISTER_GLOBALS set to OFF, you need an extra step to receive input from forms, cookies, or session variables.

- You can tell your PHP site's status of REGISTER_GLOBALS by running the `phpInfo()` function that was shown in the `hello.php` script in the setting up PHP section of notes (repeated here)…

A PHP Test Example

C:\xampp\htdocs\CNT 4714\hello.php - Notepad++

```
1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
2       "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
3  <html xmlns="http://www.w3.org/1999/xhtml">
4  <head>
5       <title>Hello From PHP</title>
6  </head>
7  <body  style = "font-family: arial, sans-serif;
8           background-color: #856363"  background=image1.jpg>
9       <h1> Hello From PHP</h1>
10      <?php
11        print "Current Information";
12        phpInfo();
13      ?>
14  </body>
15  </html>
```

This is PHP

Create this file named `hello.php` and save it to the `htdocs` folder in the Apache server.
Then start your browser and enter the URL:
http://localhost:8081/hello.php
and you should see output similar to that shown on the next slide.

output_handler	no value	no value
post_max_size	8M	8M
precision	14	14
realpath_cache_size	16K	16K
realpath_cache_ttl	120	120
register_argc_argv	Off	Off
register_globals	Off	Off
register_long_arrays	Off	Off
report_memleaks	On	On
report_zend_debug	On	On
safe_mode	Off	Off
safe_mode_exec_dir	no value	no value
safe_mode_gid	Off	Off
safe_mode_include_dir	no value	no value
sendmail_from	no value	no value
sendmail_path	no value	no value
serialize_precision	100	100

Scan down the output listing until you get to the Core settings for PHP and in this table you'll find the setting for REGISTER_GLOBALS. First column is the local value and the second column is the master value (originally set implementation value)

View (100%)

Using PHP With REGISTER_GLOBALS OFF

- When REGISTER_GLOBALS is set to OFF you must receive XHTML form input data using the $_POST, or $_GET associative arrays.

- Go back and look at the PHP scripts on pages 45 and 48 and you will see the $_POST associative array has been used in both examples to extract the input form data.

- We'll deal with this in more detail later, but for now these two examples should give you a good idea of how form data extraction is handled in PHP scripts.

- There are many other associative arrays utilized in PHP. The remainder of this set of notes is devoted to some of these arrays.
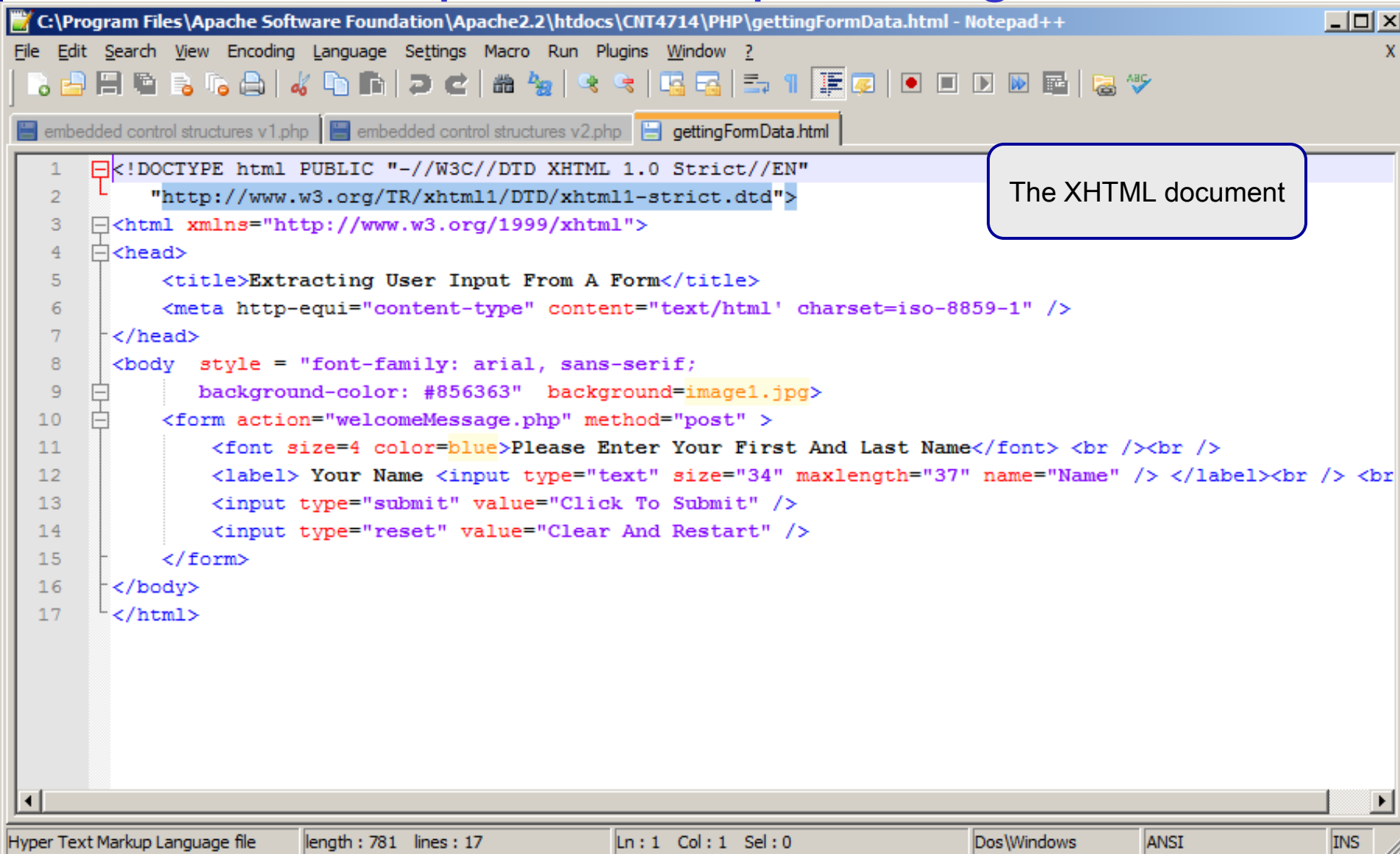
A More Complete Example Using Form Data

- Several of the previous examples illustrated extracting user input from form variables. Let's look at one more example, where we prompt a user for their first and last name, and then use that information to display on every page of our website.

- First, let's write the HTML form and PHP script necessary to get the user's name.

- The XHTML document is shown on page 59 and the PHP script is shown on page 60, with an example shown on page 61.
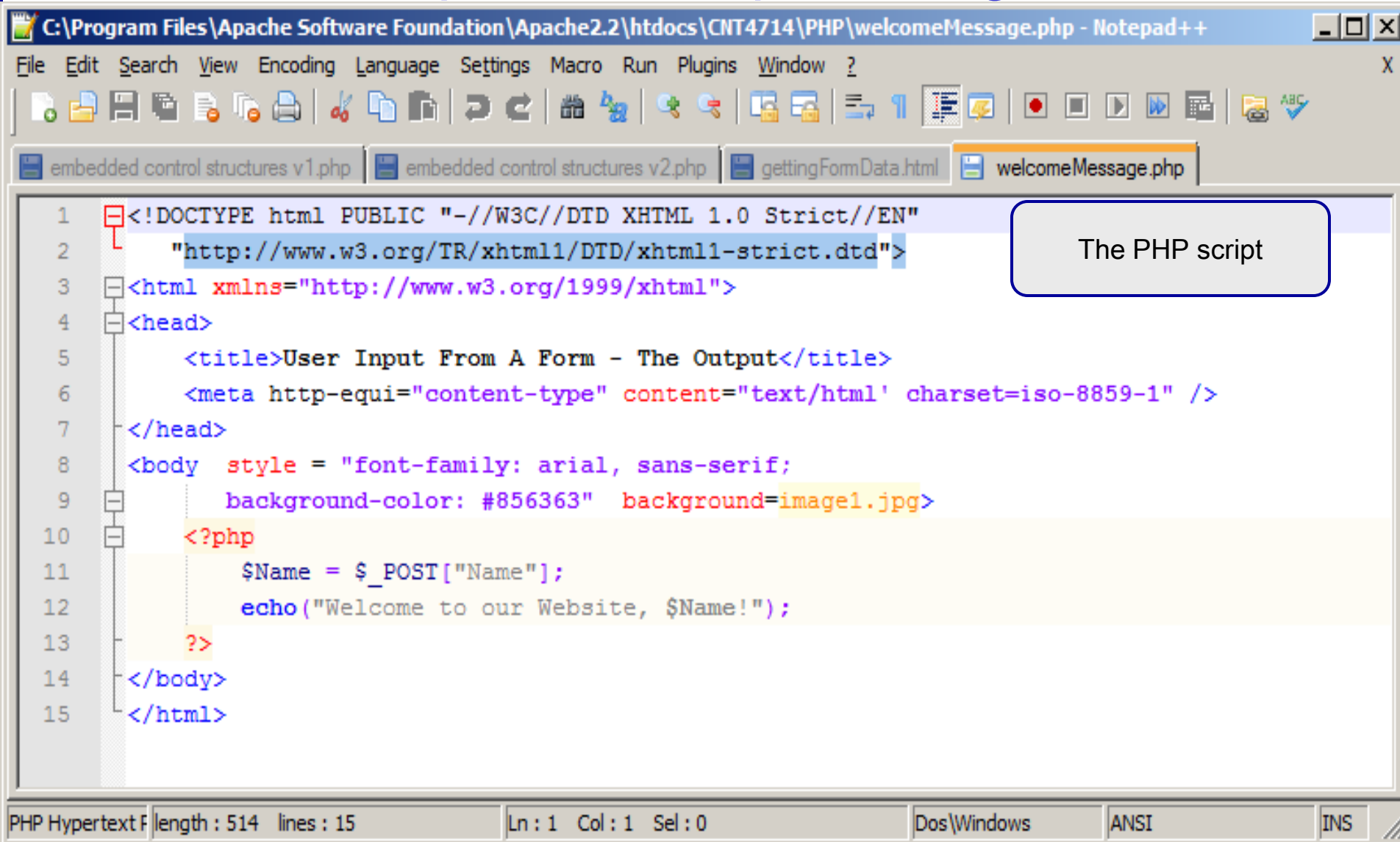
A More Complete Example Using Form Data

The XHTML document

```
1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
2      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
3  <html xmlns="http://www.w3.org/1999/xhtml">
4  <head>
5      <title>Extracting User Input From A Form</title>
6      <meta http-equi="content-type" content="text/html' charset=iso-8859-1" />
7  </head>
8  <body  style = "font-family: arial, sans-serif;
9          background-color: #856363"  background=image1.jpg>
10     <form action="welcomeMessage.php" method="post" >
11         <font size=4 color=blue>Please Enter Your First And Last Name</font> <br /><br />
12         <label> Your Name <input type="text" size="34" maxlength="37" name="Name" /> </label><br /> <br
13         <input type="submit" value="Click To Submit" />
14         <input type="reset" value="Clear And Restart" />
15     </form>
16  </body>
17  </html>
```

A More Complete Example Using Form Data

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?   X

embedded control structures v1.php | embedded control structures v2.php | gettingFormData.html | welcomeMessage.php

The PHP script

```
 1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 2      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
 3  <html xmlns="http://www.w3.org/1999/xhtml">
 4  <head>
 5      <title>User Input From A Form - The Output</title>
 6      <meta http-equi="content-type" content="text/html' charset=iso-8859-1" />
 7  </head>
 8  <body  style = "font-family: arial, sans-serif;
 9          background-color: #856363"  background=image1.jpg>
10      <?php
11          $Name = $_POST["Name"];
12          echo("Welcome to our Website, $Name!");
13      ?>
14  </body>
15  </html>
```

PHP Hypertext F | length : 514   lines : 15   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

A More Complete Example Using Form Data
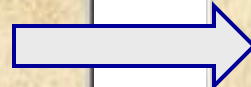
A More Complete Example Using Form Data

- Now suppose that we wanted to construct our website so that it showed the visitor's name at the top of every page.

- While the script we've just constructed gets us the required data, there are a couple of problems we need to overcome, if we're going to do this right.

  1. We need the name at the top of every page, not just the first one.

  2. We have no control over which page at our site the user might first enter.

- The first problem is fairly easy to handle, once the visitor's name is in a variable on one page, we simply pass it as part of any request for another page by adding the name to the query string of all links.

A More Complete Example Using Form Data

- To pass the name as part of a query string of a link, we'll embed PHP code right into the middle of an XHTML tag.

- This is perfectly legal and will work just fine.

- The revised link would look like the following:

```
<a href="newpage.php?name=<?php echo urlencode($_GET["name"]);?> />
```

- The `urlencode` function takes special characters in the string, e.g., spaces, and converts them into the special codes they need ot be in order to appear in the query string.

- For example, if the `$name` variable had a value of "Mark Llewellyn", then, since spaces are not allowed in a query string, the output of `urlencode` would be "Mark+Llewellyn". PHP would then convert it back automatically when it created the `$_GET` variable in `newpage.php`.

A More Complete Example Using Form Data

- Now that we know how to handle the first problem, we now need to figure out how to get the name in the first place.

- We constructed a special XHTML document that contained a form for the visitor to enter their name. The problem is that we don't want to force the user to enter our site by that page every time they visit the site.

- The solution is to have every page in the site check to see if a name has been specified and prompt the user for one if necessary.

- Pages in websites that can decide whether to display one thing or another are referred to as multipurpose pages. A basic template for a multipurpose page is shown on the following slide. With examples for our specific case shown on the pages following the template.
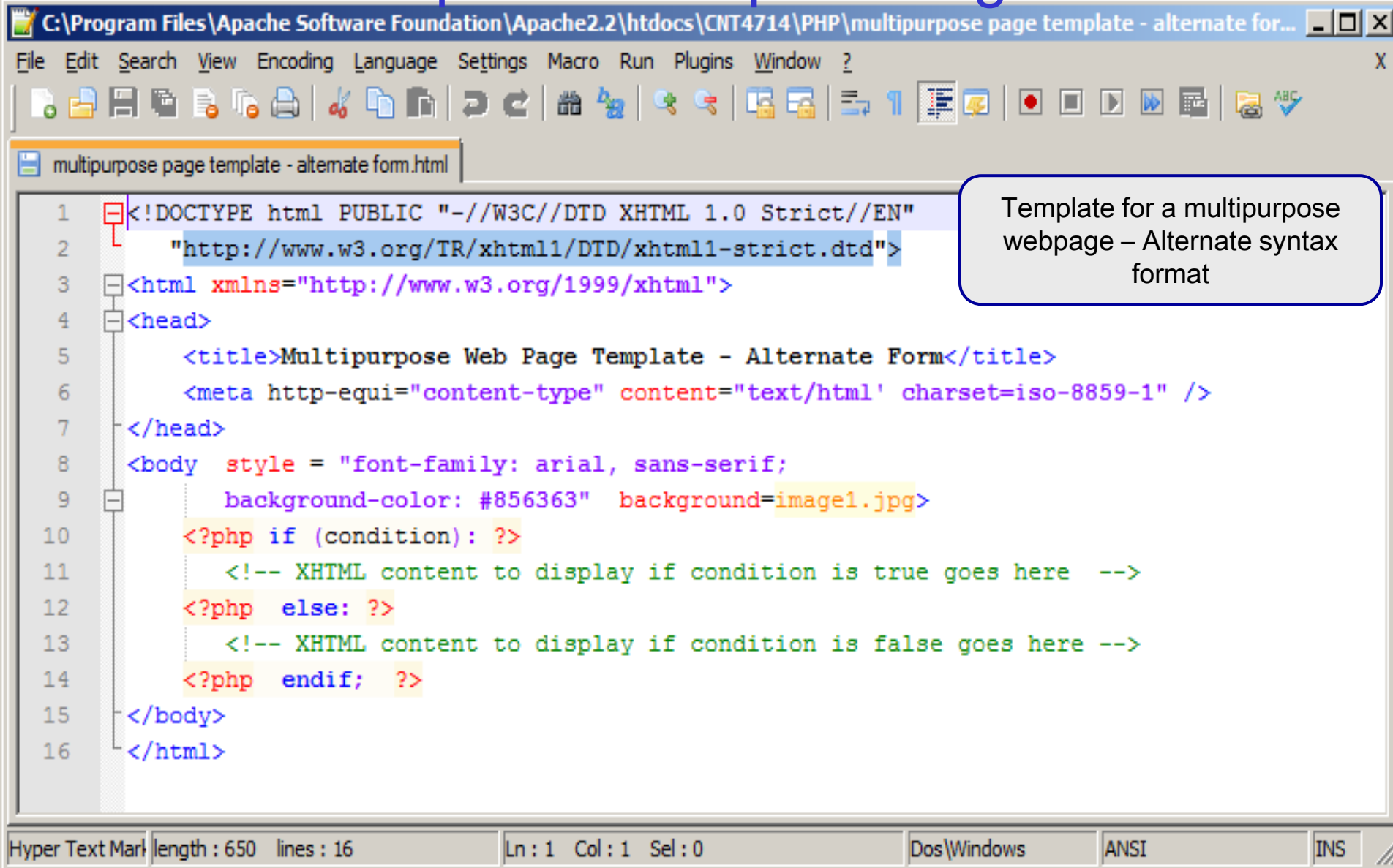
A More Complete Example Using Form Data

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?   X

embedded control structures v2.php | gettingFormData.html | welcomeMessage.php | mu

Template for a multipurpose webpage

```
1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN
2      "http://www          TR/xhtml1/D      -strict.dtd">
3  <html xmlns="         w.w3.org/19          >
4  <head>
5      <title>Multipurpose Web Page Template</title>
6      <meta http-equi="content-type" content="text/html' charset=iso-8859-1" />
7  </head>
8  <body  style = "font-family: arial, sans-serif;
9         background-color: #856363"  background=image1.jpg>
10     <?php if (condition) { ?>
11        <!-- XHTML content to display if condition is true goes here  -->
12     <?php } else { ?>
13        <!-- XHTML content to display if condition is false goes here -->
14     <?php }  ?>
15  </body>
16  </html>
```

Enter PHP mode

Exit PHP mode

Hyper Text Mark length : 630   lines : 16   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

A More Complete Example Using Form Data

File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?   X

multipurpose page template - alternate form.html

```
 1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 2      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
 3  <html xmlns="http://www.w3.org/1999/xhtml">
 4  <head>
 5      <title>Multipurpose Web Page Template - Alternate Form</title>
 6      <meta http-equi="content-type" content="text/html' charset=iso-8859-1" />
 7  </head>
 8  <body  style = "font-family: arial, sans-serif;
 9          background-color: #856363"  background=image1.jpg>
10      <?php if (condition): ?>
11          <!-- XHTML content to display if condition is true goes here  -->
12      <?php  else: ?>
13          <!-- XHTML content to display if condition is false goes here -->
14      <?php  endif;  ?>
15  </body>
16  </html>
```

> Template for a multipurpose webpage – Alternate syntax format

Hyper Text Mark   length : 650   lines : 16   Ln : 1   Col : 1   Sel : 0   Dos\Windows   ANSI   INS

Viewing Client/Server Environment Variables

- Knowledge of a client's execution environment is useful to system administrators who want to provide client-specific information.

- Environment variables contain information about a script's environment, such as the client's web browser, the HTTP host and the HTTP connection.

  - The table on the next page summarizes some of the superglobal arrays defined by PHP.

- The XHTML document on page 69 displays the values of the server's environment variables in a table. PHP stores the server variables and their values in the `$_SERVER` array. Iterating through the array allows one to view all of the server's environment variables.

Some Superglobal Environment Arrays

Variable Name	Description
$_SERVER	Data about the currently running server.
$_ENV	Data about the client's environment.
$_GET	Data posted to the server by the get method.
$_POST	Data posted to the server by the post method.
$_COOKIE	Data contained in cookies on the client's computer.
$GLOBALS	Array containing all global variables.

`server.php` Example

```
C:\Program Files\Apache Software Foundation\Apache2.2\htdocs\CNT4714\PHP\server.php - Notepad++
File   Edit   Search   View   Encoding   Language   Settings   Macro   Run   Plugins   Window   ?                          X
```

multipurpose page template - alternate form.html | server.php

```
 1   <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 2        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
 3   <html xmlns="http://www.w3.org/1999/xhtml">
 4   <!-- server.php                              -->
 5   <!-- Program to display $_SERVER variables -->
 6   <head>
 7        <title>SERVER Variables Display</title>
 8   </head>
 9   <body style = "font-family: arial, sans-serif;
10          background-color: #856363"  background=image1.jpg>
11        <table border = "0" cellpadding = "2" cellspacing = "0"
12             width = "100%">
13             <?php
14               // print the key and value for each element
15               // in the $_SERVER array
16               foreach ( $_SERVER as $key => $value )
17                 print( "<tr><td bgcolor = \"#11bbff\">
18                      <strong>$key</strong></td>
19                      <td>$value</td></tr>" );
20             ?>
21        </table>
22   </body>
23   </html>
```

> Iterate through the $_SERVER array to list all of the SERVER variables for the current server on which PHP is running.

```
PHP Hypertext F  length : 837   lines : 23        Ln : 1   Col : 1   Sel : 0            Dos\Windows        ANSI              INS
```

SERVER Variables Display

localhost:8081/CNT4714/PHP/server.php

HTTP_USER_AGENT	Opera/9.80 (Windows NT 6.0; U; Edition United States Local; en) Presto/2.9.168 Version/11.51
HTTP_HOST	localhost:8081
HTTP_ACCEPT	text/html, application/xml;q=0.9, application/xhtml+xml, image/png, image/webp, image/jpeg, image/gif, image/x-xbitmap, */*;q=0.1
HTTP_ACCEPT_LANGUAGE	en-US,en;q=0.9
HTTP_ACCEPT_ENCODING	gzip, deflate
HTTP_CONNECTION	Keep-Alive
PATH	C:\Program Files\PHP\;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Program Files\MySQL\MySQL Server 5.5\bin
SystemRoot	C:\Windows
COMSPEC	C:\Windows\system32\cmd.exe
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
WINDIR	C:\Windows
SERVER_SIGNATURE	
SERVER_SOFTWARE	Apache/2.2.21 (Win32) PHP/5.2.17
SERVER_NAME	localhost
SERVER_ADDR	127.0.0.1
SERVER_PORT	8081
REMOTE_ADDR	127.0.0.1