WEB APPLICATIONS

LECTURE 2

ARRAYS

LOOPS

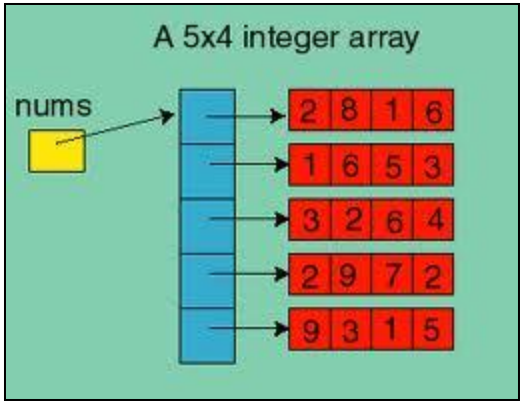
REGULAR EXPRESSIONS

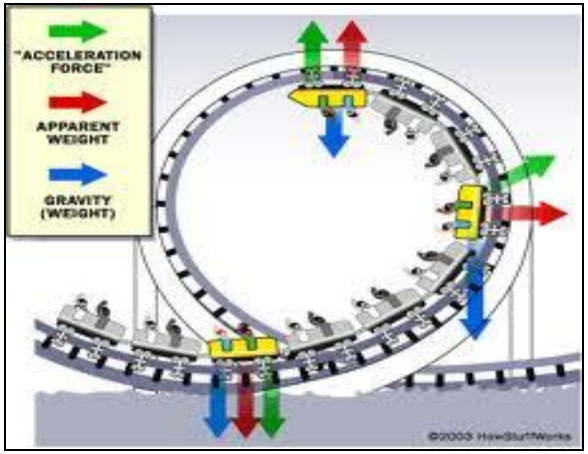
THIS WEEK

Arrays

Loops

Regular Expressions





WEB APPLICATIONS

Loops

For & While

Do

Arrays in PHP

- **Indexed arrays**
- **Associative arrays**
- **Searching arrays**
- **Sorting arrays**

Loops & Arrays

For

Foreach

While

Do-while

Regular Expressions

Regular expressions

Examples

- - phone / email/name

FOR LOOP

Similar to C and Java:

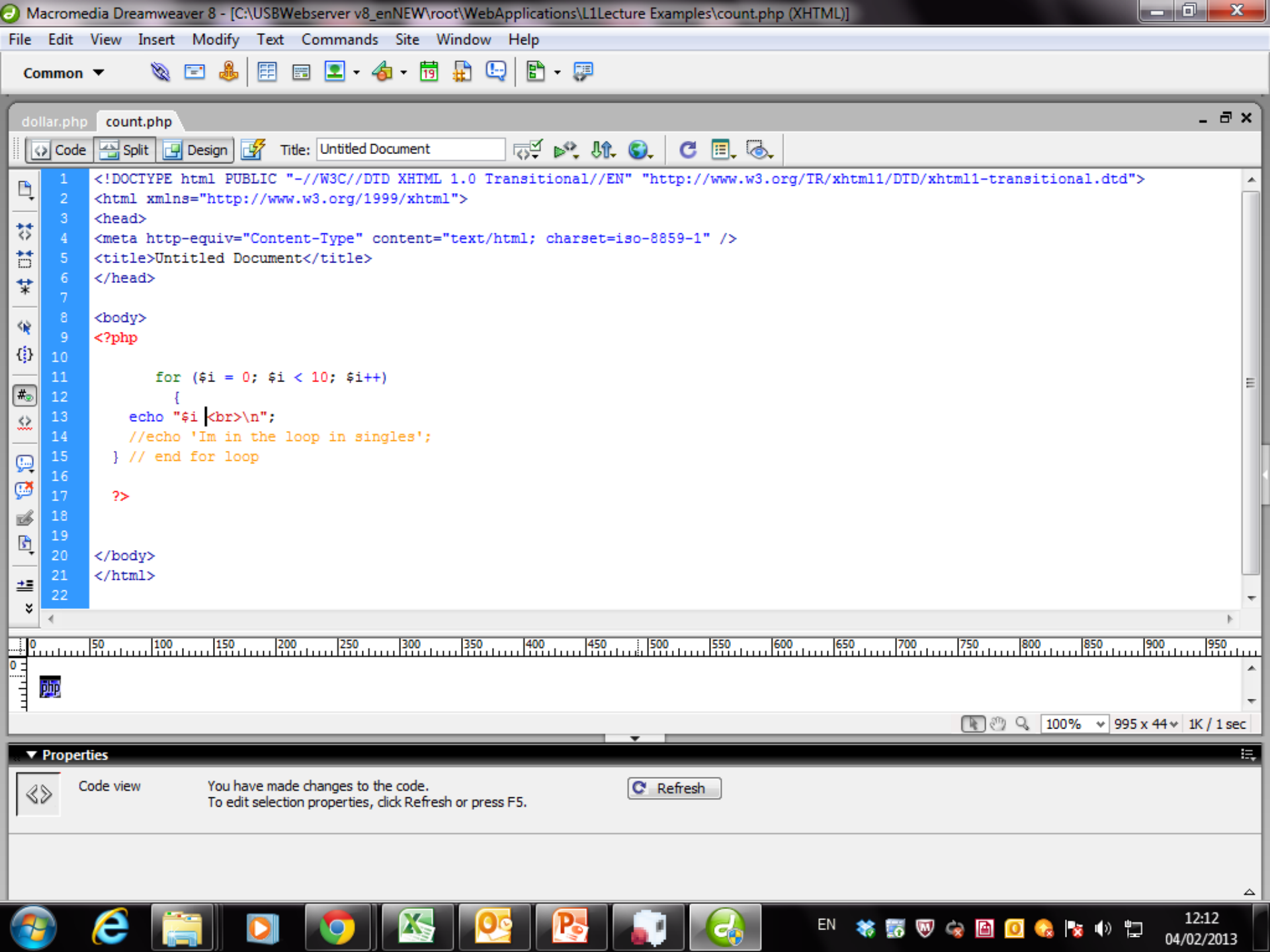
- simpleFor.php

```
<h1>A simple for loop</h1>
<? php
      for ($i = 0; $i < 10; $i++)
       {
         echo "$i <br>\n";
       } // end for loop

 ?>
```

- Exercises:
  - Count backwards from 10 …1
  - Count in 5s to 50

- See video on For Loop: http://wally.cs.iupui.edu/n342/


Macromedia Dreamweaver 8 - [C:\USBWebserver v8_enNEW\root\WebApplications\L1Lecture Examples\count.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
dollar.php count.php
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10
11 for ($i = 0; $i < 10; $i++)
12 {
13 echo "$i
\n";
14 //echo 'Im in the loop in singles';
15 } // end for loop
16
17 ?>
18
19
20 </body>
21 </html>
22
100% 995 x 44 1K / 1 sec
Properties
Code view
You have made changes to the code.
To edit selection properties, click Refresh or press F5.
Refresh
EN
12:12
04/02/2013

0
1
2
3
4
5
6
7
8
9

FOR LOOP EXAMPLE

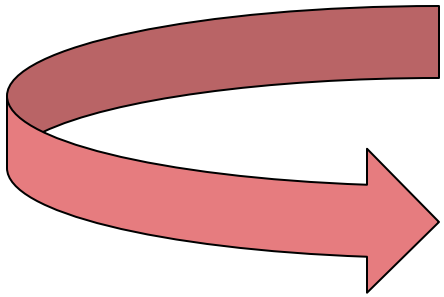
The example below defines a loop that starts with i=1. The loop will continue to run as long as i is less than, or equal to 5. i will increase by 1 each time the loop runs:

```
<html>
<body>

<?php
for (i=1; i<=5; i++)
  {
  echo "The number is " . i . "<br />";
  }
?>

</body>
</html>
```

Concatentation!



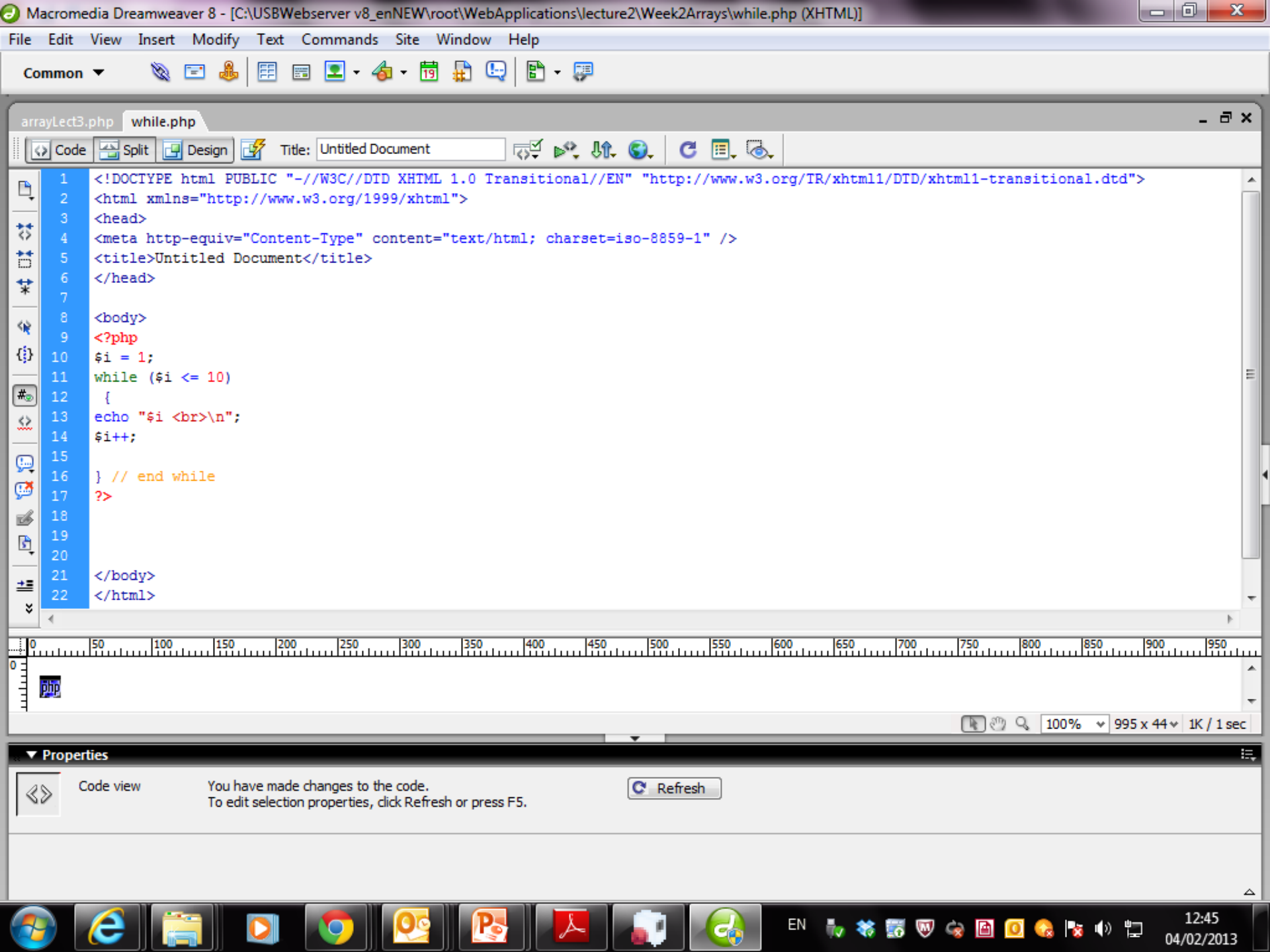
Output:

```
The number is 1
The number is 2
The number is 3
The number is 4
The number is 5
```

WHILE LOOP

```
<? php
$i = 1;
while ($i <= 10)
 {
    echo "$i <br>\n";
    $i++;

    } // end while
?>
```


Macromedia Dreamweaver 8 - [C:\USBWebserver v8_enNEW\root\WebApplications\lecture2\Week2Arrays\while.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
arrayLect3.php while.php
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10 $i = 1;
11 while ($i <= 10)
12 {
13 echo "$i
\n";
14 $i++;
15
16 } // end while
17 ?>
18
19
20
21 </body>
22 </html>
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950
100% 995 x 44 1K / 1 sec
Properties
Code view
You have made changes to the code.
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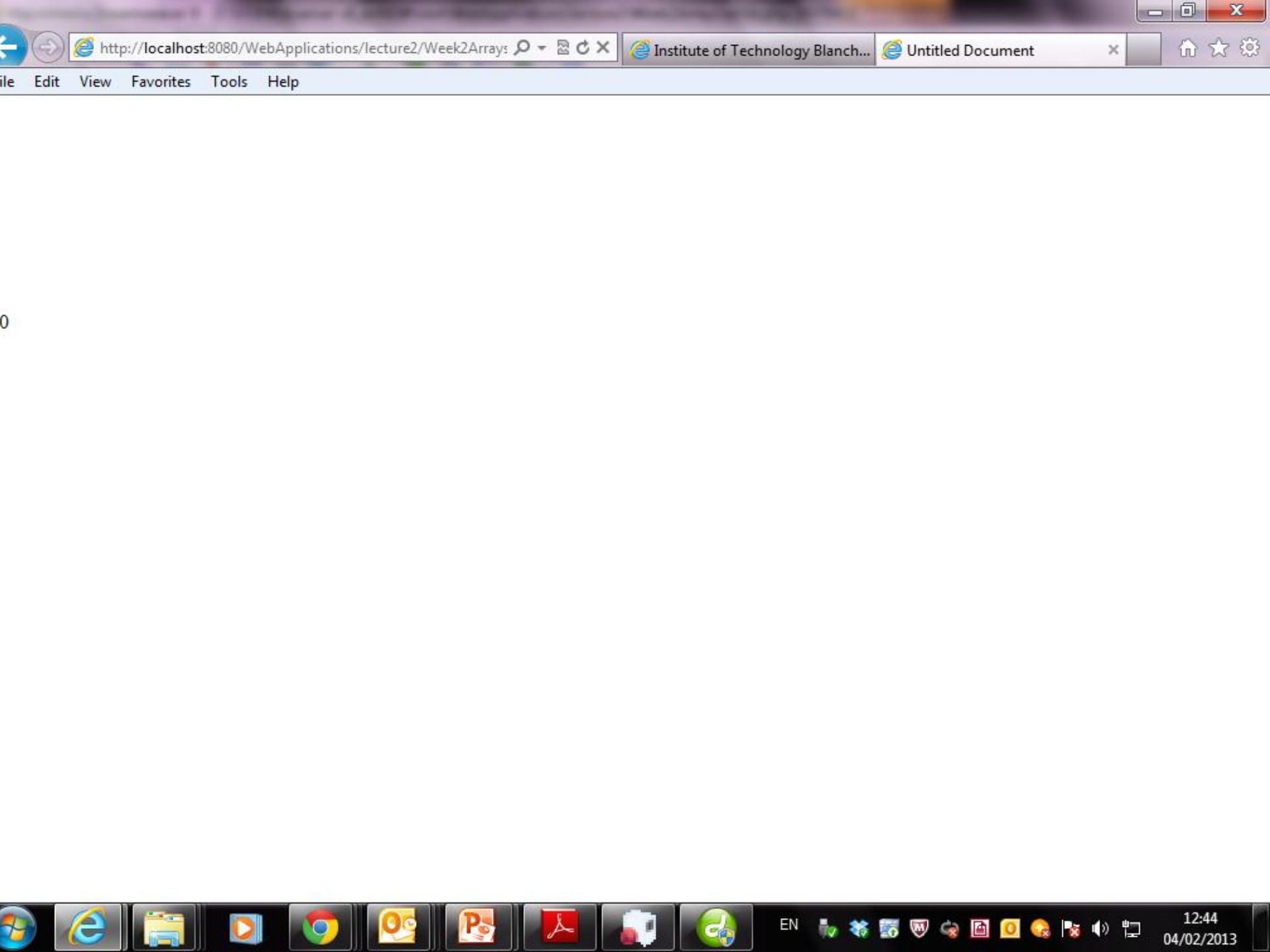
http://localhost:8080/WebApplications/lecture2/Week2Arrays
Institute of Technology Blanch...
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ile Edit View Favorites Tools Help
0
EN
12:44
04/02/2013

do while loop

- Similar to C and Java

```
do
{
    Statements
} while (condition)
```

Web Applications

Arrays in PHP

- Indexed arrays
- Associative arrays
- List() operation
- Searching arrays
- Sorting arrays

See video on Arrays : http://wally.cs.iupui.edu/n342/

ARRAYS – HOW DO THEY WORK?





1 2 3 4 5

ARRAYS – HOW DO THEY WORK?

1 2 3 4 5

- **All houses on the street are identified by a unique number for that street.**
- **The street has a name**

ARRAYS – HOW DO THEY WORK?

rain_fall

- **Think of an array as a collection of variables with a common name.**
- **Each individual variable is referenced by an address.**
- **The address (or first element) starts at 0.**

ARRAYS – HOW DO THEY WORK?

rain_fall

- **Lets fill our array with some values.**
- **Each variable can be referenced via the name of the array and the address (location) of the data**
- **E.g. rainfall[3] contains the value 8**

ARRAYS – HOW DO THEY WORK?

rain_fall

- **rain_fall[3] contains the value 8**
- **rain_fall[0] is the first element**
- **rain_fall[6] is the last element**

- **rain_fall[7] would produce an out of bounds error**

ARRAYS – HOW DO THEY WORK?

rain_fall

We could assign a new value to an element using the following

rain_fall[3] = 10;

This will result in the old value (8) being replaced with the new assignment vaue (10)

ARRAYS IN PHP

There are two types of arrays in PHP

- Numeric arrays (like the ones we have just looked at)
- Associative Arrays (we will look at these soon).

Lets take a look at some numeric examples

NUMERIC ARRAYS

A numeric array stores each array element with a numeric index.

There are two methods to create a numeric array.

1. In the following example the index are automatically assigned (the index starts at 0):

```
$cars=array("Saab","Volvo","BMW","Toyota");
```

NUMERIC ARRAYS

In the following example we assign the index manually:

```
$cars[0]="Saab";
$cars[1]="Volvo";
$cars[2]="BMW";
$cars[3]="Toyota";
```

NUMERIC ARRAYS - EXAMPLE

```
<?php

$cars[0]="Saab";
$cars[1]="Volvo";
$cars[2]="BMW";
$cars[3]="Toyota";
echo $cars[0] . " and " . $cars[1] . " are Swedish cars.";

?>
```

concatenation

The code above will output:

Saab and Volvo are Swedish cars.

ASSOCIATIVE ARRAYS

- An associative array, each ID key is associated with a value.

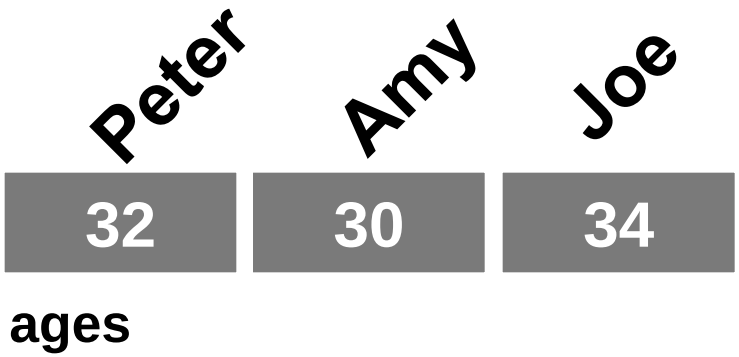
- When storing data about specific named values, a numerical array is not always the best way to do it.

- With associative arrays we can use the values as keys and assign values to them.

- $ages = array("Peter"=>32, ”Amy"=>30, "Joe"=>34);

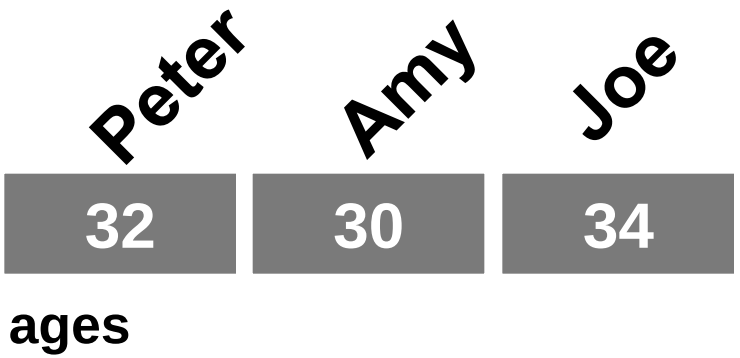
ASSOCIATIVE ARRAYS

```
$ages = array("Peter"=>32, ”Amy"=>30, "Joe"=>34);
```



ASSOCIATIVE ARRAYS

The ID keys can be used in a script:




```
<?php
$ages['Peter'] = "32";

$ages[‘amy'] = "30";

$ages['Joe'] = "34";

echo "Peter is " . $ages['Peter'] . " years old.";
?>
```

The code above will output:

Peter is 32 years old.

ASSOCIATIVE ARRAYS

How can we use an array instead of the following

```
<?php
$entryTitle = "Sample Title";
$entryDate = "April 13, 2009";
$entryAuthor = "Jason";
$entryBody = "Today, I wrote a blog entry.";
?>
```

ASSOCIATIVE ARRAYS

```
<?php
$entry = array(
'title' => 'Sample Title',
'date' => 'April 13, 2009',
'author' => 'Jason',
'body' => 'Today, I wrote a blog entry.'
);
?>
```

ASSOCIATIVE ARRAYS

- **The power of this approach resides in the fact that you now have all of that information stored in one array, $entry.**
- **To view any part of that information, you add the key to the end of the array in square brackets [ ].**

```
<?php
echo $entry['title'];          // Outputs "Sample Title"
echo $entry['date'];           // Outputs "April 13, 2009"
echo $entry['author'];         // Outputs "Jason"
echo $entry['body'];           // Outputs "Today, I wrote a blog entry."
?>
```

TYPES OF ARRAYS IN PHP

1. **Indexed arrays**
   - the indices are 0, 1, 2, ...
   - these are like arrays in C or Java

2. **Associative arrays**
   - indices are strings (keys)
   - Any values can be stored in an array

1. CREATING INDEXED ARRAYS

Creating and initializing an array

- Use the array() function to create an array
- `$a = array(10, 20,30);`
- `$b = array("tea", "milk", "sugar");`

- **Each item is separated by a comma**

- **Can specify as many items as you like**

- **Can specify item of any type**

- By default, index number start at zero, and arrays are assumed to be zero-based.

1. CREATING INDEXED ARRAYS CONT.

- `$a[0]` is 10, `$a[1]` is 20, `$a[2]` is `30`
- `$b[0]` is tea, `$b[1]` is milk, `$b[2]` is **`sugar`**

Can extend the array dynamically

- `$a[] = 30;  // this is then $a[3]`

Creating an array by auto vivification

- `$b[0] = 10;`
- `$b[1] = 20;`
- `$b[] =  30; // next element`
- `$b[] = 40; // next element`


Q&A

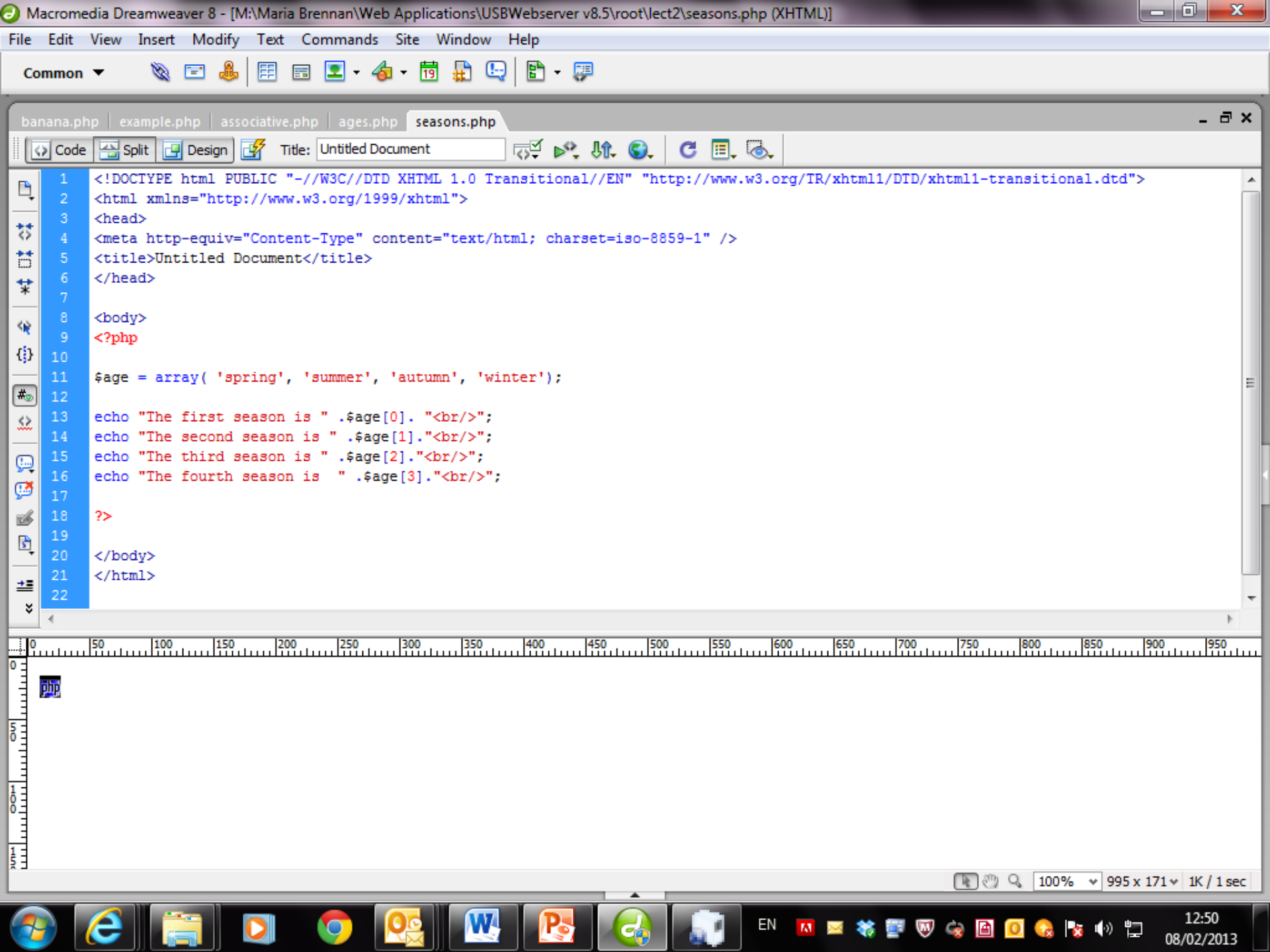
QUESTION

Create an array containing the 4 seasons.

Display in PHP –

The first season is …

The second season is ….


Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\seasons.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
banana.php example.php associative.php ages.php seasons.php
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10
11 $age = array('spring', 'summer', 'autumn', 'winter');
12
13 echo "The first season is " .$age[0]. "
";
14 echo "The second season is " .$age[1]."
";
15 echo "The third season is " .$age[2]."
";
16 echo "The fourth season is " .$age[3]."
";
17
18 ?>
19
20 </body>
21 </html>
22
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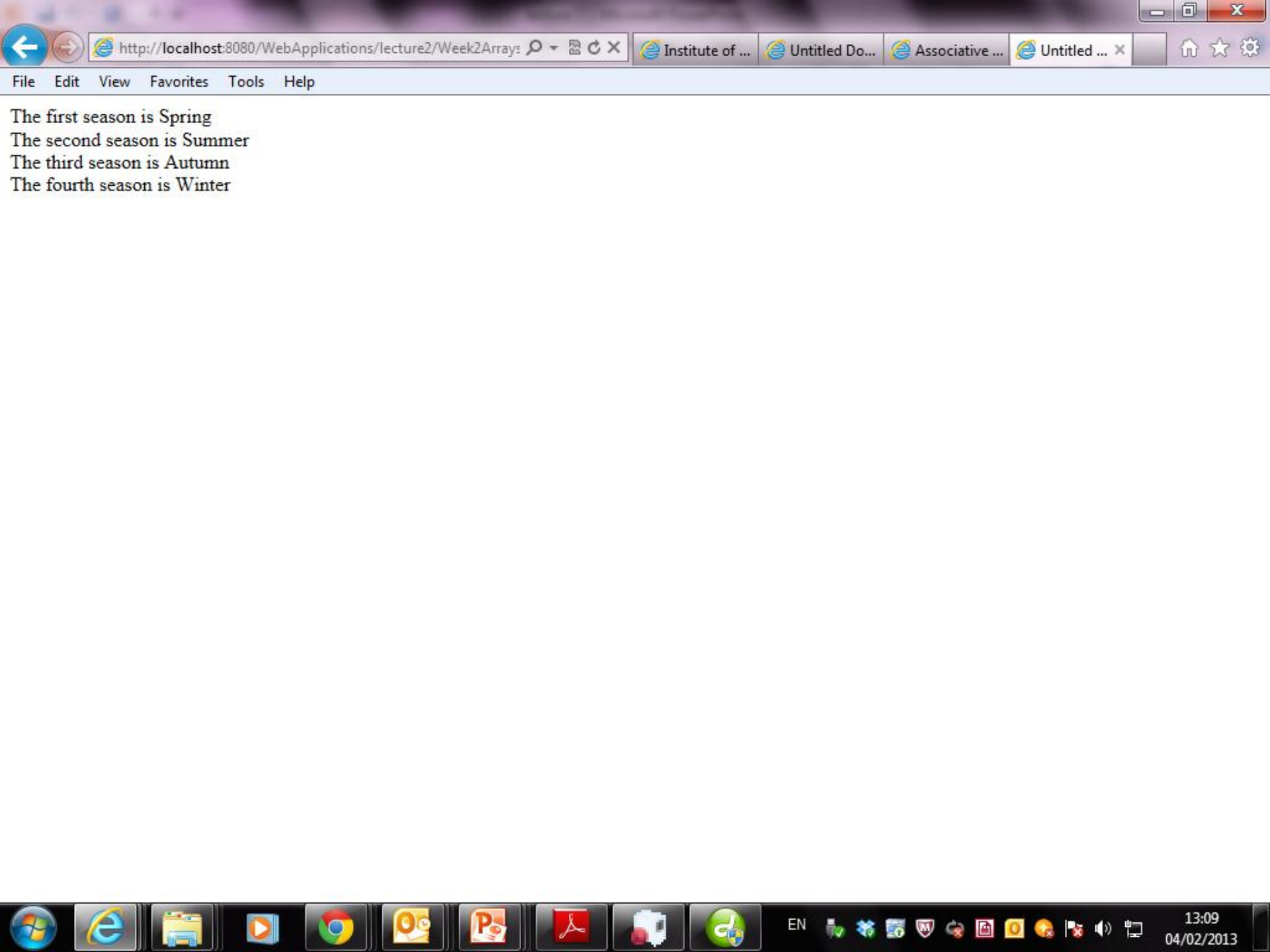
08/02/2013


http://localhost:8080/WebApplications/lecture2/Week2Arrays
Institute of ...
Untitled Do...
Associative ...
Untitled ...
File Edit View Favorites Tools Help
The first season is Spring
The second season is Summer
The third season is Autumn
The fourth season is Winter
EN
13:09
04/02/2013

QUESTION

Given the following code, what is the output?

```
<?php
$n = array(1, 2, 3, 4);
echo $n[3];
?>
```

A. 1 B. 2 C. 3 D. 4

QUESTION

Given the following code, what is the output?

```
<?php
$n = array(1, 2, 3, 4);
echo $n[0]+$n[3];
?>
```

A. 5 **B. 6** **C. 7** **D. 8**

1. INDEXED ARRAYS FROM RANGES

```
$digits = range(0,9);
```

- $digits[0] is 0,
- $digits[1] is 1,
- $digits[?] is 6
- $digits[?] is 9

```
$letters = range('a', 'z');
```

- $letters[0] is 'a',
- $letters[1] is 'b', ...
- $letters[?] is 'z'

1. INDEXED ARRAY SLICES

`array_slice(array, offset, length)`

- returns a subarray with length elements of array beginning at offset

```
$letters = range('a', 'z');

$slice = array_slice($letters, 5, 10);
```

F-0

Extracts `$letters[5]` to `$letters[14]` as `$slice[0]` to `$slice[9]`

Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\example.php (XHTML)*]

File Edit View Insert Modify Text Commands Site Window Help

Common

L1comparison.php example.php*

Code Split Design Title: Untitled Document

```
7
8   <body>
9
10  <?php
11  $letters = range('a', 'z');
12  $slice = array_slice($letters, 5, 10);
13  echo "<BR/>";
14  echo $slice[0];
15  echo $slice[1];
16  echo $slice[2];
17  echo $slice[3];
18  echo $slice[4];
19  echo $slice[5];
20  echo $slice[6];
21  echo $slice[7];
22  echo $slice[8];
23  echo $slice[9];
24
25  ?>
26
27
28
```

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Properties

Code view

You have made changes to the code.
To edit selection properties, click Refresh or press F5.

Refresh

EN 14:01 05/02/2013

5
fghijklmno

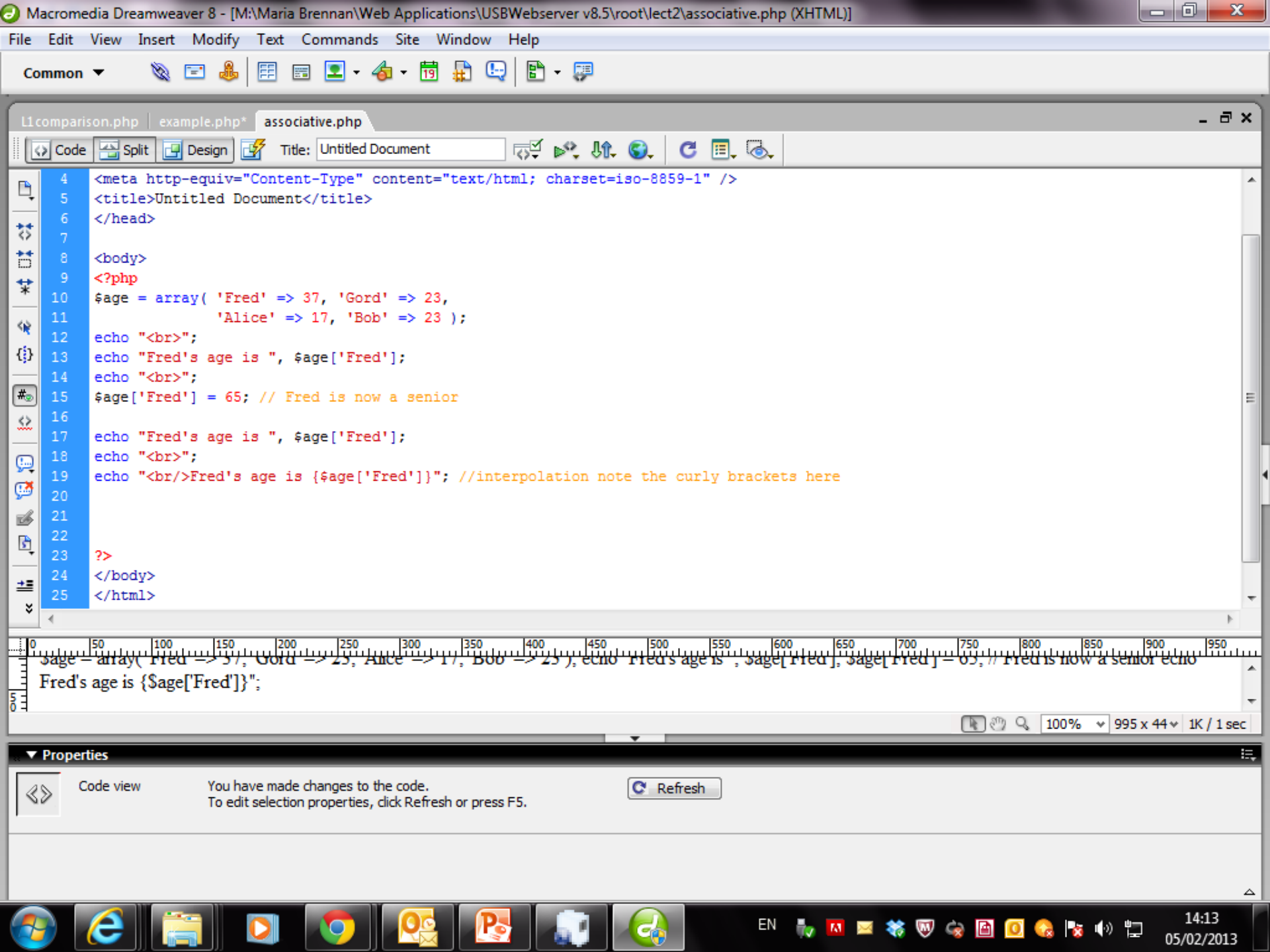
2. ASSOCIATIVE ARRAYS

An associative array is a table of key-value pairs.

Here the names are the keys and the values are the ages.

```
$age = array( 'Fred' => 37, 'Gord' => 23,
              'Alice' => 17, 'Bob' => 23 );
echo "Fred's age is ", $age['Fred'];
$age['Fred'] = 65; // Fred is now a senior
echo "<br/>Fred's age is {$age['Fred']}";
```

Note braces needed for interpolation


Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\associative.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
L1comparison.php example.php* associative.php
Code Split Design Title: Untitled Document
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10 $age = array('Fred' => 37, 'Gord' => 23,
11 'Alice' => 17, 'Bob' => 23);
12 echo "
";
13 echo "Fred's age is ", $age['Fred'];
14 echo "
";
15 $age['Fred'] = 65; // Fred is now a senior
16
17 echo "Fred's age is ", $age['Fred'];
18 echo "
";
19 echo "
Fred's age is {$age['Fred']}"; //interpolation note the curly brackets here
20
21
22
23 ?>
24 </body>
25 </html>
Fred's age is {$age['Fred']}";
100% 995 x 44 1K / 1 sec
Properties
Code view
You have made changes to the code.
To edit selection properties, click Refresh or press F5.
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Fred's age is 37
Fred's age is 65

Fred's age is 65

2. ASSOCIATIVE ARRAYS

Notice that keys and values are separated by '=>', and each key-value pair is separated by commas.

Use print_r() to view the contents of the array:

- print_r($age);

Fred's age is 37
Fred's age is 65
Array ([Fred] => 65 [Gord] => 23 [Alice] => 17 [Bob] => 23)

QUESTIONS

Given the following code,

```
<?php
$fruit = array("A" => "Apple","B" => "Banana",
"G" => "Grape", "O" => "Orange"); ?>
```

Which ans displays:

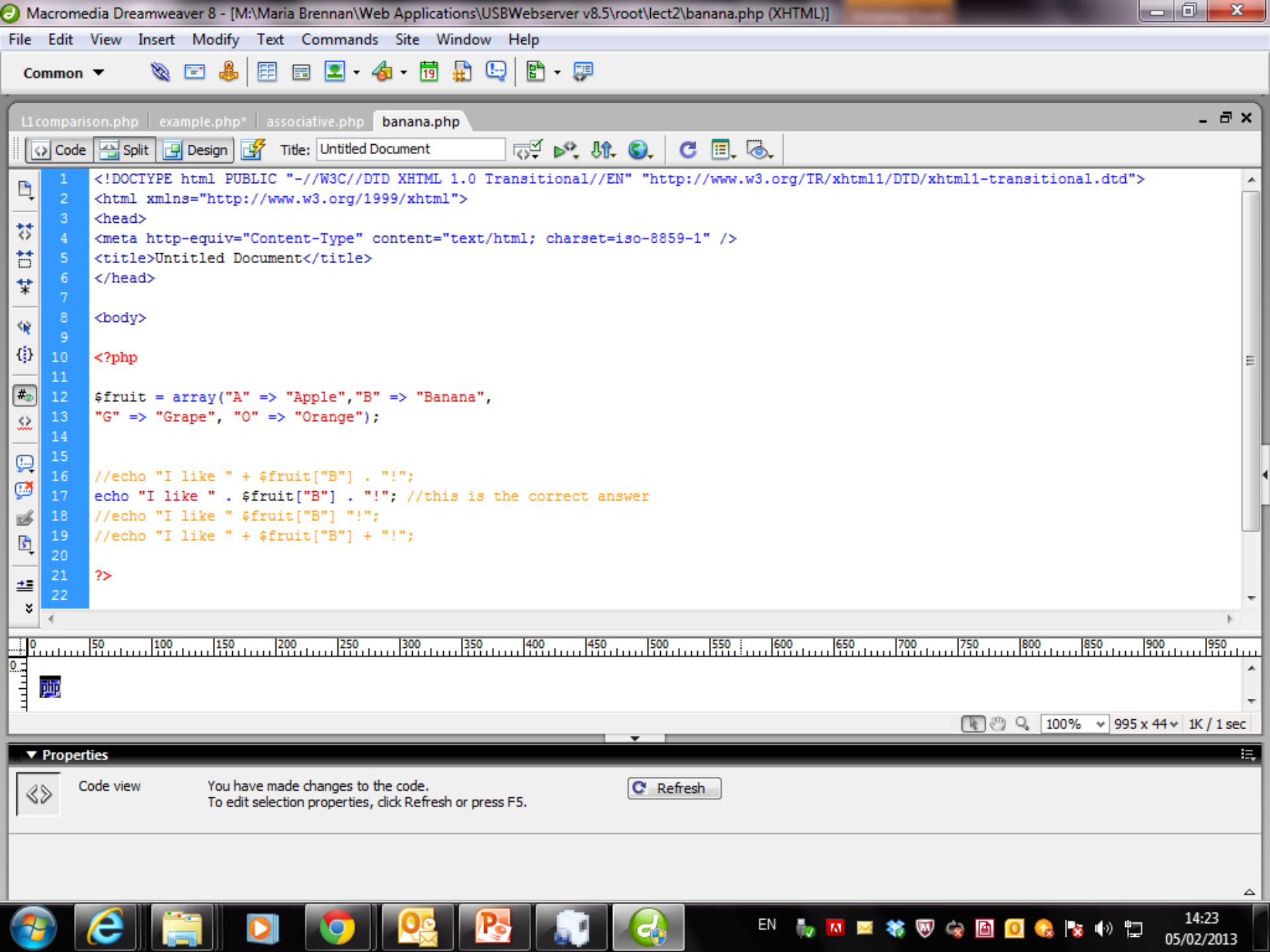
I like banana!

A. echo "I like " + $fruit["B"] . "!";

B. echo "I like " . $fruit["B"] . "!";

C. echo "I like " $fruit["B"] "!";

D. echo "I like " + $fruit["B"] + "!";


Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\banana.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
L1comparison.php example.php* associative.php banana.php
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9
10 <?php
11
12 $fruit = array("A" => "Apple","B" => "Banana",
13 "G" => "Grape", "O" => "Orange");
14
15
16 //echo "I like " + $fruit["B"] . "!";
17 echo "I like " . $fruit["B"] . "!"; //this is the correct answer
18 //echo "I like " $fruit["B"] "!";
19 //echo "I like " + $fruit["B"] + "!";
20
21 ?>
22
100% 995 x 44 1K / 1 sec
Properties
Code view
You have made changes to the code.
To edit selection properties, click Refresh or press F5.
Refresh
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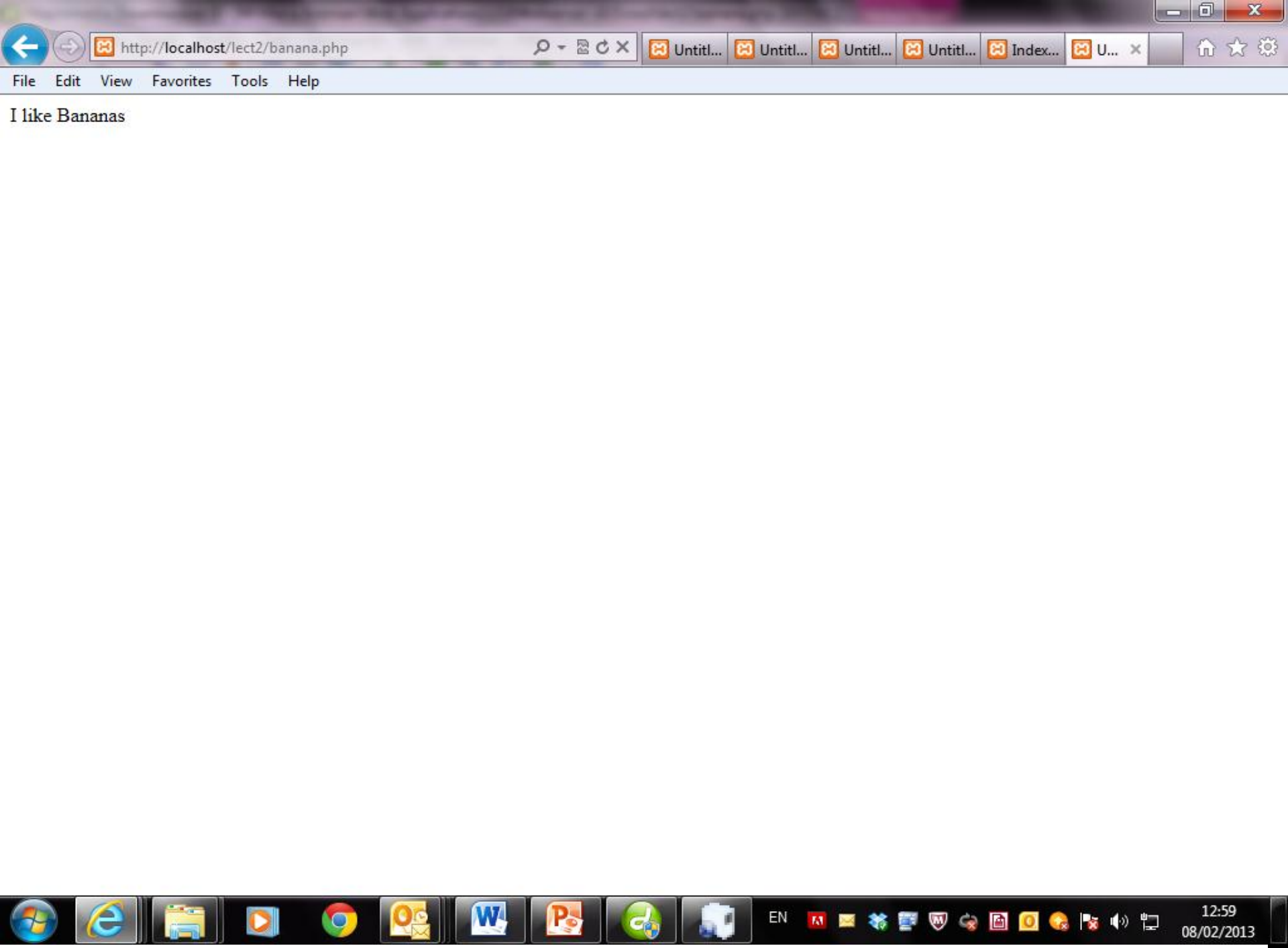
http://localhost/lect2/banana.php
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Untitl...
Untitl...
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Index...
U...
File Edit View Favorites Tools Help
I like Bananas
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12:59
08/02/2013

2. CHECKING FOR KEY EXISTENCE (1)

array_key_exists(key, array)

- returns true if the given key exists in the array. If the key exists it may or may not be null.

```
$product = array('id' => 1, 'desc' => null,
                 'price' => 2.50);

if (array_key_exists('desc', $product))
{ echo 'key exists'; }
else


{ echo 'key does not exist'; }
```

Here "*key exists*" is displayed (also see is_null)

Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\keys.php (XHTML)]

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Common

L1comparison.php | example.php* | associative.php | banana.php | keys.php

Code Split Design Title: Untitled Document

```
</head>

<body>
<?php

$product = array('id' => 1, 'desc' => null, 'price' => 2.50);
if (array_key_exists('desc', $product))

        {
 echo 'key exists';
       }

  else
     {
 echo 'key does not exist';
     }

?>
</body>
</html>
```

<body>

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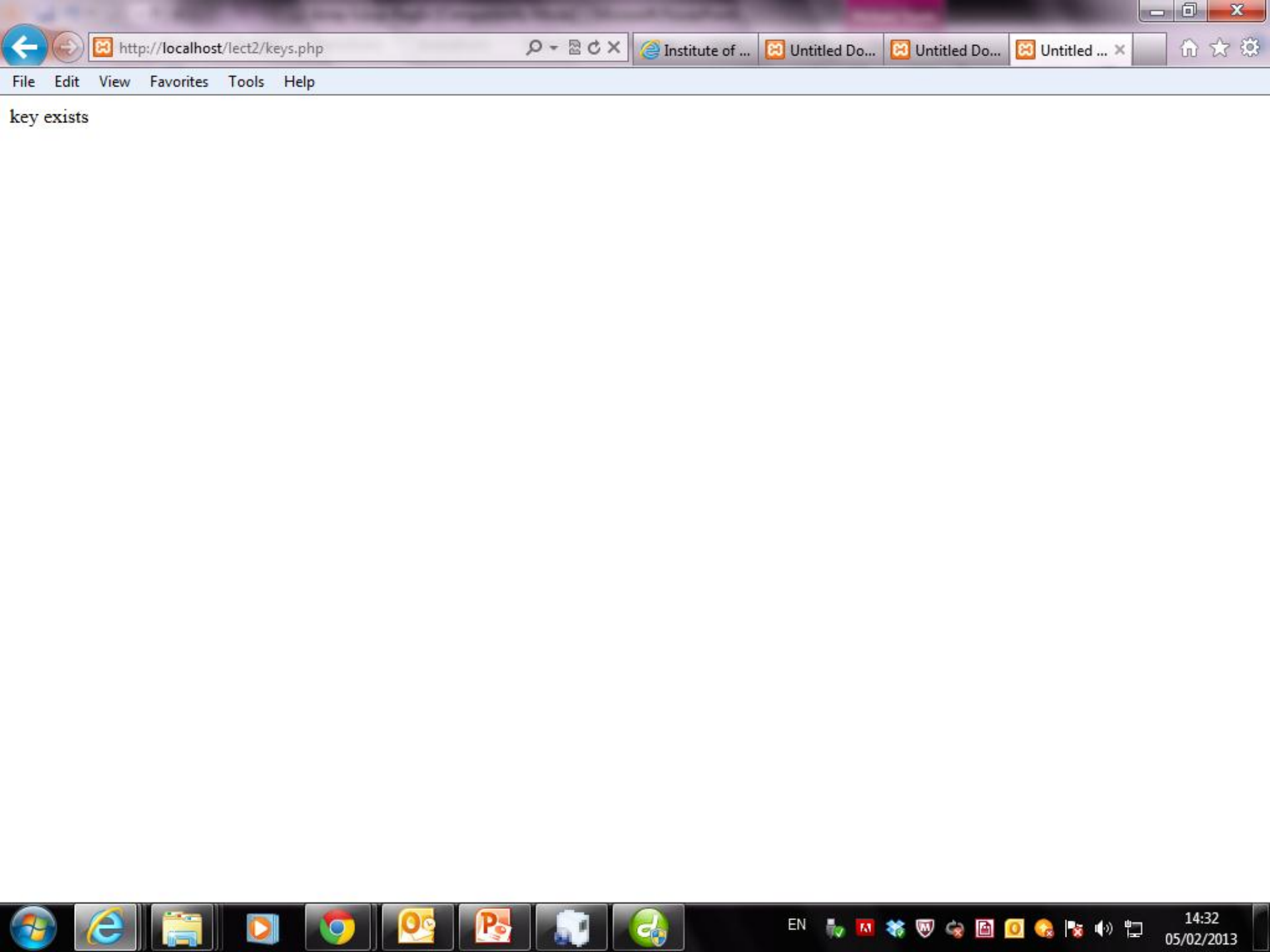
Properties

Server Markup

```
$product = array('id' => 1, 'desc' => null, 'price' => 2.50);
if (array_key_exists('desc', $product))

    {
```

EN 14:32 05/02/2013


http://localhost/lect2/keys.php
Institute of ...
Untitled Do...
Untitled Do...
Untitled ...
File Edit View Favorites Tools Help
key exists
EN
14:32
05/02/2013

2. CHECKING FOR KEY EXISTENCE (2)

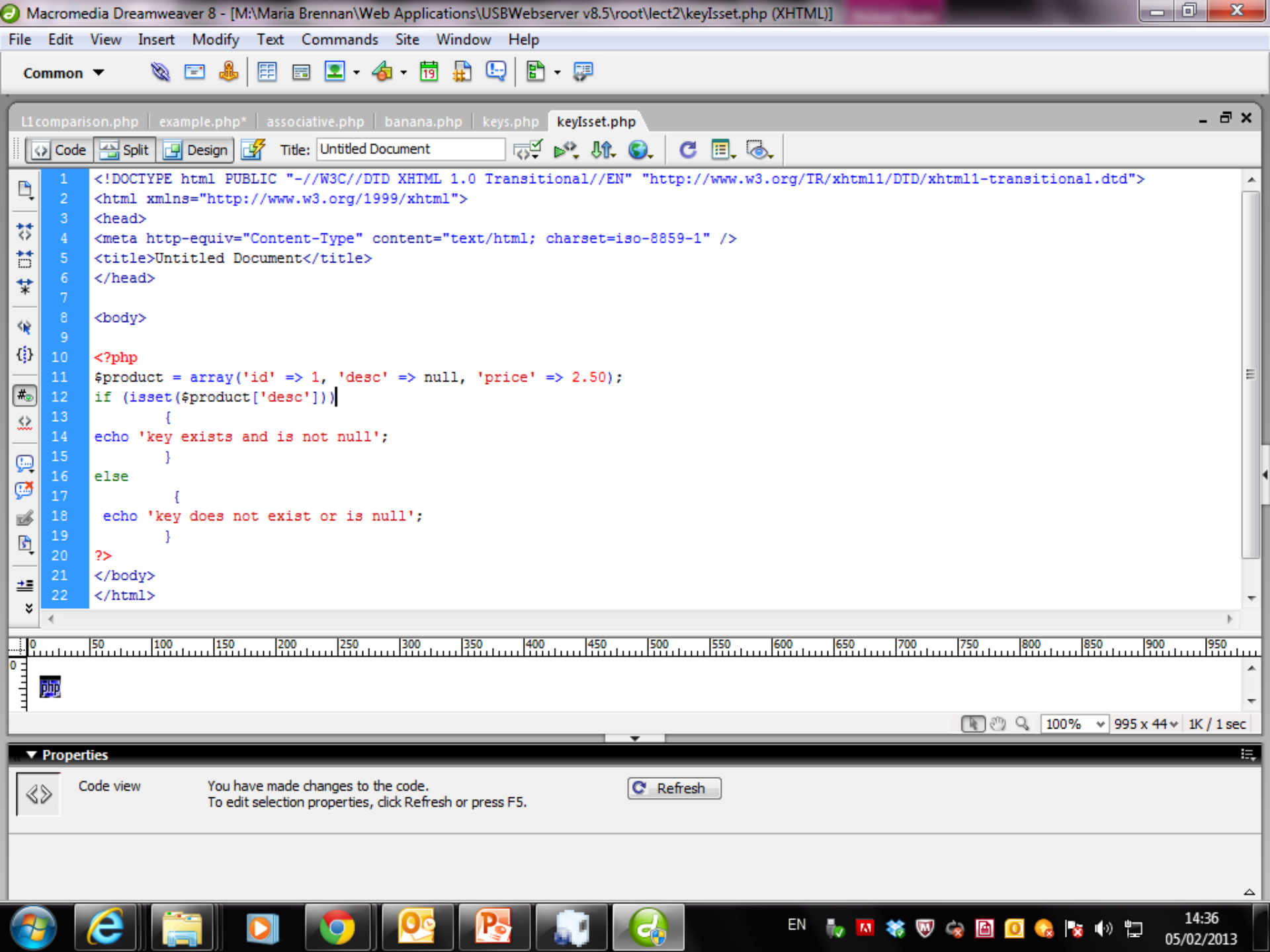
isset(array['key'])

- returns true *if the given key exists* in the array and is not null

```
$product = array('id' => 1, 'desc' => null,
                 'price' => 2.50);

if (isset($product['desc']))
{ echo 'key exists and is not null'; }
else
{ echo 'key does not exist or is null'; }
```

- Here "*key does not exist or is null*" is displayed


Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\keyIsset.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
L1comparison.php example.php* associative.php banana.php keys.php keyIsset.php
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9
10 <?php
11 $product = array('id' => 1, 'desc' => null, 'price' => 2.50);
12 if (isset($product['desc']))
13 {
14 echo 'key exists and is not null';
15 }
16 else
17 {
18 echo 'key does not exist or is null';
19 }
20 ?>
21 </body>
22 </html>
100% 995 x 44 1K / 1 sec
Properties
Code view
You have made changes to the code.
To edit selection properties, click Refresh or press F5.
Refresh
EN
14:36
05/02/2013

key does not exist or is null

CONVERT ARRAY --> VARIABLES (EXTRACT)

The `extract` function converts an array to variables

```
$account = array('number' => 123, 'name' =>
'Fred','balance' => 45.50);


extract($account, EXTR_PREFIX_SAME, "my");
```

- This creates the variables `my_number`, `my_name`, `my_balance` with the values `123`, `"Fred"`, and `45.50`
- There is an inverse function called `compact`

SEARCHING ARRAYS

```
in_array(element, array)
in_array(element, array, TRUE)
```

- returns true if the given element is found in the given array (TRUE option for same types)

```
array_search(element, array)
array_search(element, array, TRUE)
```

- returns the key of the element if found, else returns false (TRUE option for same types)

SORTING ARRAYS (1)

sort(array)

- sort array in ascending alphabetical or numerical order or

rsort(array)

- sort in reverse alphabetical or numerical order

```
$names = array('Fred', 'Ted', 'Barney', 'Gord');
sort($names); // 'Barney','Fred','Gord','Ted'
print_r($names);
rsort($names); // 'Ted','Gord','Fred','Barney'
print_r($names);
```

Sorting arrays in PHP

SORT() -- sort in ascending sequence
RSORT() --- sort in descending sequence

Array ([0] => Barney [1] => Fred [2] => Gord [3] => Ralph [4] => Ted)
array (0 => 'Barney', 1 => 'Fred', 2 => 'Gord', 3 => 'Ralph', 4 => 'Ted',)

The var_export will print structured information about the given variables.

SORTING ARRAYS (2)

asort(array), arsort(array)

- sort associative array by values in ascending or descending order

```
$ages = array('Fred' => 34, 'Ted' => 45,
              'Barney' => 23, 'Gord' => 15);
asort($ages); // 'Gord','Barney,'Fred','Ted'
print_r($ages);
```

- The order is increasing order of age

SORTING ARRAYS (3)

ksort(array), krsort(array)

- sort associative array by keys in ascending or descending order

```
$ages = array('Fred' => 34, 'Ted' => 45,
              'Barney' => 23, 'Gord' => 15);
ksort($ages); // 'Barney','Fred','Gord','Ted'
print_r($ages);
```

- The order is ascending alphabetical order of the names

http://localhost/lect2/sort_arrays.php

File Edit View Favorites Tools Help

Sorting arrays in PHP

SORT() -- sort in ascending sequence
RSORT() --- sort in descending sequence

Array ([0] => Barney [1] => Fred [2] => Gord [3] => Ralph [4] => Ted)
array (0 => 'Barney', 1 => 'Fred', 2 => 'Gord', 3 => 'Ralph', 4 => 'Ted',)

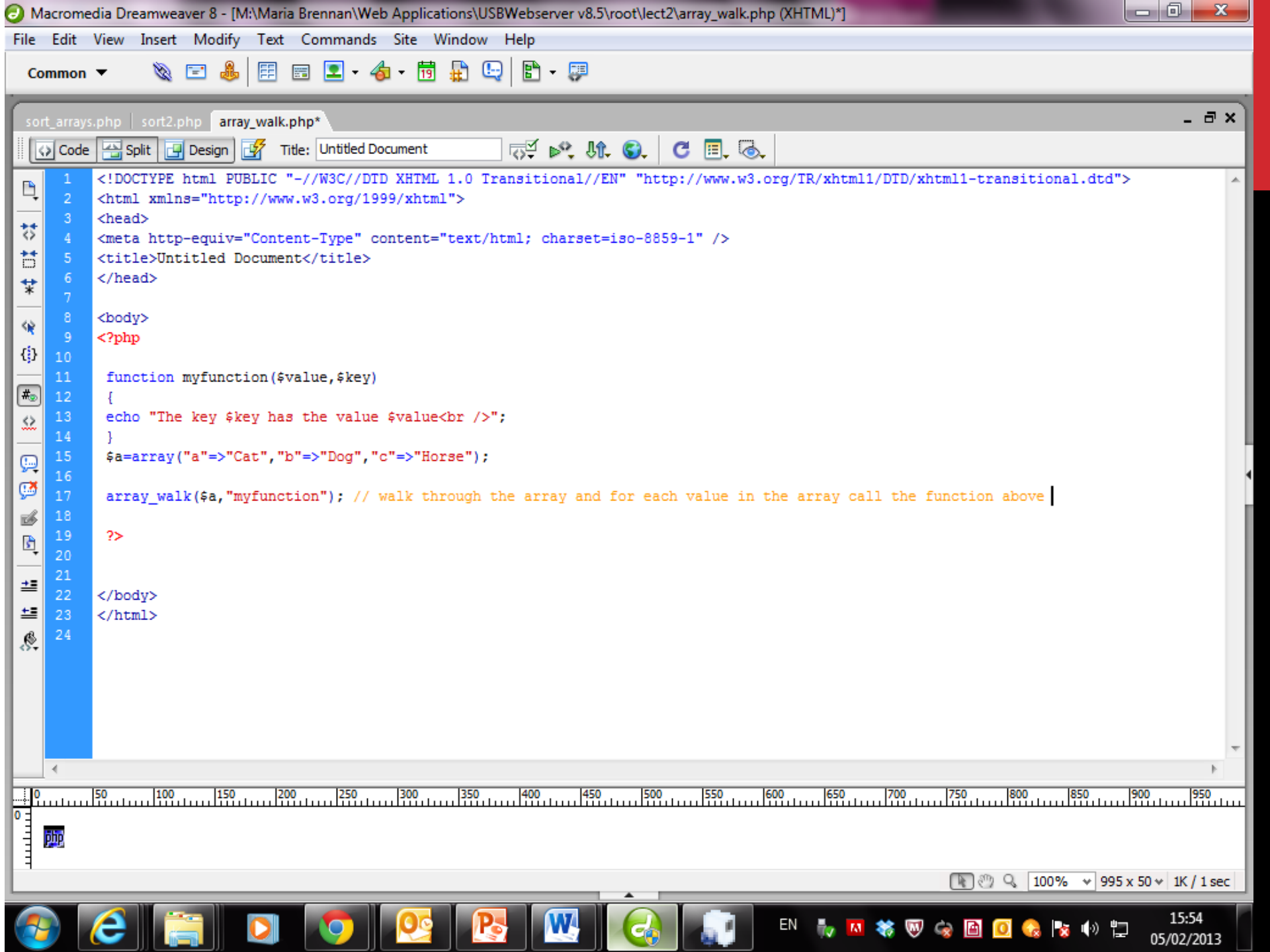
Array ([0] => Ted [1] => Ralph [2] => Gord [3] => Fred [4] => Barney)

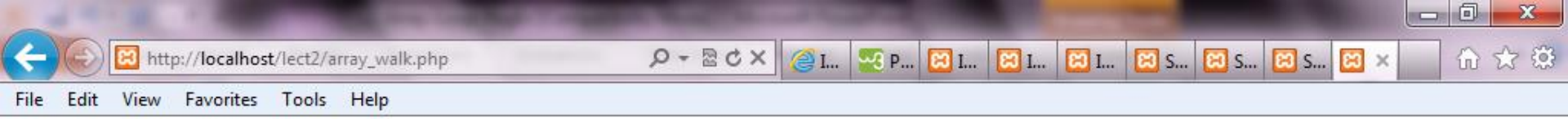
EN 15:50 05/02/2013

OTHER ARRAY FUNCTIONS

There are many other array functions

- Get the size of an array .. count($arr) or sizeof($arr)
- sorting multiple arrays
- **`array_walk`**, and **`array_reduce`**
- merging two arrays
- shuffle() – reorders an array
- etc.


Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\array_walk.php (XHTML)*]
File Edit View Insert Modify Text Commands Site Window Help
Common
sort_arrays.php sort2.php array_walk.php*
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10
11 function myfunction($value,$key)
12 {
13 echo "The key $key has the value $value
";
14 }
15 $a=array("a"=>"Cat","b"=>"Dog","c"=>"Horse");
16
17 array_walk($a,"myfunction"); // walk through the array and for each value in the array call the function above
18
19 ?>
20
21
22 </body>
23 </html>
24
100% 995 x 50 1K / 1 sec
EN
15:54
05/02/2013



The key a has the value Cat
The key b has the value Dog
The key c has the value Horse

USING AN ARRAY TO DISPLAY A RANDOM IMAGE

Create an array of images:

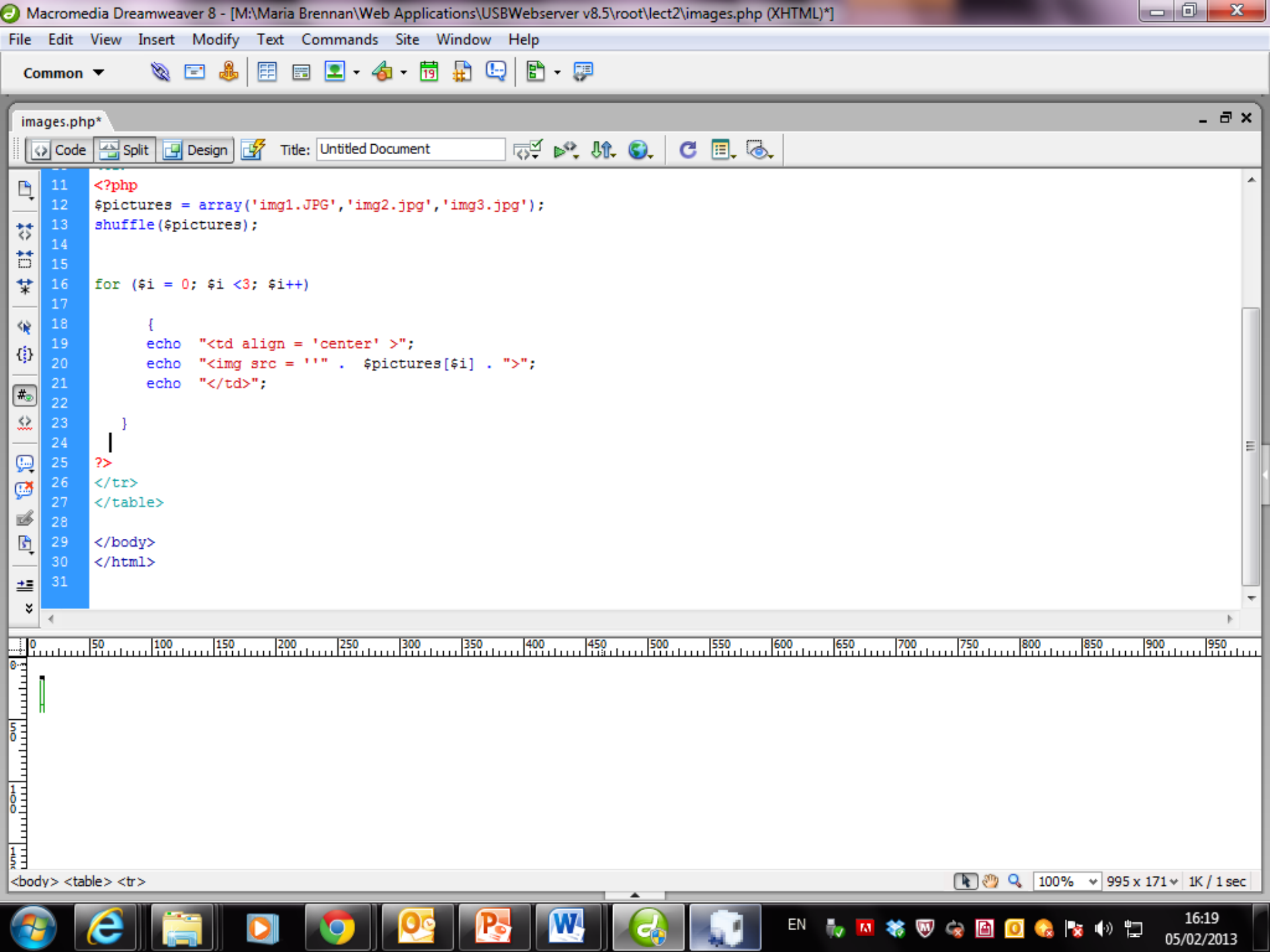
```
<?php
$pictures =
array('andrew.jpg','margaret.jpg','laura.jpg',
'nancy.jpg','steven.jpg','anne.jpg',
'janet.jpg', 'michael.jpg', 'robert.jpg');
 shuffle($pictures);
?>
```

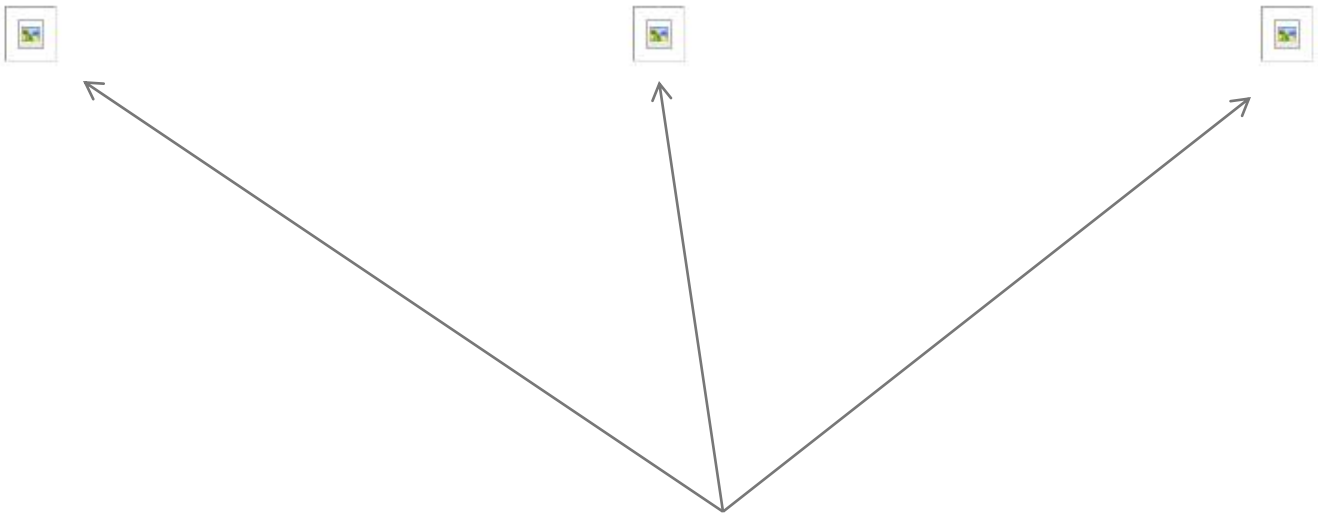
USING AN ARRAY TO DISPLAY A RANDOM IMAGE

Display three randomly chosen images

```
<table width = 100%>
<tr>
<?php
for ($i = 0; $i <3; $i++){
    echo  "<td align = 'center' >";
            echo  "<img src ='/mugshots/“ .  $pictures[$i] . "'>";
    echo  "</td>";
}
?>
</tr>
</table>
```

path to folder


Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\images.php (XHTML)*]
File Edit View Insert Modify Text Commands Site Window Help
Common
images.php*
Code Split Design Title: Untitled Document
11 <?php
12 $pictures = array('img1.JPG','img2.jpg','img3.jpg');
13 shuffle($pictures);
14
15
16 for ($i = 0; $i <3; $i++)
17
18 {
19 echo "<td align = 'center' >";
20 echo "<img src = ''" . $pictures[$i] . ">";
21 echo "</td>";
22
23 }
24
25 ?>
26 </tr>
27 </table>
28
29 </body>
30 </html>
31
<body> <table> <tr>
100% 995 x 171 1K / 1 sec
EN
16:19
05/02/2013



Random images will appear on screen

WEB APPLICATIONS

LOOPS + arrays

- For
- Foreach

Scripts: loops.php

THE FOR LOOP

•One of the most versatile statements in PHP programming is the for loop, which accepts three expressions:

- expression one is evaluated once at the beginning of the loop, unconditionally;
- Expression two is evaluated at the beginning of each iteration of the loop, and the loop continues only if the expression evaluates to true;
- expression three is evaluated at the end of each iteration.

•Each expression can have more than one part, with each part separated by a comma. You separate the three main expressions using semicolons:

THE FOR LOOP

Similar to C and Java:

```
for ($count = 1; $count <= 10; $count++)
{
    echo "$count ";
}
```

Use For loop with array() & count()

```
$ages = array(34, 45, 56, 65);

for ($i = 0; $i < count($ages); $i++)
{
    echo $age[$i], ' ';
}
```

THE FOR LOOP

Use For loop with array() & sizeof()

```
$ages = array(34, 45, 56, 65);

for ($i = 0; $i < sizeof($ages); $i++)
{
   echo $age[$i], ' ';
}
```

FOREACH

- **The foreach loop lets you iterate through an array and treat each array element as an individual variable; this makes for very readable code.**

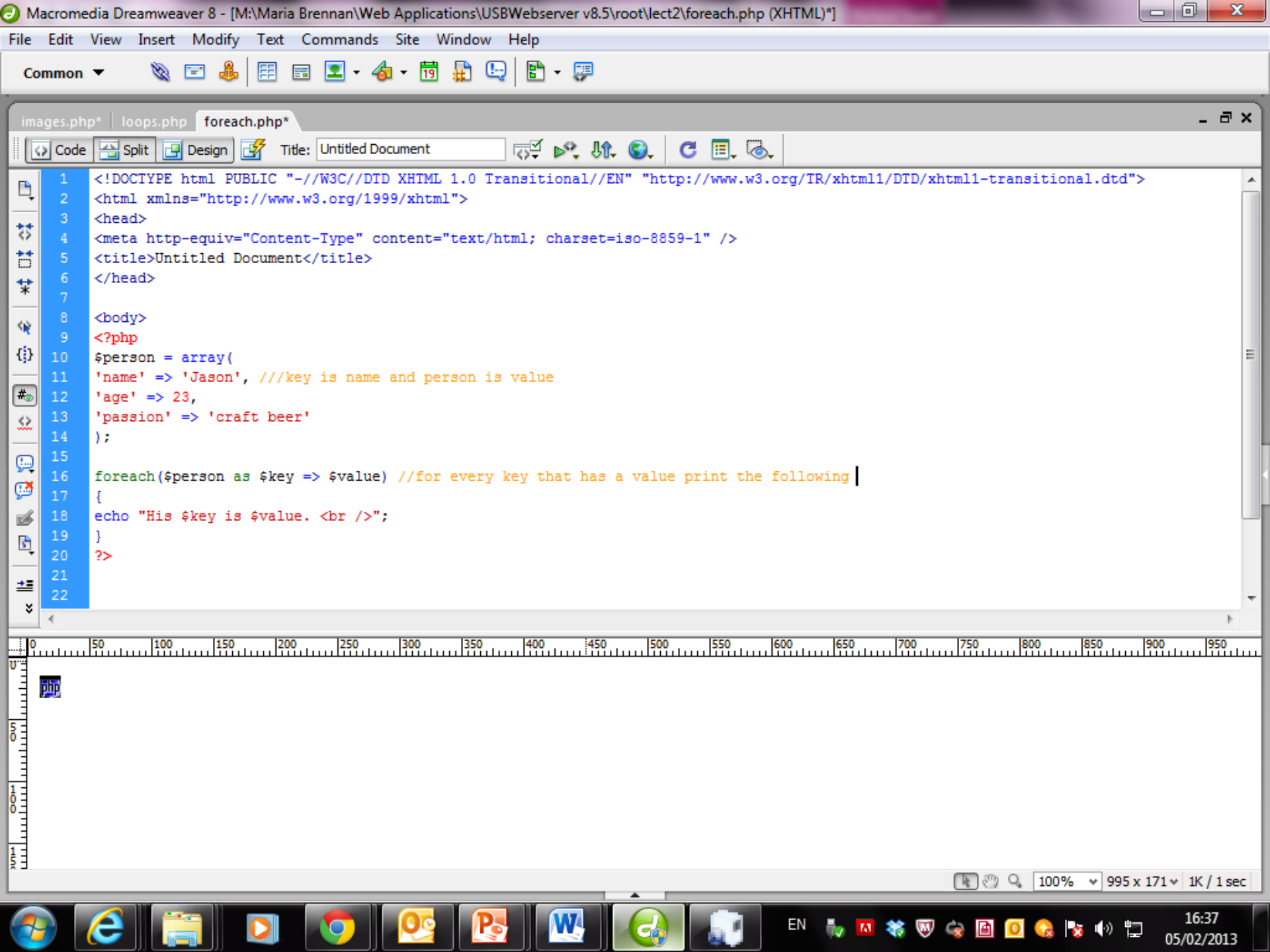
- **If the array is associative, you also have the option to separate the array key as a variable.**

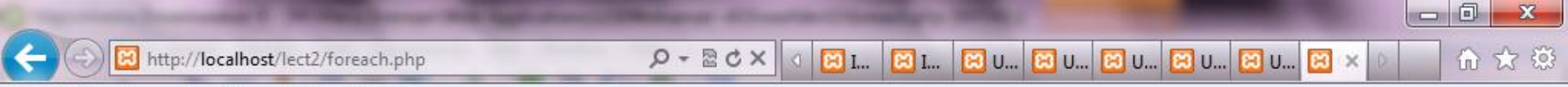
- **This proves useful in some cases.**

FOREACH

```
<?php
$person = array(
'name' => 'Jason',
'age' => 23,
'passion' => 'craft beer'
);

foreach($person as $key => $value) {
echo "His $key is $value. <br />";
}
?>
```


Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\foreach.php (XHTML)*]
File Edit View Insert Modify Text Commands Site Window Help
Common
images.php* loops.php foreach.php*
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10 $person = array(
11 'name' => 'Jason', ///key is name and person is value
12 'age' => 23,
13 'passion' => 'craft beer'
14);
15
16 foreach($person as $key => $value) //for every key that has a value print the following
17 {
18 echo "His $key is $value.
";
19 }
20 ?>
21
22
100% 995 x 171 1K / 1 sec
EN
16:37
05/02/2013



His name is Jason.
His age is 23.
His passion is craft beer.

The preceding snippet produces the following above when you load it into a browser:

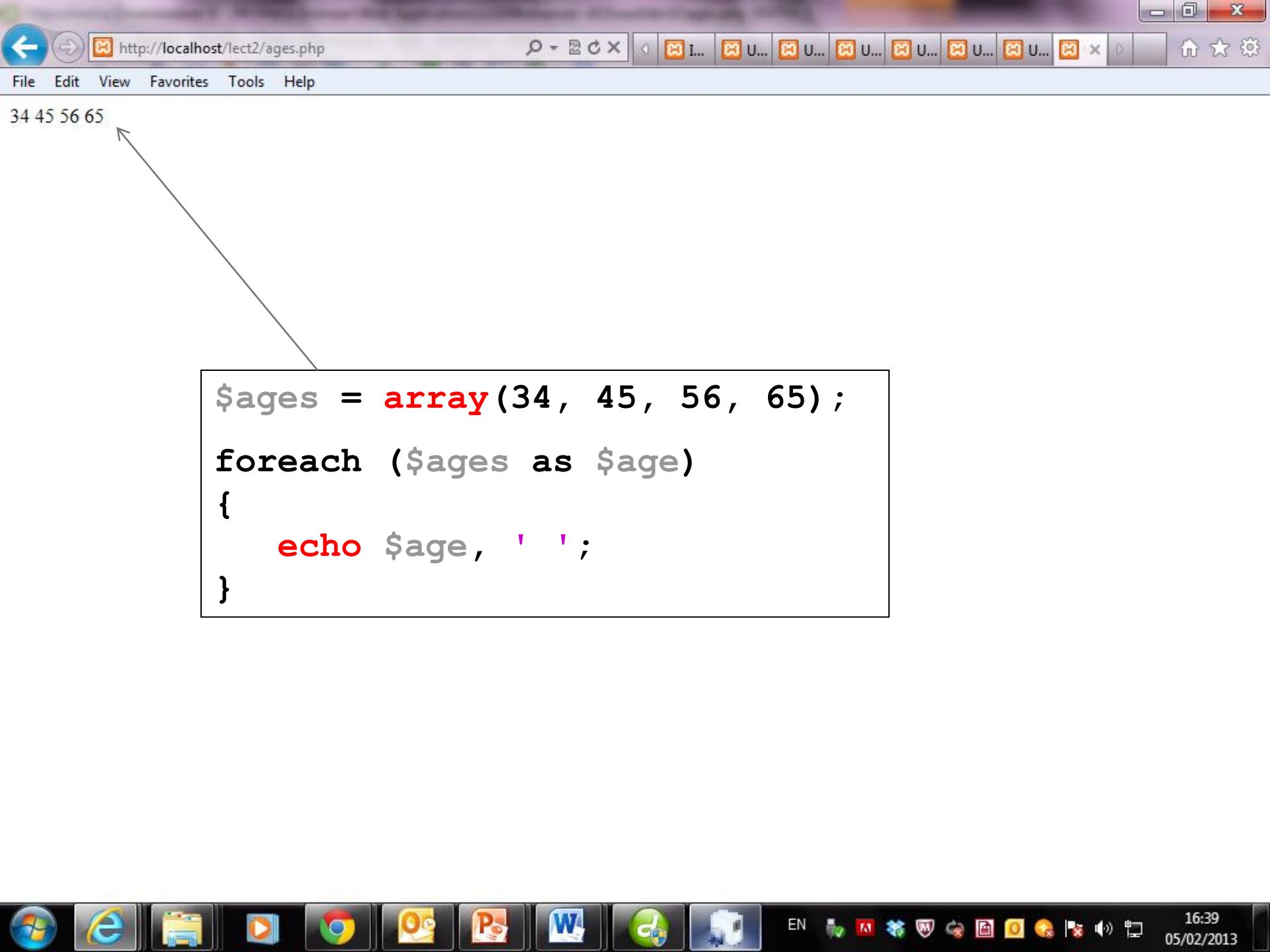
THE FOREACH LOOP (1)

Useful for indexed arrays when the loop index is not needed as in preceding example:

```
$ages = array(34, 45, 56, 65);

foreach ($ages as $age)
{
    echo $age, ' ';
}
```

- Here `$age` successively takes on the array values
- **INEFFICIENT**: `foreach` makes a copy of array


http://localhost/lect2/ages.php
File Edit View Favorites Tools Help
34 45 56 65
$ages = array(34, 45, 56, 65);
foreach ($ages as $age)
{
echo $age, ' ';
}
EN
16:39
05/02/2013

THE FOREACH LOOP (1)

Example

The following example demonstrates a loop that will print the values of the given array:

```
<html>
<body>

<?php
$x=array("one","two","three");
foreach ($x as $value)
  {
  echo $value . "<br />";
  }
?>

</body>
</html>
```

Output:

```
one
two
three
```

THE FOREACH LOOP (2)

Useful for processing associative arrays

```
$product = array('id' => 23,
    'desc' => 'No-name PC', 'price' => 549.99);

foreach ($product as $key => $value)
{
    echo "Key = $key, Value = $value<br>";
}
```

- `$key` and `$value` are successively the keys and values in the `$product` array
- What is the output from above?

Key = id, Value = 23
Key = desc, Value = No-name PC
Key = price, Value = 549.99

```php
$product = array('id' => 23,
    'desc' => 'No-name PC', 'price' => 549.99);

foreach ($product as $key => $value)
{
    echo "Key = $key, Value = $value<br>";
}
```

QUESTIONS

$a = array(1, 3, 5, 7);

Use a foreach loop to display each value in the array.

$a = array("one" => 1,"three" => 3,"five" => 5,"seven" => 7);

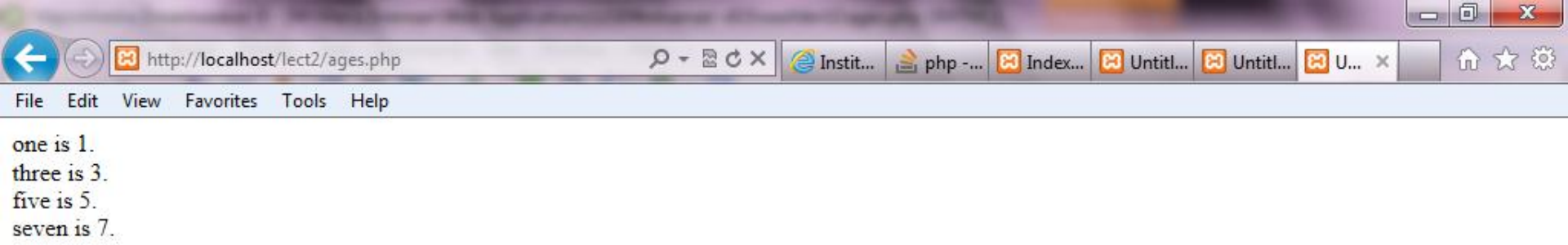
Use a foreach loop to display each key & value in the array.

1 3 5 7

```php
<?php
$a = array(1, 3, 5, 7);


foreach ($a as $a)
{
echo $a, ' ';
}


?>
```




```php
<?php
$a = array("one" => 1,"three" => 3,"five" => 5,"seven" => 7);



foreach ($a as $key => $value)
{
echo "$key is $value. <br />";
}


?>
```

WEB APPLICATIONS

Using Regular Expressions

REGULAR EXPRESSIONS (1)

- **Regular expressions provide a powerful way to do pattern matching:**
  - finding one pattern in another.
- **The simplest patterns are fixed strings like those in the searching function `strpos`.**
- **However patterns can represent complex classes of strings.**
- **Useful for validating strings**

REGULAR EXPRESSIONS (2)

preg_match(pattern, string)

- returns true if match for pattern was found in string.
- For a case insensitive search, put "i" after the pattern delimiter
- (preg_match("/php/i", "PHP is..")

preg_replace (pattern,replace,string)

- Each occurrence of pattern match in string is replaced by the replace string. Result is returned as a new string

REGULAR EXPRESSIONS (3)

`preg_split(pattern, string)`

- splits string into substrings using pattern as the delimiter.
- The substrings are returned as an array.

SIMPLE REG EXP EXAMPLES (1)

Matching strings containing only digits

- `$regexp = "^[0-9]+$";`
- `preg_match($regexp, "2342123")` returns **`true`**
- `preg_match($regexp, "2124sd")` returns **`false`**

`^` matches the beginning of the string

`$` matches the end of the string

`[0-9]` specifies a range for a character

`+` means 1 or more occurrences

SIMPLE REG EXP EXAMPLES (2)

Matching phone numbers of the form
`"ddd-ddd-dddd"`

```
$regexp =
    "^[0-9]{3}-[0-9]{3}-[0-9]{4}$";
```

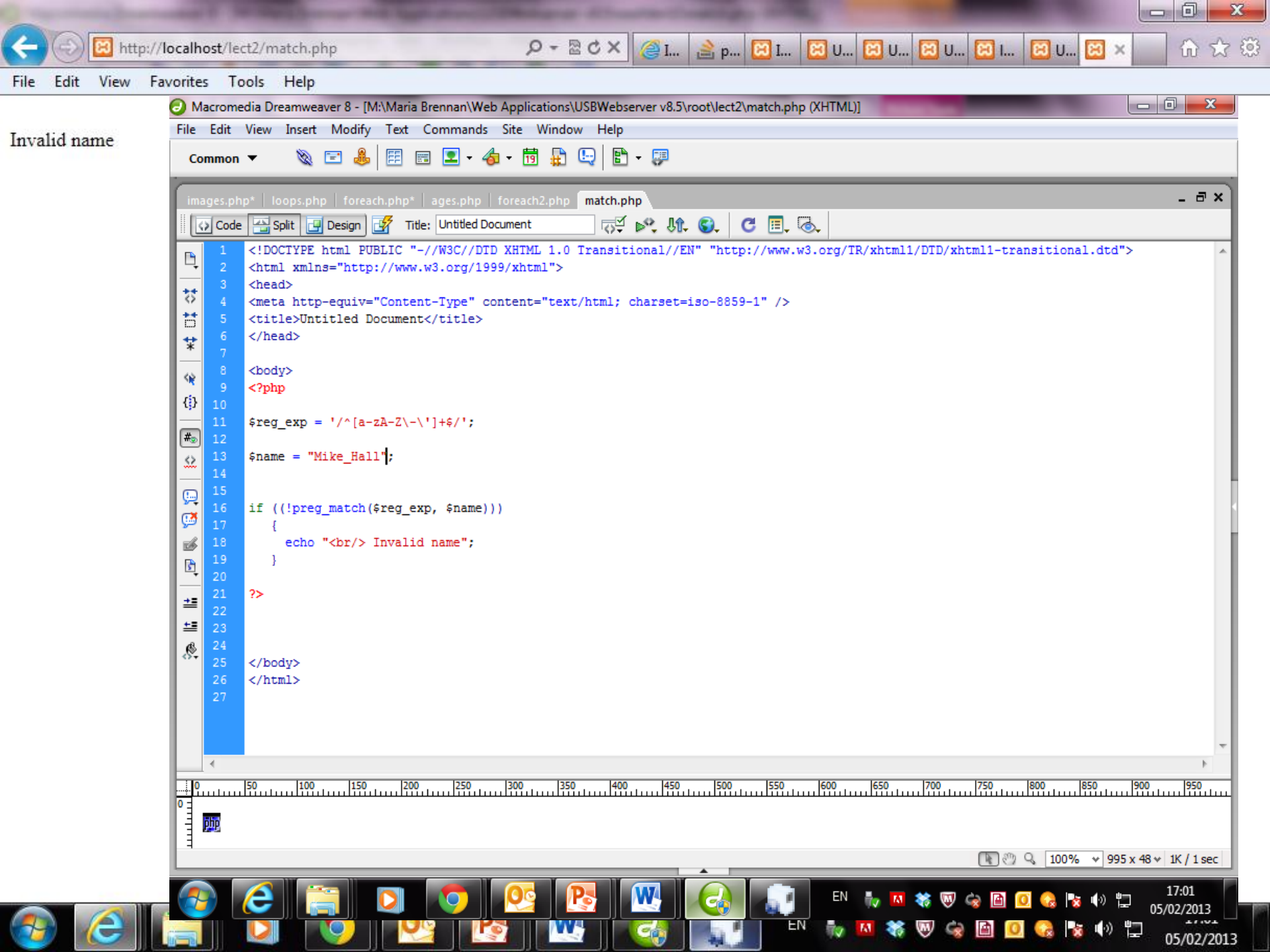
Here the hyphen is a literal character and {3} indicates exactly three occurrences of the preceding character.

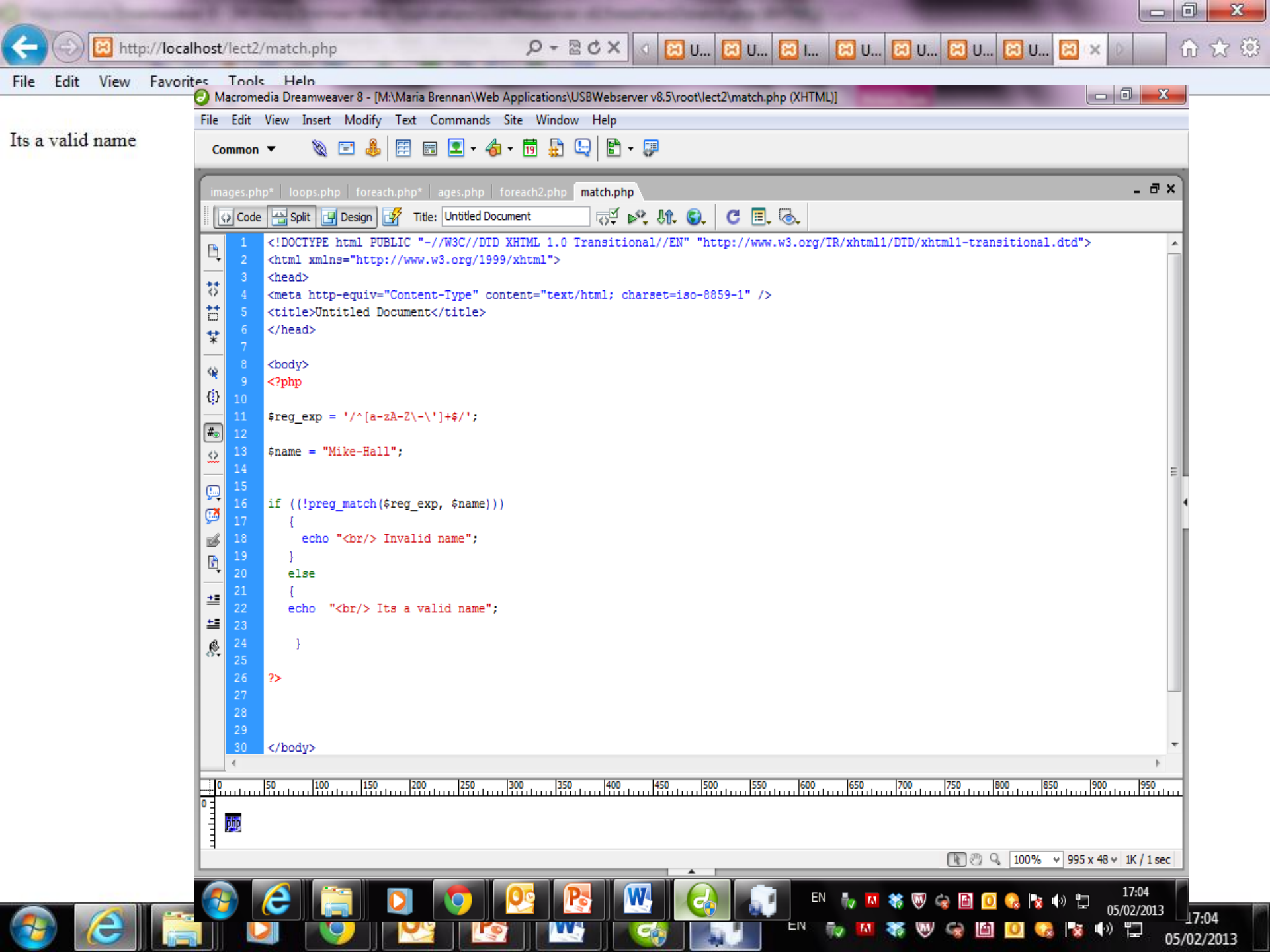
SIMPLE REG EXP EXAMPLES (3)

Definition of a valid name is one containing letters, hyphens and apostrophes

```
$reg_exp = '/^[a-zA-Z\-\']+$/';


$name = “Mike_Hall”;
if ((! preg_match($reg_exp, $name))
   {
     echo “<br/> Invalid name”;
}
```


http://localhost/lect2/match.php
File Edit View Favorites Tools Help
Invalid name
Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\match.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
images.php* loops.php foreach.php* ages.php foreach2.php match.php
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10
11 $reg_exp = '/^[a-zA-Z\-\']+$/';
12
13 $name = "Mike_Hall";
14
15
16 if ((!preg_match($reg_exp, $name)))
17 {
18 echo "
 Invalid name";
19 }
20
21 ?>
22
23
24
25 </body>
26 </html>
27
100% 995 x 48 1K / 1 sec
EN 17:01 05/02/2013


http://localhost/lect2/match.php
File Edit View Favorites Tools Help
Its a valid name
Macromedia Dreamweaver 8 - [M:\Maria Brennan\Web Applications\USBWebserver v8.5\root\lect2\match.php (XHTML)]
File Edit View Insert Modify Text Commands Site Window Help
Common
images.php* loops.php foreach.php* ages.php foreach2.php match.php
Code Split Design Title: Untitled Document
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3 <head>
4 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5 <title>Untitled Document</title>
6 </head>
7
8 <body>
9 <?php
10
11 $reg_exp = '/^[a-zA-Z\-\']+$/';
12
13 $name = "Mike-Hall";
14
15
16 if ((!preg_match($reg_exp, $name)))
17 {
18 echo "
 Invalid name";
19 }
20 else
21 {
22 echo "
 Its a valid name";
23
24 }
25
26 ?>
27
28
29
30 </body>
100% 995 x 48 1K / 1 sec
17:04
05/02/2013

REGULAR EXPRESSION – EMAIL(4)

Use regular expressions to check that an email address entered on a form is correct

Use the preg_match function to match a string to a particular regular expression

Pattern: username@domain.extension

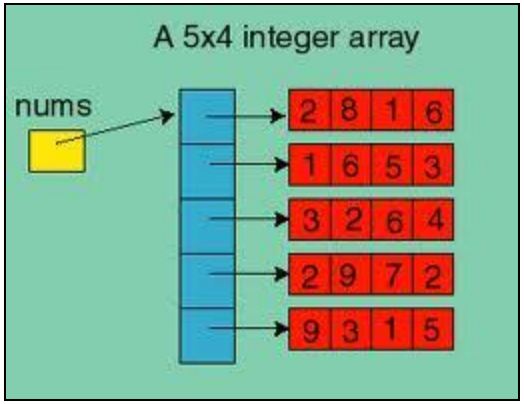
```
$regexp = '^[a-zA-Z0-9._-]+@[a-zA-Z0-9-]+\.[a-zA-Z.]{2,5}$' ;
preg_match($regexp, $email);
```

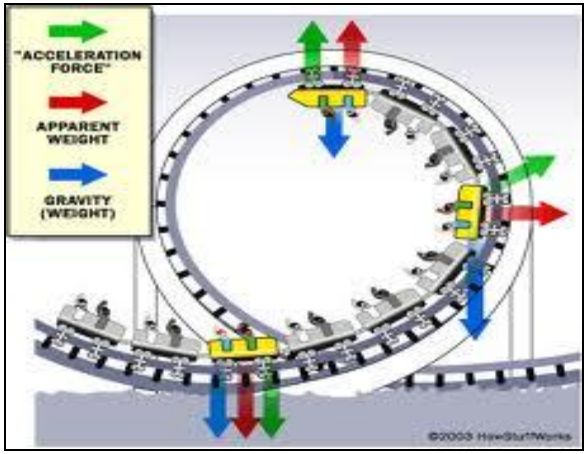
WebSite: http://weblogtoolscollection.com/regex/regex.php

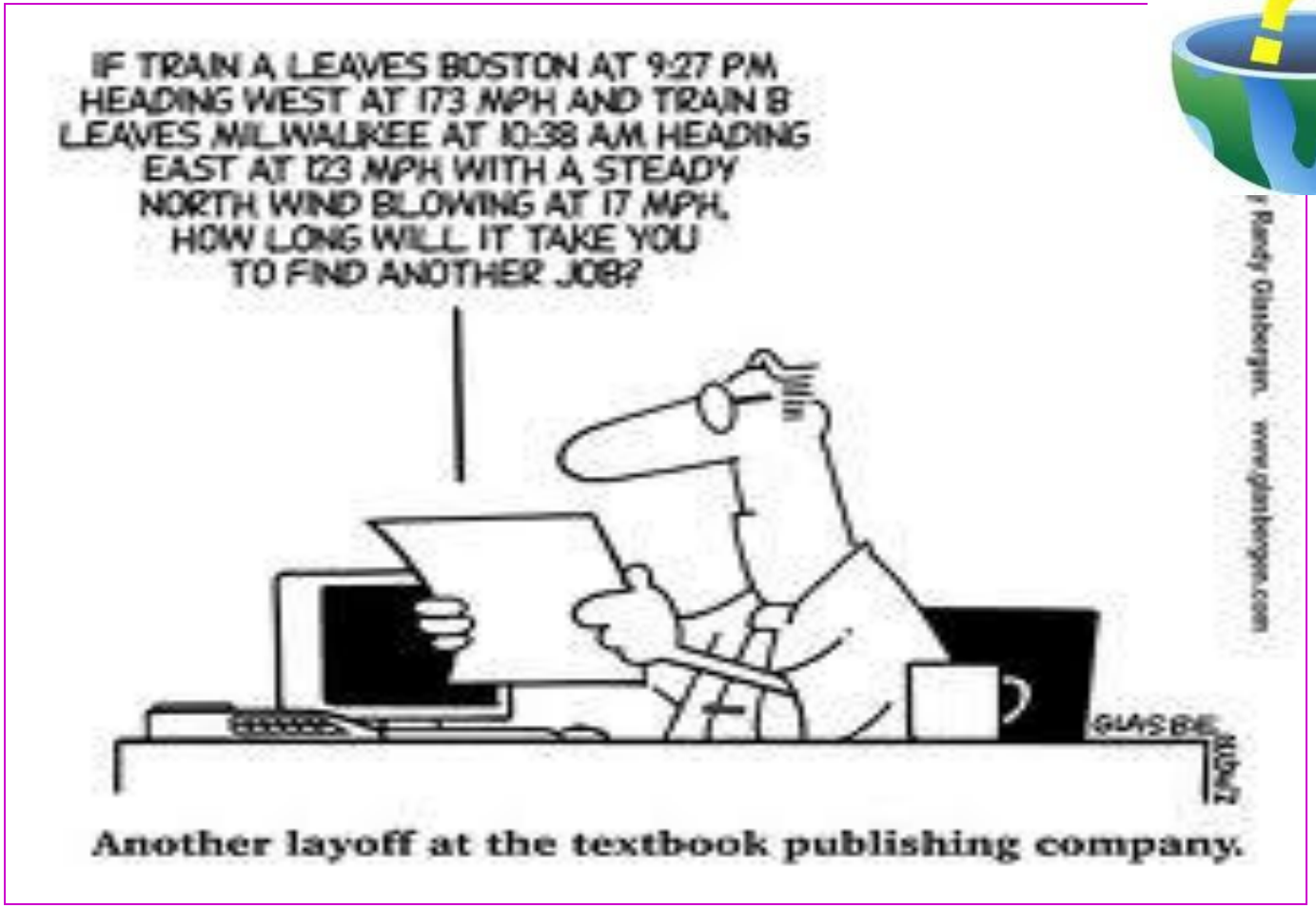
NOTE: HTML5 VALIDATES EMAIL ADDRESSES (EXPLORER 9+)

Summary

- **Arrays**
- **Loops**
- **Regular Expressions**






IF TRAIN A LEAVES BOSTON AT 9:27 PM HEADING WEST AT 173 MPH AND TRAIN B LEAVES MILWAUKEE AT 10:38 AM HEADING EAST AT 123 MPH WITH A STEADY NORTH WIND BLOWING AT 17 MPH, HOW LONG WILL IT TAKE YOU TO FIND ANOTHER JOB?
Another layoff at the textbook publishing company.