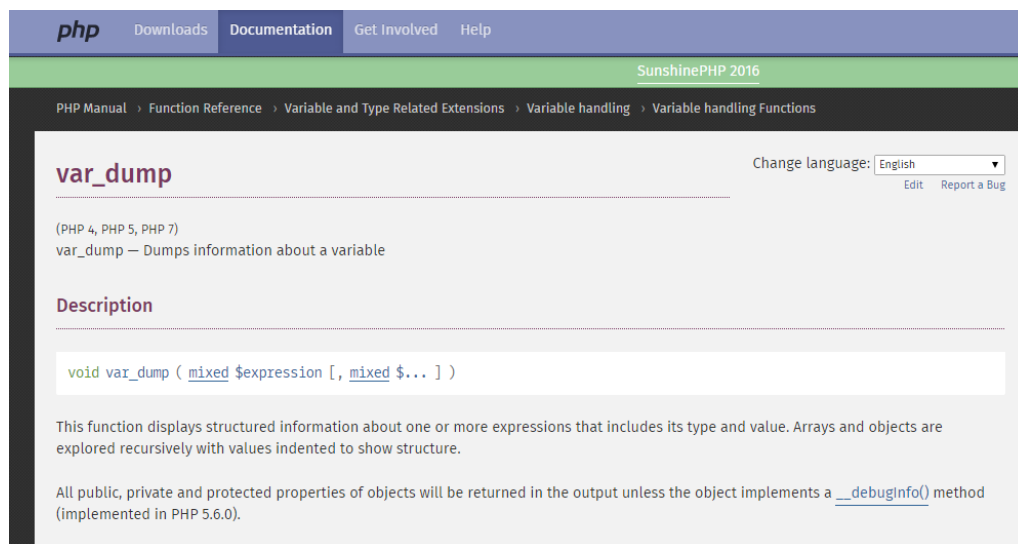# Lab-3: Introduction to Arrays

Web Programming – SOFE 2800U

Fall 2015

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This lab addresses the basics of arrays declaration and manipulation in PHP.

General Information and Policies

- All lab reports are to be submitted on the WebCT System.
- Review the lecture notes.
- Read the pre-lab section

Objectives

The main objective is to demonstrate the main demonstrate how to retain data using PHP.

Keywords

Arrays, multidimensional arrays, key, value, foreach, as, reset, next, end, current, count.

Reading

- Chapters 9.

Software Requirements

- Install the XAMPP Development Environment.
- Install PHPDesigner 8

Deliverable

- Lab report that includes snapshot of the code and output in .doc or .pdf file format.
- Copies of the PHP and HTML files.

1. **Define the array nums that stores the numbers 1 through 10**
   o **Calculate the sum of elements using the for loop statement.**
   o **Calculate the sum of elements using the foreach statement**
   Implement the script and document the output.

```php
<?php
$nums = [1,2,3,4,5,6,7,8,9,10];


// Using the for statement

$y = count ($nums);
echo 'The number of elements in the array are: '.$y;
echo '<hr>';
$x=0;

for ($i =0; $i< $y; ++$i)
{
    $x += $nums[$i];

     echo '<hr>';
    echo $x;
}
echo '<hr size=20 noshade>';

// Using the foreach statement
$x =0;
foreach ($nums as $key => $value)
{
    $x += $nums[$key];
    echo '<hr>';
    echo $x;
}
echo '<hr size=30 noshade>The sum of elements is: '.$x;
?>
```

2. **Define the multidimensional array $food that includes the arrays:**
   - o fruits: apple, orange, banana
   - o vegetables: carrot, tomato, paper

2.1   Use the default count function to count the number of elements in the array.

What is the output? _____.

2.2   Use the count_recursive argument to count the number of elements in the array.

What is the output? _____.

2.3   Print the structure of the array using the function print_r()
What is the output? _____.

2.4   Using echo retrieve tomato: _____.

2.5   Using echo retrieve orange: _____.

```php
1 <?php
2 $food = array('fruits' => array('apple', 'orange', 'banana'),
3               'vegetables' => array('carrot', 'tomato', 'peper'));
4
5 echo count($food);
6 echo('<hr>');
7
8 echo count($food, COUNT_RECURSIVE);
9
10 echo('<hr>');
11 print_r ($food);
12 echo('<hr>');
13
14 // retrieve tomato
15 // retrieve orange
16
17 ?>
```

3. **For the array declared in lines 5 through 7, complete the code for lines 11 though 13 to allow iteration through the array.**
   o **Document the output**

```php
<?php


$arrCars = array (  array("Ford", "Mazda", "Renault", "Vauxhall", "Toyota"),
                    array("Blue", "Black", "Red", "Green", "Red"),
                    array(4,4,2,3,2)
);

for ($intCount=0;$intCount<5;$intCount++) {
    $strMake =                  // iterate through the 1st array
    $strColour =                // iterate through the 2nd array
    $intQuantity =              // iterate through the 3rd array
    echo "<p>Make: $strMake <hr> Colour: $strColour <hr> Quantity: $intQuantity <hr size=20 noshade></p>";
}
?>
```

4. **Replace Blue for Purple in the array below**

```php
<?php


$arrColours = array (0=>"Red", 2=>"Green", 3=>"Blue", 1=>"Yellow", 4=>"White");

$intSize = count($arrColours);

echo "<p>";
for($intCount=0;$intCount<$intSize;$intCount++)
    echo $arrColours[$intCount] . " ";
echo "</p>";
// Replace Blue for Purple
echo "<p>";
for($intCount=0;$intCount<$intSize;$intCount++)
    echo $arrColours[$intCount] . " ";
echo "</p>";
?>
```

   o **Document the output**

5. Implement the following script
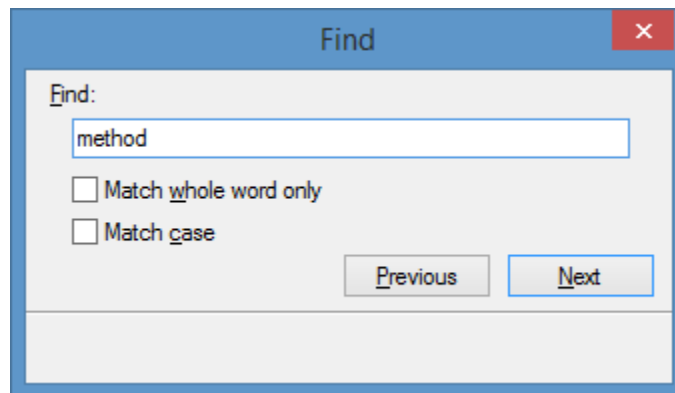
```php
1
2  <?php
3
4
5   $arrColours = array (0=>"Red", 2=>"Green", 3=>"Blue", 1=>"Yellow", 4=>"White");
6
7   echo "<p>";
8   $strColour = reset($arrColours);
9
10  echo "Reset: $strColour <hr>";
11
12  $strColour = next($arrColours);
13  echo "Next: $strColour <hr>";
14  $strColour = next($arrColours);
15  echo "Next: $strColour <hr>";
16  $strColour = reset($arrColours);
17  echo "Reset: $strColour <hr>";
18  $strColour = current($arrColours);
19  echo "Current: $strColour <hr>";
20  $strColour = end($arrColours);
21  echo "End: $strColour <hr>";
22  echo "</p>";
23  ?>
```

5.1   What is the role of the reset () function? _____

5.2   What is the role of the end () function? _____

6. Open a browser session (Internet Explorer), retrieve the google.com homepage:

- o **Using the file menu select ➔ view ➔ source**
- o **Edit ➔ Find ➔ search for ➔ method**

Find

Find:

    method

☐ Match whole word only

☐ Match case

   Previous   Next

- o **What type of HTTP method does Google use in its query/search form? _____**

7. **Declare and populate the following pairs in an array:**
- **0=>"Red",**
- **2=>"Green",**
- **3=>"Blue",**
- **5=>"",**
- **1=>"Yellow",**
- **4=>"White");**

7.1 **iterate through the array using foreach (array as value) statement**

7.2 **iterate through the array using foreach (array as key => value) statement**
- **Document both outputs.**

```php
<?php



$arrColours = array (0=>"Red", 2=>"Green", 3=>"Blue", 5=>"", 1=>"Yellow", 4=>"White");
$intCount = 0;
foreach($arrColours as $strColour)
    echo "<p>" . $intCount++ . " $strColour</p>";
?>
```

```php
<?php


$arrColours = array (0=>"Red", 2=>"Green", 3=>"Blue", 5=>"", 1=>"Yellow", 4=>"White");
foreach($arrColours as $intKey=>$strColour)
    echo "<p>$intKey $strColour</p>";
?>
```

8. **Iterate through the following array using foreach (array as value) as per question 7.1 above.**

$arrColours = array ("Red", "Green", "Blue", "Yellow", "White",

"Yellow", "Green", "Blue", "Yellow", "Grey",

"Red", "Yellow", "Blue", "Yellow", "White");

8.1 Count occurrences of each color within the array declared in question no. 7, use the foreach (array as key => value) for iteration.

```php
1
2 <?php
3 |
4
5 $arrColours = array ("Red", "Green", "Blue", "Yellow", "White",
6                      "Yellow", "Green", "Blue", "Yellow", "Grey",
7                      "Red", "Yellow", "Blue", "Yellow", "White");
8
9 $arrCount = array_count_values($arrColours);
10
11 foreach($arrCount as $strColour=>$intCount)
12     echo "<p>$strColour occurs $intCount times</p>";
13 ?>
```

9. **Using the sort () and rsort (), sort the array elements in ascending and descending orders.**

```php
1
2 <?php
3
4
5 $arrColours = array ("Red", "Green", "Blue", "Yellow", "White");
6
7 echo "<p>";
8 foreach($arrColours as $strColour)
9     echo "$strColour ";
10 echo "</p>";
11
12 sort($arrColours);
13 echo "<p>";
14 foreach($arrColours as $strColour)
15     echo "$strColour ";
16 echo "</p>";
17
18 rsort($arrColours);
19 echo "<p>";
20 foreach($arrColours as $strColour)
21     echo "$strColour ";
22 echo "</p>";
23 ?>
```

10. Using the var_dump () function, document the structures of the arrays defined in question 8 and 9.