

## Lab 3 – Web Programming

1.

```
Lab 3 - Q1.php
1  <?php
2  /* Program calculates the sum of elements in an array
3   using both a "for" loop and a "foreach" statement */
4
5   // define array
6   $nums = [1,2,3,4,5,6,7,8,9,10];
7
8   // using the "for" loop
9
10  // initialize variables
11  $y = count($nums); // count array elements
12  $x = 0; // holds sum of elements
13
14  echo "The number of elements in the array is: ".$y;
15  echo "<hr>";
16
17  for ($i = 0; $i < $y; ++$i)
18  {
19      $x += $nums[$i];
20      echo "<hr>";
21      echo $x;
22  }
23
24  // output
25  echo "<hr size=20 noshade>^ The sum of elements (using for loop) is: ".$x;
26
27  // using the "foreach" statement
28
29  // initialize variables
30  $x = 0; // holds sum
31
32  foreach($nums as $key => $value)
33  {
34      $x += $nums[$key];
35      echo "<hr>";
36      echo $x;
37  }
38
39  // output
40  echo "<hr size=30 noshade>^ The sum of elements (using foreach) is: ".$x;
41  -?>
```

The number of elements in the array is: 10

1

3

6

10

15

21

28

36

45

55

^ The sum of elements (using for loop) is: 55

1

3

6

10

15

21

28

36

45

55

^ The sum of elements (using foreach) is: 55

## 2.

### 2.1

```
Lab 3 - Q1.php Lab 3 - Q2.php
1 <?php
2 // define multidimensional array
3 $food = array("fruits" => array("apple", "orange", "banana"),
4             "vegetables" => array("carrot", "tomato", "pepper"));
5
6 // display number of elements (using count())
7 echo count($food);
```

localhost:8010/test/Lab%203%20-%20Q2.php

2

### 2.2

```
Lab 3 - Q1.php Lab 3 - Q2.php
1 <?php
2 // define multidimensional array
3 $food = array("fruits" => array("apple", "orange", "banana"),
4             "vegetables" => array("carrot", "tomato", "pepper"));
5
6 // display number of elements (using COUNT_RECURSIVE argument)
7 echo count($food, COUNT_RECURSIVE);
```

localhost:8010/test/Lab%203%20-%20Q2.php

8

### 2.3

```
Lab 3 - Q1.php Lab 3 - Q2.php
1 <?php
2 // define multidimensional array
3 $food = array("fruits" => array("apple", "orange", "banana"),
4             "vegetables" => array("carrot", "tomato", "pepper"));
5
6 // print structure of array
7 echo "<hr>";
8 print_r ($food);
9 echo "<hr>";
```

localhost:8010/test/Lab%203%20-%20Q2.php

Array ( [fruits] => Array ( [0] => apple [1] => orange [2] => banana ) [vegetables] => Array ( [0] => carrot [1] => tomato [2] => pepper ) )

2.4

```
// retrieve tomato  
echo $food["vegetables"][1];
```



2.5

```
// retrieve orange  
echo $food["fruits"][1];
```



3.

```
Lab 3 - Q1.php Lab 3 - Q2.php Lab 3 - Q3.php
1 <?php
2 //define multidimensional array
3 $arrCars = array(array("Ford", "Mazda", "Renault", "Vauxhall", "Toyota"),
4                   array("Blue", "Black", "Red", "Green", "Red"),
5                   array(4, 4, 2, 3, 2));
6
7 for ($intCount = 0; $intCount < 5; $intCount++)
8 {
9     $strMake = $arrCars[0][$intCount]; // iterate through the 1st array
10    $strColour = $arrCars[1][$intCount]; // iterate through the 2nd array
11    $intQuantity = $arrCars[2][$intCount]; // iterate through the 3rd array
12
13    // output
14    echo "<p>Make: $strMake
15         <hr> Colour: $strColour
16         <hr> Quantity: $intQuantity
17         <hr size=20 noshade></p>";
18 }
19 ?>
```

localhost:8010/test/Lab%203%20-%20Q3.php

Make: Ford

---

Colour: Blue

---

Quantity: 4

---

Make: Mazda

---

Colour: Black

---

Quantity: 4

---

Make: Renault

---

Colour: Red

---

Quantity: 2

---

Make: Vauxhall

---

Colour: Green

---

Quantity: 3

---

Make: Toyota

---

Colour: Red

---

Quantity: 2

---

4.

```
Lab 3 - Q1.php x Lab 3 - Q2.php x Lab 3 - Q3.php x Lab 3 - Q4.php x
1 <?php
2 // define array
3 $arrColours = array(0=>"Red", 2=>"Green", 3=>"Blue", 1=>"Yellow", 4=>"White");
4
5 // count number of elements
6 $intSize = count($arrColours);
7
8 echo "<p>";
9 for($intCount = 0; $intCount < $intSize; $intCount++)
10     echo $arrColours[$intCount]. " ";
11 echo "</p>";
12
13 // replace Blue for Purple
14 echo "<p>";
15 for($intCount = 0; $intCount < $intSize; $intCount++)
16 {
17     if ($arrColours[$intCount] == "Blue")
18         $arrColours[$intCount] = "Purple";
19
20     echo $arrColours[$intCount]. " ";
21 }
22 echo "</p>";
23 ?>
```

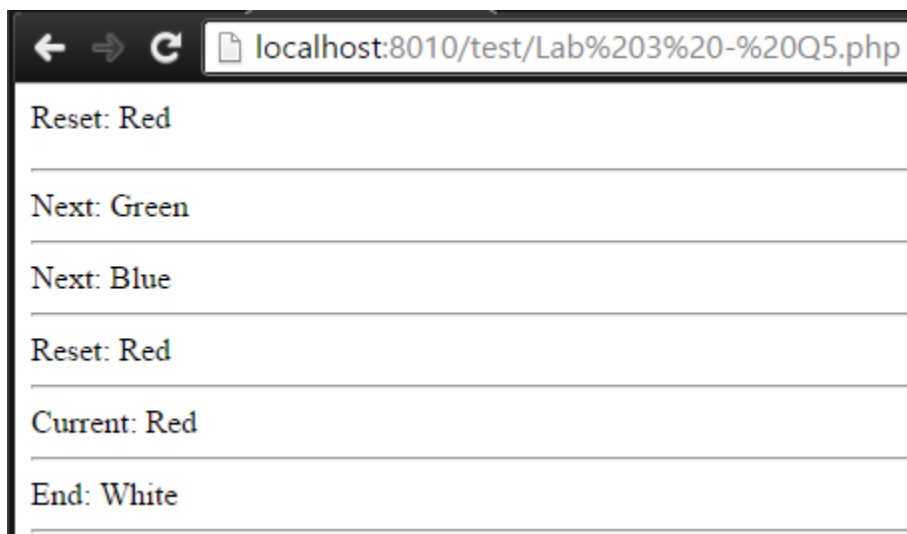


Red Yellow Green Blue White

Red Yellow Green Purple White

5.

```
1 <?php
2 // define array
3 $arrColours = array(0=>"Red", 2=>"Green", 3=>"Blue", 1=>"Yellow", 4=>"White");
4
5 echo "<p>";
6 $strColour = reset($arrColours);
7 echo "Reset: $strColour <hr>";
8
9 $strColour = next($arrColours);
10 echo "Next: $strColour <hr>";
11
12 $strColour = next($arrColours);
13 echo "Next: $strColour <hr>";
14
15 $strColour = reset($arrColours);
16 echo "Reset: $strColour <hr>";
17
18 $strColour = current($arrColours);
19 echo "Current: $strColour <hr>";
20
21 $strColour = end($arrColours);
22 echo "End: $strColour <hr>";
23 echo "</p>";
24 ?>
```



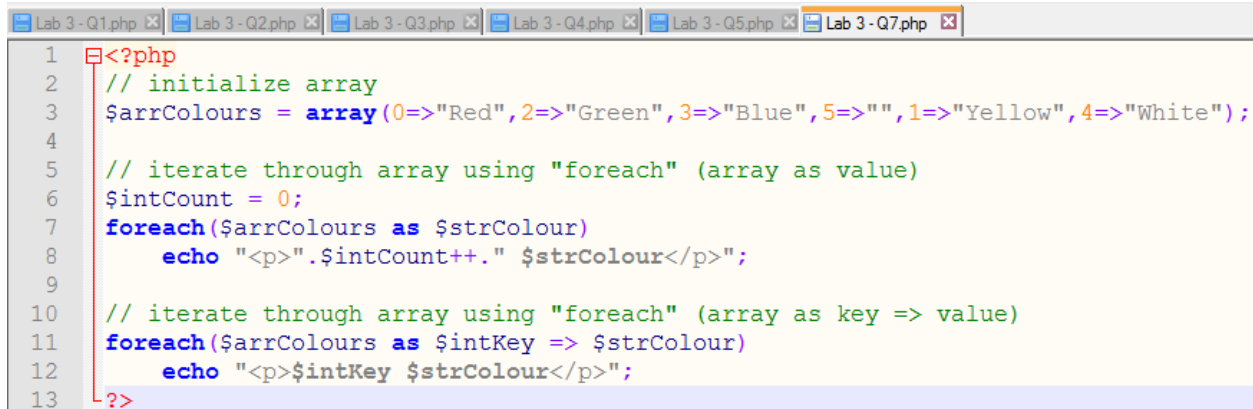
5.1 The purpose of the reset() function is to reset the array's internal pointer to the first element.

5.2 The purpose of the end() function is to move the pointer to last element in the array and also display that content.

6. The "GET" method is used in Google's search form to request data. So data will be visible in the URL.

```
method="GET"
```

## 7.



```
1 <?php
2 // initialize array
3 $arrColours = array(0=>"Red",2=>"Green",3=>"Blue",5=>"",1=>"Yellow",4=>"White");
4
5 // iterate through array using "foreach" (array as value)
6 $intCount = 0;
7 foreach($arrColours as $strColour)
8     echo "<p>".$intCount++." $strColour</p>";
9
10 // iterate through array using "foreach" (array as key => value)
11 foreach($arrColours as $intKey => $strColour)
12     echo "<p>$intKey $strColour</p>";
13 ?>
```

- 7.1 The first syntax for “foreach” (using array as value) outputs the array content, rearranging the subscripts in sequential, incrementing order (0,1,2,3,4,5). For example, notice that “Green” was initialized with the subscript 2, however it is displayed using subscript 1 since it was the second element initialized.



localhost:8010/test/Lab%203%20-%20Q7.php

0 Red

1 Green

2 Blue

3

4 Yellow

5 White

- 7.2 The second syntax for “foreach” (using array as key => value) outputs the array content along with the respective subscript it was originally assigned.

0 Red

2 Green

3 Blue

5

1 Yellow

4 White

8.

```
Lab 3 - Q1.php Lab 3 - Q2.php Lab 3 - Q3.php Lab 3 - Q4.php Lab 3 - Q5.php Lab 3 - Q7.php Lab 3 - Q8.php
1 <?php
2 // define array
3 $arrColours = array("Red", "Green", "Blue", "Yellow", "White",
4                     "Yellow", "Green", "Blue", "Yellow", "Grey",
5                     "Red", "Yellow", "Blue", "Yellow", "White");
6
7 // iterate through array using "foreach" (array as value)
8 $intCount = 0;
9 foreach($arrColours as $strColour)
10     echo "<p>".$intCount++." $strColour</p>";
11 ?>
```

localhost:8010/test/Lab%203%20-%20Q8.php

0 Red  
1 Green  
2 Blue  
3 Yellow  
4 White  
5 Yellow  
6 Green  
7 Blue  
8 Yellow  
9 Grey  
10 Red  
11 Yellow  
12 Blue  
13 Yellow  
14 White

8.1

```
Lab 3 - Q1.php Lab 3 - Q2.php Lab 3 - Q3.php Lab 3 - Q4.php Lab 3 - Q5.php Lab 3 - Q7.php Lab 3 - Q8.php
1 <?php
2 // define array
3 $arrColours = array("Red", "Green", "Blue", "Yellow", "White",
4                     "Yellow", "Green", "Blue", "Yellow", "Grey",
5                     "Red", "Yellow", "Blue", "Yellow", "White");
6
7 // iterate through array using "foreach" (array as value)
8 $intCount = 0;
9 foreach($arrColours as $strColour)
10     echo "<p>".$intCount++." $strColour</p>";
11
12 echo "<hr>";
13
14 /* count occurrences of each colour defined in the array
15    from question 7 (Red, Green, Blue, Yellow, White) */
16 $arrCount = array_count_values($arrColours);
17
18 foreach($arrCount as $strColour => $intCount)
19     echo "<p>$strColour occurs $intCount times</p>";
20 ?>
```

Red occurs 2 times  
Green occurs 2 times  
Blue occurs 3 times  
Yellow occurs 5 times  
White occurs 2 times  
Grey occurs 1 times



9.

```
1 <?php
2 // define array
3 $arrColours = array ("Red", "Green", "Blue", "Yellow", "White");
4
5 // display original array order
6 echo "<p>";
7 foreach($arrColours as $strColour)
8     echo "$strColour ";
9 echo "</p>";
10
11 // sort array elements in ascending, alphabetical order (using sort())
12 sort($arrColours);
13 echo "<p>";
14 foreach($arrColours as $strColour)
15     echo "$strColour ";
16 echo "</p>";
17
18 // sort array elements in descending, alphabetical order (using rsort())
19 rsort($arrColours);
20 echo "<p>";
21 foreach($arrColours as $strColour)
22     echo "$strColour ";
23 echo "</p>";
24 ?>
```

localhost:8010/test/Lab%203%20-%20Q9.php

Red Green Blue Yellow White

Blue Green Red White Yellow

Yellow White Red Green Blue

10.

```
1 <?php
2 // define arrays
3 $arrQ8 = array ("Red", "Green", "Blue", "Yellow", "White",
4                "Yellow", "Green", "Blue", "Yellow", "Grey",
5                "Red", "Yellow", "Blue", "Yellow", "White");
6
7 $arrQ9 = array ("Red", "Green", "Blue", "Yellow", "White");
8
9 // document structures of arrays (using var_dump())
10 echo var_dump($arrQ8);
11 echo "<hr>";
12 echo var_dump($arrQ9);
13 ?>
```

localhost:8010/test/Lab%203%20-%20Q10.php

```
array(15) { [0]=> string(3) "Red" [1]=> string(5) "Green" [2]=> string(4) "Blue" [3]=> string(6) "Yellow" [4]=> string(5) "White" [5]=> string(6) "Yellow" [6]=> string(5) "Green" [7]=> string(4) "Blue" [8]=> string(6) "Yellow" [9]=> string(4) "Grey" [10]=> string(3) "Red" [11]=> string(6) "Yellow" [12]=> string(4) "Blue" [13]=> string(6) "Yellow" [14]=> string(5) "White" }
array(5) { [0]=> string(3) "Red" [1]=> string(5) "Green" [2]=> string(4) "Blue" [3]=> string(6) "Yellow" [4]=> string(5) "White" }
```