LAMP Practical 4

Date: **28-02-2023**

Roll no.: **20BCE119**

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Course Code and Name: 2CSDE69 **LAMP Technologies**

Task

- 4A) Write a PHP program for the following scenario:

    - Given an array of N integers, and an integer K, find the number of pairs of elements in the array whose sum is equal to K. The values of N, K and array elements must be scanned from the user.

    Sample example:

    Input:

    N = 4, K = 6

    arr[] = {1, 5, 7, 1}

    Output:

    Number of pairs in the array: 2

    Pairs: [1,5],[5,1]

- 4B) Write a PHP program to display and count a total number of duplicate elements in the one-dimensional array. The size of array must be scan from the user.

    Sample example:

    Input the number of elements to be stored in the array :5

    Input 5 elements in the array:

    element - 0: 5

element - 1: 1

element - 2: 1

element - 3: 2

element - 4: 2

Expected Output:

Total number of duplicate elements found in the array is: 2

Duplicate elements:1,2

Practical 4A code

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Practical 4A</title>
</head>

<body>
  <form method="post">
    <label for="arr">Enter the array elements separated by commas:</label>
    <input type="text" name="arr" required><br>

    <label for="K">Enter the target sum:</label>
    <input type="number" name="K" required><br>

    <input type="submit" name="submit" value="Find Combinations">
  </form>
  <br>

  <?php
  if (isset($_POST['submit'])) {
    $arr = array_map('intval', explode(",", $_POST['arr']));
    $K = $_POST['K'];
```

```php
// check for invalid input
if (empty($arr)) {
    echo "Error: Array cannot be empty!";
} else if (!is_numeric($K)) {
    echo "Error: Target sum must be a number!";
} else {
    $count = 0;
    $combinations = array();

    // loop through all possible combinations of array elements
    for ($i = 0; $i < pow(2, count($arr)); $i++) {
        $subset = array();
        $sum = 0;

        for ($j = 0; $j < count($arr); $j++) {
            if (($i & (1 << $j)) > 0) {
                $subset[] = $arr[$j];
                $sum += $arr[$j];
            }
        }

        if ($sum == $K) {
            sort($subset); // sort subset to avoid duplicate pairs

            if (!in_array($subset, $combinations)) { // check if subset already counted
                $count++;
                $combinations[] = $subset;
            }
        }
    }

    if ($count == 0) {
        echo "No combinations found.";
    } else {
        echo "Number of combinations: " . $count . "<br>";
        echo "Combinations: ";
        foreach ($combinations as $c) {
            echo "[";
            for ($i = 0; $i < count($c); $i++) {
```

```php
            echo $c[$i];
            if ($i < count($c) - 1) {
               echo ",";
            }
         }
         echo "] ";
      }
   }
}
?>
</body>

</html>
```
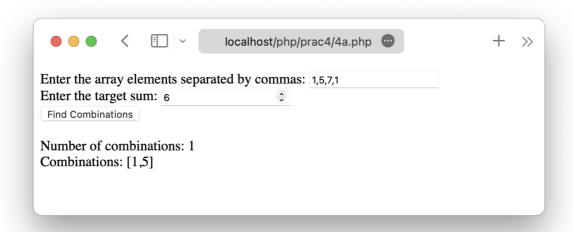
Practical 4B code

```php
<!DOCTYPE html>
<html lang="en">

<head>
   <meta charset="UTF-8">
   <meta http-equiv="X-UA-Compatible" content="IE=edge">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Practical 4B</title>
</head>

<body>
   <form method="post">
      <label>Enter the number of elements to be stored in the array:</label>
      <input type="number" name="n"><br><br>
      <?php
      if (isset($_POST['submit'])) {
         $n = $_POST['n'];
         $arr = array();
         for ($i = 0; $i < $n; $i++) {
            echo "Element - " . $i . ": ";
            $arr[$i] = $_POST['elem' . $i];
            echo "<input type='number' name='elem" . $i . "' value='" . $arr[$i] . "'><br>";
```

```php
        }
        $count = 0;
        $dupes = array();
        for ($i = 0; $i < $n; $i++) {
            for ($j = $i + 1; $j < $n; $j++) {
                if ($arr[$i] == $arr[$j]) {
                    $dupes[$count] = $arr[$i];
                    $count++;
                    break;
                }
            }
        }
        echo "<br>Total number of duplicate elements found in the array is: " . $count;
        echo "<br>Duplicate elements:";
        $dupes = array_unique($dupes);
        foreach ($dupes as $dupe) {
            echo $dupe . ",";
        }
    }
    ?>
    <br><br>
    <input type="submit" name="submit" value="Submit">
  </form>
</body>

</html>
```

Practical 4A output

Enter the array elements separated by commas: 1,5,7,1
Enter the target sum: 6
Find Combinations

Number of combinations: 1
Combinations: [1,5]

Practical 4B output

Enter the number of elements to be stored in the array: 5

Element - 0: 5
Element - 1: 1
Element - 2: 1
Element - 3: 2
Element - 4: 2

Total number of duplicate elements found in the array is: 2
Duplicate elements:1,2,

Submit