# Software Tools 3 Assignment 3 U18C0081 Krunal Rank

Question 1: Write a PHP Program to check if a given year is leap year or not. Answer 1:

```
if(!isset($_GET["year"])){
    echo "Please enter a year!";
    return;
}
$year = (int)$_GET["year"];
if(($year%4==0 && $year%100!=0) || ($year%400)==0){
    echo $year." is a leap year!";
    return;
}
echo $year." is not a leap year!";

Apps    facebook    Rediff    YouTube    Gmail    ESS

2012 is a leap year!
```

### Question 2: Write a PHP Program to demonstrate use of Indexed arrays.

#### **Answer 2:**

```
<?php
     $idx_array = array("This","is","an","indexed","array");
     echo "The indexed array is represented as follows:-<br/>;
     echo var dump($idx array)."<br>";
     echo "Elements of the Index array can be accessed by index values such as 0,1,2,3<br>";
     echo "Example: idx array[0] :- ".$idx array[0]."<br>";
 ?>
← → C ↑ ① localhost:3000/Assignment_3/2.php
🔛 Apps 😝 facebook 📔 Rediff 🔼 YouTube M Gmail 👩 ESS 🖿 Games 🖿 WebD 🖿 Documentatio...
The indexed array is represented as follows:-
array(5) { [0]=> string(4) "This" [1]=> string(2) "is" [2]=> string(2) "an" [3]=> string(7) "indexed" [4]=> string(5) "array" }
```

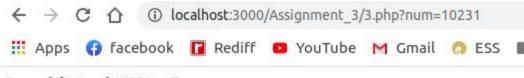
Elements of the Index array can be accessed by index values such as 0,1,2,3

Example: idx\_array[0] :- This

# Question 3: Write a PHP program to compute the sum of the digits of a number using function.

### **Answer:**

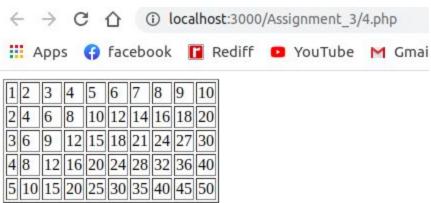
```
<?php
         function getDigitSum($num){
             sn = (int)snum;
             sans = 0;
             while($n>0){
                 sans = sans + sn%10;
                 n = n/10;
             return $ans;
11
12
         if(!isset($ GET["num"])){
13
             echo "Please enter a valid number!";
15
             return;
         $num = $ GET["num"];
         $sum = getDigitSum($num);
         echo "Sum of digits of ".$num." :- ".$sum;
         return;
21
```



Sum of digits of 10231 :- 7

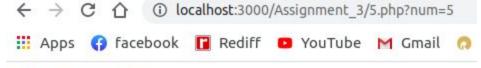
### Question 4: Write a PHP program to print out the following table

```
$\text{span="2"} \text{$\text{rows} = 10;} \text{$\text{rows} = 5;} \text{echo} \text{"<a href="2" to the condition of t
```



# Question 5:Write a PHP program to find the factorial of a number using a recursive function.

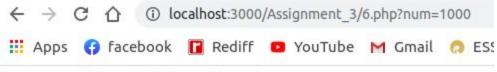
```
function factorial($num){
    if($num<=1) return 1;
    return $num * factorial($num-1);
}
if(!isset($_GET["num"])){
    echo "Please enter a valid number!";
    return;
}
$num = (int)$_GET["num"];
if($num<0){
    echo "Invalid number!";
    return;
}
$ans = factorial($num);
echo "Factorial of ".$num." :- ".$ans;
return;
}</pre>
```



Factorial of 5:- 120

# Question 6: You need to write a PHP program to calculate electricity bills using if-else conditions.

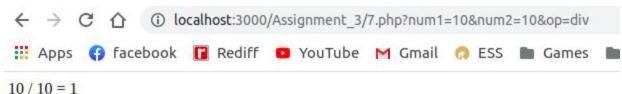
```
<?php
    if(!isset($ GET["num"])){
       echo "Please enter a valid number!";
        return;
    $num = (int)$ GET["num"];
    if($num<0){
        echo "Invalid number!";
        return;
   $val = $num;
   sans = min(snum, 50)*3.50;
   $num -= min($num,50);
   sans += min(snum, 100)*4.00;
   $num -= min($num,100);
   sans += min(snum, 100)*5.20;
   $num -= min($num,100);
   $ans += $num*6.50;
   echo "Electricity bill for ".$val." Units :- Rs ".$ans."<br>";
    return;
?>
```



Electricity bill for 1000 Units :- Rs 5970

### Question 7: Write a simple calculator program in PHP using a switch case.

```
if(!isset($_GET["numl"]) || !isset($_GET["num2"]) || !isset($_GET["op"]) ){
       echo "Please enter a valid number!";
   $num1 = (int)$ GET["num1"];
   $num2 = (int)$ GET["num2"];
   $op = $_GET["op"];
   switch($op){
           echo $num1." + ".$num2." = ".($num1+$num2);
       break;
           echo $num1." - ".$num2." = ".($num1-$num2);
           echo $num1." X ".$num2." = ".($num1*$num2);
       break;
case "div":
           if($num2==0){
              echo "Division by θ is not possible!<br>";
           echo $num1." / ".$num2." = ".($num1/$num2);
           echo "Please enter a valid operation from the below list!<br>>";
           echo "Addition : \"add\"<br>";
           echo "Subtraction: \"sub\"<br>";
           echo "Multiplication: \"mul\"<br>";
           echo "Division: \"div\"<br>";
?Ы
```



### **Question 8: Write a PHP Program to perform following Operations of a Matrix**

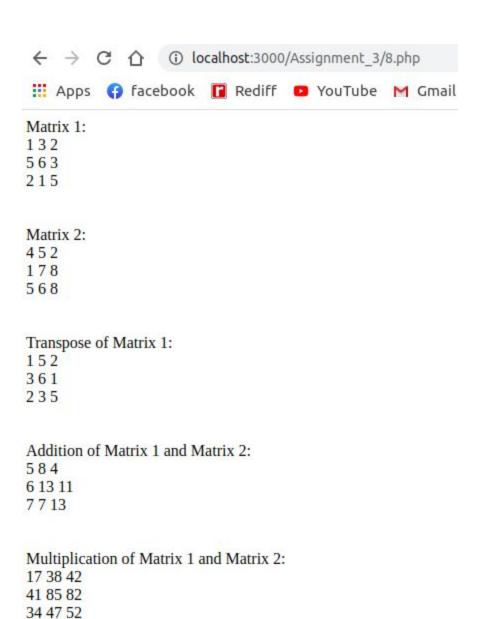
- a) Transpose of matrix
- b) Multiplication of two matrix
- c) Addition of two matrix

#### **Answer:**

```
<?php
         function printMat($mat){
             foreach($mat as $row){
                 foreach($row as $val){
                     echo " ".$val." ";
                 echo "<br>";
         function transpose($mat){
             $i = sizeof($mat);
11
             if($i==0) return $mat1;
12
             $j = sizeof($mat[0]);
13
             $ans = array();
14
             for($r = 0;$r<$i;$r++){}
15
                 for($c=0;$c<$j;$c++){
17
                     $ans[$c][$r] = $mat[$r][$c];
                     $ans[$r][$c] = $mat[$c][$r];
21
             return $ans;
22
23
         function addMat($mat1,$mat2){
24
             $r1 = sizeof($mat1);
25
             $r2 = sizeof($mat2);
             $c1 = sizeof($mat1);
             $c2 = sizeof($mat2);
28
             if($r1!=$r2 || $c1!=$c2){
29
                 return $mat1;
```

```
32
             for($i=0;$i<$r1;$i++)
33
                 for($j=0;$j<$c1;$j++)
34
                     $mat1[$i][$j] +=$mat2[$i][$j];
             return $mat1;
         function mulMat($mat1,$mat2){
             $r1 = sizeof($mat1);
             $r2 = sizeof($mat2);
             $c1 = sizeof($mat1);
             $c2 = sizeof($mat2);
44
             if($c1!=$r2){
                 return $mat1;
             $ans = array();
             for($i=0;$i<$r1;$i++){
                 for($j=0;$j<$c1;$j++){
                     for($k=0;$k<$c2;$k++){
                         $ans[$i][$k]+= ($mat1[$i][$j]*$mat2[$j][$k]);
52
             return $ans;
         }
57
         mat1 = array(array(1,3,2),array(5,6,3),array(2,1,5));
58
59
         $mat2 = array(array(4,5,2),array(1,7,8),array(5,6,8));
```

```
$mat1 = array(array(1,3,2),array(5,6,3),array(2,1,5));
         \text{mat2} = \text{array}(\text{array}(4,5,2),\text{array}(1,7,8),\text{array}(5,6,8));
         echo "Matrix 1: <br>";
62
         printMat($mat1);
         echo "<br>>";
64
         echo "Matrix 2: <br>";
         printMat($mat2);
         echo "<br>>";
         $mat3 = transpose($mat1);
         echo "Transpose of Matrix 1: <br>";
         printMat($mat3);
         echo "<br>>";
70
         $mat4 = addMat($mat1,$mat2);
71
         echo "Addition of Matrix 1 and Matrix 2: <br>";
         printMat($mat4);
73
         echo "<br>>";
         $mat5 = mulMat($mat1,$mat2);
         echo "Multiplication of Matrix 1 and Matrix 2: <br>";
76
         printMat($mat5);
78
         echo "<br>>";
79
```

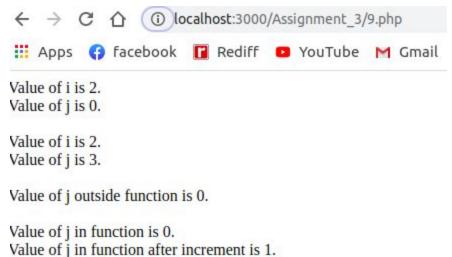


### **Question 9: Write a PHP Program to demonstrate**

- Functions with Default Argument Value
- Passing Arguments by Reference

#### **Answer:**

```
<?php
         function defaultArgs($i,$j=0){
            echo "Value of i is $i.<br>";
            echo "Value of j is $j.<br><br>";
         function passByRef(&$j){
            echo "Value of j in function is $j.<br>";
            $j++;
            echo "Value of j in function after increment is $j.<br>";
10
        defaultArgs(2);
11
        defaultArgs(2,3);
12
        $j = 0;
13
        echo "Value of j outside function is $j.<br>";
14
        passByRef($j);
15
        echo "Value of j outside function after calling it is $j.<br>";
    ?>
17
```



Value of j outside function after calling it is 1.

### **Question 10:Write a PHP Program to demonstrate**

- String Functions
- Math Functions
- Date and Time Functions

```
⊲?php
   $str = "This is a sample string!";
   echo "Sample String: - $str <br>>";
   $stringarr = explode(" ",$str);
   echo "This is how explode function works:-<br>";
   echo var dump($stringarr)."<br>>";
   $newString = implode(" ",$stringarr);
   echo "Reconstructed the string from array:-<br>";
   echo "$newString<br><br>";
   hash = md5(str);
   echo "MD5 Hash of String:-<br>$hash<br><br>";
   $sha = sha1($str);
   echo "SHA1 of String:-<br>$sha<br/>;
   $cnt = str word count($str);
   echo "No. of words in the string:-<br>$cnt<br>>";
   echo "Whether Reconstructed and Sample String are equal(True if 0):- "
   .strcmp($str,$newString)."<br>";
   echo "Position of 'a' in Sample string(Returns index):- ".strpos($str,"a")."<br><hr>";
?>
```

```
Sample String:- This is a sample string!

This is how explode function works:-
array(5) { [0]=> string(4) "This" [1]=> string(2) "is" [2]=> string(1) "a" [3]=> string(6) "sample" [4]=> string(7) "string!" }

Reconstructed the string from array:-
This is a sample string!

MD5 Hash of String:-
62e1168c55d8f9af78413a6fd8528df9

SHA1 of String:-
c8f2366360bd8a318ab434530dff0697df97240f

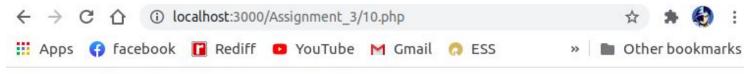
No. of words in the string:-
5

Whether Reconstructed and Sample String are equal(True if 0):- 0

Position of 'a' in Sample string(Returns index):- 8
```

```
<?php
         num = 25;
         echo "Sample Number :- $num<br><br>";
         echo "Natural Log of $num :- ".log($num)."<br><br>";
         echo "Cosine of $num :- ".cos($num)."<br>>";
         echo "Value of $num<sup>4</sup> :- ".pow($num,4)."<br>>";
         echo "Round of 25.645223 :- ".round(25.645223)."<br>";
         echo "Squre root of $num :- ".sqrt($num)."<br><br>";
10
11
← → C ↑ ① localhost:3000/Assignment 3/10.php
🔛 Apps 😝 facebook 📔 Rediff 🔼 YouTube M Gma
Sample Number :- 25
Natural Log of 25 :- 3.2188758248682
Cosine of 25 :- 0.99120281186347
Value of 254: - 390625
Round of 25.645223 :- 26
Squre root of 25:-5
```

```
<?php
        echo "Checking whether 12-31-2020 is a date or not(True if 1) :- "
        .checkdate(12,31,2020)."<br>>";
        $date=date create("2020-08-27");
        date add($date,date interval create from date string("10 days"));
        echo "Date after adding 10 days to 2020-08-27 :- ".date format($date, "Y-m-d"). "<br></rr>
        $date1=date create("2019-05-01");
        $date2=date create("1540-12-12");
        $diff=date diff($date1,$date2);
        echo "Difference in days between 2019-05-01 and 1540-12-12 :- "
        .$diff->format("%R%a days")."<br><br>";
14
        echo "Local Time of the day :- ".gettimeofday(true)."<br>";
        echo "Local Date :- ";
        print_r(getdate());
        echo "<br>>";
```



Checking whether 12-31-2020 is a date or not(True if 1):-1

Date after adding 10 days to 2020-08-27 :- 2020-09-06

Difference in days between 2019-05-01 and 1540-12-12 :- -174726 days

Local Time of the day :- 1598531129.0434

Local Date :- Array ( [seconds] => 29 [minutes] => 55 [hours] => 17 [mday] => 27 [wday] => 4 [mon] => 8 [year] => 2020 [yday] => 239 [weekday] => Thursday [month] => August [0] => 1598531129 )