

## Exercises User Defined Functions

## Exercise 1: Vat calculator

Create two variables **'price'** and **'vat'**, and create a function called **'calculateVat'** that takes two parameters, and returns a variable **'calculatedPrice'**. Print out the price, vat and total price.

Expected output -> (Price is: **price**, Vat is: **vat**, Total price is: **calculateVat**)

```
$price = 100;
$vat = 0.21;

function calculateVat($price, $vat) {
    $calculatedPrice = ($price * $vat) + $price;
    return $calculatedPrice;
}

echo "Price: " . $price . "<br>";
echo "Vat: " . $vat . "<br>";
echo "Total price: " . calculateVat($price, $vat);
```

## Exercise 2: Leap year

Create a variable **'year'** and create a function **'isLeapYear'** that checks if the year is a leap year. If it is a leap year, return a **Boolean** value. In the exercises of the control structures, we discussed what a leap year is.

Expected output -> ('year' is a leap year)  
('year is not a leap year')

```
$year = 2000;

function isLeapYear($year) {
    if ($year % 400 == 0 || $year % 4 == 0) {
        return true;
    } else {
        return false;
    }
}

if (isLeapYear($year)) {
    echo $year . " is a leap year";
} else {
    echo $year . " is not a leap year";
}
```

### Exercise 3: Calculator

Create two variables '**num1**' and '**num2**' and create four functions '**addNumbers**', '**subtractNumbers**', '**multiplyNumbers**' and '**divideNumbers**'. The function accepts two parameters, and return the addition, subtraction, multiplicity and division of the two numbers.

Expected output                   ->       ('Addition of 'num1' and 'num2' is 'addnumbers')  
  ('Subtraction of 'num1' and 'num2' is 'addnumbers')  
  ('Multiplicity of 'num1' and 'num2' is 'addnumbers')  
  ('Division of 'num1' and 'num2' is 'addnumbers')

```
$num1 = 10;
$num2 = 20;

function addNumbers($num1, $num2) {
    return $num1 + $num2;
}

function subtractNumbers($num1, $num2) {
    return $num1 - $num2;
}

function multiplyNumbers($num1, $num2) {
    return $num1 * $num2;
}

function divideNumbers($num1, $num2) {
    return $num1 / $num2;
}

echo "Addition of " . $num1 . " and " . $num2 . " is " . addNumbers($num1, $num2) . "<br>";
echo "Subtraction of " . $num1 . " and " . $num2 . " is " . subtractNumbers($num1, $num2) . "<br>";
echo "Multiplicity of " . $num1 . " and " . $num2 . " is " . multiplyNumbers($num1, $num2) . "<br>";
echo "Division of " . $num1 . " and " . $num2 . " is " . divideNumbers($num1, $num2) . "<br>";
```

### Exercise 4: Swapping numbers

Create a function '**swapNumbers**' that takes two parameters '**num1**' and '**num2**', and inside the function, that swaps the numbers.

Expected output->                   ('Before swapping: num1 = 4, num2 = 8');  
  ('After swapping: num1 = 8, num2 = 4')

```
$num1 = 10;
$num2 = 20;

function swapNumbers($num1, $num2) {
    $temp = $num1;
    $num1 = $num2;
    $num2 = $temp;

    echo "After swapping: num 1 = " . $num1 . " num 2 = " . $num2;
}

echo "Before swapping: num 1 = " . $num1 . " num 2 = " . $num2 . "<br>";
swapNumbers($num1, $num2);
```

### Exercise 5: Even or Odd

Create a function '**evenOrNot**' that checks if a given number '**num1**' is even or odd. Echo the expected output.

Expected output                   ->       ('Num1 is even')  
  ->       ('Num1 is odd')

```
$num1 = 9;

function evenOrNot($num1) {
    if ($num1 % 2 == 0) {
        echo $num1 . " is even";
    } else {
        echo $num1 . " is odd";
    }
}

evenOrNot($num1);
```



### Exercise 6: Prime number

Create a function **'isPrime'** that checks if **'num1'** is a prime number or not. Return true if it is a prime number and return false if it is not a prime number.

Expect output                   ->       ('num1 is a prime number')  
  ('num1 is not a prime number')

```
$num1 = 7;

function isPrime($num1) {
    if ($num1 == 1) {
        return false;
    } else {
        for ($i=2; $i < $num1 / 2; $i++) {
            if ($num1 % $i == 0) {
                return false;
            }
        }
        return true;
    }
}
```

```
if (isPrime($num1)) {
    echo "This number is a prime";
} else {
    echo "This number is not a prime";
}
```