Experiment No. 1

Title: Simple PHP programs using basic programming Constructs

Batch:A3 **Roll No.:16010421073** **Experiment No.:1**

Aim: Write PHP programs using basic programming constructs such as data types, control structures, String functions , date and time functions and Math functions

Resources needed: Windows OS, Web Browser, Editor, XAMPP Server

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Pre Lab/ Prior Concepts:
Students should have prior knowledge of HTML/CSS/Basic Programming.

Theory:
PHP

1. PHP is a server side scripting language.
2. It can be used to develop Static websites or Dynamic websites or Web applications.
3. PHP stands forHypertext Pre-processor, that earlier stood for Personal Home Pages.
4. PHP scripts can only be interpreted on a server that has PHP installed.
5. The client computers accessing the PHP scripts require a web browser only.
6. A PHP file contains PHP tags and ends with the extension ".php".
7. PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management system and webframeworks.

PHP supports the following data types:

- String
- Integer
- Float (floating point numbers - also called double)
- Boolean
- Array
- Object
- NULL
- Resource

PHP String

A string is a sequence of characters, like "Hello world!".
A string can be any text inside quotes. You can use single or double quotes:

```
<?php
$x = "Hello world!";
$y = 'Hello world!';

echo $x;
echo "<br>";
echo $y;
?>
```

PHP has a set of math functions that allows you to perform mathematical tasks on numbers.
For Example : The pi() function returns the value of PI
The abs() function returns the absolute (positive) value of a number
Other Examples: min(), max() etc..

PHP Conditional Statements

if statement - executes some code if one condition is true
if...else statement - executes some code if a condition is true and another code if that condition is false
if...elseif...else statement - executes different codes for more than two conditions
switch statement - selects one of many blocks of code to be executed

Sample Code: **if and if else example**

```
if (condition) {

  code to be executed if condition is true;

} else {

  code to be executed if condition is false;

}
```

```
<?php

$t = date("H");


if ($t < "10") {

  echo "Have a good morning!";

} elseif ($t < "20") {

  echo "Have a good day!";

} else {

  echo "Have a good night!";

}

?>
```

Similarly all the conditional constructs such as for loop, switch case etc are available in PHP

Echo and Print

echo and print are more or less the same. They are both used to output data to the screen.
The differences are small: echo has no return value while print has a return value of 1 so it can be used in expressions. echo can take multiple parameters (although such usage is rare) while print can take one argument. echo is marginally faster than print.

We can use html tags in php e.g.
, <b> used in the above example.

Procedure:

How to Run a PHP File in XAMPP?

Step 1 : First Create PHP script using any editor like notepad, notepad++ etc.

<?php echo "Welcome to the world of PHP."; ?>

Step 2 : Save file as following... firstProg.php

In C:xampp/htdocs/myproject/firstProg.php

Start XAMPP Apache server (first time only)

Step 3 : Run the PHP script

Open Your browser and write in

Type url : localhost/myproject/firstProg.php

Output:

Welcome to the world of PHP.

Activity: Write a PHP program implementing data types, string functions(3/4) data and time function, Math function

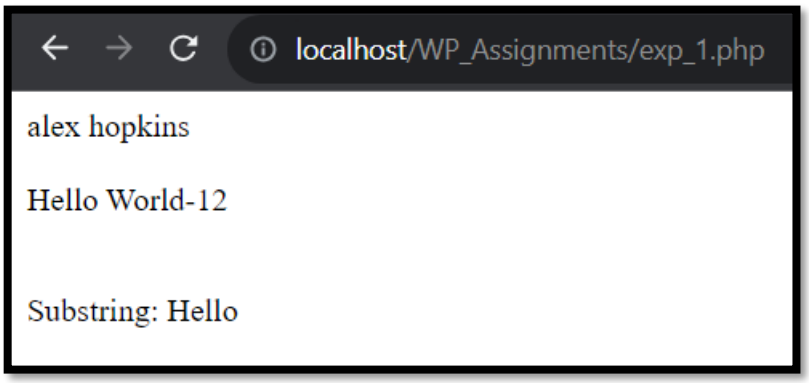
Output(Code with result Snapshot)

String Manipulation:

```php
<?php
    //concatenate two strings
    $fname = "alex";
    $lname = "hopkins";
    echo $fname . " " . $lname;
    echo "<br>";
    echo "<br>";
    //length of string using strlen() function
    $name = "Hello World-";
    echo $name;
    $str = strlen($name);
    echo  $str . "<br>";
    echo "<br>";
    // Substring
```

```
    echo "<br>";

    $substring = substr($name,0,5);
    echo "Substring: " . $substring . "<br>";
    echo "<br>";
    echo "<br>";
    ?>
```



Date and Time:

```
<?php
    //Date and time function using php constructs

    $currentDate = date("Y-m-d");
    echo "Current Date: " .$currentDate . "<br>";
    echo "<br>";


    //format a timestamp
    $timestamp = strtotime("2023-10-05");
    $formattedDate = date("F j, Y", $timestamp);
    echo "Formatted Date: " . $formattedDate . "<br>";

    echo "<br>";

    //calculate the difference between 2 time dates
    $date1 = new DateTime("2023-10-05");
    $date2 = new DateTime("2023-10-10");
    $interval = $date1->diff($date2);
    echo "Days until the event: " . $interval->days . " days<br>";
    echo "<br>";
    ?>
```

```
Current Date: 2023-10-05

Formatted Date: October 5, 2023

Days until the event: 5 days
```

Math Functions:

```php
<?php
    //Basic math functions
    $num1 = 10;
    $num2 = 5;
    echo "First number: ". $num1 . "<br>";
    echo "Second number: ". $num2 . "<br>";

    $sum = $num1 + $num2;
    $difference = $num1 - $num2;
    $product = $num1 * $num2;
    $quotient = $num1 / $num2;

    echo "Sum: " . $sum . "<br>";
    echo "Difference: " . $difference . "<br>";
    echo "Product: " . $product . "<br>";
    echo "Quotient: " . $quotient . "<br>";
    echo "<br>";

    // Square root
    $number = 25;
    $sqrt =sqrt($number)."<br>";

    echo "Square Root of $number " . "<br>" . $sqrt . "<br>";
    ?>
```

```
First number: 10
Second number: 5
Sum: 15
Difference: 5
Product: 50
Quotient: 2

Square Root of 25
5
```

Full Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
    <!-- Simple programs using basic PHP Constructs and String, Date, Time, Math in-
built functions? -->
</head>
<body>
    <?php
    //concatenate two strings
    $fname = "alex";
    $lname = "hopkins";
    echo $fname . " " . $lname;
    echo "<br>";
    echo "<br>";
    //length of string using strlen() function
    $name = "Hello World-";
    echo $name;
    $str = strlen($name);
    echo  $str . "<br>";
    echo "<br>";
    // Substring
    echo "<br>";

    $substring = substr($name,0,5);
    echo "Substring: " . $substring . "<br>";
    echo "<br>";
    echo "<br>";
    ?>
    <?php
    //Date and time function using php constructs

    $currentDate = date("Y-m-d");
    echo "Current Date: " .$currentDate . "<br>";
    echo "<br>";


    //format a timestamp
    $timestamp = strtotime("2023-10-05");
    $formattedDate = date("F j, Y", $timestamp);
    echo "Formatted Date: " . $formattedDate . "<br>";

    echo "<br>";

    //calculate the difference between 2 time dates
```

```
    $date1 = new DateTime("2023-10-05");
    $date2 = new DateTime("2023-10-10");
    $interval = $date1->diff($date2);
    echo "Days until the event: " . $interval->days . " days<br>";
    echo "<br>";
    ?>
    <?php
    //Basic math functions
    $num1 = 10;
    $num2 = 5;
    echo "First number: ". $num1 . "<br>";
    echo "Second number: ". $num2 . "<br>";

    $sum = $num1 + $num2;
    $difference = $num1 - $num2;
    $product = $num1 * $num2;
    $quotient = $num1 / $num2;

    echo "Sum: " . $sum . "<br>";
    echo "Difference: " . $difference . "<br>";
    echo "Product: " . $product . "<br>";
    echo "Quotient: " . $quotient . "<br>";
    echo "<br>";

    // Square root
    $number = 25;
    $sqrt =sqrt($number)."<br>";

    echo "Square Root of $number " . "<br>" . $sqrt . "<br>";
    ?>
</body>
</html>
```

Post Lab Questions:-

1. Explain Loops in PHP with example.

Ans: Loops in PHP are control structures that allow you to repeatedly execute a block of code as long as a certain condition is met or for a specified number of iterations. PHP provides several types of loops, including for, while, do-while.

- **for Loop:**

The for loop is used when you know beforehand how many times you want to execute a block of code.

```
<?php
for ($i = 1; $i <= 5; $i++) {
```

```
    echo "Iteration $i <br>";
}
    ?>
```

while Loop:

The while loop is used when you want to execute a block of code as long as a certain condition is true.

```
<?php
$count = 1;
while ($count <= 5) {
   echo "Iteration $count <br>";
   $count++;
}
?>
```

do-while Loop:

The do-while loop is similar to the while loop, but it guarantees that the code block will be executed at least once because the condition is checked after the code is executed.

```
<?php
$count = 1;
do {
   echo "Iteration $count <br>";
   $count++;
} while ($count <= 5);
?>
```

2. Why chose PHP over other programming languages.

Ans: The choice of a programming language like PHP over others depends on various factors, including the specific requirements of your project, your familiarity with the language, and the characteristics of the language itself. PHP has its own strengths and weaknesses, and whether you should choose PHP over other programming languages depends on your specific use case. Here are some reasons why you might choose PHP over other languages:

1. Web Development Focus: PHP was designed specifically for web development, making it an excellent choice for building websites and web applications. It has a wide range of built-in features and libraries for web-related tasks.
2. Large Community and Ecosystem: PHP has a large and active community of developers. This means there are plenty of resources, tutorials, and libraries available, making it easier to find help and solutions when you encounter problems.
3. Ease of Learning: PHP is known for its relatively low learning curve, especially for beginners. The syntax is simple and straightforward, making it accessible to those new to programming.
4. Server-Side Scripting: PHP is a server-side scripting language, which means it can perform tasks on the server before sending the results to the client's browser. This is essential for tasks like processing form data, interacting with databases, and generating dynamic web content.

Outcomes: CO1: Illustrate use of basic PHP concepts to develop applications.

Conclusion: (Conclusion to be based on the objectives and outcomes achieved)

Thus we successfully implemented basic php functions .

Signature of faculty in-charge with date

References:

1. Thomson PHP and MySQL Web Development Addison-Wesley Professional , 5th Edition 2016.
2. Peter MacIntyre, Kevin Tatroe Programming PHP O'Reilly Media, Inc, 4th Edition 2020
3. Frank M. Kromann Beginning PHP and MySQL: From Novice to Professional, Apress 1st Edition, 2018