Programming PHP

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PHP Topics

General Discussions

PHP Basic Operations
- Basic Functions
- Built-in Functions
- Getting Data from Browsers

- Practice / Classroom coding

- Mini Project 01

Basic Functions

A user-defined function declaration starts with the word `function`:

Syntax

```
function functionName() {
  code to be executed;
}
```

```
<?php
function writeMsg()
{
  echo "Hello PHP8!";
}

writeMsg();
?>
```

PHP is a loosely typed language so it automatically associates a data type to the variable, depending on its value. Since the data types are not set in a strict sense, you can do things like adding a string to an integer without causing an error.

Note: A function name must start with a letter or an underscore. Function names are NOT case-sensitive.

What would be the output of this PHP function?

```php
<?php
function addNumbers(int $a, int $b)
{
  return $a + $b;
}
echo addNumbers(5, "5 days");
```

```php
<?php declare(strict_types=1);

function addNumbers(int $a, int $b) {
  return $a + $b;
}
echo addNumbers(5, "5 days");
```

To specify `strict` we need to set `declare(strict_types=1);`. This must be on the very first line of the PHP file.

Default and Return Value

```php
<?php

declare(strict_types=1); // strict requirement
?>
<!DOCTYPE html>
<html>

<body>

  <?php
  function setHeight(int $minheight = 50)
  {
    echo "The height is : $minheight <br>";
  }

  setHeight(350);
  setHeight(); // what would be result here?
  setHeight(135);
  setHeight(80);
  ?>

</body>

</html>
```

Default and Return Value

To let a function return a value, use the `return` statement:

Example

```
<?php

declare(strict_types=1); // strict requirement
?>
<!DOCTYPE html>
<html>

<body>

  <?php
  function sum(int $x, int $y)
  {
    $z = $x + $y;
    return $z;
  }

  echo "5 + 10 = " . sum(5, 10) . "<br>";
  echo "7 + 13 = " . sum(7, 13) . "<br>";
  echo "2 + 4 = " . sum(2, 4);
  ?>

</body>
</html>
```

PHP Return Type Declaration

PHP 7+ supports type declarations for the return statement. In the following example we specify the return type for the function:

Example

```php
<?php

declare(strict_types=1); // strict requirement
function addNumbers(float $a, float $b): float
{
  return $a + $b;
}
echo addNumbers(1.2, 5.2);
```

Chapter Summary

- Function definitions give a function a name and use a code block to store the statements to perform a task.
- Calling a function tells the PHP interpreer to run those statements to perform the task.
- The return keyword sends data back from a function.
- Parameters represent the data a function needs to perform its task. Parameter names act like variables in the function.
- When a function is called, the values used for the parameters are known as arguments.
- Type declarations speciry the data type for arguments.
- Return types specify the data type a function returns.
- If a parameter is optional, it is given a default value.

Practice / Classroom Coding

- **PHP_practice01/4.php**:
  - Define a function and make it return a calculation of two numbers
  - Make a function that passes parameters and call it using parameter values

- **PHP_practice04/section_a/c03/basicfunction.php**
  - Create three functions to generate the values as shown in this table.
    - The first function should look at stock levels and create a message indicating wheather or not more stock should be ordered.
    - The second function should find the total value of stock for each item that is sold.
    - And finally the third function should calculate how much tax will be due when all of the remaining stock has been sold.

Built-In Functions

PHP has more than 5000+ built-in functions that can be called directly, from within a script, to perform a specific task.

Math:
https://www.php.net/manual/en/ref.math.php

Strings:

https://www.php.net/manual/en/ref.strings.php

Arrays:

https://www.php.net/manual/en/ref.array.php

PHP cheat-sheet for built-it functions and and other related notes

https://unelmacloud.com/drive/s/0Vd8fv8TYmGovTdoaPEixejSunShms

Chapter Summary

- PHP’s built-in functions achieve tasks that many programmers need to perform when creating websites.
- You call built-in functions just like any function, but you do not add a function definition in the page.
- String functions find, count and replace caracters or change their case.
- Number functions round numbers, pick random numbers and peform mathematical functions.
- Array functions add and remove elements, sort the contents of an array, check for keys or values, and turn arrays into strings and back again.

Practice / Classroom Coding

- **PHP_practice01/5.php**:
  - Use a pre-built math function and echo it
  - Use a pre-built string function and echo it
  - Use a pre-built array function and echo it

- **PHP_practice05/section_b/c05/case-and-character-count.php**

  Write PHP Code to convert case in lowercase, uppercase, count number of characters and word count

- **PHP_practice05/section_b/c05/array-functions.php**

  Write PHP Code to create array of greetings then get random value, find array of best sellers, count items and list top items, create an array holding customer details. Finally, show the top 3 best sellers items in website.

Practice / Classroom Coding

- **PHP_practice05/section_b/c05/array-updating-functions.php**

  Write PHP Code to create array of items being ordered, add an item to start of array, remove the last item from array, convert to string and loop through keys and values of the associative array.

- **PHP_practice05/section_b/c05/files.php**

  Write PHP Code to show file informations of “logo.png”
  e.g. file name, size, MIME type and path

Getting Data from Browsers

The PHP superglobals **$_GET** and **$_POST** are used to collect form-data.

PHP - A Simple Form

The example below displays a simple HTML form with two input fields and a submit button:

Example

```
<html>
<body>

<form action="welcome.php" method="post">
Name: <input type="text" name="name"><br>
E-mail: <input type="text" name="email"><br>
<input type="submit">
</form>

</body>
</html>
```

1. Go and open form.php in PHP_practice05/section_b/c05/form.php
2. Insert some data e.g. your name and email address
3. See the results.

Getting Data from Browsers

The same result could also be achieved using the HTTP GET method:

```
<!DOCTYPE HTML>
<html>
<body>

<form action="welcome_get.php" method="get">
Name: <input type="text" name="name"><br>
E-mail: <input type="text" name="email"><br>
<input type="submit">
</form>

</body>
</html>
```

1. Go and open form_get.php in http://localhost:8005/PHP_practice05/section_b/c05/form_get.php
2. Insert some data e.g. your name and email address
3. See the results.

GET vs. POST

Both GET and POST create an array (e.g. array(key1 => value1, key2 => value2, key3 => value3, ...)). This array holds key/value pairs, where keys are the names of the form controls and values are the input data from the user.

Both GET and POST are treated as $_GET and $_POST. These are superglobals, which means that they are always accessible, regardless of scope - and you can access them from any function, class or file without having to do anything special.

$_GET is an array of variables passed to the current script via the URL parameters.

$_POST is an array of variables passed to the current script via the HTTP POST method.

When to use GET?

Information sent from a form with the GET method is **visible to everyone** (all variable names and values are displayed in the URL).

```
$city = isset($_GET[‘city’]) ? $_GET[‘city’] : ‘ ’;
$city = $_GET[‘city’] ?? ‘ ’ ;    // if it does not exist: store blank string
```

GET also has limits on the amount of information to send. The limitation is about 2000 characters. However, because the variables are displayed in the URL, it is possible to bookmark the page.

GET may be used for sending non-sensitive data.

Note: NEVER use GET for sending passwords or other sensitive information!

https://www.php.net/manual/en/function.isset.php

When to use POST?

Information sent from a form with the POST method is **invisible to others** (all names/values are embedded within the body of the HTTP request) and has **no limits** on the amount of information to send.

$email = $_POST [‘email’];

$age =$_POST[‘age’] ?? false;

Moreover POST supports advanced functionality such as support for multi-part binary input while uploading files to server.

However, because the variables are not displayed in the URL, it is not possible to bookmark the page.

Developers prefer POST for sending form data.

Chapter Summary

- Data sent via query strings and forms is added to the $_GET and $_POST superglobal arrays, which store all the data they receive as strings.
- If a value may be missing from a superglobal array use the isset() function to check if it is present or supply a default with the null-coalescing operator ??.
- Before processing data, validate it. Check required data was spplied and that it is in the right format.
- Before showing user data, santize it to prevent XSS attacks. Replace reserved characters with entities.
- Use validation filters or sanitization filters to filter and validate the data types.

Practice / Classroom Coding

- **PHP_practice01/6.php**:
  - Make a form that submits one value to POST super global

- **PHP_practice06/section_b/c06/get-1.php**

  Write PHP Code to collect three different city names and show the address of a store in that city. For example ‘Helsinki’ has address ‘Kaivokatu 1, 00100 Helsinki’, ‘London’ has for example ’48 Store Street’, WC1E, 7BS and ‘Sydney’ has address e.g. ‘1243 7th Street, 10212’

- **PHP_practice06/section_b/c06/get-2.php**

  Write PHP Code to validate the query string data from previous example and use validation to check if the query string holds a valid location. For example, if query string contains a city, it should store in a variable and if not, the variable e.g. $city can hold a blank string.

- **PHP_practice06/section_b/c06/get-3.php**

  Write PHP Code based on previous one to validate and check if query string holds a valid location. For example, in the URL insert different city which should redirect to “page-not-found.php”

Note: For more info, check the practice folder with steps

Practice / Classroom Coding

- **PHP_practice06/section_b/c06/collecting-form-data.php**

  Fix this PHP form to collect form data and display in the page below.

- **PHP_practice06/section_b/c06/check-for-http-post.php**

  Write a PHP code for checking a form has been submitted. You can use $_SERVER superglobal array for specific REQUEST_METHOD which stores the HTTP method used to request the page. Whatever use inserts in input box should be displayed e.g.
  “You searched for …”

- **PHP_practice06/section_b/c06/check-for-http-get.php**

  Write a PHP code for checking a form has been submitted. You can use $_SERVER superglobal array for specific REQUEST_METHOD which stores the HTTP method used to request the page. Whatever use inserts in input box should be displayed e.g.
  “You searched for …”

Note: For more info, check the practice folder with steps

Practice / Classroom Coding

- **PHP_practice06/section_b/c06/validate-number-range.php**

  Write PHP code to check if the given number is valid. The age is valid if this is between 16-65 years old. Display the message “Age is valid” otherwise display “You must be 16-65”

- **PHP_practice06/section_b/c06/validate-password.php**

  Write PHP code to validate password and also check password strength. Following conditions should be checked
  - Password length must contain >=8 characters
  - Check if it contains conbination of uppercase characters, lowercase characters
  - And numbers

  Display “Password is valid” once above conditions are fulfilled else display “Password not strong enough”

Note: For more info, check the practice folder with steps

Mini Project 01

You work with your teams to do this mini projects. Idea of this mini project 01 is to write PHP code to do the measurement conversion for temperature, speed and mass. Mini project should be demonstrated on the final lesson and there will be peer voting.

A. Temperature

1. Convert temperature from Celsius to Fahrenheit
2. Convert temperature from Celsius to Kelvin

B. Speed

1. Convert kilometers per hour to meters per second
2. Convert kilometers per hour to knots

B. Mass

1. Convert kilograms to grams
2. Convert grams to kilograms

Mini Project 02

Idea of this mini project 02 is to write PHP code to
create a Contact Us Form.

You can download the template from itsLearning —> Practice

There is a README.md file attached with detailed instructions.

For testing purposes, you may use