LAB 6: INTRODUCTION TO PHP

What is PHP?

PHP is an acronym for "PHP: Hypertext Preprocessor". It's a widely-used, open source scripting language. PHP scripts are executed on the server.

PHP files can contain text, HTML, CSS, JavaScript, and PHP code which is executed on the server, and the result is returned to the browser as plain HTML. PHP files have extension "`.php`"

With PHP we can:

- generate dynamic page content
- create, open, read, write, delete, and close files on the server
- collect form data
- send and receive cookies
- add, delete, modify data in your database
- PHP can be used to control user-access
- encrypt data

Basic PHP Syntax

A PHP script can be placed anywhere in the document.

A PHP script starts with `<?php` and ends with `?>`:

```
<?php
// PHP code goes here
?>
```

The default file extension for PHP files is "`.php`".

A PHP file normally contains HTML tags, and some PHP scripting code.

Below, we have an example of a simple PHP file, with a PHP script that uses a built-in PHP function "`echo`" to output the text "Hello World!" on a web page:

Example:

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

```
<h1>My first PHP page</h1>

<?php
echo "Hello World!";
?>

</body>
</html>
```

PHP Case Sensitivity

In PHP, NO keywords (e.g. `if`, `else`, `while`, `echo`, etc.), classes, functions, and user-defined functions are case-sensitive.

In the example below, all three echo statements below are equal and legal:

Example

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

<?php
ECHO "Hello World!<br>";
echo "Hello World!<br>";
EcHo "Hello World!<br>";
?>
</body>
</html>
```

In example below; only the first statement will display the value of the `$color` variable! This is because `$color`, `$COLOR`, and `$coLOR` are treated as three different variables:

Example

```
<!DOCTYPE html>
<html>
<body>
<?php
$color = "red";
echo "My car is " . $color . "<br>";
echo "My house is " . $COLOR . "<br>";
echo "My boat is " . $coLOR . "<br>";
?>

</body>
</html>
```

Comments in PHP

A comment in PHP code is a line that is not executed as a part of the program. Its only purpose is to be read by someone who is looking at the code.

```
<!DOCTYPE html>
<html>
<body>
<?php
// This is a single-line comment

# This is also a single-line commen

/*
This is a multiple-lines comment block
that spans over multiple
lines
*/

// You can also use comments to leave out parts of a code line
$x = 5 /* + 15 */ + 5;
echo $x;
?>
</body>
</html>
```

Creating (Declaring) PHP Variables

In PHP, a variable starts with the `$` sign, followed by the name of the variable:

Example

```
<?php
$txt = "Hello world!";
$x = 5;
$y = 10.5;
?>
```

Variable names are case-sensitive (`$age` and `$AGE` are two different variables)

Output Variables

The PHP `echo` statement is often used to output data to the screen.

The following example will show how to output text and a variable:

Example

```php
<?php
$txt = "W3Schools.com";
echo "I love $txt!";
?>
```

The following example will produce the same output as the example above:

Example

```php
<?php
$txt = "W3Schools.com";
echo "I love " . $txt . "!";
?>
```

The following example will output the sum of two variables:

Example

```php
<?php
$x = 5;
$y = 4;
echo $x + $y;
?>
```

In the example above, notice that we did not have to tell PHP which data type the variable is. PHP 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. In PHP 7, type declarations were added. This gives an option to specify the data type expected when declaring a function, and by enabling the strict requirement, it will throw a "Fatal Error" on a type mismatch.

In PHP, variables can be declared anywhere in the script. The scope of a variable is the part of the script where the variable can be referenced/used.

PHP has two different variable scopes:

- local
- global

Global and Local Scope

A variable declared **outside** a function has a GLOBAL SCOPE and can only be accessed outside a function:

Example

Variable with global scope:

```
<?php
$x = 5; // global scope

function myTest() {
    // using x inside this function will generate an error
    echo "<p>Variable x inside function is: $x</p>";
}
myTest();

echo "<p>Variable x outside function is: $x</p>";
?>
```

Example

Variable with local scope:

```
<?php
function myTest() {
    $x = 5; // local scope
    echo "<p>Variable x inside function is: $x</p>";
}
myTest();

// using x outside the function will generate an error
echo "<p>Variable x outside function is: $x</p>";
?>
```

PHP The global Keyword

The `global` keyword is used to access a global variable from within a function.

To do this, use the `global` keyword before the variables (inside the function):

Example

```
<?php
$x = 5;
$y = 10;
```

```php
function myTest() {
    global $x, $y;
    $y = $x + $y;
}

myTest();
echo $y; // outputs 15
?>
```

The PHP echo Statement

he `echo` statement can be used with or without parentheses: `echo` or `echo()`.

Display Text

The following example shows how to output text with the `echo` command (notice that the text can contain HTML markup):

Example

```php
<?php
echo "<h2>PHP is Fun!</h2>";
echo "Hello world!<br>";
echo "I'm about to learn PHP!<br>";
echo "This ", "string ", "was ", "made ", "with multiple parameters.";
?>
```

Display Variables

The following example shows how to output text and variables with the `echo` statement:

Example

```php
<?php
$txt1 = "Learn PHP";
$txt2 = "class";
$x = 5;
$y = 4;

echo "<h2>" . $txt1 . "</h2>";
echo "Study PHP in " . $txt2 . "<br>";
echo $x + $y;
?>
```

The PHP print Statement

The `print` statement can be used with or without parentheses: `print` or `print()`.

Display Text

The following example shows how to output text with the `print` command (notice that the text can contain HTML markup):

Example

```
<?php
print "<h2>PHP is Fun!</h2>";
print "Hello world!<br>";
print "I'm about to learn PHP!";
?>
```

Display Variables

The following example shows how to output text and variables with the `print` statement:

Example

```
<?php
$txt1 = "Learn PHP";
$txt2 = "W3Schools.com";
$x = 5;
$y = 4;

print "<h2>" . $txt1 . "</h2>";
print "Study PHP at " . $txt2 . "<br>";
print $x + $y;
?>
```

PHP Data Types

Variables can store data of different types, and different data types can do different things.

PHP supports the following data types:

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

- NULL

Example

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

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

$xx = 5985; //integer
var_dump($xx);// returns the data type and value

$z = 10.365;//float
var_dump($z);

$x = true;// boolean
$y = false;
?>
```

PHP Array

An array stores multiple values in one single variable.

In the following example $cars is an array. The PHP var_dump() function returns the data type and value. The following example creates an indexed array, assigns three elements to it, and then prints a text containing the array values:

Example

```
<?php
$cars = array("Volvo","BMW","Toyota");
var_dump($cars);

echo "I like " . $cars[0] . ", " . $cars[1] . " and " . $cars[2] . ".";

?>
```

An array is a special variable, which can hold more than one value at a time.

If you have a list of items (a list of car names, for example), storing the cars in single variables could look like this:

```
$cars1 = "Volvo";
$cars2 = "BMW";
$cars3 = "Toyota";
```

However, what if you want to loop through the cars and find a specific one? And what if you had not 3 cars, but 300? The solution is to create an array!An array can hold many values under a single name, and you can access the values by referring to an index number.

In PHP, the `array()` function is used to create an array:

```
array();
```

Get The Length of an Array - The count() Function

The `count()` function is used to return the length (the number of elements) of an array:

Example

```php
<?php
$cars = array("Volvo", "BMW", "Toyota");
echo count($cars);
?>
```

Loop Through an Indexed Array

To loop through and print all the values of an indexed array, you could use a `for` loop, like this:

Example

```php
<?php
$cars = array("Volvo", "BMW", "Toyota");
$arrlength = count($cars);

for($x = 0; $x < $arrlength; $x++) {
    echo $cars[$x];
    echo "<br>";
}
?>
```

PHP Associative Arrays

Associative arrays are arrays that use named keys that you assign to them.

There are two ways to create an associative array:

```
$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");
```

or:

```
$age['Peter'] = "35";
$age['Ben'] = "37";
$age['Joe'] = "43";
```

The named keys can then be used in a script:

Example

```
<?php
$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");
echo "Peter is " . $age['Peter'] . " years old.";
?>
```

To loop through and print all the values of an associative array, you could use a `foreach` loop, like this:

Example

```
<?php
$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");

foreach($age as $x => $x_value) {
    echo "Key=" . $x . ", Value=" . $x_value;
    echo "<br>";
}
?>
```

PHP - Two-dimensional Arrays

A two-dimensional array is an array of arrays (a three-dimensional array is an array of arrays of arrays).

We can store, for example, a two-dimensional array, like this:

```
$cars = array
  (
  array("Volvo",22,18),
  array("BMW",15,13),
  array("Saab",5,2),
  array("Land Rover",17,15)
  );
```

Now the two-dimensional $cars array contains four arrays, and it has two indices: row and column.

To get access to the elements of the $cars array we must point to the two indices (row and column):

```php
<?php
echo $cars[0][0].": In stock: ".$cars[0][1].", sold:
".$cars[0][2].".<br>";
echo $cars[1][0].": In stock: ".$cars[1][1].", sold:
".$cars[1][2].".<br>";
echo $cars[2][0].": In stock: ".$cars[2][1].", sold:
".$cars[2][2].".<br>";
echo $cars[3][0].": In stock: ".$cars[3][1].", sold:
".$cars[3][2].".<br>";
?>
```

PHP Object

An object is a data type which stores data and information on how to process that data.

In PHP, an object must be explicitly declared.

First we must declare a class of object. For this, we use the class keyword. A class is a structure that can contain properties and methods:

Example

```php
<?php
class Car {
    function Car() {
        $this->model = "VW";
    }
}

// create an object
$herbie = new Car();

// show object properties
echo $herbie->model;
?>
```

PHP NULL Value

Null is a special data type which can have only one value: NULL.

A variable of data type NULL is a variable that has no value assigned to it.

Tip: If a variable is created without a value, it is automatically assigned a value of NULL.

Variables can also be emptied by setting the value to NULL:

Example

```php
<?php
$x = "Hello world!";
$x = null;
var_dump($x);
?>
```

PHP Operators

Operators are used to perform operations on variables and values.

PHP divides the operators in the following groups:

- Arithmetic operators
- Assignment operators
- Comparison operators
- Increment/Decrement operators
- Logical operators
- String operators
- Array operators
- Conditional assignment operators

PHP Arithmetic Operators

The PHP arithmetic operators are used with numeric values to perform common arithmetical operations, such as addition, subtraction, multiplication etc.

Operator	Name	Example	Result
+	Addition	$x + $y	Sum of $x and $y
-	Subtraction	$x - $y	Difference of $x and $y
*	Multiplication	$x * $y	Product of $x and $y
/	Division	$x / $y	Quotient of $x and $y
%	Modulus	$x % $y	Remainder of $x divided by $y
**	Exponentiation	$x ** $y	Result of raising $x to the $y'th power

PHP Assignment Operators

The PHP assignment operators are used with numeric values to write a value to a variable.

The basic assignment operator in PHP is "=". It means that the left operand gets set to the value of the assignment expression on the right.

Assignment	Same as...	Description
x = y	x = y	The left operand gets set to the value of the expression on the right
x += y	x = x + y	Addition
x -= y	x = x - y	Subtraction
x *= y	x = x * y	Multiplication
x /= y	x = x / y	Division
x %= y	x = x % y	Modulus

PHP Comparison Operators

The PHP comparison operators are used to compare two values (number or string):

Operator	Name	Example	Result
==	Equal	$x == $y	Returns true if $x is equal to $y
===	Identical	$x === $y	Returns true if $x is equal to $y, and they are of the same type
!=	Not equal	$x != $y	Returns true if $x is not equal to $y
<>	Not equal	$x <> $y	Returns true if $x is not equal to $y
!==	Not identical	$x !== $y	Returns true if $x is not equal to $y, or they are not of the same type
>	Greater than	$x > $y	Returns true if $x is greater than $y
<	Less than	$x < $y	Returns true if $x is less than $y
>=	Greater than or equal to	$x >= $y	Returns true if $x is greater than or equal to $y
<=	Less than or equal to	$x <= $y	Returns true if $x is less than or equal to $y
<=>	Spaceship	$x <=> $y	Returns an integer less than, equal to, or greater than zero, depending on if $x is less than $y. Introduced in PHP 7.

PHP String Operators

PHP has two operators that are specially designed for strings.

Operator	Name	Example	Result
.	Concatenation	$txt1 . $txt2	Concatenation of $txt1 and text2
.=	Concatenation assignment	$txt1 .= $txt2	Appends $txt2 to $txt1

PHP Conditional Statements

Very often when you write code, you want to perform different actions for different conditions. You can use conditional statements in your code to do this.

In PHP we have the following 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

- The `if` statement executes some code if one condition is true.

Syntax

- ```
  if (condition) {
      code to be executed if condition is true;
  }
  ```

Example

Output "Have a good day!" if the current time (HOUR) is less than 20:

- ```
  <?php
  $t = date("H");

  if ($t < "20") {
      echo "Have a good day!";
  }
  ?>
  ```

PHP - The if...else Statement

The `if...else` statement executes some code if a condition is true and another code if that condition is false.

Syntax

```
if (condition) {
    code to be executed if condition is true;
} else {
    code to be executed if condition is false;
}
```

Example

Output "Have a good day!" if the current time is less than 20, and "Have a good night!" otherwise:

```
<?php
$t = date("H");

if ($t < "20") {
    echo "Have a good day!";
} else {
    echo "Have a good night!";
}
?>
```

PHP - The if...elseif...else Statement

The `if...elseif...else` statement executes different codes for more than two conditions.

Syntax

```
if (condition) {
    code to be executed if this condition is true;
} elseif (condition) {
    code to be executed if first condition is false and this condition
is true;
} else {
    code to be executed if all conditions are false;
}
```

Example

Output "Have a good morning!" if the current time is less than 10, and "Have a good day!" if the current time is less than 20. Otherwise it will output "Have a good night!":

```
<?php
$t = date("H");
```

```php
if ($t < "10") {
    echo "Have a good morning!";
} elseif ($t < "20") {
    echo "Have a good day!";
} else {
    echo "Have a good night!";
}
?>
```

PHP Loops

Often when you write code, you want the same block of code to run over and over again a certain number of times. So, instead of adding several almost equal code-lines in a script, we can use loops.

Loops are used to execute the same block of code again and again, as long as a certain condition is true.

In PHP, we have the following loop types:

- `while` - loops through a block of code as long as the specified condition is true
- `do...while` - loops through a block of code once, and then repeats the loop as long as the specified condition is true
- `for` - loops through a block of code a specified number of times
- `foreach` - loops through a block of code for each element in an array

The PHP while Loop

The `while` loop executes a block of code as long as the specified condition is true.

Syntax

```
while (condition is true) {
    code to be executed;
}
```

Examples

The example below displays the numbers from 1 to 5:

Example

```php
<?php
$x = 1;

while($x <= 5) {
    echo "The number is: $x <br>";
    $x++;
}
?>
```

Example Explained

- $x = 1; - Initialize the loop counter ($x), and set the start value to 1
- $x <= 5 - Continue the loop as long as $x is less than or equal to 5
- $x++; - Increase the loop counter value by 1 for each iteration

The example below first sets a variable $x to 1 ($x = 1). Then, the do while loop will write some output, and then increment the variable $x with 1. Then the condition is checked (is $x less than, or equal to 5?), and the loop will continue to run as long as $x is less than, or equal to 5:

Example

```php
<?php
$x = 1;

do {
    echo "The number is: $x <br>";
    $x++;
} while ($x <= 5);
?>
```

The `for` loop is used when you know in advance how many times the script should run.

Syntax

```
for (init counter; test counter; increment counter) {
    code to be executed for each iteration;
}
```

Parameters:

- *init counter*: Initialize the loop counter value

- *test counter*: Evaluated for each loop iteration. If it evaluates to TRUE, the loop continues. If it evaluates to FALSE, the loop ends.
- *increment counter*: Increases the loop counter value

Examples

The example below displays the numbers from 0 to 10:

Example

```
<?php
for ($x = 0; $x <= 10; $x++) {
    echo "The number is: $x <br>";
}
?>
```

The `foreach` loop works only on arrays, and is used to loop through each key/value pair in an array.

Syntax

```
foreach ($array as $value) {
  code to be executed;
}
```

For every loop iteration, the value of the current array element is assigned to $value and the array pointer is moved by one, until it reaches the last array element.

Examples

The following example will output the values of the given array ($colors):

Example

```
<?php
$colors = array("red", "green", "blue", "yellow");

foreach ($colors as $value) {
  echo "$value <br>";
}
?>
```

PHP Built-in Functions

PHP has over 1000 built-in functions that can be called directly, from within a script, to perform a specific task.

Please check out our PHP reference for a complete overview of the PHP built-in functions.

PHP User Defined Functions

Besides the built-in PHP functions, it is possible to create your own functions.

- A function is a block of statements that can be used repeatedly in a program.
- A function will not execute automatically when a page loads.
- A function will be executed by a call to the function.

Create a User Defined Function in PHP

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

Syntax

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

Example

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

writeMsg(); // call the function
?>
```

PHP Function Arguments

Information can be passed to functions through arguments. An argument is just like a variable.

Arguments are specified after the function name, inside the parentheses. You can add as many arguments as you want, just separate them with a comma.

The following example has a function with one argument ($fname). When the familyName() function is called, we also pass along a name (e.g. Jani), and the name is used inside the function, which outputs several different first names, but an equal last name:

Example

```
<?php
function familyName($fname) {
    echo "$fname Refsnes.<br>";
}

familyName("Jani");
familyName("Hege");
familyName("Stale");
familyName("Kai Jim");
familyName("Borge");
?>
```

PHP Global Variables - Superglobals

Some predefined variables in PHP 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.

The PHP superglobal variables are:

- $GLOBALS
- $_SERVER
- $_REQUEST
- $_POST
- $_GET
- $_FILES
- $_ENV
- $_COOKIE
- $_SESSION

The next chapters will explain some of the superglobals, and the rest will be explained in later chapters.

PHP $GLOBALS

$GLOBALS is a PHP super global variable which is used to access global variables from anywhere in the PHP script (also from within functions or methods).

PHP stores all global variables in an array called $GLOBALS[*index*].
The *index* holds the name of the variable.

The example below shows how to use the super global variable $GLOBALS:

Example

```php
<?php
$x = 75;
$y = 25;

function addition() {
    $GLOBALS['z'] = $GLOBALS['x'] + $GLOBALS['y'];
}

addition();
echo $z;
?>
```

PHP $_SERVER

$_SERVER is a PHP super global variable which holds information about headers, paths, and script locations.

The example below shows how to use some of the elements in $_SERVER:

Example

```php
<?php
echo $_SERVER['PHP_SELF'];
echo "<br>";
echo $_SERVER['SERVER_NAME'];
echo "<br>";
echo $_SERVER['HTTP_HOST'];
echo "<br>";
echo $_SERVER['HTTP_REFERER'];
echo "<br>";
echo $_SERVER['HTTP_USER_AGENT'];
echo "<br>";
echo $_SERVER['SCRIPT_NAME'];
?>
```

PHP $_REQUEST

PHP $_REQUEST is a PHP super global variable which is used to collect data after submitting an HTML form.

The example below shows a form with an input field and a submit button. When a user submits the data by clicking on "Submit", the form data is sent to the file specified in the action attribute of the <form> tag. In this example, we point to this file itself for processing form data. If you wish to use another PHP file to process form data, replace that with the filename of your choice. Then, we can use the super global variable $_REQUEST to collect the value of the input field:

Example

```
<html>
<body>

<form method="post" action="<?php echo $_SERVER['PHP_SELF'];?>">
  Name: <input type="text" name="fname">
  <input type="submit">
</form>

<?php
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    // collect value of input field
    $name = $_REQUEST['fname'];
    if (empty($name)) {
        echo "Name is empty";
    } else {
        echo $name;
    }
}
?>

</body>

</html>
```

PHP $_POST

PHP $_POST is a PHP super global variable which is used to collect form data after submitting an HTML form with method="post". $_POST is also widely used to pass variables.

The example below shows a form with an input field and a submit button. When a user submits the data by clicking on "Submit", the form data is sent to the file specified in the action attribute of the <form> tag. In this example, we point to the file itself for processing form data. If you wish to use another PHP file to process form data, replace that with the filename of your choice. Then, we can use the super global variable $_POST to collect the value of the input field:

Example

```
<html>
<body>

<form method="post" action="<?php echo $_SERVER['PHP_SELF'];?>">
  Name: <input type="text" name="fname">
  <input type="submit">
</form>

<?php
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    // collect value of input field
    $name = $_POST['fname'];
    if (empty($name)) {
        echo "Name is empty";
    } else {
        echo $name;
    }
}
?>

</body>

</html>
```

PHP Form Handling

PHP - A Simple HTML 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>
```

When the user fills out the form above and clicks the submit button, the form data is sent for processing to a PHP file named "welcome.php". The form data is sent with the HTTP POST method.

To display the submitted data you could simply echo all the variables. The "welcome.php" looks like this:

```
<html>
<body>

Welcome <?php echo $_POST["name"]; ?><br>
Your email address is: <?php echo $_POST["email"]; ?>

</body>
</html>
```

The output could be something like this:

```
Welcome John
Your email address is john.doe@example.com
```

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

Example

```
<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>
```

"welcome_get.php" looks like this:

```
<html>
<body>

Welcome <?php echo $_GET["name"]; ?><br>
```

```
Your email address is: <?php echo $_GET["email"]; ?>

</body>
</html>
```

PHP Manipulating Files

PHP has several functions for creating, reading, uploading, and editing files.

Be careful when manipulating files!

When you are manipulating files you must be very careful.

You can do a lot of damage if you do something wrong. Common errors are: editing the wrong file, filling a hard-drive with garbage data, and deleting the content of a file by accident.

PHP readfile() Function

The `readfile()` function reads a file and writes it to the output buffer.

Assume we have a text file called "webdictionary.txt

The PHP code to read the file and write it to the output buffer is as follows (the `readfile()` function returns the number of bytes read on success):

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

<?php
echo readfile("webdictionary.txt");
?>

</body>
</html>
```

The `readfile()` function is useful if all you want to do is open up a file and read its contents.

PHP Open File - fopen()

A better method to open files is with the `fopen()` function. This function gives you more options than the `readfile()` function.

We will use the text file, "webdictionary.txt", during the lessons:

The first parameter of `fopen()` contains the name of the file to be opened and the second parameter specifies in which mode the file should be opened. The following example also generates a message if the fopen() function is unable to open the specified file:

Example

```
<?php
$myfile = fopen("webdictionary.txt", "r") or die("Unable to open
file!");
echo fread($myfile,filesize("webdictionary.txt"));
fclose($myfile);
?>
```

The `fread()` function reads from an open file.

The first parameter of `fread()` contains the name of the file to read from and the second parameter specifies the maximum number of bytes to read.

The following PHP code reads the "webdictionary.txt" file to the end:

```
fread($myfile,filesize("webdictionary.txt"));
```

PHP Close File - fclose()

The `fclose()` function is used to close an open file.

It's a good programming practice to close all files after you have finished with them. You don't want an open file running around on your server taking up resources!

PHP Read Single Line - fgets()

The `fgets()` function is used to read a single line from a file.

The example below outputs the first line of the "webdictionary.txt" file:

Example

```
<?php
$myfile = fopen("webdictionary.txt", "r") or die("Unable to open
file!");
echo fgets($myfile);
fclose($myfile);
?>
```

The file may be opened in one of the following modes:

Modes	Description
r	**Open a file for read only**. File pointer starts at the beginning of the file
w	**Open a file for write only**. Erases the contents of the file or creates a new file if it doesn't exist. File pointer starts at the beginning of the file
a	**Open a file for write only**. The existing data in file is preserved. File pointer starts at the end of the file. Creates a new file if the file doesn't exist
x	**Creates a new file for write only**. Returns FALSE and an error if file already exists
r+	**Open a file for read/write**. File pointer starts at the beginning of the file
w+	**Open a file for read/write**. Erases the contents of the file or creates a new file if it doesn't exist. File pointer starts at the beginning of the file
a+	**Open a file for read/write**. The existing data in file is preserved. File pointer starts at the end of the file. Creates a new file if the file doesn't exist
x+	**Creates a new file for read/write**. Returns FALSE and an error if file already exists

PHP Check End-Of-File - feof()

The `feof()` function checks if the "end-of-file" (EOF) has been reached.

The `feof()` function is useful for looping through data of unknown length.

The example below reads the "webdictionary.txt" file line by line, until end-of-file is reached:

Example

```
<?php
$myfile = fopen("webdictionary.txt", "r") or die("Unable to open file!");
// Output one line until end-of-file
while(!feof($myfile)) {
  echo fgets($myfile) . "<br>";
}
fclose($myfile);
?>
```

PHP Read Single Character - fgetc()

The `fgetc()` function is used to read a single character from a file.

The example below reads the "webdictionary.txt" file character by character, until end-of-file is reached:

Example

```
<?php
$myfile = fopen("webdictionary.txt", "r") or die("Unable to open
file!");
// Output one character until end-of-file
while(!feof($myfile)) {
  echo fgetc($myfile);
}
fclose($myfile);
?>
```

PHP Create File - fopen()

The `fopen()` function is also used to create a file. Maybe a little confusing, but in PHP, a file is created using the same function used to open files.

If you use `fopen()` on a file that does not exist, it will create it, given that the file is opened for writing (w) or appending (a).

The example below creates a new file called "testfile.txt". The file will be created in the same directory where the PHP code resides:

Example

```
$myfile = fopen("testfile.txt", "w")
```

PHP File Permissions

If you are having errors when trying to get this code to run, check that you have granted your PHP file access to write information to the hard drive.

PHP Write to File - fwrite()

The `fwrite()` function is used to write to a file.

The first parameter of `fwrite()` contains the name of the file to write to and the second parameter is the string to be written.

The example below writes a couple of names into a new file called "newfile.txt":

Example

```php
<?php
$myfile = fopen("newfile.txt", "w") or die("Unable to open file!");
$txt = "John Doe\n";
fwrite($myfile, $txt);
$txt = "Jane Doe\n";
fwrite($myfile, $txt);
fclose($myfile);
?>
```

PHP Cookies

What is a Cookie?

A cookie is often used to identify a user. A cookie is a small file that the server embeds on the user's computer. Each time the same computer requests a page with a browser, it will send the cookie too. With PHP, you can both create and retrieve cookie val

Create Cookies With PHP

A cookie is created with the `setcookie()` function.

Syntax

`setcookie(`*`name, value, expire, path, domain, secure, httponly`*`);`

Only the *name* parameter is required. All other parameters are optional.

PHP Create/Retrieve a Cookie

The following example creates a cookie named "user" with the value "John Doe". The cookie will expire after 30 days (86400 * 30). The "/" means that the cookie is available in entire website (otherwise, select the directory you prefer).

We then retrieve the value of the cookie "user" (using the global variable $_COOKIE). We also use the `isset()` function to find out if the cookie is set:

Example

```
<?php
$cookie_name = "user";
$cookie_value = "John Doe";
setcookie($cookie_name, $cookie_value, time() + (86400 * 30), "/"); //
86400 = 1 day
?>
<html>
<body>

<?php
if(!isset($_COOKIE[$cookie_name])) {
    echo "Cookie named '" . $cookie_name . "' is not set!";
} else {
    echo "Cookie '" . $cookie_name . "' is set!<br>";
    echo "Value is: " . $_COOKIE[$cookie_name];
}
?>

</body>
</html>
```

Delete a Cookie

To delete a cookie, use the `setcookie()` function with an expiration date in the past:

Example

```
<?php
// set the expiration date to one hour ago
setcookie("user", "", time() - 3600);
?>
<html>
<body>

<?php
echo "Cookie 'user' is deleted.";
?>

</body>
</html>
```

Check if Cookies are Enabled

The following example creates a small script that checks whether cookies are enabled. First, try to create a test cookie with the `setcookie()` function, then count the $_COOKIE array variable:

Example

```
<?php
setcookie("test_cookie", "test", time() + 3600, '/');
?>
<html>
<body>

<?php
if(count($_COOKIE) > 0) {
    echo "Cookies are enabled.";
} else {
    echo "Cookies are disabled.";
}
?>

</body>
</html>
```

PHP Sessions

A session is a way to store information (in variables) to be used across multiple pages. Unlike a cookie, the information is not stored on the users computer.

When you work with an application, you open it, do some changes, and then you close it. This is much like a Session. The computer knows who you are. It knows when you start the application and when you end. But on the internet there is one problem: the web server does not know who you are or what you do, because the HTTP address doesn't maintain state.

Session variables solve this problem by storing user information to be used across multiple pages (e.g. username, favorite color, etc). By default, session variables last until the user closes the browser.

So; Session variables hold information about one single user, and are available to all pages in one application.

Start a PHP Session

A session is started with the `session_start()` function.

Session variables are set with the PHP global variable: $_SESSION.

Now, let's create a new page called "demo_session1.php". In this page, we start a new PHP session and set some session variables:

Example

```
<?php
// Start the session
session_start();
?>
<!DOCTYPE html>
<html>
<body>

<?php
// Set session variables
$_SESSION["favcolor"] = "green";
$_SESSION["favanimal"] = "cat";
echo "Session variables are set.";
?>

</body>
</html>
```

Note: The `session_start()` function must be the very first thing in your document. Before any HTML tags.

Get PHP Session Variable Values

Next, we create another page called "demo_session2.php". From this page, we will access the session information we set on the first page ("demo_session1.php").

Notice that session variables are not passed individually to each new page, instead they are retrieved from the session we open at the beginning of each page (`session_start()`).

Also notice that all session variable values are stored in the global $_SESSION variable:

Example

```
<?php
session_start();
?>
<!DOCTYPE html>
<html>
<body>

<?php
// Echo session variables that were set on previous page
echo "Favorite color is " . $_SESSION["favcolor"] . ".<br>";
echo "Favorite animal is " . $_SESSION["favanimal"] . ".";
?>

</body>
</html>
```

Another way to show all the session variable values for a user session is to run the following code:

Example

```
<?php
session_start();
?>
<!DOCTYPE html>
<html>
<body>

<?php
print_r($_SESSION);
?>

</body>
</html>
```

Modify a PHP Session Variable

To change a session variable, just overwrite it:

Example

```
<?php
session_start();
?>
```

```php
<!DOCTYPE html>
<html>
<body>
<?php
// to change a session variable, just overwrite it
$_SESSION["favcolor"] = "yellow";
print_r($_SESSION);
?>
</body>
</html>
```

Destroy a PHP Session

To remove all global session variables and destroy the session, use `session_unset()` and `session_destroy()`:

Example

```php
<?php
session_start();
?>
<!DOCTYPE html>
<html>
<body>
<?php
// remove all session variables
session_unset();

// destroy the session
session_destroy();
?>
</body>
</html>
```

EXO1: The elements of the language

a. Create a page that displays "Hello everyone", the date and time.

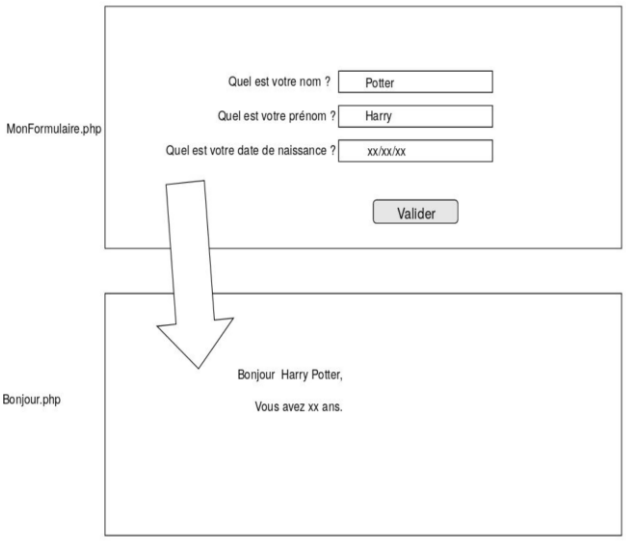
b. Display using the array variables on PHP, an array containing the following information:

Nom	Prénom	date de naissance	Poste
Giroud	Olivier	30/09/1986	Attaquant
Griezmann	Antoine	21/03/1991	Attaquant
Mbappe	Kylian	20/11/1998	Attaquant
Kante	N'Golo	28/03/1991	Milieu
Umtiti	Samuel	14/09/1993	Défense
Lloris	Hugo	26/12/1986	Gardien

c. Define a function that calculates a person's age based on his date of birth. Add a column to the previous table to display the age of each person.

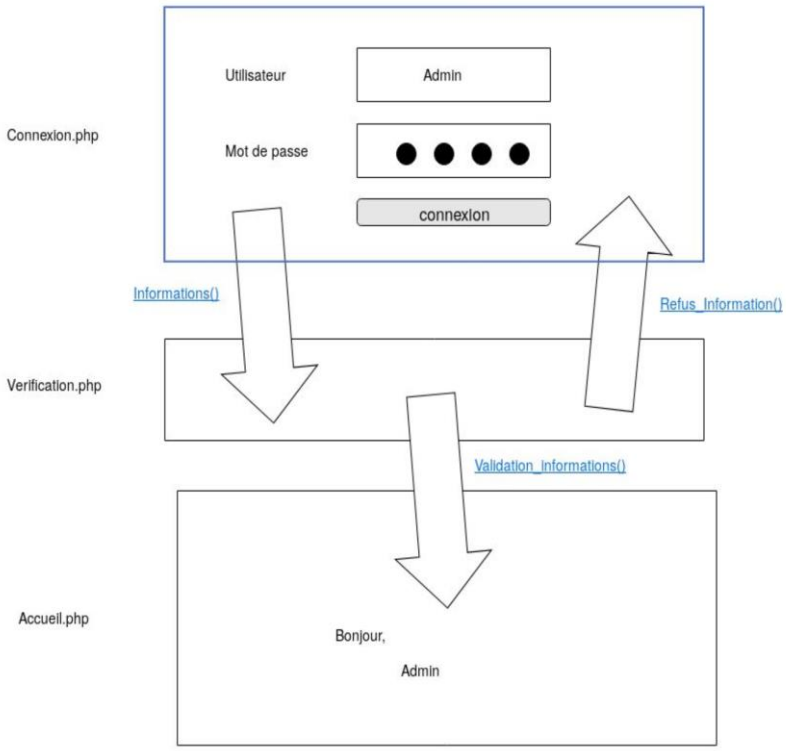
EXO2: Forms POST or GET

We want to create the following application



EXO3: Sessions

We want to create the following application, using the session variables



a. Create the login page
b. Create the verification page. It checks in a list of users and associated passwords (pre-established), If the information is correct, the user is redirected to the home page otherwise the user returns to the login page.
c. Create the home page that displays the username.

EXO4: Sessions, Forms, files in PHP

We want to create an interactive portal allowing to manage the statistics of the players of a sports team. There are two types of portal users :

- The coaches
- The players

1. Part 1 -→ Coaches

1.1 Form 1

1. Create the "addPlayer.php" page containing the following form:
- a field for the name of the player
- a field for the player's first name
- a field for the player's date of birth

- a field for the position
The form information should be sent to the page "Saveplayers.php"

2. Create the page "saveJoueurs.php" allowing to save the content of the form in a file "infoJoueurs.txt". This page should also contain a link to return to the previous page.
Here is an example of the text file:

Giroud; Olivier; 30/09/1985;attaquant
Griezmann;Antoine;21/03/1991; attaquant
Pavard;Benjamin;28/03/1996

1.2 Form 2

1. Create the "addStatistics.php" page containing the following form:

- a drop-down list containing the name and surname of all the players registered in the file "infoJoueurs.txt"
- a field for the number of goals

- a field for the playing time (in min)

Here is an example of the text file:

Giroud;Olivier;10;190min
Griezmann;Antoine;10;200min
Pavard;Benjamin;1;50min

The information of the form should be sent to the page "saveStatistics.php"

2. Create the page "saveStatistics.php" allowing to save the content of the form in an info file "PlayerName" .txt ". There will therefore be a "txt" file for each player selected in the drop-down list.This page should also contain a link to return to the previous page.

2.Part 2-→Players

1. Create the "search Statistics.php" page containing the following form:
- a field for the name
- a field for the first name
The information of the form should be sent to the page "showStatistics.php"

2. Create the "showStatistics.php" page which:

- If a player is found, then we display the content of the file

corresponding to the player.
- If there is no player found, then we display an error message.
- In any case, this page must also contain a link allowing to return to the previous page.

3. Part -→Portal

3.1 The login page

1. Create the “connexion.php” page containing the following form:
- a field for the identifier
- a field for the password

2. Create a file “identifier.txt” containing the following three lines (the columns: identifier, password, profile):

ArseneWenger;turlututu;entraineur
ThierryHenry;torlototo;joueur
RobertPires;tirlititi;joueur

3. Create a "verificationConnexion.php" page. In this page, add the code to verify if the user is present in the "identifier.txt" file and that their password is correct.
- If the password or username is incorrect stay on the page
- If the password and the identifier are correct send the user to the correct page according to his profile:
coach profile: "addStatistics.php" or "addPlayer.php" player profile: "search Statistics.php"

4. (BONUS) Make a menu for the coach profile, to redirect either to “addStatistics.php” or to “addJoueur.php”