

Workshop PHP

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Programming paradigms

LIVIU BĂLAN

SOFTWARE DEV WEB&MOBILE | PHP DEVELOPER



Time management

- 4 hours/day
- 50 minutes session + 10 minutes break
- 3 days
- Theory and practice
- You can come up with ideas

Some languages

- Pascal, Delphi
- C/C++, Java, Prolog
- PHP, JavaScript, Bash
- R, Python, Julia
- Libraries and frameworks

Programming, scripting, and markup languages



2022 marks JavaScript's tenth year in a row as the most commonly used programming language.

But, it's a different picture for those learning to code. HTML/CSS, Javascript and Python are almost tied as the most popular languages for people learning to code. People learning to code are more likely than Professional Developers to report using Python (58% vs 44%), C++ (35% vs 20%), and C (32% vs 17%).

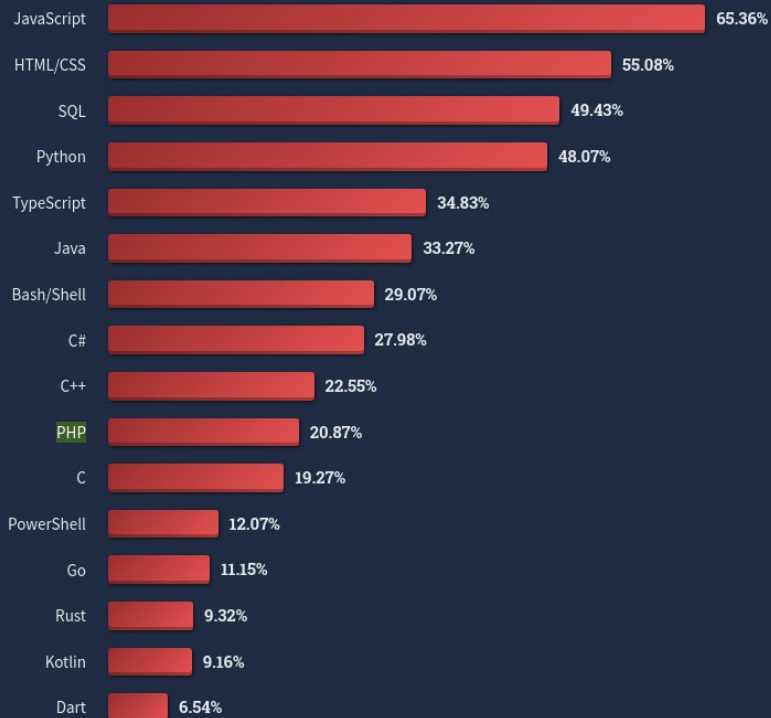
Compared to Professional Developers, those learning to code are less likely to report using SQL (38% vs 53%), TypeScript (15% vs 40%), and Bash/Shell (19% vs 29%).

All Respondents

Professional Developers

Learning to Code

71,547 responses



Overview

Developer Profile

Technology

Most popular technologies

Most loved, dreaded, and wanted

Worked with vs. want to work with

Top paying technologies

Version Control

Web3

Work

Community

Professional Developers

Methodology

Knowledge, Collaboration, Community

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Find trusted answers faster, engage with product experts.

What is PHP?

- PHP is a general-purpose scripting language
- Geared toward web development
- First appeared June 8, 1995 (27 years ago)
- Implementation language: C
- Designed by: Rasmus Lerdorf

Rasmus Lerdorf



Market share

- The most used server-side scripting language
- More than 77% market share overall

PHP

- Originally an abbreviation of Personal Home Page
- Now stands for the recursive PHP: Hypertext Preprocessor
- Usually processed on a web server (NGINX, Apache) by a PHP interpreter

What Can PHP Do?

- 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
- Be used to control user-access
- Encrypt data

Machine

- Solution stack (WAMP, XAMPP)
- VM (Vagrant, Docker)
- OpenStack (core.emag.network)
- Web hosting (infinityfree.net – account, up to 72 hours for DNS changes to apply)

Why PHP?

- Runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- Is compatible with almost all servers used today (Apache, IIS, etc.)
- Supports a wide range of databases
- Is free. Download it from the official resource: www.php.net
- Is easy to learn and runs efficiently on the server side

Good to know

- HTML
- CSS
- JavaScript

PHP: CLI

```
1  <?php
2
3  echo "hello world\n";
4
```



Terminal: Local × + ▾



```
11:30:52-liviu.balan/var/www/php-oop/php$ php 01-hello_world.php
```

```
hello world
```

```
11:31:08-liviu.balan/var/www/php-oop/php$
```

```
1 <!DOCTYPE html>
2 <html>
3 <body>
4
5 <?php
6 echo "My first PHP script!";
7 ?>
8
9 </body>
10 </html>
11
```

Terminal: Local × + ▾

```
11:31:43-liviu.balan/var/www/php-oop/php$ php 02-hello_world.php
```

```
<!DOCTYPE html>
```

```
<html>
```

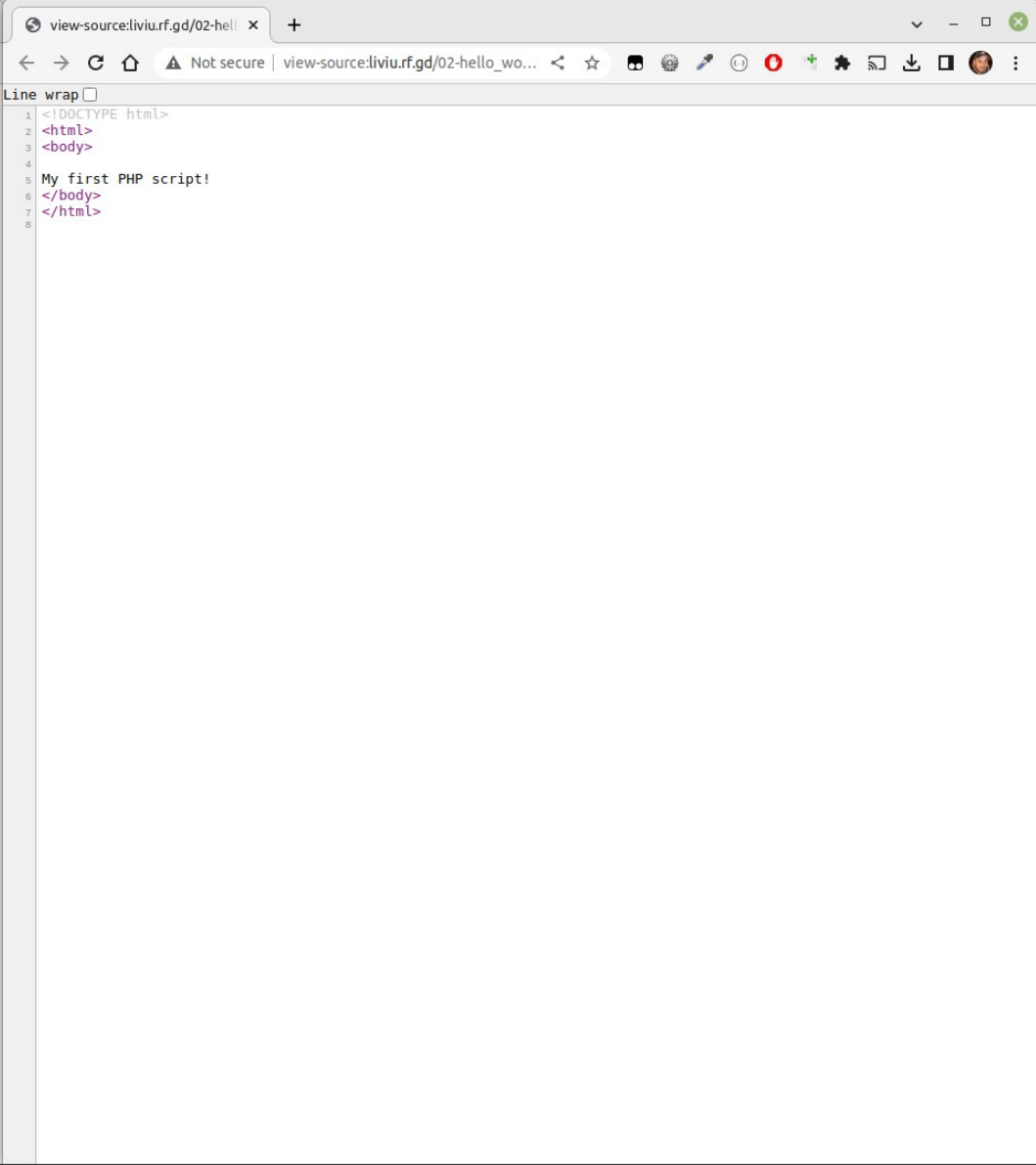
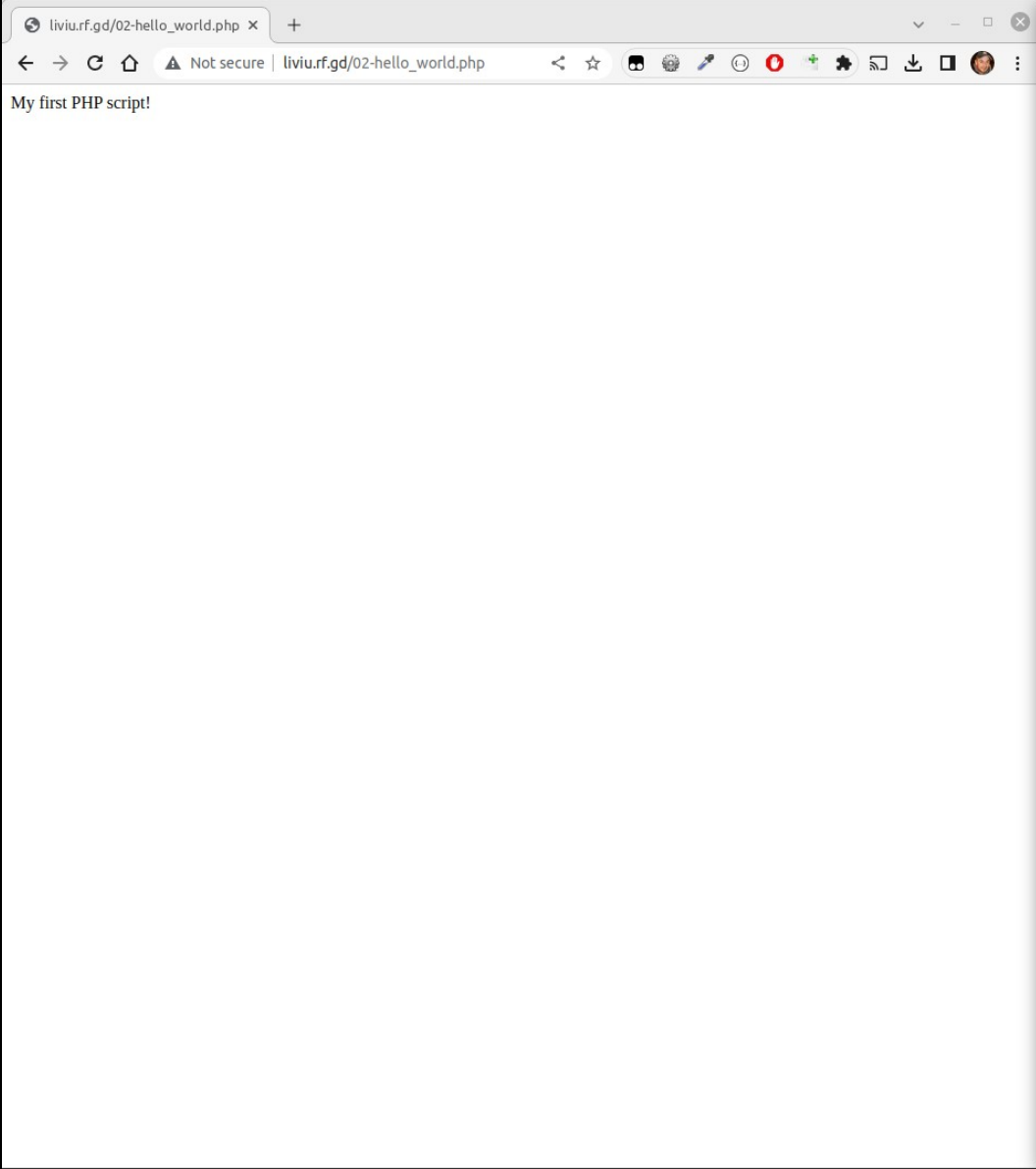
```
<body>
```

```
My first PHP script!
```

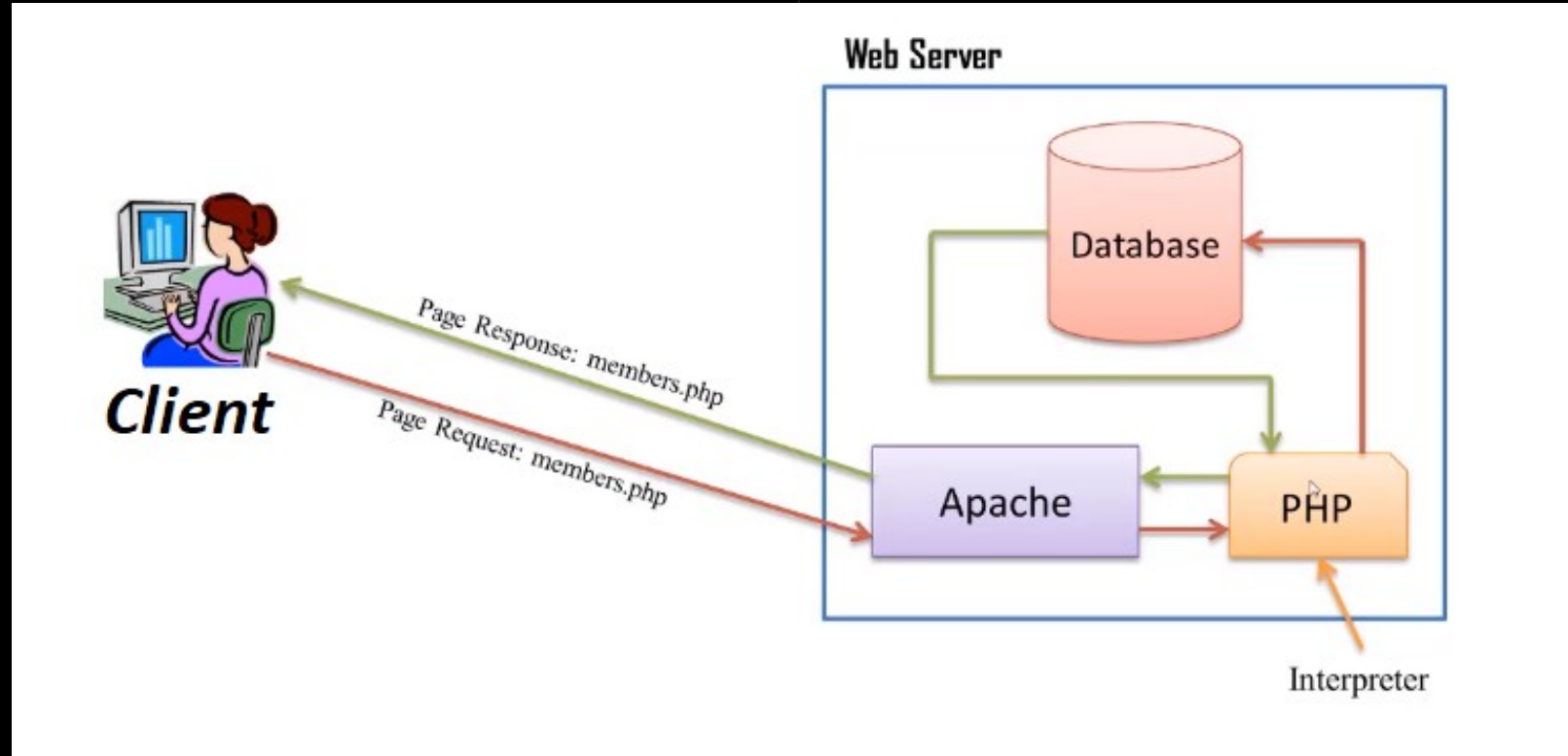
```
</body>
```

```
</html>
```

```
11:31:51-liviu.balan/var/www/php-oop/php$
```



Client Server



Variables

- Variables are containers for storing information
- Start with the \$ sign, followed by the name/identifier
- Created when you first assign a value to it

Identifiers

- must start with a letter or the underscore character
- cannot start with a number
- can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- case-sensitive (\$age and \$AGE are two different variables)

Naming conventions

Case Type	Example
Original Variable as String	<code>some awesome var</code>
Camel Case	<code>someAwesomeVar</code>
Snake Case	<code>some_awesome_var</code>
Kebab Case	<code>some-awesome-var</code>
Pascal Case	<code>SomeAwesomeVar</code>
Upper Case Snake Case	<code>SOME_AWESOME_VAR</code>


```
1  <?php
2
3  // This is a single-line comment
4
5  # This is also a single-line comment
6
7  /*
8  This is a multiple-lines comment block
9  that spans over multiple
10 lines
11 */
12
13 /**
14  * PHPDoc
15  *
16  * @param $p
17  * @return mixed
18  */
19 function f($p)
20 {
21     return $p;
22 }
```

f()

Terminal: Local × + ▾

11:33:52-liviu.balan/var/www/php-oop/php\$ php 04-comments.php

11:34:04-liviu.balan/var/www/php-oop/php\$

```
1 <?php
2
3 $var = 'hello world';
4 var_dump($var);
5
6 $var = 2023;
7 var_dump($var);
8
```

Terminal: Local × + ▾

11:34:04-liviu.balan/var/www/php-oop/php\$ php 05-php-loosely-typed.php

string(11) "hello world"

int(2023)

11:35:02-liviu.balan/var/www/php-oop/php\$

```
1  <?php
2
3  $var = 'Hello world';
4
5  echo $var;
6  echo "\n";
7
8  print($var);
9  echo "\n";
10
11 print_r($var);
12 echo "\n";
13
```

Terminal: Local × + ▾

11:35:02 - liviu.balan/var/www/php-oop/php\$ php 06-print-statements.php

Hello world

Hello world

Hello world

string(11) "Hello world"

11:35:23 - liviu.balan/var/www/php-oop/php\$

Data Types

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

```
3 var_dump( vars: 'Hello world');
4 var_dump( vars: 2023);
5 var_dump( vars: 9.8);
6 var_dump( vars: true);
7 var_dump([]);
8 var_dump(new DateTime());
9 var_dump( vars: null);
```

Terminal: Local × + ▾

11:35:53 - liviu.balan/var/www/php-oop/php\$ php 07-data-types.php

string(11) "Hello world"

int(2023)

float(9.8)

bool(true)

array(0) {

}

object(DateTime)#1 (3) {

["date"]=>

string(26) "2023-03-13 11:36:10.347140"

["timezone_type"]=>

int(3)

["timezone"]=>

string(16) "Europe/Bucharest"

}

NULL

11:36:10 - liviu.balan/var/www/php-oop/php\$

```
1 <?php
2
3 $str = 'Hello world';
4
5 var_dump( vars: $str . '!!');
6 var_dump(strlen($str));
7
8 // See: https://www.php.net/manual/en/ref.strings.php
9
```

Terminal: Local × + ▾

11:36:28-liviu.balan/var/www/php-oop/php\$ php 08-string.php

string(12) "Hello world!"

int(11)

11:36:46-liviu.balan/var/www/php-oop/php\$

```
1  <?php
2
3  // Integers, Floats, and Number Strings
4
5  var_dump(is_int( value: 5985));
6  var_dump(is_int( value: 59.85));
7  var_dump(is_float( value: 10.365));
8  var_dump( vars: 1.9e411);
9  var_dump(acos( num: 8));
10
11  var_dump((int)23465.768);
12  var_dump((int)'23465.768');
13
```

Terminal: Local × + ▾

11:37:27-liviu.balan/var/www/php-oop/php\$ php 09-numbers.php

bool(true)

bool(false)

bool(true)

float(INF)

float(NAN)

int(23465)

int(23465)

11:37:41-liviu.balan/var/www/php-oop/php\$

```
1  <?php
2
3  var_dump(min(values: 0, values: 150, 30, 20, -8, -200));
4  var_dump(max(values: 0, values: 150, 30, 20, -8, -200));
5  var_dump(abs(num: -6.7));
6  var_dump(sqrt(num: 64));
7  var_dump(round(num: 0.60));
8  var_dump(round(num: 0.49));
9  var_dump(rand());
10 var_dump(rand(10, 100));
11
12 // See: https://www.php.net/manual/en/ref.math.php
13
```

Terminal: Local × + ▾

11:38:03-liviu.balan/var/www/php-oop/php\$ php 10-math.php

int(-200)

int(150)

float(6.7)

float(8)

float(1)

float(0)

int(1963149620)

int(12)

11:38:16-liviu.balan/var/www/php-oop/php\$

Constants

- Constants are like variables except that once they are defined they cannot be changed or undefined
- Unlike variables, constants are automatically global across the entire script

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

<?php

// Constants are like variables except that once they are defined they cannot be changed or undefined.

// case-sensitive

define('GREETING', 'Hello world');

var_dump(vars: GREETING);

//var_dump(greeting); // Error

define('GREETING', 'Hello world', true);

var_dump(vars: greeting);

function f()

{

var_dump(vars: GREETING);

}

f();

Terminal: Local x + v

13:07:24-liviu.balan/var/www/php-oop/php\$ php 11-constants.php

string(11) "Hello world"

string(11) "Hello world"

string(11) "Hello world"

13:07:34-liviu.balan/var/www/php-oop/php\$

Operators

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

2

✓ 1

^

▼

```
1  <?php
2
3  $favcolor = 'red';
4
5  switch ($favcolor) {
6      case 'red':
7          echo 'Your favorite color is red!';
8          break;
9      case 'blue':
10         echo 'Your favorite color is blue!';
11         break;
12      case 'green':
13         echo 'Your favorite color is green!';
14         break;
15      default:
16         echo 'Your favorite color is neither red, blue, nor green!';
17     }
18     echo "\n";
19
```

Terminal: Local × + ▼

13:08:43-liviu.balan/var/www/php-oop/php\$ php 14-switch.php

Your favorite color is red!

13:09:10-liviu.balan/var/www/php-oop/php\$

1
2
3
4
5
6
7
8
9

```
<?php  
  
$x = 1;  
  
while ($x <= 5) {  
    echo "The number is: $x\n";  
    $x++;  
}
```



Terminal: Local × + ▾



13:09:24-liviu.balan/var/www/php-oop/php\$ php 15-while.php

The number is: 1

The number is: 2

The number is: 3

The number is: 4

The number is: 5

13:09:30-liviu.balan/var/www/php-oop/php\$

1
2
3
4
5
6
7
8
9

```
<?php  
  
$x = 1;  
  
do {  
    echo "The number is: $x\n";  
    $x++;  
} while ($x <= 5);
```



Terminal: Local × + ▾



```
13:09:30-liviu.balan/var/www/php-oop/php$ php 16-do_while.php
```

```
The number is: 1
```

```
The number is: 2
```

```
The number is: 3
```

```
The number is: 4
```

```
The number is: 5
```

```
13:09:44-liviu.balan/var/www/php-oop/php$
```



```
1  <?php
2
3  // Function Arguments
4  function familyName($fname)
5  {
6      echo "$fname Popescu.\n";
7  }
8
9  familyName( fname: "Ion");
10 familyName( fname: "Andrei");
11
```

familyName()

Terminal: Local × + ▾

```
13:12:12-liviu.balan/var/www/php-oop/php$ php 20-02-function.php
Ion Popescu.
Andrei Popescu.
13:12:20-liviu.balan/var/www/php-oop/php$
```

```
1  <?php
2
3  // Two arguments ($fname and $year)
4  function familyName($fname, $year)
5  {
6      echo "$fname Popescu. Born in $year\n";
7  }
8
9  familyName( fname: "Ion", year: "1975");
10 familyName( fname: "Andrei", year: "1978");
11
```

familyName()

Terminal: Local × + ▾

13:13:08-liviu.balan/var/www/php-oop/php\$ php 20-03-function.php

Ion Popescu. Born in 1975

Andrei Popescu. Born in 1978

13:13:15-liviu.balan/var/www/php-oop/php\$

```
3 // PHP is a Loosely Typed Language
4 function addNumbers(int $a, int $b)
5 {
6     return $a + $b;
7 }
8
9 echo addNumbers(a: 5, b: "5 days");
10 // since strict is NOT enabled "5 days" is changed to int(5), and it will return 10
11 echo "\n";
12
```

Terminal: Local × + ▾

13:15:44-liviu.balan/var/www/php-oop/php\$ php 20-04-function.php

Notice: A non well formed numeric value encountered in /var/www/php-oop/php/20-04-function.php on line 4
10

13:16:07-liviu.balan/var/www/php-oop/php\$


```
1 <?php
2
3 declare(strict_types=1); // strict requirement
4
5 // Default Argument Value
6 function setHeight(int $minheight = 50)
7 {
8     echo "The height is : $minheight\n";
9 }
10
11 setHeight(minheight: 350);
12 setHeight(); // will use the default value of 50
```

Terminal: Local × + ▾

13:16:33-liviu.balan/var/www/php-oop/php\$ php 20-06-function.php

The height is : 350

The height is : 50

13:16:46-liviu.balan/var/www/php-oop/php\$


```
1  <?php
2
3  declare(strict_types=1); // strict requirement
4
5  // Return Type Declarations
6  function addNumbers(float $a, float $b): float
7  {
8      return $a + $b;
9  }
10
11  echo addNumbers(a: 1.2, b: 5.2) . "\n";
12
```

Terminal: Local × + ▾

13:17:40-liviu.balan/var/www/php-oop/php\$ php 20-08-function.php

6.4

13:17:57-liviu.balan/var/www/php-oop/php\$

```
1 <?php
2
3 declare(strict_types=1); // strict requirement
4
5 // Return Type Declarations
6 function addNumbers(float $a, float $b): int
7 {
8     return (int)($a + $b);
9 }
10
11 echo addNumbers(a: 1.2, b: 5.2) . "\n";
12
```

Terminal: Local × + ▾

13:18:13 - liviu.balan/var/www/php-oop/php\$ php 20-09-function.php

6

13:18:27 - liviu.balan/var/www/php-oop/php\$

Superglobals Variables

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

Q&A

Practice