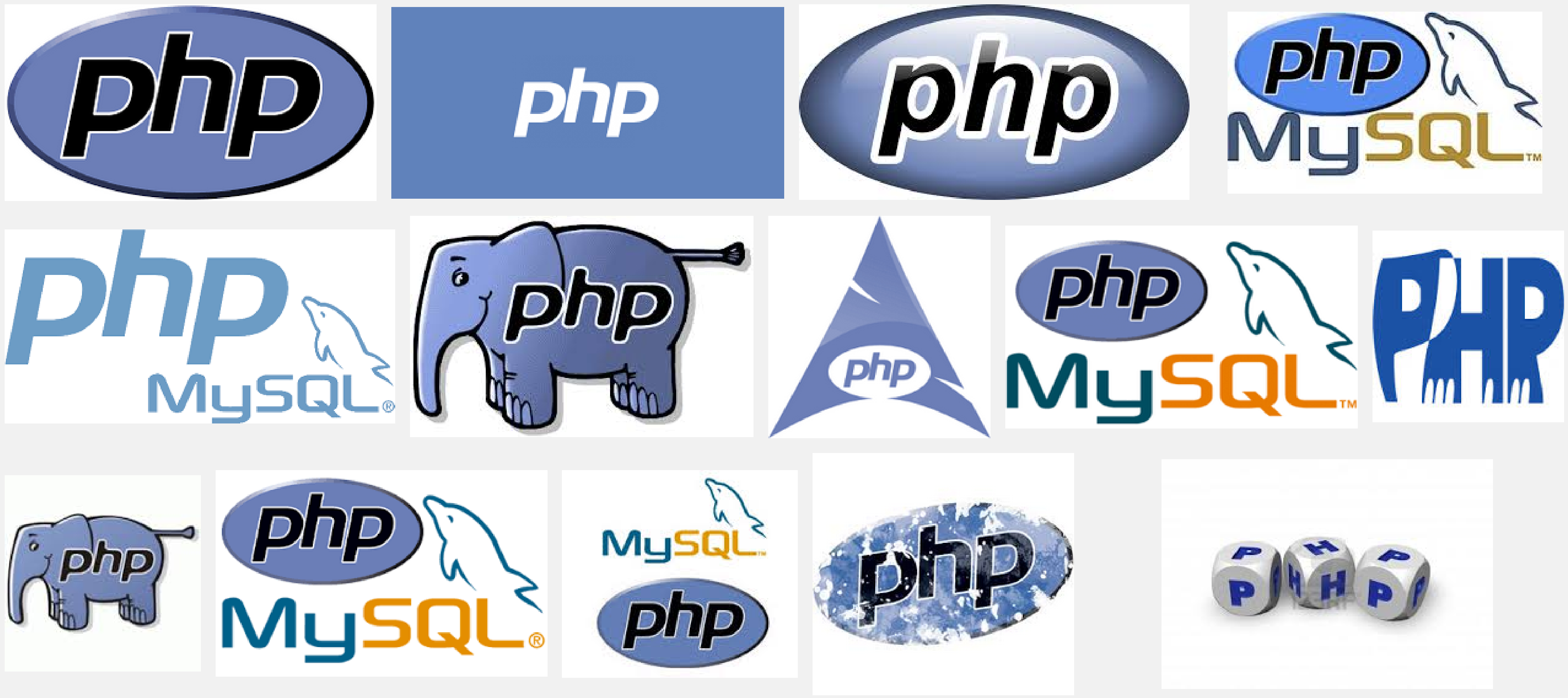
php
php
php
php
MySQL
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MySQL
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MySQL
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MySQL
MySQL
php
php
PHP

50 shades of PHP

By Max Gopey

50 shades of PHP

Chapter 1

PHP: The Protoduction Way?

Protoduction — A prototype that ends up in production.

Rasmus Lerdorf

Announce: Personal Home Page Tools (PHP Tools)

These tools are a set of small tight cgi binaries written in C.

They perform a number of functions including:

- Logging accesses to your pages in your own private log files
- Real-time viewing of log information
- Providing a nice interface to this log information
- Displaying last access information right on your pages
- Full daily and total access counters

...

The tools also allow you to implement a guestbook or any other form that needs to write information and display it to users later in about 2 minutes.

...

June 1995	PHP Tools 1.0 (Personal Home Page Tools)
September 1995	FI (Forms Interpreter)
October 1995	Personal Home Page Construction Kit
April 1996	PHP/FI
June 1996	PHP/FI 2.0 (beta)
November 1997	PHP/FI 2.0

```
<!-- ===== PHP/FI Code Example ===== -->
<!--include /text/header.html-->

<!--getenv HTTP_USER_AGENT-->
<!--ifsubstr $exec_result Mozilla-->
  Hey, you are using Netscape!<p>
<!--endif-->

<!--sql database select * from table where user='$username'-->
<!--ifless $numentries 1-->
  Sorry, that record does not exist<p>
<!--endif exit-->
  Welcome <!--$user-->!<p>
  You have <!--$index:0--> credits left in your account.<p>

<!--include /text/footer.html-->
```

Zeev Suraski

Andi Gutmans

June 1995	PHP Tools 1.0 (Personal Home Page Tools)
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November 1997	PHP/FI 2.0
June 1998	PHP 3.0 (PHP: Hypertext Preprocessor)

- **PHP — PHP: Hypertext Preprocessor**
- Ace — Ace Code Editor
- cURL — Curl URL Request Library
- GNU — GNU's Not Unix
- Nano — Nano's ANOther editor
- PIP — PIP Installs Packages
- YAML — YAML Ain't Markup Language

I don’t know how to stop it, there was never any intent to write a programming language […] I have absolutely no idea how to write a programming language, I just kept adding the next logical step on the way.

— Rasmus Lerdorf

```
List:       php-general
Subject:    Re: [PHP3] how to escape <INPUT TYPE=TEXT VALUES... (slightly offtopic)
From:       Rasmus Lerdorf <rasmus () lerdorf ! on ! ca>
Date:       1998-09-15 16:07:47


> i do not know how to do escaping so i can enter (INCLUDING the "
> characters)
>
> "it's time" ---- and get ----- "it's time"
> or
> 'i love "dogs"' and get 'i love "dogs"'
>
> i can either try ..VALUE='<?php echo $hallo; ?>'
> or VALUE="<?php echo $hallo; ?>"
>
> but anyway that's not as flexible as i want to be....

You should always have quotes around your value element unless you
are absolutely sure it is only a single word.  And you should probably
have a look at the url_encode() function.

-Rasmus
```

June 1995	PHP Tools 1.0 (Personal Home Page Tools)
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April 1996	PHP/FI
June 1996	PHP/FI 2.0 (beta)
November 1997	PHP/FI 2.0
June 1998	PHP 3.0 (PHP: Hypertext Preprocessor)
May 2000	PHP 4.0
July 2004	PHP 5

Conclusions

1. Solve real tasks — this may result in something useful.
2. Don't be afraid to re-implement.
3. Modularity rules.
4. Share — open-source is a power.

Chapter 2

PHP: Dynamic typing

Why do we love it so much?

A language is dynamically typed if the type is associated with run-time values, and not named variables/fields/etc.

— Paul Biggar

```php
$foo = 5; // int
$foo = "hello"; // string
$foo = [1.2, 3.89]; // array of floats
```

```
# Python
>>> foo = "10"
>>> print foo - 5
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
TypeError: unsupported operand type(s) for -:
                                    'str' and 'int'
```

```
// PHP
php > $foo = ”10”;
php > print $foo - 5;
5
```

Conclusion

When developing an application aim to help your end user.

Try to solve side-problems for them and provide them with ability to focus on really important things.

Chapter 3

PHP and Unicode

Do we have at least a chance?

```
php > echo strlen("Hello");
5
php > echo strlen("Привет");
12
```

Andrei Zmievski

STRINGS

- String literals are Unicode
- String offsets work on code points

```
$str = "大学";   // 2 code points
echo $str[1];   // result is 学
$str[0] = 'サ'; // full string is now サ学
```

IDENTIFIERS

- Unicode identifiers are allowed

```
class コンポーネント {

   function ᓱᓴᓐ ᐊᒡᓗᒃᑲᖅ()    { ... }
   function சிவாஜி கணேசன்()  { ... }
   function འབྲུག་ཡུལ།()        { ... }
}

$プロバイダ = array();
$プロバイダ['רַעְיולוּחַ שָׁנָה'] = new コンポーネント;
```

FUNCTIONS

- Functions understand Unicode text and apply appropriate rules
- i.e. case manipulation

```
$str = strtoupper("fußball");  // result is FUSSBALL

$str = strtolower("ΣΕΛΛΑΣ");   // result is σελλάς
```

TRANSLITERATION

```
$names = "
  김, 국삼
  김, 명희
  たけだ, まさゆき
  おおはら, まなぶ
  Горбачев, Михаил
  Козырев, Андрей
  Καφετζόπουλος, Θεόφιλος
  Θεοδωράτου, Ελένη
";
$r = strtotitle(str_transliterate($names, "Any", "Latin"));
```

```
Gim, Gugsam
Gim, Myeonghyi
Takeda, Masayuki
Oohara, Manabu
Gorbačev, Mihail
Kozyrev, Andrej
Kaphetzópoulos, Theóphilos
Theodōrátou, Eléné
```

UTF-8

vs

UTF-16

vs

UTF-32

UTF-8

vs

UTF-16

vs

UTF-32

Intl

- **Collator:** provides string comparison capability with support for appropriate locale-sensitive sort orderings.
- **Number Formatter:** allows to display number according to the localized format or given pattern or set of rules, and to parse strings into numbers.
- **Message Formatter:** allows to create messages incorporating data (such as numbers or dates) formatted according to given pattern and locale rules, and parse messages extracting data from them.
- **Normalizer:** provides a function to transform text into one of the Unicode normalization forms, and provides a routine to test if a given string is already normalized.
- **Locale:** provides interaction with locale identifiers in the form of functions to get subtags from locale identifier; parse, compose, match(lookup and filter) locale identifiers.

Multibyte String

mbstring provides multibyte specific string functions that help you deal with multibyte encodings in PHP. In addition to that, *mbstring* handles character encoding conversion between the possible encoding pairs. *mbstring* is designed to handle Unicode-based encodings such as UTF-8 and UCS-2 and many single-byte encodings for convenience.

Conclusions

(All taken from Andrei Zmievski's speech)

- People matter.
- Rewriting large existing code base is hard.
- Making people do tedious stuff is hard.
- Waiting for results of long iterations is hard.
- Stay committed.

Chapter 4

PHP Nowadays

The quick overview of features released with PHP 5.1–5.6.

Version 5.1.0 (24 Nov 2005)

- Added support for class constants and static members for internal classes.
- Added array type hinting.
- Added a lot of new functions for arrays, streams processing, PostgreSQL v3, etc.
- Many performance improvements

Version 5.2.0 (02 Nov 2006)

- Added Zip Archive extension.
- Added JSON and Filter extensions.
- Added support for constructors in interfaces.
- Many-many new improvements

Version 5.3.0 (30 Jun 2009)

- Added lambda functions and closures.
- Added "jump label" operator (limited "goto"). 😈
- Added NOWDOC & HEREDOC syntax.
- Added "?:" operator.
- Added support for namespaces.
- Added support for Late Static Binding.
- Added __DIR__ constant.

Version 5.4.0 (01 Mar 2012)

- Added short array syntax support ([1,2,3])
- Added support for Class::{expr}() syntax.
- Added support for Traits.
- Added closure $this support back.
- Added callable typehint
- Added array dereferencing support.
- Added class member access on instantiation (e.g. (new foo)->bar()) support.

Version 5.5.0 (20 Jun 2013)

- Added generators and coroutines.
- Added "finally" keyword.
- Added simplified password hashing API.
- Added support for constant array/string dereferencing.
- Added Class Name Resolution As Scalar Via "class" Keyword
- Added support for non-scalar Iterator keys in foreach

Version 5.6.0 (28 Aug 2014)

- Added constant scalar expressions syntax.
- Added dedicated syntax for variadic functions.
- Added an exponentiation operator (**).
- Added use function and use const.

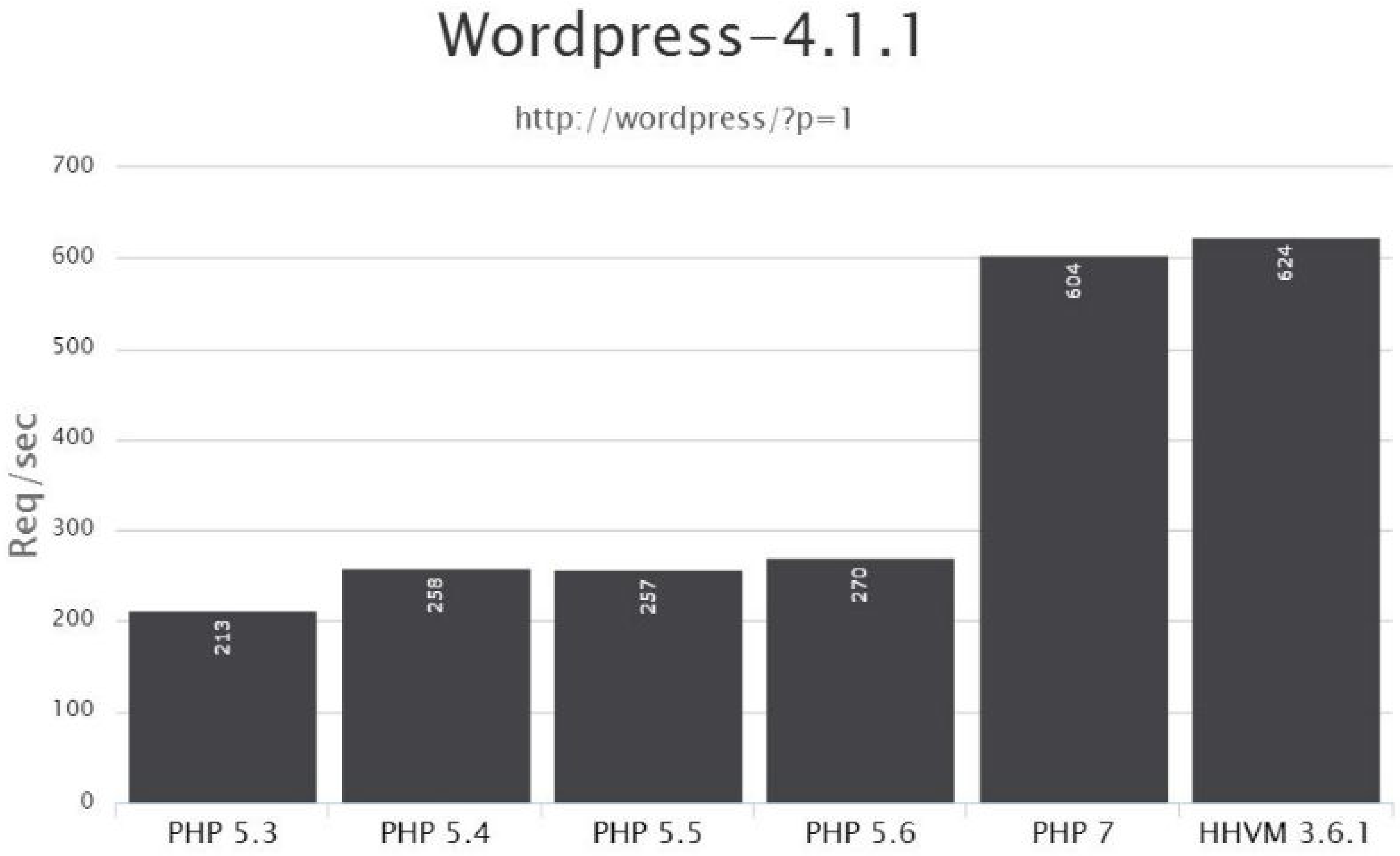
It's up to you

Chapter 5

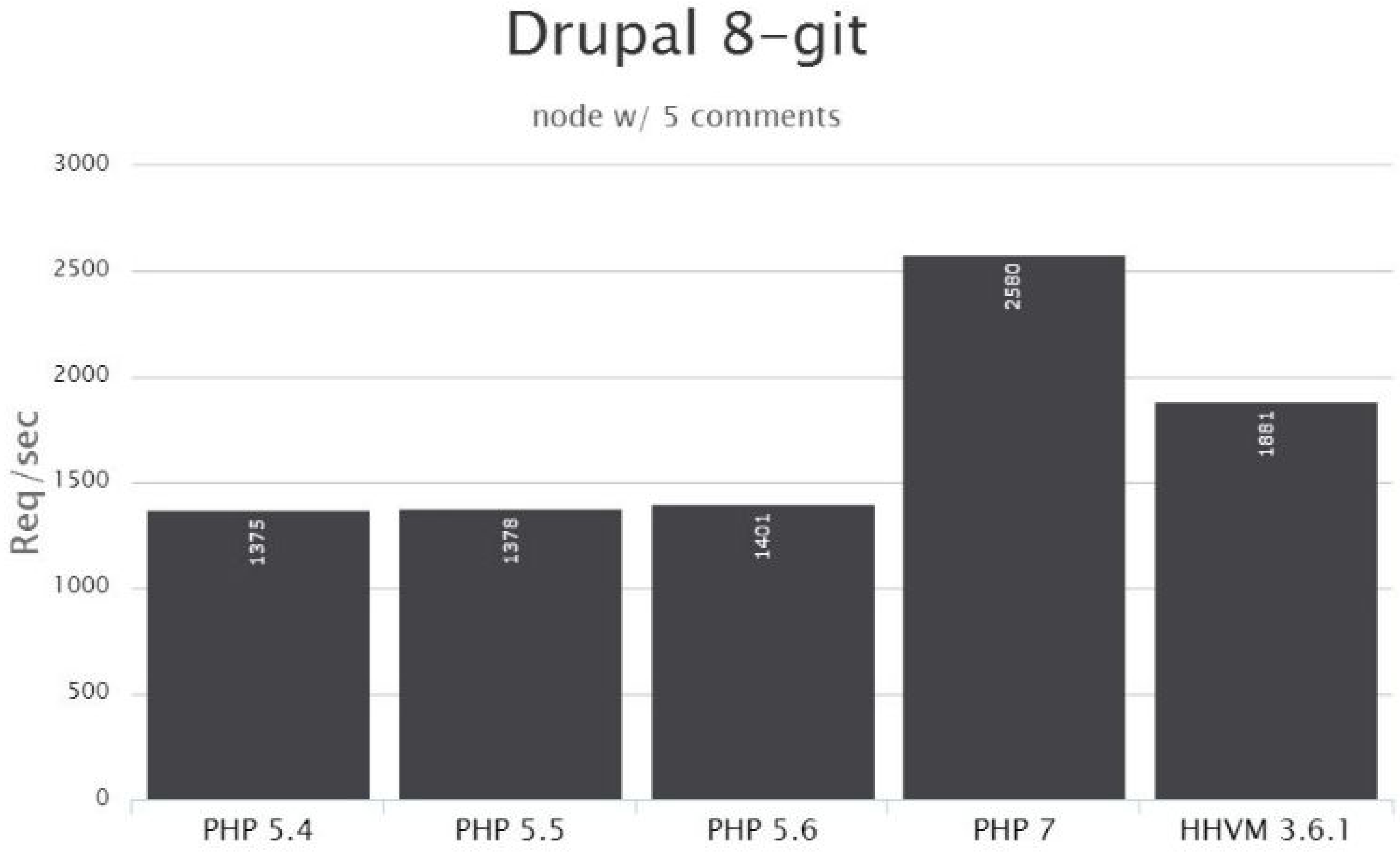
PHP 7

What is all fuzz about?

Oct 29 2015	PHP 7 RC 6
Nov 12 2015	PHP 7 Final



Wordpress-4.1.1
http://wordpress/?p=1
Req/sec
700
600
500
400
300
200
100
0
213
258
257
270
604
624
PHP 5.3
PHP 5.4
PHP 5.5
PHP 5.6
PHP 7
HHVM 3.6.1


Drupal 8–git
node w/ 5 comments
Req/sec
3000
2500
2000
1500
1000
500
0
1375
1378
1401
2580
1881
PHP 5.4
PHP 5.5
PHP 5.6
PHP 7
HHVM 3.6.1

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types

```php
<?php
(function(string $a) {
    var_dump($a);
})(15);
// string(2) "15"
```

```php
<?php
(function(array $a) {
    var_dump($a);
})(15);
// Fatal error: Uncaught TypeError:
//     Argument 1 passed to {closure}()
//     must be of the type array, integer given ...
```

```php
<?php
$a = (function(string $a) : int {
    return $a; // string
})(15);
var_dump($a); // int(15)
```

```php
<?php
declare(strict_types=1); // must be the first line

(function(string $a) {
    var_dump($a);
})(15);
// Fatal error: Uncaught TypeError:
//     Argument 1 passed to {closure}()
//     must be of the type string, integer given ...
```

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types
- **Combined Comparison Operator**

<=>

```php
$a <=> $b;
// instead of:
($a < $b) ? -1 : (($a > $b) ? 1 : 0);
```

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types
- Combined Comparison Operator
- **Null Coalesce Operator**

??

```php
$config = $this->config ?? static::$defaultConfig;
// instead of:
$config = isset($this->config)
    ? $this->config : static::$defaultConfig;
```

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types
- Combined Comparison Operator
- Null Coalesce Operator
- **Bind Closure on Call**

```php
class Person {
    public $name = 'Bob';
}
(function() {
    echo $this->name;
})->call(new Person);
// Bob
```

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types
- Combined Comparison Operator
- Null Coalesce Operator
- Bind Closure on Call
- **Grouped Use Declarations**

```php
use God\Save\{
    TheQueen,
    TheKing,
    Whatever
}
```

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types
- Combined Comparison Operator
- Null Coalesce Operator
- Bind Closure on Call
- Grouped Use Declarations
- **Generators return expressions and delegation**

```php
function hello() {
      yield "Hello";
      yield "World!";
      yield from goodbye();
      return "Whew!";
}
function goodbye() {
      yield "Goodbye";
      yield "Moon!";
}
$gen = hello();
foreach ($gen as $value) {
      echo $value, ' '; // Hello World! Goodbye Moon!
}
echo $gen->getReturn(); // Whew!
```

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types
- Combined Comparison Operator
- Null Coalesce Operator
- Bind Closure on Call
- Grouped Use Declarations
- Generators return expressions and delegation
- **New Exceptions Hierarchy**

Exceptions Hierarchy

```
Throwable                                 (Interface)
├── Exception                             (Predefined)
│   ├── ErrorException                    (Predefined)
│   ├── LogicException                    (SPL)
│   │   ├── BadFunctionCallException      (SPL)
│   │   │   └─ BadMethodCallException     (SPL)
│   │   ├── DomainException               (SPL)
│   │   ├── InvalidArgumentException      (SPL)
│   │   ├── LengthException               (SPL)
│   │   └── OutOfRangeException           (SPL)
│   └── RuntimeException                  (SPL)
│       ├── OutOfBoundsException          (SPL)
│       ├── RangeException                (SPL)
│       ├── OverflowException             (SPL)
│       ├── UnderflowException            (SPL)
│       └── UnexpectedValueException      (SPL)
└── Error                                 (Predefined)
    ├── ArithmeticError                   (Predefined)
    │   └── DivisionByZeroError           (Predefined)
    ├── AssertionError                    (Predefined)
    ├── ParseError                        (Predefined)
    └── TypeError                         (Predefined)
```

```php
try {
    nonExistentFunction();
} catch (\Exception $e) {
     echo 'Exception: '; var_dump($e);
} catch (\Error $e) {
     echo 'Error: '; var_dump($e);
}
```

```
Error: object(Error)#1 (7) {
  ["message":protected]=>
  string(48) "Call to undefined function nonExistentFunction()"
  ["string":"Error":private]=>
  string(0) ""
  ["code":protected]=>
  int(0)
  ...
}
```

PHP 7 New Features

- Abstract syntax tree & Uniform Variable Syntax
- Scalar Type Hints & Return Types
- Combined Comparison Operator
- Null Coalesce Operator
- Bind Closure on Call
- Grouped Use Declarations
- Generators return expressions and delegation
- New Exceptions Hierarchy
- ... and a lot of other stuff

That's all Folks!