

Achieving High-Quality Code Standards



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Midwest PHP

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Why do we need standards?

```
function convert($data){  
    $l1 = strlen($data)-2;  
    $str = substr($data,1,$l1);  
    $a = explode(",",$str);  
    $a2 = array();  
    for ($i=0;$i<sizeof($a);$i++) {  
        $l2 = strlen($a[$i])-2;  
        $a2[] = substr($a[$i],1,$l2);  
    }  
    return $a2;  
}
```

Why do we need standards?

```
function jsonStringToArray($jsonData)
{
    // remove first and last []
    $length = strlen($jsonData) - 2;
    $jsonString = substr($jsonData, 1, $length);

    // tokenize, using , as a divider
    $newArray = explode(",", $jsonString);

    $lastArray = array();
    for ($i = 0; $i < sizeof($newArray); $i++) {
        $thisLength = strlen($newArray[$i]) - 2;
        $lastArray[] = substr($newArray[$i], 1, $thisLength);
    }
    return $lastArray;
}
```

Why do we need standards?

```
/**
 * Converts JSON data string to PHP array.
 *
 * Assumes this format: ["Some text", "Even more text"]
 *
 * @param string $jsonData
 * @return array
 */
function jsonStringsToArray($jsonData)
{
    ...
}
```

What areas should standards address?

- Naming practices
- Code formatting
- File structure
- Autoloading
- Application file structure
- Separation of concerns
- Consistent architectural patterns
- Documentation standards
- Testing standards
- Version control standards
- Process standards

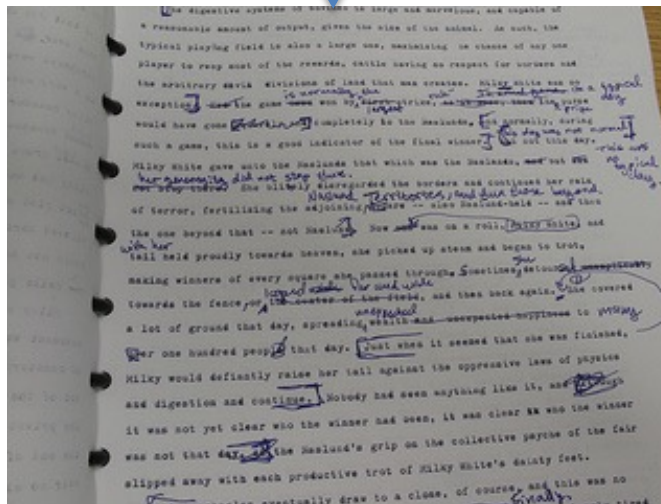
How do we define our standards?



OR



+



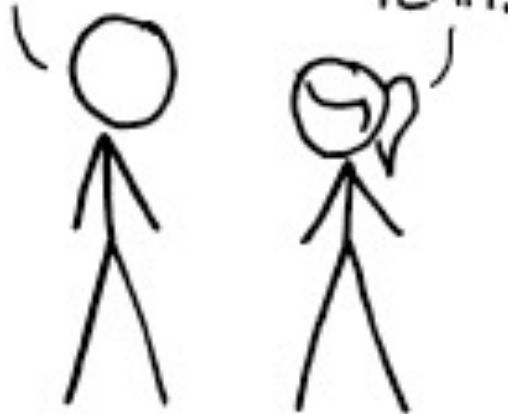
@PSchwisow

Published Standards

HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)

SITUATION:
THERE ARE
14 COMPETING
STANDARDS.

14?! RIDICULOUS!
WE NEED TO DEVELOP
ONE UNIVERSAL STANDARD
THAT COVERS EVERYONE'S
USE CASES.



SOON:

SITUATION:
THERE ARE
15 COMPETING
STANDARDS.

PSR-0/-4 Autoloading

- Filenames end in .php
- One class per file
- Classes must be under a vendor namespace (at least)
- Classname (after namespace) must match filename
- `\Symfony\Core\Request` →
`/path/to/proj/lib/vendor/Symfony/Core/Request.php`
- `\Zend_Controller_Front` →
`/path/to/proj/lib/vendor/Zend/Controller/Front.php`
(PSR-0 only)
- `\Aura\Web\Response>Status` →
`/path/to/aura-web/src/Response/Status.php`
(PSR-4 with prefix of "Aura\Web")

PSR-1 Basic Coding Standard

- Must follow PSR-0 or PSR-4 autoloading requirements
- Side effects: "A file SHOULD declare new symbols (classes, functions, constants, etc.) and cause no other side effects, or it SHOULD execute logic with side effects, but SHOULD NOT do both."
- Namespace and class names: `StudlyCaps`
- Class constants: `ALL_CAPS`
- Method names: `camelCase()`

PSR-12 Extended Coding Style Guide

- Must follow PSR-1
- Omit closing `?>` tag from PHP-only files
- No more than one statement per line
- Indents: 4 spaces (per level)
- PHP keywords and constants `true`, `false`, and `null` must be lower case
- Short form of type keywords must be used (`int` not `integer`)

PSR-12 Extended Coding Style Guide

- Visibility: properties, constants, and methods must be declared `public`, `protected`, **or** `private`
- Opening braces:
 - Classes and methods: next line
 - Closures: same line
 - Control structures: same line
- Must use `elseif` instead of `else if`

Checking and Enforcing Standards

- Code Reviews
- PHP_CodeSniffer (phpcs)
- PHP Code Beautifier and Fixer (phpcbf)

PHP_CodeSniffer

```
$ ./vendor/bin/phpcs --standard=PSR2 src/Controller/IndexController.php
```

```
FILE: src/Controller/IndexController.php
```

```
-----  
FOUND 9 ERRORS AFFECTING 9 LINES
```

```
-----  
  2 | ERROR | [x] There must be one blank line after the namespace  
    |       |      declaration  
11 | ERROR | [x] Multi-line function call not indented correctly;  
    |       |      expected 12 spaces but found 0  
12 | ERROR | [x] Multi-line function call not indented correctly;  
    |       |      expected 12 spaces but found 0  
13 | ERROR | [x] Multi-line function call not indented correctly;  
    |       |      expected 12 spaces but found 0  
31 | ERROR | [x] Multi-line function call not indented correctly;  
    |       |      expected 12 spaces but found 0
```

```
...
```

```
-----  
PHPCBF CAN FIX THE 9 MARKED SNIFF VIOLATIONS AUTOMATICALLY  
-----
```

```
Time: 74ms; Memory: 4.25Mb
```

PHP Code Beautifier and Fixer

```
$ ./vendor/bin/phpcbf --standard=PSR2 src/Controller/IndexController.php
Changing into directory /Users/patrickschwisow/code/standards-checker/src/Controller
Processing IndexController.php [PHP => 274 tokens in 42 lines]... DONE in 15ms (9
fixable violations)
    => Fixing file: 0/9 violations remaining [made 2 passes]... DONE in 32ms
Patched 1 file
Time: 105ms; Memory: 4.75Mb
```

```
$ git diff
@@ -1,16 +1,15 @@
    <?php
    namespace PSchwisow\StandardsChecker\Controller;

-
    class IndexController extends BaseController
    {
        public function index()
        {
            $files = array_map(
                function ($file) {
-//                $return = explode('-', substr($file, 0, -5));
+                $return = explode('-', substr($file, 0, -5));
```

Custom Standards

In your project root phpcs.xml

```
<?xml version="1.0"?>
<ruleset name="Foo_Project">
  <description>The coding standard for the Foo Project.</description>

  <!-- directories and files to check -->
  <file>src</file>
  <file>public/index.php</file>

  <!-- directory to exclude -->
  <exclude-pattern>*/Tests/*</exclude-pattern>

  <!-- command-line arguments -->
  <arg name="report" value="summary"/>
  <arg value="np"/>

  <!-- use all of PSR-1 -->
  <rule ref="PSR1"/>

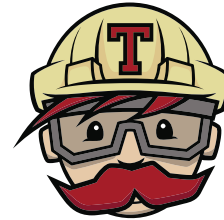
  <!-- All PHP files MUST use the Unix LF (linefeed) line ending. -->
  <rule ref="Generic.Files.LineEndings">
    <properties>
      <property name="eolChar" value="\n"/>
    </properties>
  </rule>
</ruleset>
```

See https://github.com/squizlabs/PHP_CodeSniffer/wiki/Coding-Standard-Tutorial for more details.

Automation!



git



Travis CI



Jenkins



circleci



GitHub Actions



GitLab CI

Documentation Standards: DocBlocks

```
<?php
/**
 * A summary informing the user what the associated element does.
 *
 * A *description*, that can span multiple lines, to go _in-depth_
 * into the details of this element and to provide some background
 * information or textual references.
 *
 * @param string $myArgument With a *description* of this argument,
 *     these may also span multiple lines.
 * @return void
 * @throws \InvalidArgumentException
 */
function myFunction($myArgument)
{
}
```

Documentation Standards: DocBlocks

DocBlocks are attached to Structural Elements:

- Function
- Constant
- Class
- Interface
- Trait
- Class constant
- Property
- Method
- File
- require / include

Documentation Standards: phpDocumentor

> PSchwisow

\PSchwisow\ContainerCoding\Entity

Brand

Brand domain entity

Summary

Methods	Properties	Constants
<ul style="list-style-type: none">getBrandId()setName()getName()setUpdatedAt()getUpdatedAt()onPrePersist()onPreUpdate()	No public properties found	No constants found
No protected methods found	<ul style="list-style-type: none">\$brandId\$name\$updatedAt	N/A
No private methods found	No private properties found	N/A

Properties

- \$brandId

\$brandId : integer

FILE

Entity/Brand.php

PACKAGE

Default

CLASS HIERARCHY

► \PSchwisow\ContainerCoding\Entity\Brand

Tags

ORM\Table (name="brand")

ORM\Entity

ORM\HasLifecycleCallbacks

↓

Tags

ORM\Column (name="brand_id",

Documentation Standards: PSR-5 and PSR-19

COMING
SOON?

Other Standards

- Testing
- Version Control
- Process

Who Am I?

Feedback / Contact / Slides

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- Slides:
<https://github.com/PSchwisow/Miscellaneous/>

