Magento 2: PHP Development Best Practices

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DevelopersParadise
2016 / Opatija / Croatia

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Why This Talk?

1. Understand how Magento 2 meets mainstream PHP
2. Get up to speed with the jargon
3. Accelerate towards being productive
4. Choose which topics to strengthen

Before we Start

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Follow Magento's "Core Coding Standards"

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PSRs 1 through 4

Code Demarcation Standard

DocBlock Standard

JavaScript Coding Standard

JavaScript DocBlock Standard

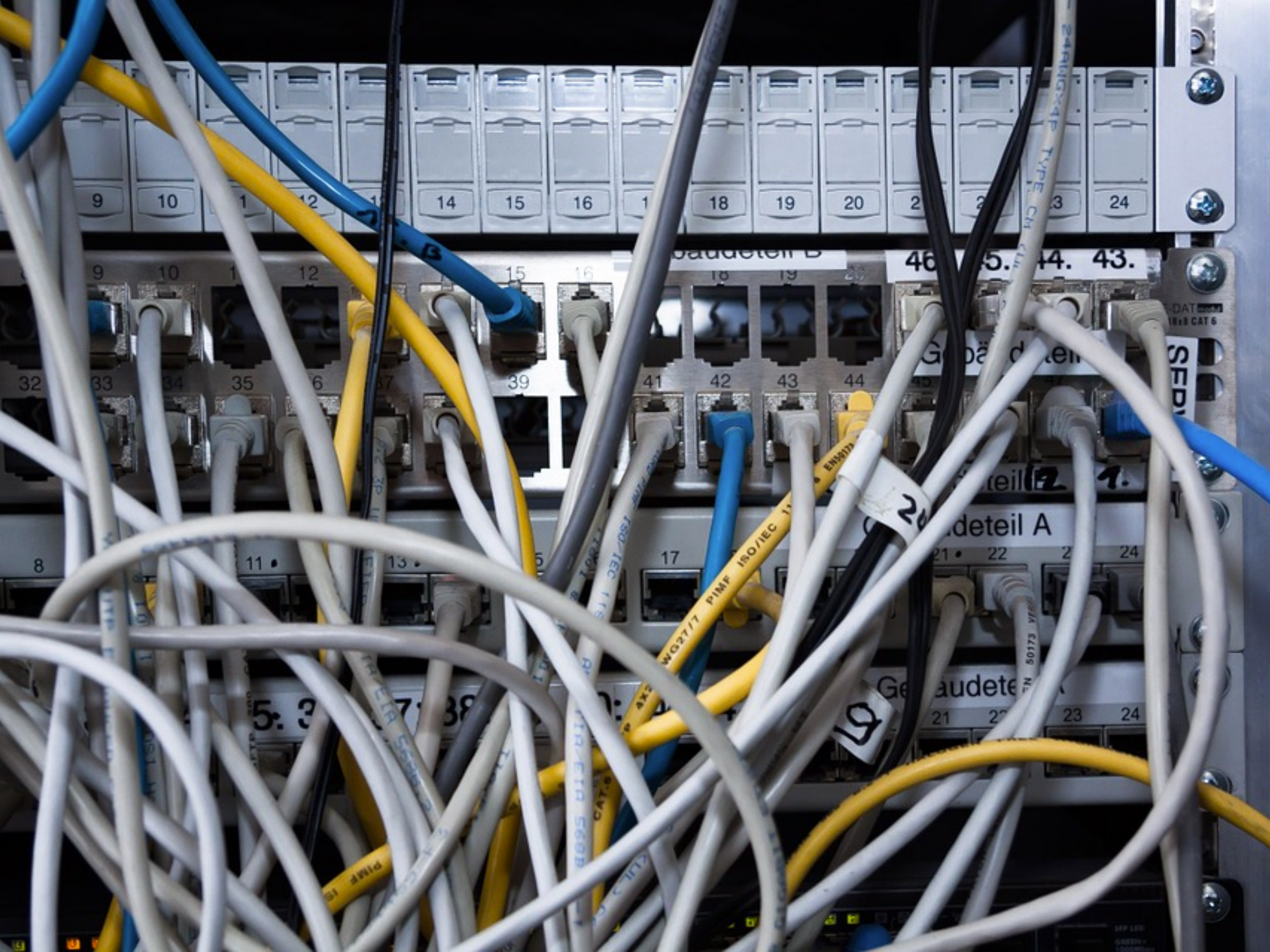
jQuery Widget Standard

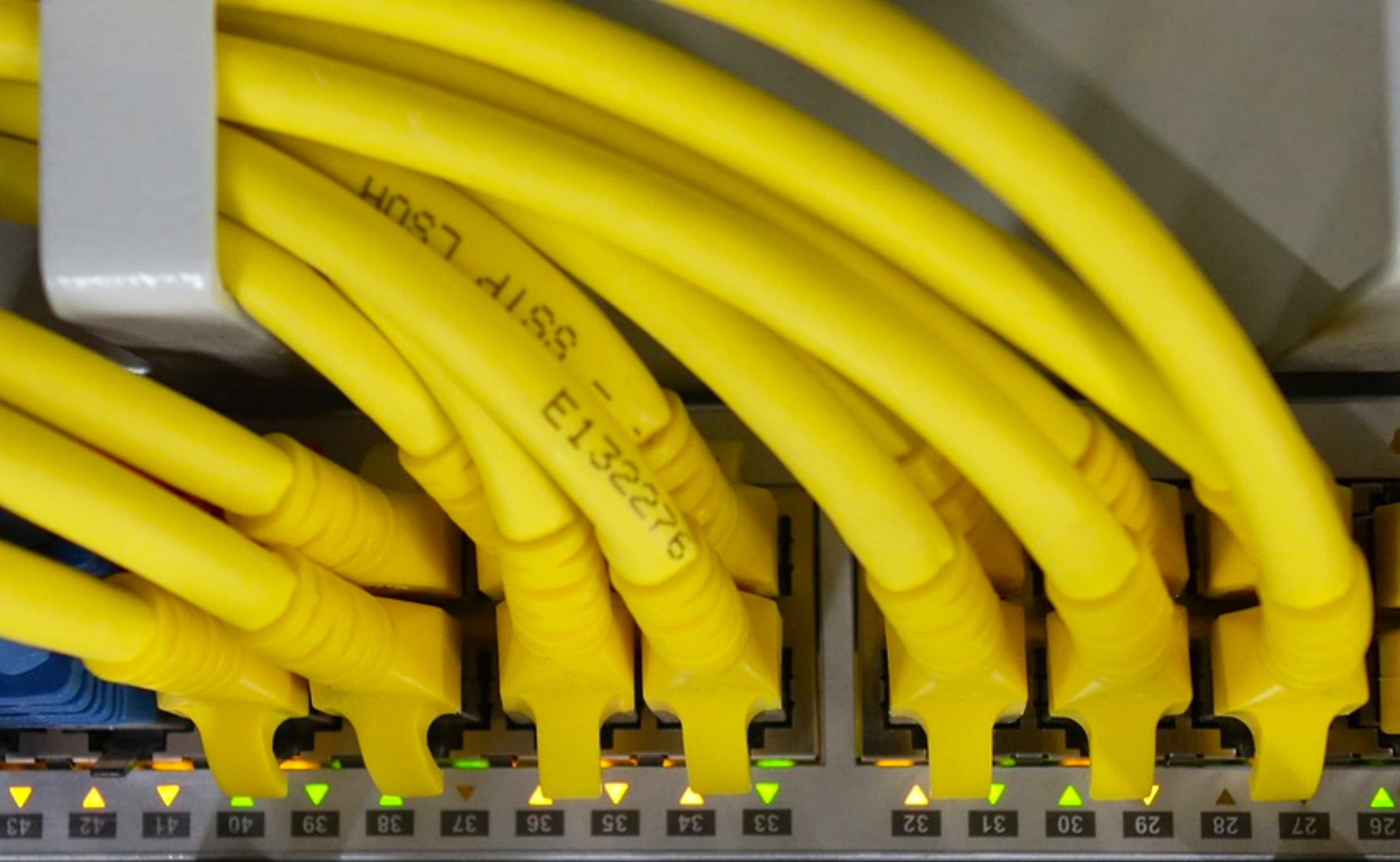
LESS Coding Standard

HTML Style Guide

So far, this is a suggestion.

Take it.

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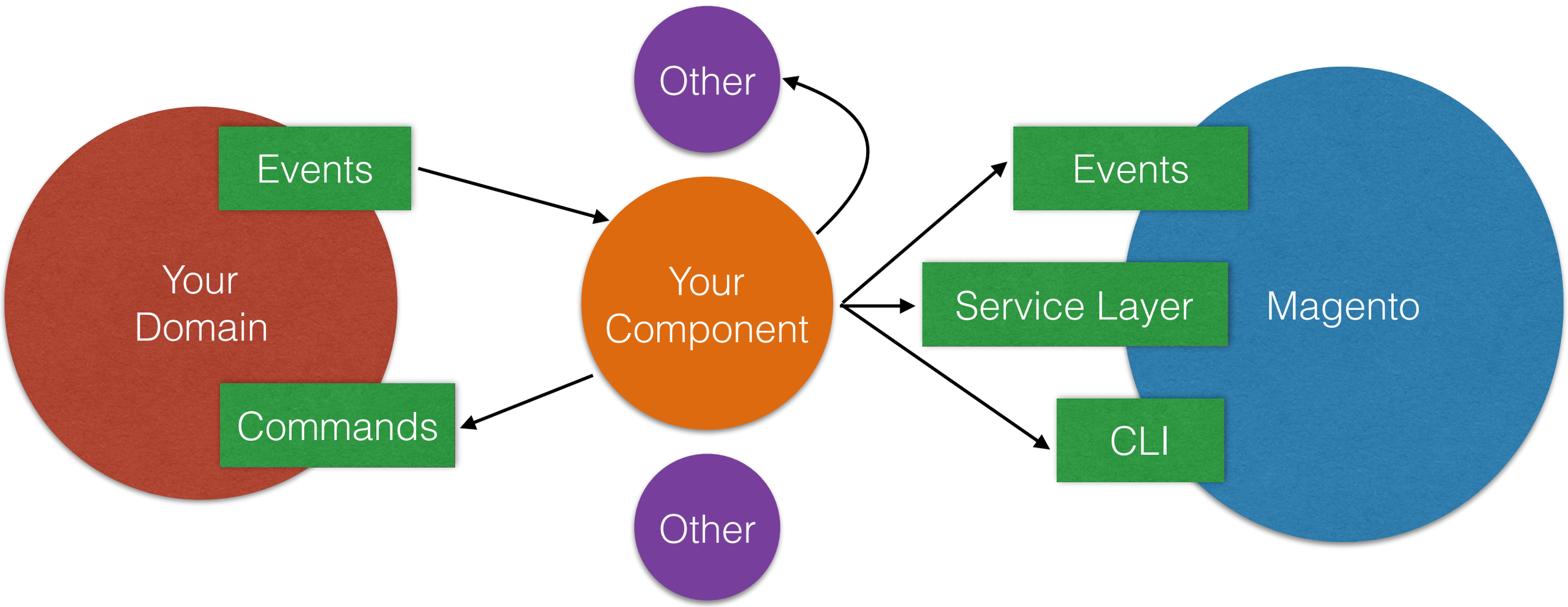
Write Reusable Components

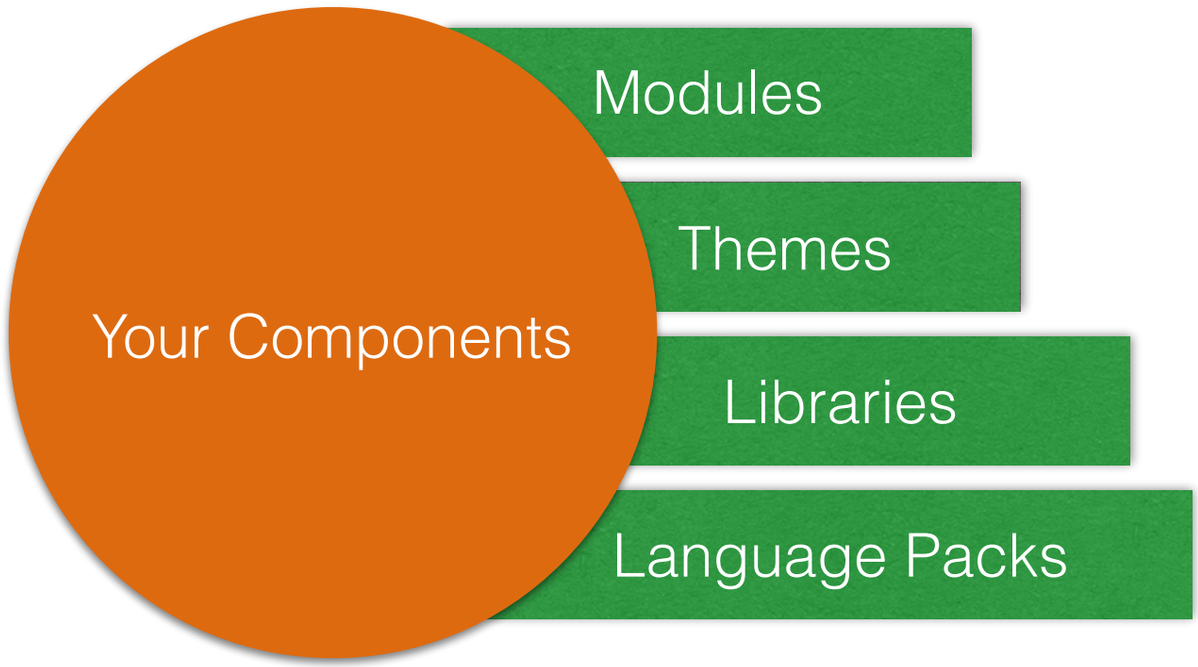

Other
Events
Your Domain
Your Component
Events
Service Layer
Magento
Commands
CLI
Other

For more:

Driving Your Domain by Examples **(13:30)**

Marcos Lopes

Component Types



registration.php

Sample component **composer.json**

```
{
  "name": "acme/magento2-blog",
  "description": "A blog for Magento 2",
  "autoload": {
    "psr-4": {"Acme\\Blog\\":""},
    "files": ["registration.php"]
  },
  "type": "magento2-module",
  "version": "1.0.3",

  // chop, chop..

  "require" : {
    "php": "~7.0",
    "acme/blog-core": "^4.0",
    "acme/magento2-base": "^1.0"
  }
}
```

✓ Package name

✓ Component Type (module, theme, language)

✓ External libraries

✓ Magento 2 Dependencies

✓ Its OK to have dozens of Composer packages

✓ Use Toran Proxy (commercial) or Satis (free, OSS) for private packages

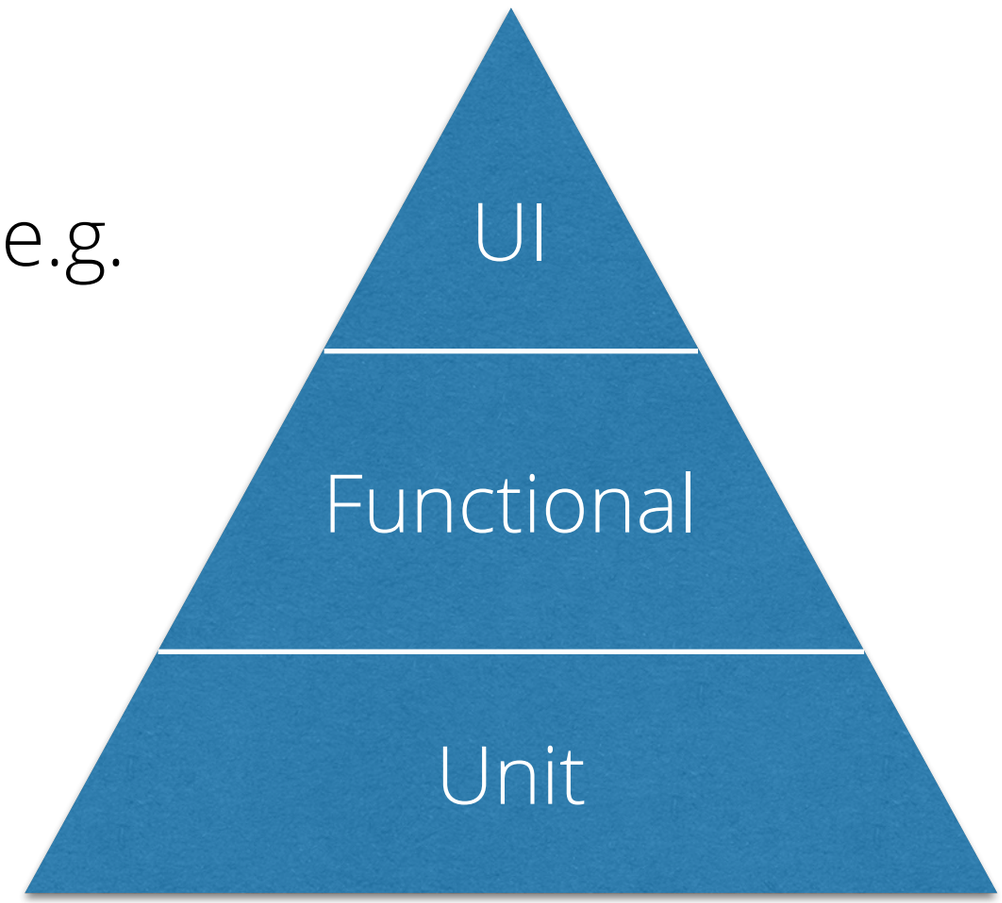
For more:

Magento 2 + Composer **(12:30)**

Peter Jaap

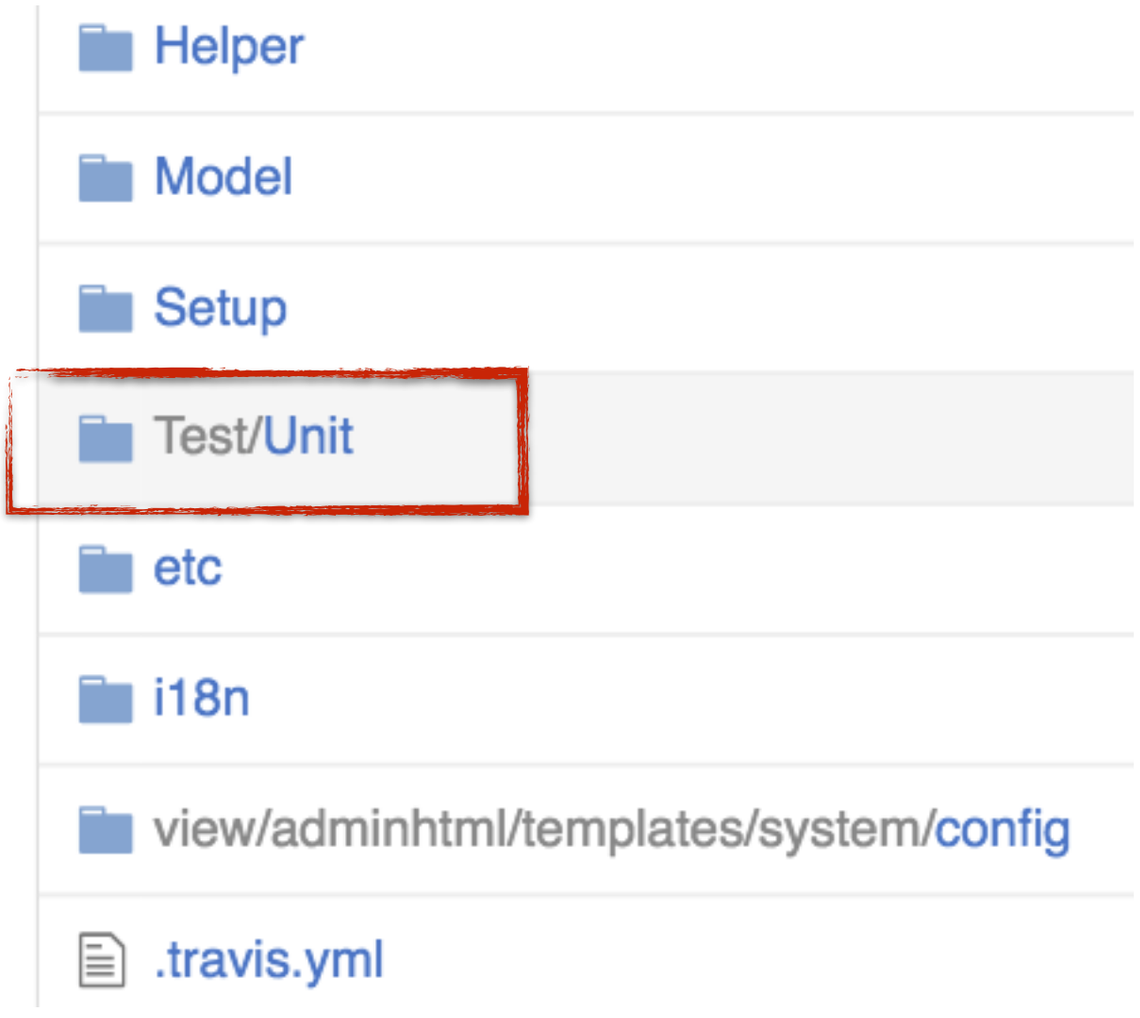
Write Automated Tests

1. Unit test: **generously**
2. Integration test: **interactions** (e.g. with 3rd party systems)
3. Functional/UI test: for **acceptance**
4. Follow core standards



Mike Cohn

Distribute unit tests with your component



✓ Better than just: build passing

http://shields.io/

✓ Documentation!

Understand the Object Manager (OM)

- Dependency Injection
- Lifecycle Management
- Compilation
- Scopes
- Special Patterns
- Translations

Don’t use it Directly

```php
class MyTask
{
    public function doSomething()
    {
        $dependency = $this->getObjectManager()
            ->get('My\Dependency');

        return $dependency->doSomethingElse();
    }
}
```

- Testing = nightmare
- Coupling to the API
- There’s a better way

Automatic Constructor Injection!

```php
// class \Acme\Mailer\Controller\Api
public function __construct(
    \Acme\Mailer\Helper\Data $data
) {
```


Type Definitions

etc/di.xml

```
<type name="Magento\Authorization\Model\ResourceModel\Rules">
    <arguments>
        <argument name="rootResource" xsi:type="object">
            Magento\Framework\Acl\RootResource\Proxy
        </argument>
        <argument name="aclCache" xsi:type="object">
            Magento\Framework\Acl\Cache\Proxy
        </argument>
    </arguments>
</type>
```

- ✓ Declare types
- ✓ Define arguments
- ✓ Replace arguments (caution!)

Be aware of what you think
when you see the word

"TYPE"

```
<virtualType
    name="Magento\Framework\Message\Session\Storage"
    type="Magento\Framework\Session\Storage">
    <arguments>
        <argument name="namespace" xsi:type="string">
            message
        </argument>
    </arguments>
</virtualType>
<type name="Magento\Framework\Message\Session">
    <arguments>
        <argument name="storage" xsi:type="object">
            Magento\Framework\Message\Session\Storage
        </argument>
    </arguments>
</type>
```

etc/di.xml

Preferences

```
<preference
 for="Psr\Log\LoggerInterface"
 type="Magento\Framework\Logger\Monolog" />
```

etc/di.xml

✓ Use interfaces (./Api/)

✓ Contextual replacements (caution!)

Proxy Objects

```xml
<type name="Magento\Authorization\Model\ResourceModel\Rules">
    <arguments>
        <argument name="rootResource" xsi:type="object">
            Magento\Framework\Acl\RootResource\Proxy
        </argument>
        <argument name="aclCache" xsi:type="object">
            Magento\Framework\Acl\Cache\Proxy
        </argument>
    </arguments>
</type>
```

etc/di.xml

- ✓ Delay initialization of “expensive” objects that:
  - Have to be instantiated (e.g. for typing)
  - But might not YET need to be initialized
- ✓ Caching

Plugins (Interception)

etc/di.xml

```
<type name="Class\To\Intercept">
    <plugin name="my_plugin" type="My\Plugin\Class"/>
</type>
```

```
// \Magento\SampleInterception\Plugin\PluginAfter
public function afterBaseMethodUppercase(
    $subject,
    $interceptedOutput
) {
    return '(after) ' . $interceptedOutput . '(/after)';
}
```


Add before / after / around behaviour.

✓ Alternative to before / after events
✓ Around is powerful for decorating or conditional logic (e.g. authorization)
✓ Manipulate return values (use with caution!)

```php
// \Magento\SampleInterception\Plugin\PluginAfter
public function afterBaseMethodUppercase(
    $subject,
    $interceptedOutput
) {
    return '(after) ' . $interceptedOutput . '(/after)';
}
```

```php
// another interceptor plugin
public function afterBaseMethodUppercase(
    $subject,
    $result
) {
    if (strlen($result) < 10) {
        // do something important
    }
}
```


Better use case:

```
// \Magento\Customer\Model\Cart\ConfigPlugin
public function afterGetConfig(
    \Magento\Checkout\Block\Cart\Sidebar $subject,
    array $result
) {
    return array_merge_recursive(
        $result,
        $this->configProvider->getConfig()
    );
}
```

✓ Aligned to the purpose of the intercepted function

Good applications:

- ✓ Cleaner alternative to creating/requesting “before” and “after” events
- ✓ Part of a coherent chain of incremental atomic transformations designed towards a clear goal

“Less good” applications (*):

- As a replacement for existing events
- Arbitrary transformations to data

* subject to the type of component you’re building

"VIRTUAL TYPES"

A virtual (no real class!), configurable sub-type of another TYPE

✓ Fine-grained control over DI configuration

✓ Can help avoid repetitive argument replacement

- Confusing at first
- Weigh their value vs. simplicity
- You will hardly need them

For more: What is the difference between type and virtualType

Find the right balance

For more:

Porting a complex extension to Magento 2 **(10:00)**

Fabian Schmengler

Leverage Events

etc/events.xml

```
<event name="some_magento_event">
    <observer name="my_observer"
        instance="My\Observer\Class" />
</event>
```

- ✓ Similar to Magento 1
- ✓ Generally unobtrusive
- ✓ Nicely decoupled code
- ✓ Use them whenever possible

Observers In Magento 2 - Cool Ryan

Write Defensive Components

Fail Fast(er)

composer require beberlei/assert

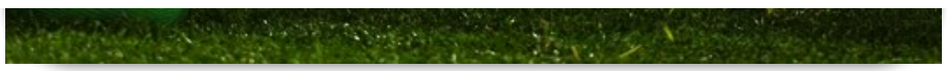
```php
/**
 * Sends a test email
 *
 * @throws \Assert\InvalidArgumentException
 * @throws \Assert\LazyAssertionException
 */
public function execute()
{
    $emailAddress = $this->getRequest()->getParam('email');
    \Assert\that($emailAddress)->email();
    Assertion::email($emailAddress);
    // => \Assert\InvalidArgumentException

    // useful for checking array item types:
    $orders = $this->getOrders(); // => array
    \Assert\lazy()
        ->that($orders, 'not empty')->notEmpty()
        ->that($orders, 'types')
            ->all()->isInstanceOf(OrderInterface::class)
        ->verifyNow();
    // => \Assert\LazyAssertionException
}
```


...and don't forget to CATCH exceptions

```php
/**
 * Sends a test email
 *
 * @throws \Assert\InvalidArgumentException
 * @throws \Assert\LazyAssertionException
 */
public function execute()
{
    try {
        $emailAddress = $this->getEmailParam();
        $orders = $this->getOrders();
        $this->mailSender->send($emailAddress, $orders);

    } catch (InvalidArgumentException $e) {
        $this->messageManager->addError($e->getMessage());
    }
}
```



Default to Strict Encapsulation

```php
interface AbandonedEmailSenderInterface
{
    /**
     * Gathers data and sends email
     * @return void
     * @throws InsufficientDataException
     */
    public function sendForCart(
        CartInterface $cart
    );

    /** Returns the email transport */
    public function getEmailTransport();

    /** Sets the email transport **/
    public function setEmailTransport(
        EmailTransportInterface $emailSender
    );
}
```

WHY!?

“Getter and setter methods are evil

Allen Hollub, 2003

“Setters don’t mean anything, anyway

Marco Pivetta (@ocramius)

Getter & Setter Swarm

```
setStatusHistories([statusHistories : array|\Magento\Sales\Api\Da
setState(state : string):$this
setStatus(status : string):$this
setCouponCode(code : string):$this
setProtectCode(code : string):$this
setShippingDescription(description : string):$this
setIsVirtual(isVirtual : int):$this
setStoreId(id : int):$this
setCustomerId(id : int):$this
setBaseDiscountAmount(amount : float):$this
setBaseDiscountCanceled(baseDiscountCanceled : float):$this
setBaseDiscountInvoiced(baseDiscountInvoiced : float):$this
setBaseDiscountRefunded(baseDiscountRefunded : float):$this
setBaseGrandTotal(amount : float):$this
setBaseShippingAmount(amount : float):$this
setBaseShippingCanceled(baseShippingCanceled : float):$this
setBaseShippingInvoiced(baseShippingInvoiced : float):$this
setBaseShippingRefunded(baseShippingRefunded : float):$this
setBaseShippingTaxAmount(amount : float):$this
```

You can avoid it!

```php
interface AbandonedEmailSenderInterface
{
    /**
     * Gathers data and sends email
     * @return void
     * @throws InsufficientDataException
     */
    public function sendForCart(
        CartInterface $cart
    );
}
```


✓ Dependencies are injected

✓ Accessed directly or by private/ protected methods

```php
final class LoggingAbandonedEmailSender
    implements Api\AbandonedEmailSenderInterface
{
    private $logger;
    private $transport;

    public function __construct(
        TransportInterface $transport,
        LoggerInterface $logger
    ) {
        $this->transport = $transport;
        $this->logger = $logger;
    }

    /**
     * Gathers data and sends email
     * @return void
     * @throws InsufficientDataException
     */
    public function sendForCart(
        CartInterface $cart
    ) {
        // etc
    }
}
```


```php
final class LoggingAbandonedEmailSender
    implements Api\AbandonedEmailSenderInterface
{
    private $logger;
    private $transport;

    private function foo() {}
}
```

✓ Its easy to expose private API

◉ Its hard to do the opposite (BC breaks)

Some benefits:

- ✓ Prevent unnecessary BC breaks
- ✓ Encourage more expressive APIs
- ✓ Encourage better abstractions
- ✓ Simplify test-cases

IMPORTANT

- Avoid **final** for classes used in the OM's Proxy pattern

More on Defensive Programming

Extremely Defensive PHP - Marko Pivetta

Defensive Programming - Wikipedia

Write lots of good tests

7

Don’t Forget to Document!

At least with a README.md

README.md

View all of README.md

empty

README.md

magento2-extension-example

Magentostudy_News
This is a very basic custom module developed by considering all coding standards and structure of latest version of Magento 2. By referring this module magento developers can learn easily how to create a custom module in Magento 2
This module have following features:

- Table and data creation schema file
- News Creation/Edition/Deletion from Admin panel
- Admin Grid listing all News
- Image upload with each news item from admin panel
- List all news on frontend with pagination
- News access link added in footer
- Send news to all customers in email using Cron

1. Create a "code" folder inside your_magento_webroot/app folder.
2. Put this Module inside "code" folder. app/code/Magentostudy/News
3. execute command "php magento setup:upgrade"

What to include in README.md?

- ✓ Build Status
- ✓ Description
- ✓ Installation
- ✓ Features / Configuration
- ✓ LICENSE
- ✓ Support & Author
- ✓ Contributing Guide

Leverage Generic Composer Packages

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beberlei/assert

monolog/monolog

mockery/mockery

league/factory-muffin

league/tactician

prooph/event-sourcing

Stay Up to Date

devdocs.magento.com

phptherightway.com

magentotherightway.com

mostly Magento 1 ATM

alanstorm.com

For security best practices:

Leveraging Magento 2 to combat the OWASP Top Ten

(tomorrow 13:00)

Tales Seeparsan

Questions?

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Thank You!

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