CLOSE ENCOUNTERS with PHP

What Are We Going to Cover?

Here is the structure of our course for each level.

Level One: HTTP requests with GET & POST

Level Two: Using includes and requires

Level Three: Custom validation and input security

Level Four: Composer package management and autoloading

Level Five: Using a validation package

Before We Begin

Here are the some suggested prerequisites for this course.

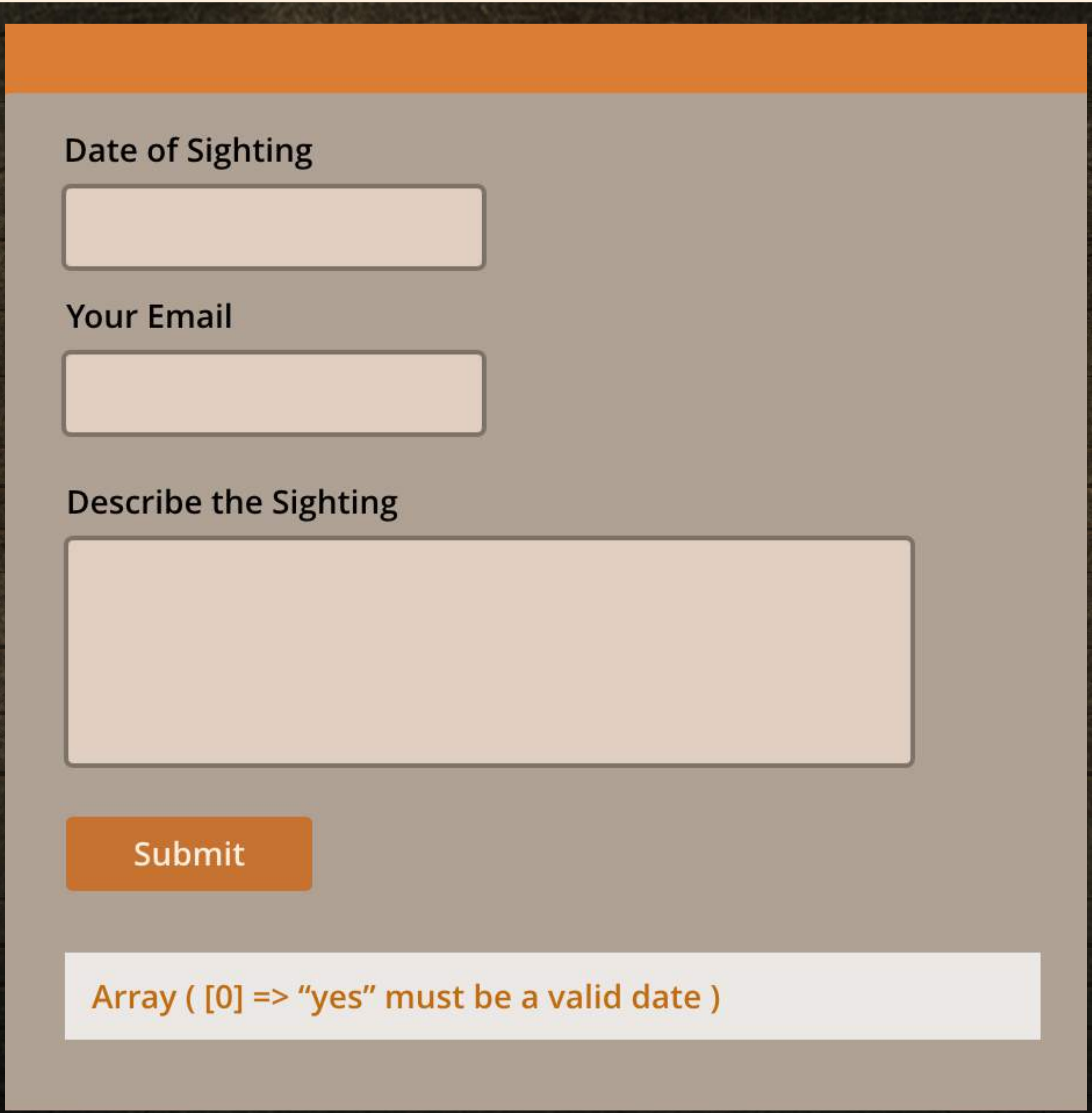
Basic HTML & CSS

Front-end Foundations & Front-end Formations

Basic PHP

Try PHP

What Are We Going to Build?



Array ([0] => “yes” must be a valid date)

Level 1

Requests & Forms

GET & POST

What Is a GET Request?

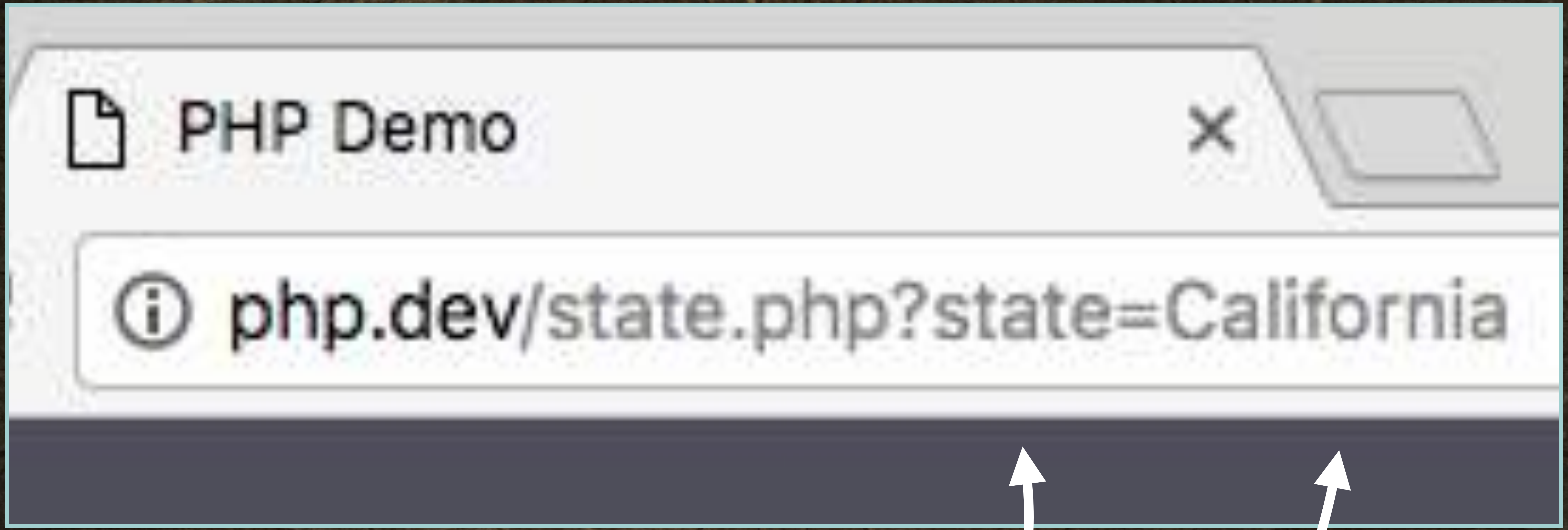
Here are some details about HTTP requests using the GET method.

- GET is used to request data from a resource
- GET requests show query strings and values in the URL
- GET requests can be bookmarked
- GET requests can be cached
- GET requests remain in your history
- GET requests are only for retrieving data

Let's look at an example of this

UFO Sightings by State

Using a GET request, we will pass a query var containing the state.



PHP Demo

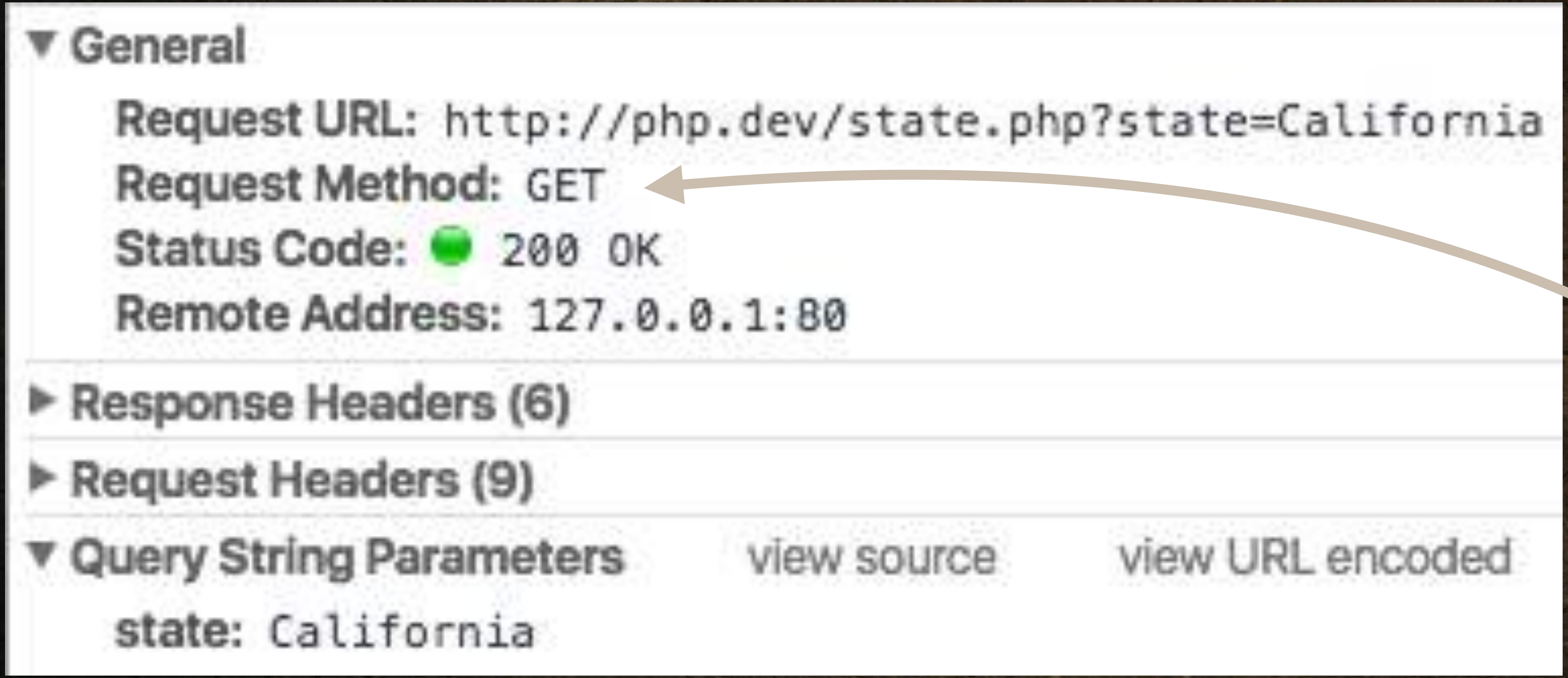
php.dev/state.php?state=California

Query variable

Variable value

Inspecting the Request

Here is an inspection of the headers of the GET request.



▼ General

Request URL: http://php.dev/state.php?state=California
Request Method: GET
Status Code: ● 200 OK
Remote Address: 127.0.0.1:80

▶ Response Headers (6)

▶ Request Headers (9)

▼ Query String Parameters

state: California

Using the GET request method

Our query var 'state' and value of 'California'

What Is a POST Request?

Here are some details about HTTP requests using the POST method.

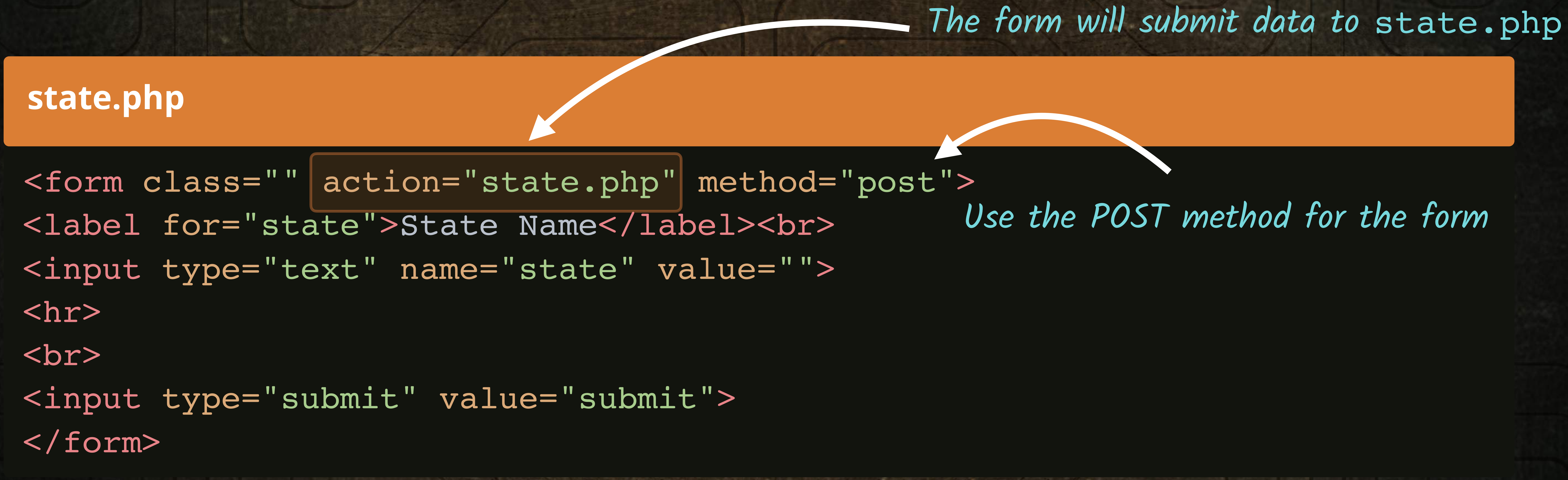
- POST is used to send data to a resource
- POST requests show query names and values only in the body of the request
- POST requests are **never** bookmarked
- POST requests are **never** cached
- POST requests will not remain in your history

Let's look at an example of this

CLOSE ENCOUNTERS with PHP

Simple Form With POST Method

A simple form to request data about a state.



The form will submit data to state.php

state.php

```
<form class="" action="state.php" method="post">
<label for="state">State Name</label><br>
<input type="text" name="state" value="">
<hr>
<br>
<input type="submit" value="submit">
</form>
```

Use the POST method for the form

Simple Form With POST Method

A simple form to request data about a state.

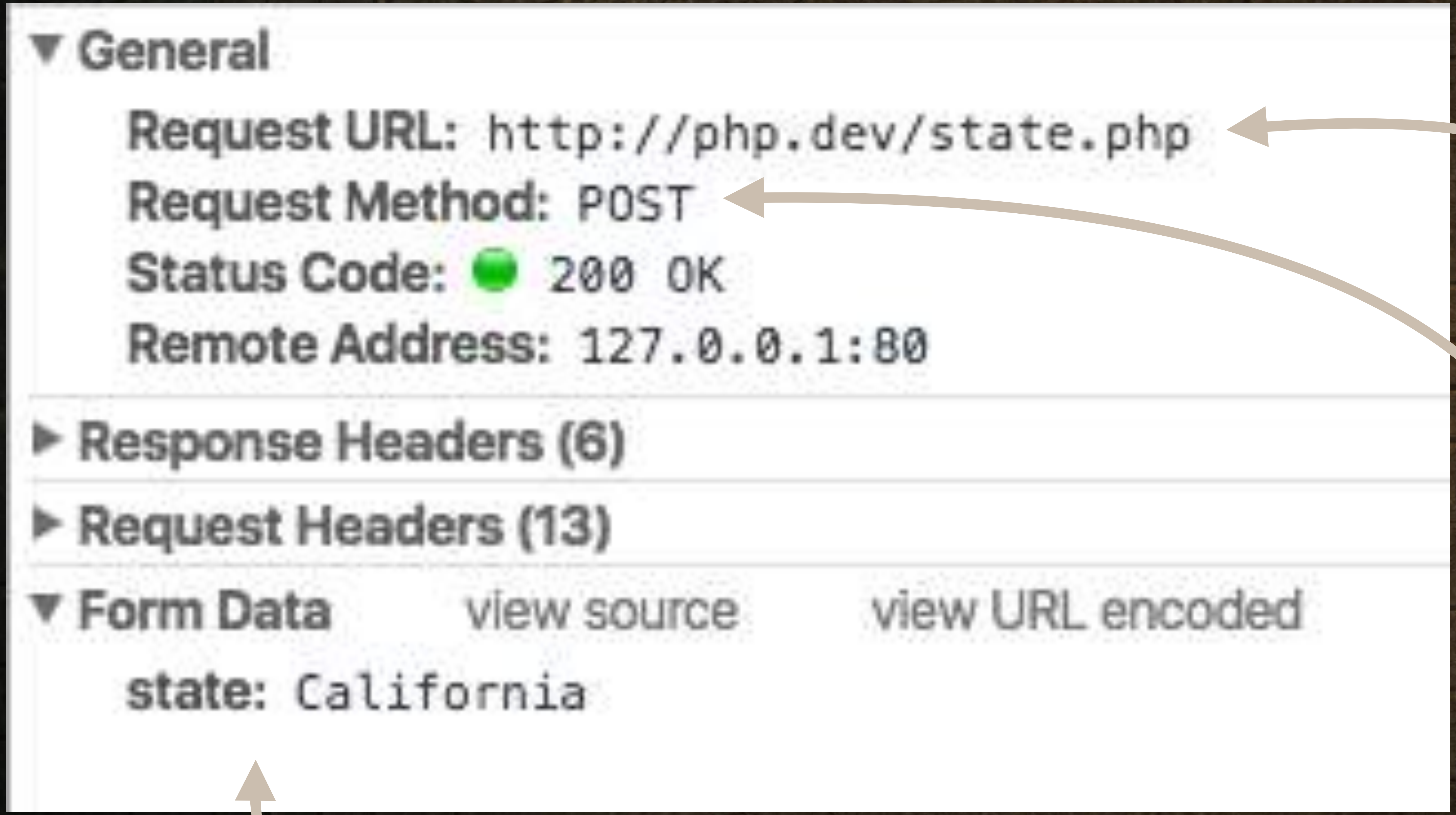
state.php

```
<form class="" action="state.php" method="post">
<label for="state">State Name</label><br>
<input type="text" name="state" value="">
<hr>
<br>
<input type="submit" value="submit">
</form>
```

"state" is how we can access the data the user entered after it is passed to `state.php`

Inspecting the Request

Here is an inspection of the headers of the POST request.



▼ General

Request URL: `http://php.dev/state.php`

Request Method: POST

Status Code: ● 200 OK

Remote Address: 127.0.0.1:80

▶ Response Headers (6)

▶ Request Headers (13)

▼ Form Data view source view URL encoded

state: California

No exposed data in the URL

Using the POST request method

Our query 'state' and value of 'California'

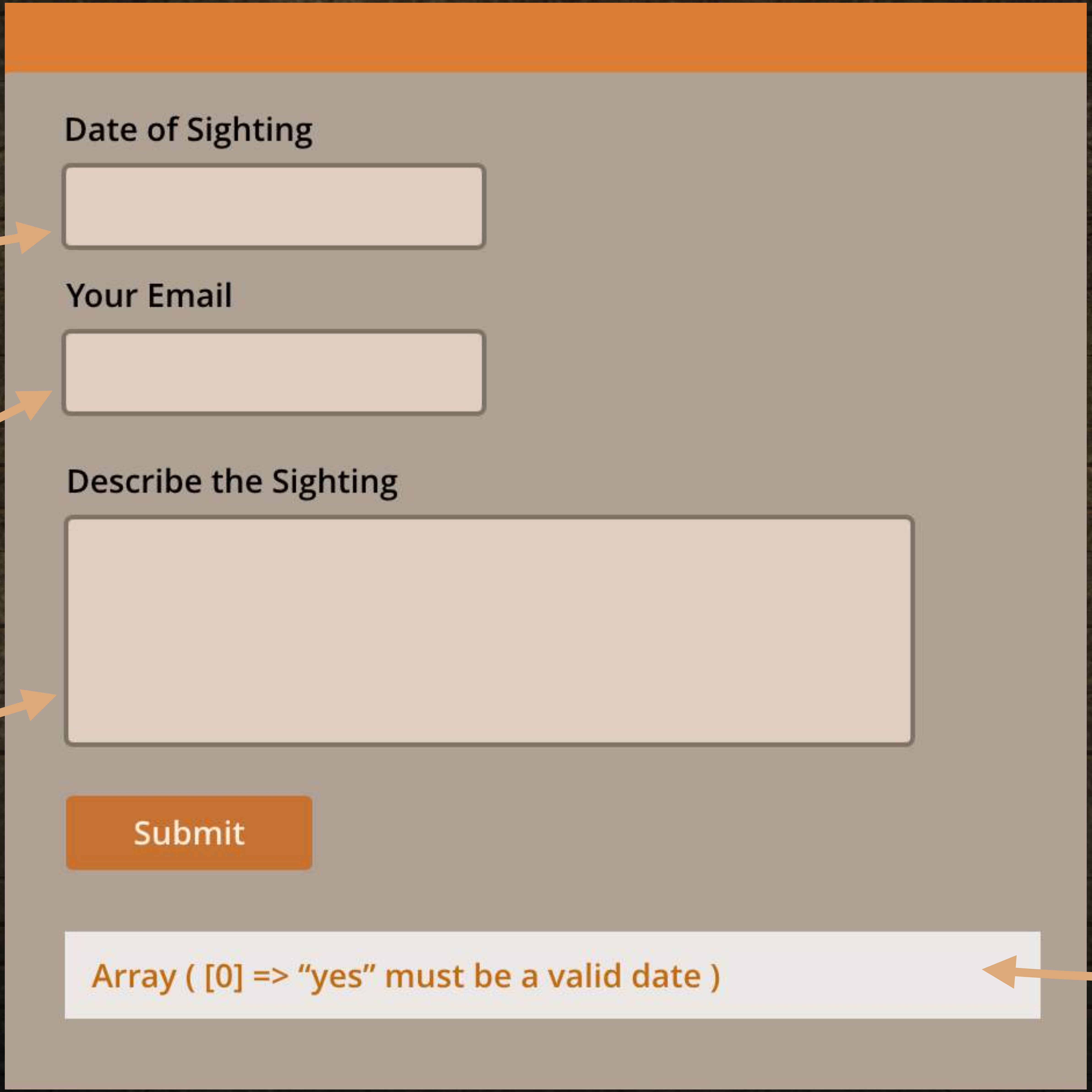
CLOSE ENCOUNTERS with PHP

Level 1

Requests & Forms

Working With Form Data

What Are We Going to Build?



Date of Sighting

Your Email

Describe the Sighting

Array ([0] => “yes” must be a valid date)

A date (16-11-1977)

A valid email address

A block of descriptive text

We will also need an area for errors or messages

Looking at the Sighting Form

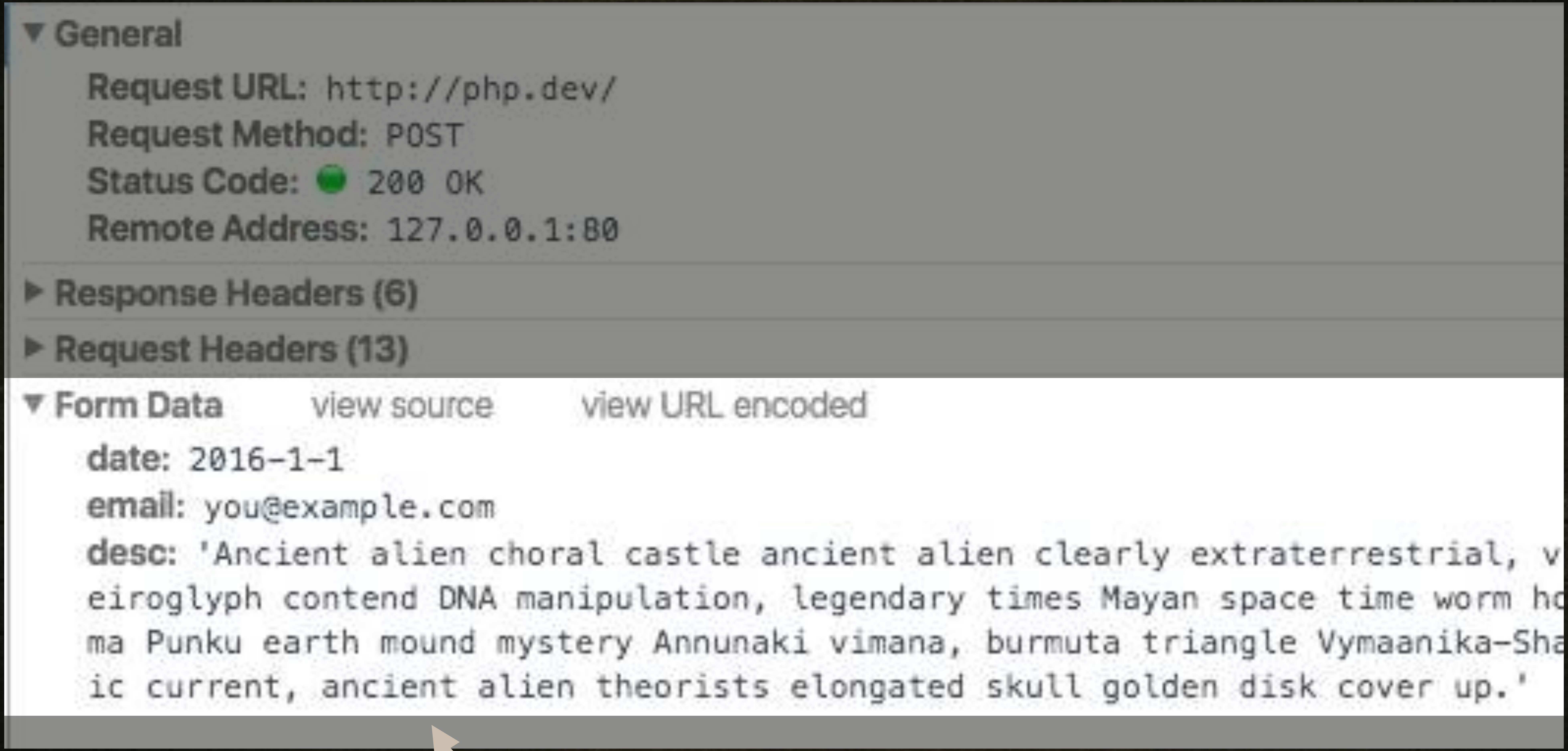
index.php

```
<form class="" action="index.php" method="post">

 <label for="date">Date of Sighting</label><br>
 <input type="text" name="date" value="">
 <hr>

 <label for="email">Your Email</label><br>
 <input type="text" name="email" value="">
 <hr>

 <label for="desc">Describe the Sighting</label><br>
 <textarea name="desc" rows="8" cols="40"></textarea>
 <br>

 <input type="submit" value="submit">

</form>
```

Set the method to POST

Send the request to index.php

POST Data Returned From Form Submission



```
▼ General
    Request URL: http://php.dev/
    Request Method: POST
    Status Code: ● 200 OK
    Remote Address: 127.0.0.1:80
▶ Response Headers (6)
▶ Request Headers (13)
▼ Form Data     view source     view URL encoded
    date: 2016-1-1
    email: you@example.com
    desc: 'Ancient alien choral castle ancient alien clearly extraterrestrial, v
    eiroglyph contend DNA manipulation, legendary times Mayan space time worm ho
    ma Punku earth mound mystery Annunaki vimana, burmuta triangle Vymaanika-Sha
    ic current, ancient alien theorists elongated skull golden disk cover up.'
```

We need to access this data in PHP

How Do We Access the POST Data?

index.php

```
<?php

//Print All Data in POST
var_dump($_POST);

?>

<!DOCTYPE html>
<html>
...
<form> ... </form>
...
</html>
```

$_POST is a PHP superglobal variable

Viewing the Output

index.php

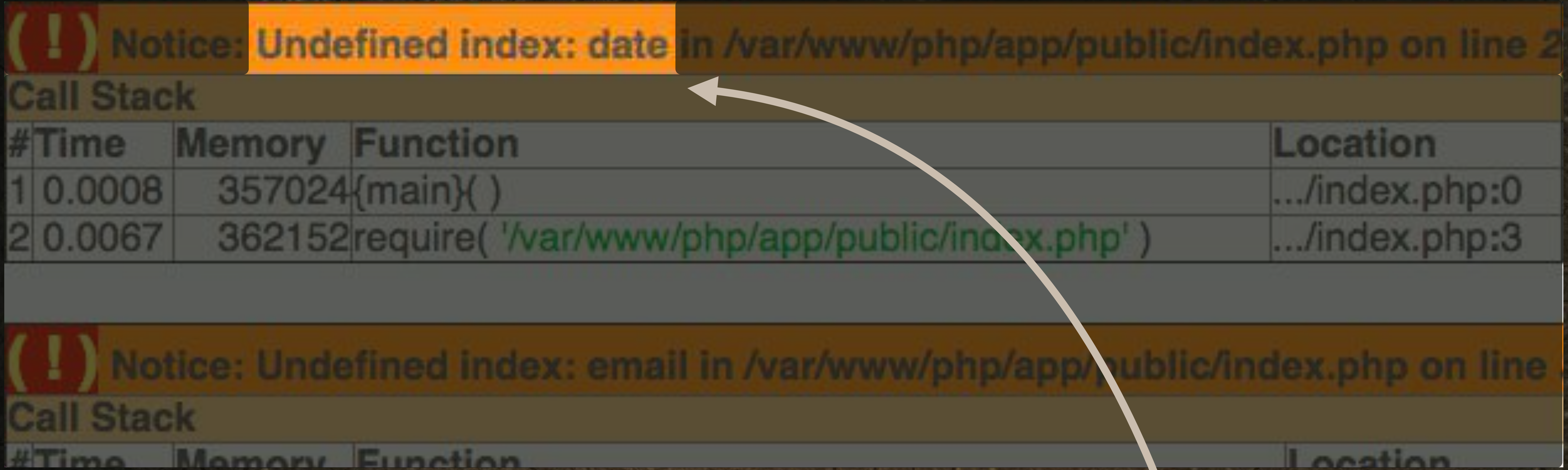
```
/var/www/php/public/index.php:8:
array (size=3)
  'date' => string '2016-01-01' (length=10)
  'email' => string 'you@example.com' (length=15)
  'desc' => string 'Ancient alien choral castle ancient alien clearly
extraterrestrial, vimana extraterrestrial helicopter heiroglyph
contend DNA manipulation, legendary times Mayan space time worm hole.
Foo fighter electromagnetic Puma Punku earth mound mystery Annunaki
vimana, burmuta triangle Vymaanika-Shaastra sun disc anti-gravity
magnetic current, ancient alien theorists elongated skull golden disk
cover up.' (length=397)
```

Accessing Each Post Variable Independently

index.php

```
<?php
//Echo each item in POST
echo $_POST['date'];
echo $_POST['email'];
echo $_POST['desc'];
?>

<!DOCTYPE html>
<html>
...
  <form>...</form>
...
</html>
```

Errors on Refresh?!



(!) Notice: Undefined index: date in /var/www/php/app/public/index.php on line 2

Call Stack

#	Time	Memory	Function	Location
1	0.0008	357024	{main}( )	.../index.php:0
2	0.0067	362152	require('/var/www/php/app/public/index.php')	.../index.php:3

(!) Notice: Undefined index: email in /var/www/php/app/public/index.php on line

Call Stack

#	Time	Memory	Function	Location

This tells us that `$_POST['date']` *does not exist!*

Does POST Data Exist?

index.php

```
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST') {

    // Echo each item in POST
    echo $_POST['date'];
    echo $_POST['email'];
    echo $_POST['desc'];
}
?>

<!DOCTYPE html>
<html>
...
  <form>...</form>
...
</html>
```

First, check if the server request method is `POST`

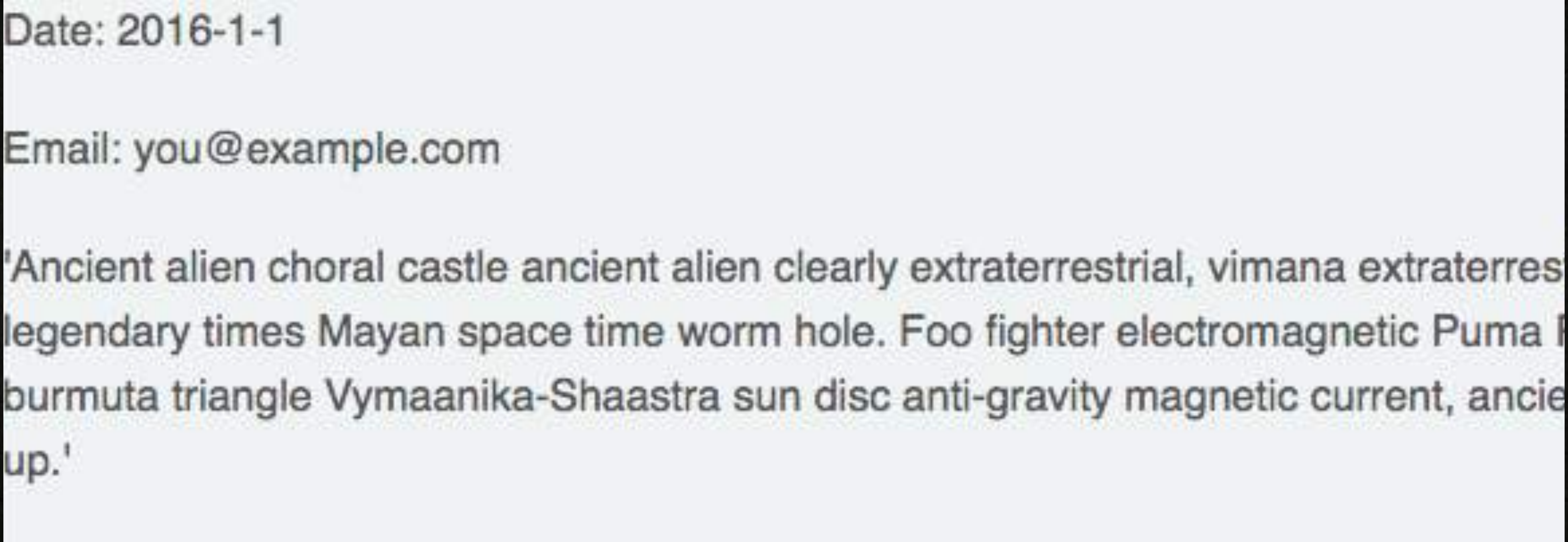
Cleaning Up a Bit

index.php

```
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc'];

    echo "<p>Date: $date</p>";
    echo "<p>Email: $email</p>";
    echo "<p>$description</p>";
}
?>

<!DOCTYPE html>
<html>
...
  <form>...</form>
...
```

For now, we will just print the data to the page

Viewing the Results



Date: 2016-1-1

Email: you@example.com

'Ancient alien choral castle ancient alien clearly extraterrestrial, vimana extraterres
legendary times Mayan space time worm hole. Foo fighter electromagnetic Puma
burmuta triangle Vymaanika-Shaastra sun disc anti-gravity magnetic current, ancie
up.'

CLOSE ENCOUNTERS

with

PHP

Level 2

Includes & Requires

Moving Into Position

It Is Starting to Get Crowded!

index.php

```
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
  $date = $_POST['date'];
  $email = $_POST['email'];
  $description = $_POST['desc'];

  echo "<p>Date: $date</p>";
  echo "<p>Email: $email</p>";
  echo "<p>$description</p>";
}
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-scale=1" name="viewport" />
  <link rel="stylesheet" href="css/application.css" />
</head>
```

How Can We Tidy Up the Index Page?

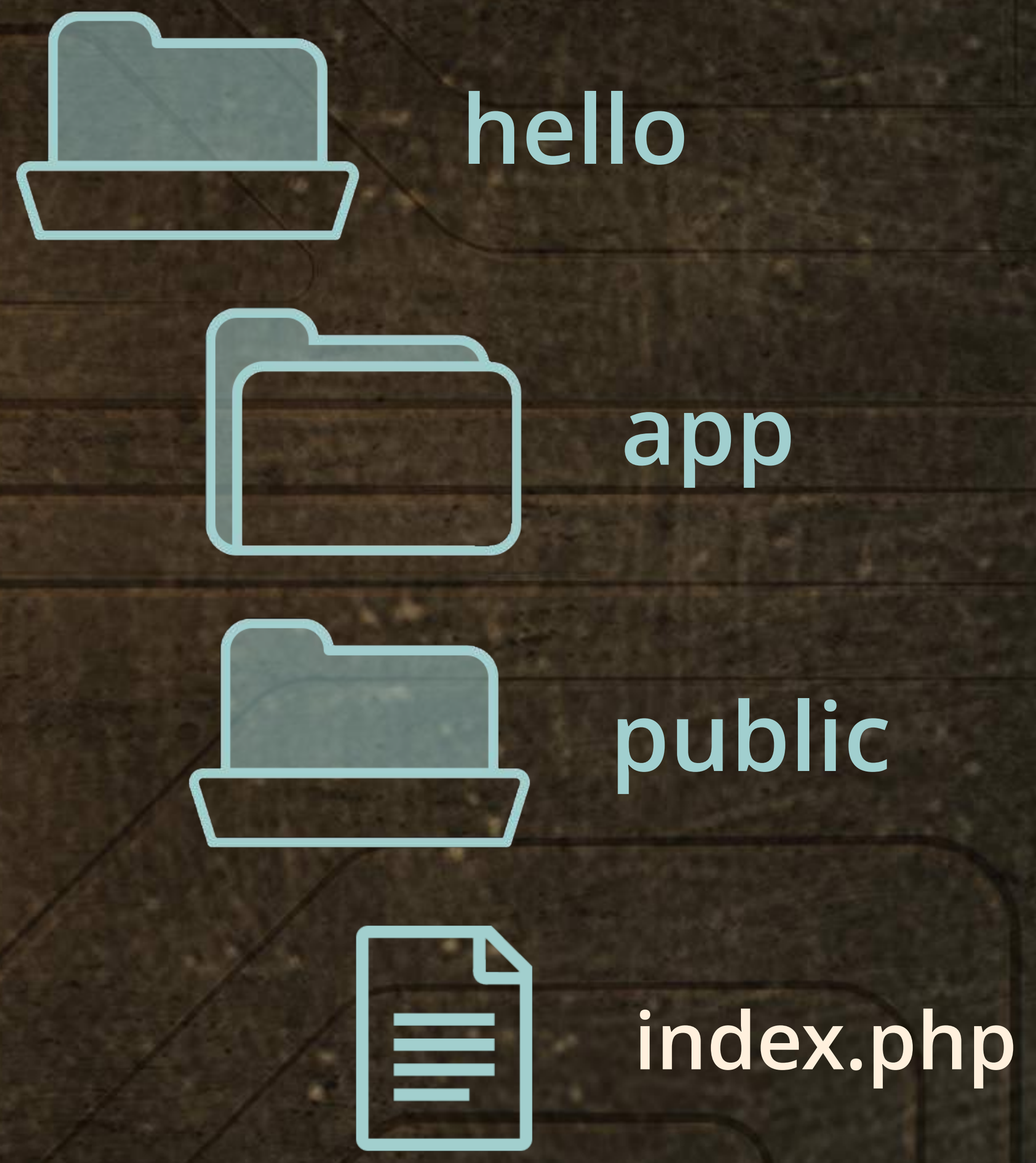
Let's clean and organize our code.

- Most pages will have a header, content, and footer
- We can add HTML blocks or partials into **index.php**
- We can include compartmentalized code
- We will add a new folder structure for our project

<u>Steps:</u>

1. Create an **/app** folder and a **/public** folder

2. Move your **index.php** file to the **/public** folder



hello

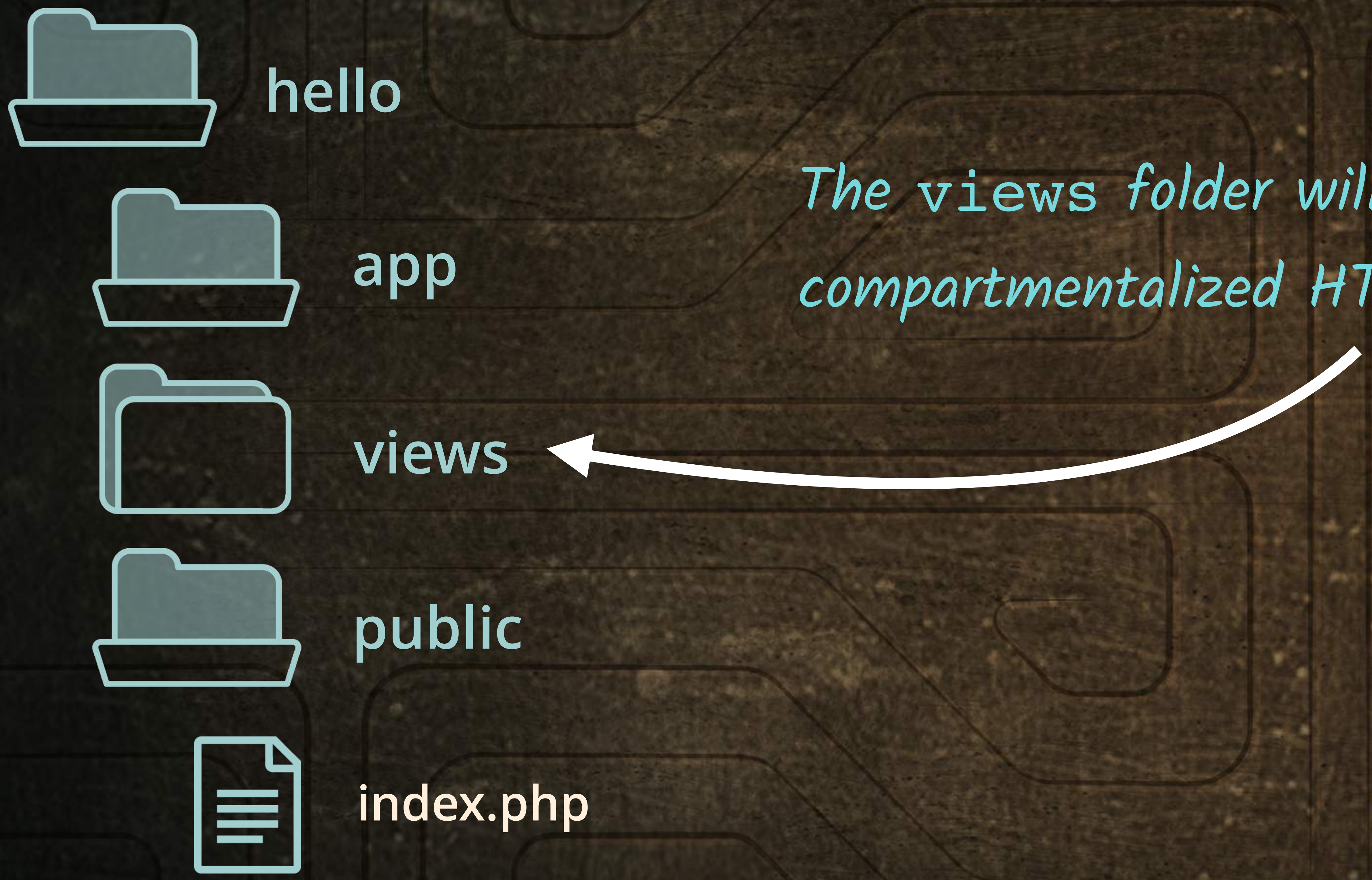
app

public

index.php

Creating a Folder for Partial HTML Files

Let’s create a **views** folder nested in the **app** folder.


hello

app

views

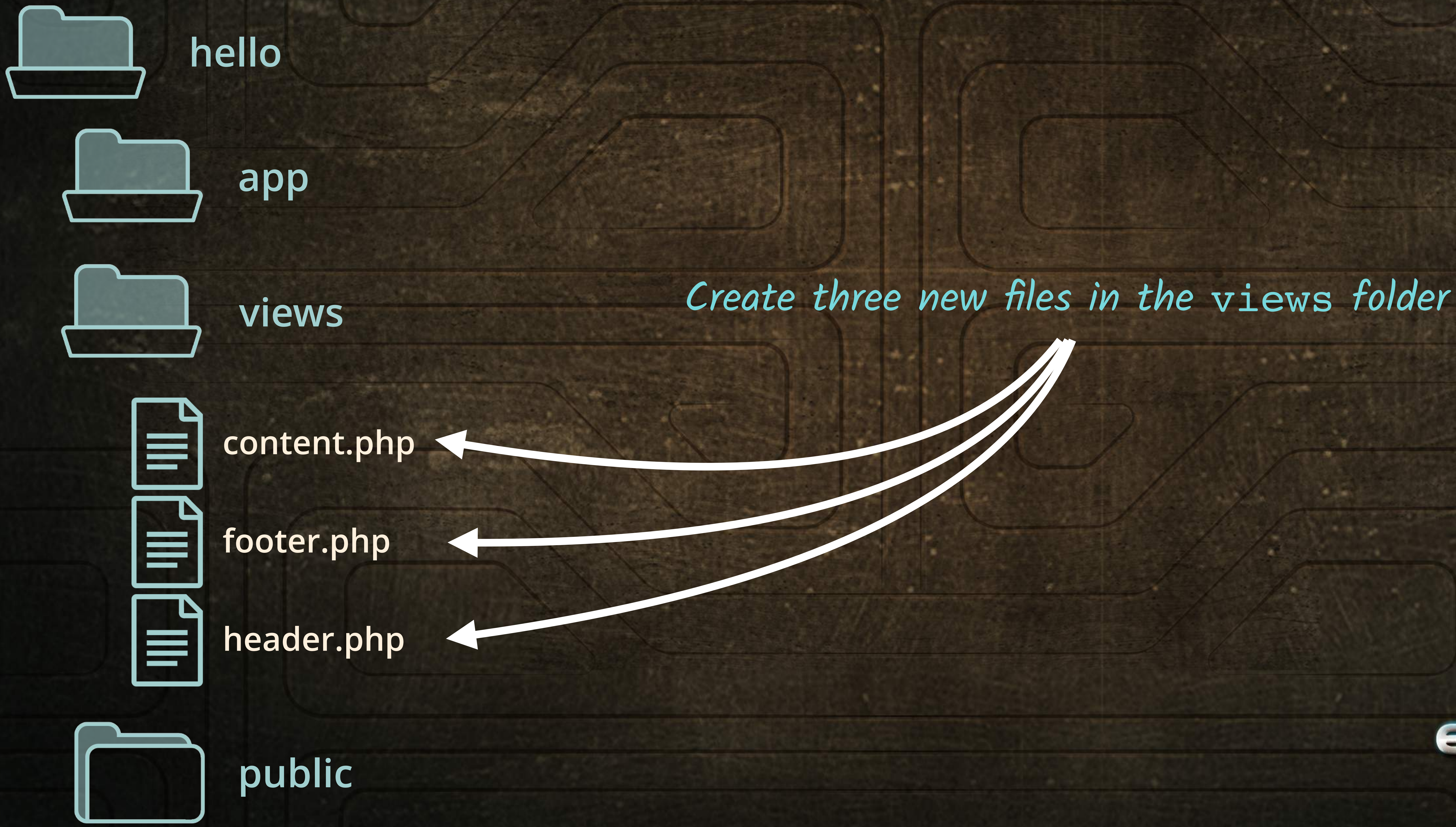
public

index.php

The `views` folder will be used to hold our new compartmentalized HTML files

Creating a Folder for Partial HTML Files

Create three new files in the **views** folder for each of our sections.



Create three new files in the `views` folder

Cutting & Pasting Into Your HTML Partials

public/index.php

```
...
<head>
  <title>PHP Demo</title>
  <meta content="width=device-
  width, initial-scale=1"
  name="viewport" />
  <link rel="stylesheet"
  href="css/application.css" />
</head>
<body>
  <header class="row row--a">
    <div class="cell well--l
    tci">
      <h1 class="mbf">Form to
      Log</h1>
    </div>
  </header>
```

Cut & Paste Into header.php

app/views/header.php

```
<header class="row row--a">
  <div class="cell well--l tci">
    <h1 class="mbf">Form to Log</h1>
  </div>
</header>
```

! *Next, we must include this file in* `index.php`

Including the header.php File

public/index.php

```
...
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initia
  <link rel="stylesheet" href="css/applicat
</head>
<body>
<?php
  include('../app/views/header.php');
?>
  <main class="row">
    <div class="states">
    </div>
    <div class="cell cell--s well--l">
      <div class="mbl">
```

app/views/header.php

```
<header class="row row--a">
  <div class="cell well--l tci">
    <h1 class="mbf">Form to Log</h1>
  </div>
</header>
```

This means look back one directory!

Repeating the Process for content.php

public/index.php

```
...
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial
  <link rel="stylesheet" href="css/applicati
</head>
<body>
<?php
  include('../app/views/header.php');
  include('../app/views/content.php');
 ?>
   <footer class="row">
     <div class="cell well">
       <p class="tac tss"></p>
     </div>
```

app/views/content.php

```
<main class="row">
  <div class="cell cell--s well--l">
    <div class="mbl">
      <form class="" action="" method=
        <label for="date">Date of Sigh
        <input type="text" name="date"
        <hr>
        <label for="email">Your Email<
        <input type="text" name="email
        <hr>
        <label for="desc">Describe the
        <textarea name="desc" rows="8"
        <br>
        <br>
```

Repeating the Process for footer.php

public/index.php

```
...
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial
  <link rel="stylesheet" href="css/applicati
</head>
<body>
<?php
  include('../app/views/header.php');
  include('../app/views/content.php');
  include('../app/views/footer.php');
?>
</body>
</html>
```

app/views/footer.php

```
<footer class="row">
  <div class="cell well">
    <p class="tac tss"></p>
  </div>
</footer>
```

New & Improved index.php File

index.php

```
...
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-scale=1" name="viewport" />
  <link rel="stylesheet" href="css/application.css" />
</head>
<body>
<?php
  include('../app/views/header.php');
  include('../app/views/content.php');
  include('../app/views/footer.php');
?>
</body>
</html>
```

CLOSE ENCOUNTERS with PHP

Level 2

Includes & Requires

Require or Throw Error

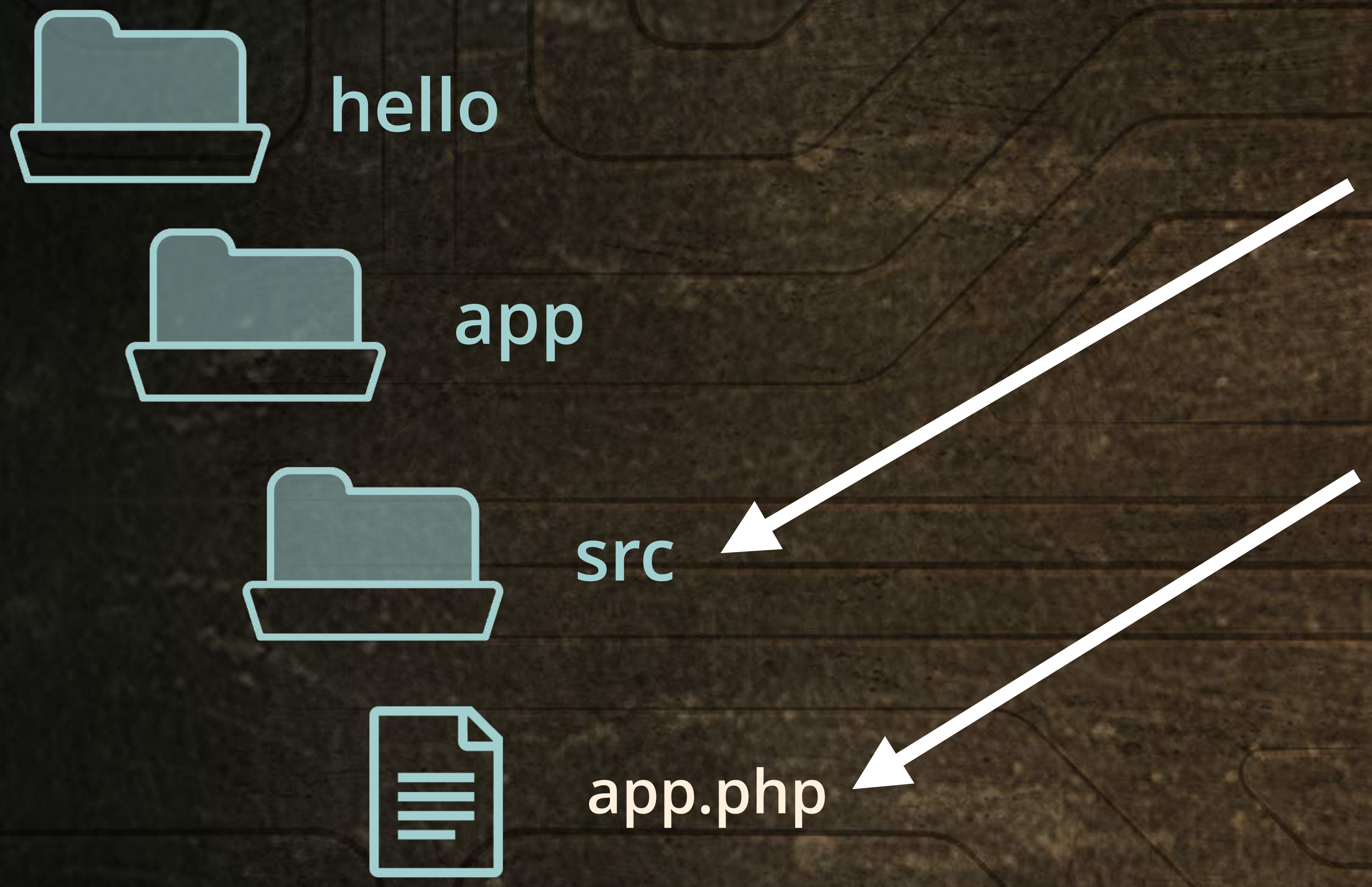
Let’s Move Our Code Out of Here!

public/index.php

```
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc'];

    echo "<p>Date: $date</p>";
    echo "<p>Email: $email</p>";
    echo "<p>$description</p>";
}
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-scale=1" name="viewport" />
  <link rel="stylesheet" href="css/application.css" />
</head>
```

New Folder & File for Our Code

Create a new folder inside our **app** folder to hold our project source.



Create a new folder named **src** nested under the **/app** directory

Create a new file named **app.php** in the new **/app/src/** directory

Copying Code From Index to App File

public/index.php

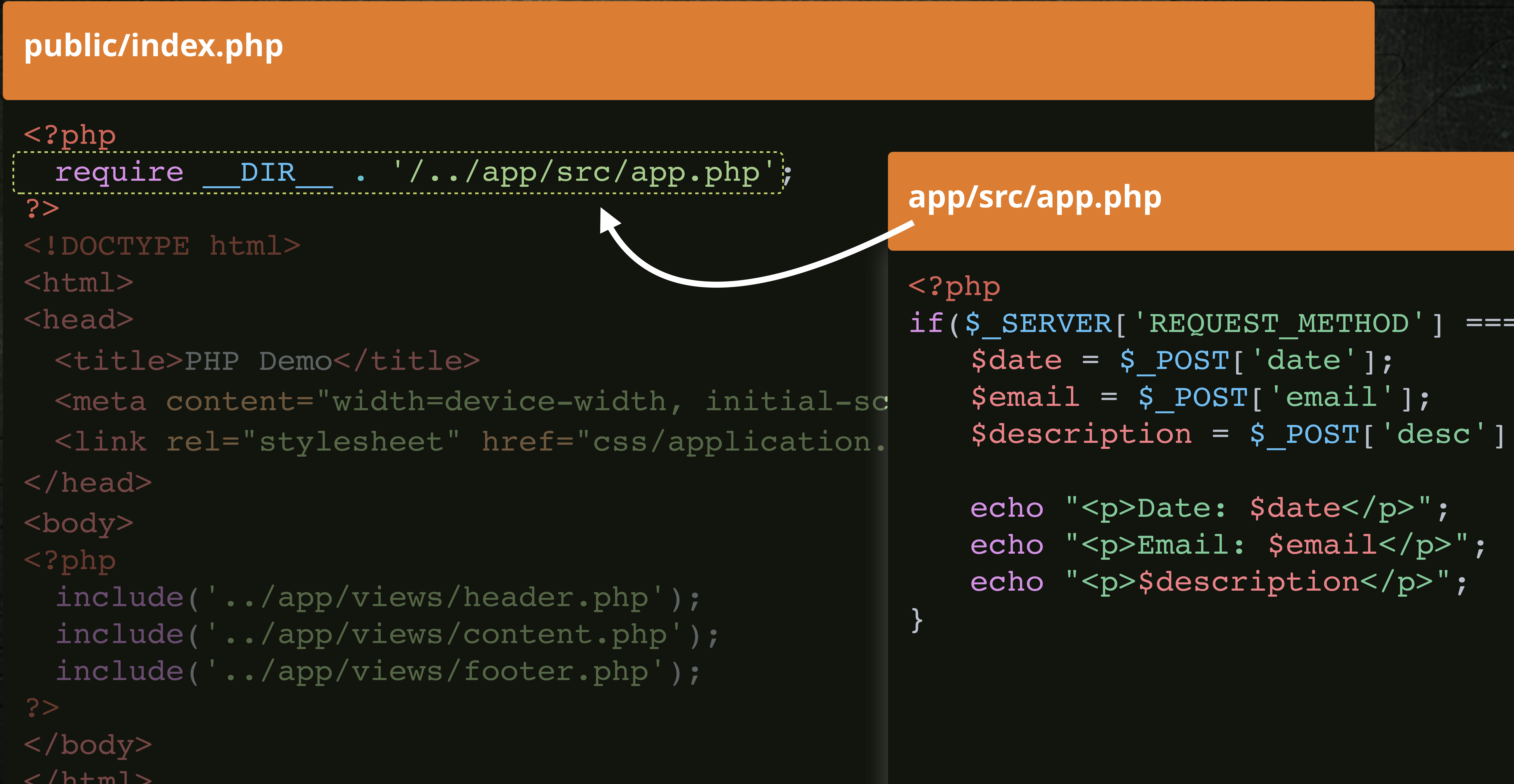
```
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
      $date = $_POST['date'];
      $email = $_POST['email'];
      $description = $_POST['desc'];

      echo "<p>Date: $date</p>";
      echo "<p>Email: $email</p>";
      echo "<p>$description</p>";
  }
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-sc
  <link rel="stylesheet" href="css/application.
</head>
```

PHP-only files don't have a ?>, or closing tag

app/src/app.php

```
<?php
if($_SERVER['REQUEST_METHOD'] ===
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc']

    echo "<p>Date: $date</p>";
    echo "<p>Email: $email</p>";
    echo "<p>$description</p>";
}
```

Requiring the App File in the Index File



public/index.php

```
<?php
  require __DIR__ . '/../app/src/app.php';
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-sc
  <link rel="stylesheet" href="css/application.
</head>
<body>
<?php
  include('../app/views/header.php');
  include('../app/views/content.php');
  include('../app/views/footer.php');
?>
</body>
</html>
```

app/src/app.php

```
<?php
if($_SERVER['REQUEST_METHOD'] ===
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc']

    echo "<p>Date: $date</p>";
    echo "<p>Email: $email</p>";
    echo "<p>$description</p>";
}
```

Require vs. Include

If a required file doesn’t exist, the entire page won’t load.

public/index.php

```
<?php
  require __DIR__ . '/../app/src/foo.php';
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-scale=1" name="viewport" />
  <link rel="stylesheet" href="css/application.css" />
</head>
<body>
<?php
  include('../app/views/header.php');
  include('../app/views/content.php');
  include('../app/views/footer.php');
?>
```

This file does not exist and will generate an error

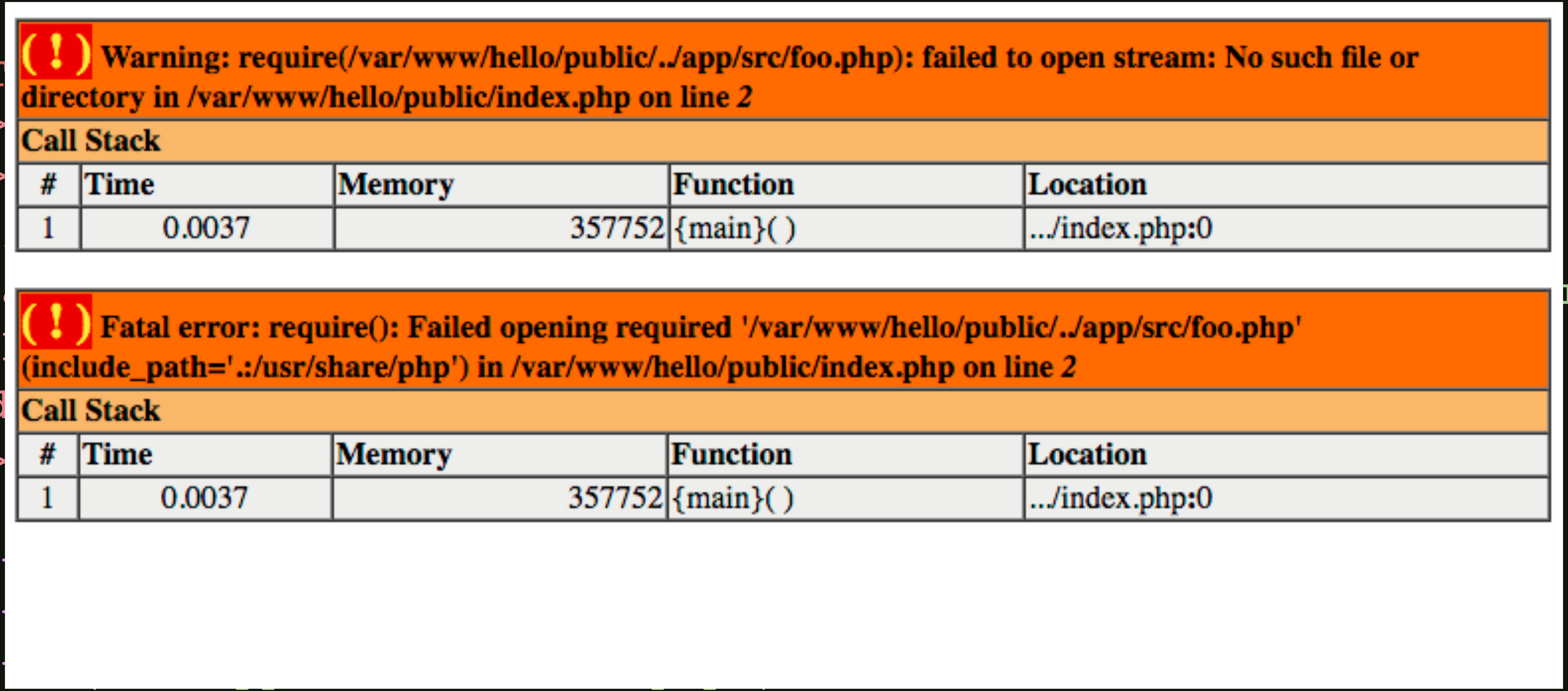
Require vs. Include

If a required file doesn’t exist, the entire page won’t load.

public/index.php

```
<?php
  require __DIR__ . '/../app/src/foo.php';
?>
<!DOCT
<html>
<head>
  <tit
  <meta                                                          rt" />
  <lin
</head
<body>
<?php
  incl
  incl
  incl
?>
```

The page will not load!



(!) Warning: require(/var/www/hello/public/../app/src/foo.php): failed to open stream: No such file or directory in /var/www/hello/public/index.php on line *2*

Call Stack

#	Time	Memory	Function	Location
1	0.0037	357752	{main}( )	.../index.php:0

(!) Fatal error: require(): Failed opening required '/var/www/hello/public/../app/src/foo.php' (include_path='.:/usr/share/php') in /var/www/hello/public/index.php on line *2*

Call Stack

#	Time	Memory	Function	Location
1	0.0037	357752	{main}( )	.../index.php:0

Require vs. Include

If an included file doesn't exist, the parts that do exist still load.

public/index.php

```
<?php
  include __DIR__ . '/../app/src/foo.php';
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-scale=1" name="viewport" />
  <link rel="stylesheet" href="css/application.css" />
</head>
<body>
<?php
  include('../app/views/header.php');
  include('../app/views/content.php');
  include('../app/views/footer.php');
?>
```

Change require *to* include

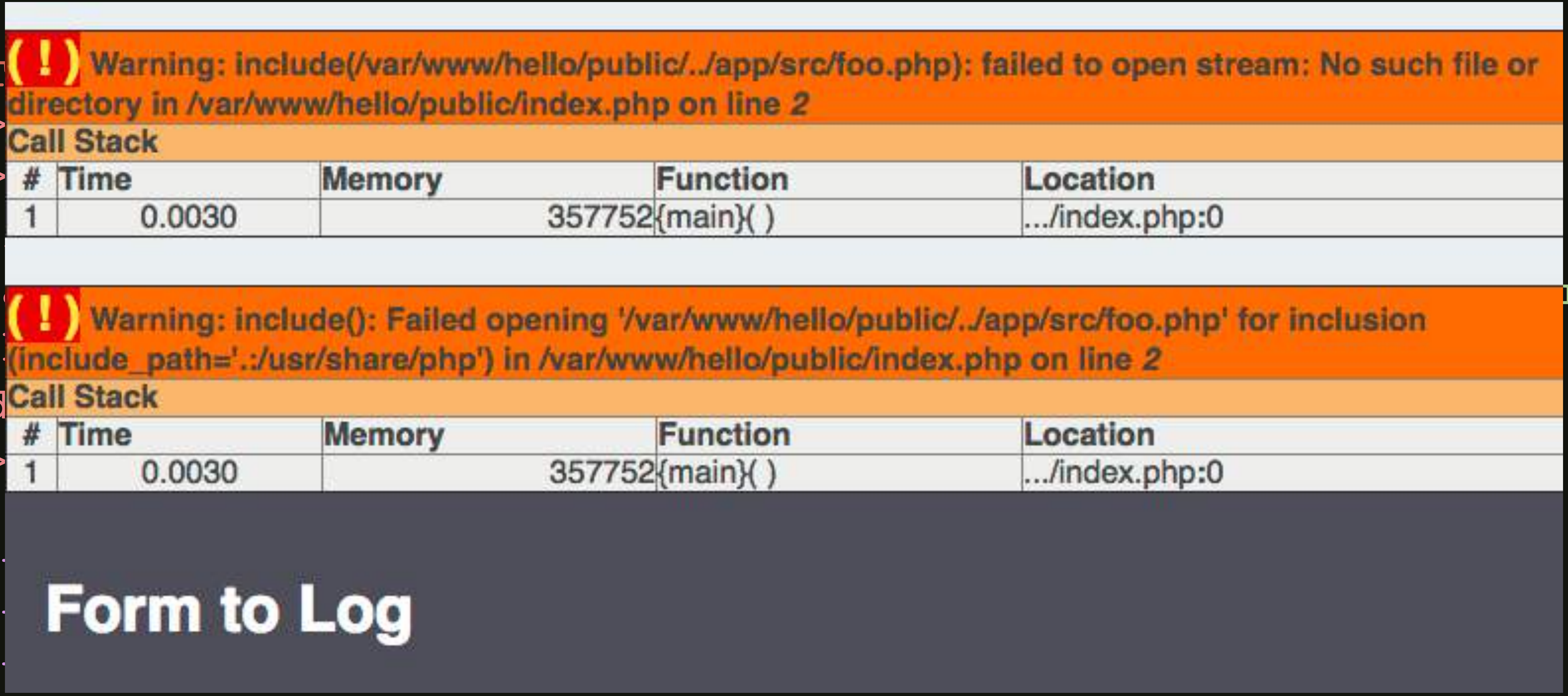
Require vs. Include

If an included file doesn't exist, the parts that do exist still load.

public/index.php

```
<?php
  include __DIR__ . '/../app/src/foo.php';
?>
<!DOCT
<html>
<head>
  <tit
  <met                                            rt" />
  <lin
</head
<body>
<?php
  incl
  incl
  incl
?>
```

The page <u>will</u> load!



(!) Warning: include(/var/www/hello/public/../app/src/foo.php): failed to open stream: No such file or directory in /var/www/hello/public/index.php on line *2*

Call Stack

#	Time	Memory	Function	Location
1	0.0030	357752	{main}( )	.../index.php:0

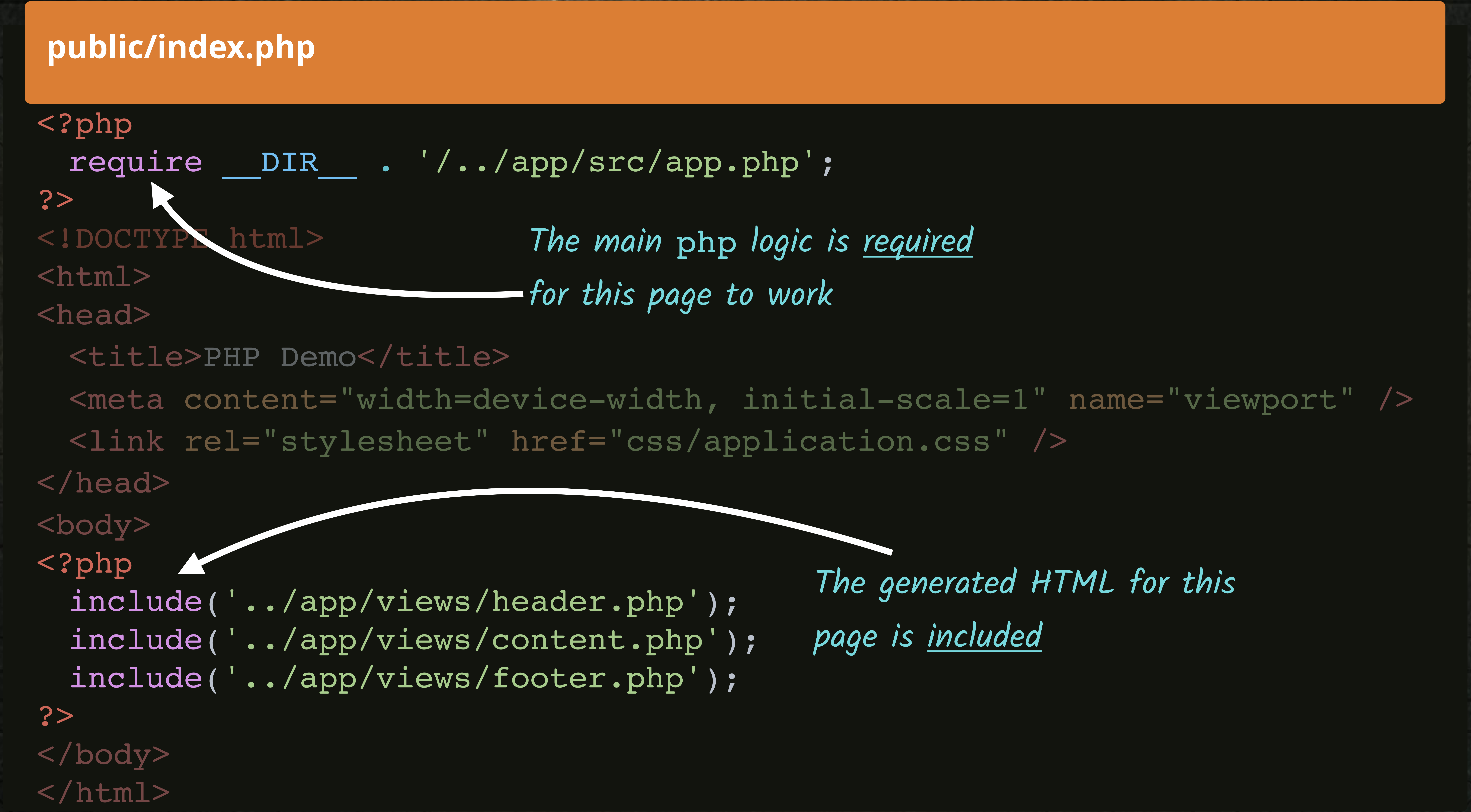
(!) Warning: include(): Failed opening '/var/www/hello/public/../app/src/foo.php' for inclusion (include_path='.:/usr/share/php') in /var/www/hello/public/index.php on line *2*

Call Stack

#	Time	Memory	Function	Location
1	0.0030	357752	{main}( )	.../index.php:0

Form to Log

The New & Improved index.php



public/index.php

```
<?php
  require __DIR__ . '/../app/src/app.php';
?>
<!DOCTYPE html>
<html>
<head>
  <title>PHP Demo</title>
  <meta content="width=device-width, initial-scale=1" name="viewport" />
  <link rel="stylesheet" href="css/application.css" />
</head>
<body>
<?php
  include('../app/views/header.php');
  include('../app/views/content.php');
  include('../app/views/footer.php');
?>
</body>
</html>
```

The main php logic is required for this page to work

The generated HTML for this page is included

CLOSE ENCOUNTERS with PHP

Level 3

Validation & Security

Validation, Always

Continuing With Our Application File

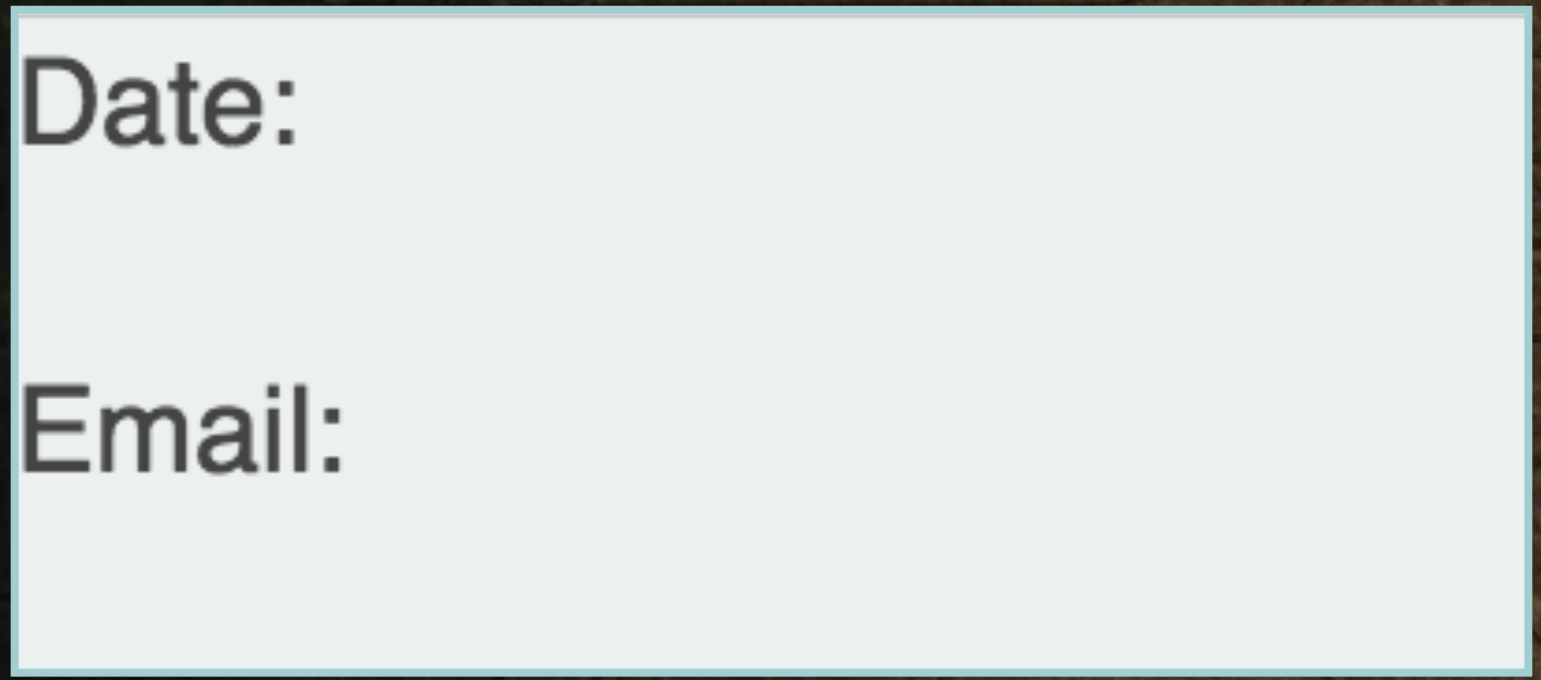
app/src/app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc'];

    echo "<p>Date: $date</p>";
    echo "<p>Email: $email</p>";
    echo "<p>$description</p>";
}
```

Submitting the Form With No Validation

Let’s look at some of the reasons we need to use validation.

- You are able to submit the form with no data
- If NULL values are stored to a database, they can cause issues when recalling the data



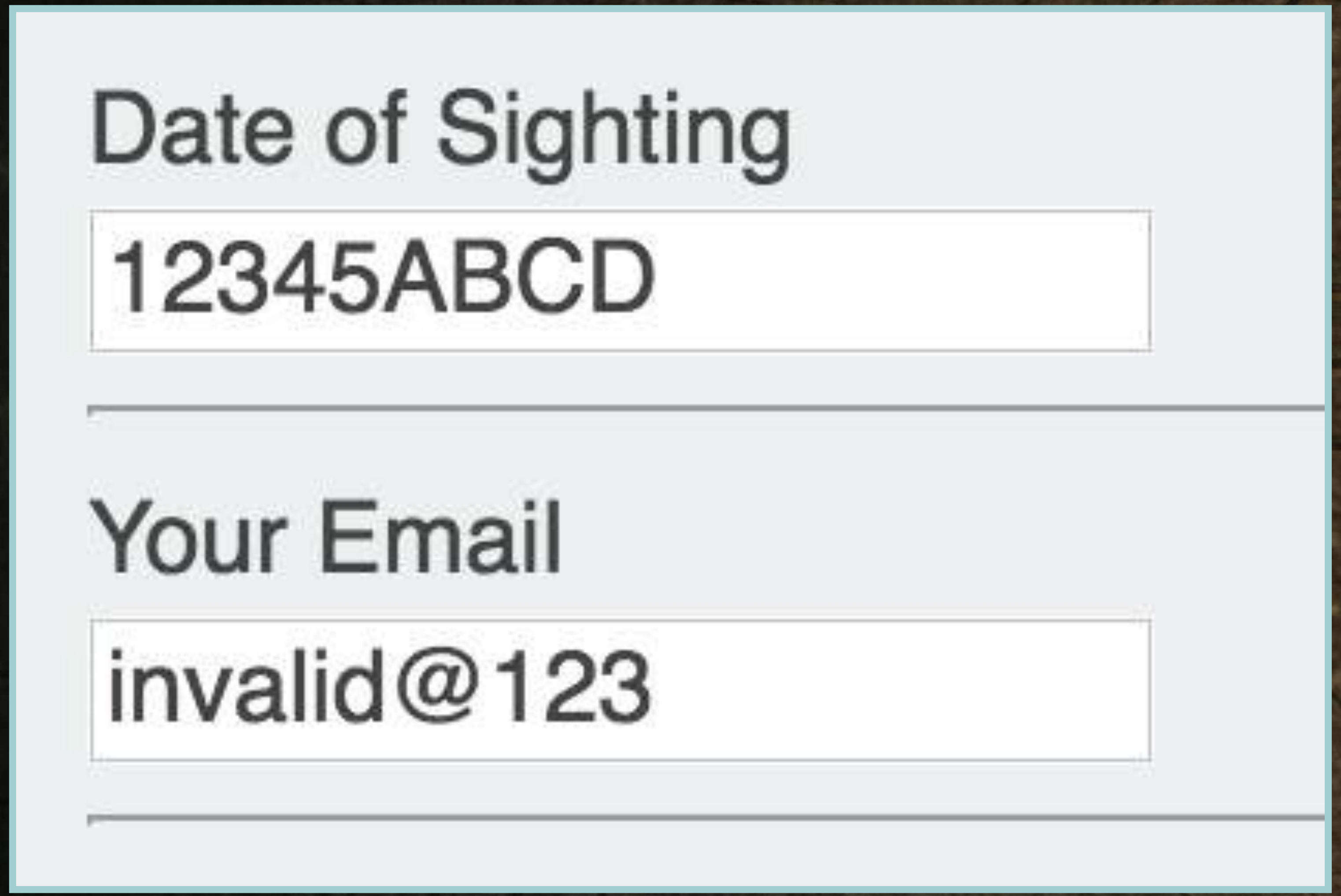
Date:

Email:

Missing or NULL values can wreak havoc on a database!

Submitting the Form With No Validation

Let’s look at some of the reasons we need to use validation.



Date of Sighting

12345ABCD

Your Email

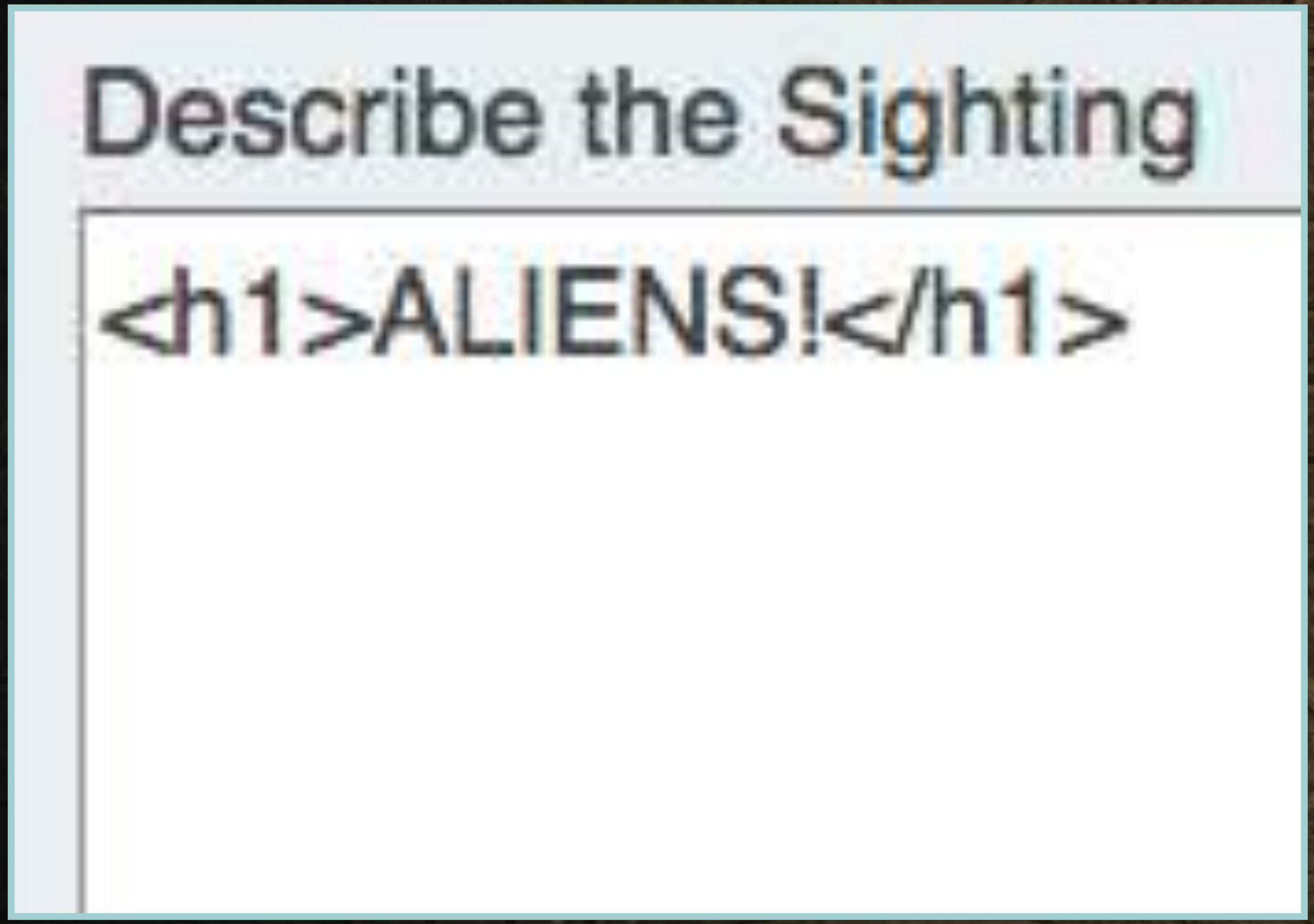
invalid@123

- You are able to submit the form with no data
- If NULL values are stored to a database, they can cause issues when recalling the data
- Invalid dates and invalid email formats will cause issues as well when being recalled from the database

An invalid date or email can break functionality of an application

Submitting the Form With No Validation

Let’s look at some of the reasons we need to use validation.



Describe the Sighting

<h1>ALIENS!</h1>

- You are able to submit the form with no data
- If NULL values are stored to a database, they can cause issues when recalling the data
- Invalid dates and invalid email formats will cause issues as well, when being recalled from the database
- We will need to strip out any HTML or other code for security and formatting
- Otherwise, we will need to redirect back to the form!

HTML and other code must be removed for security!

CLOSE ENCOUNTERS with PHP

app/src/app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc'];

    echo "<p>Date: $date</p>";
    echo "<p>Email: $email</p>";
    echo "<p>$description</p>";
}
```

Validation to Do:

$date exists

$email exists

$description exists

remove whitespace

sanitize output

validate email

validate date

Validation of Existence

app/src/app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc'];

    if (!empty($date)) {
        echo "<p>Date: $date</p>";
    }

    echo "<p>Email: $email</p>";
    echo "<p>$description</p>";
}
```

Validate that $date exists and is not empty

Run code ONLY when if evaluates to true

Validation to Do:

- $date exists ✓
- $email exists
- $description exists
- remove whitespace
- sanitize output
- validate email
- validate date

Validation of Existence

Validation to Do:

- $date exists ✓
- $email exists ✓
- $description exists ✓
- remove whitespace
- sanitize output
- validate email
- validate date

app/src/app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = $_POST['date'];
    $email = $_POST['email'];
    $description = $_POST['desc'];

    if (!empty($date) && !empty($email) && !empty($description)) {
        echo "<p>Date: $date</p>";
        echo "<p>Email: $email</p>";
        echo "<p>$description</p>";
    }
}
```

&& represents the logical operator for "and"

Validate that all three exist and are not empty

Validation of Content

app/src/app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = trim($_POST['date']);
    $email = trim($_POST['email']);
    $description = trim($_POST['desc']);

    if (!empty($date) && !empty($email) && !empty($description)) {
        echo "<p>Date: $date</p>";
        echo "<p>Email: $email</p>";
        echo "<p>$description</p>";
    }
}
```

`trim` *will remove any leading or trailing whitespace*

Validation to Do:

- $date exists ✓
- $email exists ✓
- $description exists ✓
- remove whitespace ✓
- sanitize output
- validate email
- validate date

Filter Input, Sanitize Output

app/src/app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = trim($_POST['date']);
    $email = trim($_POST['email']);
    $description = trim($_POST['desc']);

    if (!empty($date) && !empty($email) && !empty($description)) {
        echo "<p>Date: $date</p>";
        echo "<p>Email: $email</p>";
        echo '<p>' . htmlspecialchars($description) . '</p>';
    }
}
```

`htmlspecialchars` *encodes a string to HTML entities*

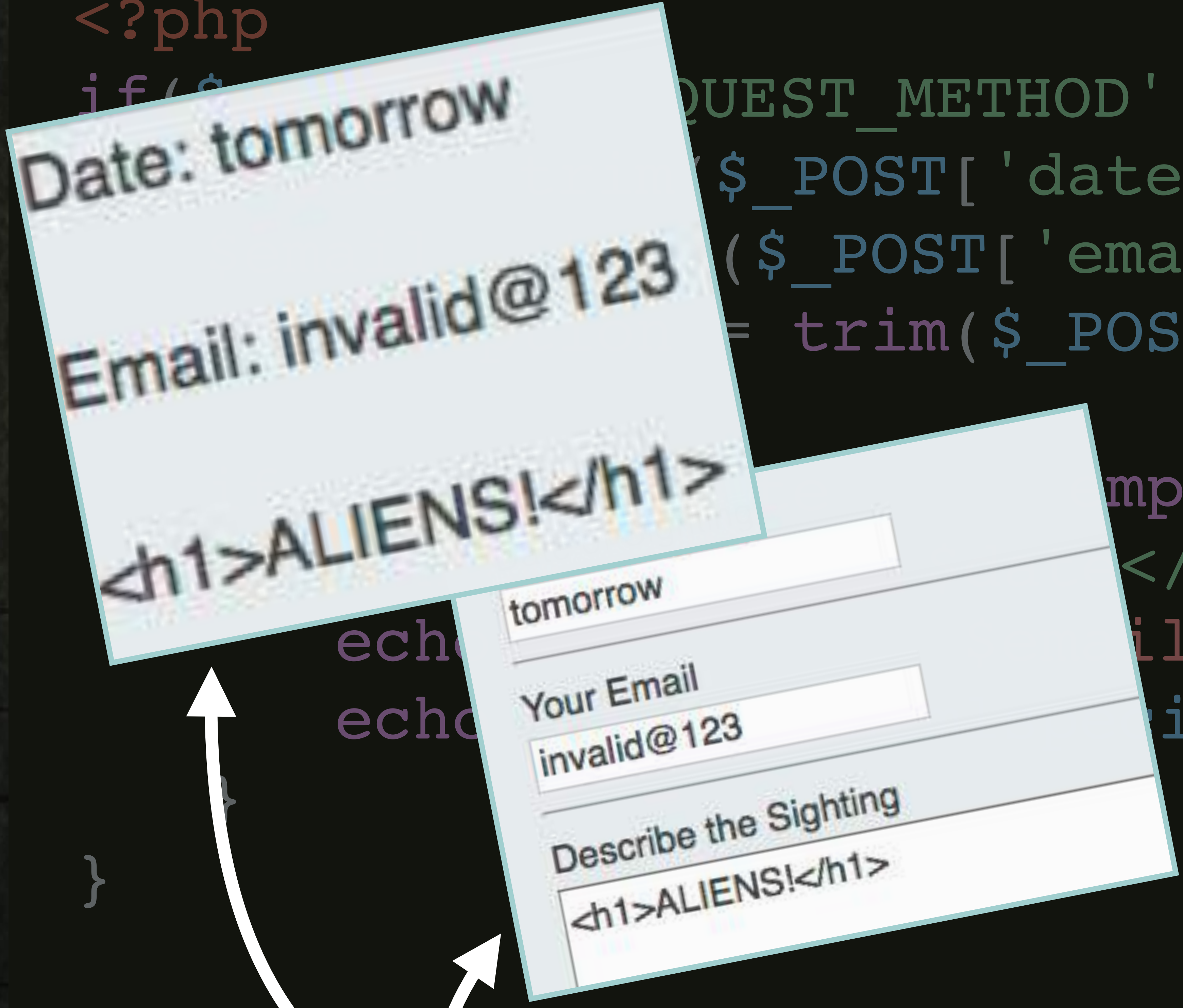
Validation to Do:

- $date exists ✓
- $email exists ✓
- $description exists ✓
- remove whitespace ✓
- sanitize output ✓
- validate email
- validate date

Filter Input, Sanitize Output

app/src/app.php

```
<?php
if($      QUEST_METHOD'] === 'POST')) {
               ($_POST['date']);
                ($_POST['email']);
                 = trim($_POST['desc']);

                            mpty($email) && !empty($description)) {
                                     </p>";
    ech                               il</p>";
    ech                               ialchars($description) . '</p>';
    }
}
```



Date: tomorrow

Email: invalid@123

<h1>ALIENS!</h1>

tomorrow

Your Email

invalid@123

Describe the Sighting

<h1>ALIENS!</h1>

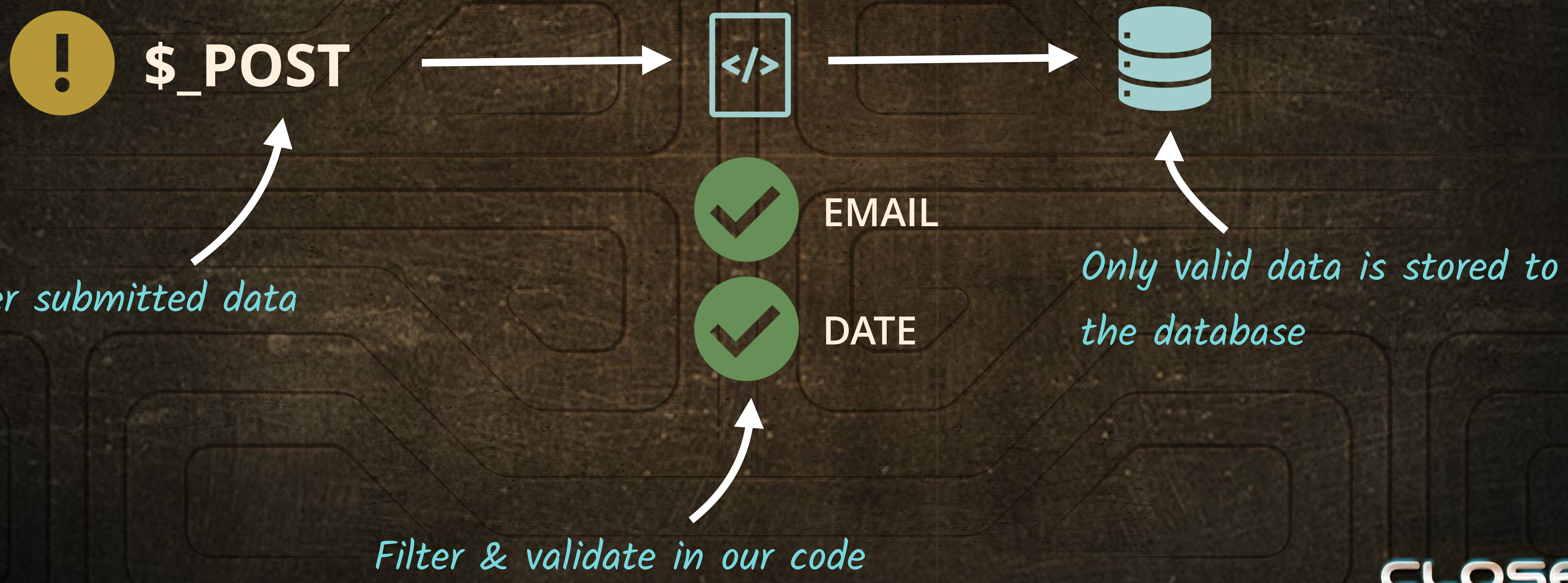
If the user submits HTML, now they are encoded

Validation to Do:

- $date exists ✓
- $email exists ✓
- $description exists ✓
- remove whitespace ✓
- sanitize output ✓
- validate email
- validate date

Filtering & Sanitizing in Review

Why do we filter input and sanitize our output?



$_POST

EMAIL

DATE

User submitted data

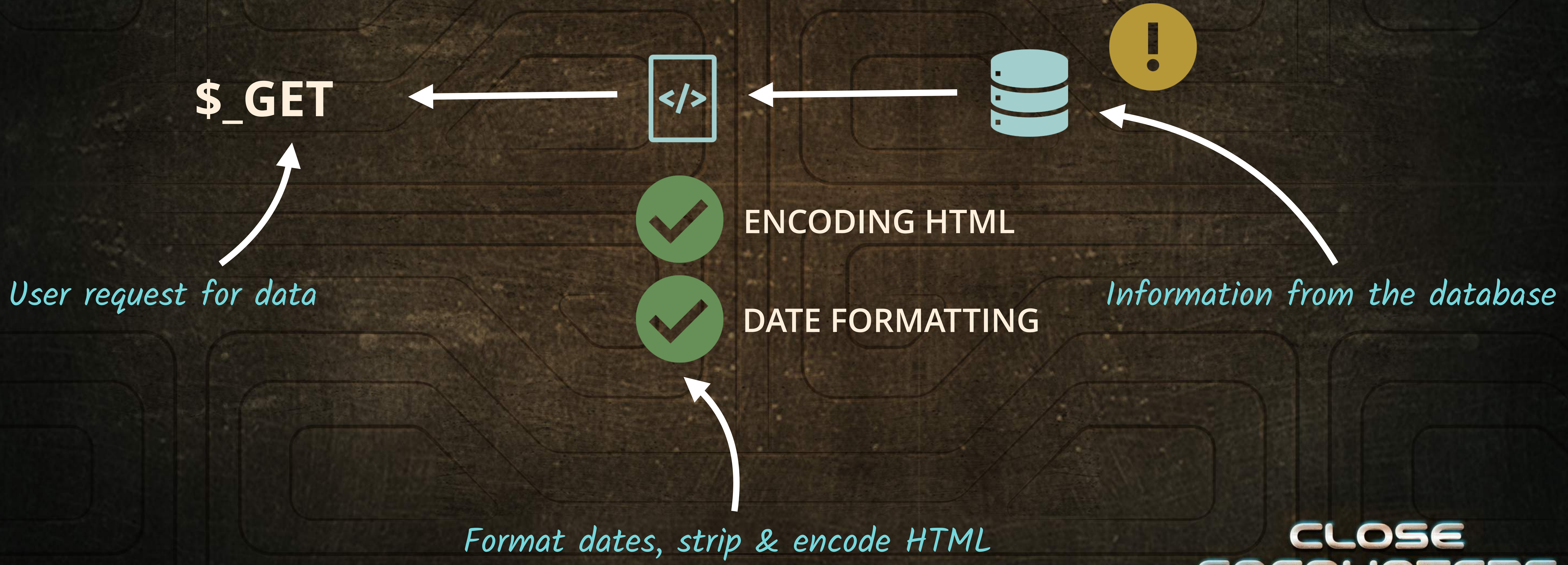
Only valid data is stored to the database

Filter & validate in our code

CLOSE ENCOUNTERS with PHP

Filtering & Sanitizing in Review

Why do we filter input and sanitize our output?



$_GET
</>
✓ ENCODING HTML
✓ DATE FORMATTING
!
User request for data
Information from the database
Format dates, strip & encode HTML

CLOSE ENCOUNTERS with PHP

CLOSE ENCOUNTERS with PHP

Level 3

Validation & Security

Email & Date Validation

Where Are We With Our List?

app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = trim($_POST['date']);
    $email = trim($_POST['email']);
    $description = trim($_POST['desc']);

    if (!empty($date) && !empty($email) && !empty($description)) {
        echo "<p>Date: $date</p>";
        echo "<p>Email: $email</p>";
        echo '<p>' . htmlspecialchars($description) . '</p>';
    }
}
```

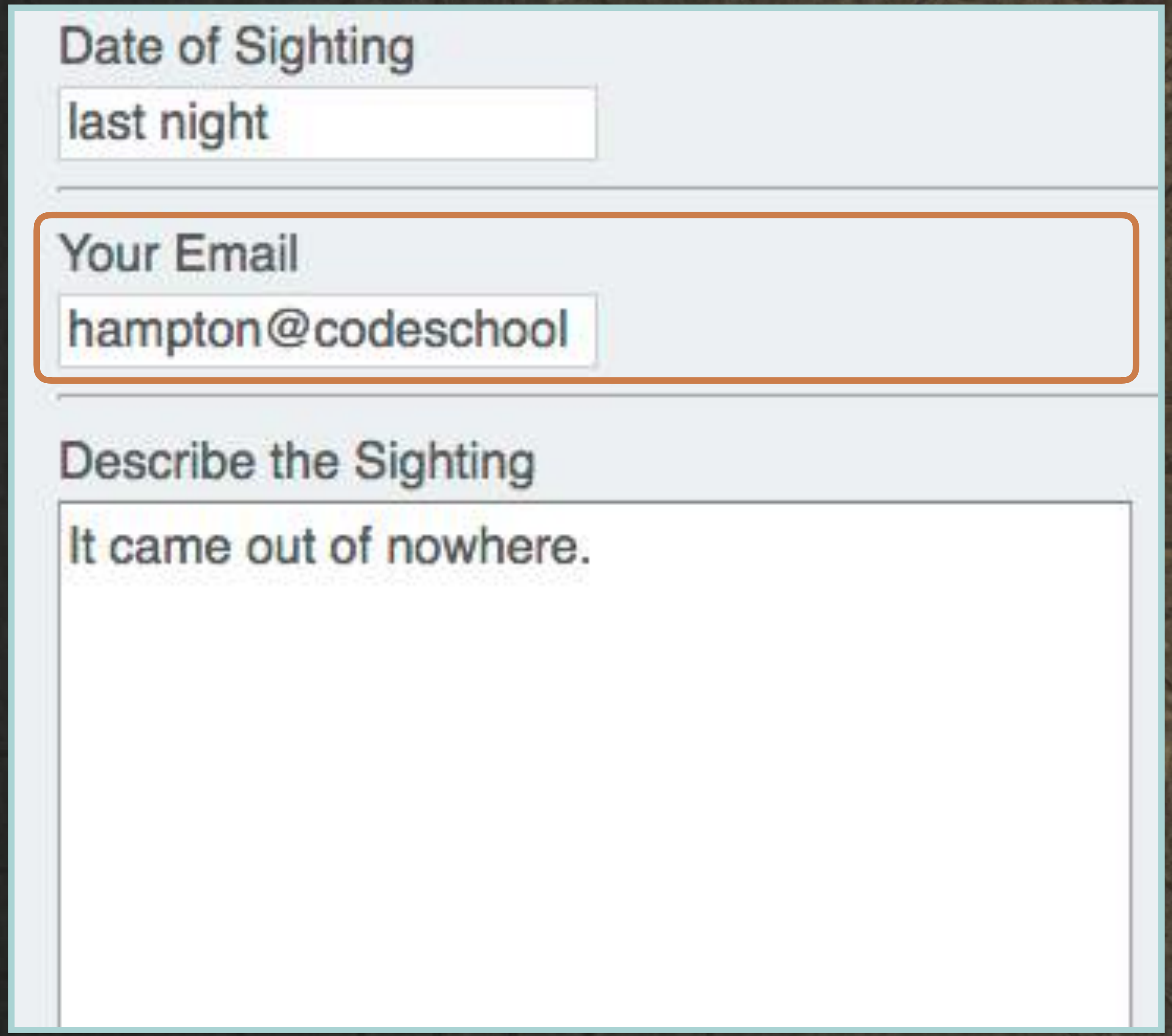
Validation to Do:

- $date exists ✓
- $email exists ✓
- $description exists ✓
- remove whitespace ✓
- sanitize output ✓
- validate email
- validate date

Validating the Email Address

Let’s test to see if the email is valid before echoing the value.

Form Before Submit



Date of Sighting

last night

Your Email

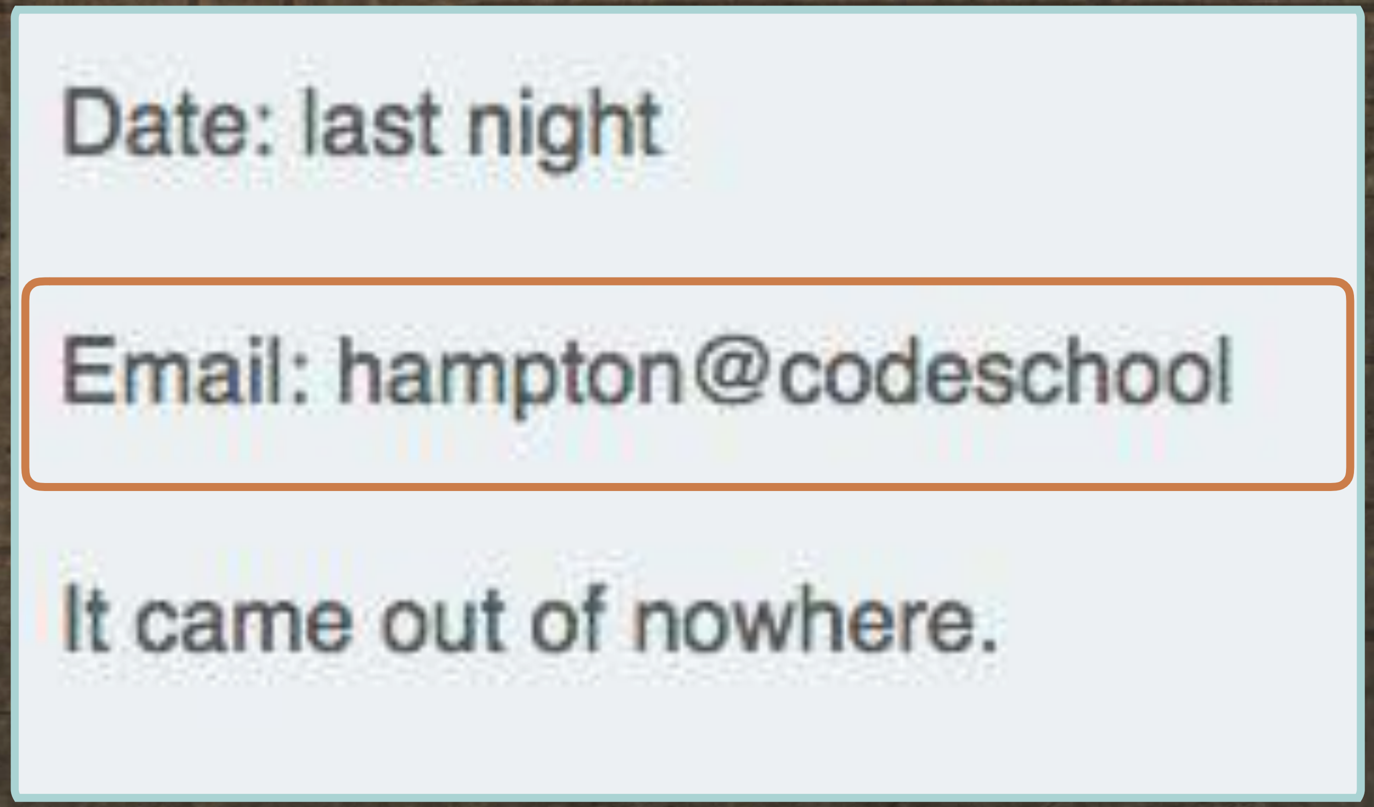
hampton@codeschool

Describe the Sighting

It came out of nowhere.

Using `hampton@codeschool` *as an example of an invalid email address*

Results After Submit



Date: last night

Email: hampton@codeschool

It came out of nowhere.

Submitting the form still echoes the invalid email!

We will need to test that our email complies with email address standards

Validation of Email Address

Validation to Do:

- $date exists ✓
- $email exists ✓
- $description exists ✓
- remove whitespace ✓
- sanitize output ✓
- validate email ✓
- validate date

app.php

```php
<?php
if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = trim($_POST['date']);
    $email = trim($_POST['email']);
    $description = trim($_POST['desc']);

    if (!empty($date) && !empty($email) && !empty($description)) {
        echo "<p>Date: $date</p>";
        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
            echo "<p>Email: $email</p>";
        }
        echo '<p>' . htmlspecialchars($description) . '</p>';
    }
}
```

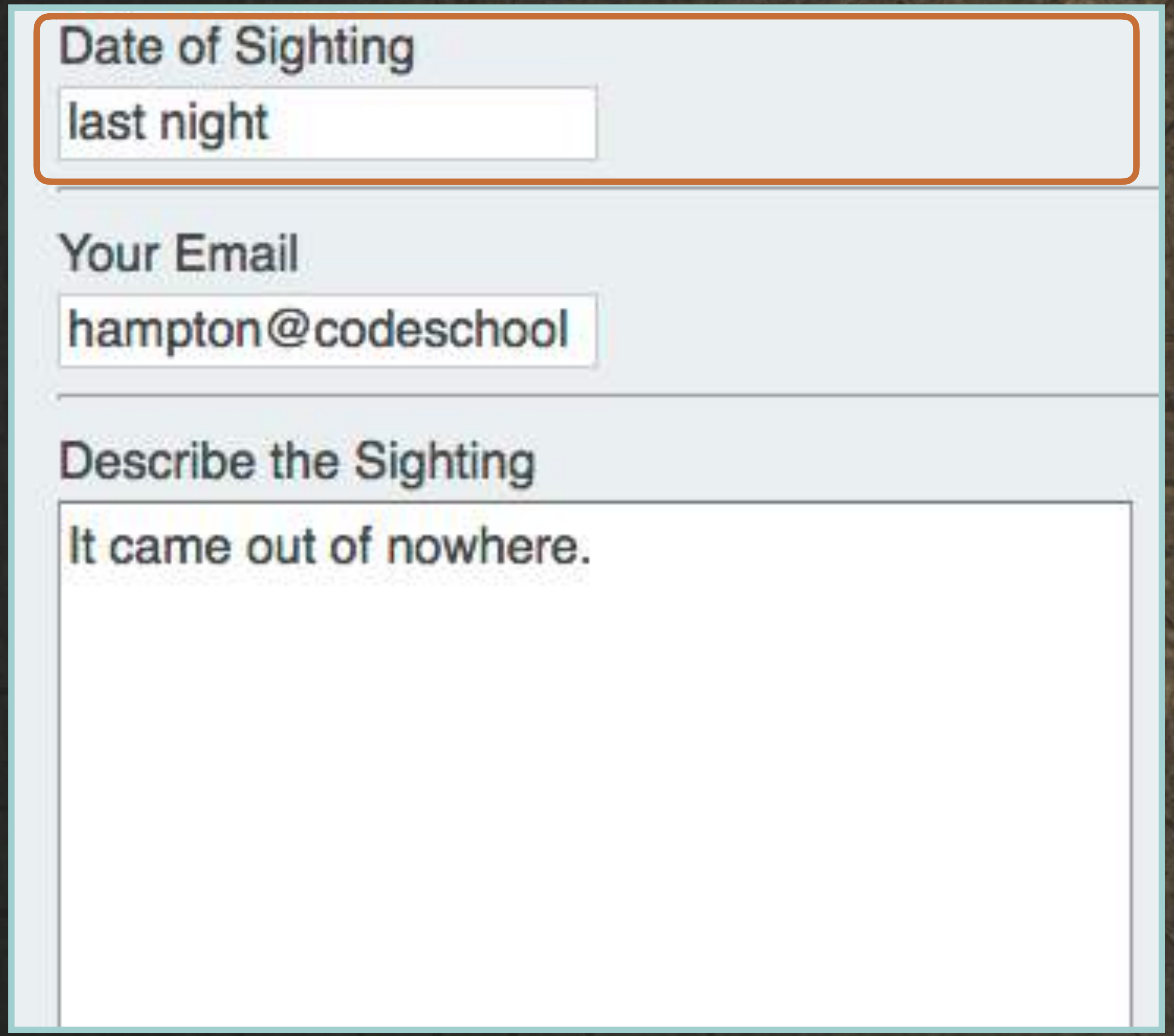
This is a PHP filter constant

`filter_var` *checks a variable against a filter and returns TRUE if it passes*

Validating the Date

Test to see if the date is valid, allow relative dates, and then format it.

Form Before Submit



Date of Sighting

last night

Your Email

hampton@codeschool

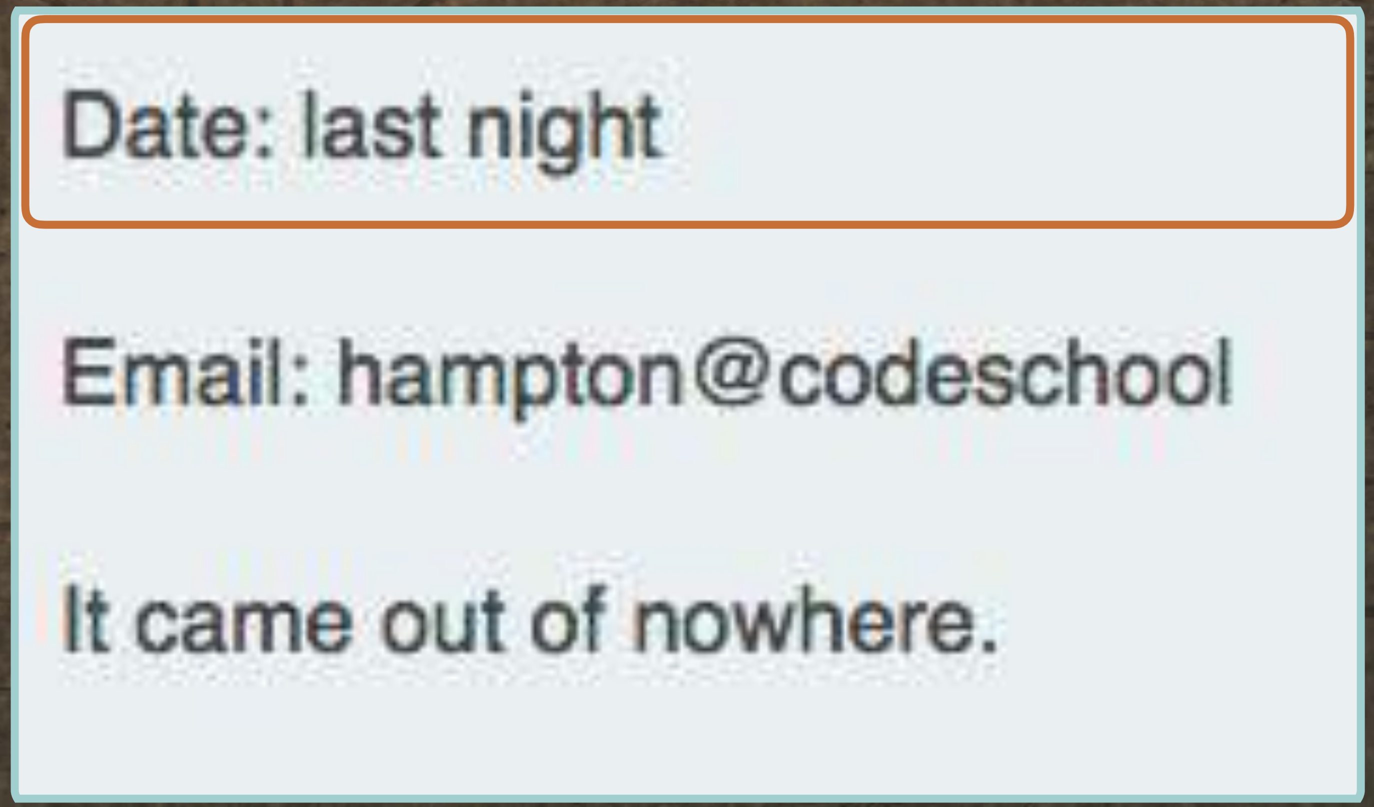
Describe the Sighting

It came out of nowhere.

Relative dates are fun, but this one is invalid.

We need to test that it is a valid date first!

Results After Submit



Date: last night

Email: hampton@codeschool

It came out of nowhere.

Dates need formatting for UX consistency

Validation of a Date

app.php

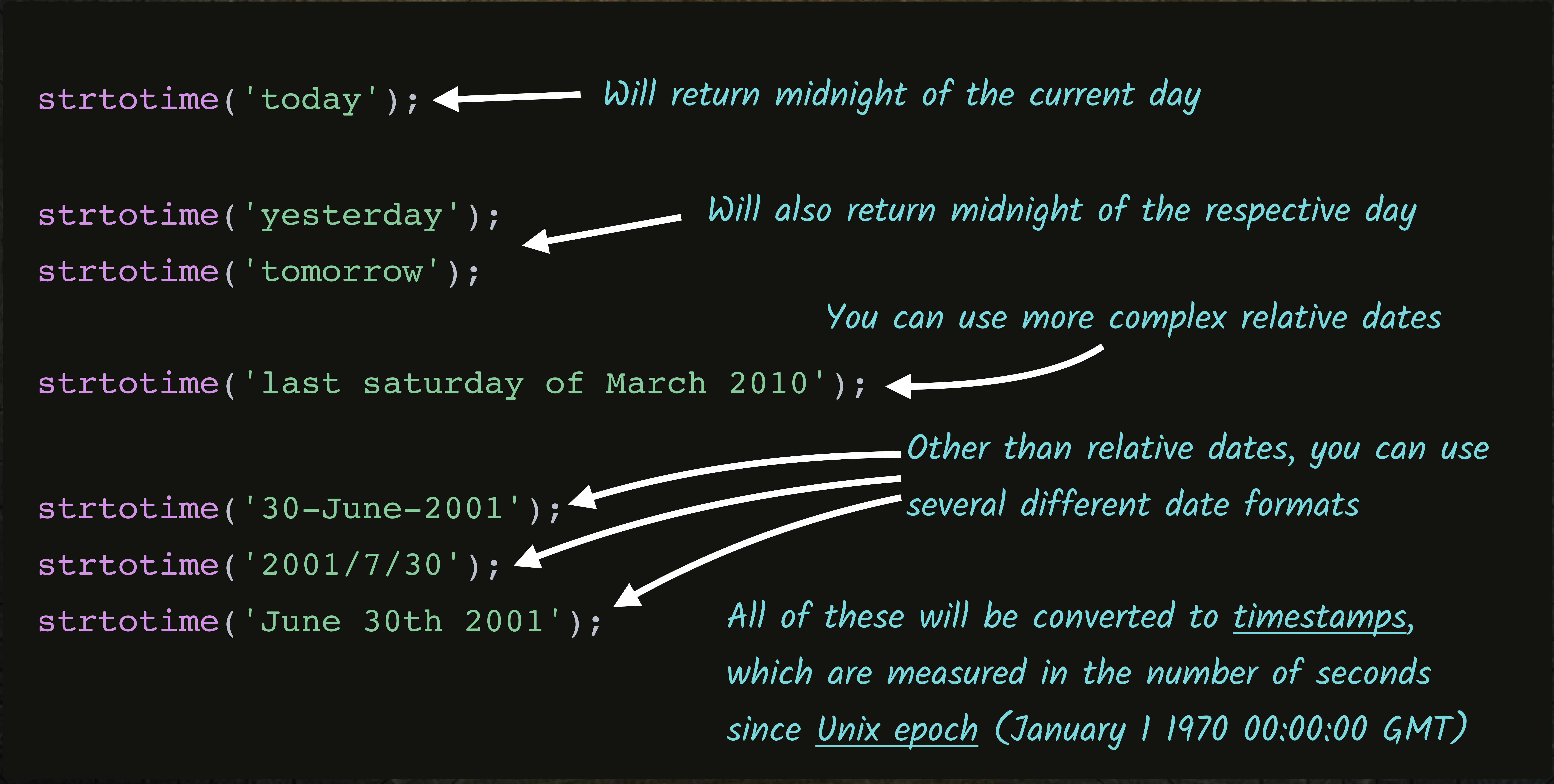
```
<?php
...
    if (!empty($date) && !empty($email) && !empty($description)) {

        if ($time = strtotime($date)) {
            echo "<p>Date: $date</p>";
        }

        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
            echo "<p>Email: $email</p>";
        }
        echo '<p>' . htmlspecialchars($description) . '</p>';
    }
}
```

`strtotime` will convert most any date to a Unix timestamp

We are running `strtotime` and storing the timestamp in the `$time` variable

Relative Formats Using strtotime

The strtotime function accepts many date formats, including these relative formats.



```
strtotime('today');

strtotime('yesterday');
strtotime('tomorrow');

strtotime('last saturday of March 2010');

strtotime('30-June-2001');
strtotime('2001/7/30');
strtotime('June 30th 2001');
```

Will return midnight of the current day

Will also return midnight of the respective day

You can use more complex relative dates

Other than relative dates, you can use several different date formats

All of these will be converted to timestamps, which are measured in the number of seconds since Unix epoch (January 1 1970 00:00:00 GMT)

Converting the Timestamp Into a Date

app.php

```
<?php
...
    if (!empty($date) && !empty($email) && !empty($description)) {

        if ($time = strtotime($date)) {
            echo "<p>Date: date('F jS Y',$time)</p>";
        }

        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
            echo "<p>Email: $email</p>";
        }
        echo '<p>' . htmlspecialchars($description) . '</p>';
    }
}
```

`date` *will make our timestamp human readable*

If the date is 1-1-2000, `'F jS Y'` *will return* `'January 1st 2001'`

Date Format Strings

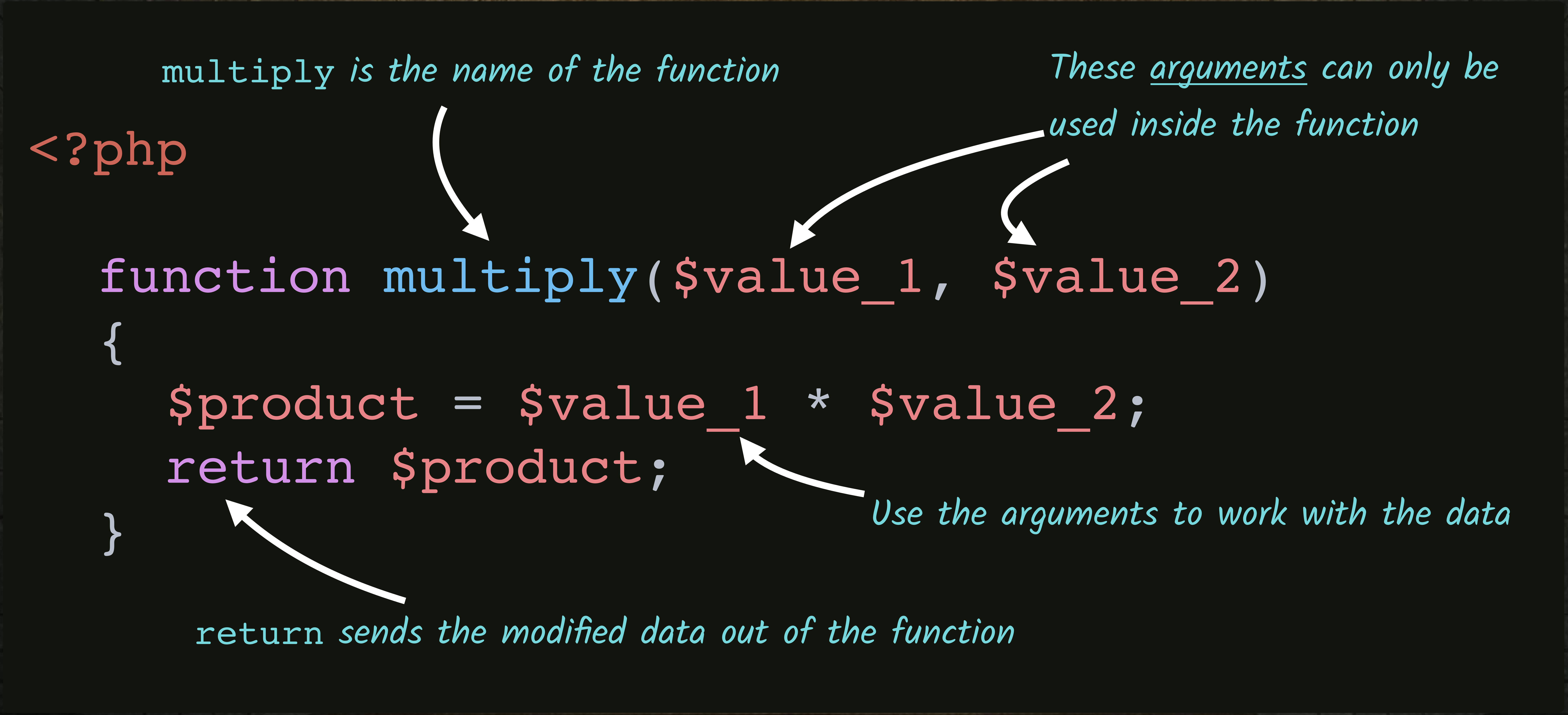
The date function can take many different format strings as well as some PHP constants.

```
date('m/d/Y', $timestamp);  →  Both month and day have leading zeros
> 03/14/2015

date('F jS Y', $timestamp);  →  Full month with ordinal suffix
> March 14th 2015

date('l \t\h\e jS \o\f F', $timestamp);  →  Using \ to escape characters
> Saturday the 14th of March

date('W', $timestamp);  →  This will return the week number of 2015
> 11

date(DATE_ATOM, $timestamp);  →  ATOM, which is the format for MySQL
> 2015-03-14T00:00:00+00:00
```

Even more formatting options can be found in the docs at go.codeschool.com/php-date

Custom Function for Validation

We can create a reusable block of custom code called a function.



```
<?php

  function multiply($value_1, $value_2)
  {
    $product = $value_1 * $value_2;
    return $product;
  }
```

multiply *is the name of the function*

These arguments can only be used inside the function

Use the arguments to work with the data

return *sends the modified data out of the function*

Custom Function for Validation

We can create a reusable block of custom code called a function.

```php
<?php

    function multiply($value_1, $value_2)
    {
        $product = $value_1 * $value_2;
        return $product;
    }
```

`echo multiply(5, 7);` → 35

`echo multiply(42, 0);` → 0

`echo multiply(3, 14);` → 42

`echo multiply(12, 24);` → 288

No matter what combination of integers we feed into the function, we will always get the product of the two

Creating a Function for Validation

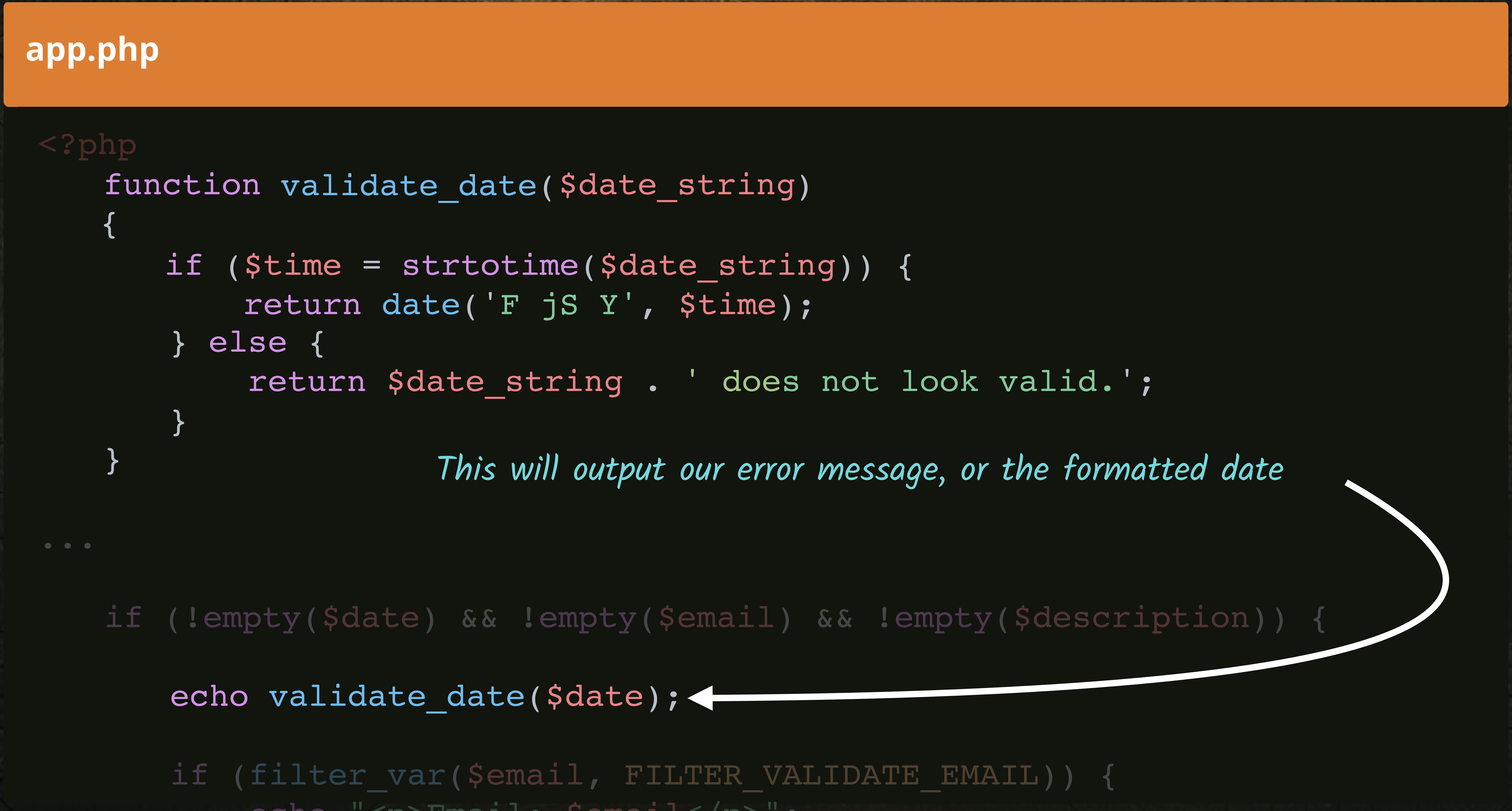
app.php

```
<?php
    function validate_date($date_string)
    {
        if ($time = strtotime($date_string)) {
            return date('F jS Y', $time);
        } else {
            return $date_string . ' does not look valid.';
        }
    }

...

    if (!empty($date) && !empty($email) && !empty($description)) {

        if ($time = strtotime($date)) {
            echo "<p>Date: date('F jS Y',$date)</p>";
        }
        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
```

validate_date *is the name of our function*

Return a string error with the date_string *included*

Using Our New Function



app.php

```
<?php
    function validate_date($date_string)
    {
        if ($time = strtotime($date_string)) {
            return date('F jS Y', $time);
        } else {
            return $date_string . ' does not look valid.';
        }
    }

...

    if (!empty($date) && !empty($email) && !empty($description)) {

        echo validate_date($date);

        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
            echo "<p>Email: $email</p>";
```

This will output our error message, or the formatted date

Custom Validation Recap!

Let's walk through what we learned in this section.

- PHP's **filter_var** combined with built-in constants to validate our email address
- The **strtotime** function and converting relative/human-readable dates into Unix timestamps
- The date function and all its different types of formatting options
- Creating and using custom functions

CLOSE ENCOUNTERS with PHP

CLOSE ENCOUNTERS with PHP

Level 4

Composer & Autoloading

Refactoring to a Standard

PHP Standards Recommendations (PSR)

PSRs are recommended by the PHP Framework Interop Group, or the PHP-FIG.

PSR-1. Basic Coding Standard

PSR-2. Coding Style Guide

PSR-3. Logger Interface

PSR-4. Autoloading Standard

PSR-6. Caching Interface

PSR-7. HTTP Message Interface

PHP Standards Recommendations (PSR)

PSRs are recommended by the PHP Framework Interop Group, or the PHP-FIG.

PSR-1. Basic Coding Standard

Sets standard coding elements to ensure a good fit between shared PHP projects

PSR-2. Coding Style Guide

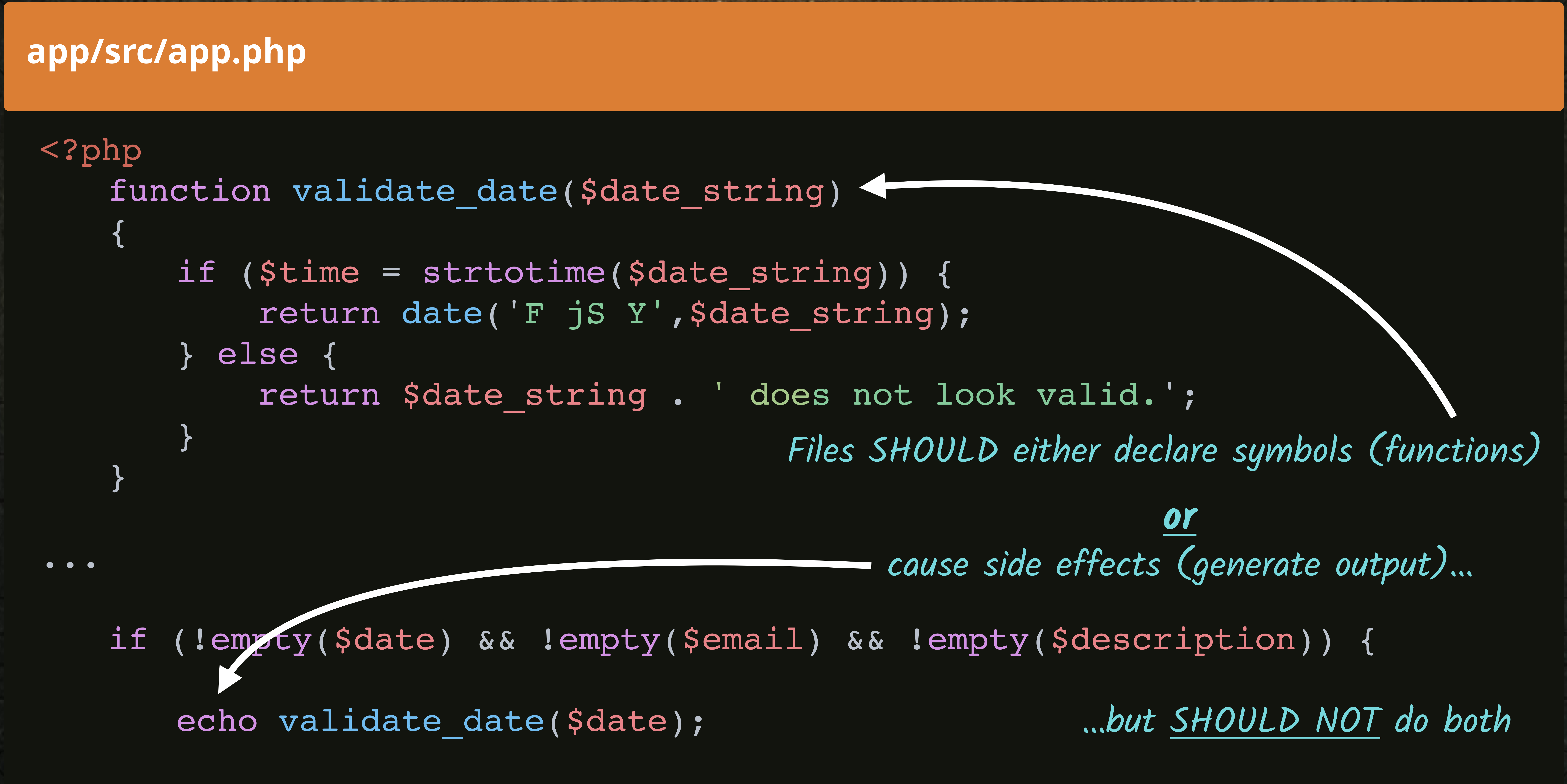
Sets a standard for readability within our code

Both of these PSRs and more can be found at ***go.codeschool.com/psr***

CLOSE ENCOUNTERS with PHP

Coding to a Standard With PSR-1

PHP Standards Recommendations #1 is the PHP Basic Coding Standard.



app/src/app.php

```
<?php
    function validate_date($date_string)
    {
        if ($time = strtotime($date_string)) {
            return date('F jS Y',$date_string);
        } else {
            return $date_string . ' does not look valid.';
        }
    }

...

    if (!empty($date) && !empty($email) && !empty($description)) {

        echo validate_date($date);
```

Files SHOULD either declare symbols (functions)

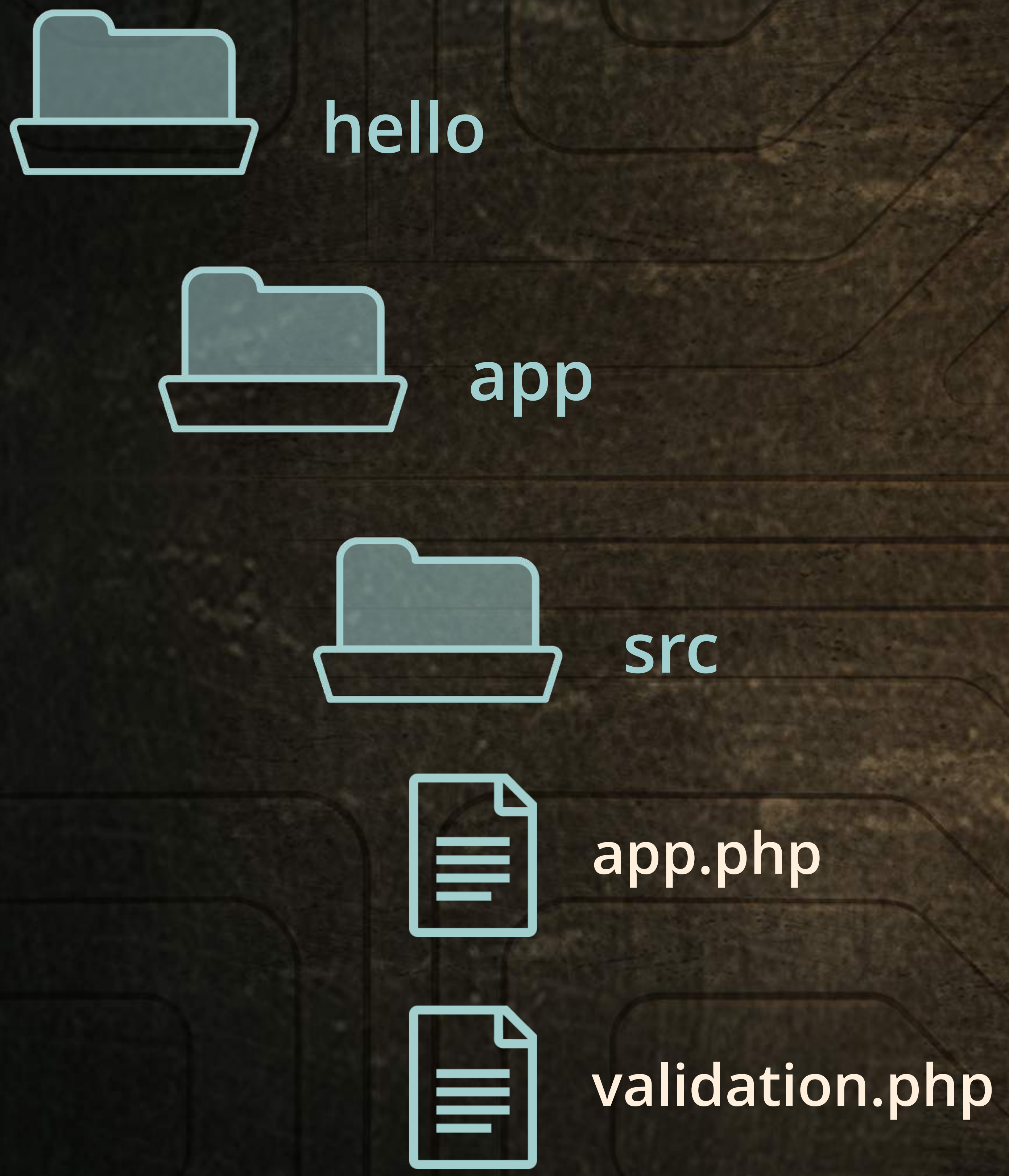
or

cause side effects (generate output)...

...but SHOULD NOT do both

Creating a Validation Function File

Create a validation.php **file nested in the** app **folder.**



hello

app

src

app.php

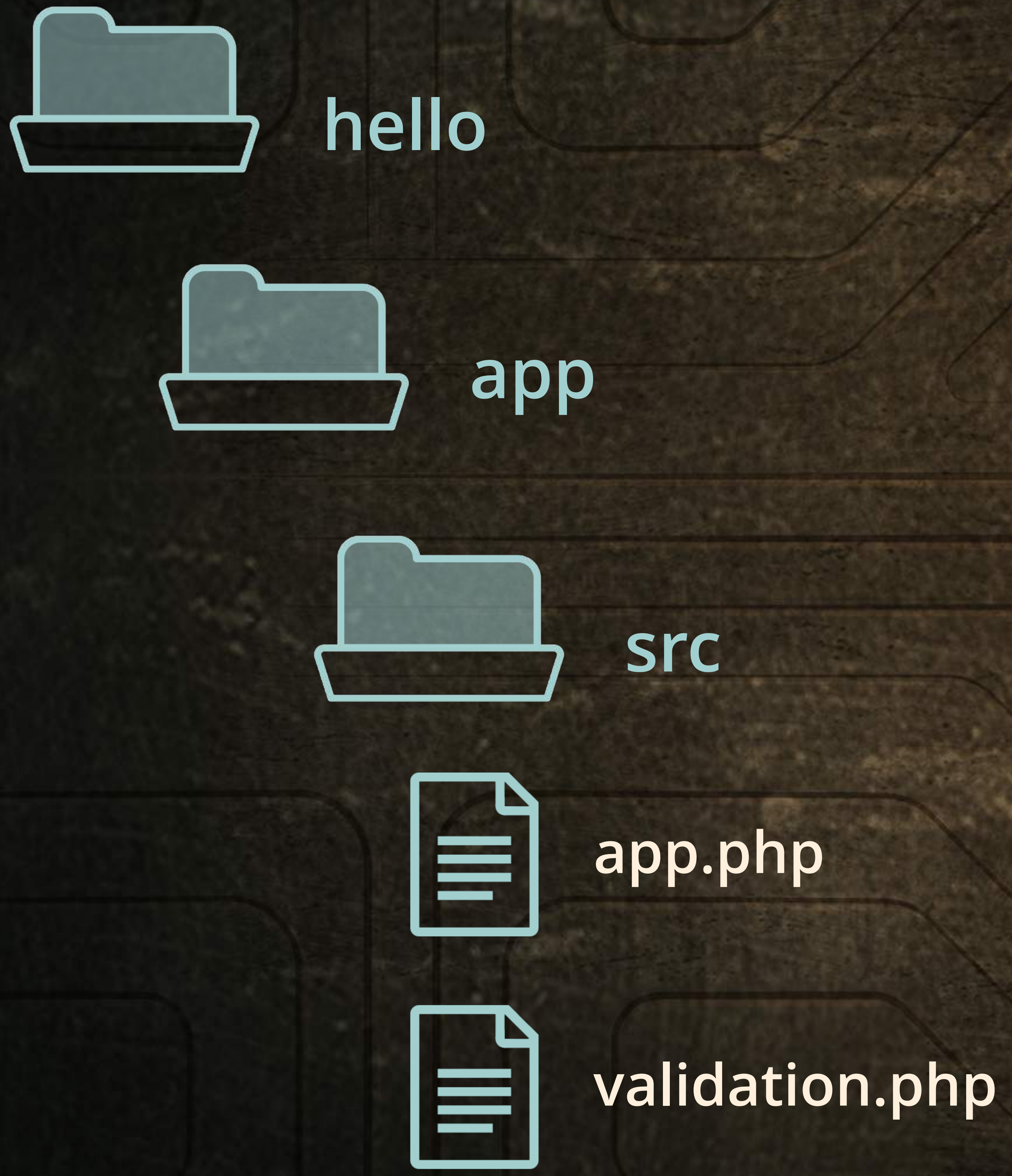
validation.php

1. Create a new file in the **app** folder named **validation.php**

app/src/validation.php

Creating a Validation Function File

Create a validation.php **file nested in the** app **folder.**



hello

app

src

app.php

validation.php

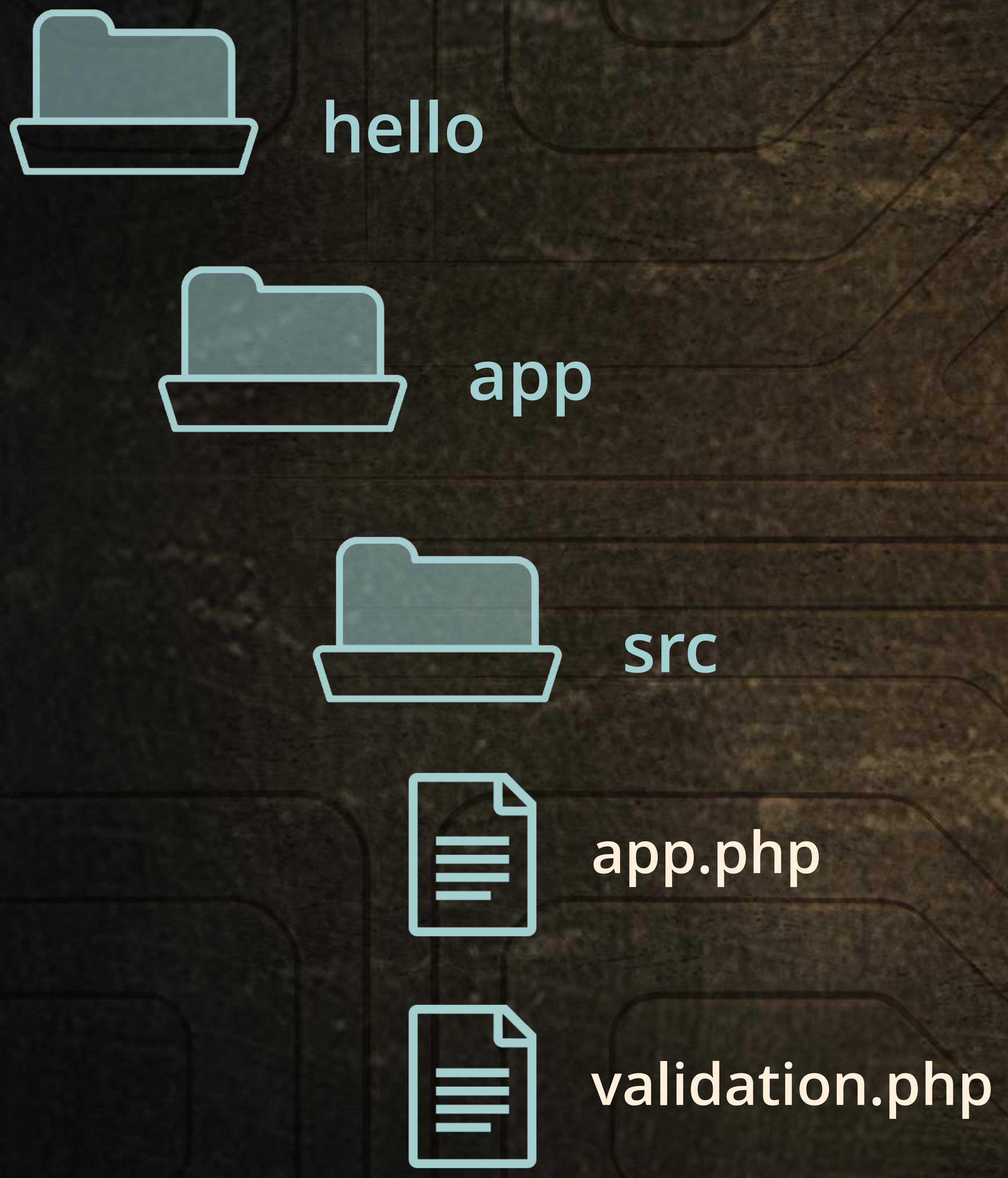
1. Create a new file in the **app** folder named **validation.php**
2. Move **validate_date** function code to the new file

app/src/validation.php

```php
<?php
function validate_date($date_string)
{
    if ($time = strtotime($date_string)) {
        return date('F jS Y',$date_string);
    } else {
        return $date_string . ' does not look valid.';
    }
}
```

Creating a Validation Function File

Create a validation.php **file nested in the** app **folder.**



hello

app

src

app.php

validation.php

1. Create a new file in the **app** folder named **validation.php**
2. Move **validate_date** function code to the new file
3. In **app.php** require the new **validation.php** file

app/src/app.php

```
<?php
  require __DIR__ . '/validation.php';
...
    if (!empty($date) && !empty($email) && !empty($descri

        echo validate_date($date);

        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
            echo "<p>Email: $email</p>";
        }
        echo '<p>' . htmlspecialchars($description) . '</
```

Requiring With an Absolute Path

app/src/app.php

```php
<?php
  require __DIR__ . '/validation.php';
```

__DIR__ is a “magic constant” in PHP that gives us an absolute path of the current file

```php
...
    if (!empty($date) && !empty($email) && !empty($description)) {

        echo validate_date($date);

        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
            echo "<p>Email: $email</p>";
        }
        echo '<p>' . htmlspecialchars($description) . '</p>';
    }
}
```

More magic constants can be found at ***go.codeschool.com/php-magic-constants***

Refactoring Recap

Let’s walk through what we learned in this section.

- PSRs are recommendations made by the PHP Framework Interop Group, or PHP-FIG
- Cleaning up our code using the PSR-1 Basic Coding Standard
- PHP magic constant of **__DIR__**

CLOSE ENCOUNTERS with PHP

Level 4

Composer & Autoloading

Package Management

We Need Better Validation

Our validation works, but is lacking in features. Let’s review what we might want.

- Validate the existence of each, but if one is missing we will need to report this to the user
- If the date is not formatted correctly, we will need to inform the user
- If the email is an invalid format, we will need to report this to the user as well

Why Packages?

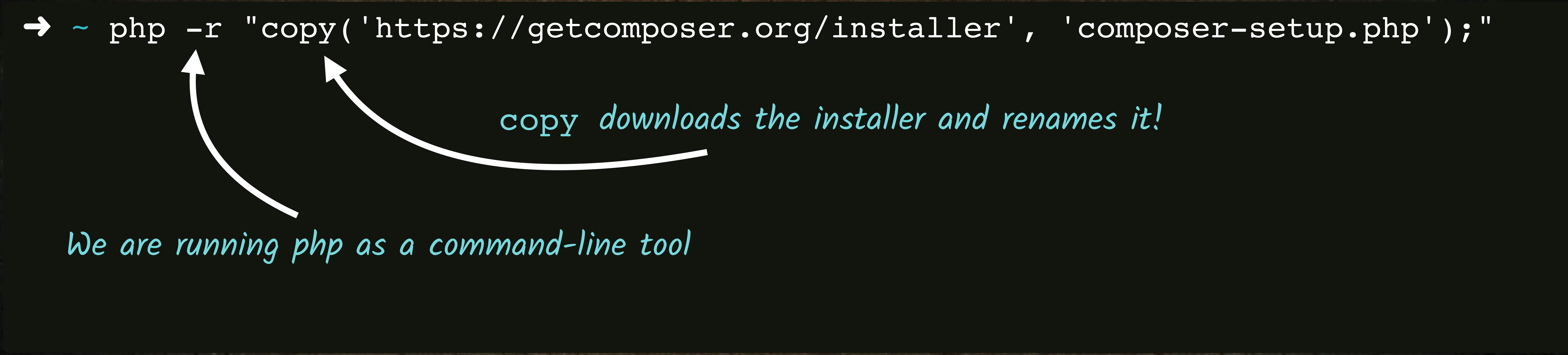
What is a library, why do we need it, and what is Composer?

- A library (or package) is a collection of code that is meant to serve a single purpose and to be reusable
- Packages are open source, which means any number of developers can contribute, so the package can evolve quickly
- PHP uses a package management tool called Composer
- Composer will allow us to define our libraries for each project and use them almost anywhere in our code

How Do We Install Composer?

The best way to install Composer is to use the command line.

- In the terminal you will use these commands:



```
➜ ~ php -r "copy('https://getcomposer.org/installer', 'composer-setup.php');"
```

`copy` *downloads the installer and renames it!*

We are running php as a command-line tool

All these commands can be found at
https://go.codeschool.com/composer-install

How Do We Install Composer?

The best way to install Composer is to use the command line.

- In the terminal you will use these commands:

```
➜ ~ php -r "copy('https://getcomposer.org/installer', 'composer-setup.php');"

➜ ~ php -r "if (hash_file('SHA384', 'composer-setup.php') === 115a8dc7871f15d8531
```

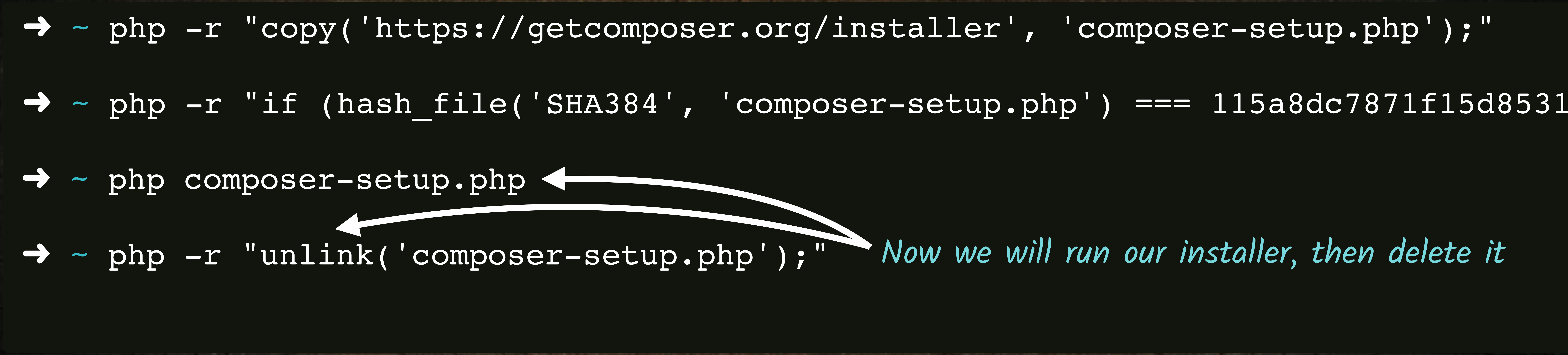
This long command verifies our installer

All these commands can be found at
https://go.codeschool.com/composer-install

How Do We Install Composer?

The best way to install Composer is to use the command line.

- In the terminal you will use these commands:



```
➜ ~ php -r "copy('https://getcomposer.org/installer', 'composer-setup.php');"

➜ ~ php -r "if (hash_file('SHA384', 'composer-setup.php') === 115a8dc7871f15d8531

➜ ~ php composer-setup.php

➜ ~ php -r "unlink('composer-setup.php');"
```

Now we will run our installer, then delete it

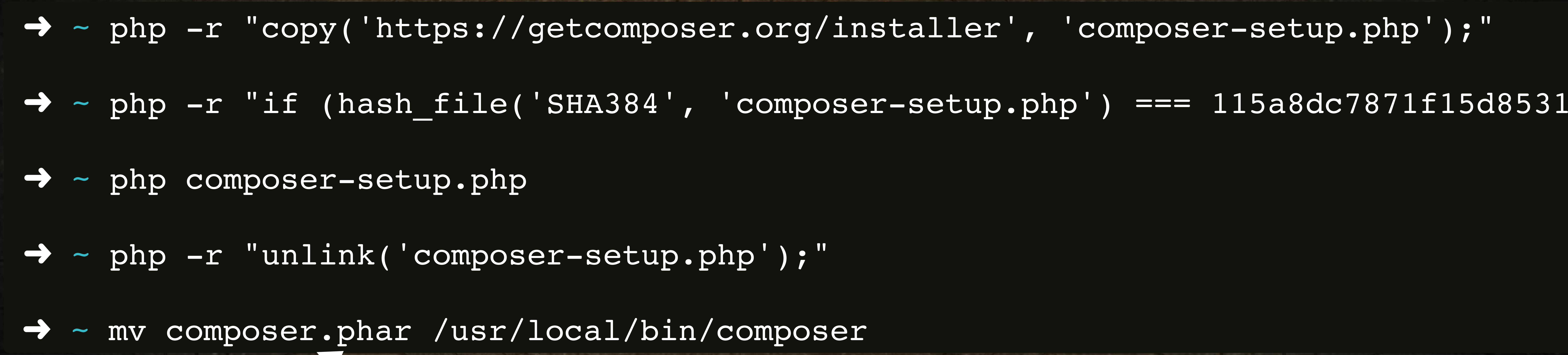
All these commands can be found at
https://go.codeschool.com/composer-install

CLOSE
ENCOUNTERS
with
PHP

How Do We Install Composer?

The best way to install Composer is to use the command line.

- In the terminal you will use these commands:



```
➜ ~ php -r "copy('https://getcomposer.org/installer', 'composer-setup.php');"

➜ ~ php -r "if (hash_file('SHA384', 'composer-setup.php') === 115a8dc7871f15d8531

➜ ~ php composer-setup.php

➜ ~ php -r "unlink('composer-setup.php');"

➜ ~ mv composer.phar /usr/local/bin/composer
```

Move the Composer file to our /usr/local/bin *folder*

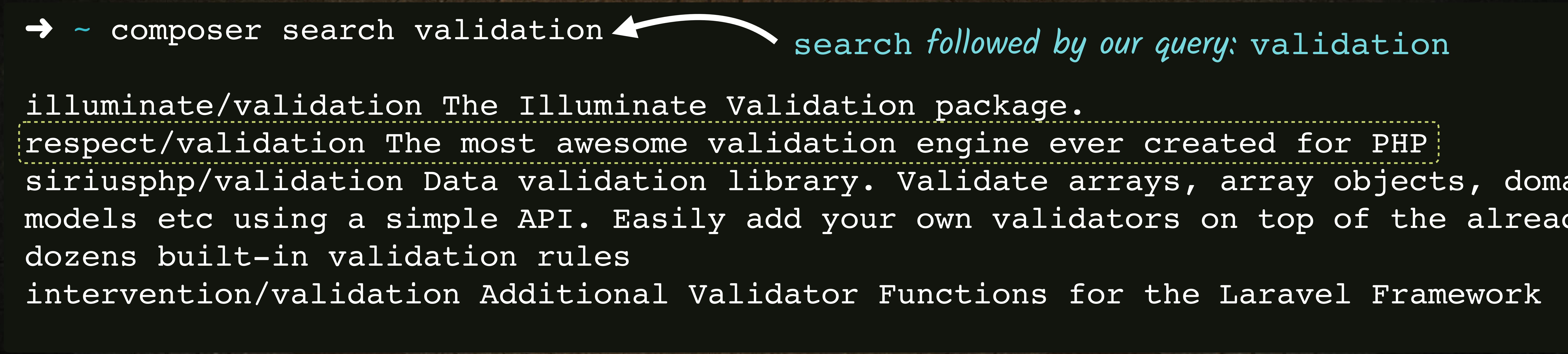
All these commands can be found at
https://go.codeschool.com/composer-install

CLOSE ENCOUNTERS with PHP

Finding Packages

We can use the Composer command to search for packages.

- In the terminal you will use these commands



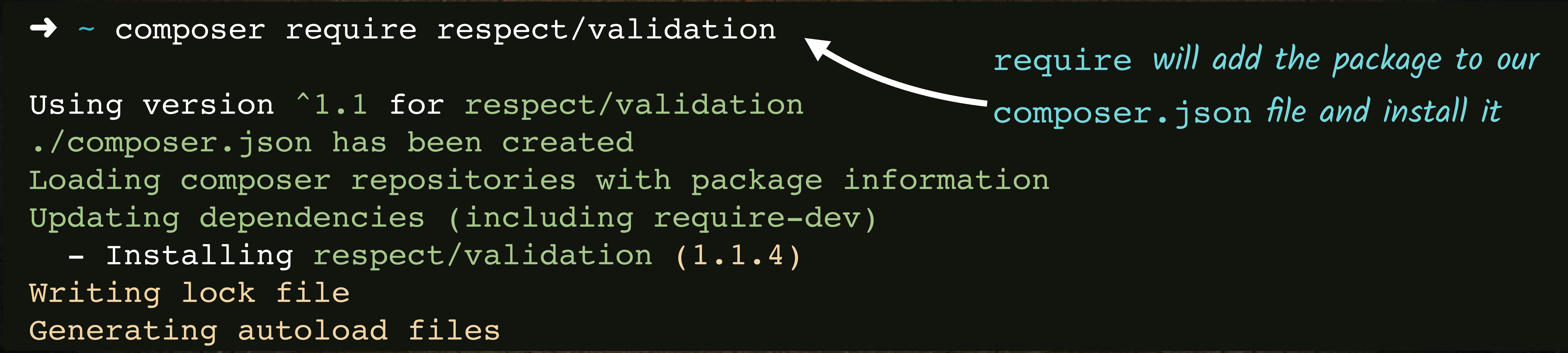
```
➜ ~ composer search validation

illuminate/validation The Illuminate Validation package.
respect/validation The most awesome validation engine ever created for PHP
siriusphp/validation Data validation library. Validate arrays, array objects, doma
models etc using a simple API. Easily add your own validators on top of the alread
dozens built-in validation rules
intervention/validation Additional Validator Functions for the Laravel Framework
```

search *followed by our query:* validation

Installing the Validation Package

Using the Composer CLI, we will install the respect/validation package.

- This command will be run in the terminal at the root of our project:

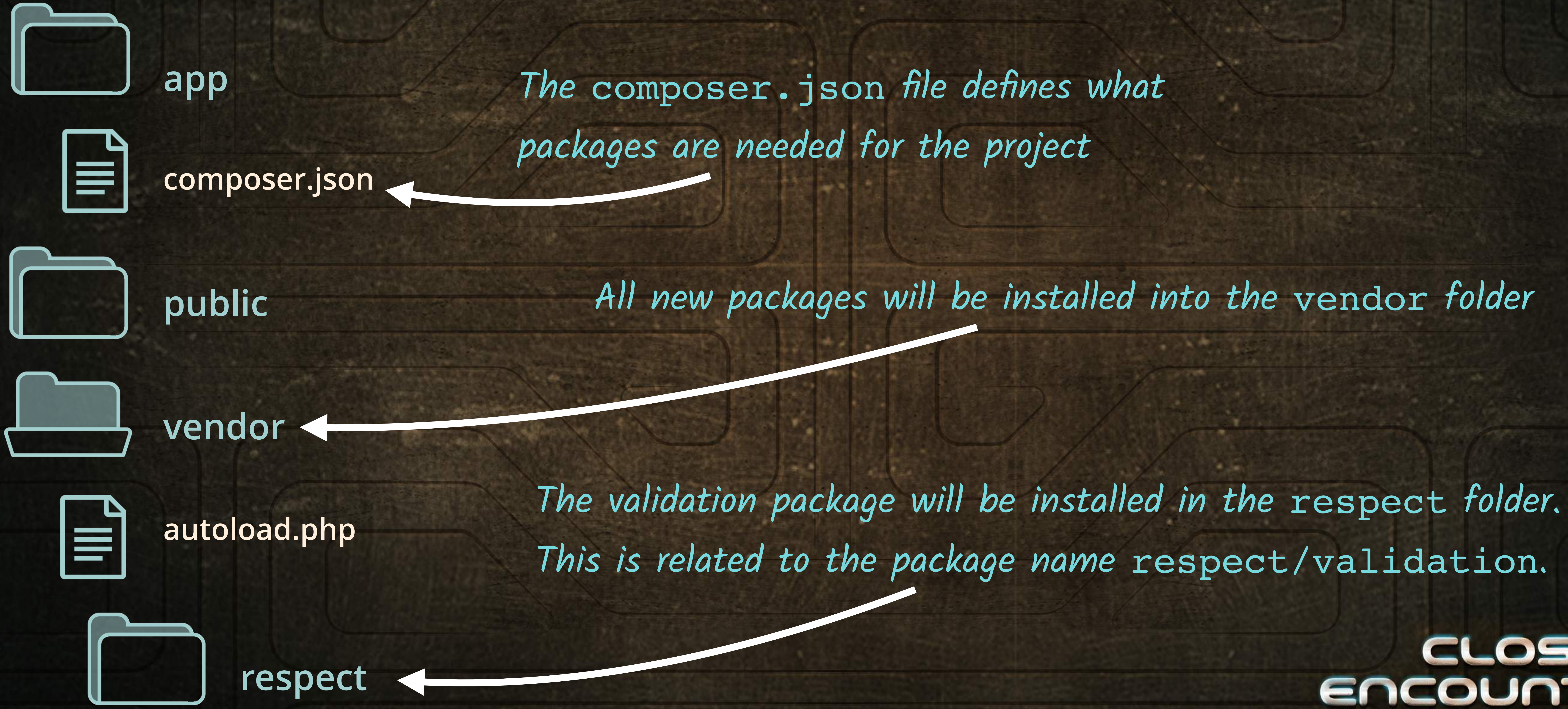


```
➜ ~ composer require respect/validation

Using version ^1.1 for respect/validation
./composer.json has been created
Loading composer repositories with package information
Updating dependencies (including require-dev)
  - Installing respect/validation (1.1.4)
Writing lock file
Generating autoload files
```

`require` *will add the package to our* `composer.json` *file and install it*

Composer Folder Structure

Inside a `vendor` folder, at the root of the project, will be where our packages go.



app

composer.json

public

vendor

autoload.php

respect

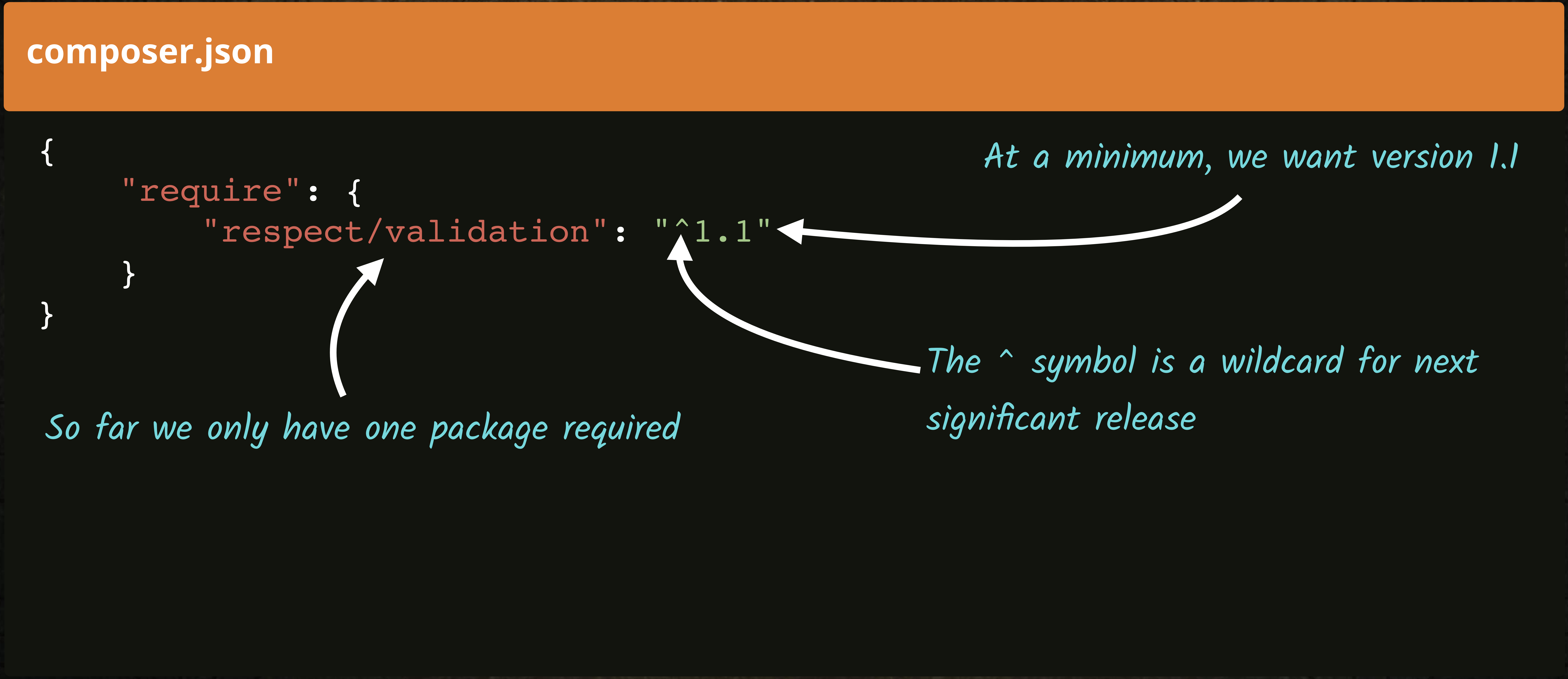
The `composer.json` file defines what packages are needed for the project

All new packages will be installed into the `vendor` folder

The validation package will be installed in the `respect` folder. This is related to the package name `respect/validation`.

Looking at composer.json

The composer.json file is where our project dependencies are managed.



composer.json

```
{
    "require": {
        "respect/validation": "^1.1"
    }
}
```

At a minimum, we want version 1.1

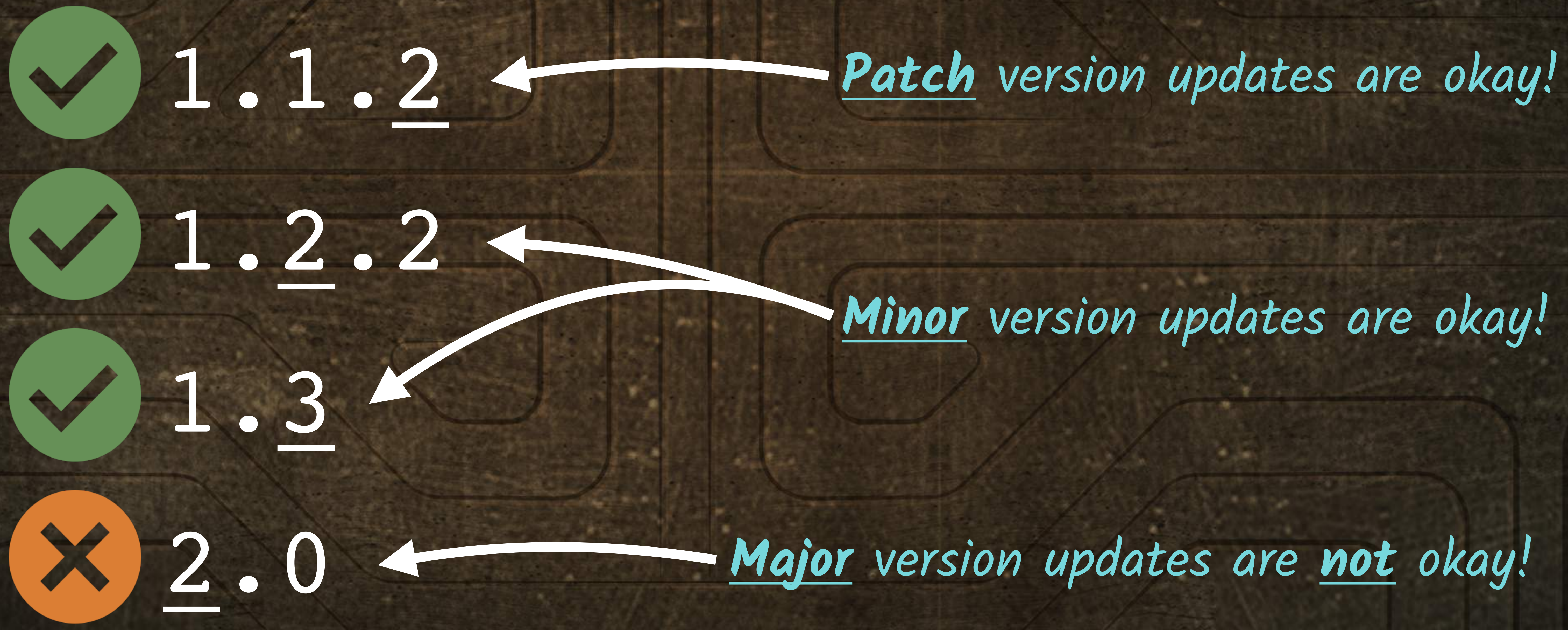
The ^ symbol is a wildcard for next significant release

So far we only have one package required

Semantic Versioning Requirements

Using the ^ symbol, what will we allow if the package gets updated?

```
"respect/validation": "^1.1"
```



✓ 1.1.2

✓ 1.2.2

✓ 1.3

✗ 2.0

__Patch__ version updates are okay!

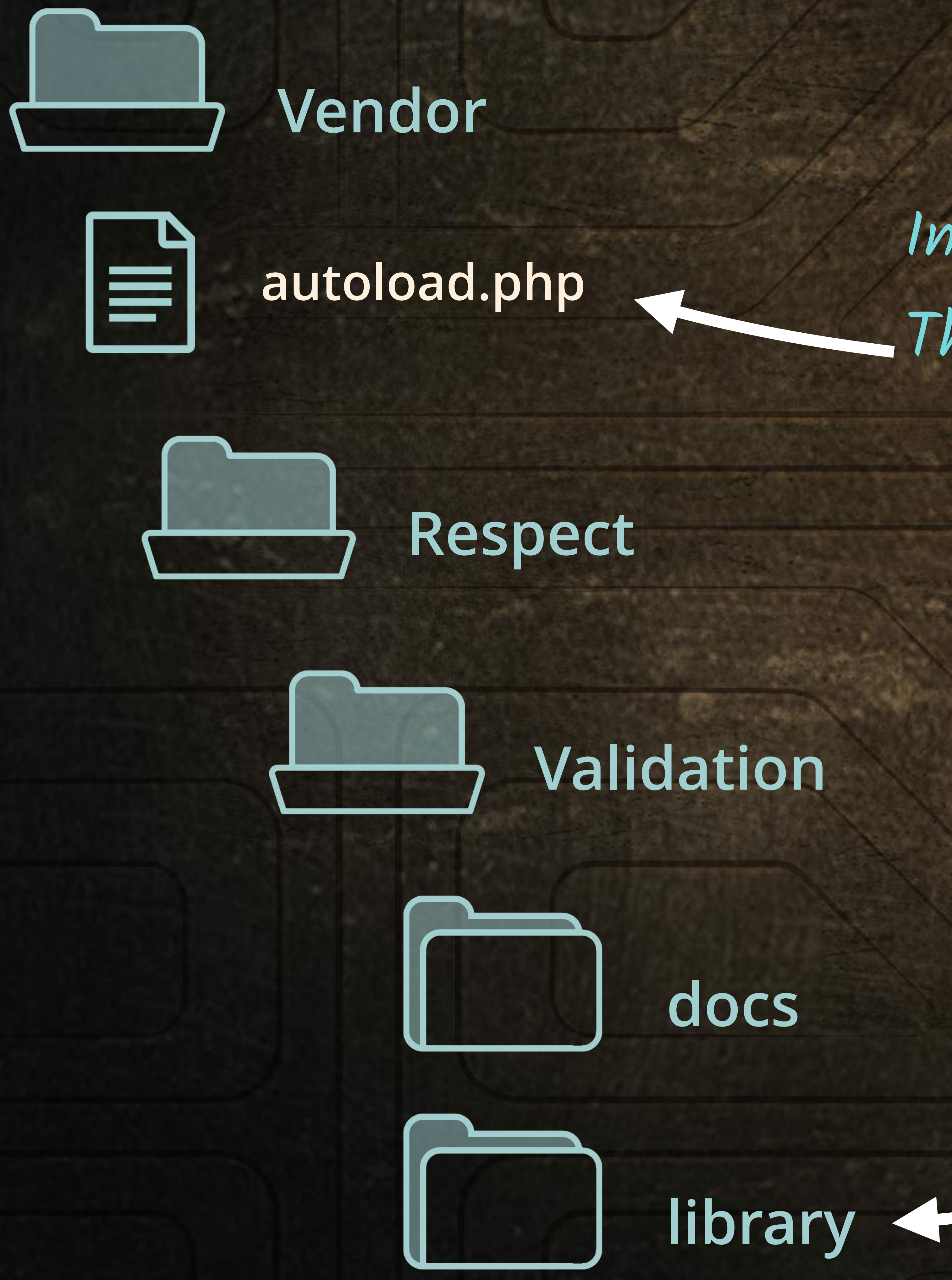
__Minor__ version updates are okay!

__Major__ version updates are __not__ okay!

So, download anything newer than version 1.1, but not version 2 or higher!

Composer Provides an Autoloader

Inside a vendor **folder, at the root of the project, Composer provides the** autoload.php **file.**



Vendor

autoload.php

Respect

Validation

docs

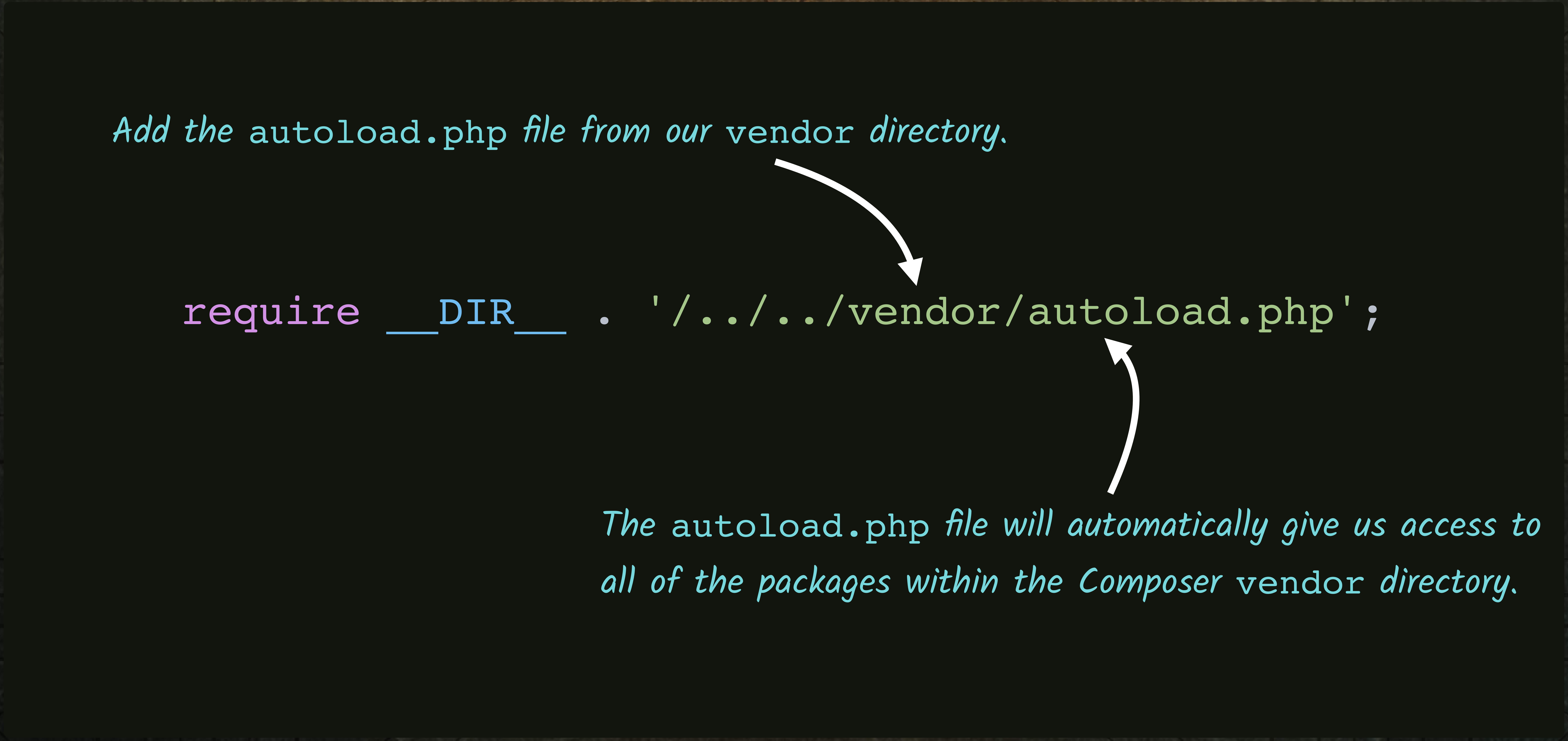
library

Inside our `vendor` *folder, we will find the* `autoload.php` *file.*
This file alone will load all packages in the `vendor` *folder.*

The files we will be needing are actually down here, in the `library` *folder, and autoload will take care of all that!*

Adding Autoloading From Composer

Requiring the autoload file in our project will give us access to all of the packages.



Add the `autoload.php` *file from our* `vendor` *directory.*

```
require __DIR__ . '/../../vendor/autoload.php';
```

The `autoload.php` *file will automatically give us access to all of the packages within the Composer* `vendor` *directory.*

Adding Autoloading

app/src/app.php

```php
<?php
    require __DIR__ . '/../../vendor/autoload.php';
    require __DIR__ . '/validation.php';
    ...
    if (!empty($date) && !empty($email) && !empty($description)) {

        echo validate_date($date);

        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
            echo "<p>Email: $email</p>";
        }
        echo '<p>' . htmlspecialchars($description) . '</p>';
    }
}
```

Add the `autoload.php` *file from our* `vendor` *directory*

We can now use packages anywhere below, including in our validation file

Using Respect/Validation

The `use` command is how we are able to load libraries.

app/src/validation.php

```php
<?php
use Respect\Validation\Validator;

function validate_date($date_string)
{
    if ($time = strtotime($date_string)) {
        return date('F jS Y',$date_string);
    } else {
        return $date_string . ' does not look valid.';
    }
}
```

Using the namespace of `Respect\Validation`*, we can access the* `Validator` *class*

Using Respect/Validation

The use command is how we are able to load libraries.

app/src/validation.php

```php
<?php
use Respect\Validation\Validator;

$v = new Validator;

function validate_date($date_string)
{
    if ($time = strtotime($date_string)) {
        return date('F jS Y',$date_string);
    } else {
        return $date_string . ' does not look valid.';
    }
}
```

The `new` *keyword creates a* `Validator` *object named* `$v`

Using Respect/Validation

The use command is how we are able to load libraries.

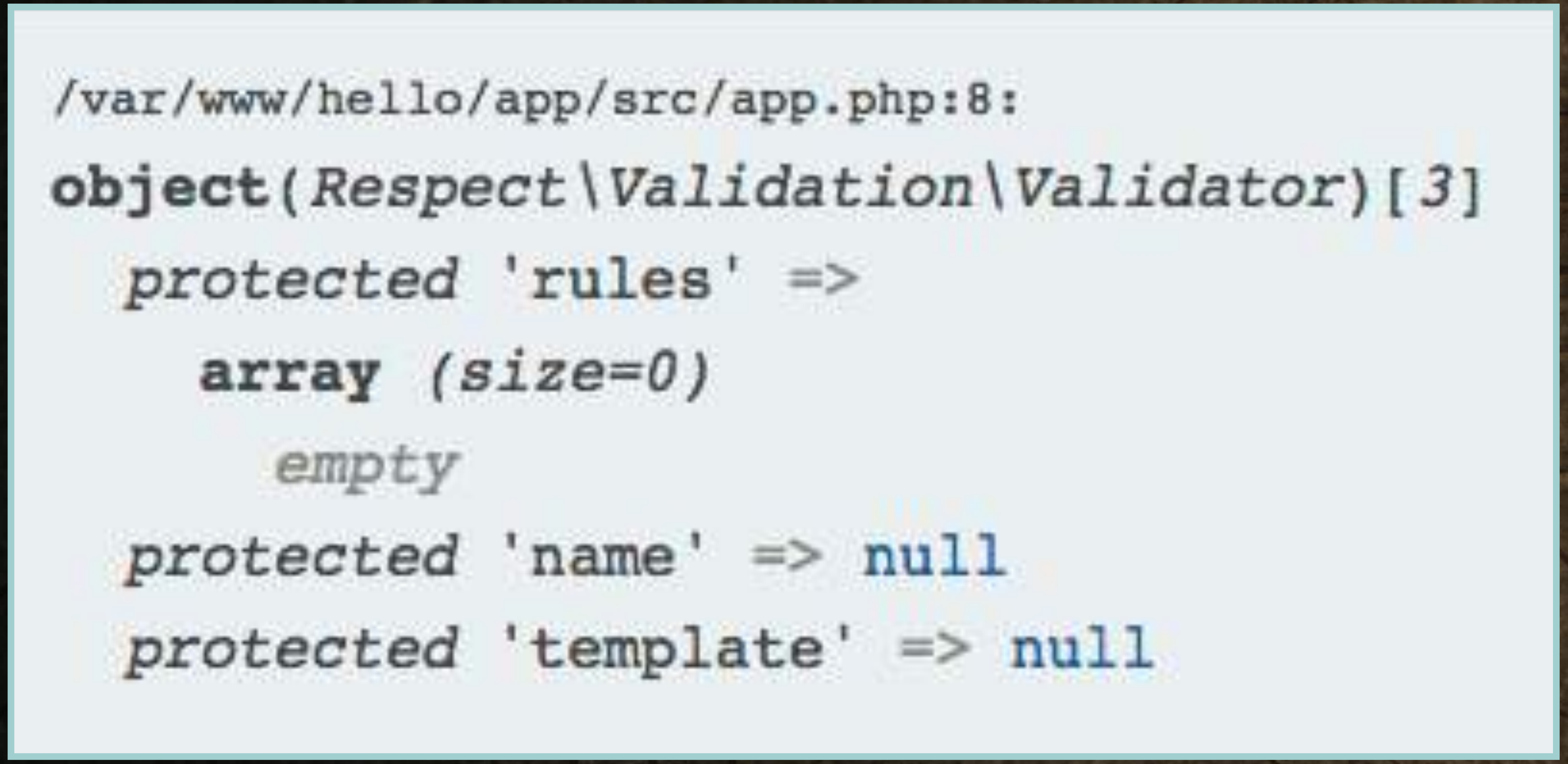
app/src/validation.php

```php
<?php
use Respect\Validation\Validator;

$v = new Validator;

var_dump($v);

function validate_date($date_string)
{
    if ($time = strtotime($date_string)) {
        return date('F jS Y',$date_string);
    } else {
        return $date_string . ' does not look valid.';
    }
}
```

Let's see what the `$v` *object looks like with a* `var_dump`*!*

Var Dump of Our Validator

The Validator is an object type, with a protected array of rules. What is all this?!



```
/var/www/hello/app/src/app.php:8:
object(Respect\Validation\Validator)[3]
  protected 'rules' =>
    array (size=0)
      empty
  protected 'name' => null
  protected 'template' => null
```

- We can run validation commands with the validator to test against custom rules
- Each instance of a validator can have a unique name
- Each instance of a validator can also have a template that allows us to customize our error strings
- We can now add some rules to our empty rules array on the Validator

Composer & Autoloading Review

Let’s take a quick look back over this lesson in review.

- Composer is a package manager for PHP
- We used the Composer CLI to search and install packages to our application
- We gained access to the package through the use of the **autoload.php** file
- The **use** keyword allows us to access a class through a Namespace/ClassName pattern
- We create new validator instances with the **new** keyword

CLOSE ENCOUNTERS with PHP

CLOSE ENCOUNTERS with PHP

Level 5

Validation With Respect

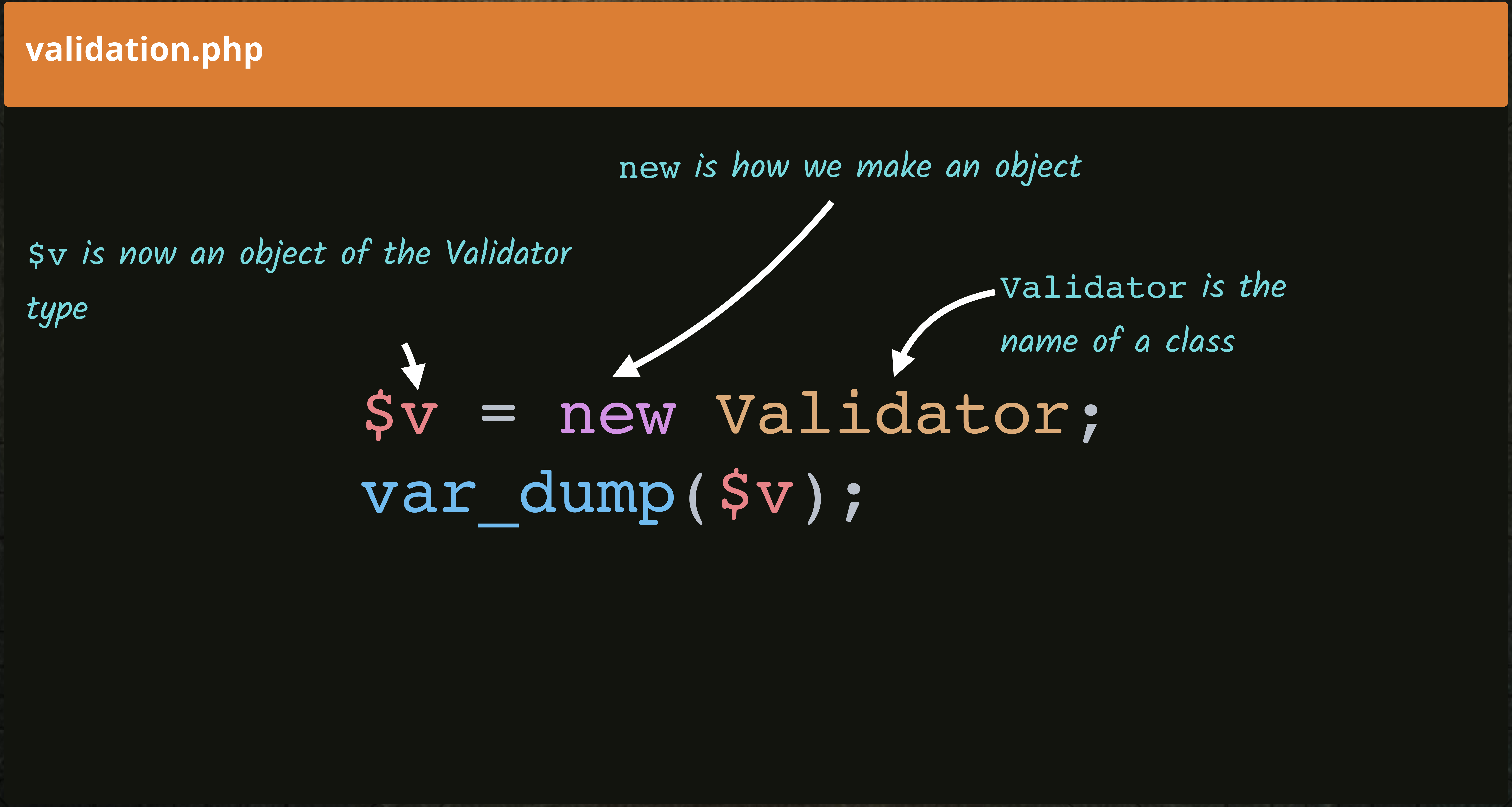
Object-oriented Validation

A Closer Look at the Validator Class

validation.php

```php
<?php
use Respect\Validation\Validator;

$v = new Validator;
var_dump($v);

function validate_date($date_string)
{
   if ($time = strtotime($date_string)) {
      return date('F jS Y',$date_string);
   } else {
      return $date_string . ' does not look valid.';
   }
}
```

A Closer Look at the Validator Class



validation.php

```
$v = new Validator;
var_dump($v);
```

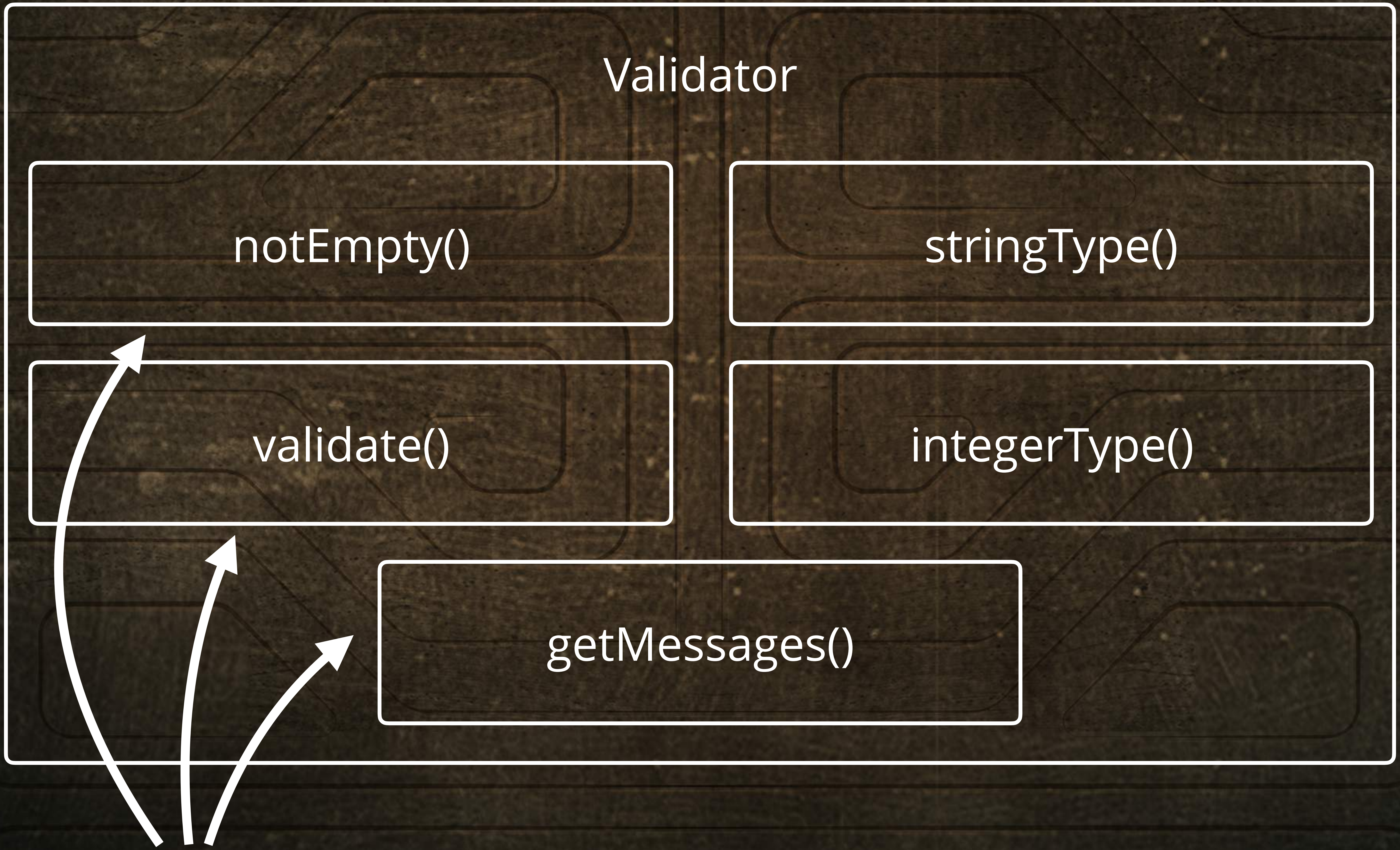
new is how we make an object

$v is now an object of the Validator type

Validator is the name of a class

What Is a Class?

A class is a way to group our code and provide a blueprint for a single-purpose object.



Validator

notEmpty()

stringType()

validate()

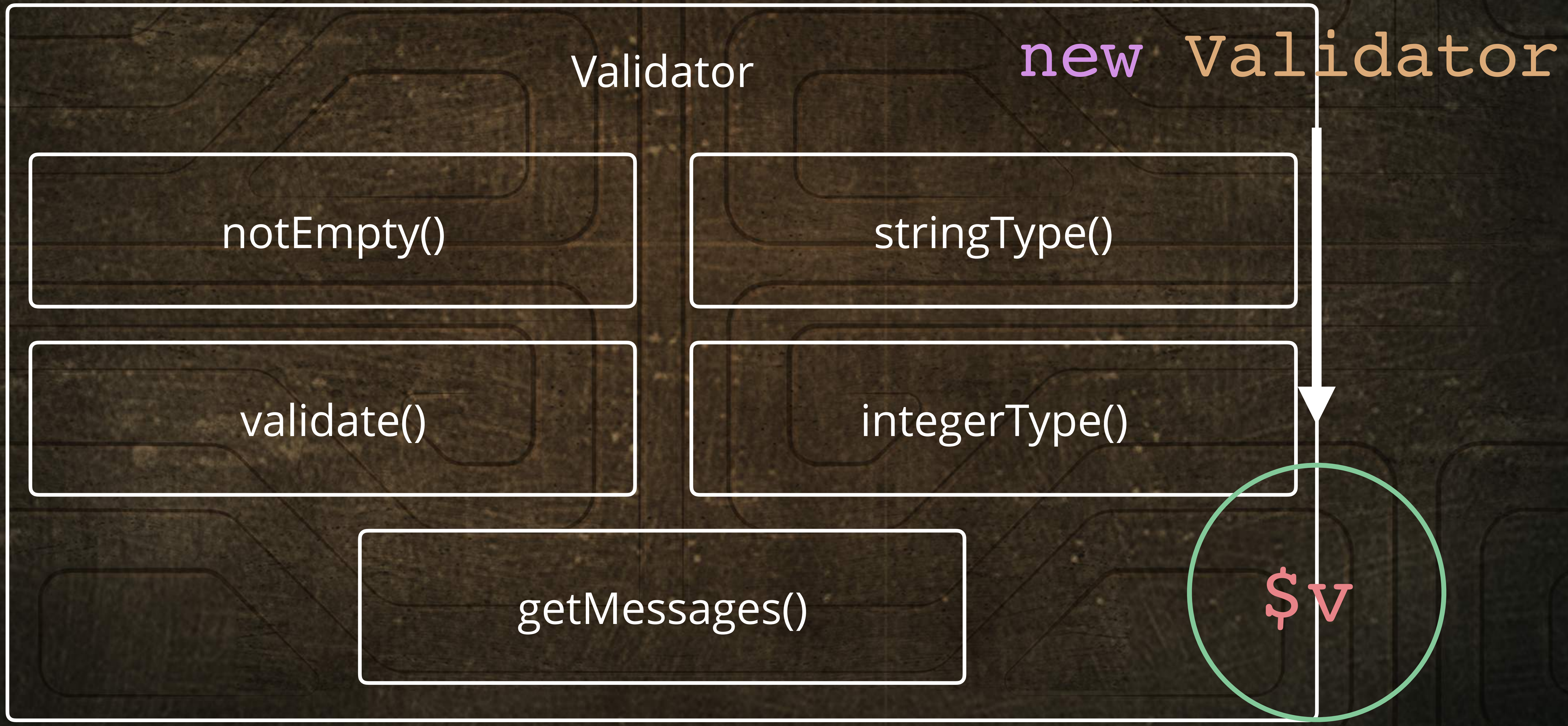
integerType()

getMessages()

Methods are functions inside of a class

Creating an Object

With the new **keyword, we create an object that is a single instance of the** Validator **class.**



How Can We Use Validator Here?

validation.php

```php
<?php
use Respect\Validation\Validator;

$v = new Validator;
var_dump($v);

function validate_date($date_string)
{
    if ($time = strtotime($date_string)) {
        return date('F jS Y',$date_string);
    } else {
        return $date_string . ' does not look valid.';
    }
}
```

We need to replace all of the code inside the `validate_date` *function with something from the* `Validator` *class*

Using Respect/Validation for the Date

validation.php

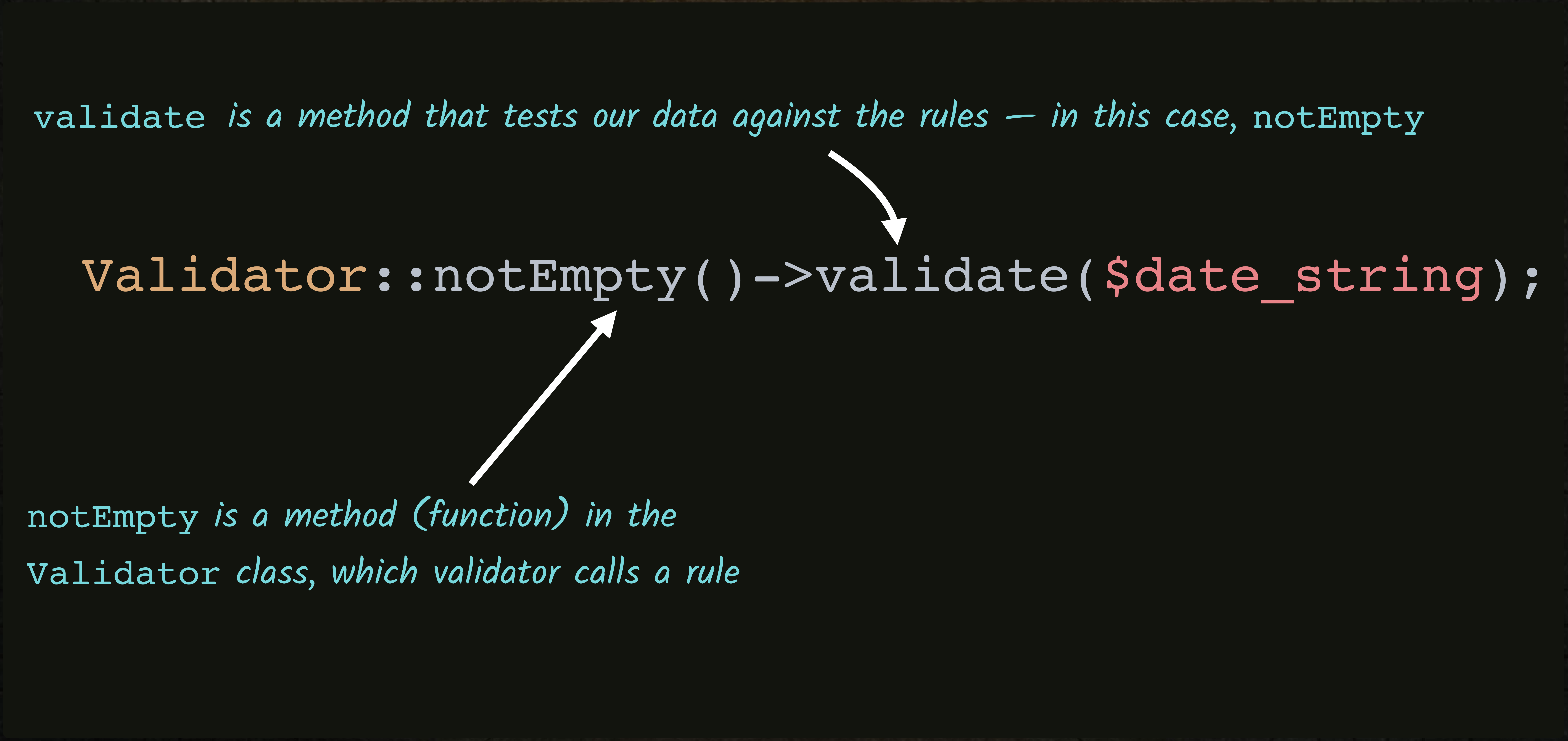
```php
<?php
use Respect\Validation\Validator;

function validate_date($date_string)
{
    if(Validator::notEmpty()->validate($date_string)) {
        return date('F jS Y',$date_string);
    }
}
```

This validate call will return true or false, so it is okay to use it as a conditional

! *There is a lot going on here! Let's take a closer look.*

Inspecting the Validator Class

This line of code means, “If the $date_string is not empty, return true; otherwise, return false.”



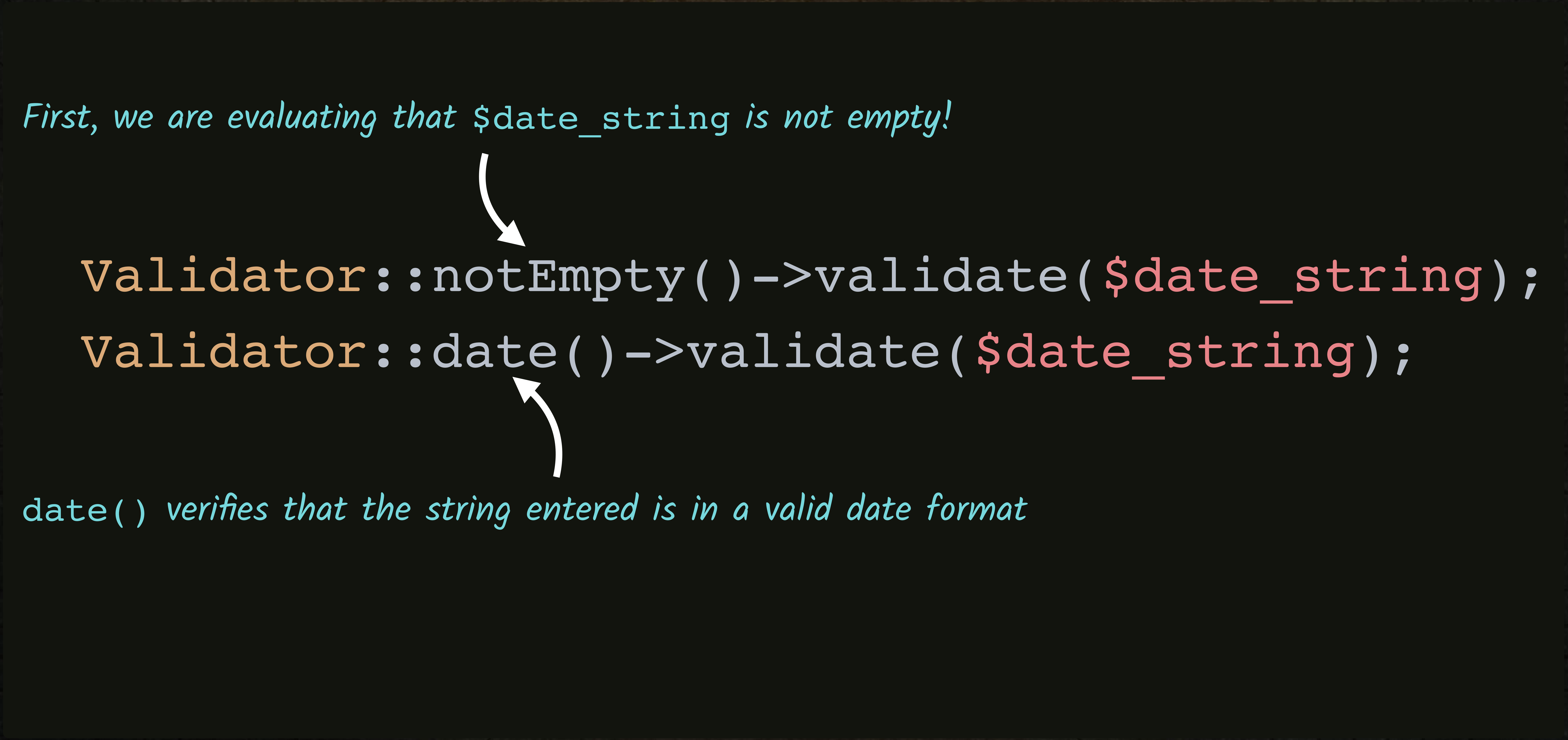
validate *is a method that tests our data against the rules — in this case,* notEmpty

```
Validator::notEmpty()->validate($date_string);
```

notEmpty *is a method (function) in the* Validator *class, which validator calls a rule*

Validation of a Date

We have validated that our date string is not empty, but how do we know it is a date?



First, we are evaluating that `$date_string` *is not empty!*

```
Validator::notEmpty()->validate($date_string);
Validator::date()->validate($date_string);
```

`date()` *verifies that the string entered is in a valid date format*

Chaining Validation Methods

With Respect/Validation, we can chain rules together for simplicity and clarity.

Now we’re validating that we have some data and that it looks like a date in one line

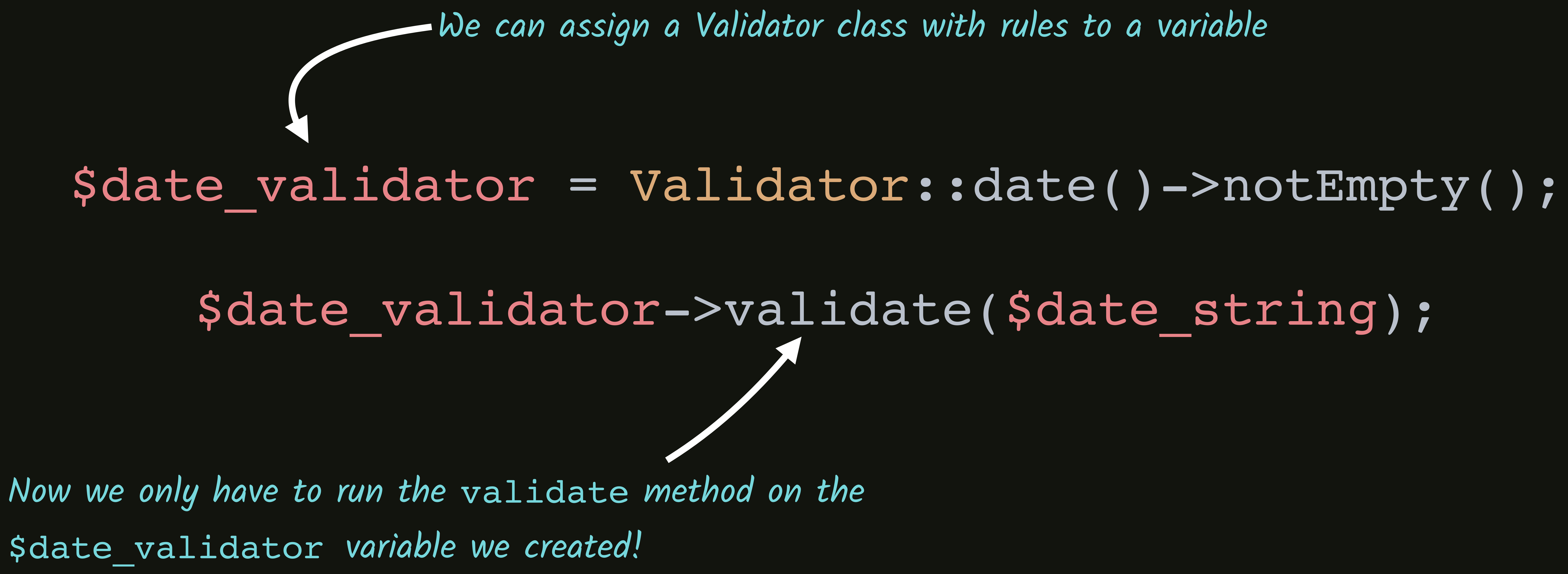
```
Validator::date()->notEmpty()->validate($date_string);
```

We can chain the validation rules together by using an object operator ->

This is great, but can we do more?

Creating Custom Validators

Clarifying our code is easy when we create a custom validator variable.

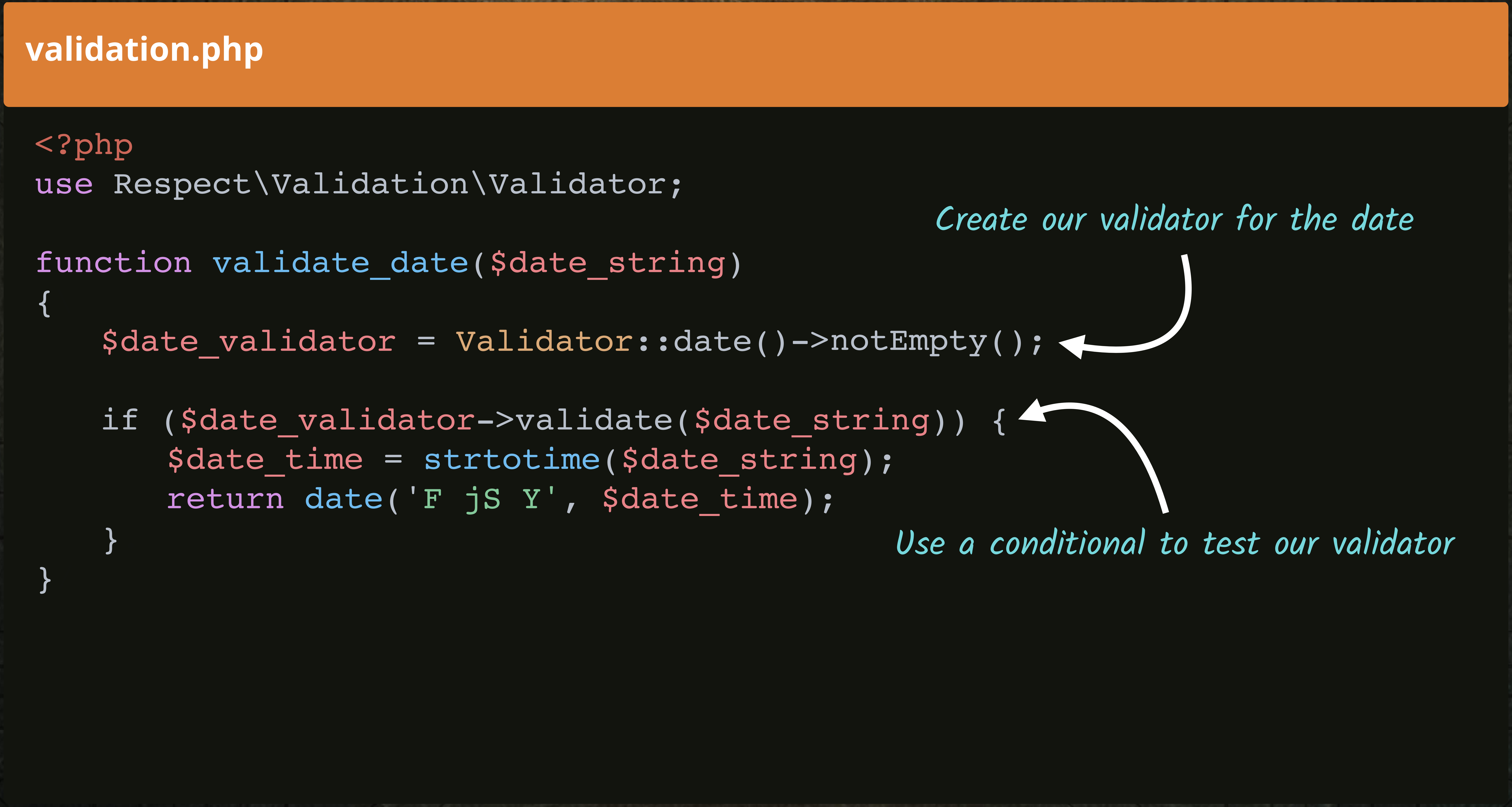


We can assign a Validator class with rules to a variable

```
$date_validator = Validator::date()->notEmpty();

    $date_validator->validate($date_string);
```

Now we only have to run the `validate` *method on the* `$date_validator` *variable we created!*

Validation With Our Custom Validator



validation.php

```php
<?php
use Respect\Validation\Validator;

function validate_date($date_string)
{
    $date_validator = Validator::date()->notEmpty();

    if ($date_validator->validate($date_string)) {
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    }
}
```

Create our validator for the date

Use a conditional to test our validator

Requiring a Date Format

We can set a format inside our date validator call, using any format from the PHP date function.

validation.php

```
<?php
use Respect\Validation\Validator;

function validate_date($date_string)
{
    $date_validator = Validator::date('d-m-Y')->notEmpty();

    if ($date_validator->validate($date_string)) {
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    }
}
```

The format d-m-Y *requires that the date be entered like this: 30-12-2017*

Returning a Message on Error

validation.php

```php
<?php
use Respect\Validation\Validator;

function validate_date($date_string)
{
    $date_validator = Validator::date('d-m-Y')->notEmpty();

    if ($date_validator->validate($date_string)) {
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    } else {
        return 'The date must be in a DD-MM-YYYY format.';
    }
}
```

If the validator fails, return a message about the format!

Validator Class Review

What we have gone over in this section

- How to create an object
- Using our **Validator** class and methods
- The **validate** method with the **notEmpty** rule
- Chaining rules with the object operator
- Storing custom validators in a variable
- Using custom validators in a conditional

CLOSE ENCOUNTERS with PHP

CLOSE ENCOUNTERS with PHP

Level 5

Validation With Respect

Try to Validate; Catch the Exceptions

Returning Messages With If/Else

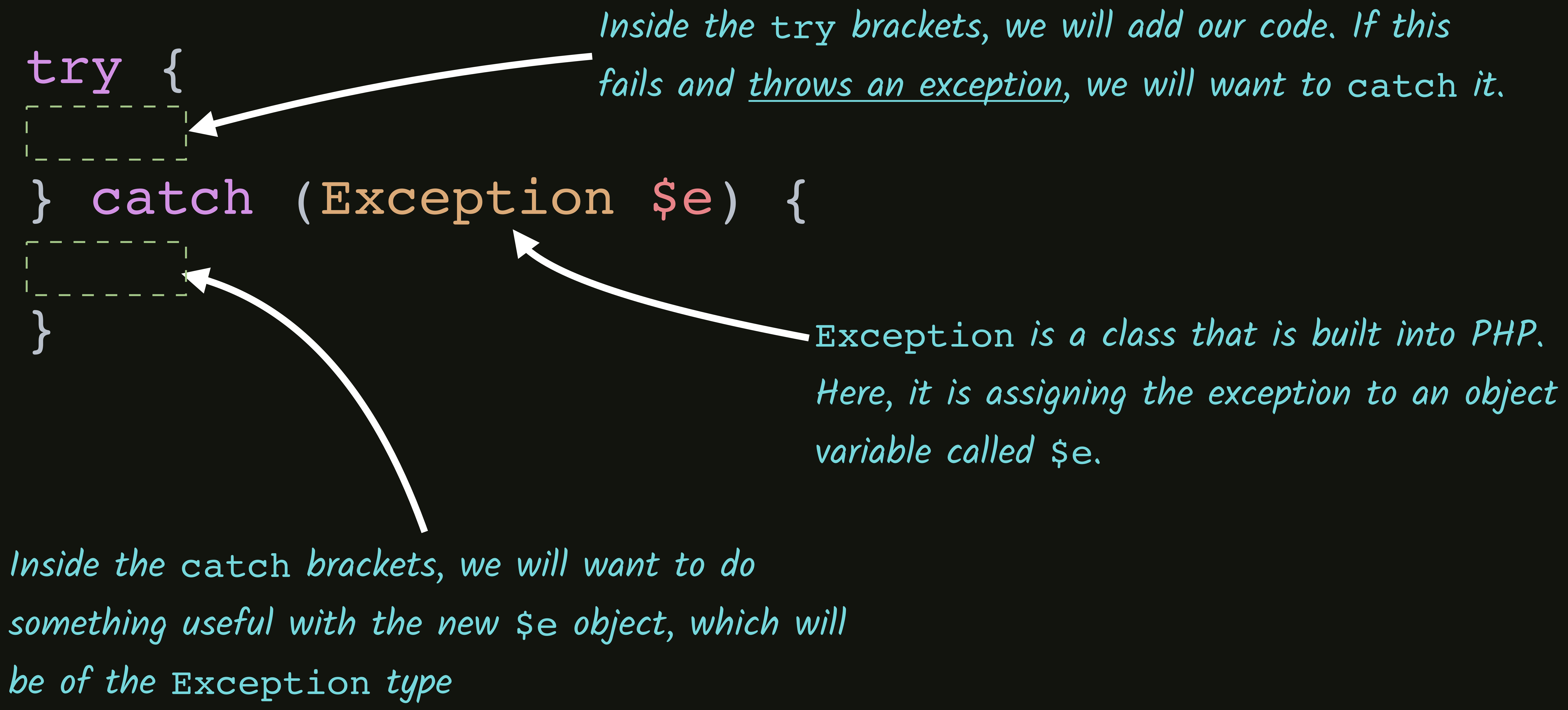
app/src/validation.php

```php
<?php
use Respect\Validation\Validator;

function validate_date($date_string)
{
    $date_validator = Validator::date('d-m-Y')->notEmpty();

    if ($date_validator->validate($date_string)) {
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    } else {
        return 'The date must be in a DD-MM-YYYY format.';
    }
}
```

Objects have exceptions, which can also return messages!

Try to Validate, Catch the Exception

In PHP we have a try/catch statement, which will allow us to work with object errors.



```
try {

} catch (Exception $e) {

}
```

Inside the try *brackets, we will add our code. If this fails and throws an exception, we will want to* catch *it.*

Exception *is a class that is built into PHP. Here, it is assigning the exception to an object variable called* $e*.*

Inside the catch *brackets, we will want to do something useful with the new* $e *object, which will be of the* Exception *type*

Using Respect’s Exception Classes

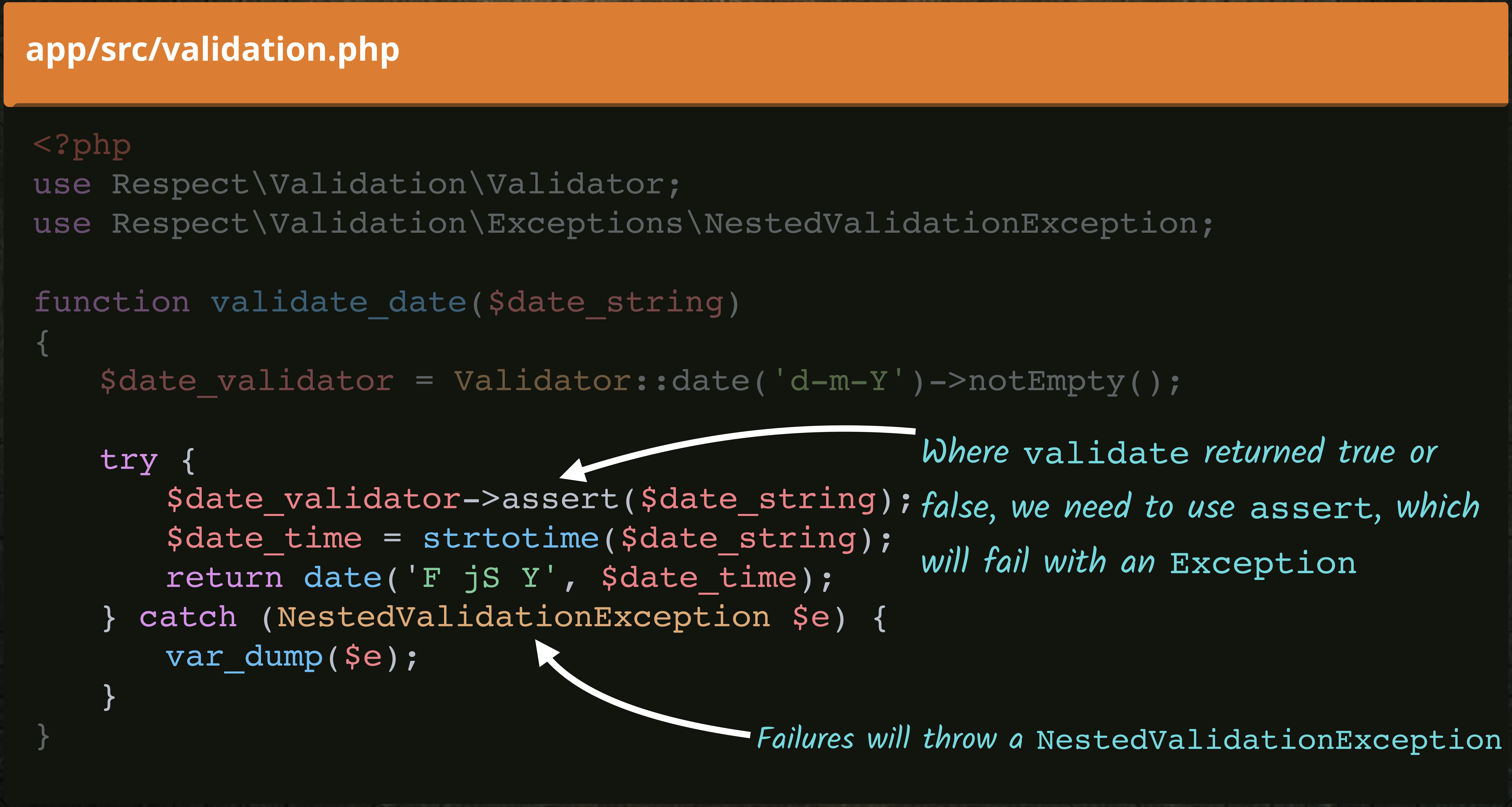
app/src/validation.php

```php
<?php
use Respect\Validation\Validator;
use Respect\Validation\Exceptions\NestedValidationException;

function validate_date($date_string)
{
    $date_validator = Validator::date('d-m-Y')->notEmpty();

    if ($date_validator->validate($date_string)) {
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    } else {
        return 'The date must be in a DD-MM-YYYY format.';
    }

}
```

Include a class with the `use` *keyword.*

Now `NestedValidationException` *is available to our code.*

Creating the Try/Catch **for Validation**



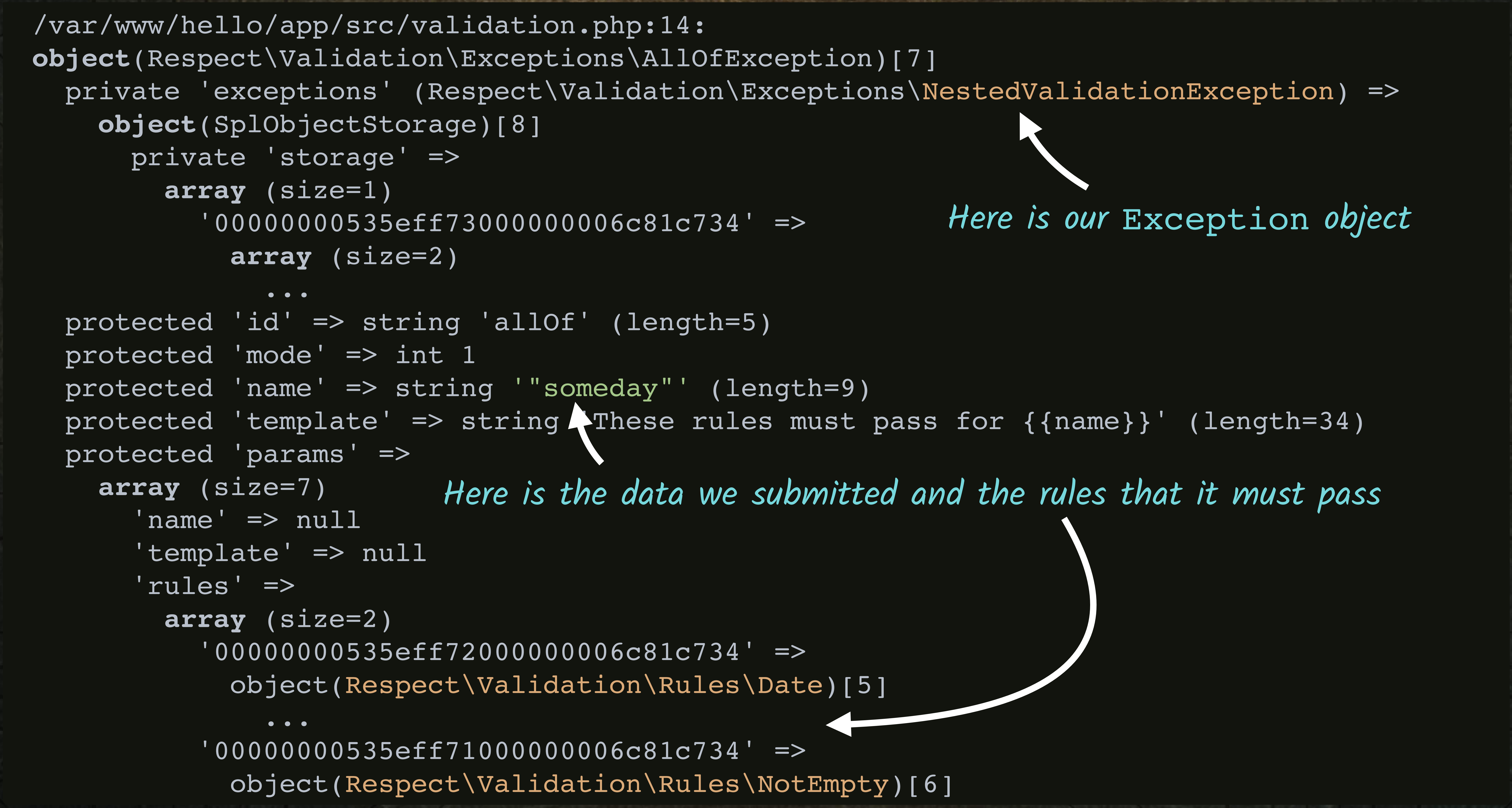
app/src/validation.php

```php
<?php
use Respect\Validation\Validator;
use Respect\Validation\Exceptions\NestedValidationException;

function validate_date($date_string)
{
    $date_validator = Validator::date('d-m-Y')->notEmpty();

    try {
        $date_validator->assert($date_string);
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    } catch (NestedValidationException $e) {
        var_dump($e);
    }
}
```

Where validate *returned true or false, we need to use* assert, *which will fail with an* Exception

Failures will throw a NestedValidationException

Submitting an Invalid Date Format



```
/var/www/hello/app/src/validation.php:14:
object(Respect\Validation\Exceptions\AllOfException)[7]
  private 'exceptions' (Respect\Validation\Exceptions\NestedValidationException) =>
    object(SplObjectStorage)[8]
      private 'storage' =>
        array (size=1)
          '00000000535eff73000000006c81c734' =>
            array (size=2)
              ...
  protected 'id' => string 'allOf' (length=5)
  protected 'mode' => int 1
  protected 'name' => string '"someday"' (length=9)
  protected 'template' => string 'These rules must pass for {{name}}' (length=34)
  protected 'params' =>
    array (size=7)
      'name' => null
      'template' => null
      'rules' =>
        array (size=2)
          '00000000535eff72000000006c81c734' =>
            object(Respect\Validation\Rules\Date)[5]
              ...
          '00000000535eff71000000006c81c734' =>
            object(Respect\Validation\Rules\NotEmpty)[6]
```

Here is our Exception *object*

Here is the data we submitted and the rules that it must pass

How Can We Use the Exception?

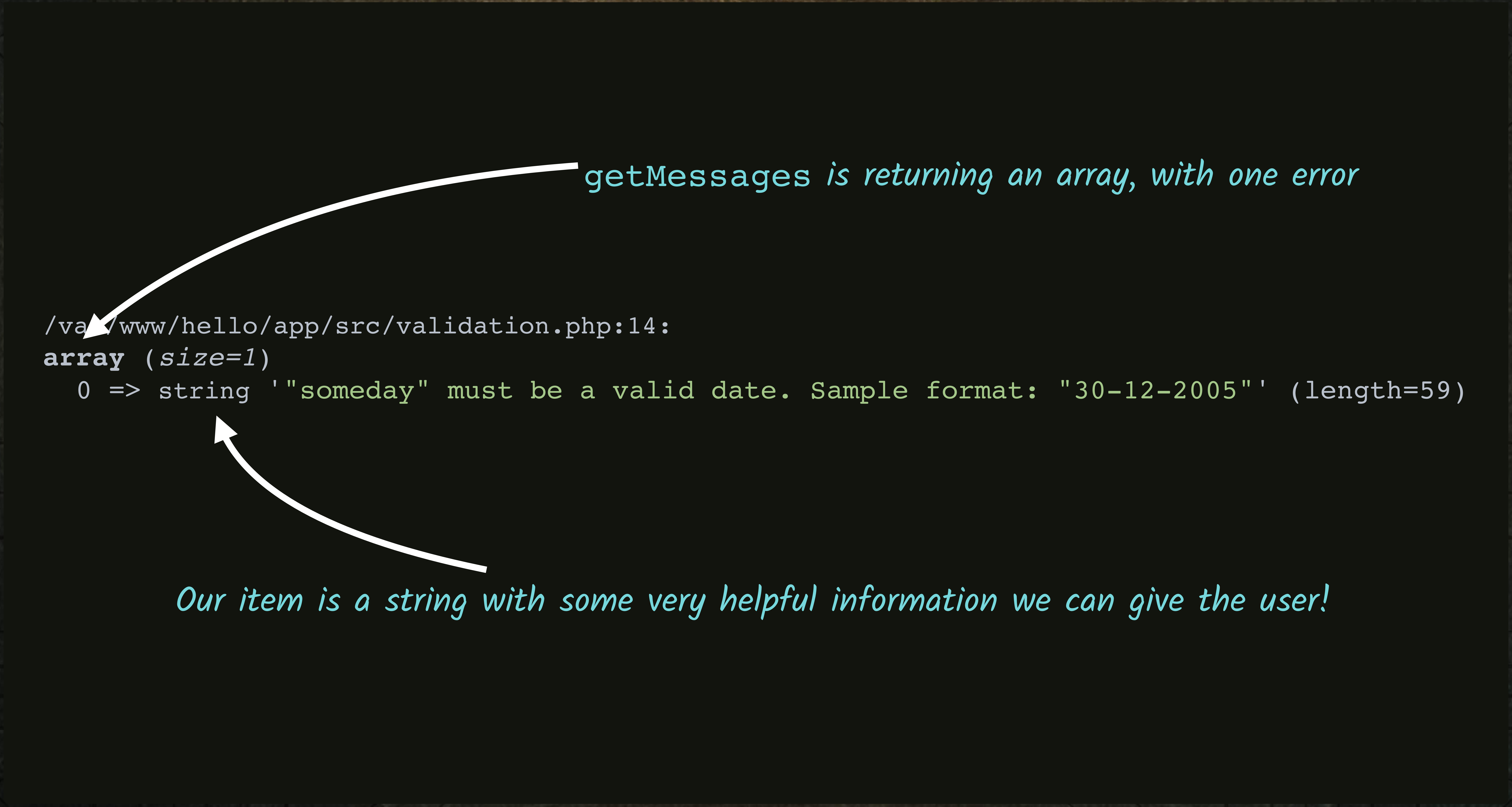
app/src/validation.php

```php
<?php
...
    $date_validator = Validator::date('d-m-Y')->notEmpty();

    try {
        $date_validator->assert($date_string);
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    } catch (NestedValidationException $e) {
        var_dump($e->getMessages());
    }
}
```

The `NestedValidationException` *has a method named* `getMessages` *that will return some useful information*

! *Let's submit a 'someday' as our date and see what happens*

Viewing the getMessages Method



getMessages *is returning an array, with one error*

```
/var/www/hello/app/src/validation.php:14:
array (size=1)
  0 => string '"someday" must be a valid date. Sample format: "30-12-2005"' (length=59)
```

Our item is a string with some very helpful information we can give the user!

Returning the Errors to the User

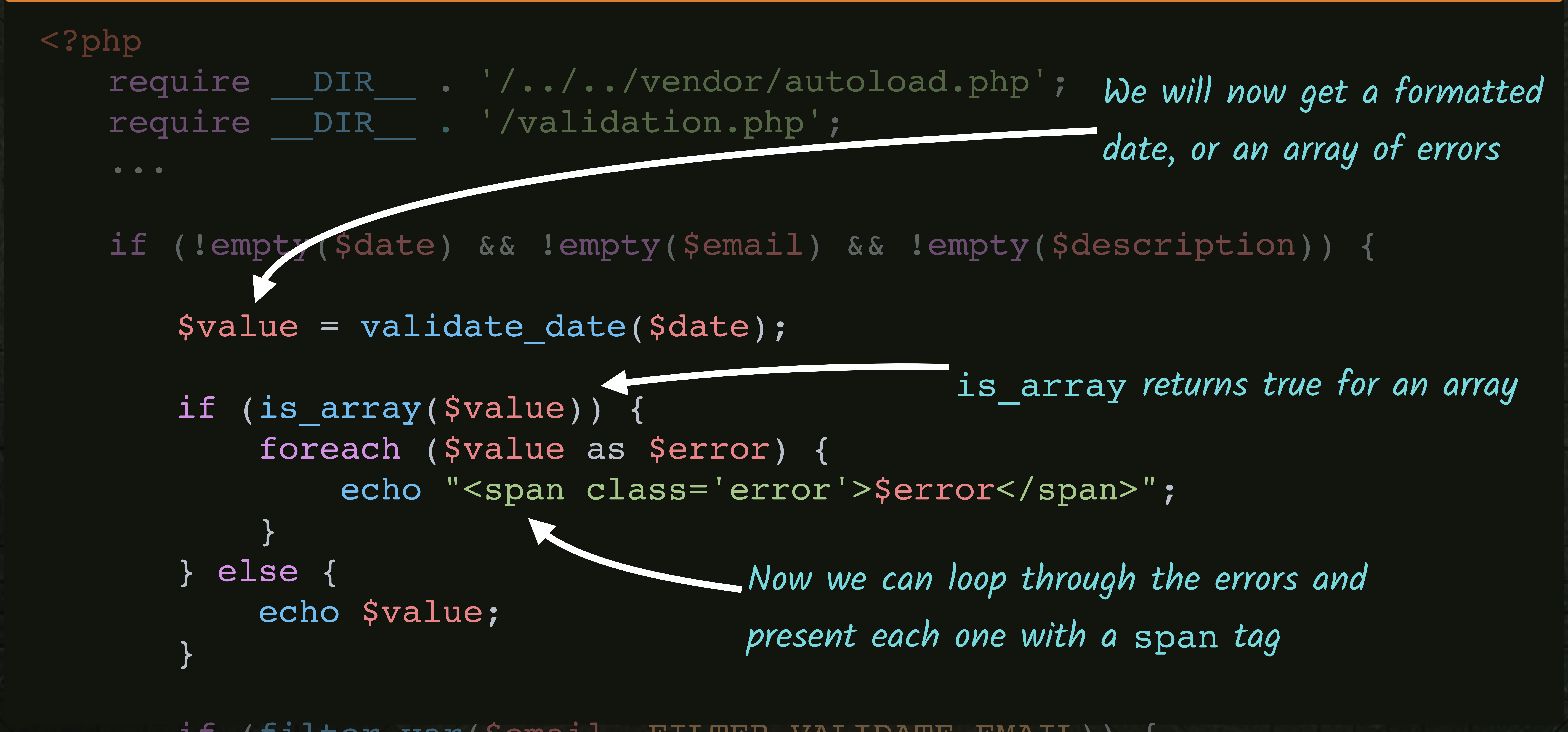
app/src/validation.php

```php
<?php
...
    $date_validator = Validator::date('d-m-Y')->notEmpty();

    try {
        $date_validator->assert($date_string);
        $date_time = strtotime($date_string);
        return date('F jS Y', $date_time);
    } catch (NestedValidationException $e) {
        return $e->getMessages();
    }
}
```

We will return the array of errors!

One Method for Presenting the Errors

app/src/app.php



```
<?php
    require __DIR__ . '/../../vendor/autoload.php';
    require __DIR__ . '/validation.php';
    ...

    if (!empty($date) && !empty($email) && !empty($description)) {

        $value = validate_date($date);

        if (is_array($value)) {
            foreach ($value as $error) {
                echo "<span class='error'>$error</span>";
            }
        } else {
            echo $value;
        }

        if (filter_var($email, FILTER_VALIDATE_EMAIL)) {
```

We will now get a formatted date, or an array of errors

`is_array` *returns true for an array*

Now we can loop through the errors and present each one with a `span` *tag*

A Better Approach, With Validation

app/src/app.php

```php
<?php
require __DIR__ . '/../../vendor/autoload.php';

use Respect\Validation\Validator;
use Respect\Validation\Exceptions\NestedValidationException;

if($_SERVER['REQUEST_METHOD'] === 'POST')) {
    $date = trim($_POST['date']);
    $email = trim($_POST['email']);
    $description = trim($_POST['desc']);

    $date_validator = Validator::date('d-m-Y')->notEmpty();
    $email_validator = Validator::email()->notEmpty();
    $desc_validator = Validator::stringType()->length(1, 750);

    try {
        $date_validator->assert($date);
        $email_validator->assert($email);
```

Include our validation library

Create custom validators for all of the form fields — each will have its own types of validation

A Better Approach, With Validation

app/src/app.php

```
try {
    $date_validator->assert($date);
    $email_validator->assert($email);
    $desc_validator->assert($description);

    echo date('F jS Y', strtotime($date));
    echo $email;
    echo $description;

} catch (NestedValidationException $e) {
    echo'<ul>';
    foreach ($e->getMessages() as $message) {
        echo"<li>$message</li>";
    }
    echo'</ul>';
}
```

Using a try/catch, we will assert each of our custom validators — each will have their own Exception if it fails

Here, we are echoing — in a real-world application, you might write this to a database!

If an Exception occurs, we will loop through each of them and output to an unordered list

Validation Review

What have we learned in this section?

- Using a **try/catch** block
- Working with exceptions and custom exceptions
- The **getMessages** method for validation error messages
- Returning errors as an array
- Returning errors by refactoring, using a single **try/catch** block

CLOSE ENCOUNTERS with PHP