2015

Laravel and Angular

Learn how to build apps with AngularJS in the client and Laravel on server

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Daniel Schmitz

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Learn how to build apps with AngularJS in the client and Laravel on server

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Contents

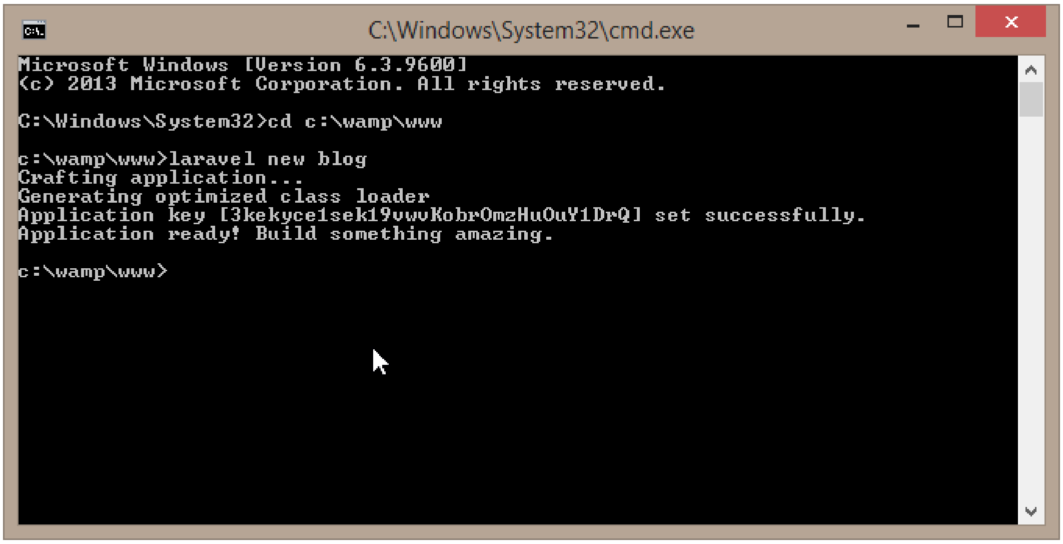
Part 2 - Laravel

Chapter 4- Getting to know the Laravel

Now that we have all libraries properly installed, we can initiate the study of Laravel. An application in Laravel can be created by the following command:

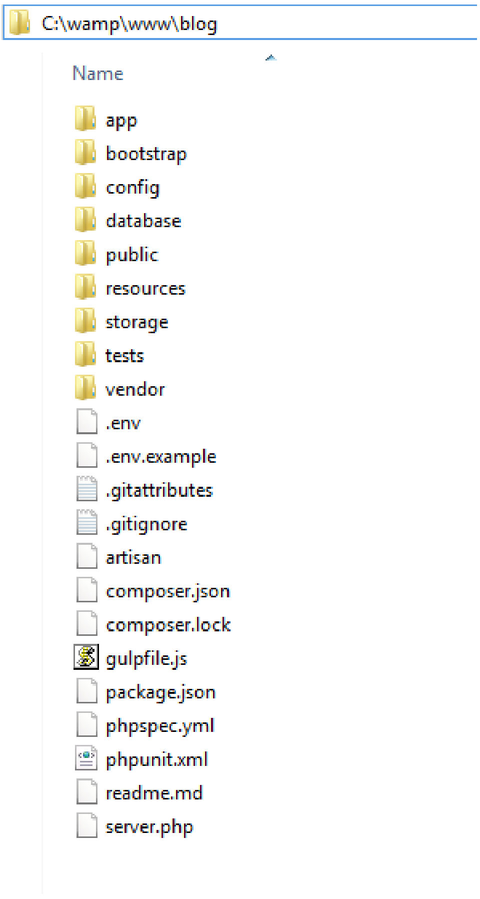
```
laravel new blog
```

With this command, an application with the name `blog` is created. Let's run this command in the web directory of our system, which can be `/home/user/www` on Linux or `c:\wamp\www` on Windows .



```
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd c:\wamp\www

c:\wamp\www>laravel new blog
Crafting application...
Generating optimized class loader
Application key [3kekyce1sek19vwvKobrOmzHuOuY1DrQ] set successfully.
Application ready! Build something amazing.

c:\wamp\www>
```

The file structure created in the project "blog" is similar to the following figure:


C:\wamp\www\blog

Name

```
app
bootstrap
config
database
public
resources
storage
tests
vendor
.env
.env.example
.gitattributes
.gitignore
artisan
composer.json
composer.lock
gulpfile.js
package.json
phpspec.yml
phpunit.xml
readme.md
server.php
```

Configuring the virtual host

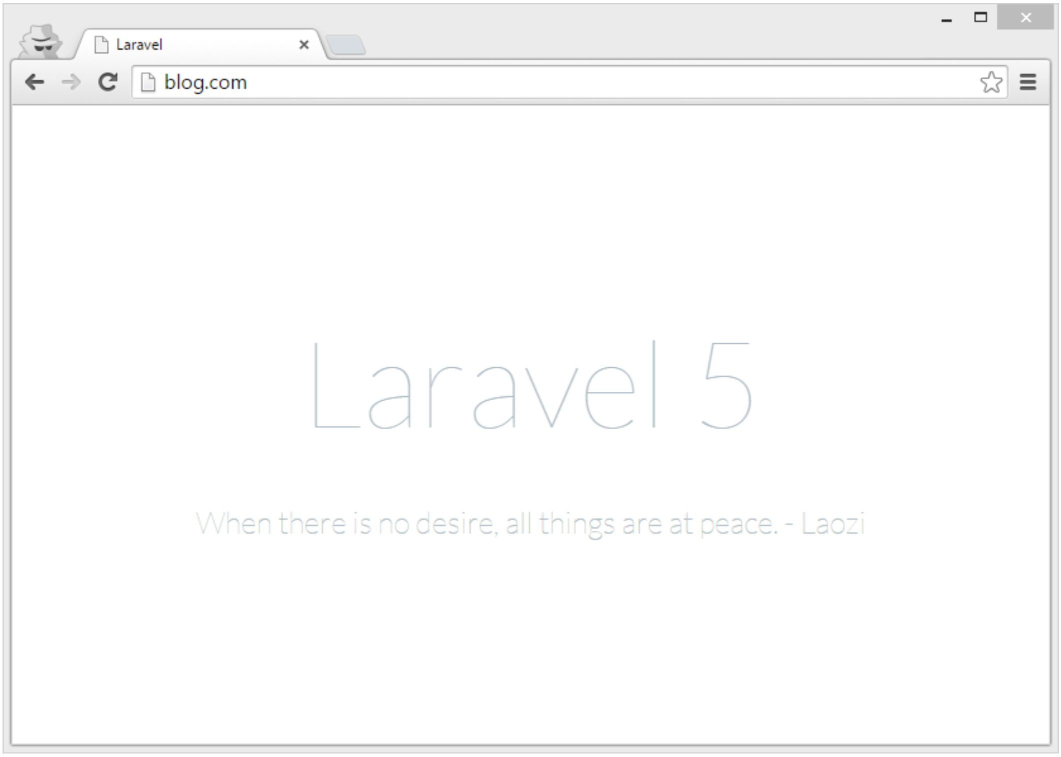
The first task after you create the application is to set up your *virtual host*. Let's assume that this application should be accessed via the url `blog.com`. For the Windows environment, edit the file `C:\wamp\bin\apache\apache2.4.9\conf\httpd.conf` including the following text in the end:

```
<VirtualHost *>
    ServerName blog.com
    DocumentRoot "c:/wamp/www/blog/public"
    <Directory "c:/wamp/www/blog/public">
        Options FollowSymLinks
        AllowOverride All
        Order allow,deny
        Allow from all
    </Directory>
</VirtualHost>
```

And change the `hosts` file including the following text:

```
127.0.0.1         blog.com
```

After restart the Wamp Server, open the url `blog.com`, getting the response:



For Linux environments

Follow the steps in Chapter 3 to create the virtual host, as done for the domain mysite.com.

Note that the virtual domain was created pointing to the folder `blog/public`, which should be the only directory visible to external access. For security reasons, the other directories of the application, such as "app" and "config", should never have public access. Do not create the virtual domain pointing to the directory of the application, especially on production servers. Always create it pointing to the `public` directory.

Directory permission

If you have any problem related to permission while accessing the url `blog.com`, for instance `Failed to open stream: Permission denied`, you must give written permission to the `storage` directory of the application. On Linux, do:

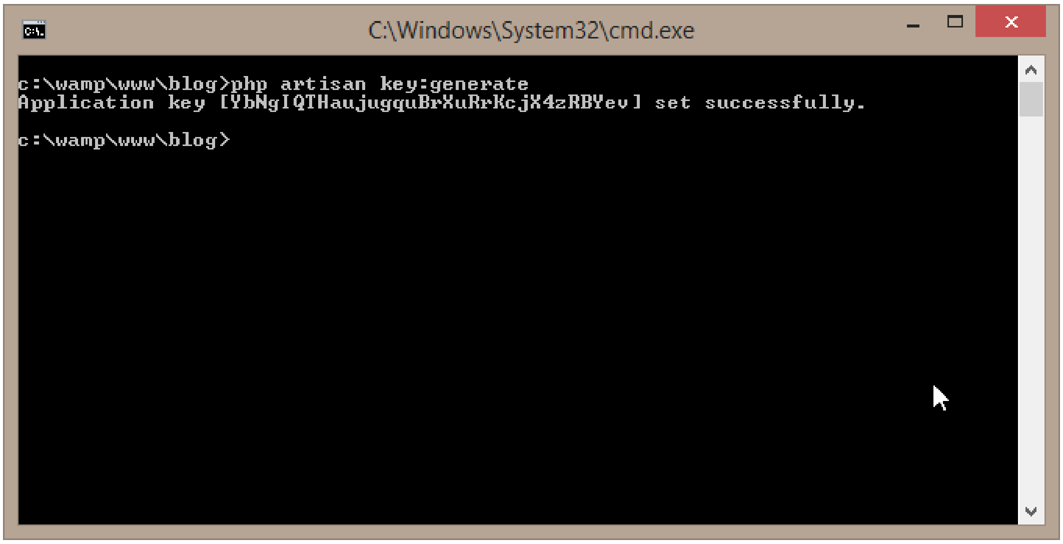
```
$ sudo chmod -R 777 www/blog/storage
```

Generating an encryption key

It is important for the security of your application to encrypt any type of information that will be allocated in the session or the cookies that the system creates. To do this, you must run the following command:

```
php artisan key:generate
```

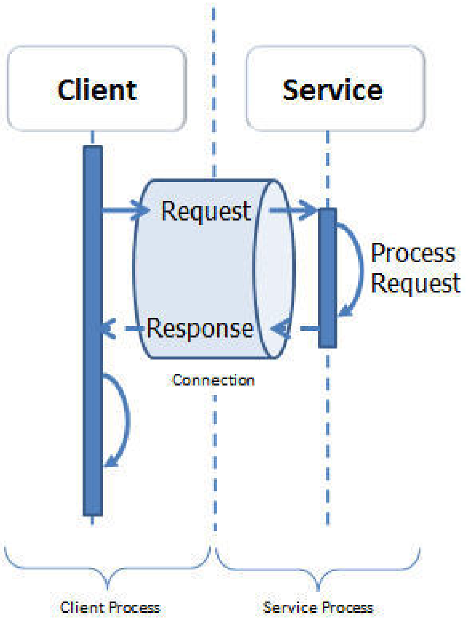
Run it in the blog directory, as shown in the following figure:



```
c:\wamp\www\blog>php artisan key:generate
Application key [YbNgIQTHaujugquBrXuRrKcjX4zRBYev] set successfully.

c:\wamp\www\blog>
```

Routes

In the simplest definition of HTTP access, we always have two common actions in any web technology: *Request* and *Response*. A * Request * is performed when the browser (which we call client) makes an access to a server via an URL. This URL contains, in the most basic format, the access path to the server, which is commonly called web address, and the type of the request, which can be GET and POST, among others. After the web server processes this request, it sends a response to the client, usually in text format. This "conversation" between the client and the server can be illustrated in the following figure:



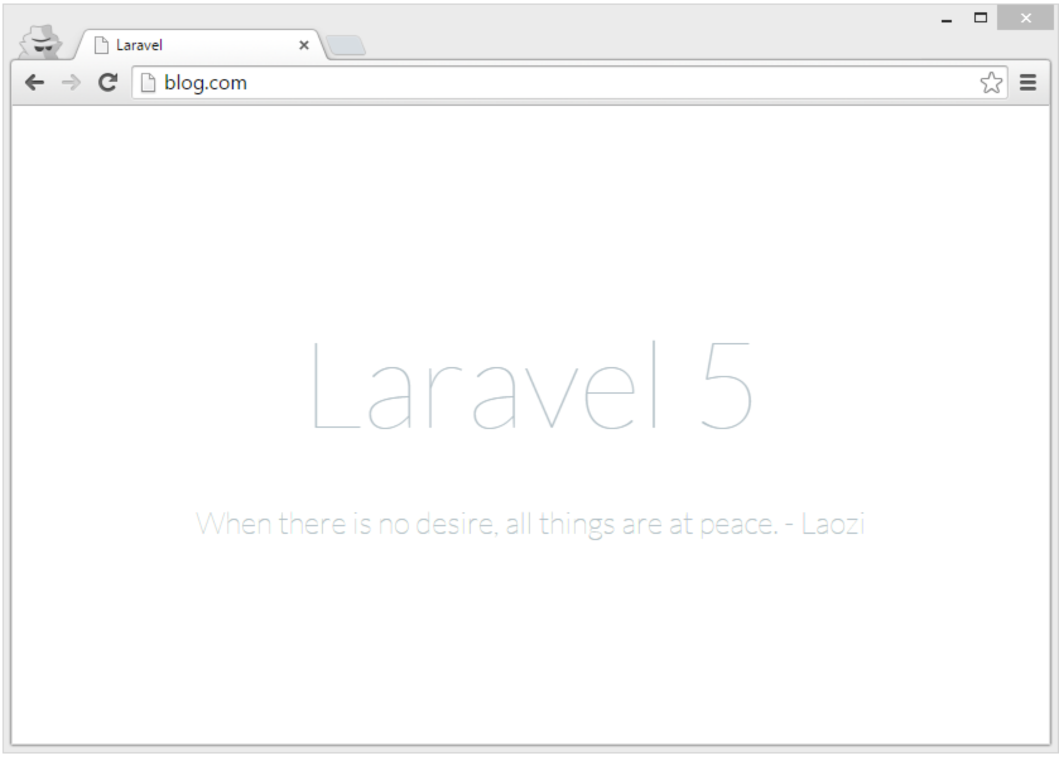
This idea must be understood so that we can continue to the routing definition. Defining a route is setting up a particular URL to perform something unique within our system. That is, through the routing we can create URLs that will define how the AngularJS will access the server to get data. This step is critical for us to understand how AngularJS will "talk" to the Laravel.

First, let's open the Laravel routing, which is located in `app/Http/routes.php`:

blog\appHttp\routes.php

```
<?php
Route::get('/', function () {
    return view('welcome');
});
```

Using the `Route::get` we are creating a custom configuration for the GET request, which is the request made by the browser when we access any URL. The first parameter of this method is `/` which means the root of the Web site address, in this case `blog.com`. The second parameter is an anonymous function that will be executed to set the response to the client. This function contains the following code `return view('welcome');` that defines the creation of a `view` from laravel, as in the following image:

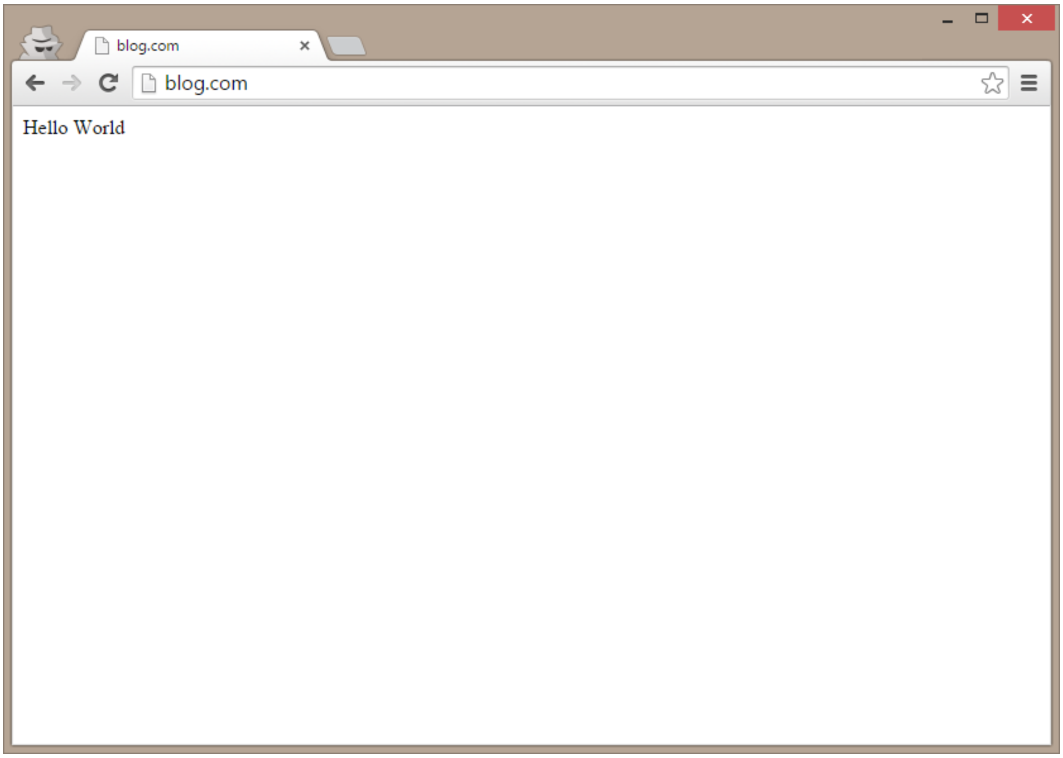


Let’s do a simple change to the code so that instead of generating a view from Laravel, it returns the text “Hello World”. See:

blog\appHttp\routes.php

```
<?php
Route::get('/', function () {
    return "Hello World";
});
```

After refreshing the blog.com page, we have the following result:



Hello World

With this, we can use the Laravel routing to create all the necessary functions for the AngularJS to communicate with the server. When we create a real project, you will see that the starting point of the project is to create the routing configuration, that we will call RESTful API, even though the term API is not the correct definition for this process.

To create a RESTful API, it is necessary to know all the routing configurations that the Laravel provides, and we will see that below in detail.

Routing types (verbs)

A web request can be classified in many different types, that we call by the term `VERBS`. In our examples, we will use the following types: `GET, POST, PUT, DELETE`. Each type will define a common action, which can be understood by the following table:

Method	Action	Example
GET	Responds with simple information about a resource	GET blog.com/user/1
POST	Used to add data and information	POST blog.com/user
PUT	Used to edit data and information	PUT blog.com/user
DELETE	Used to remove an information	DELETE blog.com/user/1

To use other types of request in addition to GET, you can use the following code:

blog\appHttp\routes.php

```php
<?php
Route::get('/', function () {
    return "Hello World";
});

Route::post('user/', function () {
    return "POST USER";
});

Route::put('user/', function () {
    return "PUT USER";
});

Route::delete('user', function () {
    return "DELETE USER";
});
```

You can also use more than one type of request, as in the following example:

blog\appHttp\routes.php

```
<?php
Route::match(['get', 'post'], '/', function () {
    return 'Hello World with GET or POST';
});
```

Is valid to remember that, by convention, everytime we change data, we should use POST or PUT, and when any data is deleted, use DELETE. In current browsers, PUT and DELETE are not yet supported, but that will not be a problem for our system because all AngularJS client requests made to the Laravel server will be via Ajax.

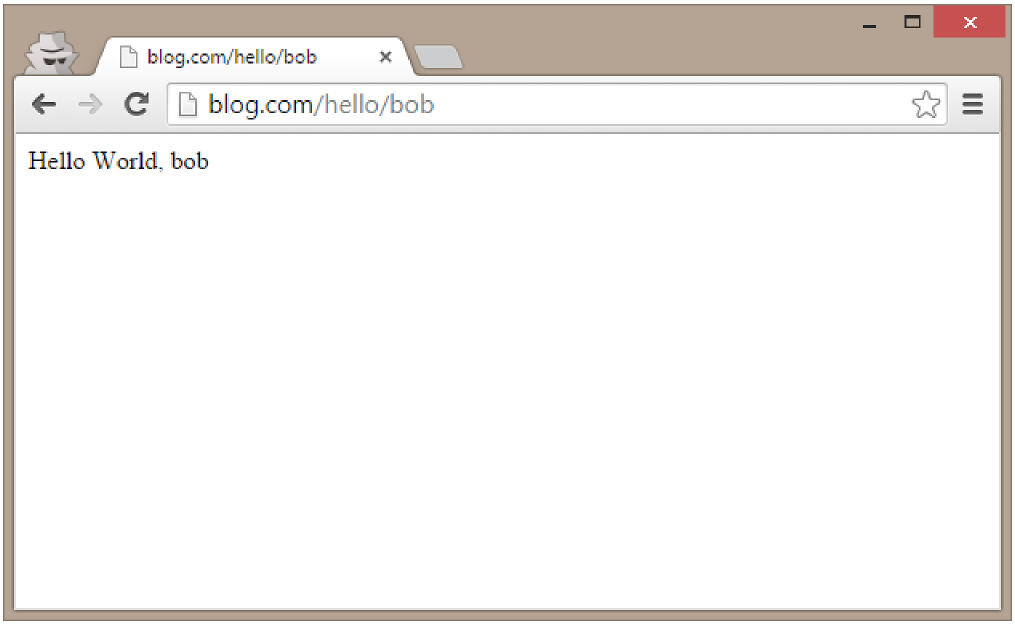
Passing parameters in routing

You can configure one or more parameters that must be passed by the URL. For instance, the URL "/hello/bob" has the following response: "Hello world!". To do this, create the parameter `{name}`, according to the code as follows:

blog\appHttp\routes.php

```
<?php
Route::get('/hello/{name}', function ($name) {
    return "Hello World, $name";
});
```

Note that the parameter created is defined in the URL with the use of keys, and also set as a parameter in the anonymous function. The result of the code above should be as below:



Hello World, bob

You can create as many parameters as needed, recommending only that use `/` to each of them. You can also pass an optional parameter through the use of the `?`. The following example shows a simple way to add 2 or 3 numbers:

blog\appHttp\routes.php

```php
<?php
Route::get('/sum/{value1}/{value2}/{value3?}',
                        function ($value1,$value2,$value3=0) {

        $sum =  $value1+$value2+$value3;
        return "Sum: $sum";

});
```

Using regular expressions

Sometimes it is necessary to set up a condition for the routing to be successful. In the sum of numbers example, what would happen if we used the url "blog.com/sum/1/two/4"? Possibly throw an error in PHP, since we need to sum only numbers. In this way, we can use the attribute `where` as a condition for routing to be performed. The following example ensures that the sum is performed only with numbers:

blog\appHttp\routes.php

```php
<?php
Route::get('/sum/{value1}/{value2}/{value3?}',
                    function ($value1,$value2,$value3=0) {
    $sum =  $value1+$value2+$value3;
    return "Sum: $sum";
})->where([
                        'value1'=>'[0-9]+',
                        'value2'=>'[0-9]+',
                        'value3'=>'[0-9]+'
                        ]);
```

To validate a string, you can use `[A-Za-z]`. Any level of regular expression validation can be used.

Many routes use the primary key of the record in their URLs, which makes it necessary to verify if this key is an integer. For example, to delete a user, we could use the following setup:

blog\appHttp\routes.php

```php
<?php
Route::delete('/user/{id}', function ($id) {
    return "delete from user where idUser=$id";
})->where('id', '[0-9]+');
```

The example above is perfectly valid, but assume that almost all its routes have ids, and must be validated. In that case all routes would have the `->where()`, making the code more repetitive and breaking the DRY (Don't Repeat Yourself) principle.

To fix this problem we can set up that every variable called `id` must be a number. To do this in Laravel, we must add a `pattern` in the file `app/Providers/RouteServiceProvider.php`, as follows:

blog\appProvidersRouteServiceProvider.php

```php
<?php

namespace App\Providers;

use Illuminate\Routing\Router;
use Illuminate\Foundation\Support\Providers\RouteServiceProvider as Ser\
viceProvider;

class RouteServiceProvider extends ServiceProvider
{
    protected $namespace = 'App\Http\Controllers';

    public function boot(Router $router)
    {

        $router->pattern('id', '[0-9]+');

        parent::boot($router);
    }

    /// code continues

}
```

The class `RouteServiceProvider` provides all the routing functionality of your application, including the creation of routes that are in the file `app\http\routes.php`. Using the `pattern` you can set a default regular expression for a variable, in this case `id`. This way, any variable called `id` in routing will have the regular expression tested.

Naming routings

You can add a name to a route to use it in other routes. This avoids the use of writing directly to the URL route, improving the code stream. In the following example, assume two distinct routes, it will create a new user and return a text with a link to his profile. You can write the following code:

blog\appHttp\routes.php

```
<?php
Route::get('user/{id}/profile', function ($id) {
    return "Show Profile id: $id";
});

Route::get('user/new', ['as' => 'newUser', function () {
    return "User created.  <a href='blog.com/user/1/profile'>See Profil\
e</a> ";
}]);
```

Note that the link `< a href ... >` created, include the domain name and the path of `blog.com` route, which is not good because if there is any change in the name of the domain or URL of the route this link will no longer work. To fix it, we should initially name the route that displays the user's profile, as follows:

blog\appHttp\routes.php

```
<?php
Route::get('user/{id}/profile',
    ['as' => 'profileUser', function ($id) {
    return "User profile id: $id";
}]);
```

Note that the second parameter of the method `Route::get` becomes an *array*, which contains two elements, the first being identified by the `key` and containing the name of the routing, and the second the function we already know.

After you create the name of the route, you can get the full URL using the `route`, as in the following code:

blog\appHttp\routes.php

```
<?php
Route::get('user/{id}/profile',
        ['as' => 'profileUser', function ($id) {
    return "User profile id $id";
}]);

Route::get('user/new', ['as' => 'newUser', function () {
    $userProfileLink = route('profileUser',['id'=>1]);
    return "User Created.
    <a href='$userProfileLink'>Profile</a>";
}]);
```

In this code, we use the `route` method passing the name of the route and the parameter `id`.

Grouping routes

Laravel routes configuration allows the grouping of routes to keep a better reading of the source code. The following example is perfectly valid:

blog\appHttp\routes.php

```
<?php
Route::get('/post/new', function () {
    return "/post/new";
});

Route::get('/post/edit/{id}', function ($id) {
    return "/post/edit/$id";
});

Route::get('/post/delete/{id}', function ($id) {
    return "/post/delete/$id";
});
```

But the code of these 3 routes can be improved with the command `Route::group` and a prefix, as follows:

blog\appHttp\routes.php

```
<?php
Route::group(['prefix' => 'post'], function () {
    Route::get('/new', function () {
        return "/post/new";
    });

    Route::get('/edit/{id}', function ($id) {
        return "/post/edit/$id";
    });

    Route::get('/delete/{id}', function ($id) {
        return "/post/delete/$id";
    });
});
```

That is, by creating a prefix, all routes within the `Route::group` will be bound to it.

Middleware

A middleware is a way to filter the requests that are processed by Laravel. There are routes that, for instance, can only be performed if the user is authenticated, or any other type of requirement. A middleware is created in the folder `app/Http/Middleware`, which already has some ready for use.

To better understand the concept, let's focus on authentication. The Laravel already has a system ready to authenticate (login) the user, and we will use it here to perform a test. The authentication middleware is located in `app/Http/Middleware/Authenticate.php` and you can use it on its route through the following example:

blog\appHttp\routes.php

```php
<?php
Route::get('/testLogin', ['middleware' => 'auth', function () {
    return "logged!";
}]);
```

In this code, by accessing `blog.com/testLogin`, the page will either be redirected to the login screen, or throw an unauthorized access error. These details can be viewed in the file `app/Http/Middleware/Authenticate.php`, on the `handle` method. The main idea of the middleware is providing a way to perform actions before and after the request, in order to accomplish some specific task.

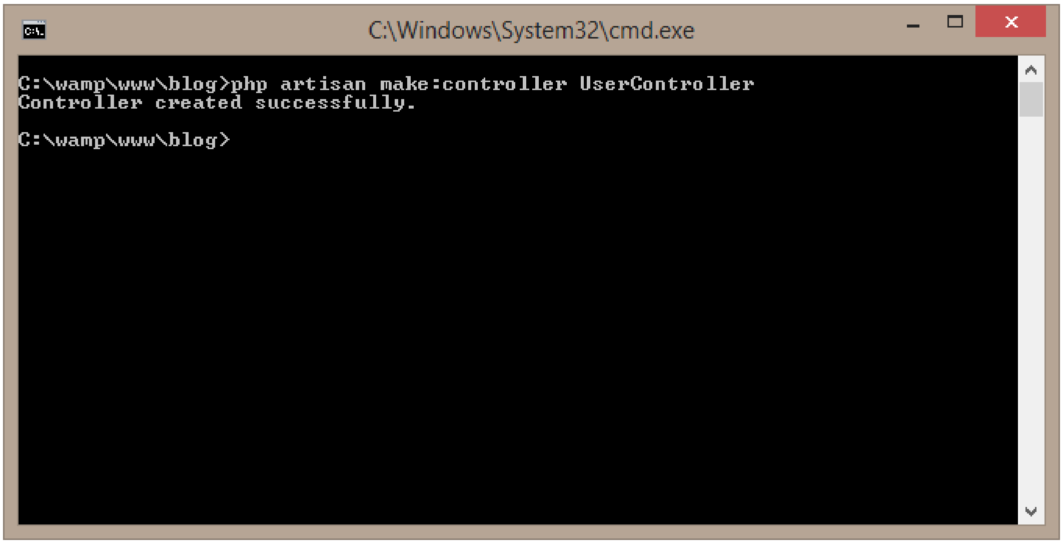
Controllers

Until now we addressed several concepts about the routing in Laravel and how we can, through the URL of an application, perform different tasks. The file `blog\app\Http\routes.php` create several routes, but we will not program all the system functionalaties in it. Following the MVC development pattern, most of the functionality of the system are allocated in the controller and the model of the application.

A controller is a piece of the application that usually reflects a common entity. For example, a blog have several entities such as the user, a post and a comment. All these entities, which usually are also system tables, have their own controllers. With that we leave the `routes.php` file to configure less common routes of the application, and use the controllers to set up routes that relate to the entity in question. That is, the routes related to the user will be configured in the `User` controller, and the routes related to a comment will be set up in the `Comment` controller. All the controllers are created in the folder `app\Http\Controllers`, with the suffix "Controller".

Create a controller is relatively simple, you can create a php file or use the command line, as the following example:

```
php artisan make:controller UserController
```



```
C:\wamp\www\blog>php artisan make:controller UserController
Controller created successfully.

C:\wamp\www\blog>
```

Implicit Controllers (automatic)

After running the command, the controller `UserController` is created, with some relevant code. But what we want for our system is link the routing to the methods of the controller. That is, after we create the controller `UserController` we want to somehow make the URL "blog.com/user/new" to call a method within the controller, there is no more need to edit the file `routes.php`. Setting up is relatively easy with the code `Route::controller`, which must be added to the `routes.php` file, and must reference the part of the URL that will contain the redirection and the controller itself.

In the case of the controller `UserController`:

blog\appHttp\routes.php

```
<?php
Route::get('/', function () {
    return "Hello World";
});

Route::controller("user","UserController");
```

After you setting up the URL, that contains `/user`, will call `UserController` methods, we just need to create these methods, whose default is to prefix the request type (Get, Post, Put, etc) and concatenate with the method name. We can then change the class `blog\app\Http\Controllers\UserController.php` to:

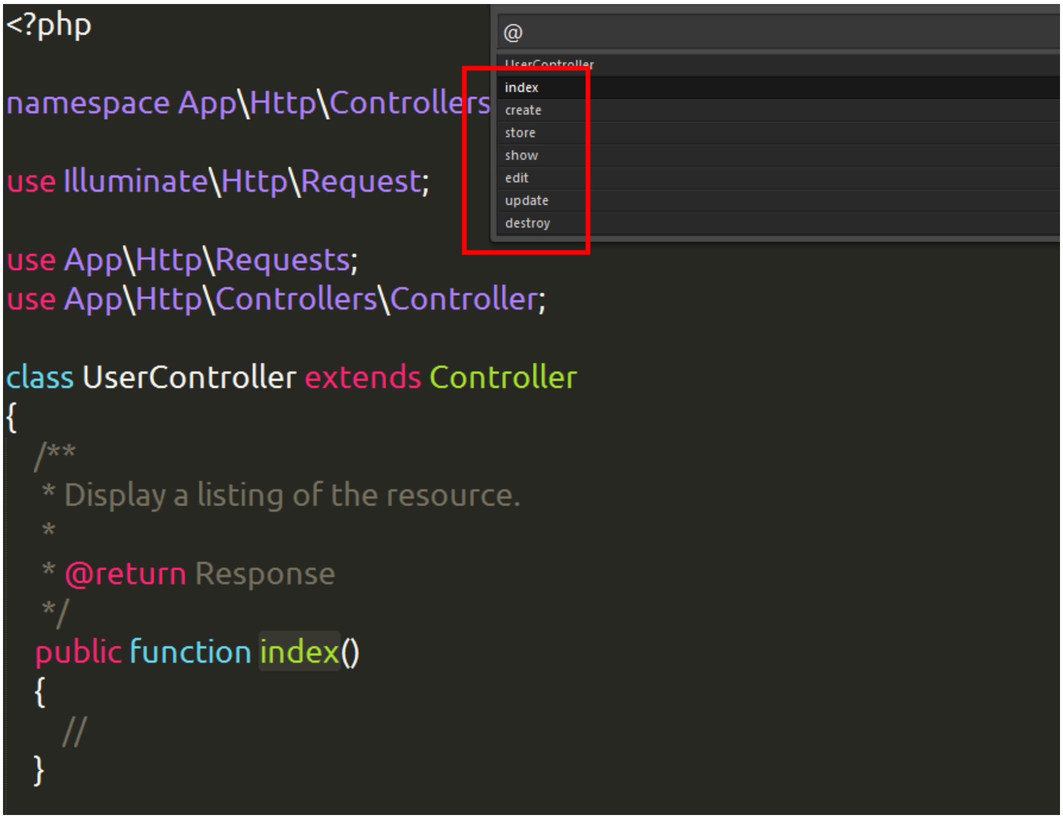
blog\appHttpControllersUserController.php

```
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;

use App\Http\Requests;
use App\Http\Controllers\Controller;

class UserController extends Controller
{

    public function getIndex(){
        return "user/";
    }

    // ....

}
```

This means that, when performing a call GET with the URL “blog.com/user/show/1”, the method `getShow` of class `UserController` is called, assigning the parameter `id` of the method, and returning the text "get user/show/1". Note that only the configuration of the controller is in the `routes.php`, and the whole Setup to access the methods of the entity `User` is in the `UserController` class.

Controllers and Resource

We have seen how to call the routes of an application to a specific controller, but we can go a little further in the configuration of a controller and create a resource, which is a set of preconfigured methods with its pre-designed request types. When we create the controller with the PHP command `make artisan: controller` the following methods are created automatically:



```
<?php

namespace App\Http\Controllers

use Illuminate\Http\Request;

use App\Http\Requests;
use App\Http\Controllers\Controller;

class UserController extends Controller
{
  /**
   * Display a listing of the resource.
   *
   * @return Response
   */
  public function index()
  {
    //
  }
```

Create a resource in the `routes.php` file , with the following code:

blog\appHttp\routes.php

```
<?php
Route::get('/', function () {
    return "Hello World";
});

Route::controller("user","UserController");

//Resource:
Route::resource('user', 'UserController');
```

We have enabled the following configuration:

Type	Path	Action	Method
GET	/user	index	user.index
GET	/user/create	create	user.create
POST	/user	store	user.store
GET	/user/{id}	show	user.show
GET	/user/{id}/edit	edit	user.edit
PUT	/user/{id}	update	user.update
DELETE	/user/{id}	delete	user.delete

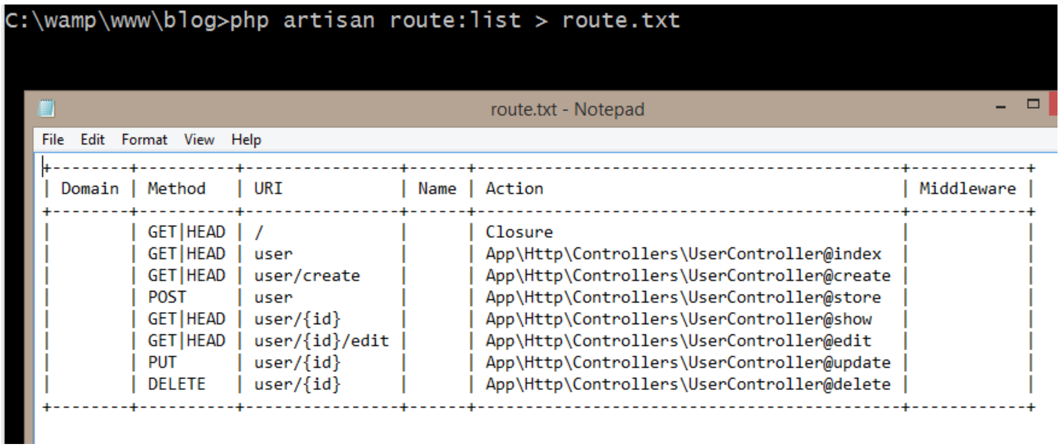
Explicit controllers (manual)

When we use `Route::controller`, we define an automatic access between the request and the controller, needing only to prefix the method name of the controller. There is another way to set up the controller application access with the creation of each method, as the following example:

blog\appHttp\routes.php

```
<?php
Route::get('/', function () {
    return "Hello World";
});

Route::get('user/', 'UserController@index');
Route::get('user/create', 'UserController@create');
Route::post('user/', 'UserController@store');
Route::get('user/{id}', 'UserController@show');
Route::get('user/{id}/edit', 'UserController@edit');
Route::put('user/{id}', 'UserController@update');
Route::delete('user/{id}', 'UserController@delete');
```

In this way, you need to write each route in the `routes.php` file, but the implementation of each route continues in the controller. There are some small advantages in writing the routes manually. One of them is to use the PHP command `artisan route:list` to get the list of routes of your application, as the following image.



```
C:\wamp\www\blog>php artisan route:list > route.txt
```

```
+--------+----------+----------------+------+-------------------------------------------------+------------+
| Domain | Method   | URI            | Name | Action                                          | Middleware |
+--------+----------+----------------+------+-------------------------------------------------+------------+
|        | GET|HEAD | /              |      | Closure                                         |            |
|        | GET|HEAD | user           |      | App\Http\Controllers\UserController@index       |            |
|        | GET|HEAD | user/create    |      | App\Http\Controllers\UserController@create      |            |
|        | POST     | user           |      | App\Http\Controllers\UserController@store       |            |
|        | GET|HEAD | user/{id}      |      | App\Http\Controllers\UserController@show        |            |
|        | GET|HEAD | user/{id}/edit |      | App\Http\Controllers\UserController@edit        |            |
|        | PUT      | user/{id}      |      | App\Http\Controllers\UserController@update      |            |
|        | DELETE   | user/{id}      |      | App\Http\Controllers\UserController@delete      |            |
+--------+----------+----------------+------+-------------------------------------------------+------------+
```

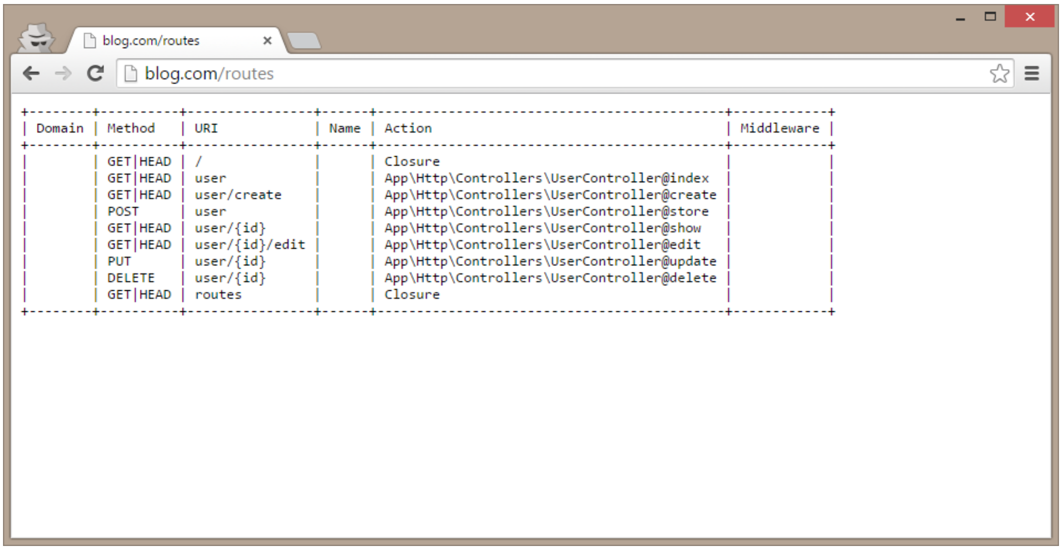
This will be very useful for the server access API documentation. Another advantage is having the accurate control of how your web application is being exposed via the API, thus ensuring a better comfort when debugging the code.

You can also create a routing to display all existing routes in the browser itself, as the following code:

blog\appHttp\routes.php

```
<?php

Route::get('routes', function() {
    \Artisan::call('route:list');
    return "<pre>".\Artisan::output();
});
```

It displays the following output:



```
+--------+----------+----------------+------+--------------------------------------------+------------+
| Domain | Method   | URI            | Name | Action                                     | Middleware |
+--------+----------+----------------+------+--------------------------------------------+------------+
|        | GET|HEAD | /              |      | Closure                                    |            |
|        | GET|HEAD | user           |      | App\Http\Controllers\UserController@index  |            |
|        | GET|HEAD | user/create    |      | App\Http\Controllers\UserController@create |            |
|        | POST     | user           |      | App\Http\Controllers\UserController@store  |            |
|        | GET|HEAD | user/{id}      |      | App\Http\Controllers\UserController@show   |            |
|        | GET|HEAD | user/{id}/edit |      | App\Http\Controllers\UserController@edit   |            |
|        | PUT      | user/{id}      |      | App\Http\Controllers\UserController@update |            |
|        | DELETE   | user/{id}      |      | App\Http\Controllers\UserController@delete |            |
|        | GET|HEAD | routes         |      | Closure                                    |            |
+--------+----------+----------------+------+--------------------------------------------+------------+
```

Implicit or explicit routing?

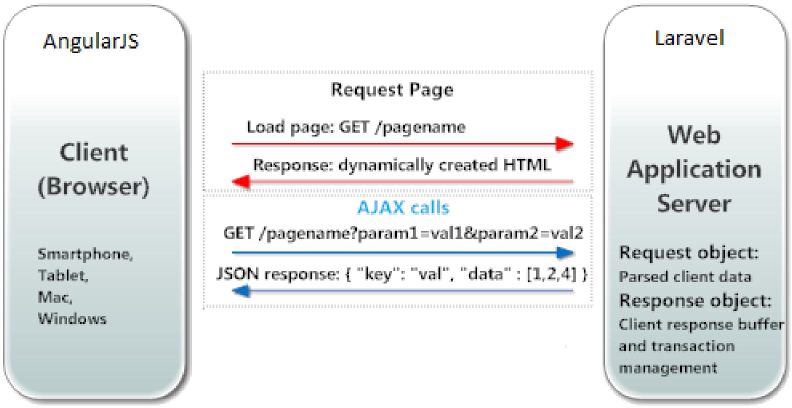
There is no consensus among the most correct way. Many programmers like the implicit mode because they don't have to define all the routes in the `routes.php` file, while others argue that creating these routes manually is the right thing to do. In this work, the focus is to create something that is simple and intuitive, so instead of having various methods in the controller that can be accessed freely by AngularJS, we have, in the `routes.php` file, all access setting, clearly and concisely.

The way, when we program the server access methods with AngularJS, we know that these methods are in a single file (API). There are other advantages to use the explicit access, as the response data formatting (JSON or XML), which will be discussed in a later chapter.

Ajax

A request is the client (browser) access to the server. In this work, we will be addressing a Request as being AngularJS connecting to Laravel, via Ajax. This process is widely used to get data from the server, to populate an AngularJS table or just to persist data.

When Laravel respond to AngularJS, we have the answer (Response), which must necessarily be performed with a standard format, called JSON, which is a lighter format than XML and widely used in Ajax requests. The following image illustrates the process.


AngularJS
Client (Browser)
Smartphone, Tablet, Mac, Windows
Request Page
Load page: GET /pagename
Response: dynamically created HTML
AJAX calls
GET /pagename?param1=val1&param2=val2
JSON response: { "key": "val", "data" : [1,2,4] }
Laravel
Web Application Server
Request object:
Parsed client data
Response object:
Client response buffer and transaction management

We are here setting a data communication standard between the AngularJS and the Laravel, a pattern used in any client/server communication via Ajax. One of the advantages of this pattern is that both sides, server and client, are independent in the process, which means that if any some reason there is an change in the technology on the client or on the server, the pattern will stay the same.

For example, if there is a need to change the Laravel for some framework in Java (note that we changed even the programming language), simply create the same API with the same JSON responses and the client in AngularJS will stay the same.

Similarly, if we keep the Laravel on the server and use another client, as Android in a mobile device, it can make Ajax requests to the server and get the same data from the AngularJS.

JSON Response

For the Laravel to reply in JSON, all we need is that the method on the controller return an Array or an object from Eloquent (we will see Eloquent in a later chapter).

For example, assuming the `routes.php` file contains:

blog\appHttp\routes.php

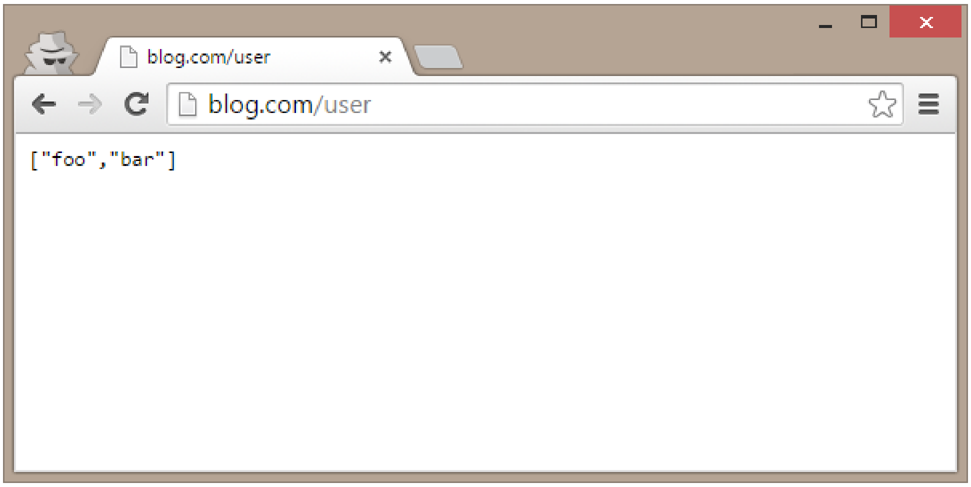
```php
<?php

Route::get('user/', 'UserController@index');
```

And the `index` method of the `UserController` is:

blog\appHttpControllersUserController.php

```php
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;

use App\Http\Requests;
use App\Http\Controllers\Controller;

class UserController extends Controller
{

    public function index(){
        $array = array('foo', 'bar');
        return $array;
    }

    // .......
}
```

We have the following response in the browser:



```
["foo","bar"]
```

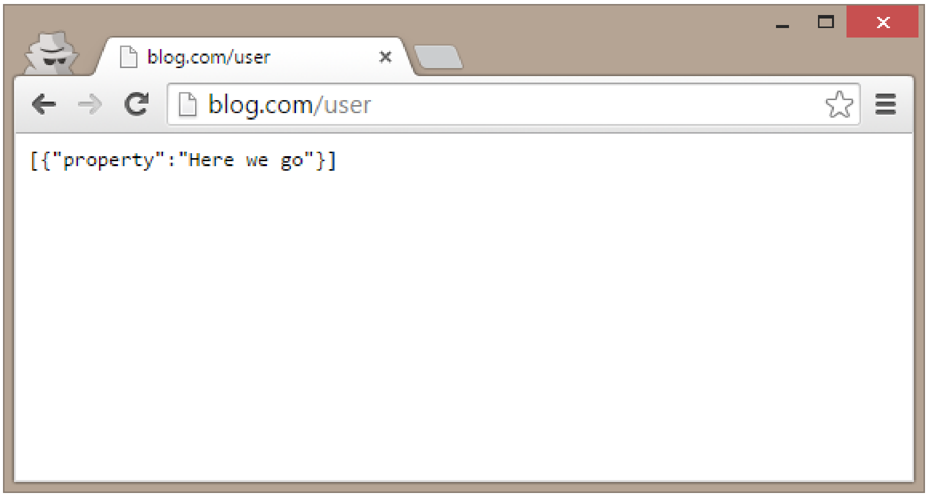
That is the Array in JSON format. If there is the need to return an object, the ideal is to add this object to an Array and return it, as in the following example:

blog\appHttpControllersUserController.php

```
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;

use App\Http\Requests;
use App\Http\Controllers\Controller;

class UserController extends Controller
```

```
{

    public function index(){
        $object = new \stdClass();
        $object->property = 'Here we go';
        return array($object);
    }

    // .......
}
```

Whose answer will be:



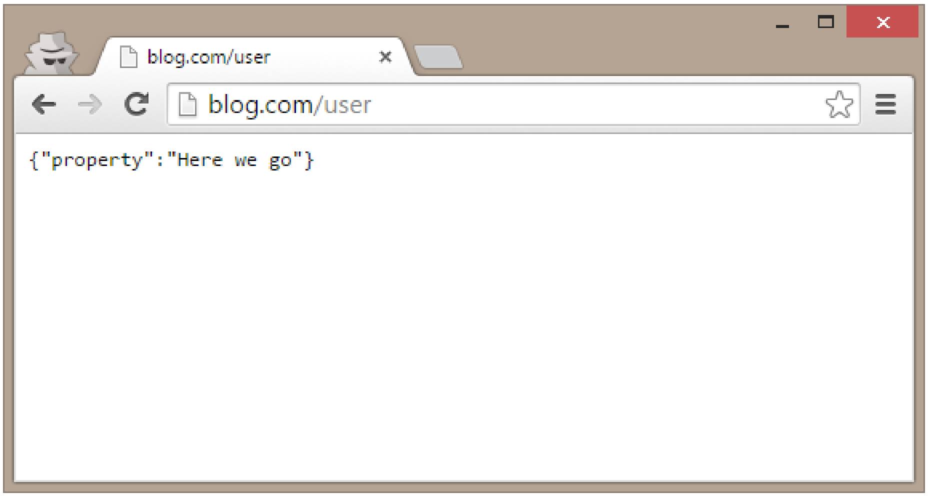
```
[{"property":"Here we go"}]
```

You can also use the method `response ()->json()`, as the following example:

blog\appHttpControllersUserController.php

```php
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;

use App\Http\Requests;
use App\Http\Controllers\Controller;

class UserController extends Controller
{

    public function index(){
        $object = new \stdClass();
        $object->property = 'Here we go';
        return response()->json($object);
    }

    // .......
}
```

The result is displayed in the following image.



```
{"property":"Here we go"}
```

By Convention, we can define the Laravel Controller will always return an array or an object of Eloquent, always in JSON format.

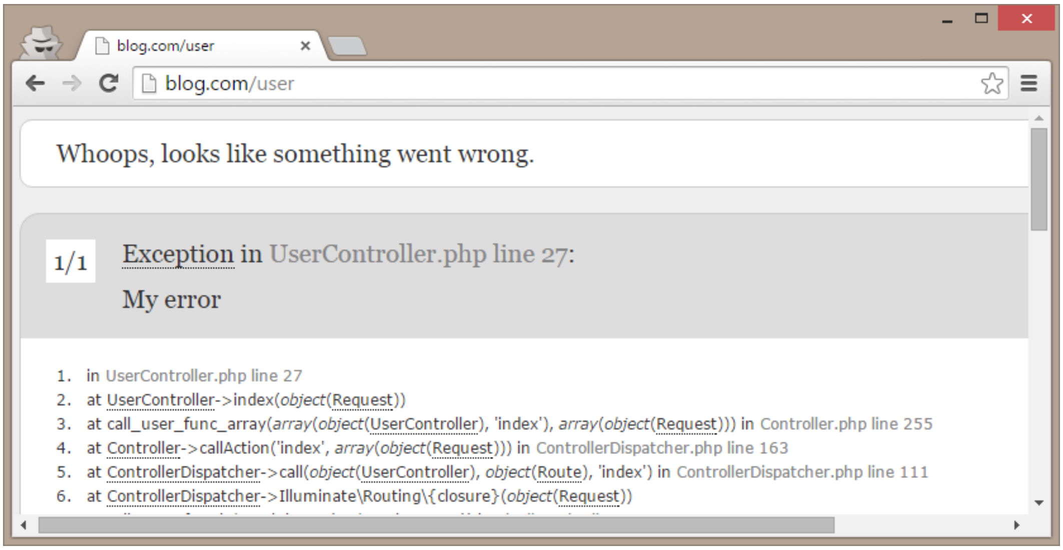
Exceptions in JSON format

It is vital that the exceptions in Laravel return the same JSON format that we are adopting. In the following example, when you create a generic exception:

blog\appHttpControllersUserController.php

```php
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;

use App\Http\Requests;
use App\Http\Controllers\Controller;

class UserController extends Controller
{
    public function index(){
        throw new \Exception("My error");
        return array("ok");
    }

    // .......
}
```

We got the following reply:



Whoops, looks like something went wrong.

1/1 Exception in UserController.php line 27:

My error

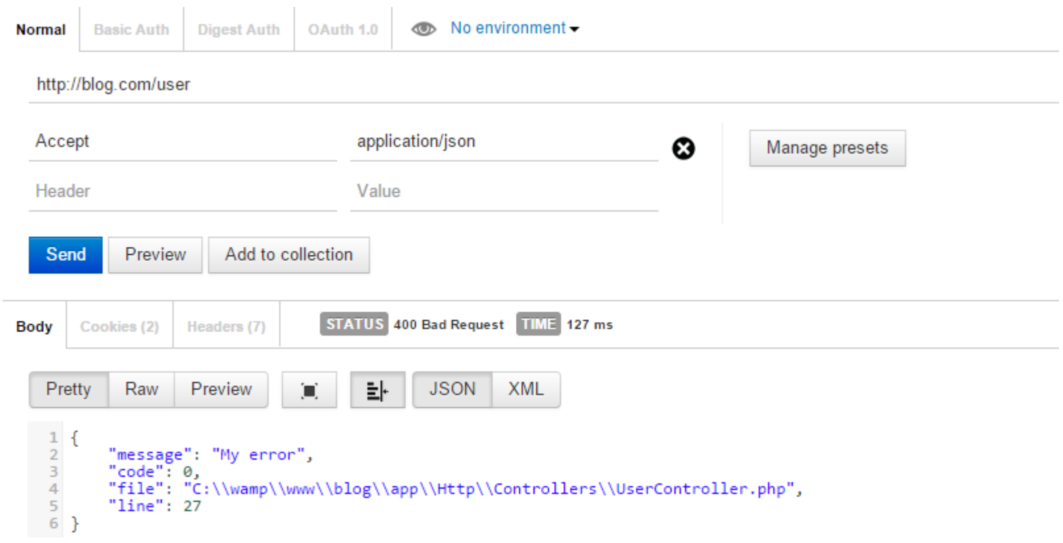
```
1. in UserController.php line 27
2. at UserController->index(object(Request))
3. at call_user_func_array(array(object(UserController), 'index'), array(object(Request))) in Controller.php line 255
4. at Controller->callAction('index', array(object(Request))) in ControllerDispatcher.php line 163
5. at ControllerDispatcher->call(object(UserController), object(Route), 'index') in ControllerDispatcher.php line 111
6. at ControllerDispatcher->Illuminate\Routing\{closure}(object(Request))
```

What definitely is not valid for the standard JSON. We have to somehow return this error in JSON. Fortunately this is entirely possible with Laravel, simply change the file `app\Exceptions\Handler.php` as shown in the following code:

blog\appExceptionsHandler.php

```
<?php

namespace App\Exceptions;

use Exception;
use Symfony\Component\HttpKernel\Exception\HttpException;
use Illuminate\Foundation\Exceptions\Handler as ExceptionHandler;

class Handler extends ExceptionHandler
{
    protected $dontReport = [
        HttpException::class,
    ];

    public function report(Exception $e)
    {
        return parent::report($e);
    }

    public function render($request, Exception $e)
    {
        if ($request->wantsJson()){
            $error = new \stdclass();
            $error->message = $e->getMessage();
            $error->code = $e->getCode();
            $error->file = $e->getFile();
            $error->line = $e->getLine();
            return response()->json($error, 400);
        }
        return parent::render($request, $e);
    }
}
```

In this code, change the method `render` including a custom error in JSON format. This error will only be generated in Ajax requests, thanks to `if ($request->wantsJson())`. This is useful to define how the message is presented to the user. In order to be able to test this error, we must simulate an Ajax request to Laravel, and this can be accomplished with an extension of Google Chrome called *Postman*, adding the URL `blog.com/user` to the header in the GET request, as the following image:



http://blog.com/user

Accept: application/json

STATUS 400 Bad Request TIME 127 ms

```
{
    "message": "My error",
    "code": 0,
    "file": "C:\\wamp\\www\\blog\\app\\Http\\Controllers\\UserController.php",
    "line": 27
}
```

Summing up, the error is displayed as the request, and as the AngularJS will always make an Ajax call to Laravel, the error will also be displayed in the JSON format.