Facades

Introduction

Facades provide a "static" interface to classes that are available in the application's service container. Laravel ships with many facades which provide access to almost all of Laravel's features. Laravel facades serve as "static proxies" to underlying classes in the service container, providing the benefit of a terse, expressive syntax while maintaining more testability and flexibility than traditional static methods.

All of Laravel's facades are defined in the `Illuminate\Support\Facades` namespace. So, we can easily access a facade like so:

```
use Illuminate\Support\Facades\Cache;

Route::get('/cache', function () {
    return Cache::get('key');
});
```

Throughout the Laravel documentation, many of the examples will use facades to demonstrate various features of the framework.

When To Use Facades

Facades have many benefits. They provide a terse, memorable syntax that allows you to use Laravel's features without remembering long class names that must be injected or configured manually. Furthermore, because of their unique usage of PHP's dynamic methods, they are easy to test.

However, some care must be taken when using facades. The primary danger of facades is class scope creep. Since facades are so easy to use and do not require injection, it can be easy to let your classes continue to grow and use many facades in a single class. Using dependency injection, this potential is mitigated by the visual feedback a large constructor gives you that your class is growing too large. So, when using facades, pay special attention to the size of your class so that its scope of responsibility stays narrow.

When building a third-party package that interacts with Laravel, it's better to inject Laravel contracts instead of using facades. Since packages are built outside of Laravel itself, you will not have access to Laravel's facade testing helpers.

Facades Vs. Dependency Injection

One of the primary benefits of dependency injection is the ability to swap implementations of the injected class. This is useful during testing since you can inject a mock or stub and assert that various methods were called on the stub.

Typically, it would not be possible to mock or stub a truly static class method. However, since facades use dynamic methods to proxy method calls to objects resolved from the service container, we actually can test facades just as we would test an injected class instance. For example, given the following route:

```
use Illuminate\Support\Facades\Cache;

Route::get('/cache', function () {
    return Cache::get('key');
});
```

We can write the following test to verify that the `Cache::get` method was called with the argument we expected:

```php
use Illuminate\Support\Facades\Cache;

/**
 * A basic functional test example.
 *
 * @return void
 */
public function testBasicExample()
{
    Cache::shouldReceive('get')
         ->with('key')
         ->andReturn('value');

    $this->visit('/cache')
         ->see('value');
}
```

Facades Vs. Helper Functions

In addition to facades, Laravel includes a variety of "helper" functions which can perform common tasks like generating views, firing events, dispatching jobs, or sending HTTP responses. Many of these helper functions perform the same function as a corresponding facade. For example, this facade call and helper call are equivalent:

```php
return View::make('profile');

return view('profile');
```

There is absolutely no practical difference between facades and helper functions. When using helper functions, you may still test them exactly as you would the corresponding facade. For example, given the following route:

```php
Route::get('/cache', function () {
    return cache('key');
});
```

Under the hood, the `cache` helper is going to call the `get` method on the class underlying the `Cache` facade. So, even though we are using the helper function, we can write the following test to verify that the method was called with the argument we expected:

```php
use Illuminate\Support\Facades\Cache;

/**
 * A basic functional test example.
 *
 * @return void
 */
public function testBasicExample()
{
    Cache::shouldReceive('get')
         ->with('key')
         ->andReturn('value');

    $this->visit('/cache')
         ->see('value');
}
```

How Facades Work

In a Laravel application, a facade is a class that provides access to an object from the container. The machinery that makes this work is in the `Facade` class. Laravel's facades, and any custom facades you create, will extend the base `Illuminate\Support\Facades\Facade` class.

The `Facade` base class makes use of the `__callStatic()` magic-method to defer calls from your facade to an object resolved from the container. In the example below, a call is made to the Laravel cache system. By glancing at this code, one might assume that the static method `get` is being called on the `Cache` class:

```php
<?php

namespace App\Http\Controllers;

use App\Http\Controllers\Controller;
use Illuminate\Support\Facades\Cache;

class UserController extends Controller
{
```

```
    /**
     * Show the profile for the given user.
     *
     * @param  int  $id
     * @return Response
     */
    public function showProfile($id)
    {
        $user = Cache::get('user:'.$id);

        return view('profile', ['user' => $user]);
    }
}
```

Notice that near the top of the file we are "importing" the `Cache` facade. This facade serves as a proxy to accessing the underlying implementation of the `Illuminate\Contracts\Cache\Factory` interface. Any calls we make using the facade will be passed to the underlying instance of Laravel's cache service.

If we look at that `Illuminate\Support\Facades\Cache` class, you'll see that there is no static method `get`:

```
class Cache extends Facade
{
    /**
     * Get the registered name of the component.
     *
     * @return string
     */
    protected static function getFacadeAccessor() { return 'cache'; }
}
```

Instead, the `Cache` facade extends the base `Facade` class and defines the method `getFacadeAccessor()`. This method's job is to return the name of a service container binding. When a user references any static method on the `Cache` facade, Laravel resolves the `cache` binding from the service container and runs the requested method (in this case, `get`) against that object.

Real-Time Facades

Using real-time facades, you may treat any class in your application as if it were a facade. To illustrate how this can be used, let's examine an alternative. For example, let's assume our `Podcast` model has a `publish` method. However, in order to publish the podcast, we need to inject a `Publisher` instance:

```
<?php

namespace App;

use App\Contracts\Publisher;
use Illuminate\Database\Eloquent\Model;

class Podcast extends Model
{
    /**
     * Publish the podcast.
     *
     * @param  Publisher  $publisher
     * @return void
     */
    public function publish(Publisher $publisher)
    {
        $this->update(['publishing' => now()]);

        $publisher->publish($this);
    }
}
```

Injecting a publisher implementation into the method allows us to easily test the method in isolation since we can mock the injected publisher. However, it requires us to always pass a publisher instance each time we call the `publish` method. Using real-time facades, we can maintain the same testability while not being required to explicitly pass a `Publisher` instance. To generate a real-time facade, prefix the namespace of the imported class with `Facades`:

```
<?php

namespace App;

use Facades\App\Contracts\Publisher;
use Illuminate\Database\Eloquent\Model;

class Podcast extends Model
```

```
{
    /**
     * Publish the podcast.
     *
     * @return void
     */
    public function publish()
    {
        $this->update(['publishing' => now()]);

        Publisher::publish($this);
    }
}
```

When the real-time facade is used, the publisher implementation will be resolved out of the service container using the portion of the interface or class name that appears after the `Facades` prefix. When testing, we can use Laravel's built-in facade testing helpers to mock this method call:

```
<?php

namespace Tests\Feature;

use App\Podcast;
use Facades\App\Contracts\Publisher;
use Illuminate\Foundation\Testing\RefreshDatabase;
use Tests\TestCase;

class PodcastTest extends TestCase
{
    use RefreshDatabase;

    /**
     * A test example.
     *
     * @return void
     */
    public function test_podcast_can_be_published()
    {
        $podcast = factory(Podcast::class)->create();

        Publisher::shouldReceive('publish')->once()->with($podcast);

        $podcast->publish();
    }
}
```

Facade Class Reference

Below you will find every facade and its underlying class. This is a useful tool for quickly digging into the API documentation for a given facade root. The service container binding key is also included where applicable.

Facade	Class	Service Container Binding
App	Illuminate\Foundation\Application	`app`
Artisan	Illuminate\Contracts\Console\Kernel	`artisan`
Auth	Illuminate\Auth\AuthManager	`auth`
Auth (Instance)	Illuminate\Contracts\Auth\Guard	`auth.driver`
Blade	Illuminate\View\Compilers\BladeCompiler	`blade.compiler`
Broadcast	Illuminate\Contracts\Broadcasting\Factory	
Broadcast (Instance)	Illuminate\Contracts\Broadcasting\Broadcaster	
Bus	Illuminate\Contracts\Bus\Dispatcher	
Cache	Illuminate\Cache\CacheManager	`cache`
Cache (Instance)	Illuminate\Cache\Repository	`cache.store`
Config	Illuminate\Config\Repository	`config`
Cookie	Illuminate\Cookie\CookieJar	`cookie`
Crypt	Illuminate\Encryption\Encrypter	`encrypter`
DB	Illuminate\Database\DatabaseManager	`db`
DB (Instance)	Illuminate\Database\Connection	`db.connection`
Event	Illuminate\Events\Dispatcher	`events`
File	Illuminate\Filesystem\Filesystem	`files`
Gate	Illuminate\Contracts\Auth\Access\Gate	

Facade	Class	Service Container Binding
Hash	Illuminate\Contracts\Hashing\Hasher	`hash`
Lang	Illuminate\Translation\Translator	`translator`
Log	Illuminate\Log\LogManager	`log`
Mail	Illuminate\Mail\Mailer	`mailer`
Notification	Illuminate\Notifications\ChannelManager	
Password	Illuminate\Auth\Passwords\PasswordBrokerManager	`auth.password`
Password (Instance)	Illuminate\Auth\Passwords\PasswordBroker	`auth.password.broker`
Queue	Illuminate\Queue\QueueManager	`queue`
Queue (Instance)	Illuminate\Contracts\Queue\Queue	`queue.connection`
Queue (Base Class)	Illuminate\Queue\Queue	
Redirect	Illuminate\Routing\Redirector	`redirect`
Redis	Illuminate\Redis\RedisManager	`redis`
Redis (Instance)	Illuminate\Redis\Connections\Connection	`redis.connection`
Request	Illuminate\Http\Request	`request`
Response	Illuminate\Contracts\Routing\ResponseFactory	
Response (Instance)	Illuminate\Http\Response	
Route	Illuminate\Routing\Router	`router`
Schema	Illuminate\Database\Schema\Builder	
Session	Illuminate\Session\SessionManager	`session`
Session (Instance)	Illuminate\Session\Store	`session.store`
Storage	Illuminate\Filesystem\FilesystemManager	`filesystem`
Storage (Instance)	Illuminate\Contracts\Filesystem\Filesystem	`filesystem.disk`
URL	Illuminate\Routing\UrlGenerator	`url`
Validator	Illuminate\Validation\Factory	`validator`
Validator (Instance)	Illuminate\Validation\Validator	
View	Illuminate\View\Factory	`view`
View (Instance)	Illuminate\View\View	

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