Optimizing Laravel Application

TGITF2 #2 Laravel Special Event

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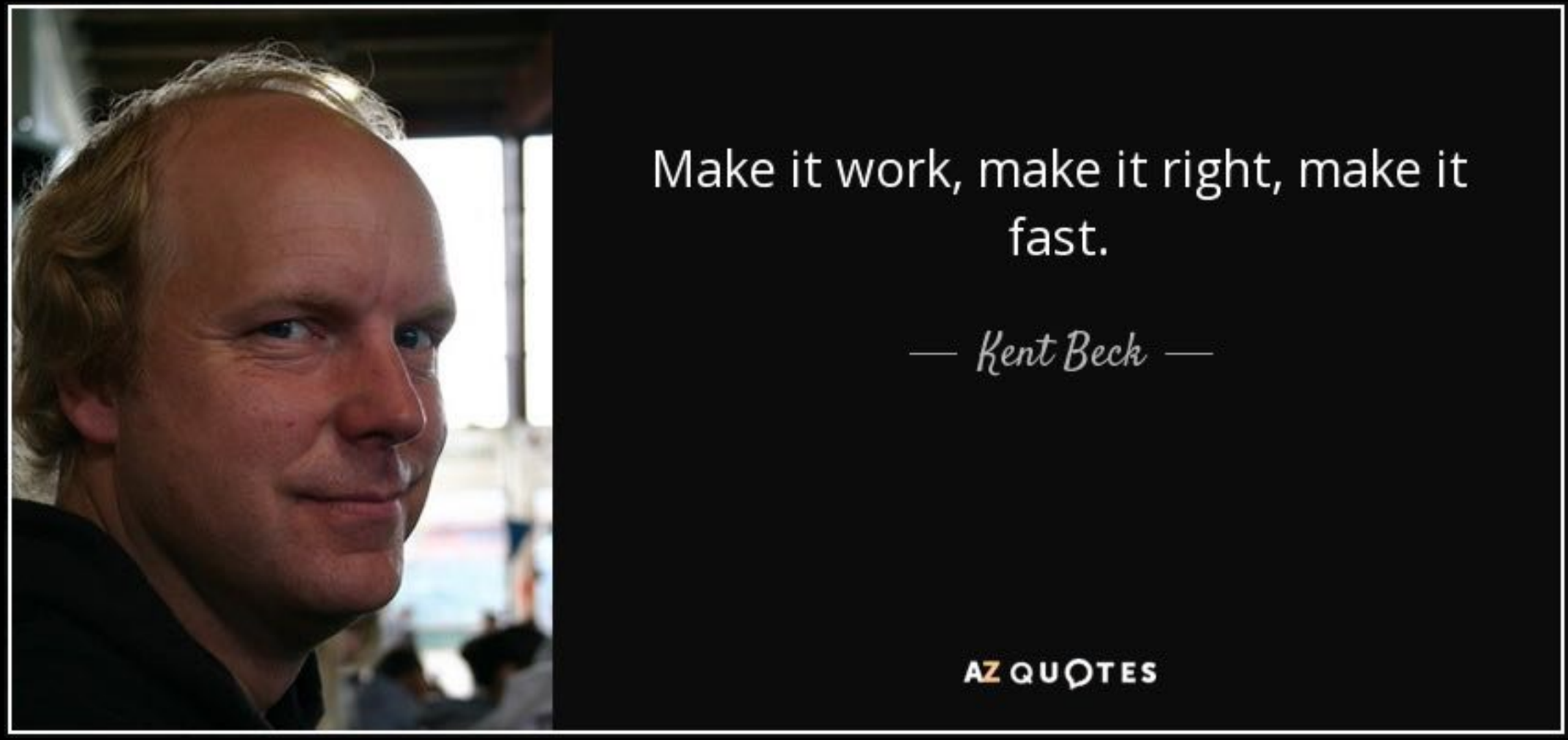
Agenda

- Configuration Caching
- Routes Caching
- Laravel Debugbar
- Eager Loading
- Database Caching
- Queue
- Assets Bundling



Credit: https://www.js.geek.nz/blog/make-it-work-make-it-right-make-it-fast

Make It Work

Write the code to operate correctly.

Make It Right

Make the code more clear (refactoring).

Make It Fast

Make to run quickly.

Configuration Caching

To combine all of the configuration data for our application into a single file

```
$ php artisan config:cache
```

```php
<?php return array (
  'app' =>
  array (
    'name' => 'Laravel',
    'env' => 'local',
    'debug' => true,
    'url' => 'http://localhost',
    'timezone' => 'UTC',
    'locale' => 'en',
    'fallback_locale' => 'en',
    'faker_locale' => 'en_US',
    'key' => 'base64:fZdx/nkQPWaMtoAQub4zYhC1T9uEF+C8w2qbx6Dpnf8=',
    'cipher' => 'AES-256-CBC',
    'providers' =>
    array (
      0 => 'Illuminate\\Auth\\AuthServiceProvider',
      1 => 'Illuminate\\Broadcasting\\BroadcastServiceProvider',
      2 => 'Illuminate\\Bus\\BusServiceProvider',
      3 => 'Illuminate\\Cache\\CacheServiceProvider',
      4 => 'Illuminate\\Foundation\\Providers\\ConsoleSupportServiceProvider',
      5 => 'Illuminate\\Cookie\\CookieServiceProvider',
      6 => 'Illuminate\\Database\\DatabaseServiceProvider',
      7 => 'Illuminate\\Encryption\\EncryptionServiceProvider',
      8 => 'Illuminate\\Filesystem\\FilesystemServiceProvider',
```

Routes Caching

Encode and serialize the RouteCollection instance that contain all of the route from our application

```
$ php artisan route:cache
```

```
*/

app('router')->setRoutes(
    unserialize(base64_decode('TzozNDoiSWxsdW1pbmF0ZVxSb3V0aW5nXFJvdXRlQ29sbGVjdGlvbiI6NDp7czo5OiIAKgByb3V0ZXMiO2E6NDp7czozOiJHR
    VQiO2E6OTp7czoxNDoiX2RlYnVnYmFyL29wZW4iO086MjQ6IklsbHVtaW5hdGVcUm91dGluZ1xSb3V0ZSI6MTE6e3M6MzoidXJpIjtzOjE0OiJfZGVidWdiYXIvb
    3BlbiI7czo3OiJtZXRob2RzIjthOjI6e2k6MDtzOjM6IkdFVCI7aToxO3M6NDoiSEVBRCI7fXM6NjoiYWN0aW9uIjthOjg6e3M6NjoiZG9tYWluIjtOO3M6MTA6I
    m1pZGRsZXdhcmUiO2E6MTp7aTowO3M6NDQ6IkJhcnJ5dmRoXERlYnVnYmFyXE1pZGRsZXdhcmVcRGVidWdiYXJFbmFibGVkIjt9czo0OiJ1c2VzIjtzOjU4OiJCY
    XJyeXZkaFxEZWJ1Z2JhclxDb250cm9sbGVyc1xPcGVuSGFuZGxlckNvbnRyb2xsZXJAaGFuZGxlIjtzOjI6ImFzIjtzOjIwOiJkZWJ1Z2Jhci5vcGVuaGFuZGxlc
    iI7czoxMDoiY29udHJvbGxlciI7czo1ODoiQmFycnl2ZGhcRGVidWdiYXJcQ29udHJvbGxlcnNcT3BlbkhhbmRsZXJDb250cm9sbGVyQGhhbmRsZSI7czo1OiJuY
    W1lc3BhY2UiO3M6Mjk6IkJhcnJ5dmRoXERlYnVnYmFyXENvbnRyb2xsZXJzIjtzOjY6InByZWZpeCI7czo5OiJfZGVidWdiYXIiO3M6NToid2hlcmUiO2E6MDp7f
    X1zOjEwOiJpc0ZhbGxiYWNrIjtiOjA7czoxMDoiY29udHJvbGxlciI7TjtzOjg6ImRlZmF1bHRzIjthOjA6e31zOjY6IndoZXJlcyI7YTowOnt9czoxMDoicGFyY
    W1ldGVycyI7TjtzOjE0OiJwYXJhbWV0ZXJOYW1lcyI7TjtzOjE4OiJjb21wdXRlZE1pZGRsZXdhcmUiO047czo4OiJjb21waWxlZCI7QzozOToiU3ltZm9ueVxDb
    21wb25lbnRcUm91dGluZ1xDb21waWxlZFJvdXRlIjoyNzk6e2E6ODp7czo0OiJ2YXJzIjthOjA6e31zOjExOiJwYXRoX3ByZWZpeCI7czoxNToiL19kZWJ1Z2Jhc
    i9vcGVuIjtzOjEwOiJwYXRoX3JlZ2V4IjtzOjIyOiIjXi9fZGVidWdiYXIvb3BlbiQjc0R1IjtzOjExOiJwYXRoX3Rva2VucyI7YToxOntpOjA7YToyOntpOjA7c
    zo0OiJ0ZXh0IjtpOjE7czoxNToiL19kZWJ1Z2Jhci9vcGVuIjt9fXM6OToicGF0aF92YXJzIjthOjA6e31zOjEwOiJob3N0X3JlZ2V4IjtOO3M6MTE6Imhvc3Rfd
    G9rZW5zIjthOjA6e31zOjk6Imhvc3RfdmFycyI7YTowOnt9fX19czoyNDoiX2RlYnVnYmFyL2Nsb2Nrd29yay97aWR9IjtPOjI0OiJJbGx1bWluYXRlXFJvdXRpb
    mdcUm91dGUiOjExOntzOjM6InVyaSI7czoyNDoiX2RlYnVnYmFyL2Nsb2Nrd29yay97aWR9IjtzOjc6Im1ldGhvZHMiO2E6Mjp7aTowO3M6MzoiR0VUIjtpOjE7c
    zo0OiJIRUFEIjt9czo2OiJhY3Rpb24iO2E6ODp7czo2OiJkb21haW4iO047czoxMDoibWlkZGxld2FyZSI7YToxOntpOjA7czo0NDoiQmFycnl2ZGhcRGVidWdiY
```

Optimize Command

```
$ php artisan optimize
```

Laravel Debugbar

barryvdh / laravel-debugbar

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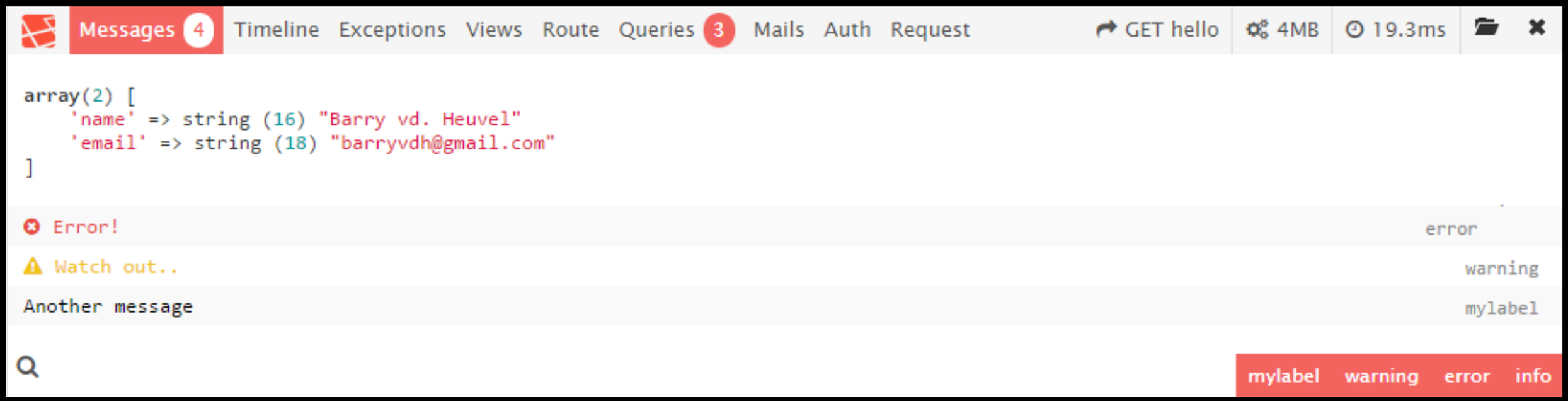
Laravel Debugbar (Integrates PHP Debug Bar)

laravel debugbar

To inspect the performance of your application



Eager Loading

- ORMs “lazy” load related model data.
- Use “eager” load to prevent N+1 issue.

What is N+1

- one query to fetch the (N) entities in the root collection (1 from N+1)
- Then N queries for each associated entities (N from N+1)

(N is number of entities in the root collection)

```php
$posts = App\Post::paginate(10);


foreach ($posts as $post) {
    echo $post->title;
    // Process a query on the user model
    echo $post->user->name;
}
```

Without Eager Loading


```php
public function withoutEagerload()
{
    $posts = Post::paginate(30);

    return view('post.index', compact('posts'));
}
```

With Eager Loading


```php
public function withEagerload()
{
    $posts = Post::with('user')->paginate(30);

    return view('post.index', compact('posts'));
}
```

Database Caching

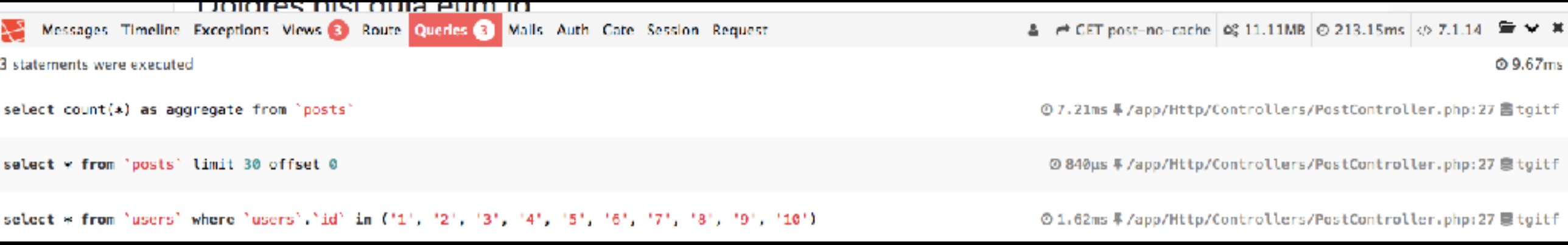
- Need to retrieve the same set of data from database over and over again.
- At first time, retrieving the data from database and then caching it for later use.

Example

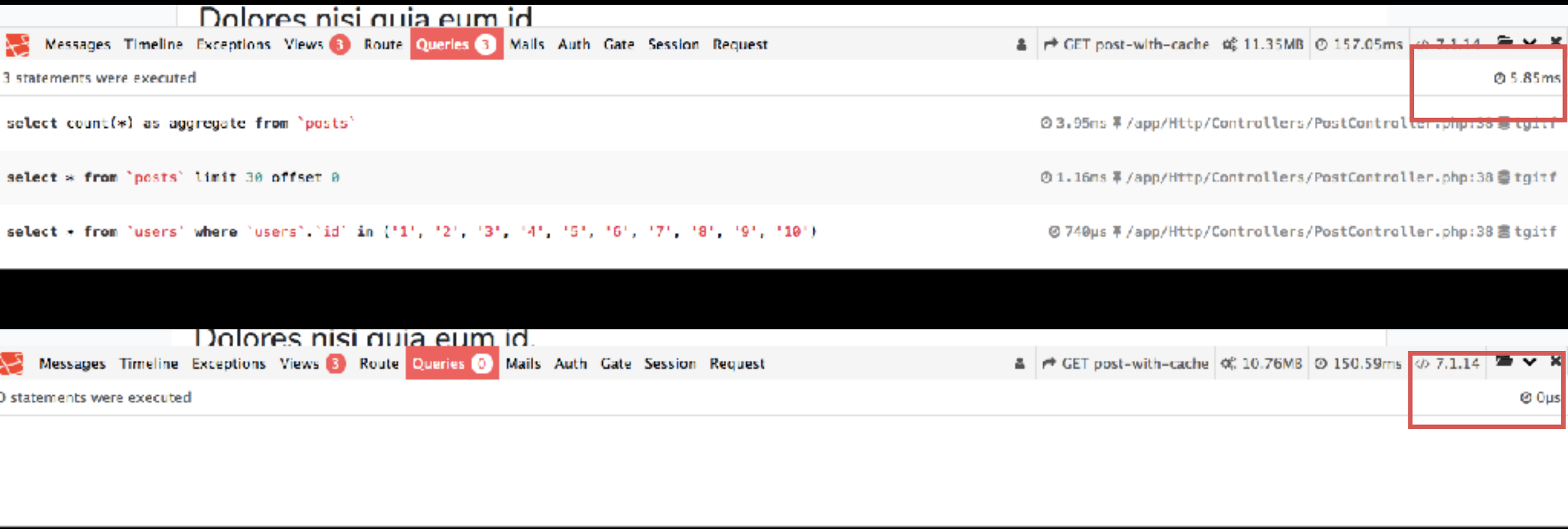
```php
public function withoutCaching()
{
    $posts = Post::with('user')->paginate(30);

    return view('post.index', compact('posts'));
}
```

```php
public function withCaching()
{
    $minutes = 120;
    $page = request('page', 1);

    $posts = Cache::remember('post' . $page, $minutes, function() {
        return Post::with('user')->paginate(30);
    });

    return view('post.index', compact('posts'));
}
```

Without Caching



With Caching



Cache Driver

Choose a fast cache driver for application

- Redis
- Memcached

Queue

- Allow to defer the processing of a time consuming task
- Example: Sending Invoice PDF to Customer

Assets Bundling

- Bundle all your style, script files to single file using Laravel Mix
- Minify asset files for production.

```
$ npm run production
```

Tips

- Use Laravel’s Eloquent Efficiently
- Use Database Indexing

Efficient Eloquent Queries

Don’t fetch the collection when you need first model only

```
$user->posts->first();

// to

$user->posts()->first();
```

Efficient Eloquent Queries

Don’t use collection to count related data

```
$user->posts->count();

// to

$user->posts()->count();
```

Efficient Eloquent Queries

Don’t use ‘pluck’ on the collection

```
$user→posts→pluck(‘title’, ‘id’);

// to

$user→posts()→pluck(‘title’, ‘id’);
```

“Thanks”

–Nyan Lynn Htut