

Lumen, controllers, databaser,  
modeller, m.m.

# Kursen hittills?

Frågor?

# Dagens agenda

- Vi kommer att blanda teori med praktik
  - Så var frågvisa!
- Repetition
- Del 1: Översikt
- Del 2: Controllers
- Del 3: Databaser
  - A) Designa en databas
  - B) Använda migrations för att skapa databasen
  - C) Använda seeds för att fylla databasen
  - D) Läs / Skriv till vår databas
- Del 4: Modeller & ORM

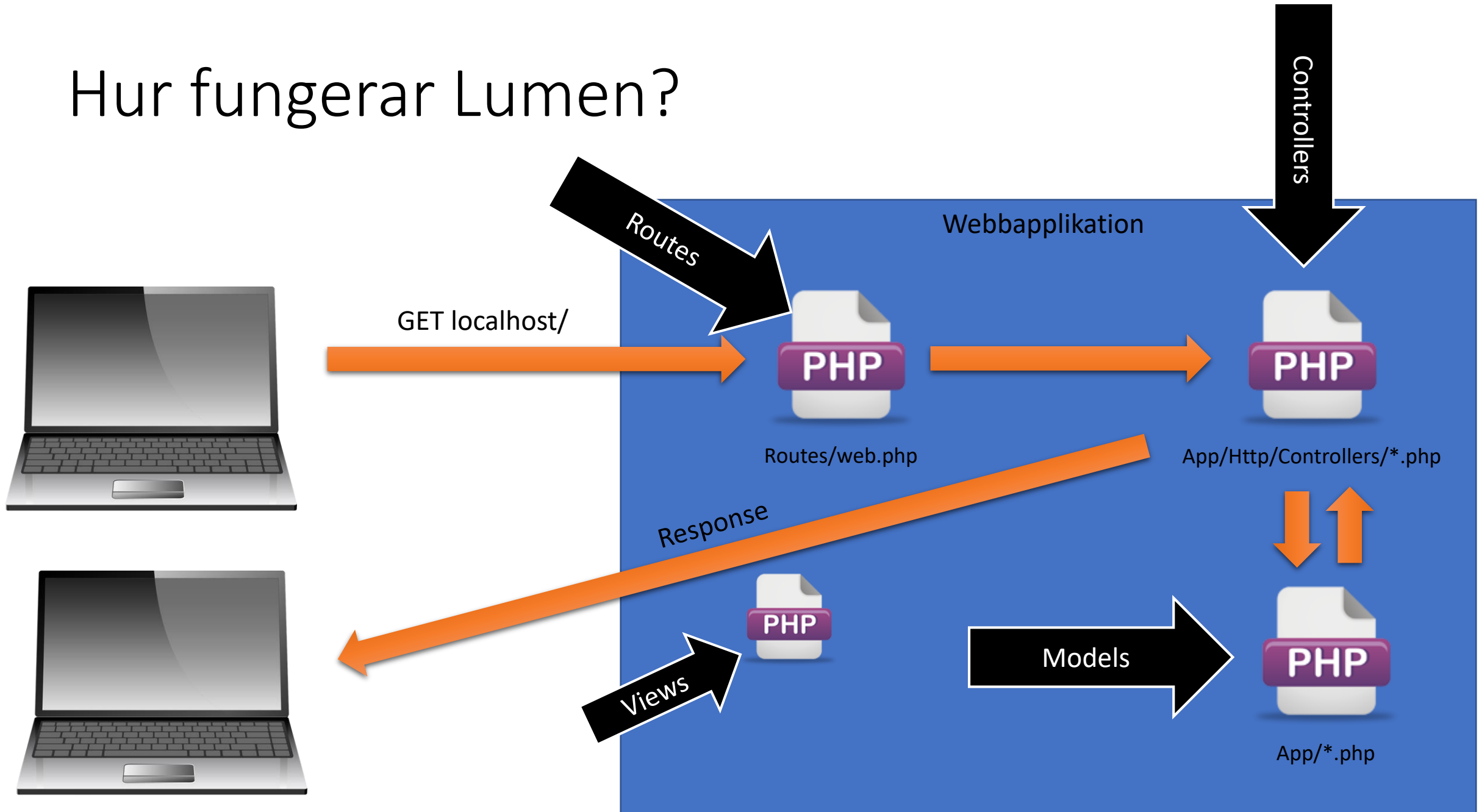


# Lumen.

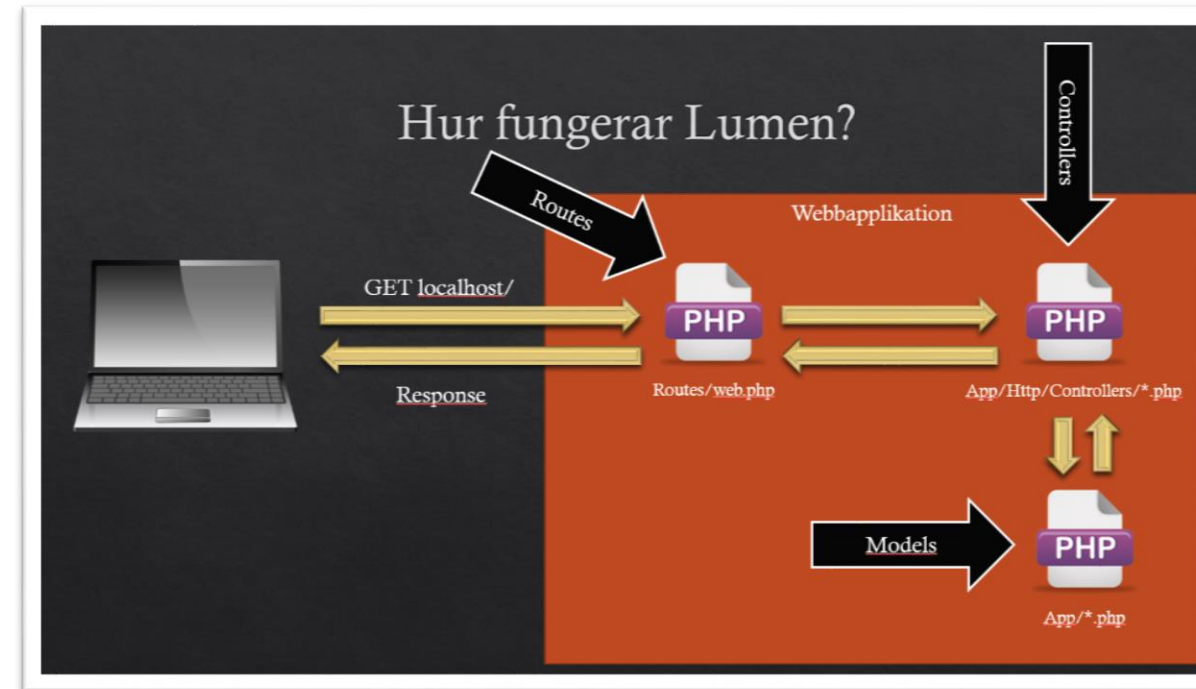
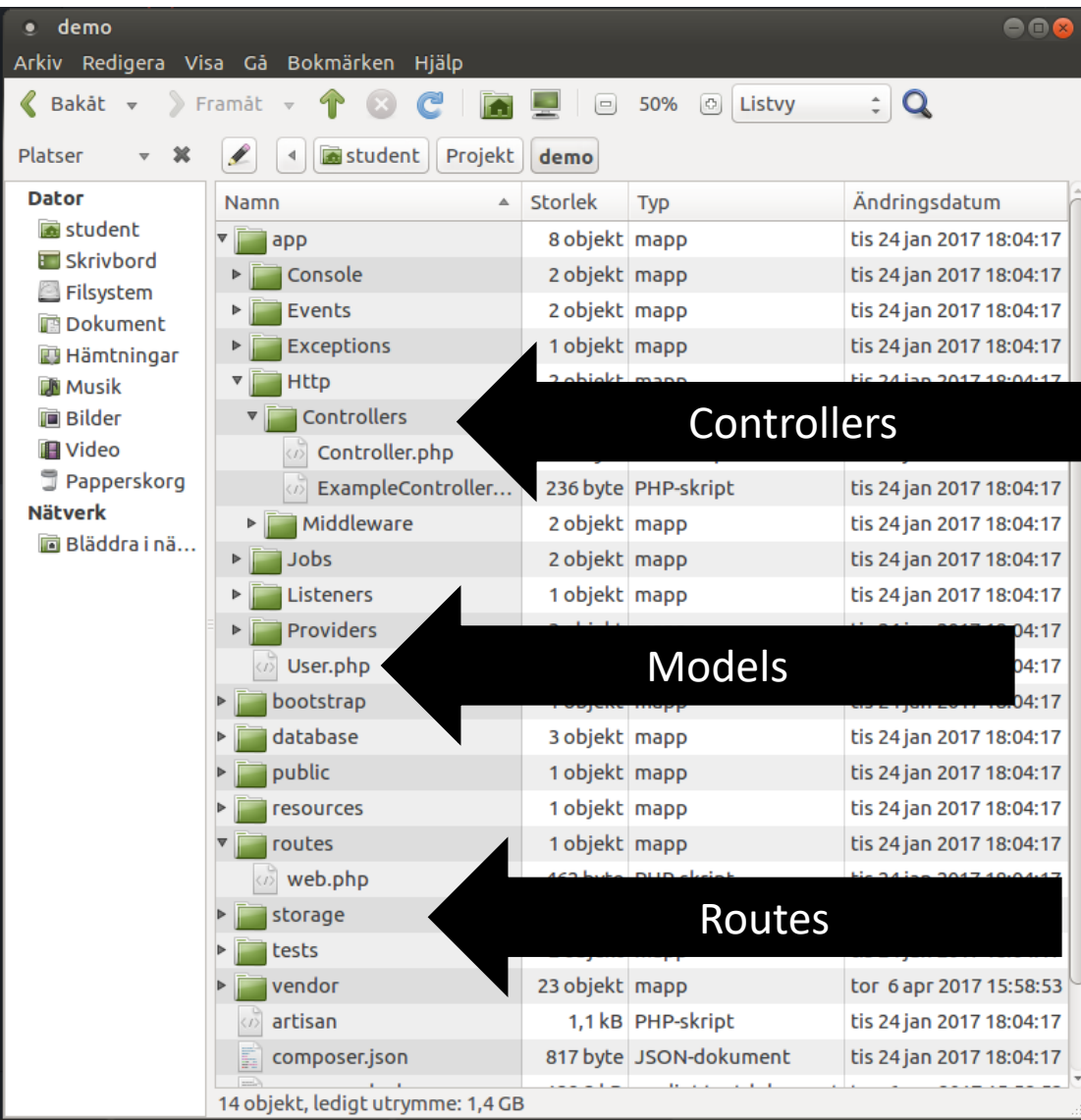
The stunningly fast micro-framework by Laravel.

```
1 <?php
2
3 /**
4  * Reimagine what you expect...
5  */
6 $app->get('/', function() {
7     return ['version' => '5.3']
8 });
9
10 /**
11  * From your micro-framework...
12  */
13 $app->post('framework/{id}', function($framework) {
14
```

# Hur fungerar Lumen?



# Hur fungerar Lumen? (2)



# Routes (Routes/web.php)

## # Basic Routing

You will define all of the routes for your application in the `routes/web.php` file. The most basic Lumen routes simply accept a URI and a `Closure` :

```
$router->get('foo', function () {  
    return 'Hello World';  
});  
  
$router->post('foo', function () {  
    //  
});
```

<https://lumen.laravel.com/docs/5.6/routing>

# Routes (Routes/web.php)

## Available Router Methods

The router allows you to register routes that respond to any HTTP verb:

```
$router->get($uri, $callback);  
$router->post($uri, $callback);  
$router->put($uri, $callback);  
$router->patch($uri, $callback);  
$router->delete($uri, $callback);  
$router->options($uri, $callback);
```

<https://lumen.laravel.com/docs/5.6/routing>



# # Route Parameters

## Required Parameters

Of course, sometimes you will need to capture segments of the URI within your route. For example, you may need to capture a user's ID from the URL. You may do so by defining route parameters:

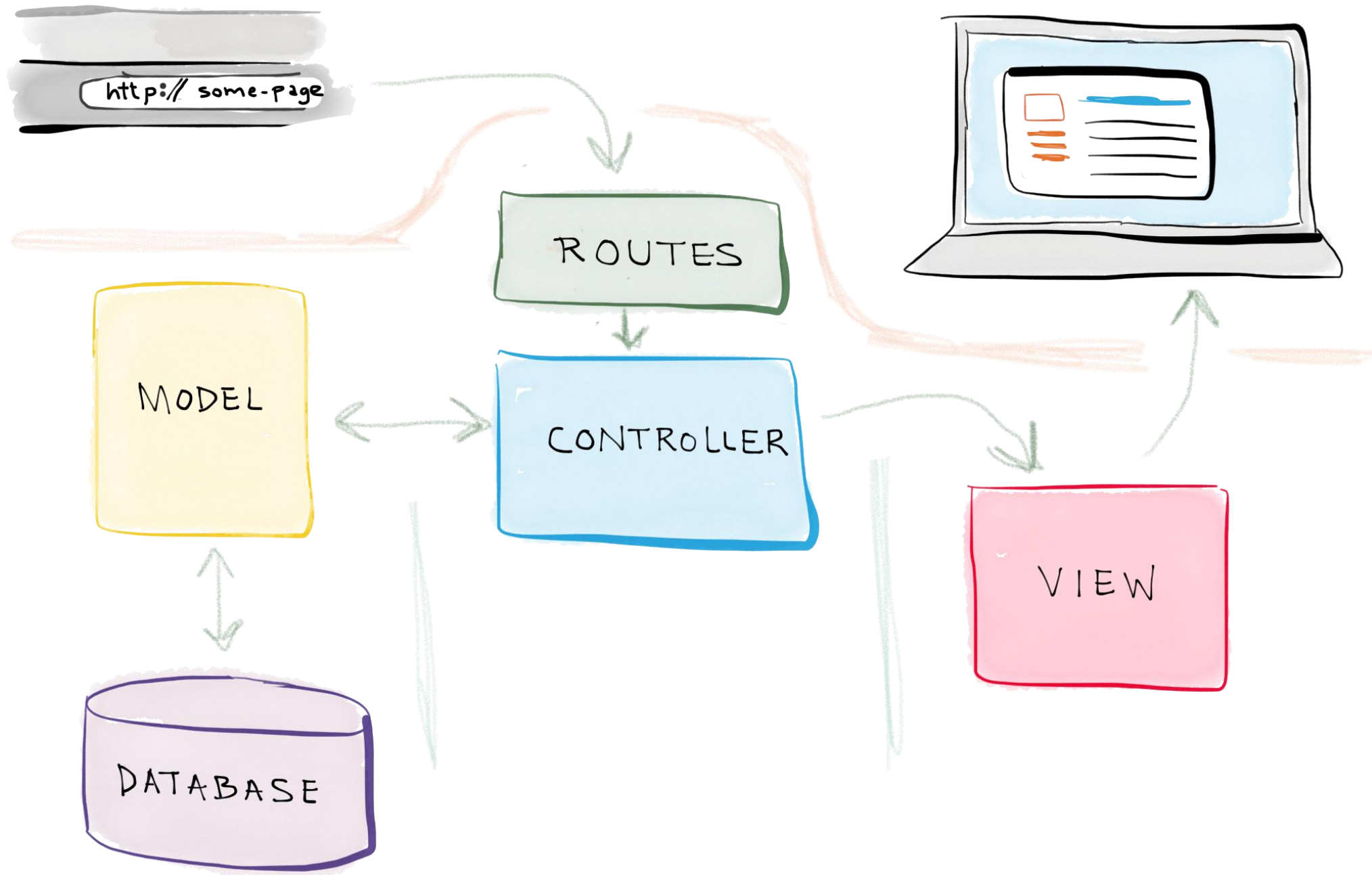
```
$router->get('user/{id}', function ($id) {  
    return 'User '.$id;  
});
```

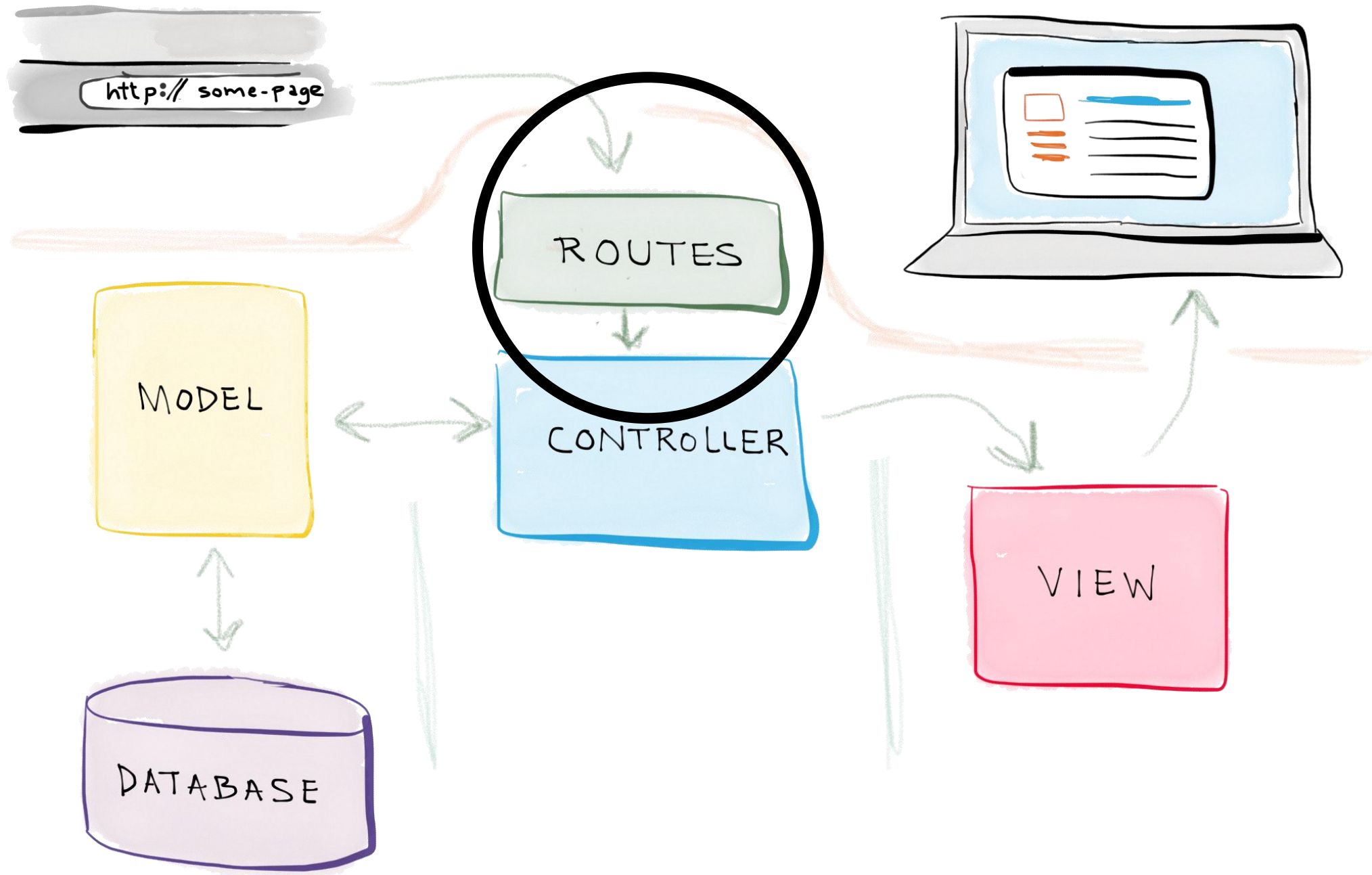
You may define as many route parameters as required by your route:

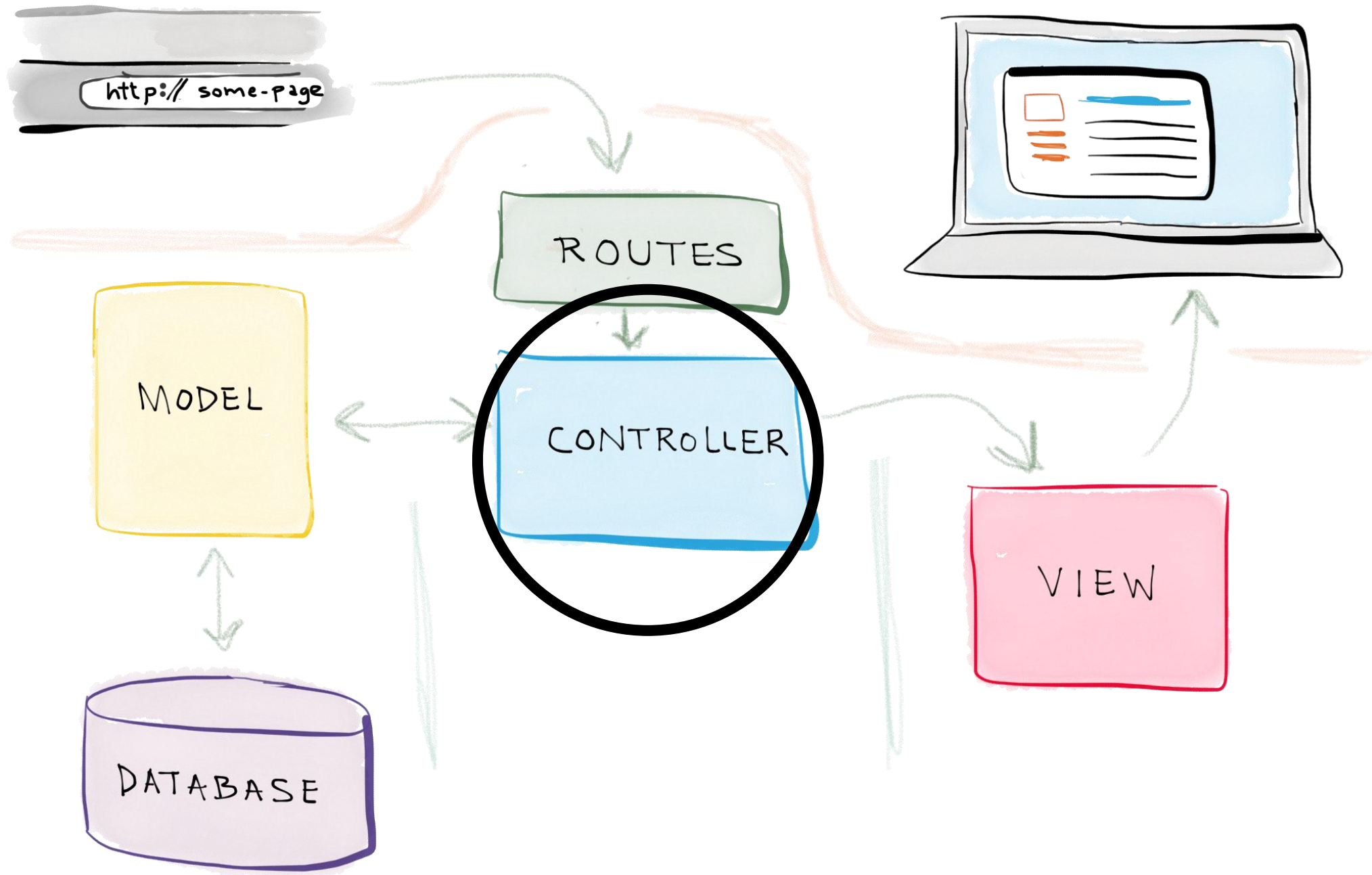
```
$router->get('posts/{postId}/comments/{commentId}', function ($postId, $commentId) {  
    //  
});
```

Route parameters are always encased within "curly" braces. The parameters will be passed into your route's [Closure](#) when the route is executed.

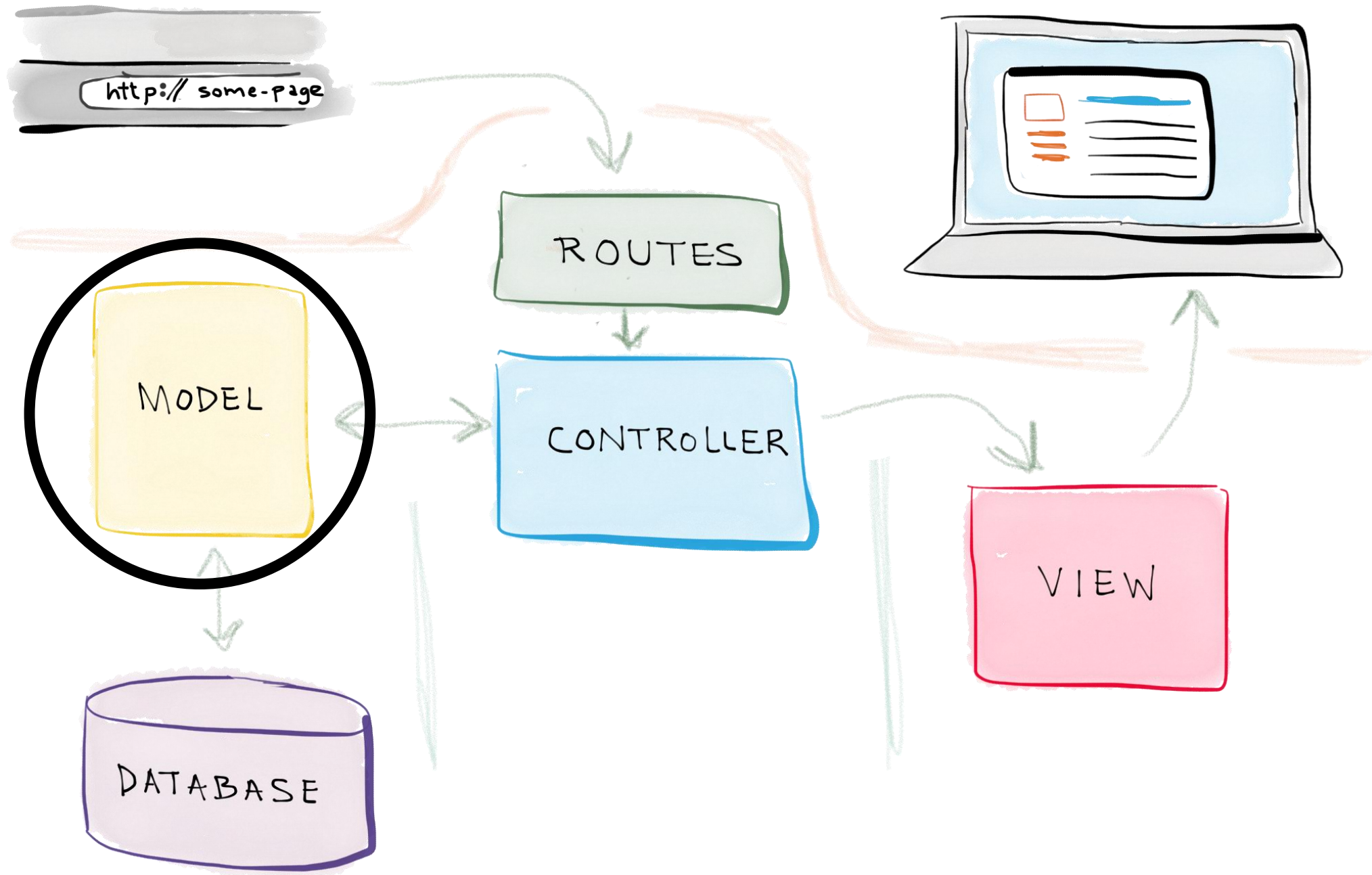
**Note:** Route parameters cannot contain the `-` character. Use an underscore (`_`) instead.

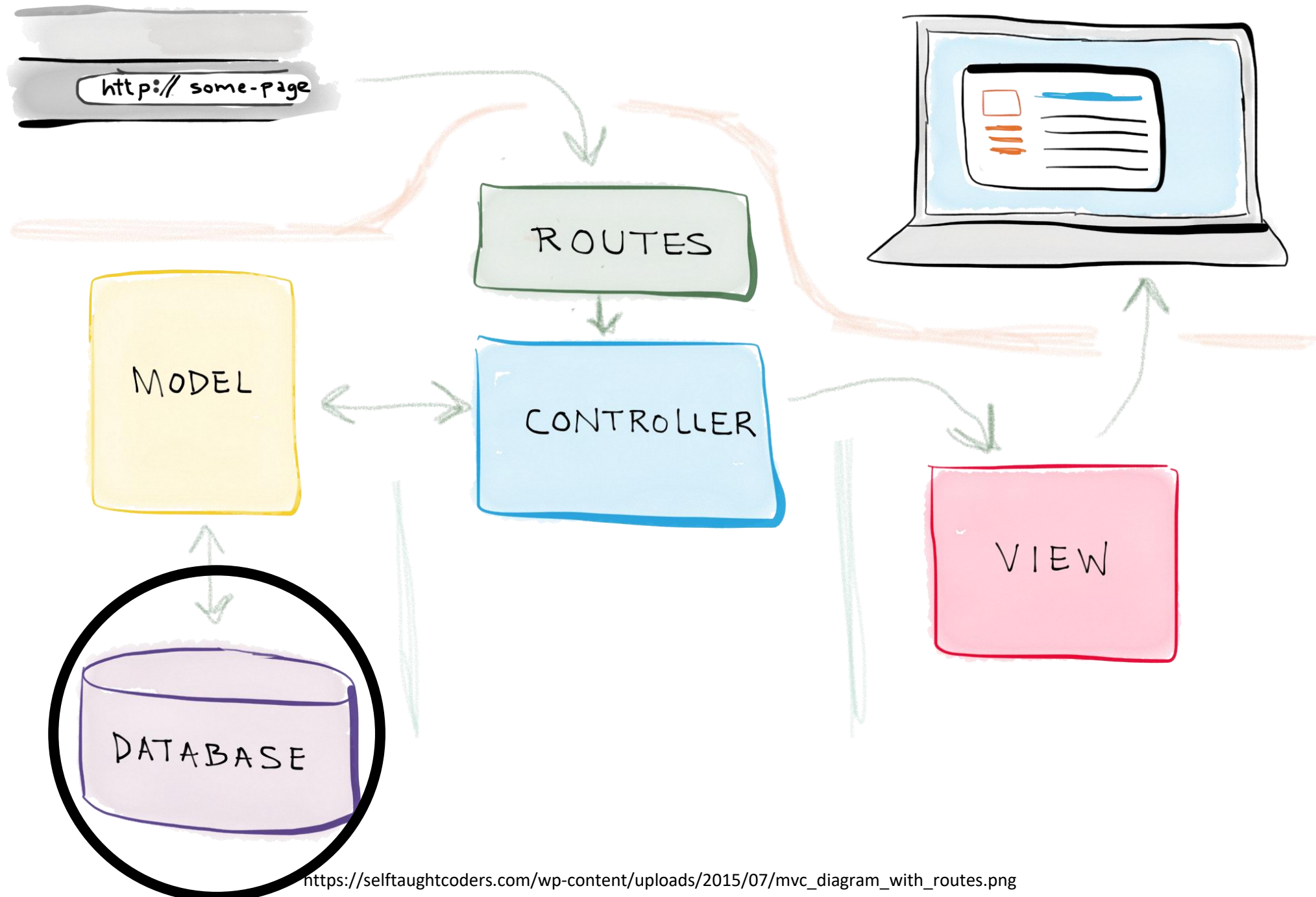


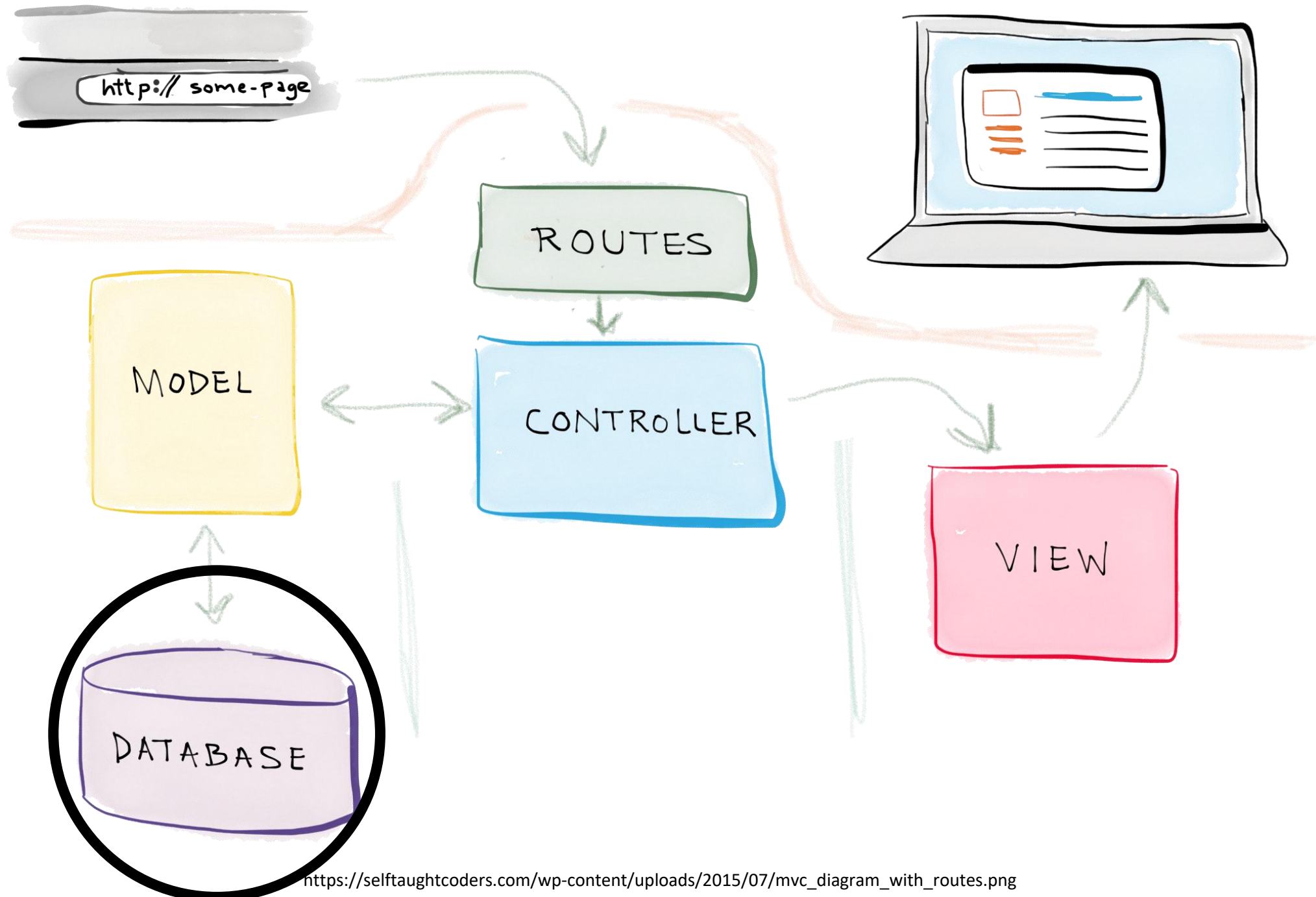




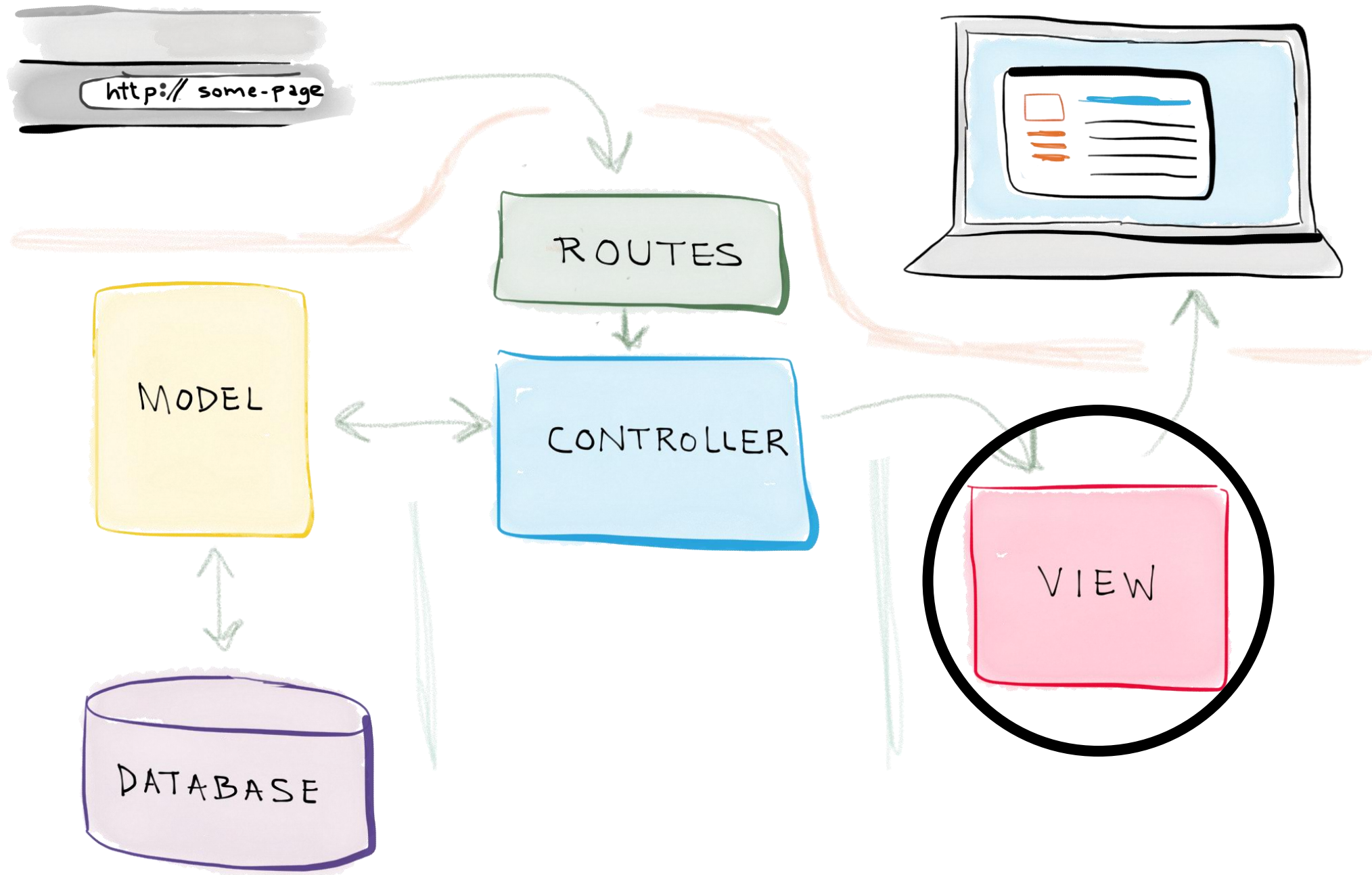














demo

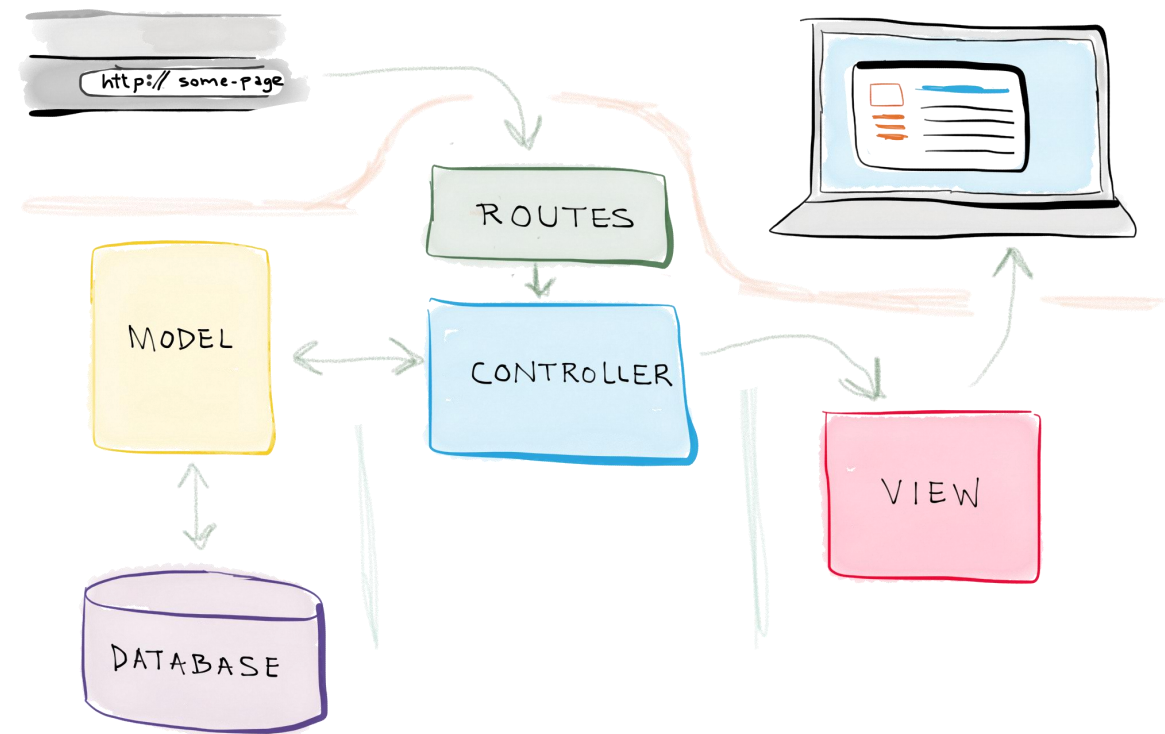
Arkiv Redigera Visa Gå Bokmärken Hjälp

Bakåt Framåt 50% Listvy

Platser student Projekt demo


Dator	Namn	Storlek	Typ	Ändringsdatum
student	app	8 objekt	mapp	tis 24 jan 2017 18:04:17
Skrivbord	Console	2 objekt	mapp	tis 24 jan 2017 18:04:17
Filsystem	Events	2 objekt	mapp	tis 24 jan 2017 18:04:17
Dokument	Exceptions	1 objekt	mapp	tis 24 jan 2017 18:04:17
Hämtningar	Http	2 objekt	mapp	tis 24 jan 2017 18:04:17
Musik	Controllers			
Bilder	Controller.php			
Video	ExampleController.php	236 byte	PHP-skript	tis 24 jan 2017 18:04:17
Papperskorg	Middleware	2 objekt	mapp	tis 24 jan 2017 18:04:17
Nätverk	Jobs	2 objekt	mapp	tis 24 jan 2017 18:04:17
Bläddra i nä...	Listeners	1 objekt	mapp	tis 24 jan 2017 18:04:17
	Providers	2 objekt	mapp	tis 24 jan 2017 18:04:17
	User.php			
	bootstrap			
	database	3 objekt	mapp	tis 24 jan 2017 18:04:17
	public	1 objekt	mapp	tis 24 jan 2017 18:04:17
	resources	1 objekt	mapp	tis 24 jan 2017 18:04:17
	routes	1 objekt	mapp	tis 24 jan 2017 18:04:17
	web.php			
	storage			
	tests	2 objekt	mapp	tis 24 jan 2017 18:04:17
	vendor	23 objekt	mapp	tor 6 apr 2017 15:58:53
	artisan	1,1 kB	PHP-skript	tis 24 jan 2017 18:04:17
	composer.json	817 byte	JSON-dokument	tis 24 jan 2017 18:04:17

14 objekt, ledigt utrymme: 1,4 GB



## Routes => Controller => View

```
1 <?php
2
3 use App\Http\Controllers\MoviesController;
4
5 $router->get('/', function () {
6     return "Welcome to my movie API!";
7 });
8
9 $router->get('/movies', 'MoviesController@index');
10 $router->post('/movies', 'MoviesController@create');
11 $router->get('/movies/{id}', 'MoviesController@show');
12 $router->put('/movies/{id}', 'MoviesController@update');
13 $router->delete('/movies/{id}', 'MoviesController@delete');
14
```



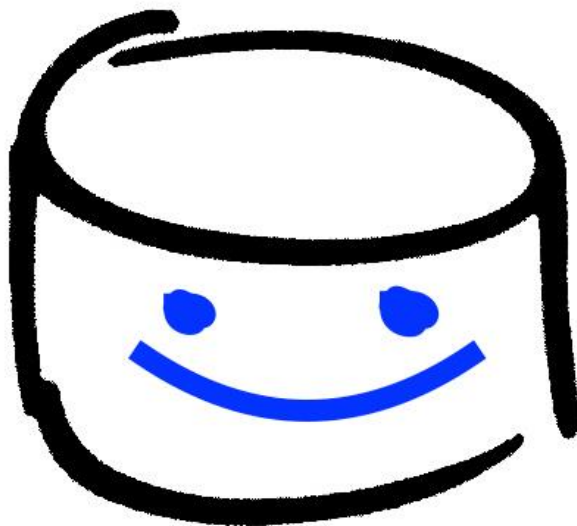
```
1 <?php
2
3 namespace App\Http\Controllers;
4
5 use Illuminate\Http\Request;
6
7 class MoviesController extends Controller
8 {
9     /**
10      * Create a new controller instance.
11      *
12      * @return void
13      */
14     public $movies;
15
16     public function __construct()
17     {
18         $this->movies = json_decode(file_get_contents("../resources/movies.json"));
19     }
20
21     public function index() {
22         return response()->json($this->movies);
23     }
24
25     public function show($id) {
26         foreach($this->movies as $movie) {
27             if($movie->id == $id) {
28                 return response()->json($movie);
29             }
30         }
31     }
32
33     public function create(Request $request) {
34         $movie = [];
35         $movie['title'] = $request->input("title");
36         $movie['id'] = $request->input("id");
37         $movie['grade'] = $request->input("grade");
38
39         $movies = $this->movies;
40         $movies[] = $movie;
41
42         file_put_contents("../resources/movies.json", json_encode($movies));
43
44         return response()->json($movies);
45     }
46 }
```

# En controllers uppgift

- Sköter logiken för vår applikation
- Tar emot anropet (från `routes.php`)
  - Och ev. användardata
- Hanterar anropet
  - T.ex. hämta / skriva lämplig data i vår tjänst
    - Databas (MySQL, etc.)
    - Icke-relationella databaser
- Returnera ett svar
  - HTML-svar för en webbplats
  - JSON-svar för vårt API



Hmm. Hämta information från en  
databas verkar ju najs...



Vi behöver en databas!



Våra filmer borde leva vidare!

# Vi vill att vårt API ska ha följande resurser

- Filmer
  - Lista alla filmer
  - Lista specifik film
  - Lägga till en film
  - Radera en film
  - Uppdatera en film
- Skådespelare
  - ...
- Betyg
  - ...



Rita ER-diagram!

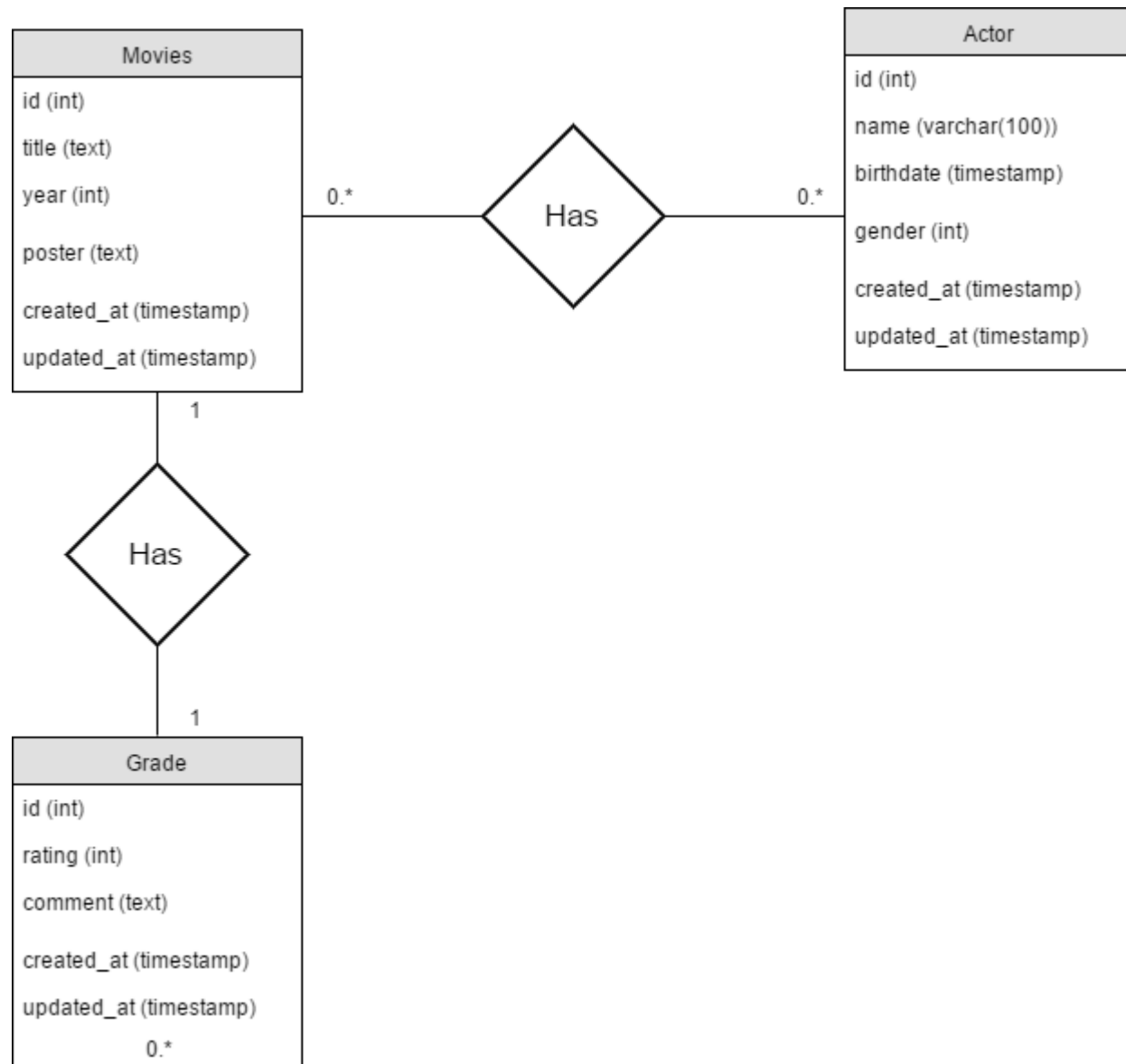




movies

grade

actors



# Versionshantering av databas

## - Migrations

Mycket smidigt när man är många i projektet!

- Hur hanterar ni databaser idag?

Varför an

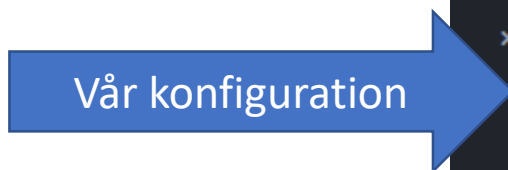
**Ok, NOW we can panic!**

- "Har du den
- "Vilken tabel
- "Ändrade du
- "Jäklar, jag tr
- "Inget funge
- berätta för m
- "Nä, nu vill ja



an att

# Konfigurera vår databas: .env



Vår konfiguration

```
Program Platser System
.env — ~/Skrivbord/Labs/db-test — Atom
File Edit View Selection Find Packages Help

db-test
├── app
├── bootstrap
├── database
├── public
├── resources
├── routes
├── storage
├── tests
├── vendor
├── .env
├── .env.example
├── .gitignore
├── artisan
├── composer.json
├── composer.lock
├── phpunit.xml
└── readme.md
```

```
1 APP_ENV=local
2 APP_DEBUG=true
3 APP_KEY=
4 APP_TIMEZONE=UTC
5
6 DB_CONNECTION=mysql
7 DB_HOST=127.0.0.1
8 DB_PORT=3306
9 DB_DATABASE=movies
10 DB_USERNAME=root
11 DB_PASSWORD=supersecret
12
13 CACHE_DRIVER=memcached
14 QUEUE_DRIVER=sync
15
```

# php artisan

Ett hjälpmedel för att snabba upp utvecklingen av webbapplikationer

Skapa en migration

Migration-funktioner

```
student@php-dev: ~/Skrivbord/Labs/db-test
Arkiv Redigera Visa Sök Terminal Hjälp

Available commands:
help           Displays help for a command
list           Lists commands
migrate        Run the database migrations
auth
auth:clear-resets  Flush expired password reset tokens
cache
cache:clear      Flush the application cache
cache:forget     Remove an item from the cache
cache:table      Create a migration for the cache database table
db
db:seed         Seed the database with records
make
make:migration   Create a new migration file
make:seeder      Create a new seeder class
migrate
migrate:install  Create the migration repository
migrate:refresh  Reset and re-run all migrations
migrate:reset    Rollback all database migrations
migrate:rollback Rollback the last database migration
migrate:status   Show the status of each migration
queue
queue:failed     List all of the failed queue jobs
queue:failed-table Create a migration for the failed queue jobs database table
queue:flush      Flush all of the failed queue jobs
queue:forget     Delete a failed queue job
queue:listen     Listen to a given queue
queue:restart    Restart queue worker daemons after their current job
queue:retry      Retry a failed queue job
queue:table      Create a migration for the queue jobs database table
queue:work       Start processing jobs on the queue as a daemon
schedule
schedule:run     Run the scheduled commands
student@php-dev:~/Skrivbord/Labs/db-test$ php artisan
```

```
php artisan make:migration create_movies_table
```

Vi skapar en migration för att skapa tabellen "movies"



Vår migration-fil

```
> app
> bootstrap
▼ database
  > factories
  ▼ migrations
    .gitkeep
    2017_04_18_154231_create_movies_table.php
  > seeds
> public
> resources
> routes
> storage
> tests
> vendor
.env
.env.example
.gitignore
artisan
composer.json
composer.lock
phpunit.xml
readme.md
```

Vår migration-fil

```
> app
> bootstrap
▼ database
  > factories
  ▼ migrations
    .gitkeep
    2017_04_18_154231_create_movies_table.php
  > seeds
> public
> resources
> routes
> storage
> tests
> vendor
.env
.env.example
.gitignore
artisan
composer.json
composer.lock
phpunit.xml
readme.md
```

```
1  <?php
2
3  use Illuminate\Support\Facades\Schema;
4  use Illuminate\Database\Schema\Blueprint;
5  use Illuminate\Database\Migrations\Migration;
6
7  class CreateMoviesTable extends Migration
8  {
9      /**
10       * Run the migrations.
11       *
12       * @return void
13       */
14     public function up()
15     {
16         Schema::create('movies', function (Blueprint $table) {
17             $table->increments('id');
18             $table->text('title');
19             $table->integer('year');
20             $table->text('poster');
21             $table->timestamps();
22         });
23     }
24
25     /**
26      * Reverse the migrations.
27      *
28      * @return void
29      */
30     public function down()
31     {
32         Schema::drop('movies');
33     }
34 }
```

# php artisan migrate

Verkställa våra migrations

Program Platser System

localhost / localhost / movies / movies | phpMyAdmin 4.5.4.1deb2ubuntu2 - Mozilla Firefox

php - Laravel/Lume...localhost / localhos...http://loca...80/movies/1Json Parser Online

localhost/phpmyadmin/tbl\_structure.php?db=movies&table=movies&token=e8a0aa095d139ad25073f2ba12f9125d

Q sök

☆📄⬇️🏠📧🔴

phpMyAdmin

RecentFavorites

New

information\_schema

movies

mysql

performance\_schema

phpmyadmin

sys

Server: localhost » Database: movies » Table: movies

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Tracking

Triggers

Table structure

Relation view

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
<input type="checkbox"/>	1 id	int(10)		UNSIGNED	No	None	AUTO_INCREMENT	Change  Drop  Primary  Unique  Index  Spatial  Fulltext  Distinct values  More
<input type="checkbox"/>	2 title	text	utf8_unicode_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  Distinct values  More
<input type="checkbox"/>	3 year	int(11)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  Distinct values  More
<input type="checkbox"/>	4 poster	text	utf8_unicode_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  Distinct values  More
<input type="checkbox"/>	5 created_at	timestamp			Yes	NULL		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  Distinct values  More
<input type="checkbox"/>	6 updated_at	timestamp			Yes	NULL		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  Distinct values  More

☐ Check all

With selected:

Browse Change Drop Primary Unique Index Add to central columns Remove from central columns

Print view Propose table structure Track table Move columns Improve table structure

Add

1

column(s)

after updated\_at

Go

+ Indexes

Information

Space usage

Data	16 KiB
Index	0 B

Row statistics

Format	dynamic
Collation	utf8_unicode_ci

```
php artisan make:migration create_actors_table  
php artisan make:migration create_grades_table  
php artisan make:migration create_grade_movie_table
```

Vi skapar en migration för att skapa tabellerna "actors", "grades", "grade\_movie"

... och vi bygger klart resten av  
databasen!

# php artisan migrate

Verkställa våra migrations



Varför var detta nu bra då? 😊



# Demo – Hur funkar det?

Snabbt test på att det faktiskt fungerar!

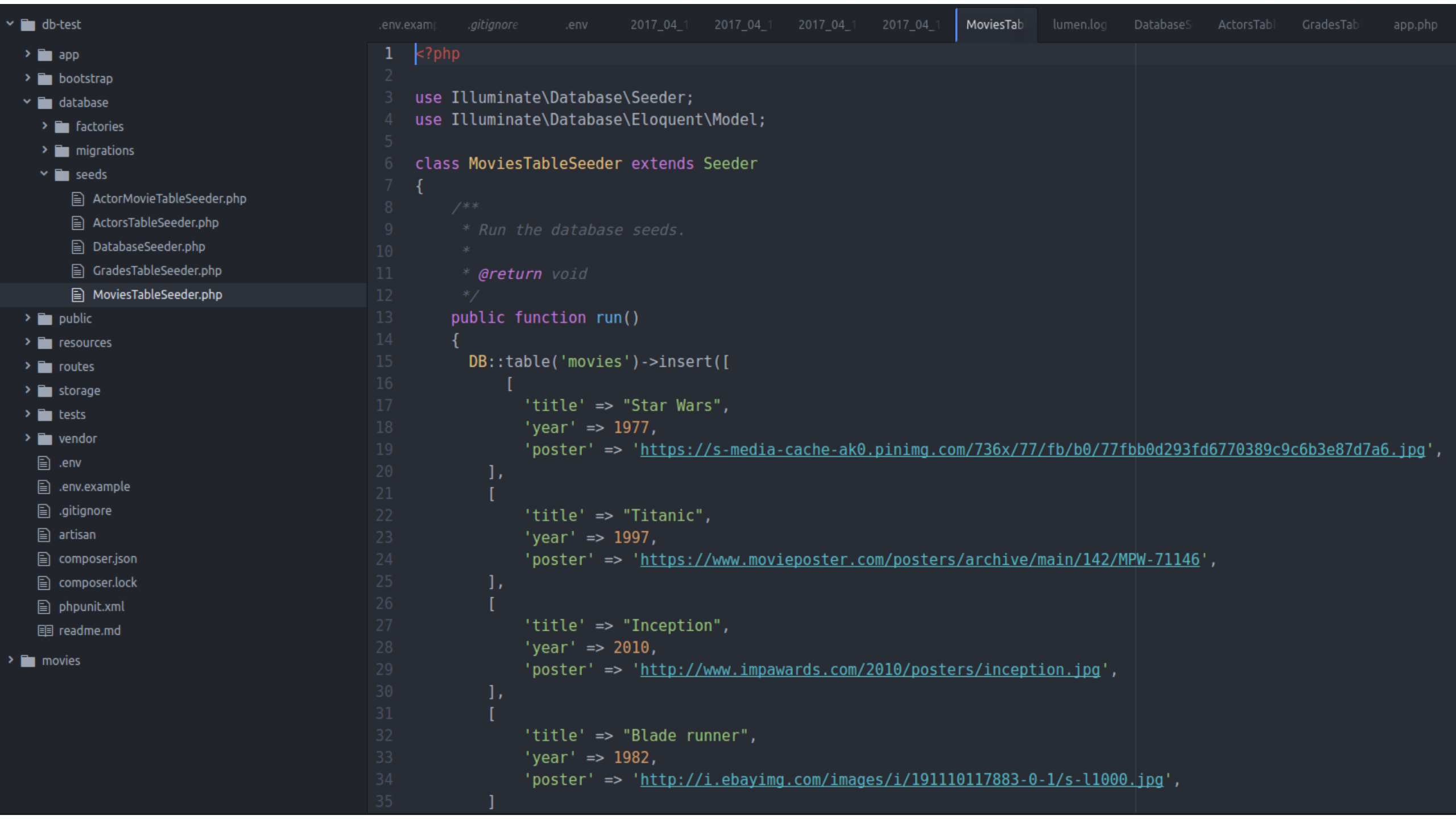


Hmm. Trist att databasen är helt tum 😞

Seeds! Lägg in demodata i  
databasen!

```
php artisan make:seeder MoviesTableSeeder
```

Skapa en seed-fil för våra filmer





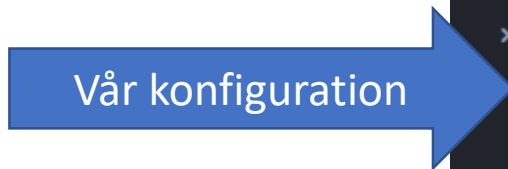
Nu har vi en databas, nu vill vi  
göra något kul!

Lista alla filmer, etc.

Lumen – Kommunnicera med databaser



# Konfigurera vår databas: .env



```
Program Platser System
.env — ~/Skrivbord/Labs/db-test — Atom
File Edit View Selection Find Packages Help

db-test
├── app
├── bootstrap
├── database
├── public
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├── .env.example
├── .gitignore
├── artisan
├── composer.json
├── composer.lock
├── phpunit.xml
└── readme.md
```

```
1 APP_ENV=local
2 APP_DEBUG=true
3 APP_KEY=
4 APP_TIMEZONE=UTC
5
6 DB_CONNECTION=mysql
7 DB_HOST=127.0.0.1
8 DB_PORT=3306
9 DB_DATABASE=movies
10 DB_USERNAME=root
11 DB_PASSWORD=supersecret
12
13 CACHE_DRIVER=memcached
14 QUEUE_DRIVER=sync
15
```

## # Basic Usage

**Note:** If you would like to use the `DB` facade, you should uncomment the `$app->withFacades()` call in your `bootstrap/app.php` file.

For example, without facades enabled, you may access a database connection via the `app` helper:

```
$results = app('db')->select("SELECT * FROM users");
```

Or, with facades enabled, you may access the database connection via the `DB` facade:

```
$results = DB::select("SELECT * FROM users");
```

### Basic Queries

To learn how to execute basic, raw SQL queries via the database component, you may consult the [full Laravel documentation](#).

### Query Builder

Lumen may also utilize the Laravel fluent query builder. To learn more about this feature, consult the [full Laravel documentation](#).

### Eloquent ORM

If you would like to use the Eloquent ORM, you should uncomment the `$app->withEloquent()` call in your `bootstrap/app.php` file.

Of course, you may easily use the full Eloquent ORM with Lumen. To learn how to use Eloquent, check out the [full Laravel documentation](#).

# Aktivara "Facades"



```
db-test
├── app
├── bootstrap
├── database
├── public
├── resources
├── routes
├── storage
├── tests
├── vendor
├── .env
├── .env.example
├── .gitignore
├── artisan
├── composer.json
├── composer.lock
├── phpunit.xml
└── readme.md
```

```
10
11 /*
12 |-----|
13 | Create The Application |
14 |-----|
15 |
16 | Here we will load the environment and
17 | that serves as the central piece of th
18 | application as an "IoC" container and
19 |
20 */
21
22 $app = new Laravel\Lumen\Application(
23     realpath(__DIR__.'/../')
24 );
25
26 $app->withFacades();
27 $app->withEloquent();
28
29 /*
```

Avkommentera  
Dessa rader

Vi testar! 😊

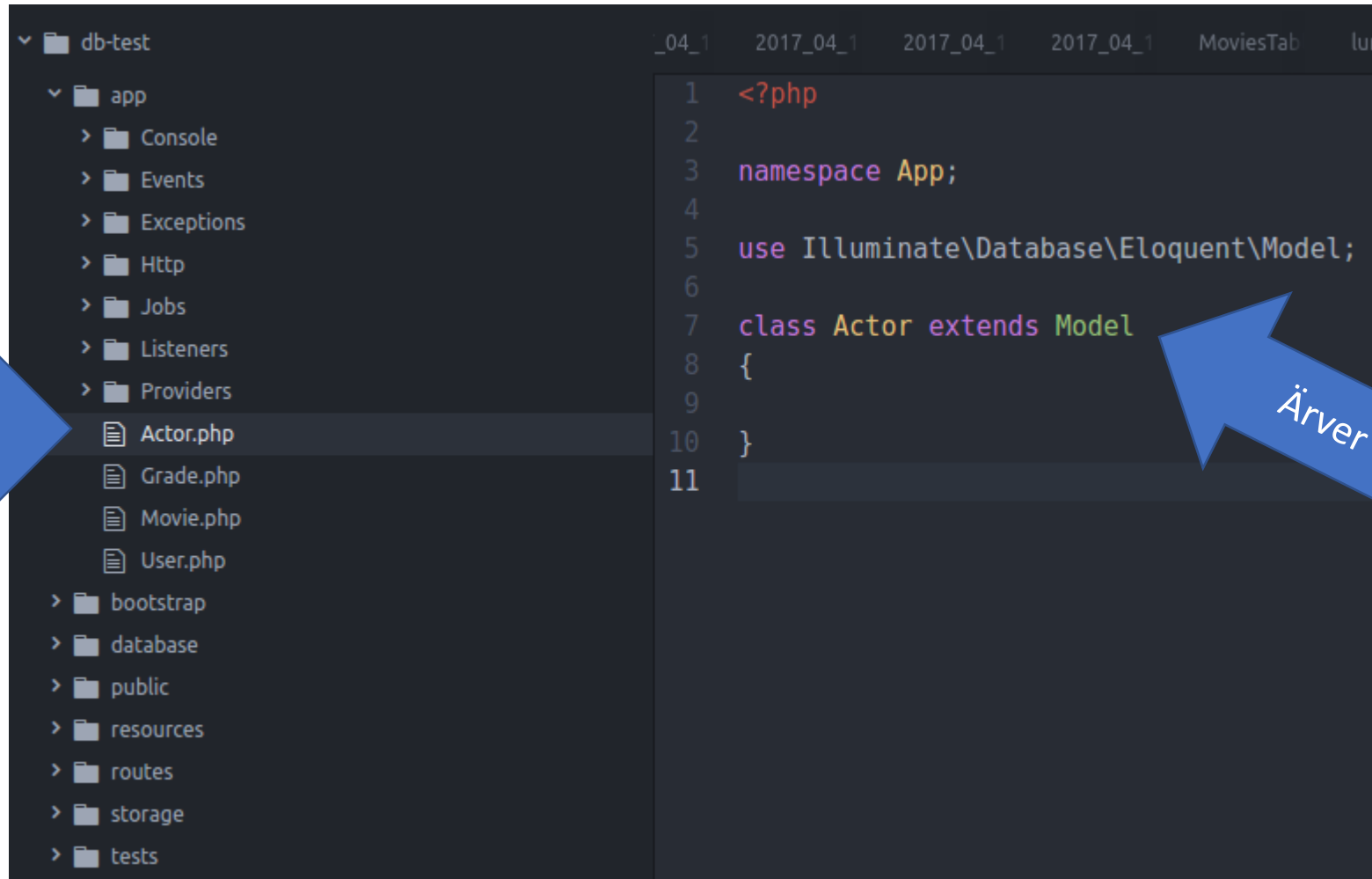
Models & ORM

*”ORM, står för **object-relational mapping**, är ett objektorienterat system som konverterar databastabeller till klasser, tabellrader till objekt, samt celler till objekt-attribut”*

# En model är en...

- Representation av en resurs
- I Lumen så är dessa väldigt ofta (men inte alltid) kopplade till en databastabell
- Alltså, eftersom vi har 3st tabeller kommer vi skapa 3st modeller
  - Movies
  - Actors
  - Grades
- Vi har även en många till många-relation som är en egen tabell & således en egen modell (om vi vill!)
  - ActorMovie

# Var finns modellerna?



The screenshot shows a code editor with a dark theme. On the left, a file explorer shows the project structure. The 'app' folder is expanded, showing subfolders like Console, Events, Exceptions, Http, Jobs, Listeners, and Providers, and files like Actor.php, Grade.php, Movie.php, and User.php. A large blue arrow points from the left towards the 'Actor.php' file. On the right, the code for 'Actor.php' is displayed. It shows a PHP file with a namespace 'App', a use statement for 'Illuminate\Database\Eloquent\Model', and a class 'Actor' that extends 'Model'. A blue arrow points from the text 'Ärver av Model' (Inherits from Model) to the 'extends Model' part of the class declaration.

```
1 <?php
2
3 namespace App;
4
5 use Illuminate\Database\Eloquent\Model;
6
7 class Actor extends Model
8 {
9
10 }
11
```



# Bra att veta om modeller

- Mappas mot en tabell i databasen, fast i plural. T.ex.
  - Modellen "Movie" mappas mot tabellen "movies" i databasen
  - Kan ändras genom egenskapen (i modellen):
    - `protected $table = 'my_movies';`
- Andra bra egenskaper kan ni läsa mer om här:  
<https://laravel.com/docs/5.6/eloquent> , t.ex.
  - Vilka värden som får fyllas i
  - Vilken databasanslutning som gäller (om man har flera)
  - Om man ska använda "softDelete", m.m.

Demo! 😊