

Laravel models migrations

PHP WebDevelopment 2021

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Task 1

Print all resources -

Courses

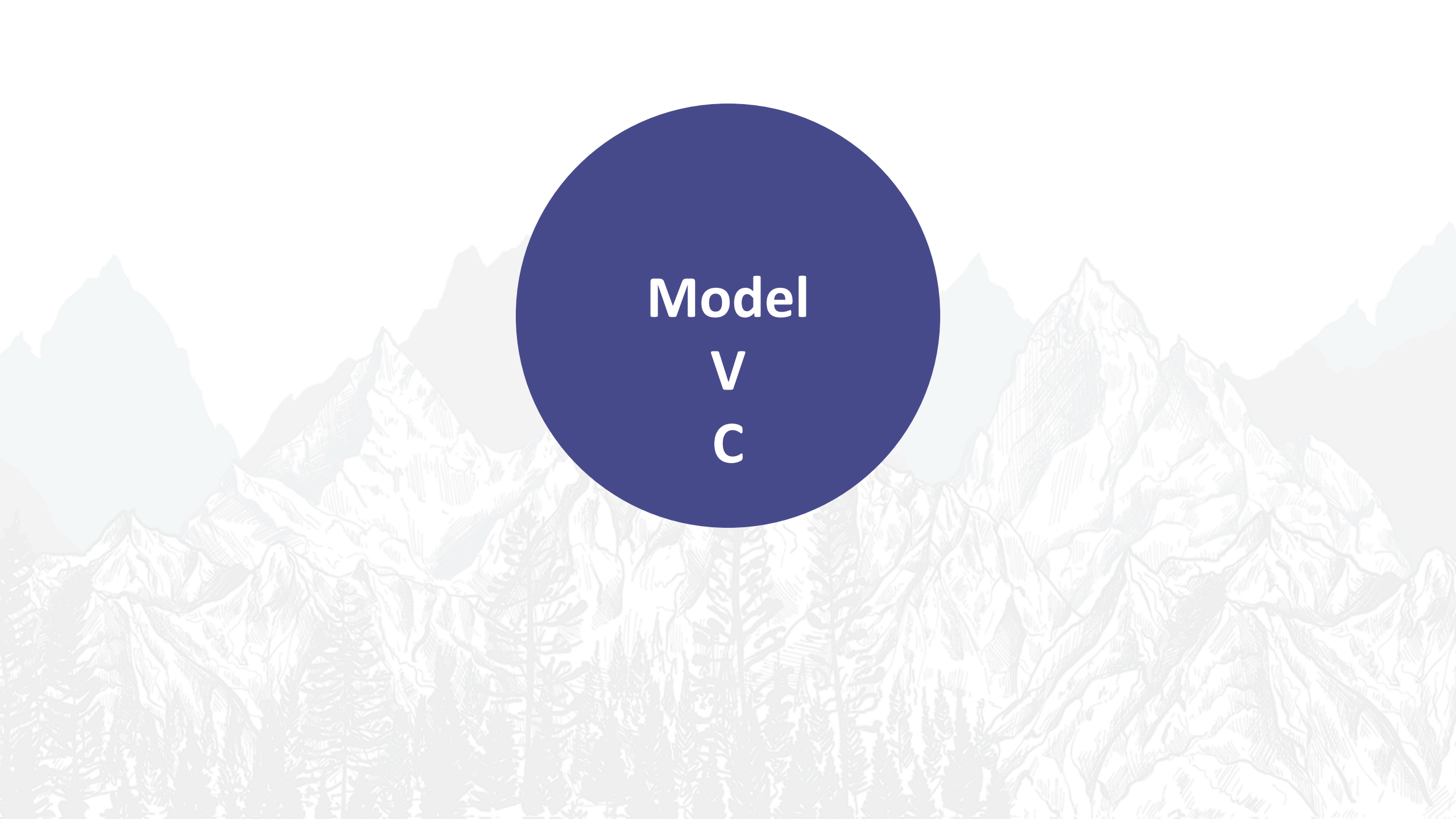
Levels

Lectures

Homeworks

in the resource`s list page.

Use navigation to access related resources.



Model V C

All the methods in the Model are designed to process the project data.

- Models works with the database
- Models transform the data in the needed format and quantity
- Models pass the data to the controller on a request -
 - from controller to the database
 - from database to the controller
 - return the transformed data without reaching the database

Model

Every class from the project's OOP design will have representation in three places in Laravel.

Controllers will hold the functionality of the class.

Models are responsible for the properties of the class and the data the class works with - to retrieve or send it to the database.

Views will display the entry points for the objects of that class to act in the application.

```
php artisan make:model Publication
```

This will create a Course model class in a **Model** folder in the root application directory.

The **model name** by convention is always **singular**.


```
protected $fillable = ['property-to-be-added-to-database'];
```

\$fillable is an array holding the class properties that are allowed to be added, updated or deleted in the database.



Laravel - connect to database

Connect to database

Database configuration file - **config/database.php**

Database credentials are filled in - **.env** file

```
DB_CONNECTION=mysql
DB_HOST=127.0.0.1
DB_PORT=3306
DB_DATABASE=database-name
DB_USERNAME=database-username
DB_PASSWORD=database-user-password
```




Laravel - migrations

Migrations

Migrations are like **version control for your database**, allowing your team to **modify and share** the application's database schema.

Migrations are typically paired with Laravel's **schema builder** to build your application's database schema.

*If you use git and migrations and have made changes to the database - added new table or column, your teammates **will easily detect and update** the project's database on **their local machines**.*

The Laravel **Schema facade** provides database agnostic support for creating and manipulating tables across all of Laravel's supported database systems.

Migrations

```
php artisan make:migration create_publications_table --  
create=publications
```

The **table name** by convention is always **plural**.

To indicate that a new table is created use **--create=table-name** option

Migrations

```
php artisan make:migration add_name_column_to_publications_table --  
table=publications
```

The **table name** by convention is always **plural**.

To indicate that a **change is made** to an existing table use **--table=table-name** option

Migrations

Both commands generate migrations file in **database/migrations/** folder.

The filename holds the timestamp and the command string.

```
php artisan migrate
```

Converts the migration file in a database table or modifies an existing database table.

Before creating the project database

After Laravel 5.4 we must take in consideration the following

Indexes length and MySQL / MariaDB

By default Laravel uses utf8mb4, which allows saving "emojis" in the database.

If your MySQL, is older than 5.7.7 or MariaDB is older than 10.2.2, you have to reset the default string length.



Before creating the project database

Go to app/Providers/AppServiceProvider.php and add to **boot** method -

```
use Illuminate\Support\Facades\Schema;
```

```
/**  
 * Bootstrap any application services.  
 *  
 * @return void  
 */  
public function boot()  
{  
    Schema::defaultStringLength(191);  
}
```



Display records from DB for a Model

```
...  
use App\Publication;  
  
class PublicationsController extends Controller {  
    public function index()  
    {  
        $publications = Publication::all();  
        return view('publication.index', compact('publications'))  
    }  
}
```


Display records from DB for a Model

routes/web.php

```
Route::get('publications', 'PublicationsController@index')->name('publications.list');
```

resources/views/publications/index.blade.php

```
@if( $publications )  
    @foreach( $publications as $publications )  
        <h2> {{ $publications->name }} </h2>  
    @endforeach  
@endif
```

Task 2

1. Create the project database.
2. Create publications table.
3. Migrate the database.
4. Use existing [column types](#) for reference.
5. Display the list of publications.

6. Repeat the above steps for categories, tags, authors.



Laravel Eloquent

The Eloquent ORM included with Laravel provides a beautiful, simple ActiveRecord implementation for working with your database.

Each database table has a corresponding "Model" which is used to interact with that table.

Models allow you to query for data in your tables, as well as insert new records into the table.


```
php artisan make:model Level --migration
```

```
php artisan make:model Level -m
```

Creates a model and a migration file for it.

Task 3

1. Create Profile model and a migration file. Build profiles table.
2. Create Level model and a migration file. Build the levels table.
3. Migrate the tables in the database.
4. Define relations **profiles-users** and **courses-levels**. Set the relations in models using [Laravel Eloquent](#).
5. *Display resources -
 - ☐ courses
 - ☐ levels
 - ☐ users
- 6.*Make every element in a list **a link** for the related resource list /courses, users/

one-to-one relation

Laravel Eloquent

A User model might be associated with one Profile
and /if needed/
a Profile model might be associated with one User /the inverse of the relation/.

Relationships are defined by placing a function in the Eloquent models.

one-to-one relation

Laravel Eloquent

```
class User extends Model
{
    public function profile()
    {
        return $this->hasOne(Profile::class);
    }
}
```

```
class Profile extends Model
{
    public function profile()
    {
        return $this->belongsTo(User::class);
    }
}
```


one-to-one relation

Laravel Eloquent

in controller

```
$profile = User::find(1)->profile;
```

or in a view

```
@foreach( $users as $user )  
    <h2> {{ $user->name }}</h2>  
    <p> {{ $user->profile->bio }}</p>  
@endforeach
```

Use defined
relations to
retrieved the
related data

one-to-many relation

Laravel Eloquent

A **one-to-many relationship** is used to define relationships where a **single model** owns **any amount** of **other models**.

For example, a **category** may have an infinite **publications**.

one-to-many relation

Laravel Eloquent

```
class Category extends Model
{
    public function publications()
    {
        return $this->hasMany(Publication::class)
    }
}
```

← A category has many publications

A level belongs to a course →

```
class Publications extends Model
{
    public function category()
    {
        return $this->belongsTo(Category::class);
    }
}
```

one-to-many relation

Laravel Eloquent

in the controller - get all categories

```
$categories = Category::all();
```

in the view

```
@foreach ($categories as $category)
```

```
    @foreach ($category->publications as  
$publication)
```

```
        ///
```

```
    @endforeach
```

```
@endforeach
```

in the controller -

Publications for a category

```
$publications = App\Category::find(1)  
->publications;
```

in the view

```
@foreach ($publications as $publication)
```

```
@endforeach
```


one-to-many relation

Laravel Eloquent

the inverse relation

in the controller - get all levels

```
$levels = Level::all();
```

in the view

```
@foreach ($levels as $level)
    {{ $level->course->name }}
@endforeach
```

Task 4

1. Create models and migration files for the rest of the project resources described in the project database design.
2. Build resources database table.
3. Migrate tables to the database.
4. Define relations between models using Laravel Eloquent.
5. *Display resources as a list per resource with all the related data available

Questions?



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