C1- Code & Go

PHP_Rush_MVC

Rush MVC

Introduction to MVC

Rush MVC

Administrative Details

- The project is to be done in teams of two.
- Sources must be handed in with BLIH.
- Location of files to hand in: PHP_Rush_MVC

Introduction

Expect this rush to be an introduction to how frameworks like CakePHP, Symfony, and etc. work. Now you'll see more **advanced notions like dispatcher.**
Here is the situation: **a client wants you to create a blog with these specifications**

- Your site must respect the **MVC** design pattern (Model – View – Controller).
- It has to respect **OOP** (Object Oriented Programming) paradigm.
- The models must contain only functions to manage database requests exclusively with the help of **PDO**.
- You can manage your views with **TWIG**. It might grant you some bonuses points, but use it at your own risks.
- The file **db.php** must contain all connection information to the database(s).
- The file **core.php** initializes all components (configurations) you need.
- Your libraries must be located in the **Vendors** directory.
- The only page called by the user is **index.php**.
- **Webroot folder** is the only directory that can be accessed by the user. It's then up to the **index.php file** to make the **necessary includes**.
- **session.php** contains a class Session that will implement methods read, write, delete, destroy and load. These methods are static.
- Session class overlays PHP sessions, which means that a session variable is accessible by: $_SESSION['key']; or Session::read('key'); (key represents a path with a dot separator).
  - Example: Session::read('Auth.User.id') == $_SESSION['Auth']['User']['id'];
- The **router.php** file retrieves information from the URL and parses it. The **dispatcher.php file** executes it.

There are a lot of types of MVC architecture in programming. But you will see soon the Symfony and Ruby on Rails frameworks' which are using a certain type of MVC. You will learn to create this type, and not another.

Phase 0

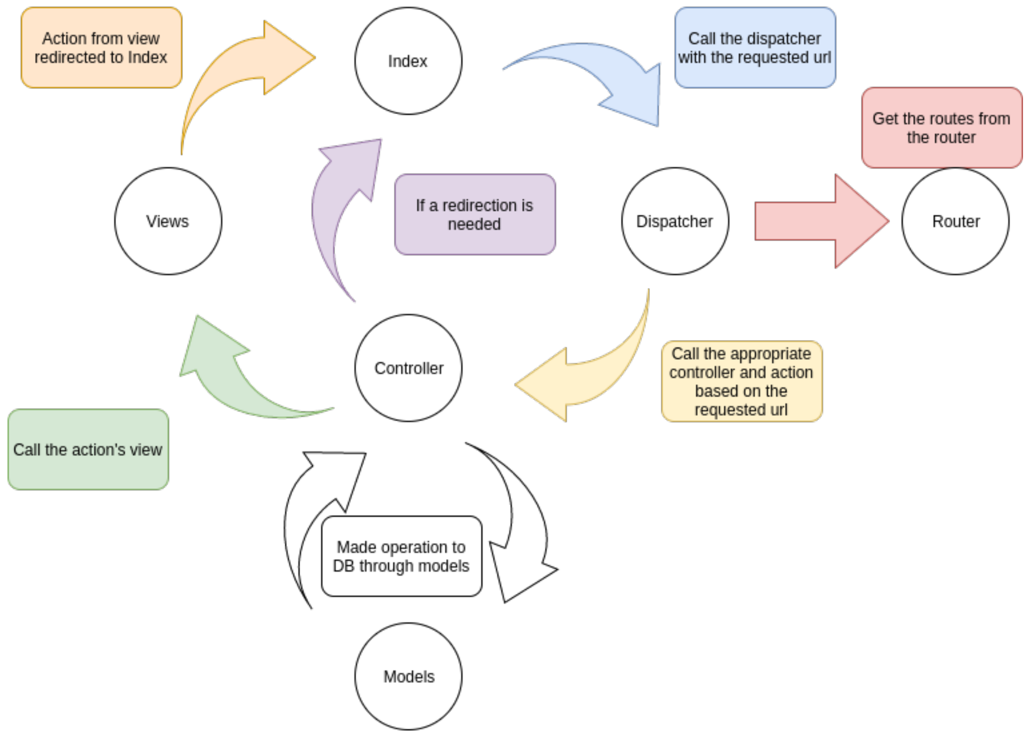
Structure of your website

Your work must follow the structure below:

```
Models/
    Article.php
    ...
Controllers/
    ArticlesController.php
    UsersController.php
    ...
Views/
    Layouts/
        theme1.tpl
        ...
    Articles/
        action.tpl
        ...
Config/
    configuration.php
    core.php
    db.php
Src/
    session.php
    router.php
Vendors/
    ...
Webroot/
    .htaccess
    index.php
    js/
        ...
    Css/
        ...
    Img/
        ...
dispatcher.php
.htaccess
```

Schema

Here is a little schema of how everything should work. Keep in mind that the entry point is the index.php file.



Action from view redirected to Index
Index
Call the dispatcher with the requested url
Get the routes from the router
Views
If a redirection is needed
Dispatcher
Router
Controller
Call the appropriate controller and action based on the requested url
Call the action's view
Made operation to DB through models
Models

Phase 1

Initialization

Htaccess files provide some security to your website. You should search how they accomplish their role.
First of all, you have to change your apache configuration files:

- Go on /etc/apache2/apache2.conf
- Modify the line AllowOverride None to AllowOverride All in the Directory /home/your_login/Rendu.
- Then, enable the rewrite module.

Then, you have to create two htaccess files in the following locations:

```
#.htaccess for working folder PHP_Rush_MVC

RewriteEngine On
RewriteBase /PHP_Rush_MVC/
RewriteRule $ Webroot/ [L] ^
RewriteRule ^(.*)$ Webroot/$1 [L]
```

```
#.htaccess for working folder PHP_Rush_MVC/Webroot

RewriteEngine On
RewriteCond %{REQUEST\_FILENAME} !−d
RewriteCond %{REQUEST\_FILENAME} !−f
RewriteRule ^{}(.*)$ index.php?$1 [QSA,L]
```

Depending on systems, sometimes you have to add or delete slashes, or even add path from previous folder.

You could use TWIG to build all your views. So, basically, what is it? It's a frontend template, to help us to design our HTML pages with the PHP content.

The structure of the site follows the MVC pattern. This pattern is very important because it's the most used pattern nowadays. So, you have to understand that structure to be able to understand and recreate it.

Before you begin the MVC pattern, you have to design all of your website. You have to create the db.php, core.php, configuration.php, router.php and dispatcher.php and use them in your conception.

- The core.php initializes all of your Controllers, Database, Dispatcher classes, and your router which is a map;
- The db.php is where you have your Database class which is performing all operations with the database;
- The configuration.php contains all of your configurations concerning the project;
- router.php contains your route map which is composed by your routes and the methods and controllers to which they are pointing;
- dispatcher.php contains the class Dispatcher which will redirect data received by the client side to the corresponding method with the router map information.

The Controllers and Database classes are singletons, search what it means.

They are the core of your project and you must design well this part, if you don't want to have hazardous results. So, take a big look to understand why these classes and map are very important and do it in your conception (again).

To create your Database class, look at the introduction of this Rush, and how you created your CRUDs for your Task entity.

Now, we have to create the AppController. It is simply the controller by which the other controllers will inherit. And you know, these Controllers will all need some basic methods:

- public function loadModel($model);
  - Loads the Database class so that it can be accessed in the controller by using $this->$model.
- public function render($file = null) ;
  - Method calling the view file. In the case where the parameter is null, we load the view file associated to the method. So without parameter, we get Views/<name_of_controller>/<name_of_action>.html.twig
- public function beforeRender();
  - Method called right before the call to the view. This is to do some actions before the rendering.
- protected function redirect($param);
  - Redirects a user from a method of the router to another method of the router.
  - $param is an array with the URL of the route.
  - You have to use Dispatcher class.

Authorized external libraries

- JQuery
- TWIG

For the rest, it's up to you, but your structure must be coherent.

Of course, your code must be clear and understandable. Don't forget to write comments.

Phase 2

Users

You have to create user entities which will contain:

- Username;
- Hashed password;
- Email;
- Group;
- Status of the user (if he/she is banned);
- His creation date;
- His last modification date.

There is a hierarchy between users. Indeed, they can be administrators, writers or normal users. Each user group inherits the rights of lesser groups (Example: ADMINISTRATOR can perform all actions of WRITER who can then perform all actions of USER). You decide what rights to each group, but it has to remain consistent.

Phase 3

Login and Registration

Obviously, you have to create a connection / registration management. Your users have to register to connect.

You have to handle their errors and build them like this:

- Registration:
  - Username: Between 3 and 10;
  - Email: Handle this part with regex;
  - Password and password confirmation:
    - Between 8 and 20 characters;
    - Have to be the same;
  - The message has to be "Invalid username", or "Invalid password" or "Invalid email".
- Connection:
  - Invalid username;
  - Invalid password;
  - The message has to be "Invalid username and/or password.".
- Logout
- Account deletion:
  - You can delete your account, but not the others';
  - The message has to be "The account has been deleted" and you will be redirected on the index page.

Phase 4

Administration of users

In this part, you have to create the administration interface for user management. It's different of the normal user interface, because there, an administrator will manage a lot of things.

But for now, we only will create few of them:

- This interface is accessible only by an administrator;
  - A writer and a user can't access to this interface.
- The activation / deactivation of an account: sometimes, an administrator has to kick somebody off the site, and deactivating his account is the best way to do this
- The creation of a user: it's very important for a lot of reasons. For example, when you have to create a bunch of users to test a feature or to create other administrators;
- The modification of a user, including his promotion to an administrator or a writer;
- The destruction of a user.

Phase 5

Articles

You will now create some articles because we want to publish a lot of them on our website.

So, here are their characteristics:

- Only the users who are connected and have writer rights can write articles. The writer's interface is accessible by writers and administrators.;
- Articles are listed by date. It means that you will have the most recent articles on the top of your page.
- Users can see all articles:
  - Their content;
  - Their title;
  - By who it was created;
  - When it was created;
  - When was the last modification.
- Users can select articles by their:
  - Title.
  - Creation date.
- We can see the comments of the article;
- They can be identified by tags: look at the associative table;
- They belong to a category, but it's none of your business for now.

Phase 6

Comments

Our articles should have comments, because it's a good and simple way to communicate with the others about their articles.

However, there are some rules for them.

- Only the users who are connected can write comments on articles;
- We can see when the comment was published and by who;
- In an article, we can see the comments of this article;
- An article can contain many comments;
- A comment belongs to only one article.

Phase 7

Administration of articles

The writers of an article and administrators manage the administration side of articles and comments.

Here are the managements to have for them in the administrator's interface:

- An article can be created, modified and deleted;
- A comment can be created (by everyone) and deleted;
- When the article is deleted, all his relative comments are deleted too;

Phase 8

Categories and tags

For this part, you have to create categories and tags for articles. They are very important because they regroup articles with some criteria. So, what's the difference between them?

It is that the category regroups articles by their principal domain / description, and a tag is like a #hashtag on Twitter, and is defining only one domain / description of the article. For example, an apple and a banana can be placed in the "fruits" category while they can have the following hashtags: #fruit #healthy #red #yellow, etc.

So, here are the features to manage in the writer's interface:

- An administrator can create, modify, and delete a category. The modification is the fact of adding or deleting articles in a category, and modifying its name;
- Tags can be created and deleted by writers and administrators;
- Tags can be associated to an article by an administrator and the writer of that article.
- You have to implement the research of articles which can be done by:
  - Author;
  - Title;
  - Date;
  - Category;
  - Tag.

Bonuses

Have a lot of fun!

- Good designed views <3
- Global searching
- Autocomplete
- ORM creation
- ...