



MVC Architecture

CT313H – WEB TECHNOLOGIES

Objective

Introduce the **MVC architecture** and
apply this architecture in designing web applications

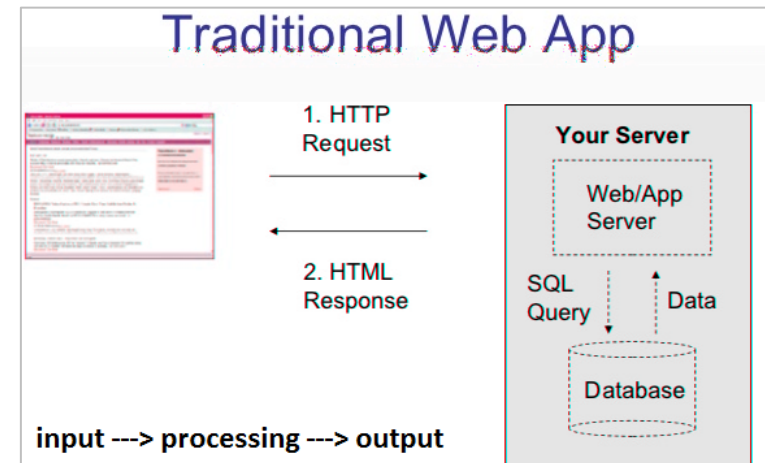
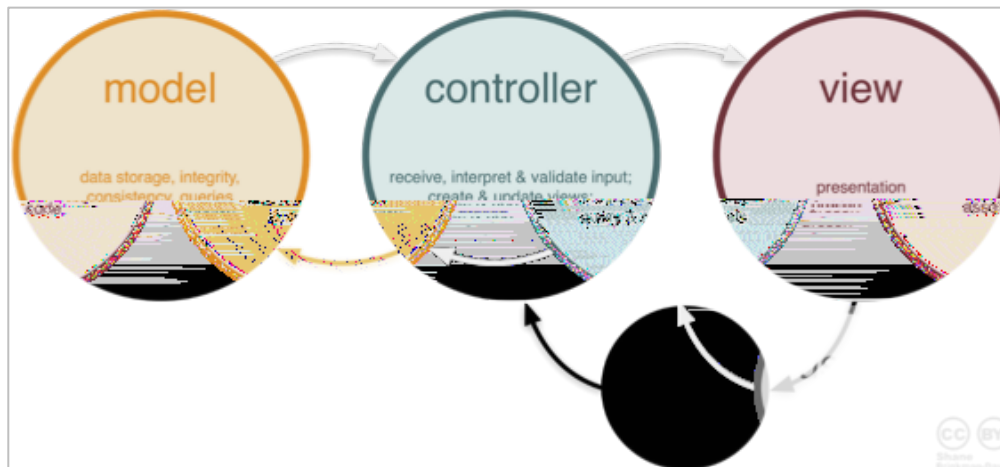
Content

- MVC architecture
 - What is MVC?
 - MVC components
 - Why MVC?
 - MVC processing flow
 - Front Controller
- Application of MVC in web app development
 - Rewrite mechanism
 - Project folder structure
 - Common routers

Introduction to MVC Architecture

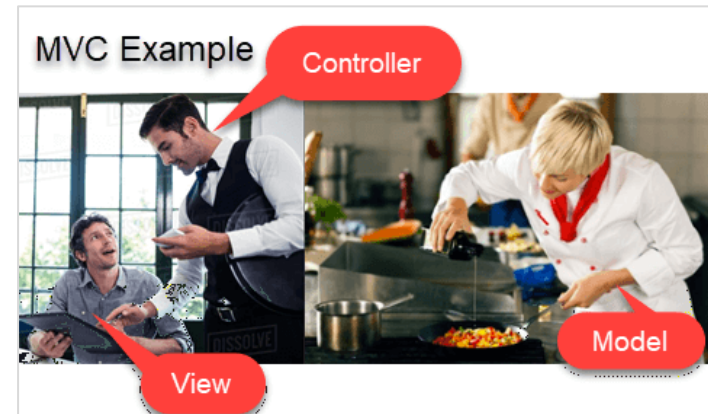
What is MVC?

- **MVC** = **M**odel – **V**iew – **C**ontroller
- An **architecture pattern** for application development
- The **most popular** architecture used in web applications
- An app is separated into **3 main logical components**



MVC components

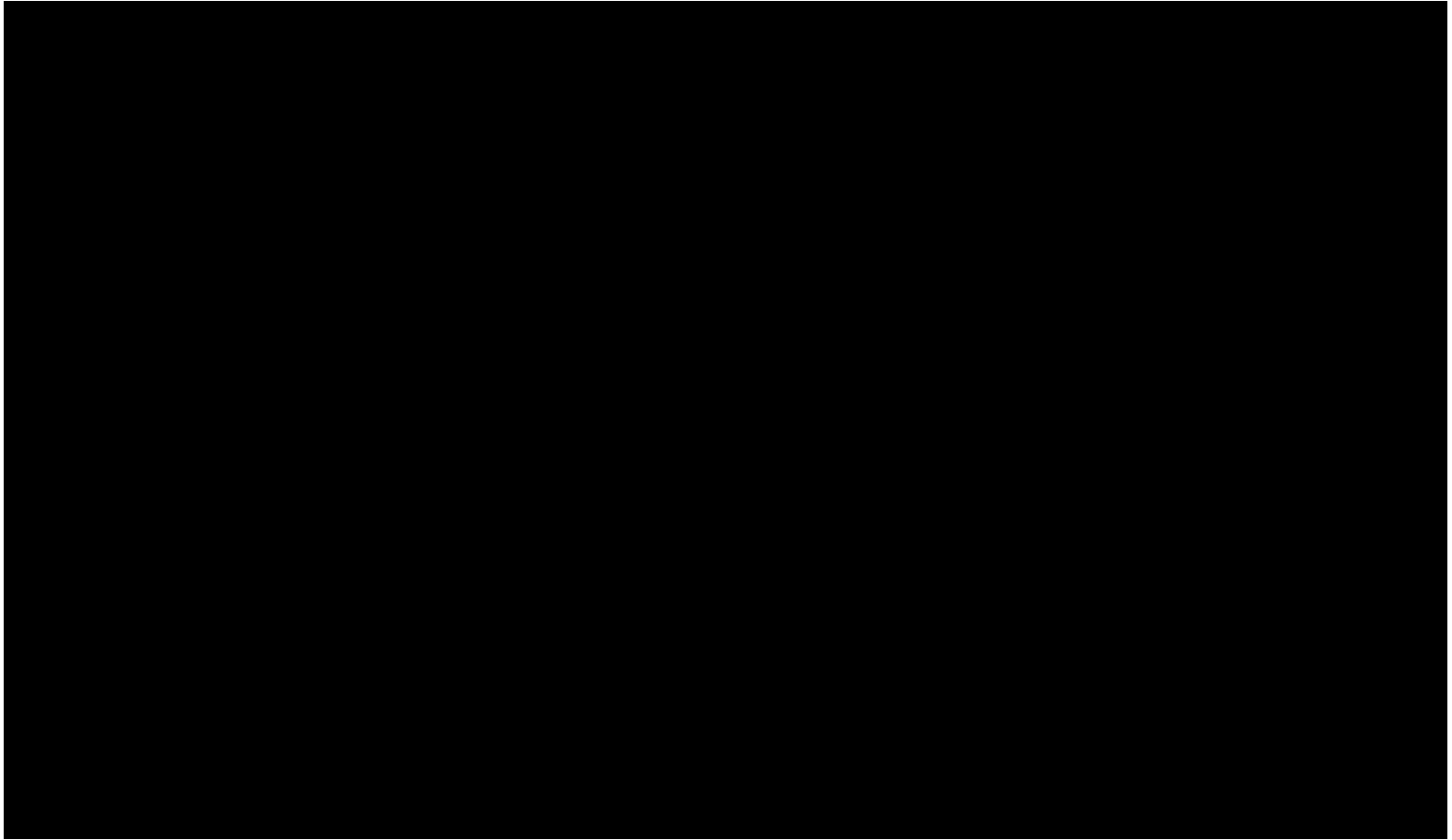
- Model:
 - Stores, manipulates **data** and process the **business logics**
 - Fat model: most of data processing tasks is handled by the model
- View:
 - **Represents** the data and **interacts** with users
- Controller:
 - An **interface** between Model and View components
 - Handles the user interaction



Why MVC?

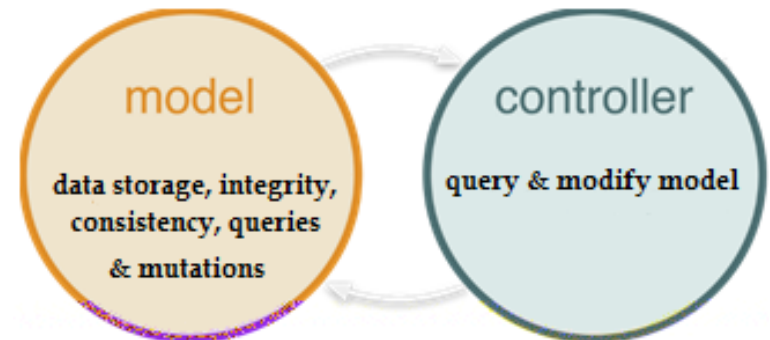
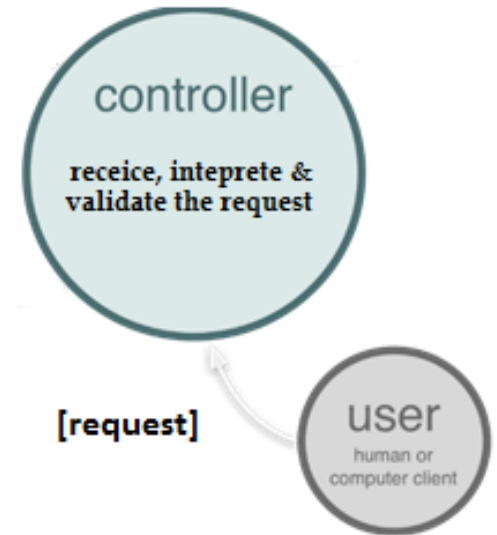
- Based on the idea of **separation of concerns**
- Each component has a separate responsibility
 - **SRP**: Single Responsibility Principle
 - **DRY**: Don't Repeat Yourself
- It helps you to avoid complexity (by dividing an app into 3 units)
- Easy code maintenance, easy to extend and grow (reusability)
- Components can be develop **concurrently**
- Etc.

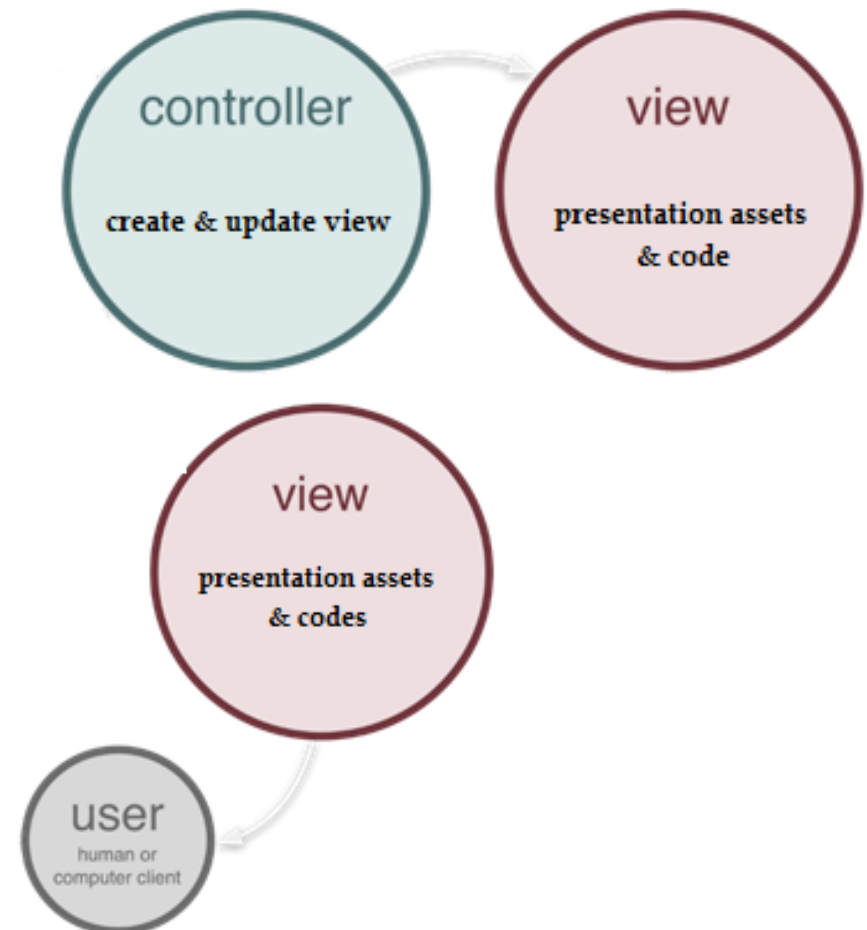
MVC workflow



MVC workflow

- 1) Request is sent to **Controller**
- 2) **Controller** calls an appropriated **Model** to process the request (query or update data,...)





Front Controller

- In a web application, there may be a special controller called **Front Controller**:
 - an **entry point** to centralize the processings of the request to the application (usually the **index.php**)
- Front Controller responsibility:
 - Loads the dependencies
 - Processes the request (through an appropriated model)
 - Sends back the response to browser

Building MVC Web Applications



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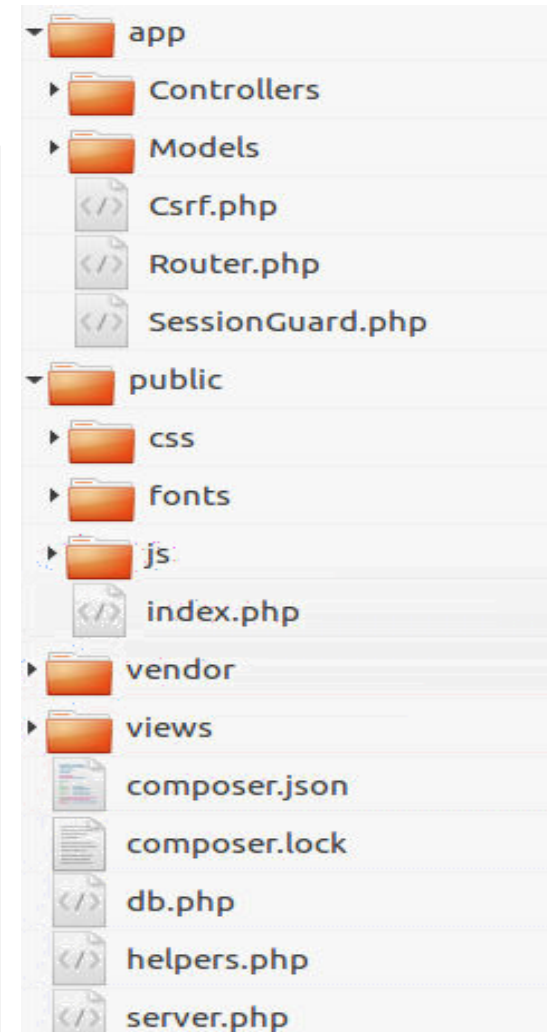
Project folder structure

URL Rewrite in Apache

```
<VirtualHost *:8080>
    DocumentRoot "C:/xampp/apps/phonebook/public"
    ServerName localhost

    #Set access permission
    <Directory "C:/xampp/apps/phonebook/public">
        AllowOverride None
        Require all granted

        RewriteEngine On
        RewriteCond %{REQUEST_FILENAME} !-f
        RewriteCond %{REQUEST_FILENAME} !-d
        RewriteRule ^.*$ index.php [L]
    </Directory>
</VirtualHost>
```



Popular routers

- slim/slim
- nikic/fast-route
- klein/klein
- altorouter/altorouter
- aura/router
- noahbuscher/macaw

noahbuscher/macaw

//public/index.php

```
<?php
require 'vendor/autoload.php';
use \NoahBuscher\Macaw\Macaw;

Macaw::get('/',
    'Controllers\Demo@index');
Macaw::get('page',
    'Controllers\Demo@page');
Macaw::get('view/(:num)',
    'Controllers\Demo@view');

Macaw::dispatch();
?>
```

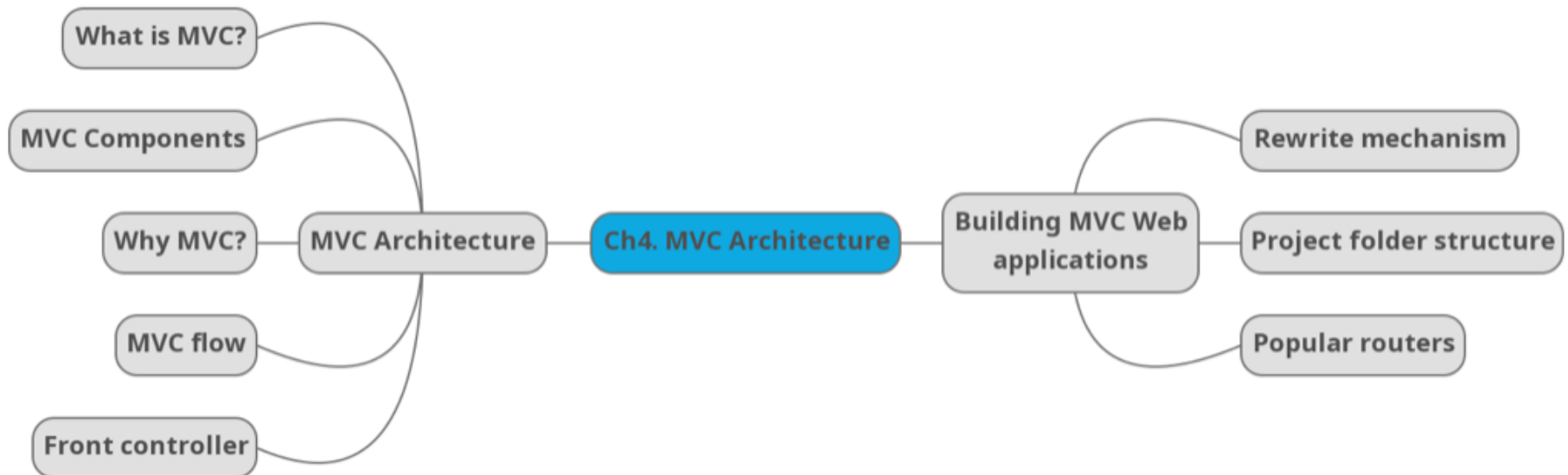
//app/Controllers/Demo.php

```
<?php
namespace Controllers;

class Demo {
    public function index() {
        echo 'home';
    }
    public function page() {
        echo 'page';
    }
    public function view($id) {
        echo $id;
    }
}
?>
```




Recap





Question?

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