# Open Source Software



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# **PHP-MVC**

- 1. MVC Tutorial
- 2. MVC Structure
- 3. ...



# MVC Tutorial

#### What is MVC?



The Model-View-Controller (MVC) pattern, originally formulated in the late 1970s.

It is an application design pattern that separates the application data and business logic (model) from the presentation (view).

The controller mediates between the models and views.

#### **Advantages**



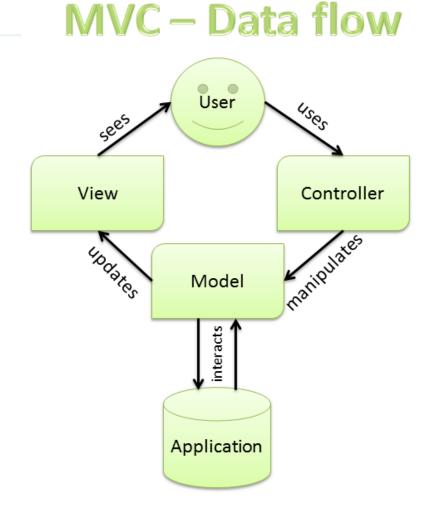
Advantages of this architecture is reusability of code, data security and better application performance.

In theory, a well-developed MVC system should allow a frontend developer and a back-end developer to work on the same system without interfering, sharing, or editing files.

#### **MVC** Architecture



Visual Representation for Data flow of MVC Architecture represented below:



#### Model

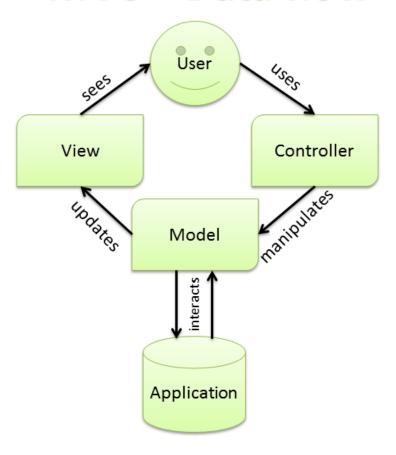


Model is the name given to the component that will communicate with the database to manipulate the data.

It acts as a bridge between the View component and the Controller component in the overall architecture.

This is responsible to manage the data. It stores and retrieves entities used by an application, usually from a database, and contains the logic implemented by the application.

#### **MVC – Data flow**



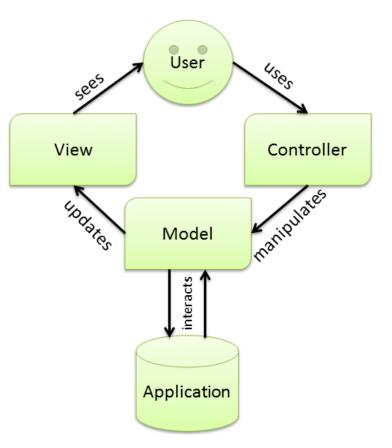
#### **View**



The view is responsible to display the data provided by the model in a specific format. This is responsible for mapping graphics onto a device.

A view attaches to a model and renders its contents to the display surface and formats the data to be presented to the user, in a web application as an html output.

#### MVC - Data flow



#### Controller

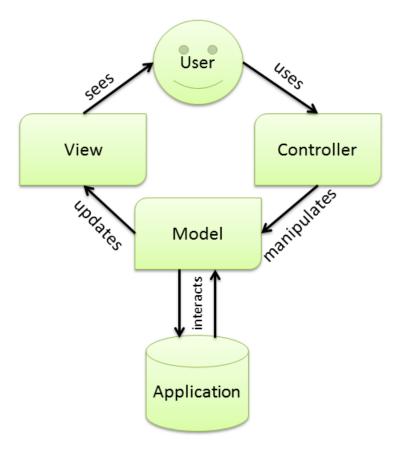


A controller is the means by which the user interacts with the application. A controller accepts input from the user and instructs the model and view to perform actions based on that input.

It handles the model and view layers to work together. The controller receives a request from the client, invokes the model to perform the requested operations and sends the data to the View.

Controller is responsible for mapping end-user action to application response.

#### **MVC - Data flow**





# MVC Structure

#### **MVC Structure**



- controllers
  - **l**index.php
  - hello.php
- | models
  - **l**index\_model.php
- views
  - o **l**hello.php
  - lindex.php
  - linsert\_index.php
  - **L**update\_index.php
  - bview\_index.php

- **libs** 
  - Bootstrap.php
  - Controller.php
  - Database.php
  - Model.php
  - Session.php
  - ∘ **L**View.php

# Hello World Example using PHP MVC



**MODEL:**It is a class file which contains the Database connectivity queries inside it.

CONTROLLER: This file access the methods and variables declared.

VIEW: It contains all the html and view page.

In Controller create a file named "hello.php". This file will be saved in the Controller folder. controller/hello.php



# **Building MVC**

# **MVC Structure**



- → BMProject
  - ∨ libs
    - ∨ css
    - > images
  - $\vee$  MVC

#### > controllers

- ∨ models
- > processing
- √ views
- **R** Bridge.php
- .htaccess
- ndex.php

# Index.php



```
1 <?php
2 session_start();
3 require_once "./MVC/Bridge.php";
4 $myApp = new Application();
5 ?>
```

#### Bridge.php



```
1 <?php
2 require_once "./MVC/processing/Application.php";
3 require_once "./MVC/processing/Controller.php";
4 require_once "./MVC/processing/DBManager.php";
5 ?>
```

### **Processing**



# processing

- Application.php
- Controller.php
- DBManager.php



```
<?php
    class Application
        protected $controller = "Home";
        protected $action = "displayIntroduction";
        protected $params = [];
 6
        function __construct()
10
11
        function urlProcess()
13
14
15
16
```



```
function urlProcess()
{
    if (isset($_SERVER["REQUEST_URI"])) {
        echo $_SERVER["REQUEST_URI"], "<br>        return explode("/", filter_var(trim($_SERVER['REQUEST_URI'], "/")));
    }
}
```



```
$arr = $this->urlProcess();
$n = count($arr);
//Xử lý Controller
if (file_exists("./MVC/controllers/" . $arr[$n-2] . ".php")) {
    $this->controller = $arr[$n-2];
    unset($arr[$n-2]);
require_once "./MVC/controllers/" . $this->controller . ".php";
$this->controller = new $this->controller;
```



```
$arr = $this->urlProcess();
$n = count($arr);
//Xử lý Controller
if (file_exists("./MVC/controllers/" . $arr[$n-2] . ".php")) {
    $this->controller = $arr[$n-2];
    unset($arr[$n-2]);
require_once "./MVC/controllers/" . $this->controller . ".php";
$this->controller = new $this->controller;
```



```
//Xử lý Actions
if (isset($arr[$n-1]))
    if (method_exists($this->controller, $arr[$n-1]))
        $this->action = $arr[$n-1];
    unset($arr[$n-1]);
```



```
//Xử lý Params
$this->params = $arr ? array_values($arr) : [];
call_user_func_array([new $this->controller, $this->action], $this->params);
```

## Controller.php



```
<?php
class Controller
   public function model($model)
        require_once "./MVC/models/".$model.".php";
        return new $model;
   public function view($view, $data=[])
       require_once "./MVC/views/".$view.".php";
```

#### .htaccess



```
RewriteEngine ON
RewriteCond %{REQUEST_FILENAME} !-d
RewriteCond %{REQUEST_FILENAME} !-f
RewriteRule ^(.+)$ index.php?url=$1
```

### Home.php



```
✓ MVC
✓ controllers
M Home.php
```

```
<?php
class Home extends Controller
     function displayIntroduction()
      echo "Hello";
   function displayUser()
       echo "Welcone Le Hai Binh";
```

# **Views**



- ✓ views
  - ✓ layout
    - bottom.php
    - 💏 left.php
    - 💏 top.php
  - > pages
  - master.php

#### master.php



```
<header id="header">
    <!-- place navbar here -->
    <?php
    require_once "layout/top.php";
    <?
</header>
```

## master.php



```
<footer id="footer">
     <?php
    require_once "layout/bottom.php";
    ?>
    </footer>
```

```
<main>
    <div class="container-fluid">
        <div class="row flex-nowrap">
            <div class="col-auto col-md-3 col-xl-2 px-sm-2 px-0 bg-dark">
                <?php
                require_once "layout/left.php";
                ?>
            </div>
            <div id="" class="col py-3">
                <?php
                require_once "./MVC/views/pages/" . $data["Page"] . ".php";
                <?
            </div>
        </div>
    </div>
</main>
```

# home.php



#### Class Home

```
✓ pages
Mages
Mages
Mages
```

#### **DBManager.php**



```
<?php
class dbProduct{
    public $con;
    protected $servername = "localhost";
    protected $username = "root";
    protected $password = "";
    protected $dbname = "productDB";
    function __construct(){
        $this->con = mysqli_connect($this->servername,
         $this->username, $this->password);
        mysqli_select_db($this->con, $this->dbname);
        mysqli_query($this->con, "SET NAMES 'utf8'");
```

### ProductModel.php



#### ∨ models

ProductModel.php

```
<?php
class ProductModel extends dbProduct
    public function getRecords($tablename)
        $qr = "SELECT * FROM $tablename";
        return mysqli_query($this->con, $qr);
```

### ProductController.php



```
∨ controllers
```

- Home.php
- ProductController.php

```
<?php
class ProductController extends Controller
   public $productModel;
   public function __construct()
             $this->productModel = $this->model("ProductModel");
   function displayIntroduction()
        $this->view("master", [
            "Page" => "home"
        ]);
```

# ProductManager.php



- ∨ controllers
- Home.php
- ProductManager.php

#### ProductManager.php



```
<?php
class ProductController extends Controller
   public $productModel;
    public function __construct()
        $this->productModel = $this->model("ProductModel");
   function displayIntroduction()
        $this->view("master",[
                 "Page" => "home"]);
```



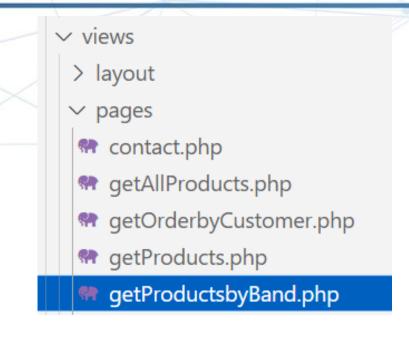
# Finding

#### ProductModel.php



```
public function getRecordsbyField($tblname, $field, $keyword)
{
    $sql = "SELECT * FROM $tblname where $field='$keyword'";
    return mysqli_query($this->con, $sql);
}
```









```
✓ views
> layout
✓ pages
❤ contact.php
❤ getAllProducts.php
❤ getOrderbyCustomer.php
❤ getProducts.php
❤ getProducts.php
```

```
<?php
// Kiểm tra xem form đã được gửi đi hay chưa
if ($ SERVER['REQUEST METHOD'] === 'POST') {
   // Xử lý dữ liệu form ở đây
   // Gán giá trị mới cho action sau khi xử lý form
    $newAction = "";
 else {
   // Giá trị action ban đầu
   $newAction = "displayProductByBand";
?>
```



```
<form method="post" action="<?php echo $newAction; ?>">
    <div class="mb-3">
        <label for="" class="form-label">Select Band</label>
        <select class="form-select form-select-lg" name="selectBand" id="">
            <option value="Minocin">Minocin</option>
            <option value="AeroGreen Antibac">AeroGreen Antibac</option>
            <option value="Bodycology">Bodycology</option>
            <option value="ibuprofen">ibuprofen</option>
        </select>
    </div>
    <div class="mb-3">
        <button type="submit" class="btn btn-primary" name="btSearch">
            Submit
        </button>
    </div>
</form>
```



```
//Hiện thị kết quả
echo "";
echo "";
// Fetch the field names
echo "<thead>";
echo "";
$fieldNames = $data["Products"]->fetch fields();
foreach ($fieldNames as $field) {
   echo "" . strtoupper($field->name) . "";
echo "";
echo "</thead>";
```



```
while ($row = mysqli_fetch_array($data["Products"])) { //Products lấy từ Products
  echo "";
  echo "" . $row["id"] . "";
  echo "" . $row["pid"] . "";
  echo "" . $row["pname"] . " ";
  echo "" . $row["company"] . "";
  echo "" . $row["year"] . "";
  echo "" . $row["band"] . "";
  echo "" . '<img src="' . $row["pimage"] .
  '" alt="Image">' . "";
  echo "";
echo "";
echo "";
```



```
function getProductsbyBand()
    $this->view("master", [
        "Page" => "getProductsbyBand"
    1);
```



```
public function displayProductByBand()
    if (isset($_POST["btSearch"])) {
        $band = $_POST["selectBand"];
        $tblname = 'tblproduct';
        $field = "band";
        $products = $this->productModel->getProductsbyField($tblname, $field, $band);
        $this->view(
            "master",
                "Page" => "getProductsbyBand",
                "Products" => $products
```

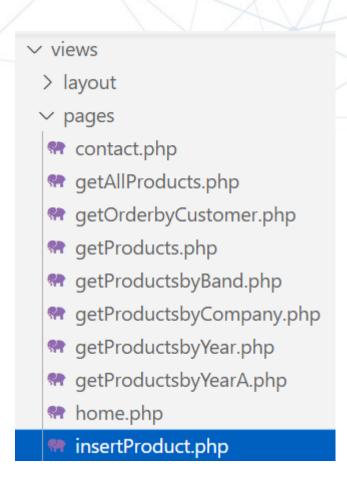


# Insert

#### ProductModel.php







ID Product	
Product Name	
Company	
Select Band	
Minocin	~
Select Year	
2015	~
Choose image	
Choose File No file chosen	
Insert	



```
<form action="<?php echo $newAction; ?>" method="post" enctype="multipart/form-data">
    <div class="mb-3">
        <label for="" class="form-label">ID Product </label>
        <input type="text" class="form-control" name="id" id="" aria-describedby="helpId" />
    </div>
    <div class="mb-3">
        <label for="" class="form-label">Product Name</label>
        <input type="text" class="form-control" name="pname" id="" aria-describedby="helpId" />
    </div>
    <div class="mb-3">
        <label for="" class="form-label">Company</label>
        <input type="text" class="form-control" name="company" id="" aria-describedby="helpId" /</pre>
```



```
<div class="mb-3">
    <label for="" class="form-label">Select Band</label>
    <select class="form-select form-select-lg" name="selectBand" id="">
        <option value="Minocin">Minocin</option>
        <option value="AeroGreen Antibac">AeroGreen Antibac/option>
        <option value="Bodycology">Bodycology</option>
        <option value="ibuprofen">ibuprofen</option>
    </select>
</div>
```



```
<div class="mb-3">
    <label for="" class="form-label">Select Year</label>
    <select class="form-select form-select-lg" name="selectYear" id="">
        <?php
        for ($year = 2015; $year <= 2025; $year++) {
            echo '<option value="' . $year . '">' . $year . '</option>';
    </select>
</div>
```



```
<div class="mb-3">
       <label for="" class="form-label">Choose image</label>
        <input type="file" class="form-control" name="imageFile">
    </div>
   <button type="submit" name="btInsert" class="btn btn-primary">
        Insert
    </button>
</form>
```



```
<?php
if (isset($data["result"])) {
    if ($data["result"]) {
        echo "Thêm mới thành công.";
     else {
        echo "Thêm mới không thành công.";
```



```
√ views

 > layout

→ pages

 contact.php
 getAllProducts.php
 getOrderbyCustomer.php
 getProducts.php
 getProductsbyBand.php
 getProductsbyCompany.php
 getProductsbyYear.php
 getProductsbyYearA.php
 nome.php
  nsertProduct.php
```

```
<?php
if ($_SERVER['REQUEST_METHOD'] === 'POST') {
    $newAction = "";
} else {
    $newAction = "./insertProduct";
}
</pre>
```





```
public function insertProduct()
    //Get information
    if (isset($_POST["btInsert"])) {
        $id = $_POST["id"];
        $pname = $_POST["pname"];
        $company = $_POST["company"];
        $year = $ POST["selectYear"];
        $band = $_POST["selectBand"];
        if (isset($_FILES['imageFile']) && $_FILES['imageFile']['error'] === UPLOAD_ERR_OK) {
            // Get the image data
            $pimage = 'data:image/png;base64,'
            . base64_encode(file_get_contents($_FILES['imageFile']['tmp_name']));
```



```
$result = $this->productModel->
insertProduct($id, $pname, $company, $year, $band, $pimage);
$this->view(
    "master",
        "Page" => "insertProduct",
        "result" => $result
```



```
$result = $this->productModel->
insertProduct($id, $pname, $company, $year, $band, $pimage);
$this->view(
    "master",
        "Page" => "insertProduct",
        "result" => $result
```





← ♂ (i) localhost	3000/MVC-ProductA/ProductManager/impInsertProduct
han Madher	
Menu	ID Product
Home	
	Product Name
Item 2	Company
Orders	
Admin	Select Band
Products	Minocin
Customers	Select Year
	2015
	2013
	Choose image
	Choose File No file chosen
	Insert