PHP Frameworks

and the MVC Design Pattern

So. Many. Frameworks.

Full stack:

- Symfony
- Zend Framework
- Laravel
- CakePHP
- CodeIgniter
- Kohana
- Yii
- Lithium

Micro:

- Silex
- Slim
- Fat-Free Framework
- Aura
- Phalcon

And more…

Organization Patterns

Model, View, Controller

What is MVC Design Pattern

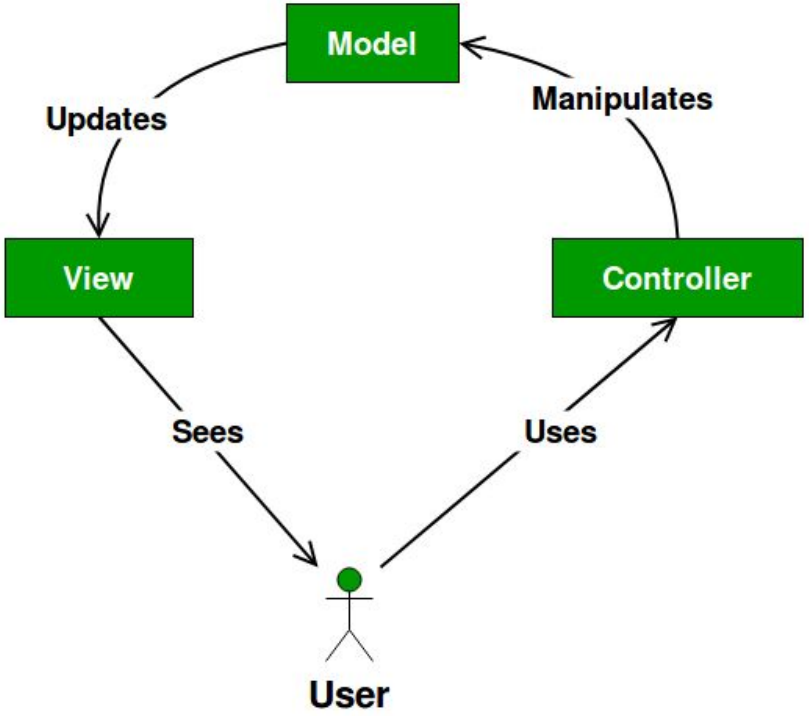
- "Design patterns" describe solution to common programming problems in general terms which can be used in any language.
- The Model-View-Controller (MVC) pattern is one of the most common design patterns.
- This pattern can be found in many popular programming language.
  - Java, C#, Ruby, and PHP all have frameworks that are used in web application development with MVC straight out of the box.

Model-View-Controller

Model represents the data

View is the visual component that presents the interface for users to interact with that data

Controller is the coordinator. Responsible for coordinating what specific actions need to be performed to return the response



Project Setup

Generic configuration

Project Structure: Skeleton

- data
  - exampleapp.db **sqlite database**
- public **this is where you want to point the root of your webserver**
  - index.php
- src
  - Controller
  - Model
  - View
  - app setting (config, dependencies, routes)
- tests
- project settings (composer, phpunit)

Front Controller

```php
<?php
require __DIR__ . '/../vendor/autoload.php';
require __DIR__ . '/../src/config.php';
$app = new \Slim\App(["settings" => $config]);
require __DIR__ . '/../src/dependencies.php';
require __DIR__ . '/../src/routes.php';
$app->run();
```

Config

```php
<?php
$config['displayErrorDetails'] = true;
$config['db']['dsn'] = 'sqlite';
$config['db']['dbname'] = "../data/exampleapp.db";
```

Dependencies

```
$container = $app->getContainer();
$container['view'] = new \Slim\Views\PhpRenderer("../src/View/");
$container['db'] = function ($c) {
  $db = $c['settings']['db'];
  $pdo = new PDO('sqlite:' . $db['dbname']);
  $pdo->setAttribute(
    PDO::ATTR_ERRMODE,PDO::ERRMODE_EXCEPTION,
    PDO::ATTR_DEFAULT_FETCH_MODE, PDO::FETCH_ASSOC
  );
  return $pdo;
};
```

Basic Route with Slim\Views\PhpRenderer

```
use Slim\Http\Request;
use Slim\Http\Response;

$app->get('/', function (Request $request, Response $response, array
$args) {
  $response = $this->view->render($response, "home.phtml");
  return $response;
});
```

Routes given to Controllers

```
use App\Controller\{
  TicketsController,
  NewTicketController,
  AddTicketController,
  FindTicketController
};
$app->get('/tickets', TicketsController::class);
$app->get('/ticket/new', NewTicketController::class);
$app->post('/ticket/new', AddTicketController::class);
$app->get('/ticket/{id}', FindTicketController::class)
      ->setName('ticket-detail');
```

Grouped Routes

```
$app->group('/ticket', function () {
    $app->get('/new', NewTicketController::class);
    $app->post('/new', AddTicketController::class);
    $app->get('/{id}', FindTicketController::class)
        ->setName('ticket-detail');
});
```

Controllers

The coordinator

Example: FindTicketController

```
namespace App\Controller;
use Slim\Http\Request;
use Slim\Http\Response;
use Psr\Container\ContainerInterface;
use App\Model\TicketMapper;

class FindTicketController
{
  protected $container;
  public function __construct(ContainerInterface $container) {
    $this->container = $container;
  }...
```

```
public function __invoke(Request $request, Response $response, array $args) {
  $ticket_id = (int)$args['id'];
  $ticket = $this->getTicketById($ticket_id);
  $response = $this->container->view->render(
      $response, "ticketdetail.phtml", ["ticket" => $ticket]
  );
  return $response;
}
private function getTicketById($ticket_id) {
    $mapper = new TicketMapper($this->container->db);
    return $mapper->getTicketById($ticket_id);
}
```

Model

The Data

```php
namespace App\Model;
class TicketMapper extends Mapper
{
  public function getTickets(){...}
  public function getTicketById($ticket_id) {
    $sql = "SELECT t.id, t.title, t.description, c.component
      from tickets t
      join components c on (c.id = t.component_id)
      where t.id = :ticket_id";
    $stmt = $this->db->prepare($sql);
    $result = $stmt->execute(["ticket_id" => $ticket_id]);
    if($result) {
      return new TicketEntity($stmt->fetch());
    }
  }
}
```

```php
namespace App\Model;

class TicketEntity
{
  protected $id;
  protected $title;
  public function __construct(array $data) {
    if(isset($data['id'])) { // no id if we're creating
      $this->id = $data['id'];
    }
    $this->title = $data['title'];
  }
  public function getId() {
    return $this->id;
  }
...
```

View

Visual Presentation

```
<html>
<head>
  <title>Example Application</title>
  <link rel="stylesheet"
href="http://yui.yahooapis.com/pure/0.6.0/pure-min.css">
</head>
<body>
<h1><?=$ticket->getTitle()?></h1>

<p><strong><?=$ticket->getDescription()?></strong></p>

<p>Component: <?=$ticket->getComponent()?></p>
</body>
</html>
```

Framing the Future

How frameworks help you

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Questions and Answers

Thank you for your participation