



PROGRAM TEKNOLOGI INFORMASI DAN ILMU KOMPUTER

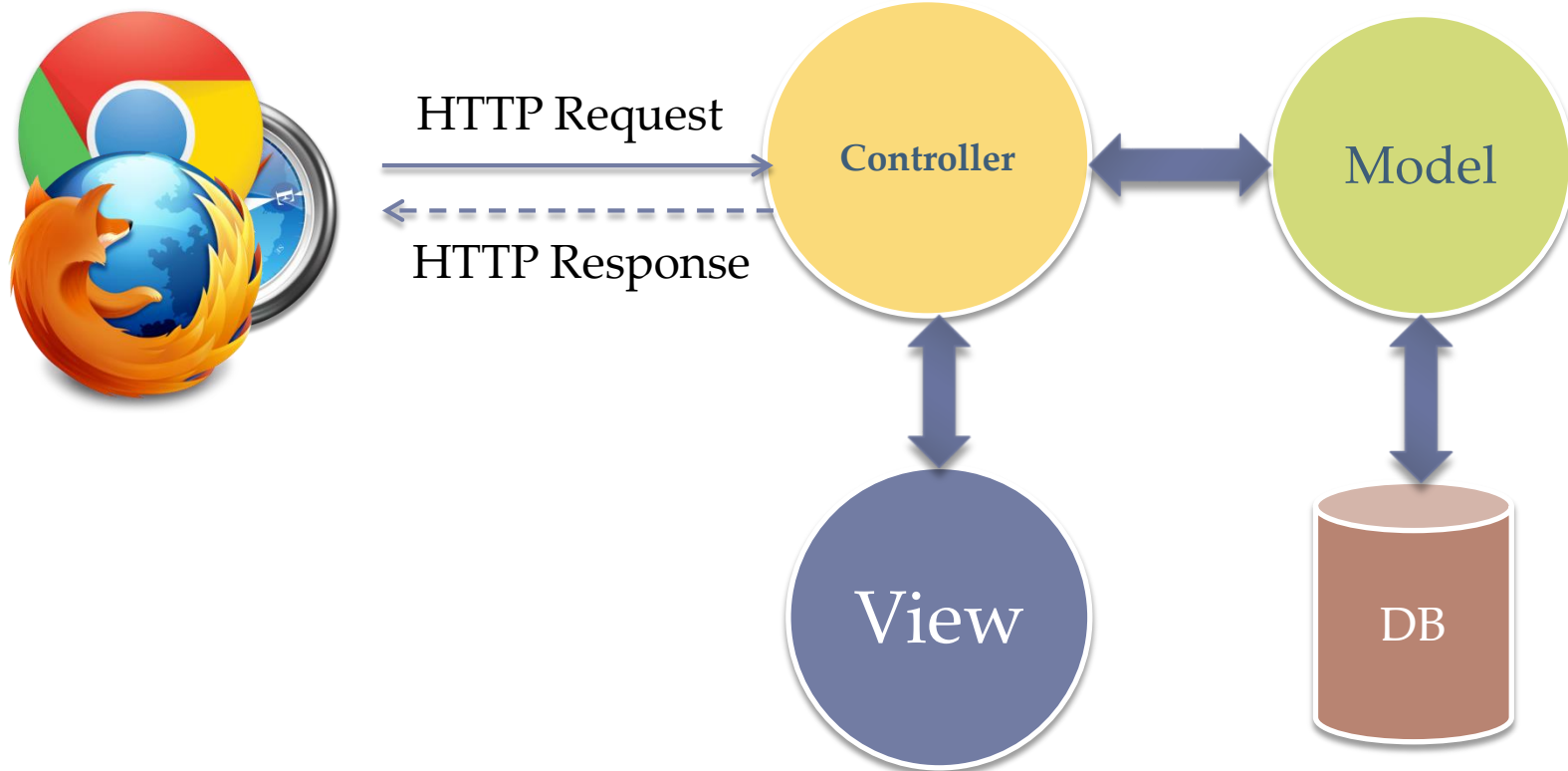
# Pemrograman Web MVC Programming and Design Pattern

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# MVC Design Patterns

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Model–View–Controller (MVC) is an architecture that separates the representation of information from the user's interaction logic and data processing with it.



# PHP & MVC

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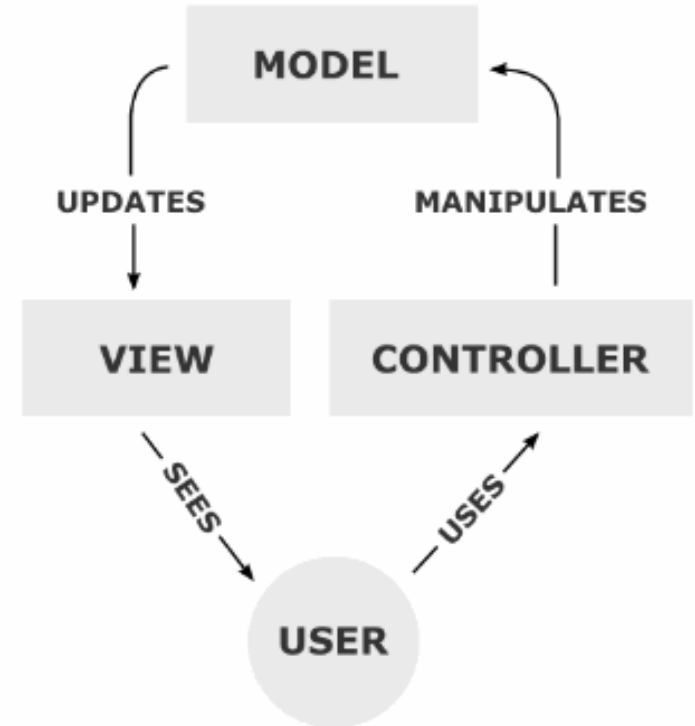
- ▶ The model view controller pattern is the **most used** pattern for today's world **web applications**
- ▶ It has been used for the first time in **Smalltalk** and then adopted and popularized by *Java*
- ▶ At present there are more than a dozen PHP web frameworks based on MVC pattern
  - ▶ **Laravel, CodeIgniter, Yii, Kohana, etc.**
  - ▶ **Also you may create your own PHP MVC framework!**



# PHP & MVC

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- ▶ The *model* is responsible to **manage the data**
- ▶ The *view* (presentation) is responsible to **display the data** provided by the model in a specific format
- ▶ The *controller* handles the **model and view** layers to work together



# CASE STUDY: BOOK LIST

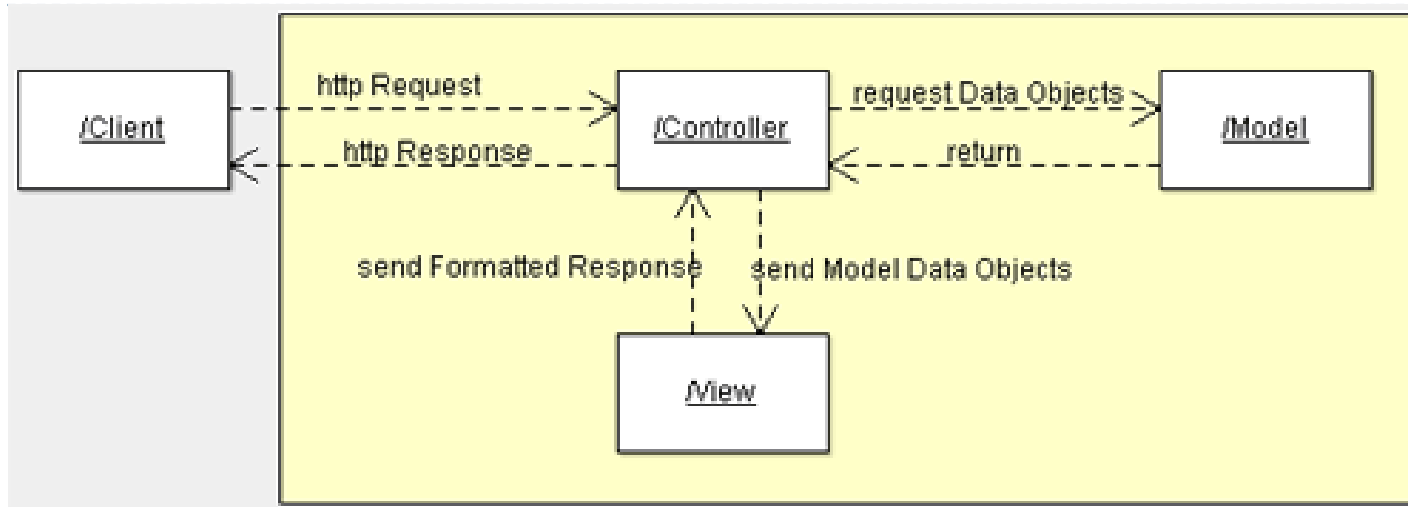
Model View Controller

# Case Study: Book List & Detail

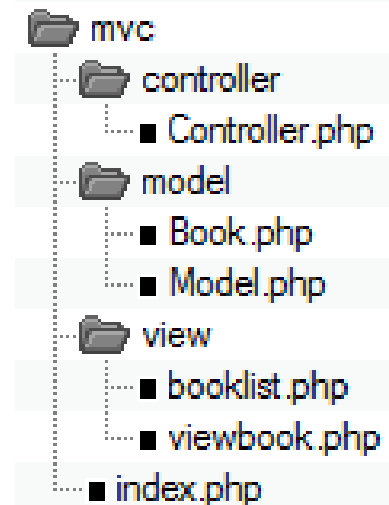
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- ▶ Display list of books and detail of any book
- ▶ Application: Book Collection, Library, etc.





Implementasi MVC dalam folder dan file terpisah →



# Controller

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- ▶ The controller is the first thing which takes a *request*, *parses* it, *initializes* and *invoke the model* and *takes the model response* and *sends it to the presentation layer*.
- ▶ The application entry point will be *index.php*. The index php file will delegate all the requests to the controller

```
// index.php file  
include_once("controller/Controller.php");  
  
$controller = new Controller();  
$controller->invoke();
```





```
include_once("model/Model.php");
```

## Controller.php

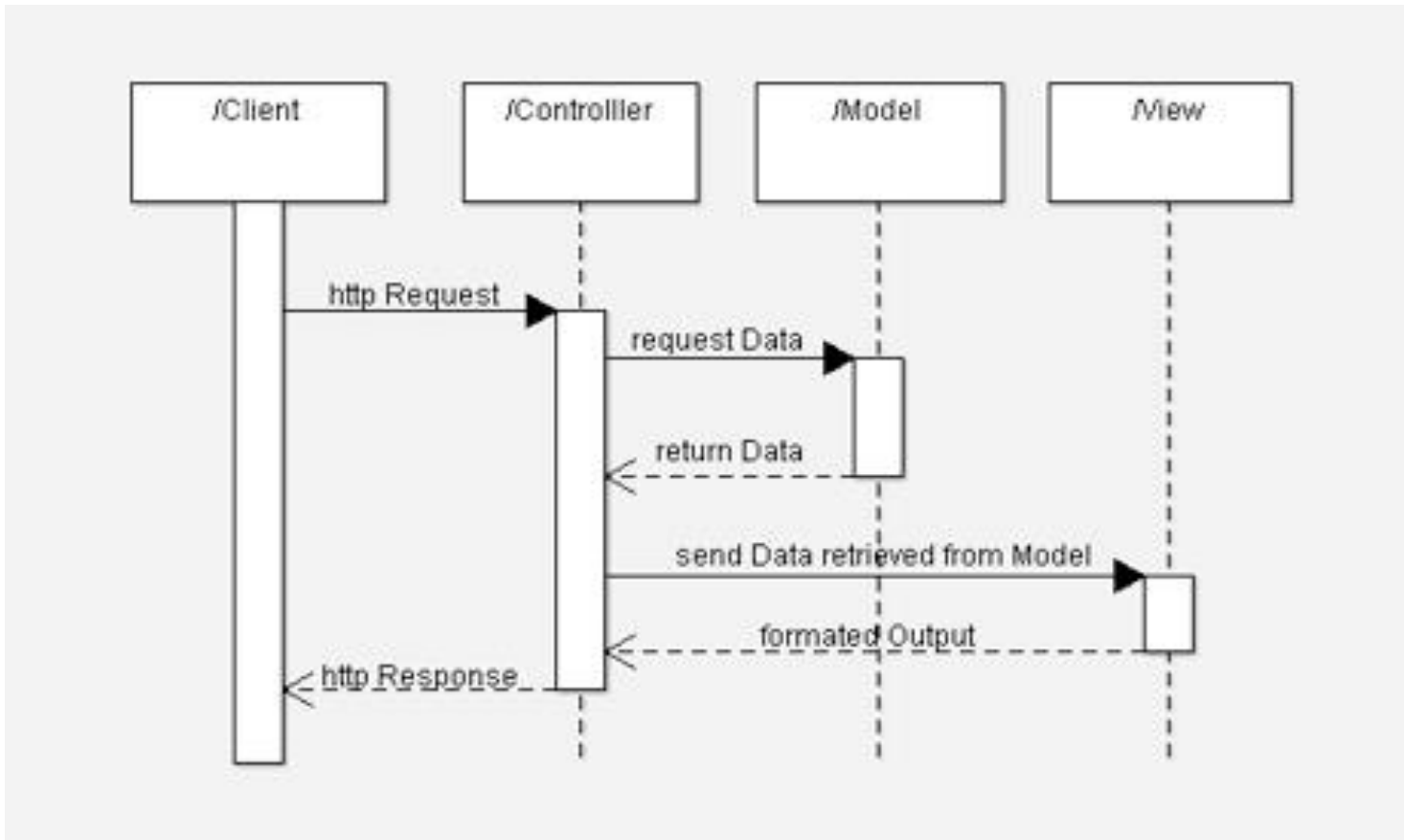
```
class Controller {
    public $model;

    public function __construct()
    {
        $this->model = new Model();
    }

    public function invoke()
    {
        if (!isset($_GET['book']))
        {
            // no special book is requested, we'll show a list of all available books
            $books = $this->model->getBookList();
            include 'view/booklist.php';
        }
        else
        {
            // show the requested book
            $book = $this->model->getBook($_GET['book']);
            include 'view/viewbook.php';
        }
    }
}
```

# PHP MVC Sequence Diagram

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# Model and Entity Classes

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- ▶ The Model represents the data and the logic of an application, what many calls **business logic**. Usually, it's responsible for:
    - ▶ *storing, deleting, updating* the application data. Generally it includes the database operations, but implementing the same operations invoking external web services or APIs is not an unusual at all.
    - ▶ *encapsulating the application logic*.
  - ▶ The most common **mistakes** are to **implement application logic operations inside the controller or the view(presentation) layer**.
- 



```
include_once("model/Book.php");
```

**model.php**

```
class Model {
```

```
public function getBookList()
```

```
{
```

```
    // here goes some hardcoded values to simulate the database
```

```
    return array(
```

```
        "Jungle Book" => new Book("Jungle Book", "R. Kipling", "A classic book."),
```

```
        "Moonwalker" => new Book("Moonwalker", "J. Walker", ""),
```

```
        "PHP for Dummies" => new Book("PHP for Dummies", "Some Smart Guy", "")
```

```
    );
```

```
}
```

```
public function getBook($title)
```

```
{
```

```
    // we use the previous function to get all the books and then we return the requested one
```

```
    // in a real life scenario this will be done through a db select command
```

```
        $allBooks = $this->getBookList();
```

```
        return $allBooks[$title];
```

```
}
```

```
}
```


# Book Class

---

```
class Book {
    public $title;
    public $author;
    public $description;

    public function __construct($title, $author, $description)
    {
        $this->title = $title;
        $this->author = $author;
        $this->description = $description;
    }
}
```

---



# View (Presentation)

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- ▶ The view(presentation layer) is responsible for *formatting the data received from the model* in a form accessible to the user.
- ▶ The data can come in different formats from the model: simple objects (sometimes called Value Objects), *xml* structures, *json*, etc.



# viewbook.php

---

```
<html>
```

```
<head></head>
```

```
<body>
```

```
  <?php
```

```
    echo 'Title:' . $book->title . '<br/>';
```

```
    echo 'Author:' . $book->author . '<br/>';
```

```
    echo 'Description:' . $book->description . '<br/>';
```

```
  ?>
```

```
</body>
```

```
</html>
```

---













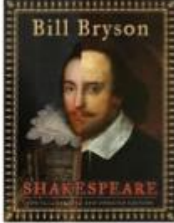





# booklist.php

```
<html>
<head></head>
<body>
  <table>
<tbody><tr><td>Title</td><td>Author</td><td>Description</td></tr></tbody>
  <?php
    foreach ($books as $title => $book)
    {
      echo '<tr><td><a href="index.php?book=' . $book->title.
'">' . $book->title. '</a></td>
      <td>' . $book->author. '</td>
      <td>' . $book->description. '</td></tr>';
    }
  ?>
</table>
</body>
</html>
```



# Book list Preview

## ► Only modify the VIEW

 <p>Who I Am: A Memoir by Pete Townshend</p> <p>goodreads.com</p>	 <p>I have a different version of this and it's my go-to when I'm feeling creepy, just re-read one the other day...</p> <p>1 like</p> <p>barnesandnoble.com</p>	 <p>Inspector Fox and the Complaints Dept. return...</p> <p>amazon.com</p>	 <p>the Soundless Scream by Michael Buttenworth, only recommended if you like books about a beautiful girl with amnesia who thinks she's done something horrible (but can't remember) - set in the South of France in the 60's...</p> <p>www.amazon.com/...</p> <p>amazon.com</p>	 <p>The Garner Files: A Memoir by James Garner, www.amazon.com/...</p> <p>amazon.com</p>	 <p>Ride the Pink Horse by Dorothy Hughes</p> <p>lauraasmomsthings.blogspot.co</p>	 <p>Neuromancer by William Gibson, corner of term cyberpunk, creator of crazy worlds, fellow Vancouverite.</p> <p>1 like</p> <p>snipitplaylife.com</p>	 <p>just finished Dan Bucatinsky's book last night - like David Sedaris with kids - a funny and honest look at parenting, I loved it.</p> <p>twitter.com</p>
 <p>Life by Keith Richards - loved reading about his songwriting, his guitar techniques, studio stories, musical buddies and of course all of the crazy adventures in his life. Now I have to go check out all of his solo stuff...</p> <p>keithrichards.com</p>	 <p>Patti Smith, Just Kids - 2010 National Book Award Nonfiction Winner, The National Book Foundation.</p>	 <p>Bryson's Shakespeare</p> <p>1 reply</p> <p>interleaves.wordpress.com</p>	 <p>Kiss Me Like a Stranger, By Gene Wilder</p> <p>4 replies</p> <p>blkrareviews.com</p>	 <p>MURDER MUST ADVERTISE</p>	 <p>Smokescreen by Dick Francis - not one of his best, perhaps; but still very good.</p> <p>dickfrancis.com</p>	 <p>Dickar Wilde as detective with Arthur Conan Doyle as a secondary character. Pretty Good.</p> <p>sharruckshelf.wordpress.com</p>	 <p>The (B)ogart movie of the same name is based on this book. It is not a</p>

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Questions?

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