



Introduction to MVC



Agenda

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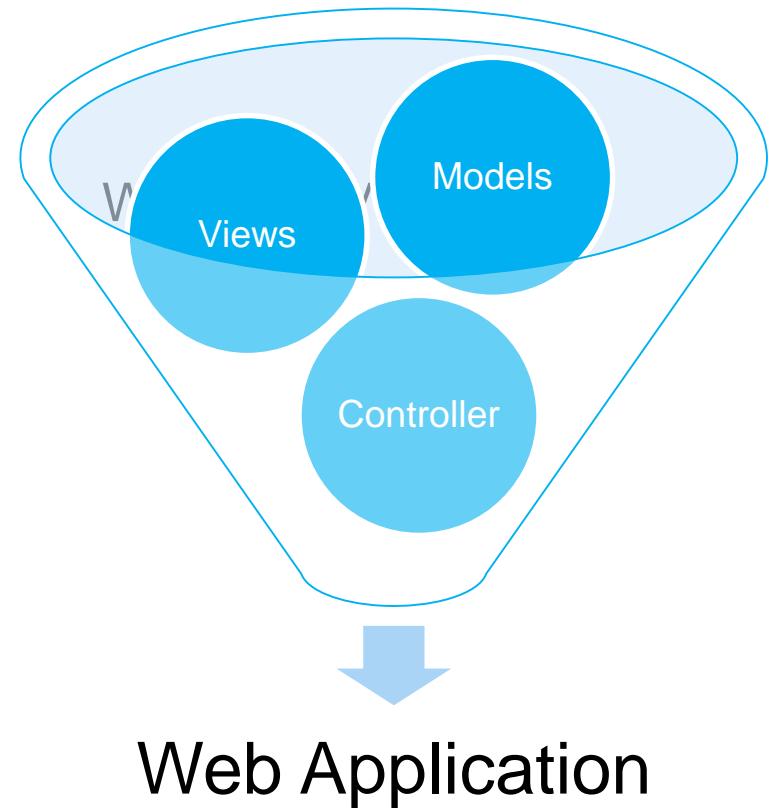
Objectives

At the end of this module, you will be able to :

- Understand the role of MVC Design Pattern in application development
- Understand the advantages of using the MVC pattern for designing applications
- Explore each component of Model-View-Controller pattern

The MVC Pattern

- MVC is a design pattern that facilitates development of scalable, flexible applications by segregating the application components into one of the following:
 - *Model*
 - *View*
 - *Controller*



The Model

- **Model is responsible for maintaining the data**
- The model refers to those components of the application that do the major work of the application.
- In web applications models perform validation, implementation of business logic, write to and read from the database.
- The Model components majorly serve the following purpose:
 - Represent the business entities. Instances of the Model are used to carry data around.
 - Encapsulate functionalities provided by the application – Database reading and writing, validation etc.
 - Decide the flow of execution of the application. Usually the methods of the models decide the line of execution.

Model – The engine of an application

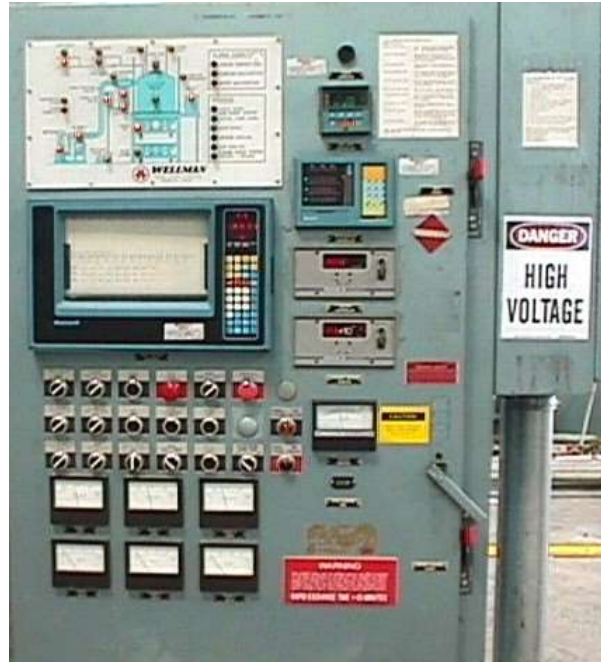


Models are the engines of the application. They contain most of the code for what the application does. They are the busiest code in an application.

The View

- **View is responsible for displaying data to the user**
- View refers to the application's face.
- It refers to that component or groups of components with which the user interacts.
- When a user accesses/interacts with a web application, he/she does it through web pages that are part of the application. These pages constitute the view.
- Views are generally used for the following purpose:
 - Representing data entry forms
 - Representing reports – Tabular display of data.

View – The Control Panel



Views are like the control panel. They are interfaces through which data is entered. They also show results. Views are what the end users see and experience in a web application.

The Controller

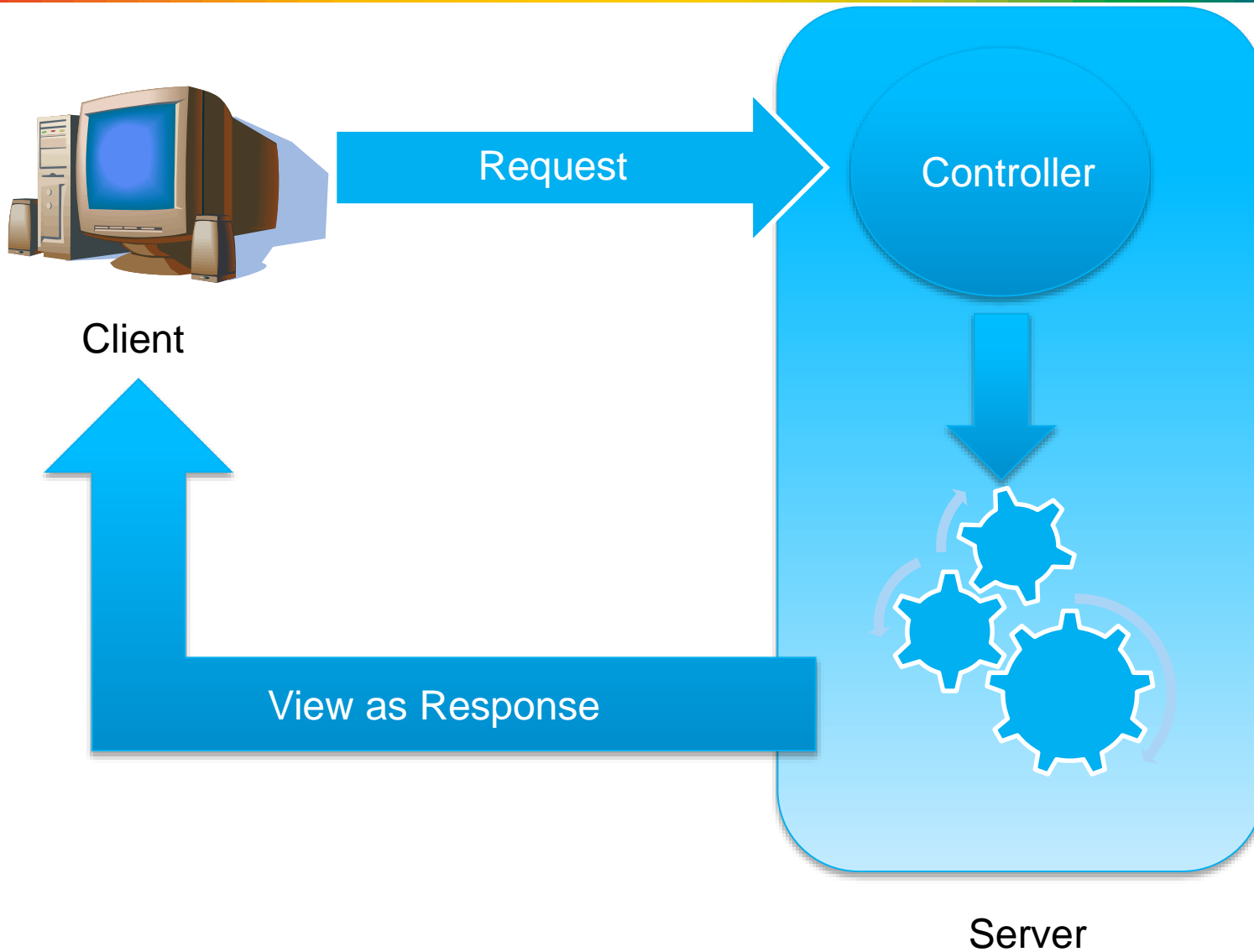
- **It is the software that controls the interaction between the Model and the view**
- The Controller's primary task is to act like a router
- It moves data around the application in the form of objects of the Model
- It is also responsible for initiating the execution of Model's methods
- After initiating the execution, the controller figures out the result of execution and accordingly renders an appropriate view to the user

Controller – The Wiring



Controller is the wiring of the web application. Responsible mainly for data routing and also making the application run along a certain path of execution.

How it all works...



Advantages of the MVC Pattern

- MVC pattern helps us achieve loose coupling by dividing the application into the model, view and controller components
- Since the model and controller are independent of the view, one view technology can be easily swapped for the other, application is not very affected in case of such a swap

Quiz Time

- Identify what part of MVC would the following represent in a web application:
 - Employee pay slip in a payroll application.
 - The class/classes that calculates the EMI for a loan calculator application
 - The web page where the user enters a search keyword for searching through books database of an online library.
 - The program that relays client requests coming from mobile phones to a class/set of classes that display the movies running in a particular city.

Answers to Quiz

- Employee pay slip in a payroll application - **VIEW**
- The class/classes that calculates the EMI for a loan calculator application - **MODEL**
- The web page where the user enters a search keyword for searching through books database of an online library - **VIEW**
- The program that relays client requests coming from mobile phones to a class/set of classes that display the movies running in a particular city - **CONTROLLER**

Summary

In this module, you were able to :

- Get introduced to the role of MVC Design Pattern in application development
- Understand the advantages of using the MVC pattern for designing applications
- Explore each component of Model-View-Controller pattern