Model View Controller
(Design Pattern)

Introduction

- Different programmers may design an application in different ways. Designing an application depends on how the programmers recognize the problem and approaches for solving that problem.

- A development model facilitates the design process by separating the code according to the functions performed by different parts of the application.

MVC means ??

- Model
  - Model represents a POJO object that carries data.
- View
  - View is the layer in which the data is presented in visual format.
- Controller
  - Controller is the component which is responsible for communication between model and view.
- Model-View-Controller is a pattern helpful separation of concerns.

MVC Types

- Two types of development models are used for web applications.
  - Model-1 architecture,
  - Model-2 architecture

Model-1 Architecture

Model-1 Architecture

- Servlet and JSP are the main technologies to develop the web applications. This model uses JSP to design applications which is responsible for all the activities provided by the application. The following figure(Next Slide) shows Model-1 architecture.

Model-1 Architecture
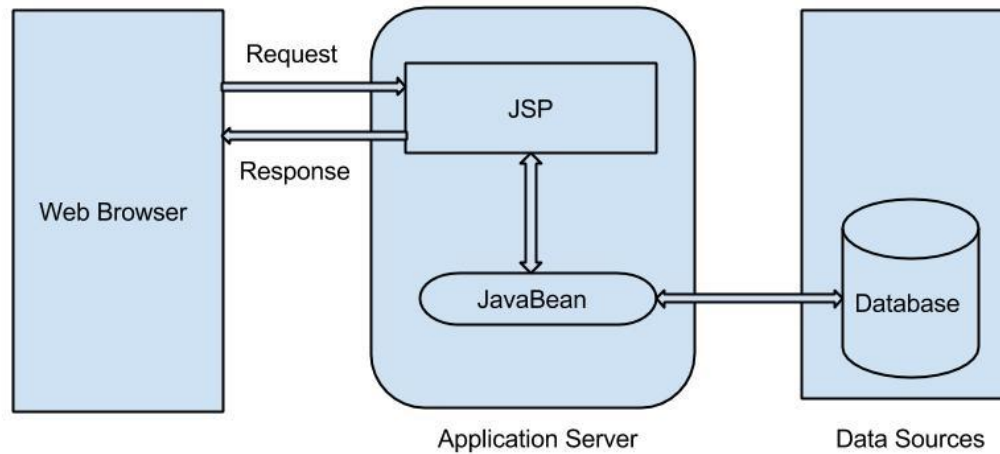
Model-1 Architecture

- In Model-1 architecture web applications are developed by combining both business and presentation logic.

- In this model, JSP pages receive requests which are transferred to data sources by JavaBeans.

- After the requests are serviced, JSP pages send responses back to client.

Advantages	Disadvantages

Advantages

**Disadvantages**

- By using this model it's easy to develop web application.

- This architecture is not suitable for large applications.

- It increases the complexity of the program so it is difficult to debug the program.

- It needs more time to develop custom tags in JSP.

- A single change in one page needs changes in other pages. So it is difficult to maintain.

Model-2 (MVC) Architecture

- Model-2 architecture is based on MVC design model i.e. Model, View and Controller.

- Above model(MVC1) Servlet acts as Controller, JSP acts as View and JavaBean acts as Model.

- In this model(MVC2), Controller receives requests which are transferred to data sources by View component and Model component. After the requests are serviced, JSP pages .

- i.e. View component send responses back to client.

Model-2 (MVC) Architecture
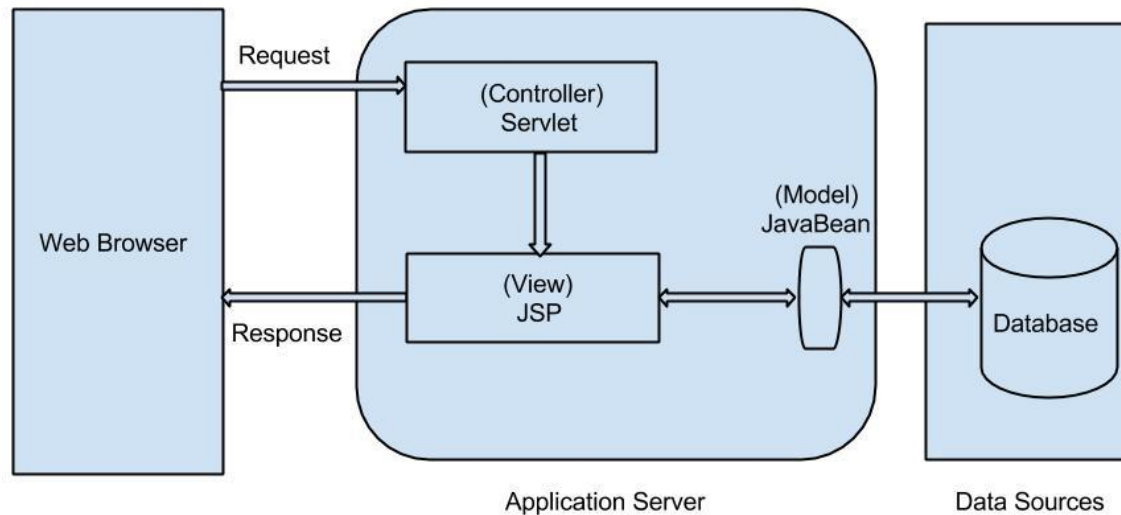
Components described as follows

- Model: It represents data and business logic of the application that specifies how data is accessed and updated. Model is implemented by using JavaBeans. It has no concerns with the presentation logic.

- View: It represents presentation logic. A View provides the Graphical User Interface (GUI) for model. It specifies how data should be presented to user in an understandable form. A user can interact with application through View and allows user to alter the data.

- Controller: It acts as interface between view and model. It receives HTTP request. It controls all the Views associated with a Model. It receives requests from the client and delegates the responsibility for producing the next phase of user interface to view component.

Advantages	**Disadvantages**
• This model is suitable for large applications.	• If we change the code in controller, we need to recompile the class and redeploy the application.
• It allows use of reusable software components to design the business logic.	
• It easy to maintain and test.	