MVC AND JSP MODELS

Instructor:

Table Content

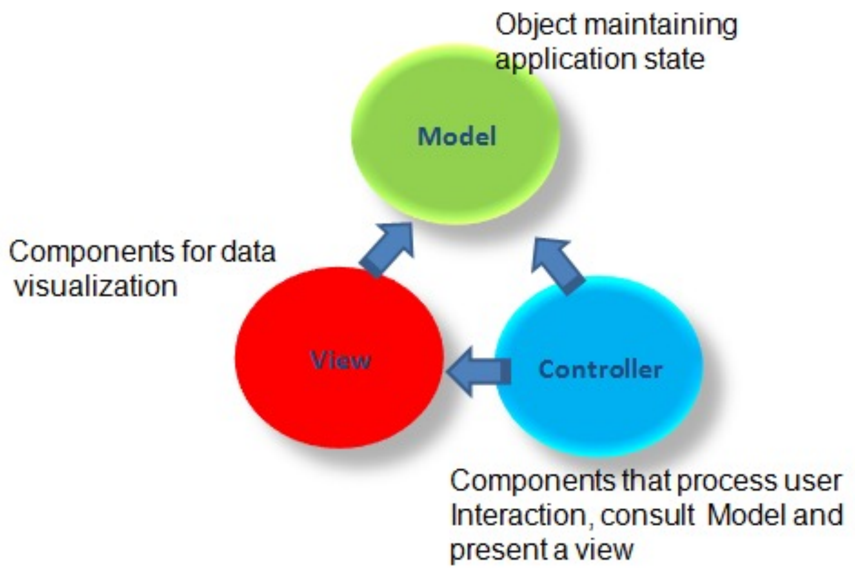
Learning Goals

After the course, attendees will be able to:

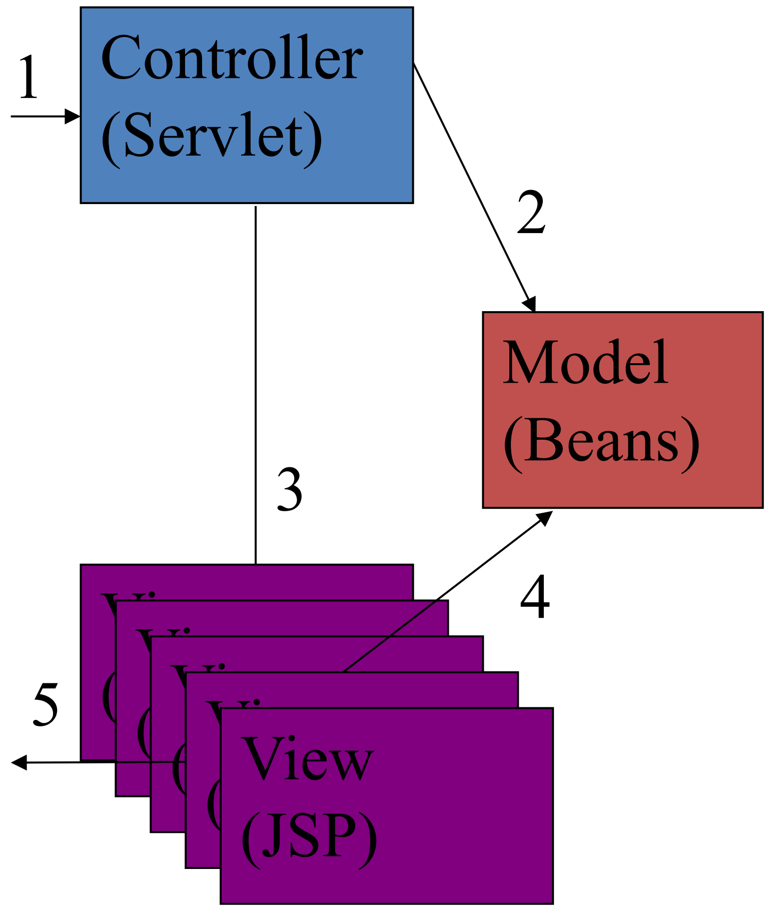
- Understand MVC - JSP Models
- Can use MVC – JSP Models to build Project

What Is a MVC?

- MVC stands for **Model** / **View** / **Controller**.
  - ✓ A software pattern where logic is separated from the model and view in order to provide for better reuse possibilities.
  - ✓ A software pattern recognized in the early days of small talk.
- MVC Architecture


Object maintaining application state
Model
Components for data visualization
View
Controller
Components that process user Interaction, consult Model and present a view

Web Application MVC Pattern



Model:

– Information is provided in objects or beans

View:

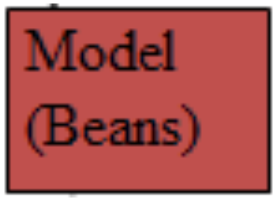
– The JSP provide the view

Controller:

– Servlet provides control logic and becomes the controller

MVC - Model

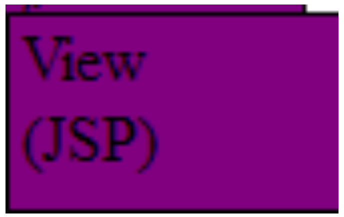
- The model is responsible for managing the data of the application.
  - ✓ Manages Information - If Changes
  - ✓ Maps Real-World Entities
- Contains data and Related Functionality



- Performing DB Queries
  - ✓ Calculating Business Process
- Encapsulates Domain Logic which are independent of Presentation

MVC - View

- Obtains data from model & presents to the user
- Represents Output/Input of the application
- Display results of Business Logic
- Free Access to Model
- Reads Data from Model – Using Query Methods



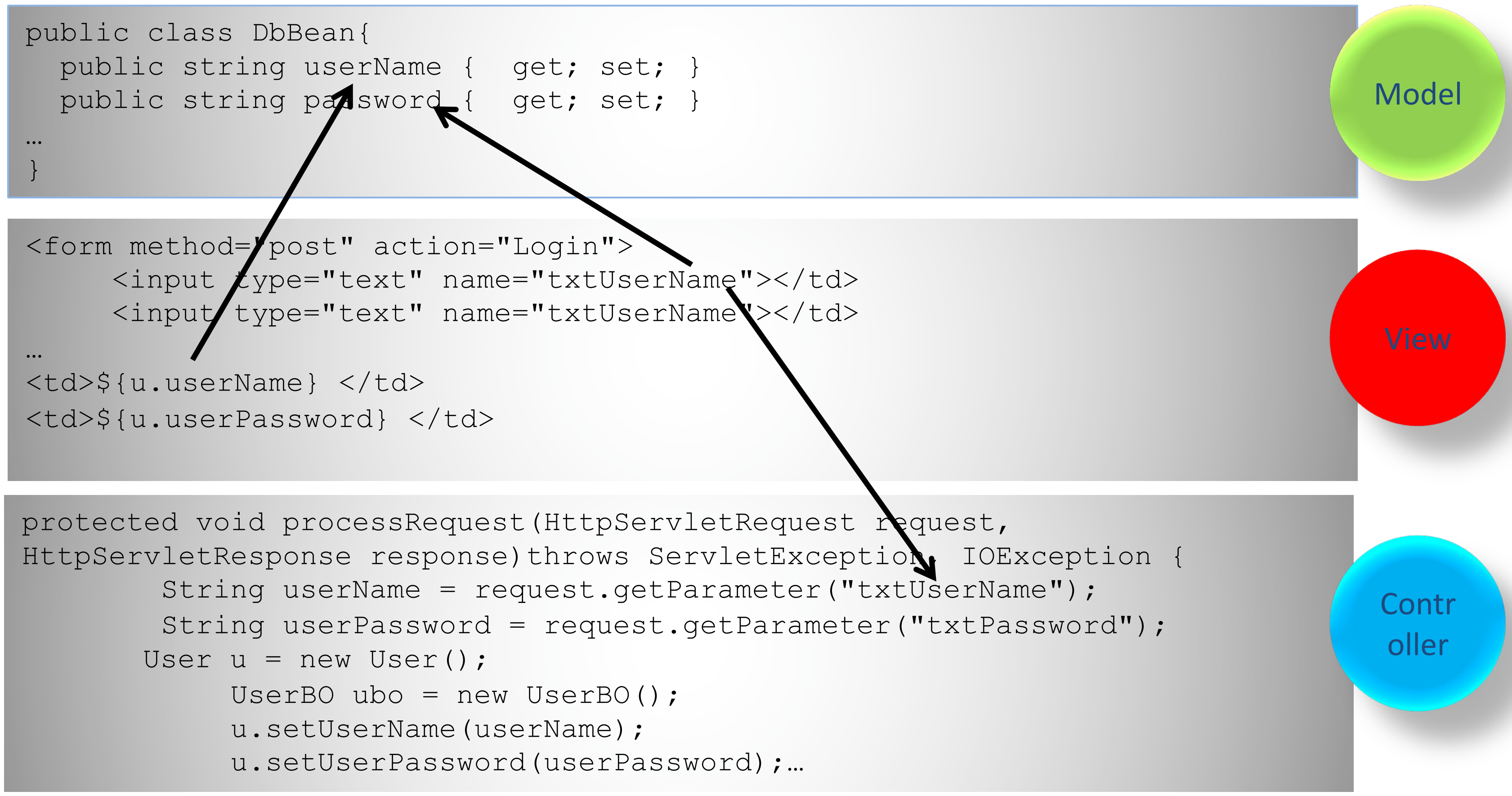
MVC - Controller

- Serves logical connection between user's interaction and the business process
- It receives and translates input to request on model or view
- Input from user and instructs[chỉ thị] the model and view to perform action
- Responsible for making decision among multiple presentation
- Maps the end-user action to the application response

Relationship between Components

- View and Controller
  - ✓ Controller is responsible for creating or selecting view
- Model and Controller
  - ✓ Controller depends on model
  - ✓ If a change is made to the model then there might be required to make parallel changes in the Controller
- Model and View
  - ✓ View depends on Model
  - ✓ If a change is made to the model then there might be required to make parallel changes in the view

Logical Layers in Web Application

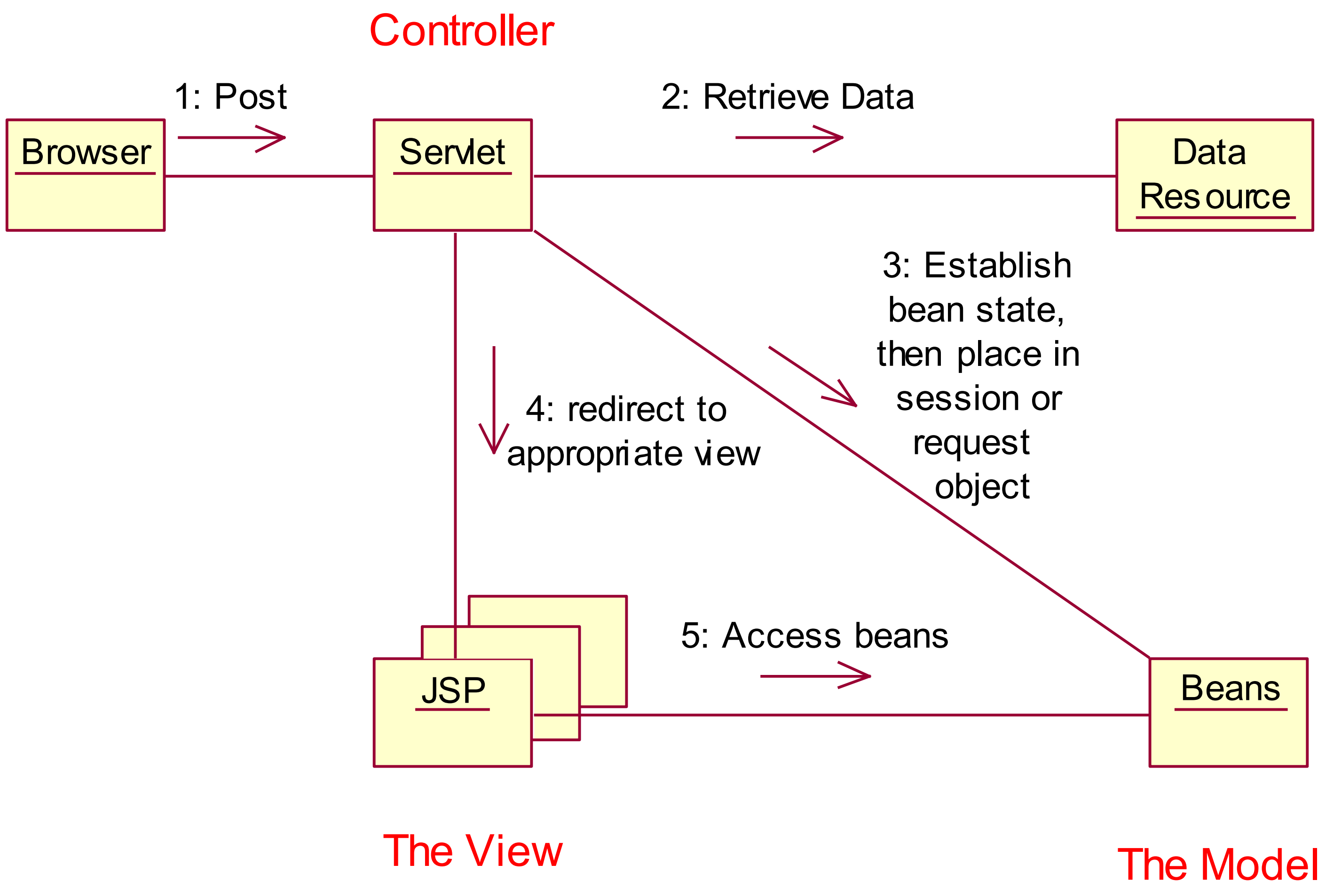


```
public class DbBean{
  public string userName {  get; set; }
  public string password {  get; set; }
…
}
```

```
<form method="post" action="Login">
     <input type="text" name="txtUserName"></td>
     <input type="text" name="txtUserName"></td>
…
<td>${u.userName} </td>
<td>${u.userPassword} </td>
```

```
protected void processRequest(HttpServletRequest request,
HttpServletResponse response)throws ServletException, IOException {
        String userName = request.getParameter("txtUserName");
        String userPassword = request.getParameter("txtPassword");
       User u = new User();
            UserBO ubo = new UserBO();
            u.setUserName(userName);
            u.setUserPassword(userPassword);…
```

MVC Collaboration Diagram



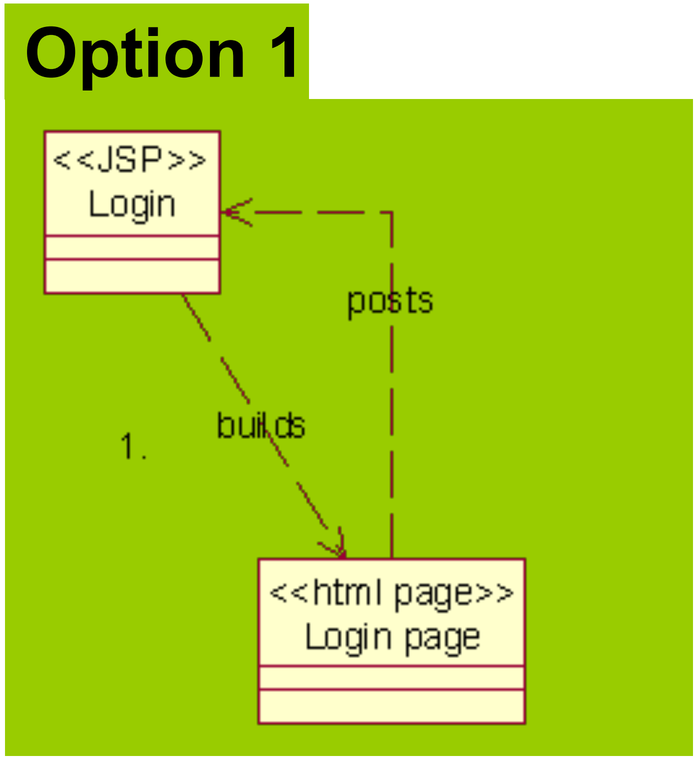
Java 2 Web Applications

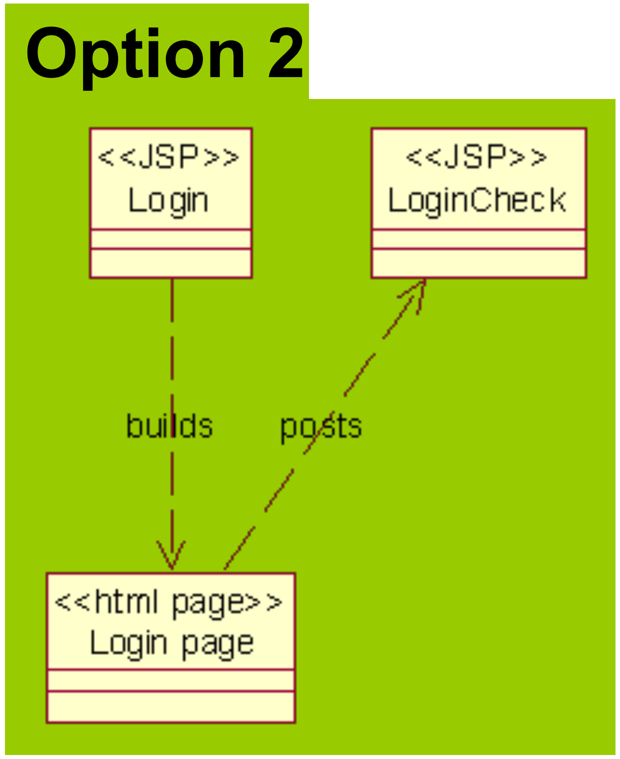
Java 2 web application options:

- **Servlets**
  - ✓ Great for Java people
  - ✓ Difficult to manage graphical changes in HTML layout.
- **JSP**
  - ✓ Great for web developers
  - ✓ Seductive tendency to write logic in the JSP page.

JSP Model

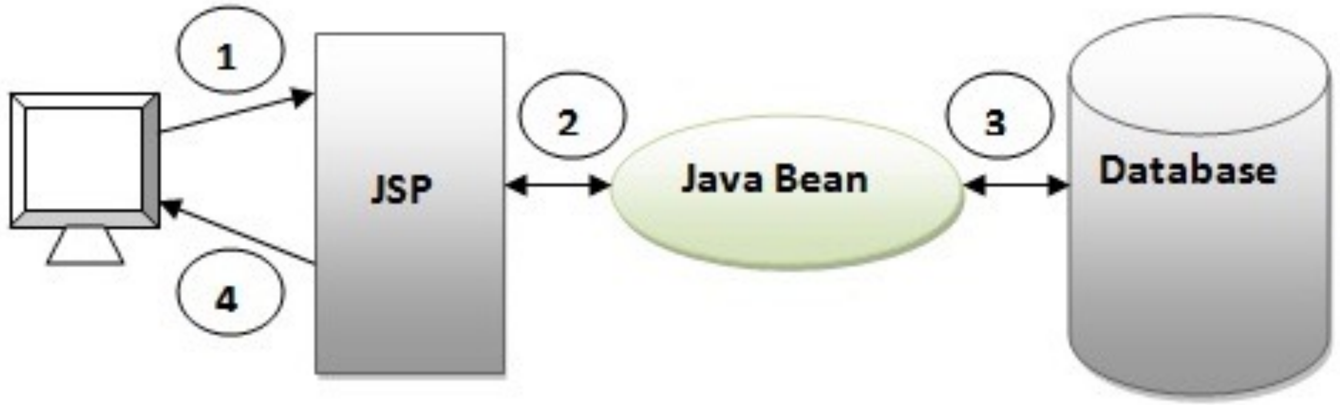
- Web applications where JSP pages are used for every aspect of the development.





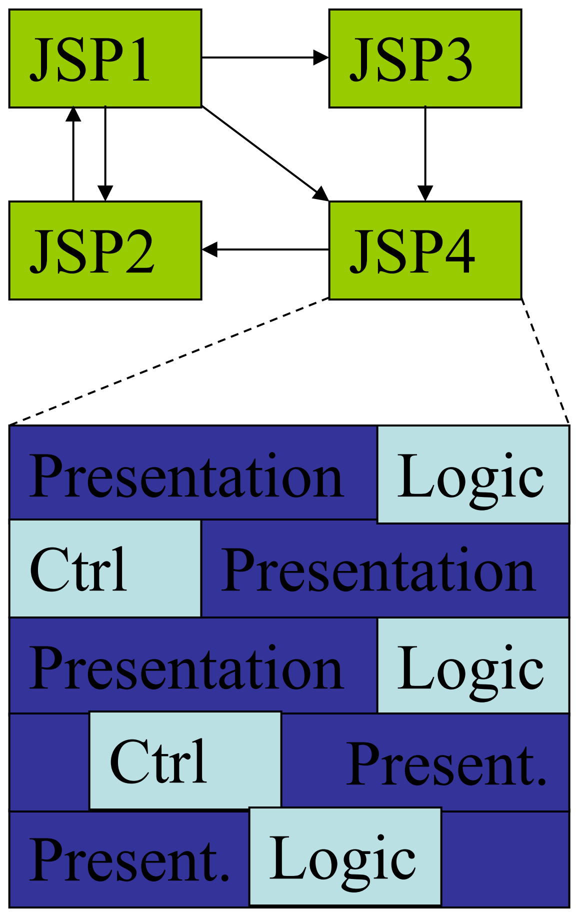
JSP Model 1

- A request is made to a JSP or servlet
- The JSP or servlet handles all responsibilities for the request
  - ✓ processing,
  - ✓ validating data,
  - ✓ handling the business logic,
  - ✓ and generating a response



JSP Model 1 Observation

- **The Good**
  - ✓ Easiest Solution
- **The Bad**
  - ✓ Presentation and Logic are mixed.
- **The Ugly**
  - ✓ No reuse possibilities

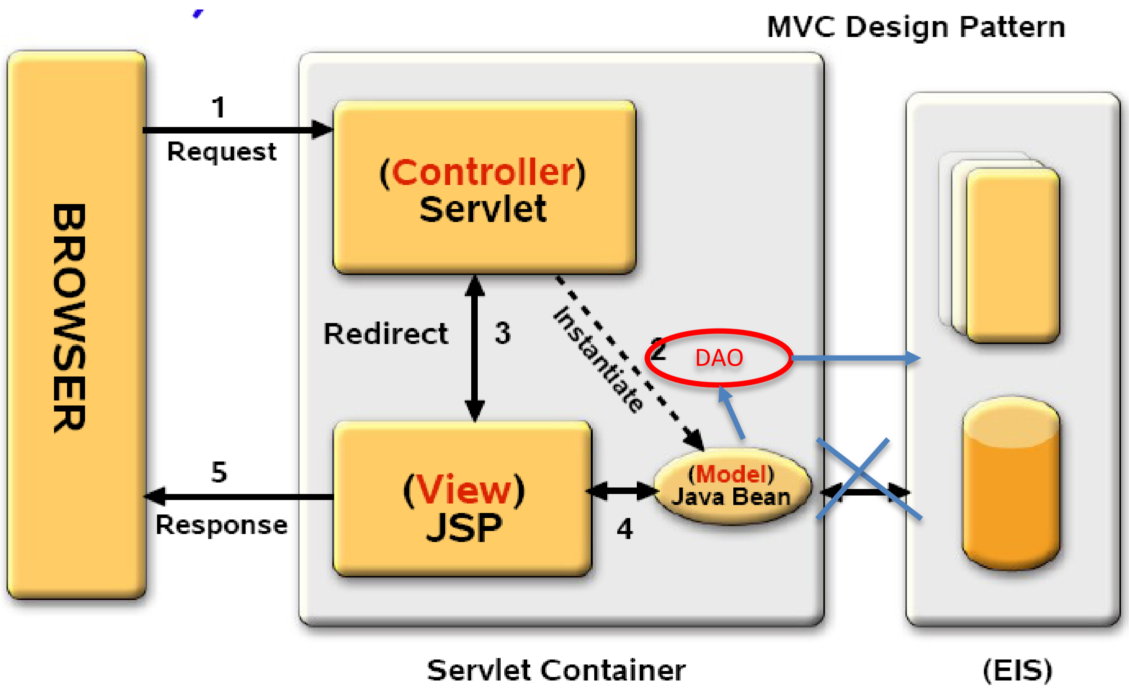


JSP Model 1 Observation (cont.)

- **Advantages**
  - ✓ Lightweight design – for small, static application
  - ✓ Suitable for small applications having very simple page flow, little need for centralized security control and logging.
- **Limitations**
  - ✓ Navigation Problem – to change name of JSP file have to change in many location
  - ✓ Applications are difficult to modify – large Java code being embedded in JSP page
  - ✓ Not suitable for large and complex applications

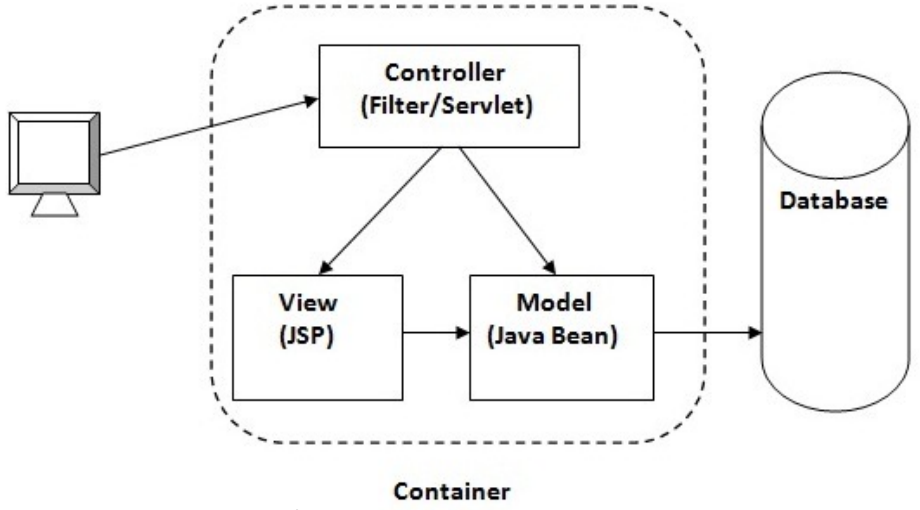
JSP Model 2

- Web applications where JSP pages are used for the GUI aspect of the web development
- The logic of the application is placed in the servlets it posts to.



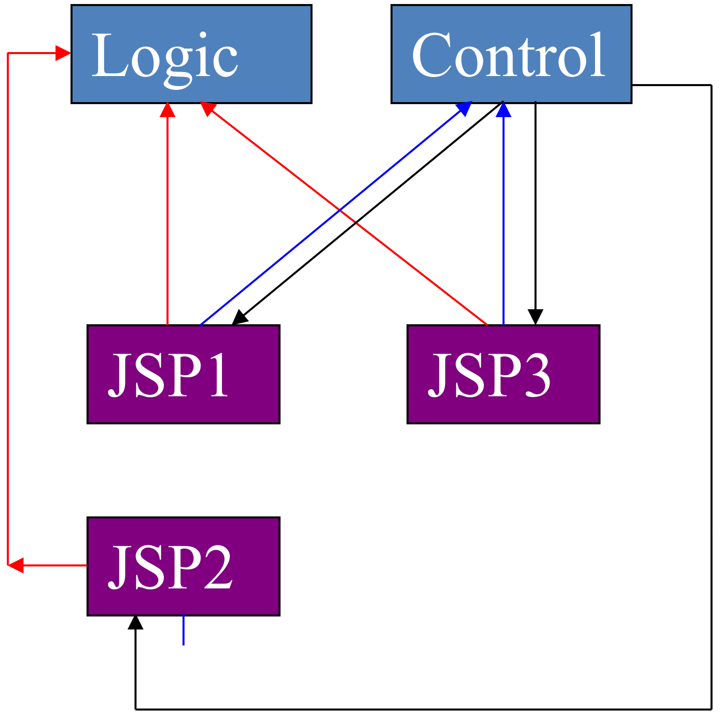
JSP Model 2

- Model 2 separates the display of content from the logic used to obtain and manipulate the content.
- **Advantages:**
  - ✓ Easier to build, maintain and extend: Suitable for large and complex applications.
  - ✓ Single point of control (Servlet) for security and logging.
- **Limitations:** Increase Design Complexity



JSP Model 2 – Observation

- **The Good**
  - ✓ Reuse opportunities: Other application may be able to use the same code.
- **The Bad**
  - ✓ There is no longer a one to one mapping from a view to a single source of code.
- **The Ugly**
  - ✓ Takes more forethought.



Summary

- **What Is a MVC?**
- **Web Application MVC Pattern**
  - ✓ Model
  - ✓ View
  - ✓ Controller
- **JSP Model 1, 2**

Thank you