

Ignoring Reality->
Introduce Error Page

Slides before
1st Section
Divider

Copy and
Paste JSP->
Introduce
Template

Too Much
Code -
>Beanify

-
>Introduce
Delegate
Controller

Unused
Section
Space 1

Unused
Section
Space 2

Unused
Section
Space 3

Embedded
Navigational
Information->
Introduce Traffic
Cop

JSP J2EE Refactoring Patterns/AntiPatterns

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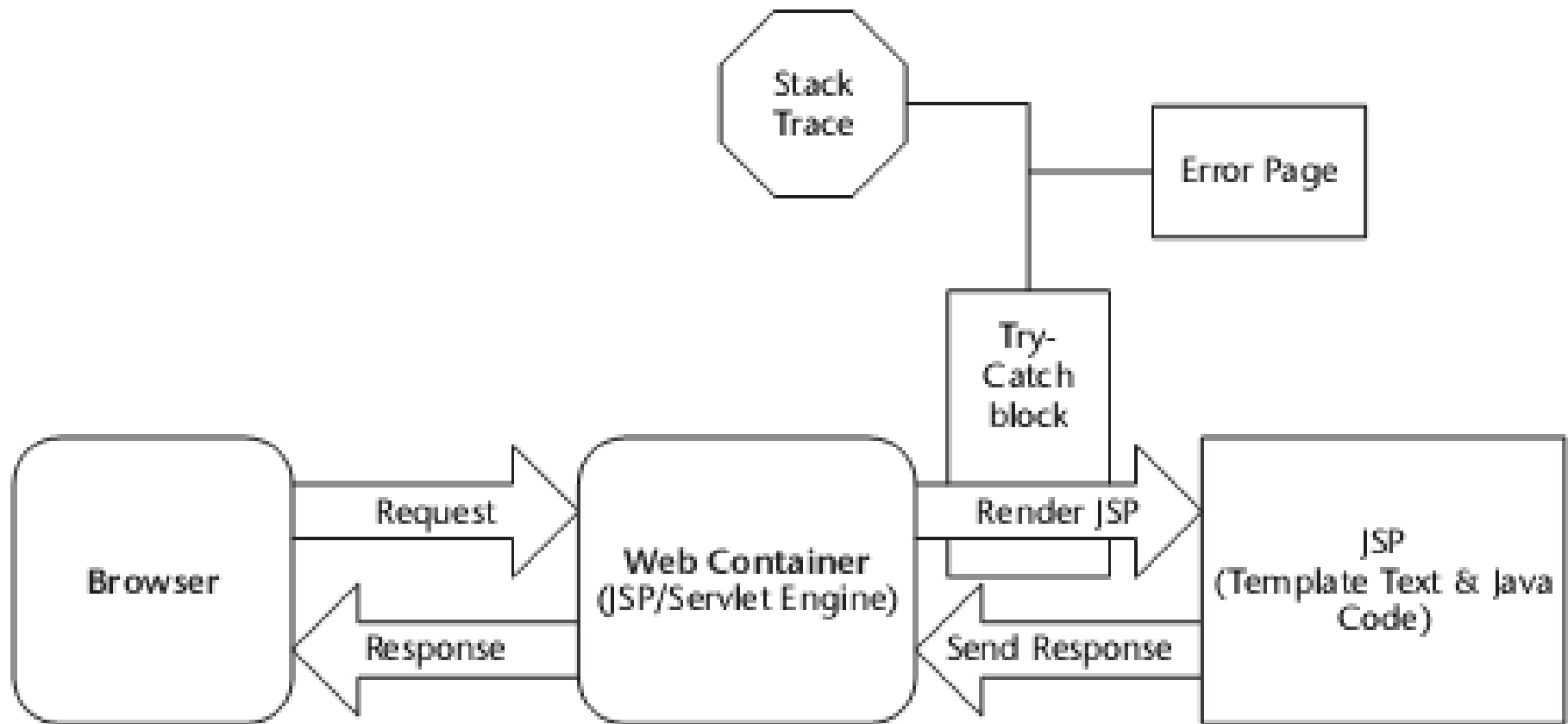
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- Customer Account ElectronicBill
- CustomerInfoScreen
- ScheduleRecurringPaymentScreen

AntiPattern--Ignoring Reality

```
<%@ page isELEnabled="true" %>
<html>
  <head>
    <title>Welcome To This Page</title>
  </head>
  <jsp:useBean id="timer" class="com.util.Timer"/>
  <body>
    <table>
      <tr>
        <%-- timer is a bean that returns a formatted date --%>
        <td>Welcome it's ${timer.now}.</td>
      </tr>
    </table>
  </body>
</html>
```



Refactoring— Introduce Error Page

```
<%@ page isErrorPage="true" %>
<html>
  <body>
    An unexpected condition has occurred. Please back up
    and try your request again.
  </body>
</html>
```

```
<%@ page errorPage="error.jsp" %>
```

```
<web-app>  
...  
  <error-page>  
    <exception-type>java.lang.Throwable</exception-type>  
    <location>error.jsp</location>  
  </error-page>  
...  
</web-app>
```

AntiPattern--Too Much Code

- 在构建JSP时，重点应当是编写用户界面，而不是编写应用

Refactoring

- Beanify
- Introduce Delegate Controller
- Introduce Traffic Cop

Refactoring-- Beanify

重构前

```
● <%  
● String message = (String)session.getAttribute("message");  
● Boolean validUser = (Boolean)session.getAttribute("validUser");  
● ...  
● if(validUser.booleanValue() == true) {  
● session.setAttribute("message", "Wrong login please retype");  
● ...  
● %>  
● ...  
● <tr>  
● <td>  
● <% if(null == message) { %>  
●     Please Type Your User Name and Password below.  
● <% } else { %>  
●     <span style=""><%=message%></span>  
● <% } %>  
● </td>  
● </tr>
```

重构后

```
public class UserContext {  
    private boolean validUser = false;  
    private String message = null;  
  
    public UserContext() {  
    }  
  
    public void setValidUser(boolean flag) { validUser = flag; }  
    public boolean isValidUser() { return validUser; }  
  
    public void setMessage(String msg) { message = msg; }  
    public String getMessage() { return message; }  
}
```

```
<jsp:useBean id="userCtx" class="ibank.Web.UserContext"  
            scope="session" />
```

```
...
```

```
<tr>
```

```
  <td>
```

```
    <c:choose>
```

```
      <c:when test="{userCtx.validUser}>
```

```
        <span style="color=#000000>
```

```
          </c:when>
```

```
          <c:otherwise>
```

```
            <span style="color=#ff0000>
```

```
              </c:otherwise>
```

```
            </c:choose>
```

```
              {userCtx.message}
```

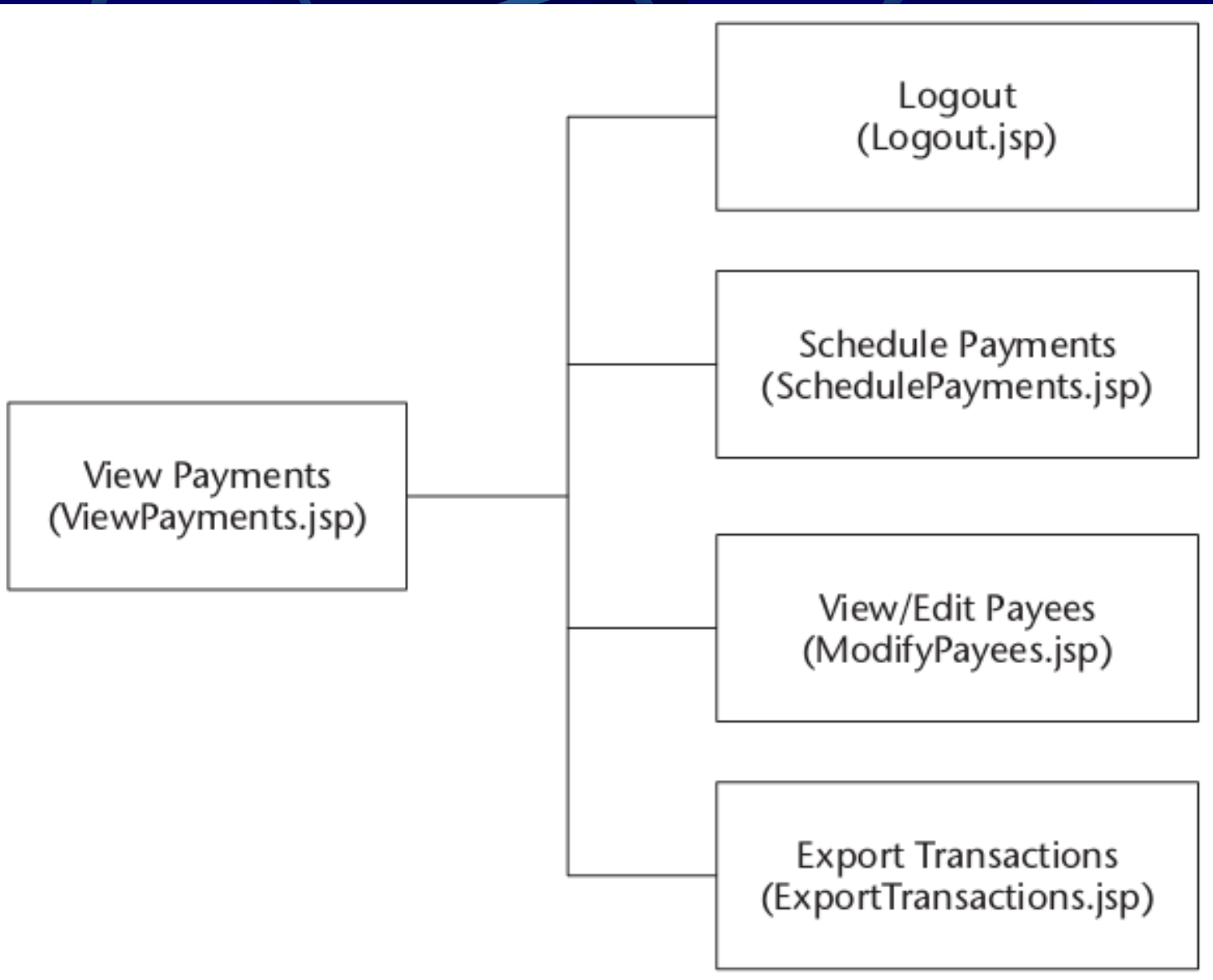
```
            </span>
```

```
          </td>
```

```
</tr>
```

AntiPattern--Embedded Navigational Information

```
...
<table>
  <tr>
    <td><a href="Logout.jsp">Logout</a></td>
  </tr>
  <tr>
    <td><a href="SchedulePayments.jsp">Schedule Payments</a></td>
  </tr>
  <tr>
    <td><a href="ModifyPayees.jsp">View/Edit Payees</a></td>
  </tr>
  <tr>
    <td><a href="ExportTransactions.jsp">Export Transactions</a></td>
  </tr>
</table>
...
```



```
<table border="0" cellspacing="0" cellpadding="0" summary="">
  <tr>
    <td style="align:center;width:121px;height:20px;">
      
    </td>
    <td style="text-align:center;width:165px;height:20;">
      <%
        Boolean validUser = (Boolean)session.getAttribute("validUser");
        if(null != validUser && validUser.booleanValue()) {
      %>
        <a class="BorderButton" href="Logout.jsp">Logout</a>
      <% } else { %>
        <a class="BorderButton" href="Login.jsp">Login</a>
      <% } %>
    </td>
  </tr>
</table>
```



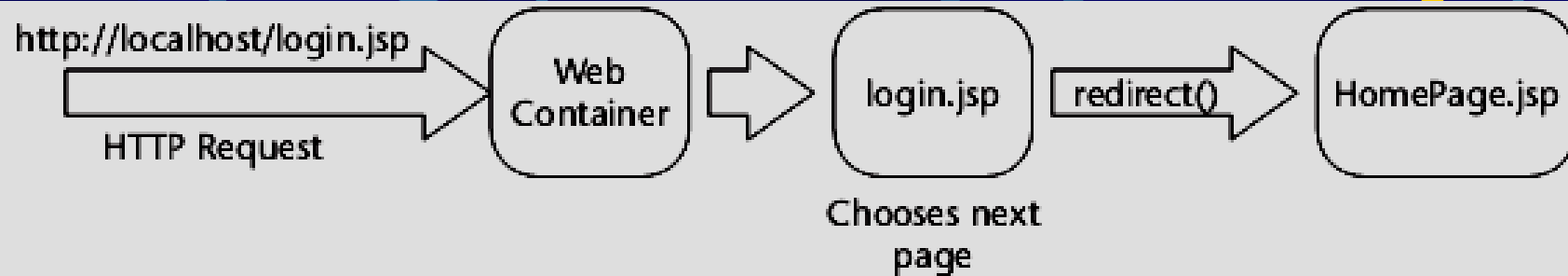
```
<table border="0" cellspacing="0" cellpadding="0" summary="">
  <tr>
    <td style="align:center;width:121px;height:20px;">
      
    </td>
    <td style="text-align:center;width:165px;height:20;">
      <a class="BorderButton" href="trafficCop?toDo=logout">
        Logout
      </a>
    </td>
  </tr>
</table>
```

```
<servlet>
  <servlet-name>TrafficCop</servlet-name>
  <servlet-class>TrafficCop</servlet-class>
</servlet>
...
<servlet-mapping>
  <servlet-name>TrafficCop</servlet-name>
  <url-pattern>trafficCop</url-pattern>
</servlet-mapping>
```

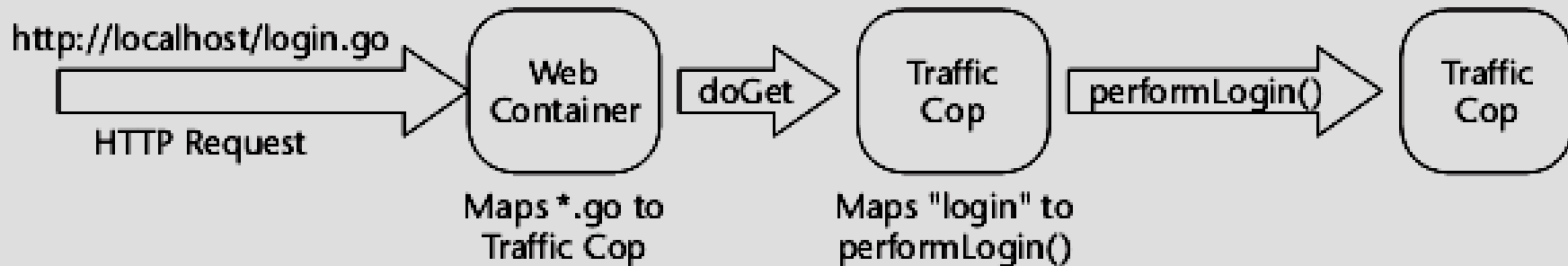
```
public void init() throws ServletException {
    uriMap.put("logout", "Logout.jsp");
}

public void doGet(HttpServletRequest request,
                  HttpServletResponse response)
    throws ServletException, IOException {
    String toDo = (String)request.getAttribute("toDo");
    String newURI = (String)uriMap.get(toDo);
    Boolean validUser =
        (Boolean)request.getSession().getAttribute("validUser");
    RequestDispatcher reqDisp = null;
    if(null != validUser && validUser.booleanValue()) {
        reqDisp = request.getRequestDispatcher(newURI);
    } else {
        reqDisp = request.getRequestDispatcher("index.jsp");
    }
    reqDisp.forward(request , response);
}
```

Refactoring— Introduce Traffic Cop



Before refactoring.

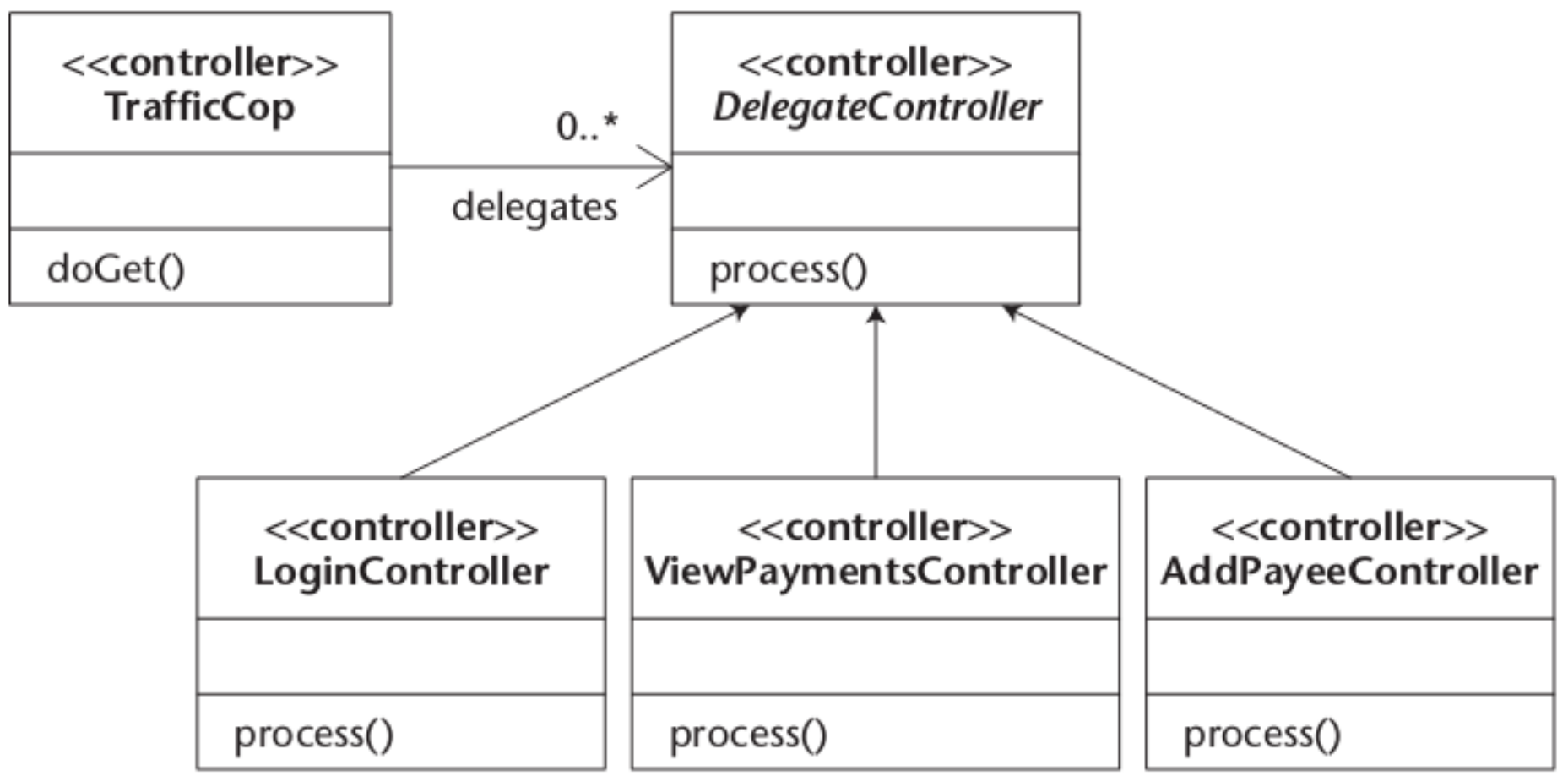


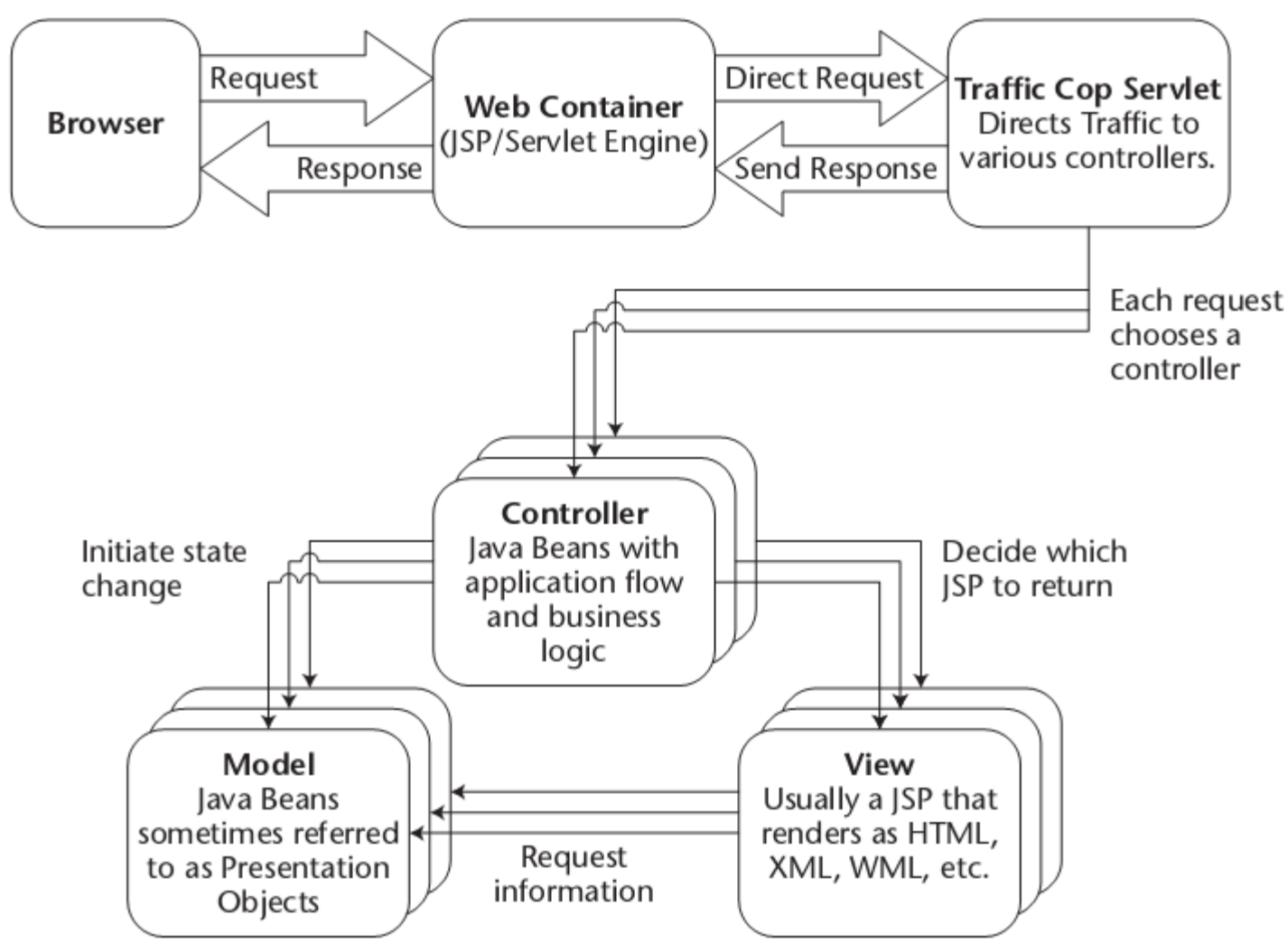
After refactoring.

Refactoring--Introduce Delegate Controller

`<<controller>>`
`TrafficCop`

`doGet()`
`performLogin()`
`performViewPayments()`
`performAddPayee()`





```
public class MyTrafficCop {
    ...
    public void doGet(HttpServletRequest request,
                      HttpServletResponse response)
        throws ServletException, IOException {
        String toDo = (String)request.getAttribute("toDo");
        String newURI = (String)uriMap.get(toDo);
        Boolean validUser = (Boolean)request.getSession().
            getAttribute("validUser");
        String userName = (String)request.getSession().
            getAttribute("userName");
        if(toDo.equals("logout")) {
            RequestDispatcher reqDisp = null;
            if(null != validUser && validUser.booleanValue()) {
                reqDisp = request.getRequestDispatcher(newURI);
            } else {
                reqDisp = request.getRequestDispatcher("index.jsp");
            }
        } else if(toDo.equals("viewPayments")) {
            List payments = getPayments(userName);
            request.getSession().setAttribute("payments", payments);
        }
        reqDisp.forward(request, response);
    }
    ...
}
```


Interface

```
public interface ForwardController {  
    /**  
     * This method processes the request and returns a string that  
     * tells the controller the name of the place to go next.  
     */  
    public String process(HttpServletRequest request,  
                          HttpServletResponse response,  
                          String name) throws ServletException;  
}
```

Delegate Controller

```
public String process(HttpServletRequest request,
                      HttpServletResponse response,
                      String name) throws ServletException {
    HttpSession session = request.getSession();
    String retVal = "view.payments";
    String name = (String)session.
        getAttribute(Constants.USER_NAME_KEY);
    // Perform a query and get the data.
    getPayments(name, session);
    return retVal;
}
```

```
public class MyTrafficCop {
    ...
    public void doGet(HttpServletRequest request,
                      HttpServletResponse response)
        throws ServletException, IOException {
        String toDo = (String)request.getAttribute("toDo");
        String newURI = (String)uriMap.get(toDo);
        Boolean validUser = (Boolean)request.getSession().
            getAttribute("validUser");
        String userName = (String)request.getSession().
            getAttribute("userName");
        if(toDo.equals("logout")) {
            RequestDispatcher reqDisp = null;
            if(null != validUser && validUser.booleanValue()) {
                reqDisp = request.getRequestDispatcher(newURI);
            } else {
                reqDisp = request.getRequestDispatcher("index.jsp");
            }
        } else if(toDo.equals("viewPayments")) {
            List payments = getPayments(userName);
            request.getSession().setAttribute("payments", payments);
        }
        reqDisp.forward(request, response);
    }
    ...
}
```

```
public void doGet(HttpServletRequest request,
                 HttpServletResponse response)
    throws ServletException, IOException {
    // Process the request.
    String requestURI = request.getRequestURI();
    // Find the name of this request.
    int lastDot = requestURI.lastIndexOf(".go");
    int lastSlash = requestURI.lastIndexOf('/');
    String name = requestURI.substring(lastSlash + 1, lastDot);
    ForwardController fc = (ForwardController)controllerMap.get(name);
    if(null == fc) {
        throw new ServletException("Poor configuration, there is no " +
                                   "controller available to process the " +
                                   name + ".go request");
    }
    //Find the URI to forward to.
    String responseKey = fc.process(request, response, name);
    String newURI = (String)uriMap.get(responseKey);
    if(null == newURI) {
        throw new ServletException("Poor configuration, there is no " +
                                   "uri to forward the " +
                                   responseKey + " response from the " +
                                   " controller.");
    }
    RequestDispatcher reqDisp = request.getRequestDispatcher(newURI);
    reqDisp.forward(request, response);
}
```

AntiPattern

Copy and Paste JSP

My Page	
Option 1	Content Content Content
Option 2	
Option 3	

My Page	
Option 1	Content Content Content
Option 2	
Option 3	

Refactoring Introduce Template

