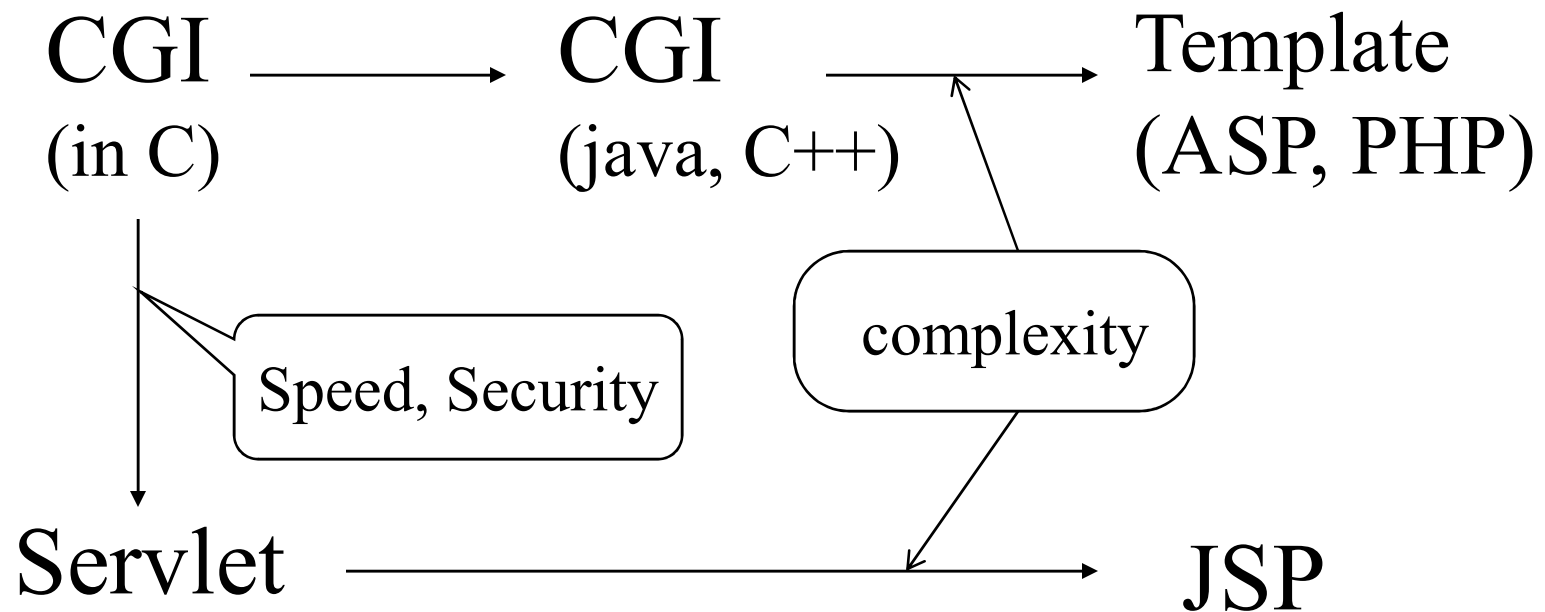


# Java Servlets Java Server Pages (JSP)

BCA

# Overview of History

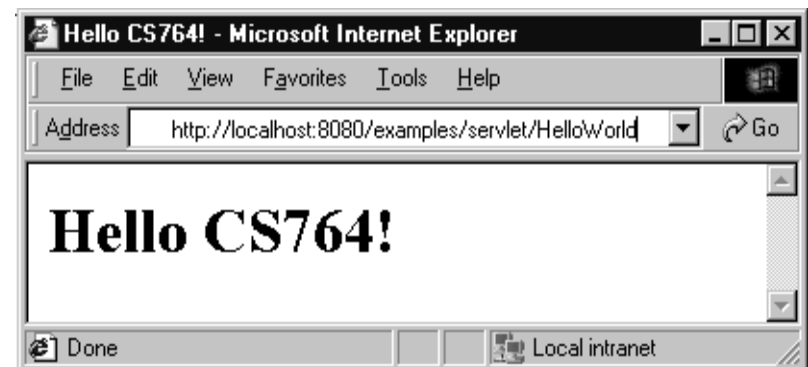
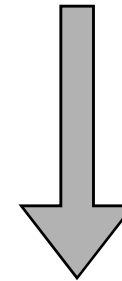


# Hello World

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
```

```
public class HelloWorld extends HttpServlet {

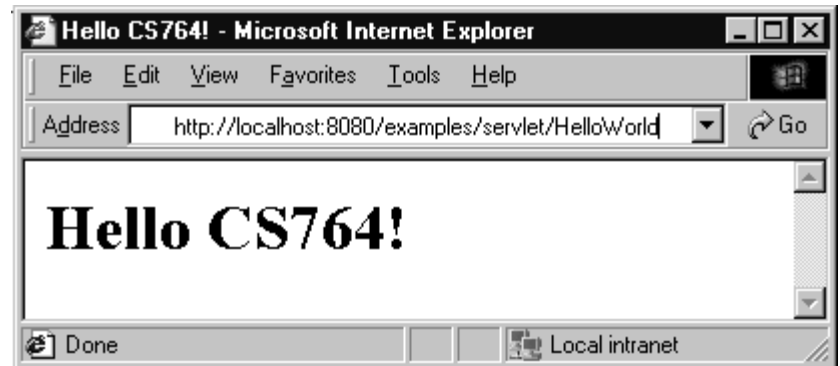
    public void doGet(HttpServletRequest request,
                      HttpServletResponse response)
        throws IOException, ServletException
    {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<html>");
        out.println("<body>");
        out.println("<head>");
        out.println("<title>Hello CS764!</title>");
        out.println("</head>");
        out.println("<body>");
        out.println("<h1>Hello CS764!</h1>");
        out.println("</body>");
        out.println("</html>");
        out.close();
    }
}
```



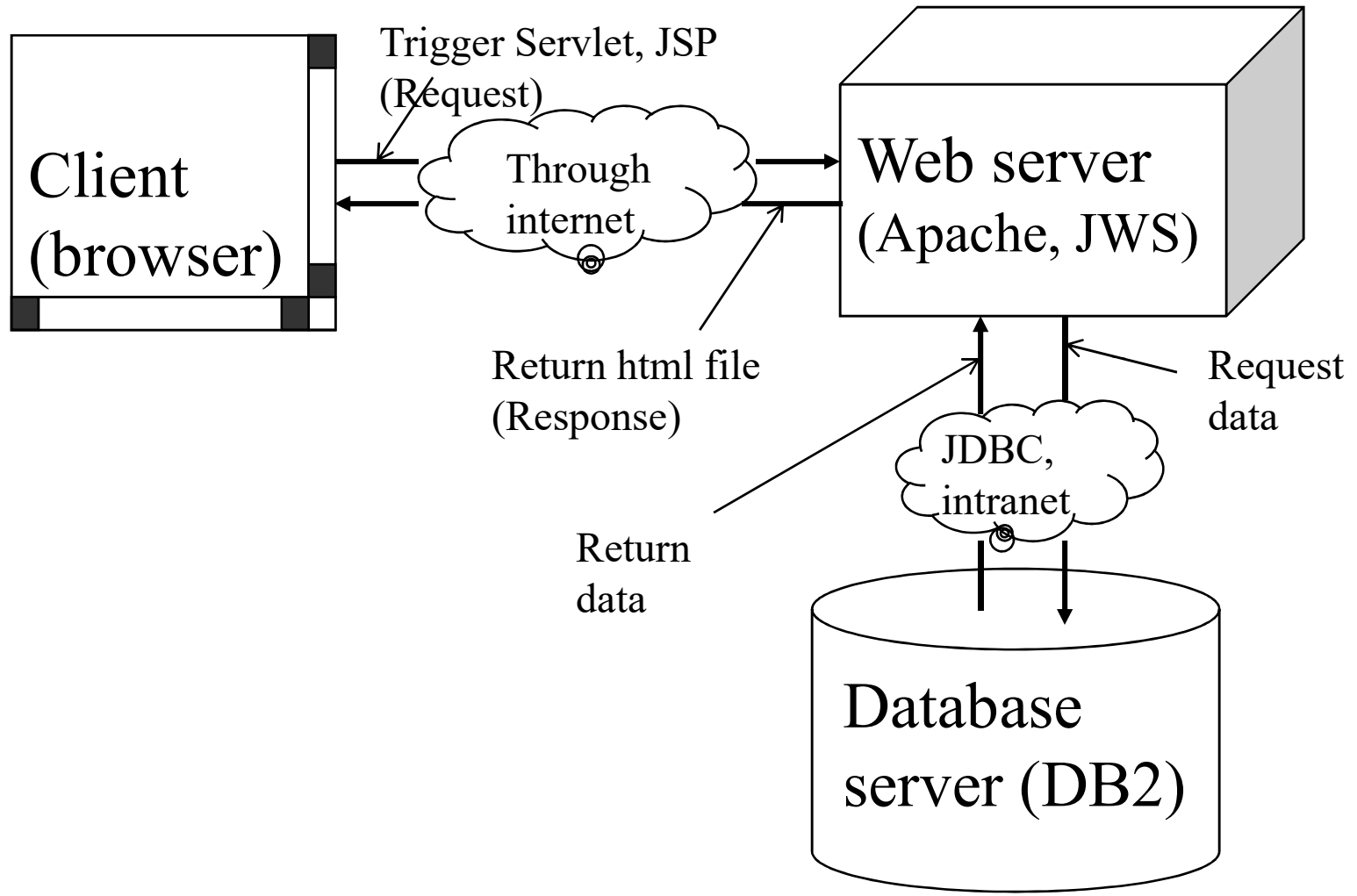
```
<html><head></head>
<body>
<a href=" ../servlet/HelloWorld">
<h1>Execute HelloWorld Servlet</h1>
</a>
</body>
</html>
```



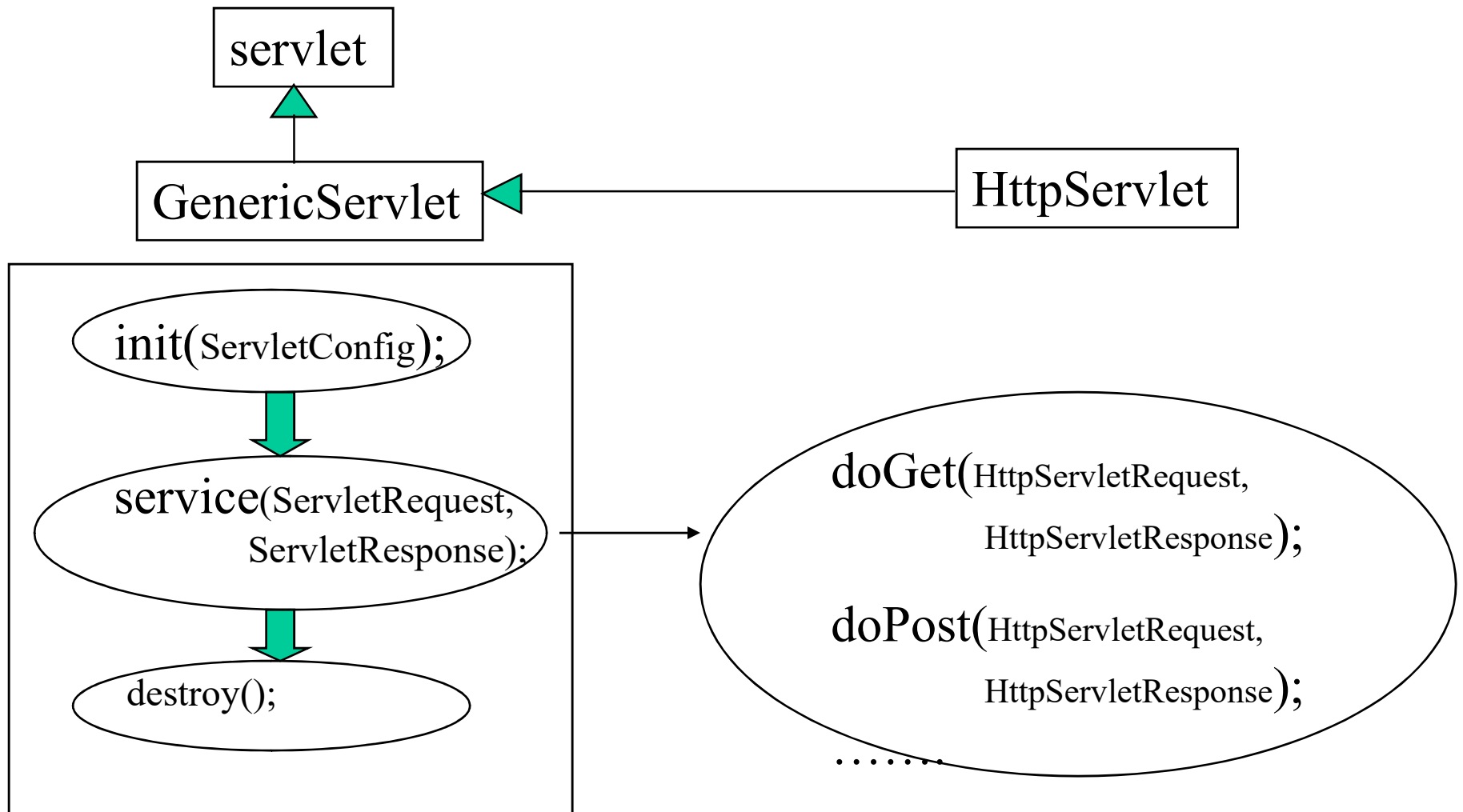
```
<html>
<head>
<title>Hello CS764!</title></head>
<body>
<h1>Hello CS764!</h1>
</body>
</html>
```



# Client - Server - DB



# Life Cycle of Servlet



# Interaction with Client

- **HttpServletRequest**
  - String `getParameter(String)`
  - Enumeration `getParameterNames(String[])`
- **HttpServletResponse**
  - Writer `getWriter()`
  - ServletOutputStream `getOutputStream()`
- Handling GET and POST Requests

# Assignment 2: Get Stock Price

## Ass2.html

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

```
<body>
```

```
<form action=" ../servlet/Ass2Servlet" method=POST>
```

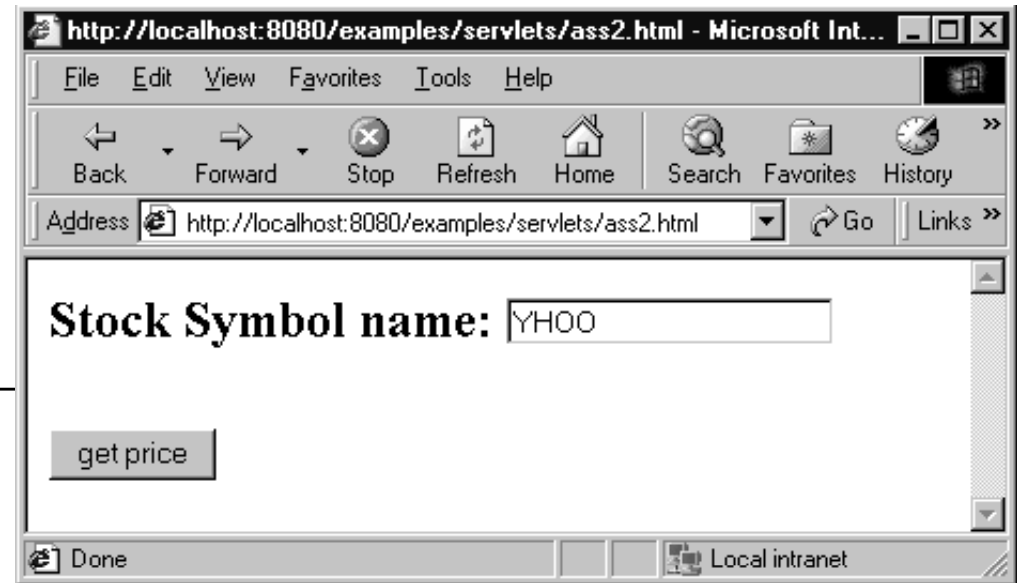
```
<h2>Stock Symbol name:
```

```
<input type=text name="stockSymbol"></h2><br>
```

```
<input type="submit" value = "get price">
```

```
</form>
```

```
</body></html>
```



Client Side



# Ass2Servlet

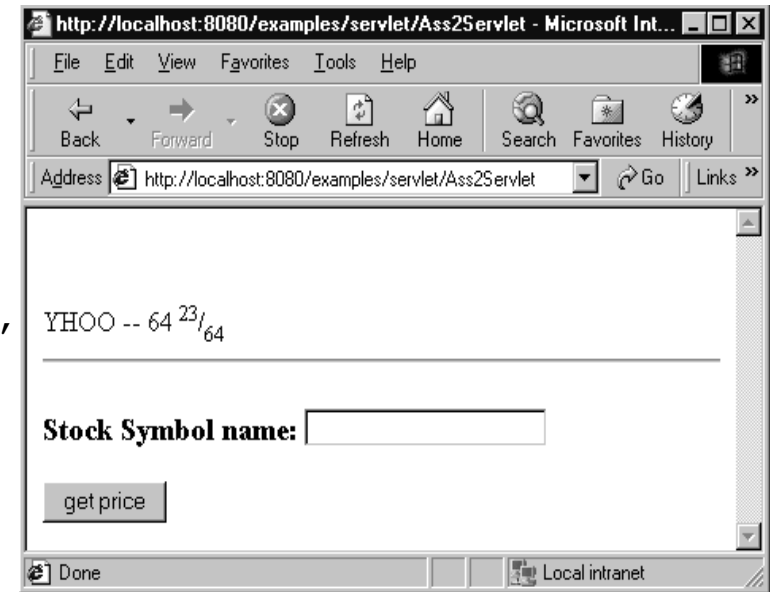
```
import java.io.*;
import java.util.*;
import javax.servlet.*;
import javax.servlet.http.*;
```

```
public class Ass2Servlet extends HttpServlet {
    public void doPost(HttpServletRequest request,
        HttpServletResponse res)
        throws IOException, ServletException
    {
        res.setContentType("text/html");
        PrintWriter out = res.getWriter();
```

```
String stockSymb = request.getParameter("stockSymbol");
```

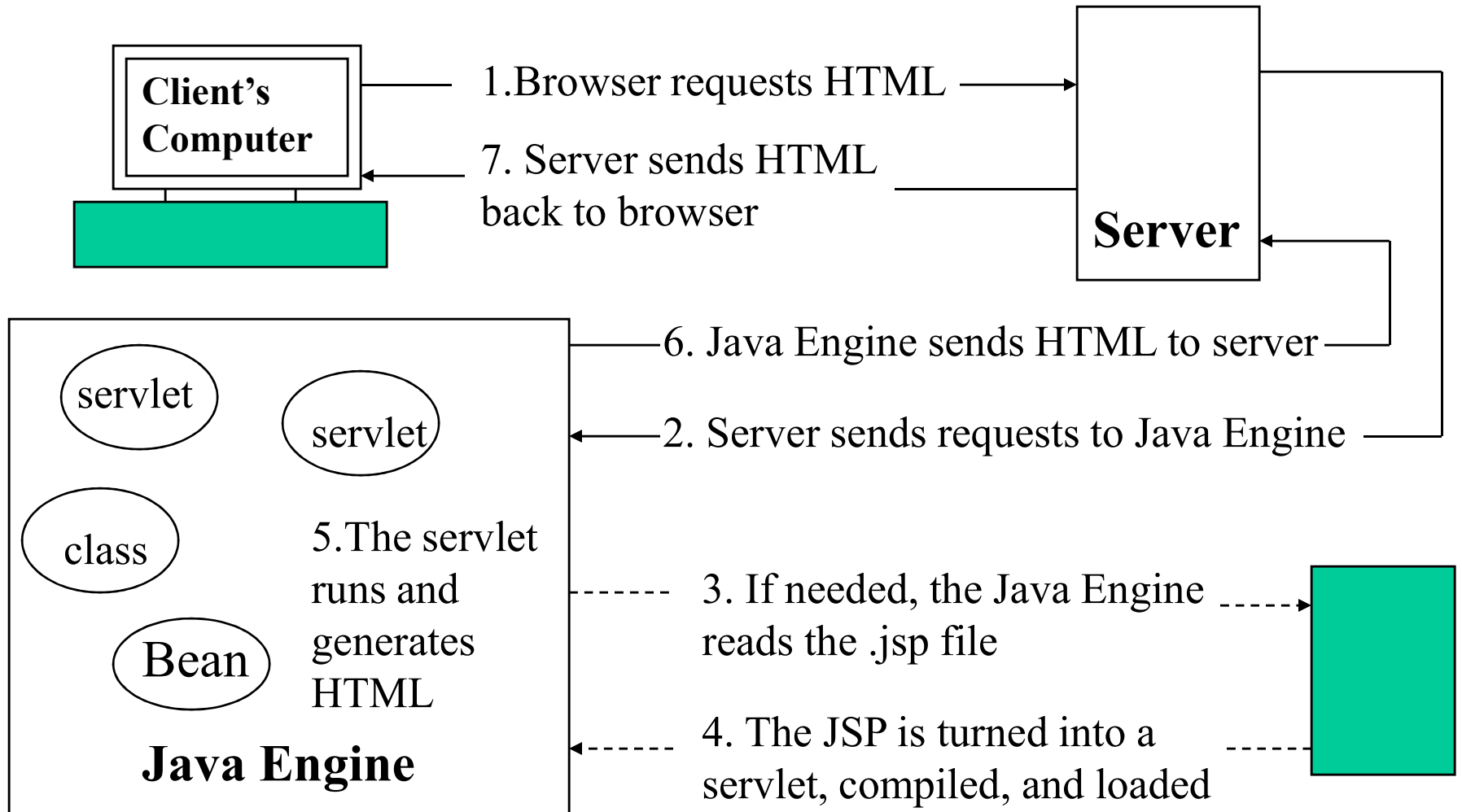
```
StockGrabber sg = new StockGrabber();
sg.setStockSymbol(stockSymb); // Set the stock symbol as "input"
String stockPrice = sg.getPrice();// Get the price of stock
```

```
System.out.println("After StockGrabber.getPrice --"+stockPrice);// Debug
out.println("<html><head></head><body><br><br>");
out.println(stockSymb + " -- " + stockPrice);
out.println("<hr>");
out.println("<form action=\"../servlet/Ass2Servlet\" method=POST>");
out.println("<h3>Stock Symbol name: <input type=text name=\"stockSymbol\"></h3>");
out.println("<input type=submit value=\"get price\">");
out.println("</form>");
out.println("</body></html>");
```



```
}
```

# Java Server Pages (JSP)



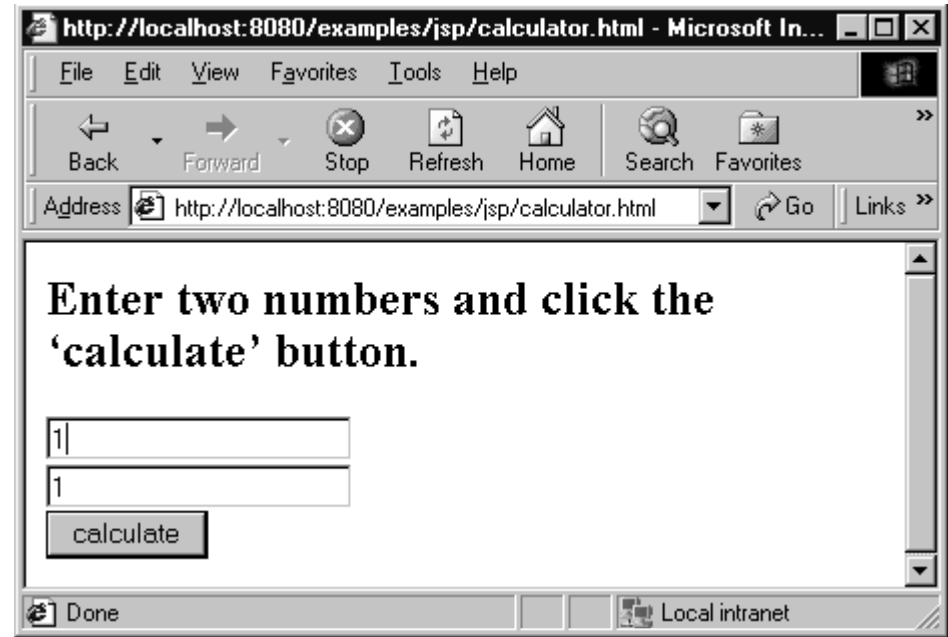
# A First JSP

```
<html>
```

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

```
<body>
```

```
<p>Enter two numbers and click the  
'calculate' button.</p>
```



```
<form action="calculator.jsp" method="get">
```

```
<input type=text name=value1><br>
```

```
<input type=text name=value2 ><br>
```

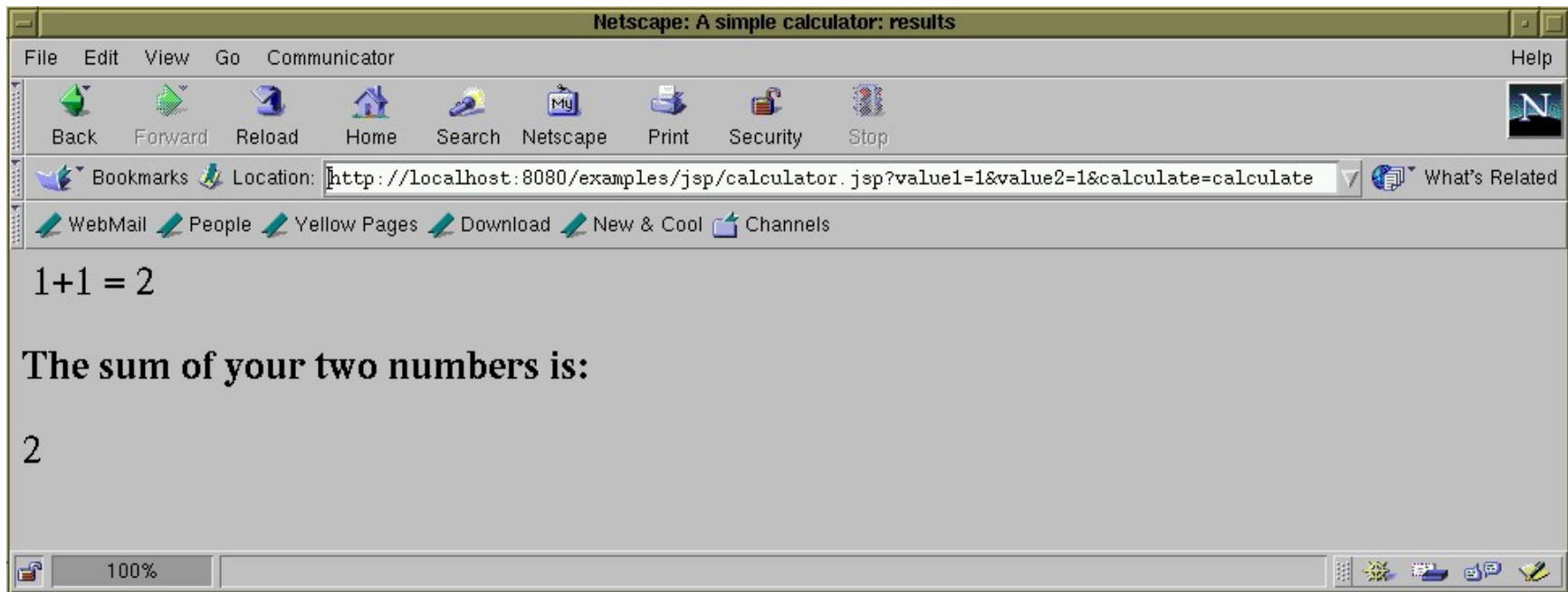
```
<input type=submit name=calculate value=calculate>
```

```
</form>
```

```
</body>
```

```
</html>
```

Calculator.html



```
<html>
<head><title>A simple calculator: results</title></head>
<body>
<!-- A simpler example 1+1=2 -->
1+1 = <%= 1+1 %>
<!-- A simple calculator -->
<h2>The sum of your two numbers is:</h2>
<%= Integer.parseInt(request.getParameter("value1")) +
      Integer.parseInt(request.getParameter("value2")) %>
</body>
</html>
```

Calculator.jsp

# JSP Tags

- Comments      `<%-- .....text..... --%>`
- Declaration    `<%! int i; %>`  
                  `<%! int numOfStudents(arg1,..) {} %>`
- Expression     `<%= 1+1 %>`
- Scriptlets     `<% ... java code ... %>`
- include file    `<%@ include file="*.jsp" %>`
- .....

# Using Java Bean

## Declaration

1. `<jsp:useBean id="bean1" class="Bean1" />`
2. `<jsp:useBean id="bean1" class="Bean1" name="serBean" type="SerBean1" />`

## Setting property

1. `<jsp:setProperty name="bean1" property="color" value="red" />`
2. `<jsp:setProperty name="bean1" property="color" />`
3. `<jsp:setProperty name="bean1" property="color" param="bgColor" />`
4. `<jsp:setProperty name="bean1" property="*" />`

## Getting property

1. `<jsp:getProperty name="bean1" property="color" />`
2. `<%=bean1.getColor() %>`

# Assg2 example



```
<html>
<head></head>
<body>
<center>
<table border = 0>
<form action=ass2.jsp method = POST>
<tr><td><font color=blue>choose a stock market:</font></td>
  <td><select name="stockMarket">
    <option value="Waterhouse">Waterhouse</option>
    <option value="Yahoo">Yahoo</option>
    <option value="ChicagoStockex">Chicago Stockex</option>
    <option value="Reuters">Reuters</option>
  </select></td>
</tr>
<tr><td><font color = blue>input a stock symbol:</font></td>
  <td><input type="edit" name="stockSymbol" size=15></td>
</tr>
<tr><td></td><td><input type="submit" value = "get price"></td></tr>
</table>
</form></center>
</body></html>
```

Client side  
Ass2.html

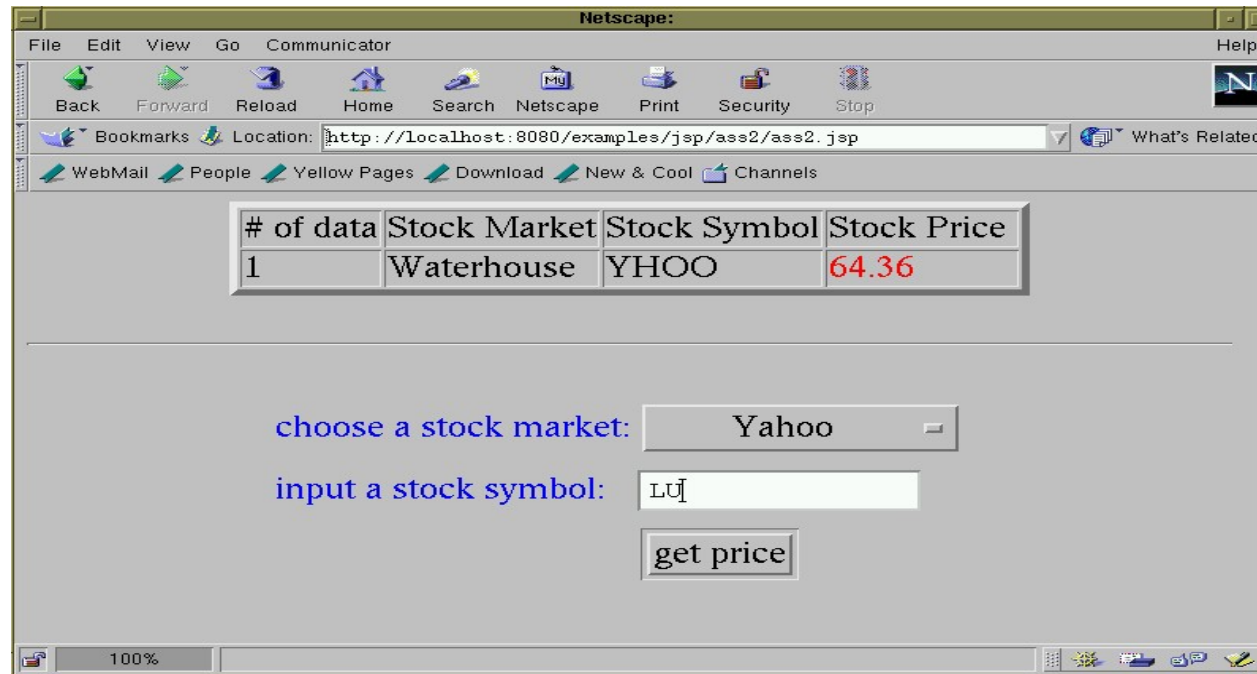
# ass2.jsp

```
<html><head>
<jsp:useBean id="ass2" scope="session" class="ass2.StockGrabber" />
<jsp:setProperty name="ass2" property="*" />
</head>
<body><h2><%
    ass2.processInput();
    ass2.getPrice();
    %>
<center><table border=5>
<tr><td># of data</td> <td>Stock Market</td> <td>Stock Symbol</td> <td>Stock Price </td>
</tr><%
    String[] stockMarkets = ass2.getStockMarkets();
    String[] symbols = ass2.getSymbols();
    String[] prices = ass2.getPrices();
    for(int i=0; i<prices.length; i++){
        %>
<tr><td> <%= i+1 %> </td>
<td> <%= stockMarkets[i] %> </td>
<td> <%= symbols[i] %> </td>
<td><font color=red><%= prices[i] %></font></td>
</tr><%
    }
    %>
</table>
</center>
</h2>
<hr><%= @include file="ass2.html" %></html>
```

**<jsp:setProperty name="ass2" property="stockSymbol"/>**  
**<jsp:setProperty name="ass2" property="stockMarket"/>**

Server side





# Without using JDBC

```
Public class StockGrabber {
    ...
    public void processInput() {
        if (stockMarket.compareTo("Waterhouse")==0) {
            setPrePriceString("<!--Last-->");
            setPostPriceString("</FONT>");
            setUrlPrefix("http://research.tdwaterhouse.com/
                waterhouse/quote.asp?ticker=");
        }
        else if (stockMarket.compareTo("Yahoo")==0) {
            setPrePriceString("<td nowrap><b>");
            setPostPriceString("</b></td>");
            setUrlPrefix("http://finance.yahoo.com/q?s=");
        }
        ...
        else if (...) {}
        ...
        else {...}
    }
    ...
}
```

# Using JDBC --> Database

```
import java.sql.*;
Public class StockGrabber {
    ...
    public void processInput() {
        try {
            Class.forName ("sun.jdbc.odbc.JdbcOdbcDriver");
            String sourceURL="jdbc:odbc:stockInfo";
            Connection databaseConnection=DriverManager.getConnection (sourceURL);
            Statement statement=databaseConnection.createStatement ();
            ResultSet info =statement.executeQuery(
                "select tPrePriceStr, tPostPriceStr, tUrlPrefix
                from stockMarketData
                where tStockMarket = stockMarket");
            while (inf.next ())
            {
                prePriceString = info.getString ("tPrePriceStr");
                postPriceString = info.getString ("tPostPriceStr");
                urlPrefix      = info.getString ("tUrlPrefix");
            }
        }
        catch (SQLException e) { ... }
        ...
    }
}
```