Java Servlets

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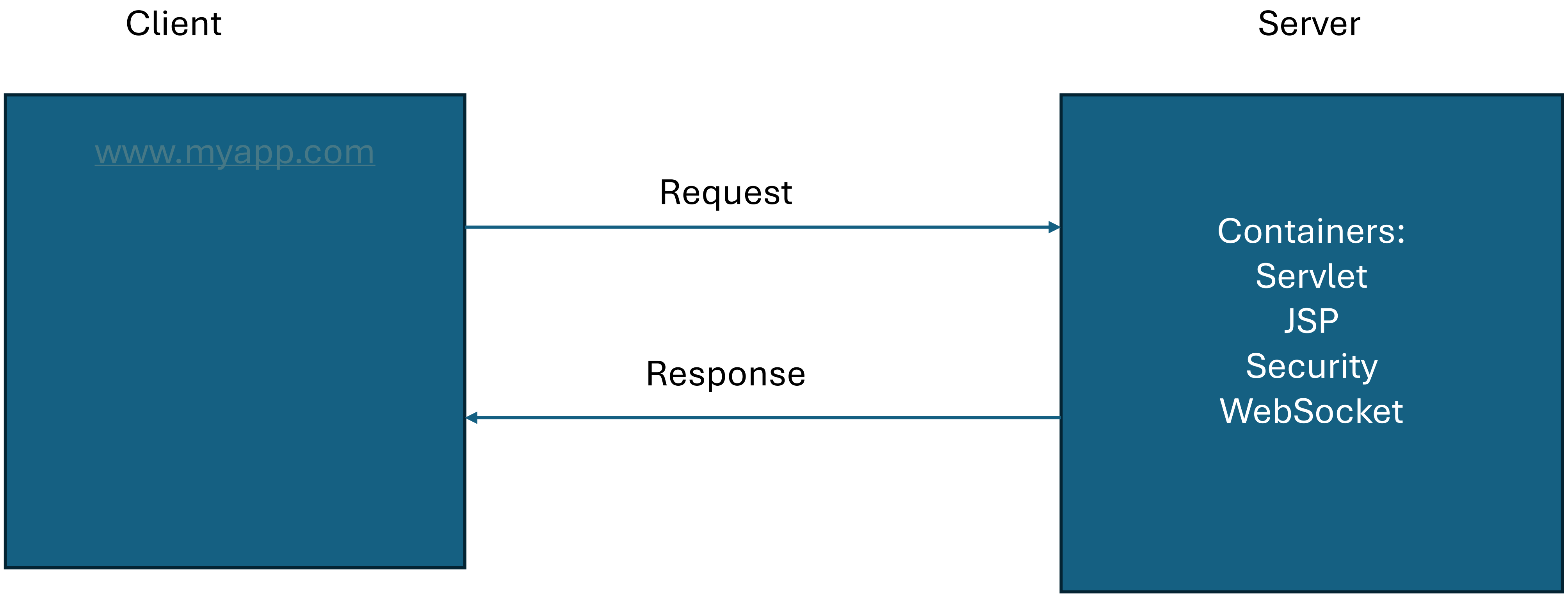
BS(AI)-II

What is a servlet?

- Server Side Technology, which is used to:
  - Handle the client request
  - Process the request
  - Generate Dynamic Response

Servlets



Client

www.myapp.com

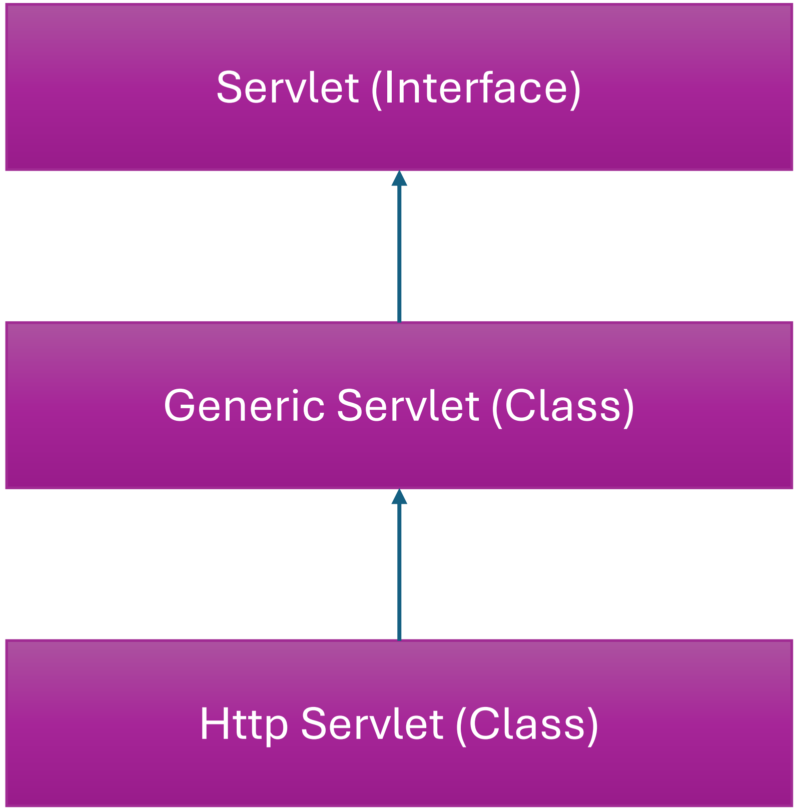
Request

Response

Server

Containers:
Servlet
JSP
Security
WebSocket

Hierarchy


Servlet (Interface)
Generic Servlet (Class)
Http Servlet (Class)

Steps for creating a HTTP Servlet

- Right click on WEB-INF and click on new then search for others
    - Search for .xml, then add web.xml deployment descriptor
- Add a new package
    - Inside new package add a new java class with any name and make it a child of httpservlet
    - Implement doget or dopost method with an output statement

Steps for creating a HTTP Servlet

- Now navigate to web.xml file and add the following code:

```
<servlet>
    <servlet-name>myservlet</servlet-name>
    <servlet-class>myservlet.MyServlet</servlet-class>
  </servlet>

  <servlet-mapping>

    <servlet-name>myservlet</servlet-name>
    <url-pattern>/aaa</url-pattern>
  </servlet-mapping>
```

Remember servlet-name must be same inside both tags, and servlet class name must be the same name as java class name qualified with the package name

Steps for creating a HTTP Servlet

- Run the application
- Add /aaa at the end of the url and run again

Outputting in the browser

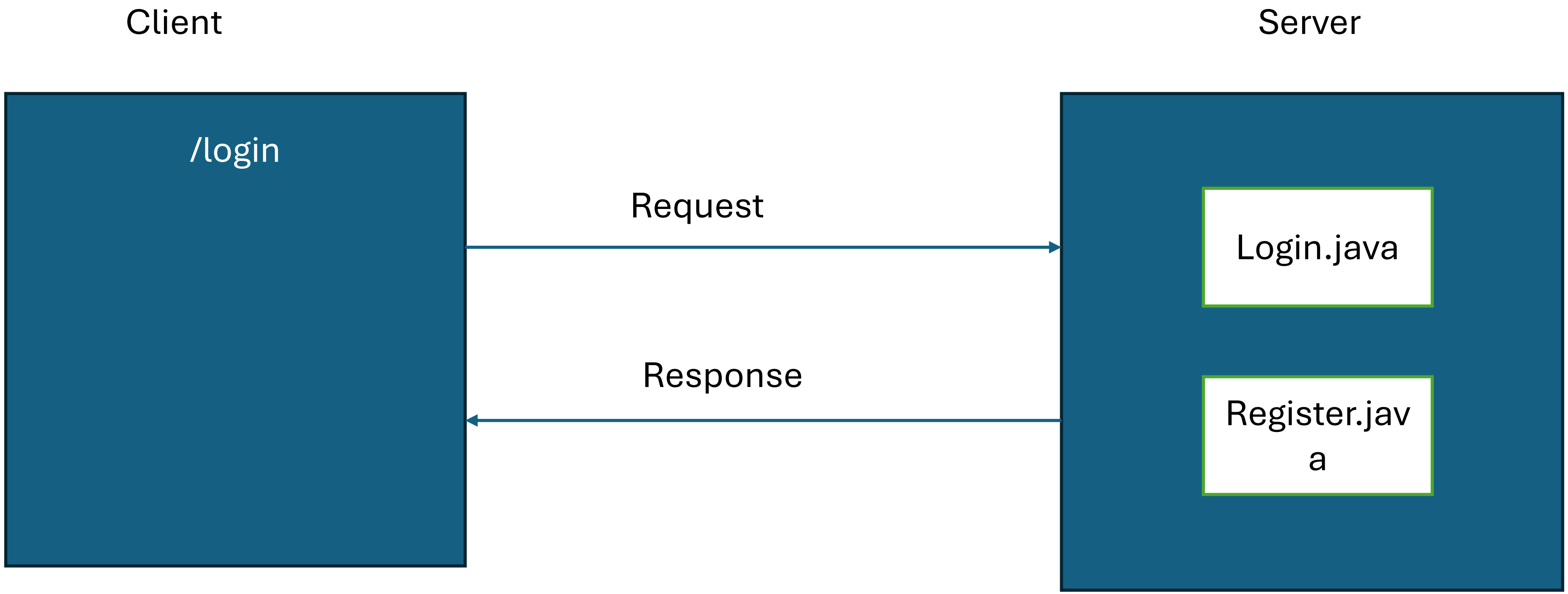
- Navigate to DoGet method:
    - Printwriter out=resp.getWriter();
    - out.print(“Browser output using http servlet”)

Servlet lifecycle

- Loading and Instantiation:
  - Myservlet.java is converted to Myservlet.class
  - An object Myservlet is created in the server
- Initialization:
  - Object is initialized with necessary configuration by invoking init()
- Request Handling:
  - Concept of multithreading is implemented
  - service() method invokes upon receiving each request
- Destroy:
  - When server is shutdown, destroy method() will be called servlet object will be destroyed

Web.xml

- Deployment Descriptor

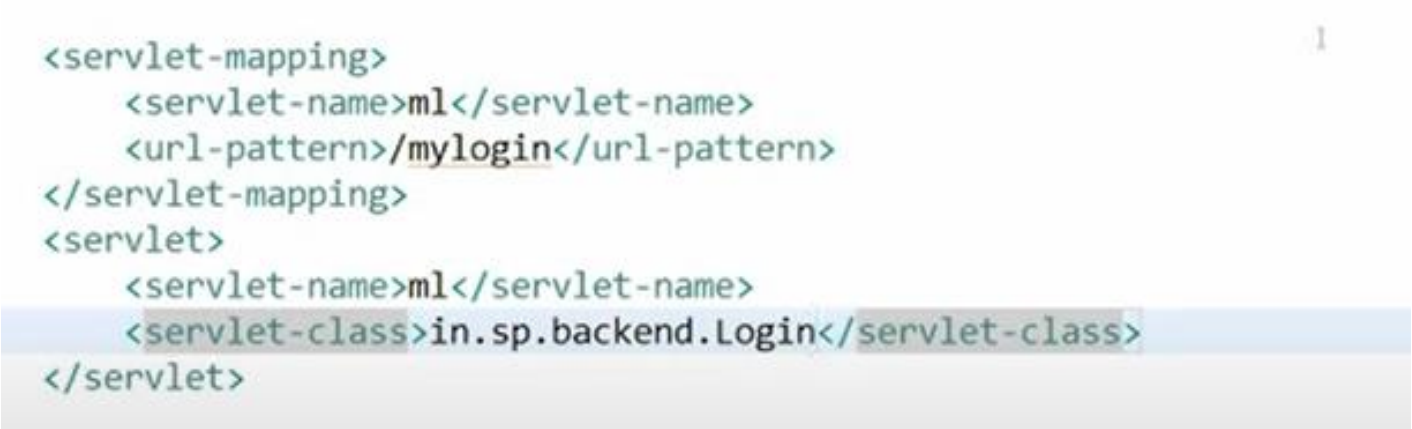


Web.xml

- In latest versions it is not created automatically, but it holds importance
- Create a Login.java file, and print something in doGet Method
- In Index.html file add click on Login and upon clicking it must navigate to Login.java

Solution

- Add anchor tag with href="/mylogin"
- Add mapping in web.xml file:



```
<servlet-mapping>
    <servlet-name>ml</servlet-name>
    <url-pattern>/mylogin</url-pattern>
</servlet-mapping>
<servlet>
    <servlet-name>ml</servlet-name>
    <servlet-class>in.sp.backend.Login</servlet-class>
</servlet>
```

Task

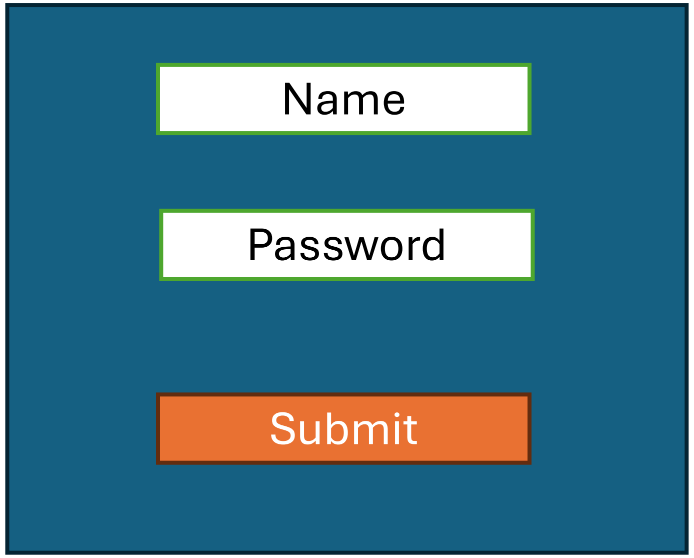
- Now also add Register

Without web.xml how to execute a servlet

- With help of annotations
- Add following annotation in the class file:
  - @WebServlet(“\aaa”)
  - Override service method

HttpServletRequest and HttpServletResponse

Index.html



Name

Password

Submit

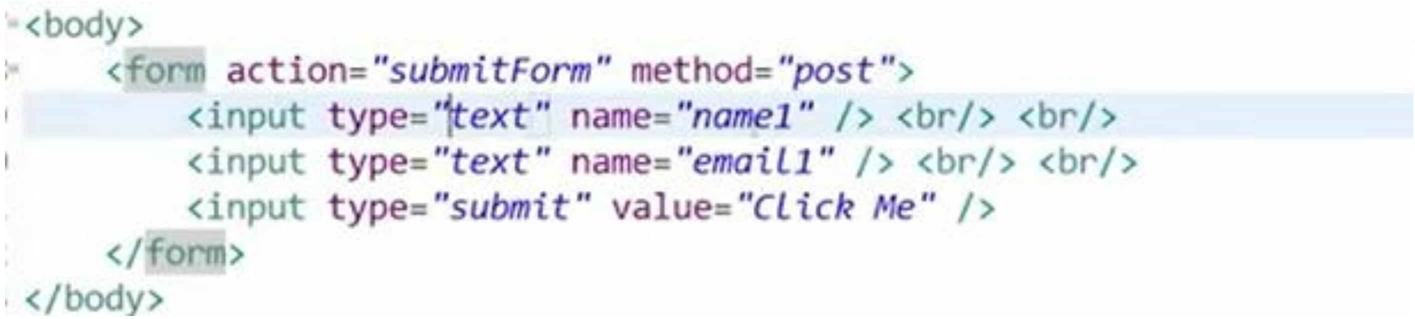
MyServlet.java

We can receive the name and password from index.html file with the help of HttpServlet Request object

Which method?

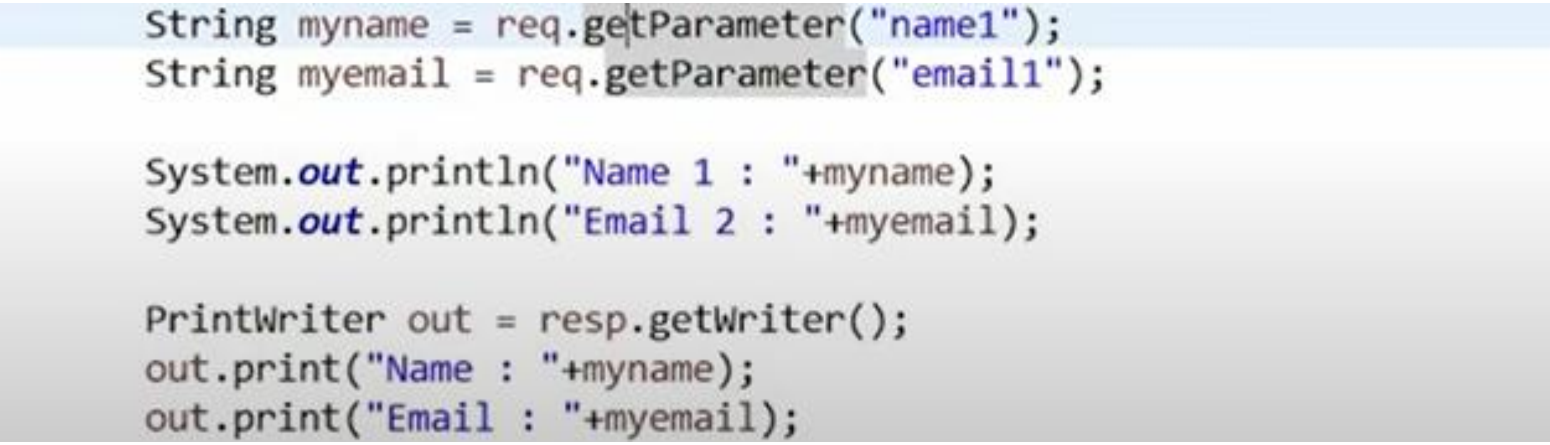
- HttpServletRequest.getparameter(“Parameter Name”);

Code to Insert into Index.html



```
<body>
    <form action="submitForm" method="post">
        <input type="text" name="name1" /> <br/> <br/>
        <input type="text" name="email1" /> <br/> <br/>
        <input type="submit" value="Click Me" />
    </form>
</body>
```

Code to Insert into java file (Must add annotation)



```
String myname = req.getParameter("name1");
String myemail = req.getParameter("email1");

System.out.println("Name 1 : "+myname);
System.out.println("Email 2 : "+myemail);

PrintWriter out = resp.getWriter();
out.print("Name : "+myname);
out.print("Email : "+myemail);
```

HTTP GET vs POST Method

- GET method sends data through the URL and is not secured
- We can send very lesser data through get, because maximum limit of URL is 2048 characters

- POST method sends data through HTTP message body and is more secured
- Huge amount of data, no restriction

Implementation

- Method attribute of form tag
- In java class:
    - Override doGet in case of get
    - Override doPost in case of Post