

# Java Web Development Notes for Freshers

## 1. Servlet Lifecycle

Servlet lifecycle has 3 main methods:

- init(): Called once when servlet is initialized.
- service(): Called for every request.
- destroy(): Called when servlet is taken out of service.

Example:

```
public class MyServlet extends HttpServlet {
    public void init() throws ServletException {
        System.out.println("Initialized");
    }
    public void service(HttpServletRequest req, HttpServletResponse res) throws IOException {
        res.getWriter().write("Hello");
    }
    public void destroy() {
        System.out.println("Destroyed");
    }
}
```

## 2. Handling HTTP Requests and Responses

- doGet() handles GET requests
- doPost() handles POST requests

Example:

```
protected void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException {
    response.setContentType("text/html");
    PrintWriter out = response.getWriter();
    out.println("<h1>Hello " + request.getParameter("name") + "</h1>");
}
```

## 3. Session Management

- Maintains user data using HttpSession.

```
HttpSession session = request.getSession();
session.setAttribute("username", "Preeti");
String user = (String) session.getAttribute("username");
```

## 4. Servlet Filters

- Used for logging, authentication, etc.

```
public class AuthFilter implements Filter {
    public void doFilter(ServletRequest req, ServletResponse res, FilterChain chain)
        throws IOException, ServletException {
        HttpSession session = ((HttpServletRequest)req).getSession(false);
        if (session == null || session.getAttribute("user") == null) {
            ((HttpServletResponse)res).sendRedirect("login.jsp");
        }
    }
}
```

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```
} else {  
    chain.doFilter(req, res);  
}  
}  
}
```

### 5. JSP Syntax and Expression Language (EL)

JSP:

```
<%= request.getParameter("name") %>
```

EL:

```
${param.name}, ${sessionScope.username}
```

### 6. JSP Standard Actions

```
<jsp:include page="header.jsp" />  
<jsp:forward page="home.jsp" />  
<jsp:param name="id" value="123"/>
```

### 7. MVC Architecture

Model - JavaBean

View - JSP

Controller - Servlet

LoginServlet forwards to welcome.jsp after validation.

### 8. AJAX

HTML:

```
<script>  
function getUserDetails() {  
    const xhr = new XMLHttpRequest();  
    xhr.open("GET", "UserDetailsServlet", true);  
    xhr.onload = function() {  
        document.getElementById("output").innerHTML = xhr.responseText;  
    };  
    xhr.send();  
}  
</script>
```

Servlet:

```
protected void doGet(HttpServletRequest req, HttpServletResponse res) throws IOException {  
    res.getWriter().write("User Details Loaded");  
}
```

### 9. HTTP Session

```
HttpSession session = request.getSession();
```

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```
session.setAttribute("email", "test@example.com");  
String email = (String) session.getAttribute("email");
```