

9. Develop a custom JSP tag which accepts 10 numbers from user and sorts them in specified order.

SortNumbersTag.java

```
package customtags;

import java.io.IOException;
import java.util.Arrays;
import jakarta.servlet.jsp.tagext.TagSupport;
import jakarta.servlet.jsp.JspException;
import jakarta.servlet.jsp.JspWriter;

public class SortNumbersTag extends TagSupport {
    private String numbers; // Input numbers as a comma-separated string
    private String order; // Sorting order: "asc" or "desc"

    // Setter methods
    public void setNumbers(String numbers) {
        this.numbers = numbers;
    }

    public void setOrder(String order) {
        this.order = order;
    }

    @Override
    public int doStartTag() throws JspException {
        if (numbers == null || numbers.trim().isEmpty()) {
            return SKIP_BODY;
        }
    }
}
```

```
}
```

```
String[] numArray = numbers.split(",");
```

```
int[] intArray = new int[numArray.length];
```

```
try {
```

```
    for (int i = 0; i < numArray.length; i++) {
```

```
        intArray[i] = Integer.parseInt(numArray[i].trim());
```

```
    }
```

```
} catch (NumberFormatException e) {
```

```
    throw new JspException("Invalid number format!", e);
```

```
}
```

```
// Sorting logic
```

```
Arrays.sort(intArray);
```

```
if ("desc".equalsIgnoreCase(order)) {
```

```
    for (int i = 0; i < intArray.length / 2; i++) {
```

```
        int temp = intArray[i];
```

```
        intArray[i] = intArray[intArray.length - 1 - i];
```

```
        intArray[intArray.length - 1 - i] = temp;
```

```
    }
```

```
}
```

```
// Output sorted numbers
```

```
JspWriter out = pageContext.getOut();
```

```
try {
```

```
    out.print(Arrays.toString(intArray));
```

```
} catch (IOException e) {
```

```

        throw new JspException("Error in SortNumbersTag", e);
    }

    return SKIP_BODY; // No body content required
}
}

```

sortNumbers.tld

```

<?xml version="1.0" encoding="UTF-8"?>

<taglib version="2.1" xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-jsptaglibrary_2_1.xsd">

    <tlib-version>1.0</tlib-version>

    <tag>

        <name>sortNumbers</name>

        <tag-class>customtags.SortNumbersTag</tag-class>

        <body-content>empty</body-content>

        <attribute>

            <name>numbers</name>

            <required>true</required>

            <rtexprvalue>true</rtexprvalue>

        </attribute>

        <attribute>

            <name>order</name>

            <required>false</required>

            <rtexprvalue>true</rtexprvalue>

        </attribute>

```

```
</tag>
```

```
</taglib>
```

Index.jsp

```
<%@ taglib prefix="c" uri="/WEB-INF/tlds/sortNumbers.tld" %>
```

```
<html>
```

```
<head>
```

```
    <title>Sort Numbers Custom Tag</title>
```

```
</head>
```

```
<body>
```

```
    <h2>Enter 10 Numbers (comma-separated)</h2>
```

```
    <form method="post">
```

```
        <input type="text" name="numbers" required>
```

```
        <select name="order">
```

```
            <option value="asc">Ascending</option>
```

```
            <option value="desc">Descending</option>
```

```
        </select>
```

```
        <input type="submit" value="Sort">
```

```
    </form>
```

```
<%
```

```
    String numbers = request.getParameter("numbers");
```

```
    String order = request.getParameter("order");
```

```
    if (numbers != null && !numbers.isEmpty()) {
```

```
%>
```

```
    <h3>Sorted Numbers:</h3>
```

```
    <c:sortNumbers numbers="<%= numbers %>" order="<%= order %>" />
```

```
<% } %>
```

</body>

</html>