**MyTagHandlerClass.java:**

package Tag;

import java.io.IOException;

import javax.servlet.jsp.JspException;

import javax.servlet.jsp.JspWriter;

import javax.servlet.jsp.tagext.TagSupport;

public class MyTagHandlerClass extends TagSupport {

private static final long serialVersionUID = 1L;

@Override

public int doStartTag() throws JspException {

try {

JspWriter out = pageContext.getOut();

out.println("<h1>This is my first Custom Tag!</h1>");

} catch (IOException e) {

e.printStackTrace();

}

return SKIP\_BODY;

}

}

**MyLib.tld:**

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

<!DOCTYPE taglib PUBLIC "-//Sun Microsystems, Inc.//DTD JSP Tag Library 1.2//EN" "http://java.sun.com/dtd/web-jsptaglibrary\_1\_2.dtd">

<taglib>

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

<jsp-version>2.0</jsp-version>

<short-name>testing</short-name>

<uri>http://www.tomcat-demo.com/testing</uri>

<description>This is a demonstration tag library</description>

<tag>

<name>greet</name>

<tag-class>Tag.MyTagHandlerClass</tag-class>

</tag>

</taglib>

**index.jsp:**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<%@taglib uri="/WEB-INF/MyLib.tld" prefix="d"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Index</title>

</head>

<body>

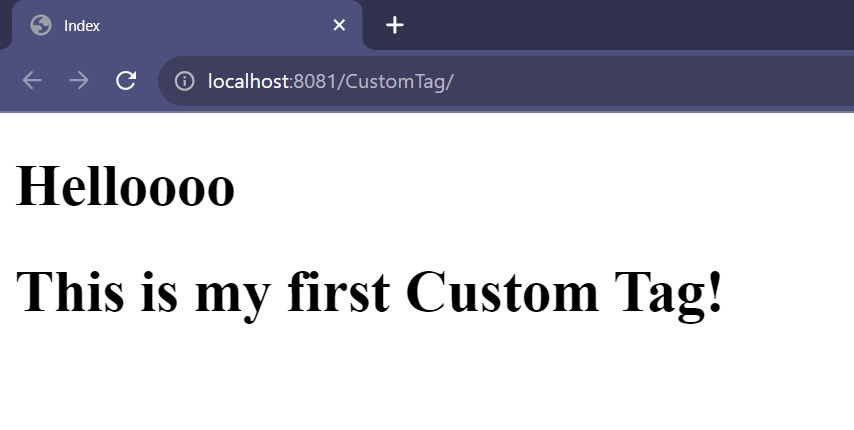
<h1>Helloooo</h1>

<d:greet></d:greet>

</body>

</html>

**OUTPUT:**

****

**TagHandler.java:**

package Tag2;

import java.io.IOException;

import javax.servlet.jsp.JspException;

import javax.servlet.jsp.JspWriter;

import javax.servlet.jsp.tagext.TagSupport;

import java.time.format.DateTimeFormatter;

import java.time.LocalDateTime;

public class TagHandler extends TagSupport {

private static final long serialVersionUID = 1L;

private int number;

public void setNumber(int number) {

this.number = number;

}

public int doStartTag() throws JspException {

try {

JspWriter out = pageContext.getOut();

out.println("<h3>Table of 5: </h3>");

for(int i=1; i<=10; i++) {

out.println(number+"\*"+i+"="+number\*i+"<br>");

}

DateTimeFormatter dtf = DateTimeFormatter.ofPattern("yyyy/MM/dd HH:MM:SS");

LocalDateTime now = LocalDateTime.now();

out.println("\n<h3>Current date and time is: "+dtf.format(now)+"</h3>");

} catch (IOException e) {

e.printStackTrace();

}

return SKIP\_BODY;

}

}

**MyLib2.tld:**

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

<!DOCTYPE taglib PUBLIC "-//Sun Microsystems, Inc.//DTD JSP Tag Library 1.2//EN" "http://java.sun.com/dtd/web-jsptaglibrary\_1\_2.dtd">

<taglib>

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

<jsp-version>2.0</jsp-version>

<short-name>testing</short-name>

<uri>http://www.tomcat-demo.com/testing</uri>

<description>This is a demonstration tag library</description>

<tag>

<name>print</name>

<tag-class>Tag2.TagHandler</tag-class>

<attribute>

<name>number</name>

<required>true</required>

</attribute>

</tag>

</taglib>

**index.jsp:**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<%@taglib uri="/WEB-INF/MyLib2.tld" prefix="d"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Index</title>

</head>

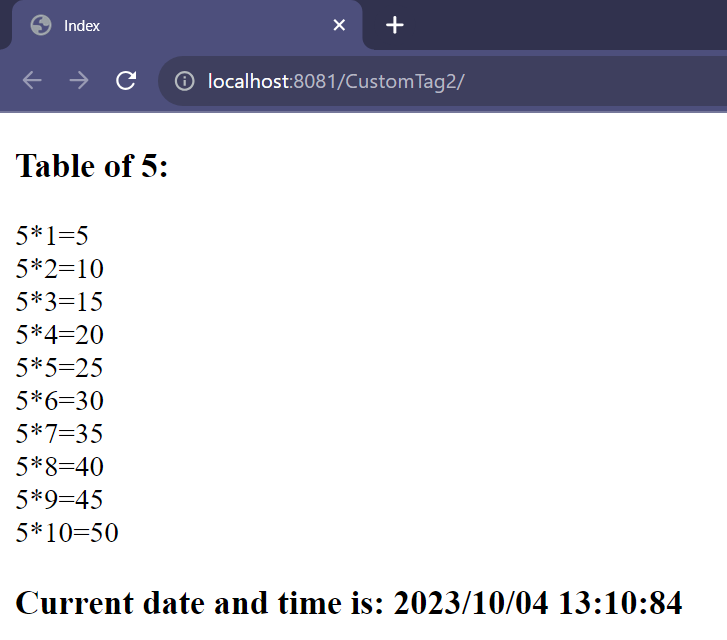
<body>

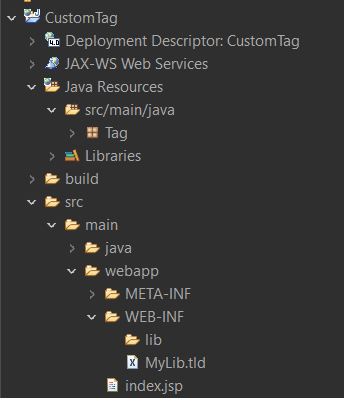
<d:print number="5"></d:print>

</body>

</html>

**OUTPUT:**

****

****

**Core Tags:**

**index.jsp:**

<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Index</title>

</head>

<body>

<h1>Core tag demo</h1>

<!-- 1. set and out tag →

<c:set var="i" value="50"></c:set>

<h2><c:out value="${i}"></c:out> - This is default value</h2>

<!-- 2. remove tag

<!--<c:remove var="i"/>-->

<!-- 3. if tag -->

<c:if test="${i!=10}">

<h2>The value is not 10</h2>

</c:if>

<!-- 4. choose when otherwise -->

<c:choose>

<c:when test="${i==50}">

<h2>This is first case</h2>

</c:when>

<c:otherwise>

<h2>Default case is true</h2>

</c:otherwise>

</c:choose>

<!-- 5. for loop -->

<c:forEach var="j" begin="1" end="10">

<c:out value="${j}"></c:out>

</c:forEach>

<!--6. url redirect

<c:url var="myurl" value="https://www.google.com">

<c:param name="q" value="JSTL"></c:param>

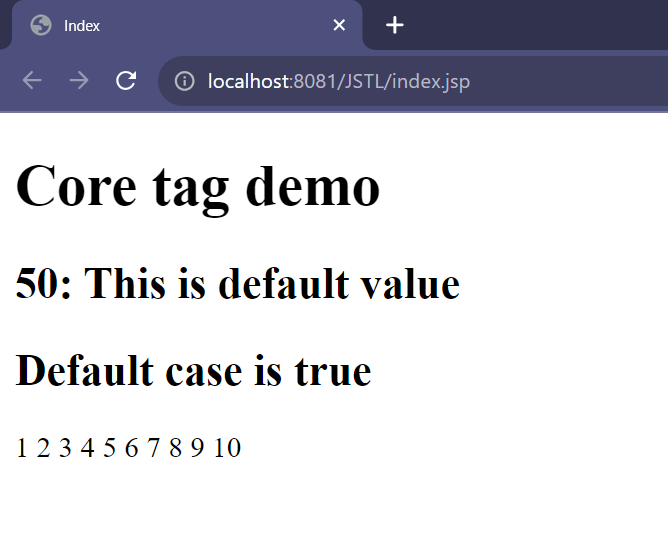
</c:url>

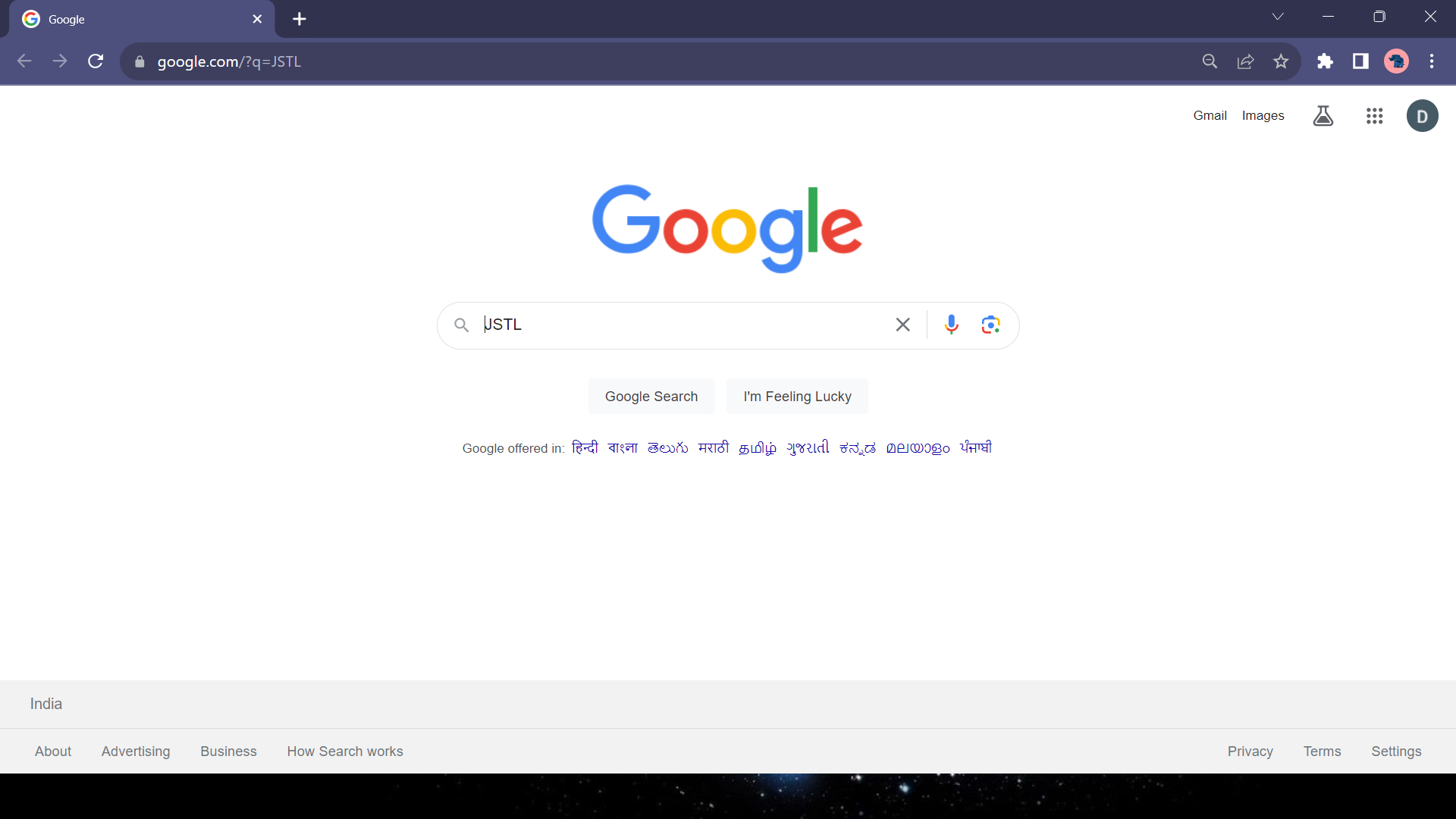
<c:redirect url="${myurl}"></c:redirect> -->

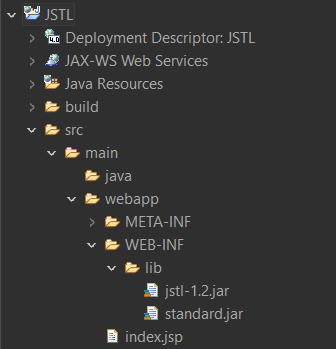
</body>

</html>

**OUTPUT:**

****

****



**Function Tags:**

**index.jsp:**

<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>

<%@ taglib uri="http://java.sun.com/jsp/jstl/functions" prefix="fn" %>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Function</title>

</head>

<body>

<h2>This is a Function tag demo</h2>

<c:set var="name" value="MGMUniversityJNEC"></c:set>

<p>String: <c:out value="${name }"></c:out></p>

<p>Length of string: <c:out value="${fn:length(name) }"></c:out></p>

<p>All Upper Case: <c:out value="${fn:toUpperCase(name) }"></c:out></p>

<p>All Lower Case: <c:out value="${fn:toLowerCase(name) }"></c:out></p>

<p>Sub String: <c:out value="${fn:substring(name, 3, 13)} "></c:out></p>

<p>Does the string contain 'JNEC'?: </p>

<c:if test="${fn:containsIgnoreCase(name, 'JNEC')}"/>

Found JNEC string<br><br>

<c:set var="author" value="Disha Supekar"/>

<c:set var="string" value="abcdefghijklmnopqrstuvwxyz"/>

${fn:replace(author, "Jane", "Doe")}

${fn:replace(string, "hey", "hello")} <br><br>

<c:set var="msg" value="The Example of JSTL Function"/>

String: <c:out value="${msg}"></c:out><br><br>

The string starts with "The": ${fn:startsWith(msg, 'The')}

<br>The string starts with "Example": ${fn:startsWith(msg, 'Example')}

<br>The string ends with "Function": ${fn:endsWith(msg, 'Function')}

<br>The string ends with ".": ${fn:endsWith(msg, '.')}

<c:set var="str1" value="Welcome-to-JSP-Programming."/>

<c:set var="str2" value="${fn:split(str1, '-')}" />

<c:set var="str3" value="${fn:join(str2, ' ')}" />

<p>Old String: ${str3}</p>

<c:set var="str4" value="${fn:split(str3, ' ')}" />

<c:set var="str5" value="${fn:join(str4, '-')}" />

<p>New String : ${str5}</p>

<c:set var="str1" value="Welcome to JSP programming "/>

<p>String-1 Length is : ${fn:length(str1)}</p>

<c:set var="str2" value="${fn:trim(str1)}" />

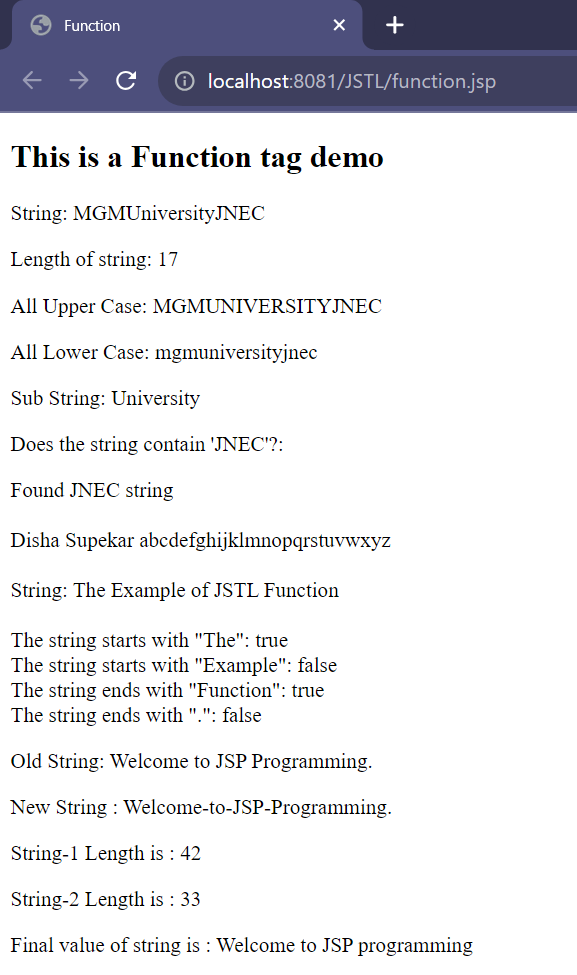
<p>String-2 Length is : ${fn:length(str2)}</p>

<p>Final value of string is : ${str2}</p>

</body>

</html>

**OUTPUT:**

****

**SQL Tags:**

**index.jsp:**

<%@ page import="java.io.\*,java.util.\*,java.sql.\*"%>

<%@ page import="javax.servlet.http.\*,javax.servlet.\*" %>

<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>

<%@ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql"%>

<%@ page import="java.util.Date,java.text.\*" %>

<html>

<head>

<title>SQL Tags</title>

<style>

table {

width: 30%;

border: 2px solid black;

}

th, td {

text-align: center; /\* Center-align table cell contents \*/

padding: 5px;

border: 2px solid black

}

</style>

</head>

<body>

<c:set var="dbUrl" value="jdbc:mysql://localhost/test" />

<c:set var="dbUser" value="root" />

<c:set var="dbPassword" value="DS433" />

<sql:setDataSource var="db" driver="com.mysql.jdbc.Driver" url="${dbUrl}"

user="${dbUser}" password="${dbPassword}"/>

<!-- Query the database -->

<sql:query dataSource="${db}" var="rs"> SELECT \* FROM Students; </sql:query>

<!-- Display the original table -->

<h2>Original table:</h2>

<table border="2" width="30%">

<tr>

<th>PRN</th>

<th>Name</th>

<th>Date of Birth</th>

</tr>

<c:forEach var="table" items="${rs.rows}">

<tr>

<td><c:out value="${table.PRN}"/></td>

<td><c:out value="${table.Name}"/></td>

<td><c:out value="${table.dob}"/></td>

</tr>

</c:forEach>

</table>

<% Date DoB = new Date("2000/10/16"); %>

<!-- Start a transaction -->

<sql:transaction dataSource="${db}">

<!-- Insert a new row into the database using sql:update with sql:param and sql:dateParam -->

<sql:update var="count">

INSERT INTO Students (PRN, Name, DOB) VALUES (?, ?, ?);

<sql:param value="1111"/>

<sql:param value="ABC"/>

<sql:dateParam value="<%=DoB%>" type="DATE"/>

</sql:update>

<!-- Query the database again to display the updated table -->

<sql:query var="rs">SELECT \* FROM Students;</sql:query>

<br><br>

<!-- Display the table after inserting more rows -->

<h2>Table after inserting more rows:</h2>

<table border="2" width="50%">

<tr>

<th>PRN</th>

<th>Name</th>

<th>Date of Birth</th>

</tr>

<c:forEach var="table" items="${rs.rows}">

<tr>

<td><c:out value="${table.PRN}"/></td>

<td><c:out value="${table.Name}"/></td>

<td><c:out value="${table.dob}"/></td>

</tr>

</c:forEach>

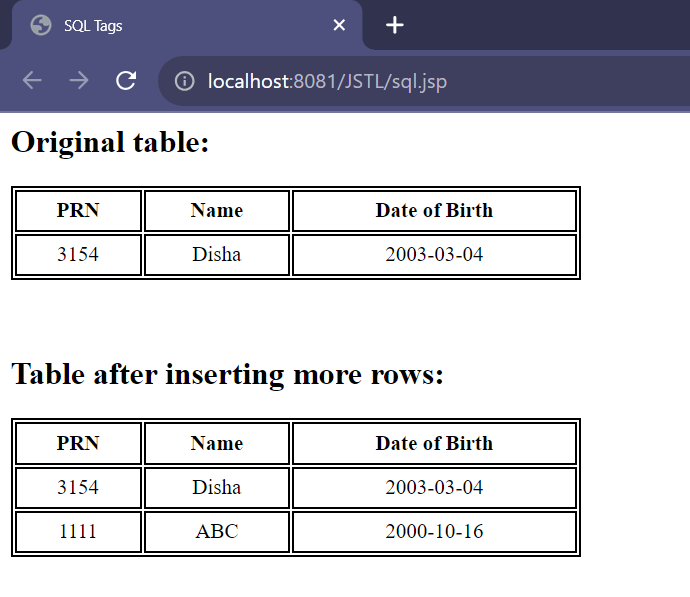
</table>

</sql:transaction>

</body>

</html>

**OUTPUT:**

****