**INTERNET PROGRAMMING LAB**

**Ex4**

**Java Servlets and MySQL**

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**Learning Objective:**

1. To Generate a form to calculate Gross Pay using servlet.
2. To develop a patient management system (PMS).

**Specifications:**

a) Create a HTML file with following form fields:

a. Employee ID

b. Employee Name

c. Designation

d. Department

e. Basic Salary

f. Phone Number

g. Address

h. Date of Birth

i. Gender

j. Marital Status

k. Submit (Button, onclick submit the form details to a servlet)

l. Reset (Button, onclick)

Write a servlet program which reads all form details, finds the gross pay based on basic pay and designation. The servlet returns all details (a-j, gross pay) in table format to the client.

b) PMS

a. Admin only can access the patient records.

b. Admin has to authenticate himself with the credentials to access the patient details.

c. The first page is the login page (login.html) where the admin should enter the credentials.

d. If login fails, display an alert “Login Failed, enter the correct details”, clear the username and password textbox and focus the control back to the username of login.html.

e. Perform the authentication using JavaScript, use hardcoded username and password in login.html.

f. On successful login, it should be redirected to homepage (homepage.html) of PMS.

g. The homepage.html should display.

h. Clicking the links should invoke its corresponding html file from where the information is submitted to the corresponding Servlet.

i. On Submit, it should invoke DeleteServlet. The DeleteServlete should delete the record from the Database and displays “Record Deleted” in a new webpage with a view button.

j. When “View” button is clicked it invokes the “ViewServlet” to display all the records in the database.

k. Similarly, perform ADD, UPDATE, VIEW and SEARCH using **corresponding html** and **Servlet.**

l. UPDATE is invoked if phone number or Address of the patient is changed.

m. SEARCH for particular patient based on Patient ID.

n. After each operation View Servlet should be invoked to view the changes in the Database.

**4A**

**HTML Code:**

**index.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**Employee Form**</title>

</head>

<body>

<center><h1 style=**"color:maroon"**>**Employee Form**</h1></center>

<form method=**"post"** action=**"http://localhost:8080/Ex4/GrossPay"**>

<br><label for=**"eid"**>**Eid :**</label><br>

<input type=**"text"** id=**"eid"** name=**"eid"** placeholder=**"Enter Eid"** value=**""** required><br>

<br><label for=**"name"**>**Name :**</label><br>

<input type=**"text"** id=**"name"** name=**"name"** placeholder=**"Enter your Name"** value=**""** size=**"30"** required><br>

<br><label for=**"designation"**>**Designation :**</label><br>

<select name=**"designation"** id=**"designation"** required>

<option value=**"none"** selected disabled hidden> **Select Designation**</option>

<option value=**"md"**>**MD**</option>

<option value=**"ceo"**>**CEO**</option>

<option value=**"manager"**>**Manager**</option>

<option value=**"other"**>**Other**</option>

</select><br>

<br><label for=**"department"**>**Department :**</label><br>

<input type=**"text"** id=**"department"** name=**"department"** placeholder=**"Enter department"** value=**""** required><br>

<br><label for=**"basic"**>**Basic Pay :**</label><br>

<input type=**"number"** id=**"basic"** name=**"basic"** placeholder=**"Enter basic pay"** value=**""** required><br>

<br><label for=**"num"**>**Mobile No. :**</label><br>

<input type=**"tel"** id=**"num"** name=**"num"** placeholder=**"1234567890"** value=**""** pattern=**"[0-9]{10}"** required><br>

<br><label for=**"address"**>**Address :**</label><br>

<input type=**"text"** id=**"address"** name=**"address"** placeholder=**"Enter your Address"** value=**""** size=**"60"** required><br>

<br><label for=**"dob"**>**DOB :**</label><br>

<input type=**"date"** id=**"dob"** name=**"dob"** value=**""** required><br>

<br>**Gender:**<br>

<input type=**"radio"** id=**"male"** name=**"gender"** value=**"male"** required>

<label for=**"male"** style=**"color:black"**>**Male**</label><br>

<input type=**"radio"** id=**"female"** name=**"gender"** value=**"female"**>

<label for=**"female"** style=**"color:black"**>**Female**</label><br>

<br>**Marital Status:**<br>

<select name=**"marital\_status"** id=**"marital\_status"** required>

<option value=**"none"** selected disabled hidden> **Select Marital Status**</option>

<option value=**"single"**>**Single**</option>

<option value=**"married"**>**Married**</option>

<option value=**"divorced"**>**Divorced**</option>

<option value=**"widowed"**>**Widowed**</option>

</select><br>

<input type=**"submit"** value=**"Submit"**>

<input type=**"reset"** value=**"Reset"**>

</form>

</body>

</html>

**style.css**

form**{**

**margin-left: 20%;**

**font-size:17px;**

**font-family:arial;**

**font-weight:bold;**

**color:darkgreen;**

**background-color:lavender;**

**padding:30px;**

**border:5px solid black;**

**border-radius: 20px;**

**width:60%;**

**}**

input**,**select**,**textarea**{**

**font-size:17px;**

**font-family:arial;**

**padding: 12px 20px;**

**margin: 8px 0;**

**}**

input**[**type=submit**]{**

**width:20%;**

**font-weight: bold;**

**background-color:lightgreen;**

**}**

input**[**type=reset**]{**

**width:20%;**

**font-weight: bold;**

**background-color:antiquewhite;**

**margin:40px;**

**}**

input**[**type=submit**]:hover,**input**[**type=reset**]:hover{**

**color:blue;**

**}**

table**,**th**,**td **{**

**border: 2px solid black;**

**border-collapse: collapse;**

**padding: 10px;**

**}**

th **{**

**background-color: #65af79;**

**font-size: 23px;**

**color: blue;**

**font-family:** "courier new"**;**

**}**

td **{**

**background-color: #656da0;**

**color: gold;**

**font-size: 20px;**

**list-style-type: none;**

**}**

table **{**

**margin-left: auto;**

**margin-right: auto;**

**text-align: center;**

**width: 50%;**

**}**

body **{**

**background-color: lightgreen;**

**}**

**Servlet Code:**

**Grosspay.java**

**import** java**.**io**.\*;**

**import** javax**.**servlet**.\*;**

**import** javax**.**servlet**.**http**.\*;**

public class GrossPay **extends** HttpServlet

**{**

public void doPost**(**HttpServletRequest request**,** HttpServletResponse response**)** **throws** ServletException**,**IOException

**{**

response**.**setContentType**(**"text/html"**);**

PrintWriter out **=** response**.**getWriter**();**

String eid**=**request**.**getParameter**(**"eid"**);**

String name**=**request**.**getParameter**(**"name"**);**

String designation**=**request**.**getParameter**(**"designation"**);**

String department**=**request**.**getParameter**(**"department"**);**

Double basic**=**Double**.**parseDouble**(**request**.**getParameter**(**"basic"**));**

String number**=**request**.**getParameter**(**"num"**);**

String address**=**request**.**getParameter**(**"address"**);**

String dob**=**request**.**getParameter**(**"dob"**);**

String gender**=**request**.**getParameter**(**"gender"**);**

String mstatus**=**request**.**getParameter**(**"marital\_status"**);**

Double gross**;**

Double hra**;**

Double da**;**

**if(**designation**.**equals**(**"md"**))**

**{**

hra**=**0.25**\***basic**;**

da**=**0.15**\***basic**;**

**}**

**else** **if(**designation**.**equals**(**"ceo"**))**

**{**

hra**=**0.20**\***basic**;**

da**=**0.10**\***basic**;**

**}**

**else** **if(**designation**.**equals**(**"manager"**))**

**{**

hra**=**0.15**\***basic**;**

da**=**0.05**\***basic**;**

**}**

**else** **if(**designation**.**equals**(**"other"**))**

**{**

hra**=**0.10**\***basic**;**

da**=**0.05**\***basic**;**

**}**

**else**

**{**

hra**=**0.0**;**

da**=**0.0**;**

**}**

gross**=**basic**+**hra**+**da**;**

out**.**println**(**"<!DOCTYPE html>"**+**

"<html>"**+**

"<head>"**+**

"<meta charset='utf-8'>"**+**

"<meta name='viewport' content='width=device-width, initial-scale=1.0'>"**+**

"<link rel='stylesheet' href='style.css'>"**+**

"<title>Gross Pay</title>"**+**

"</head>"**+**

"<body style='background-color:lightyellow'><br>"**+**

"<br><table>"**+**

"<tr>"**+**

"<th>Details</th>"**+**

"<th>Value</th>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Eid</td>"**+**

"<td>"**+**eid**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Name</td>"**+**

"<td>"**+**name**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Designation</td>"**+**

"<td>"**+**designation**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Department</td>"**+**

"<td>"**+**department**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Basic Pay</td>"**+**

"<td>"**+**basic**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Mobile No.</td>"**+**

"<td>"**+**number**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Address</td>"**+**

"<td>"**+**address**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Dob</td>"**+**

"<td>"**+**dob**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Gender</td>"**+**

"<td>"**+**gender**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Marital Status</td>"**+**

"<td>"**+**mstatus**+**"</td>"**+**

"</tr>"**+**

"<tr>"**+**

"<td>Gross Pay</td>"**+**

"<td>"**+**gross**+**"</td>"**+**

"</tr>"**+**

"</table>"**+**

"</body>"**+**

"</html>"**);**

**}**

**}**

**web.xml**

<web-app>

<servlet>

<servlet-name>**GrossPay**</servlet-name>

<servlet-class>**GrossPay**</servlet-class>

</servlet>

<servlet-mapping>

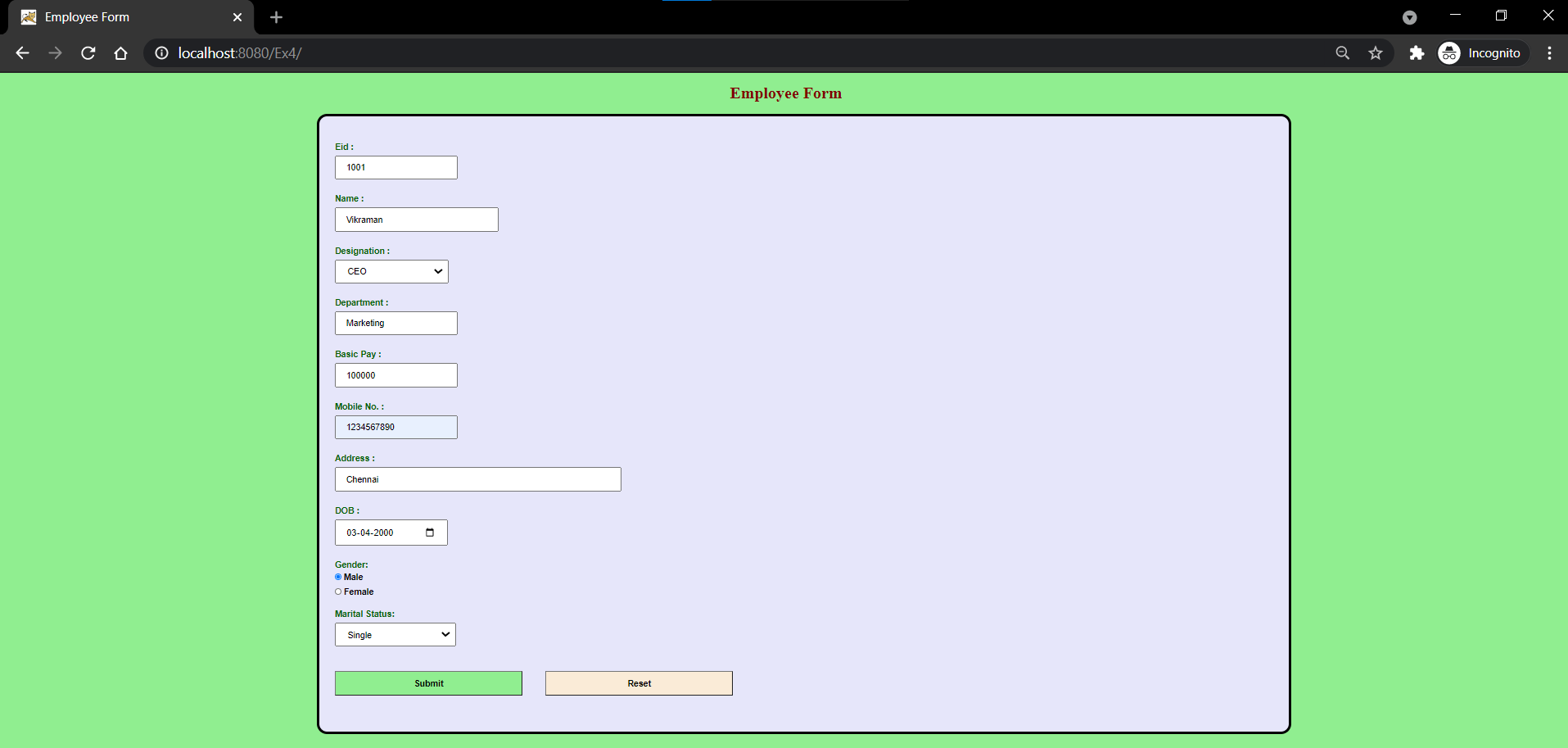
<servlet-name>**GrossPay**</servlet-name>

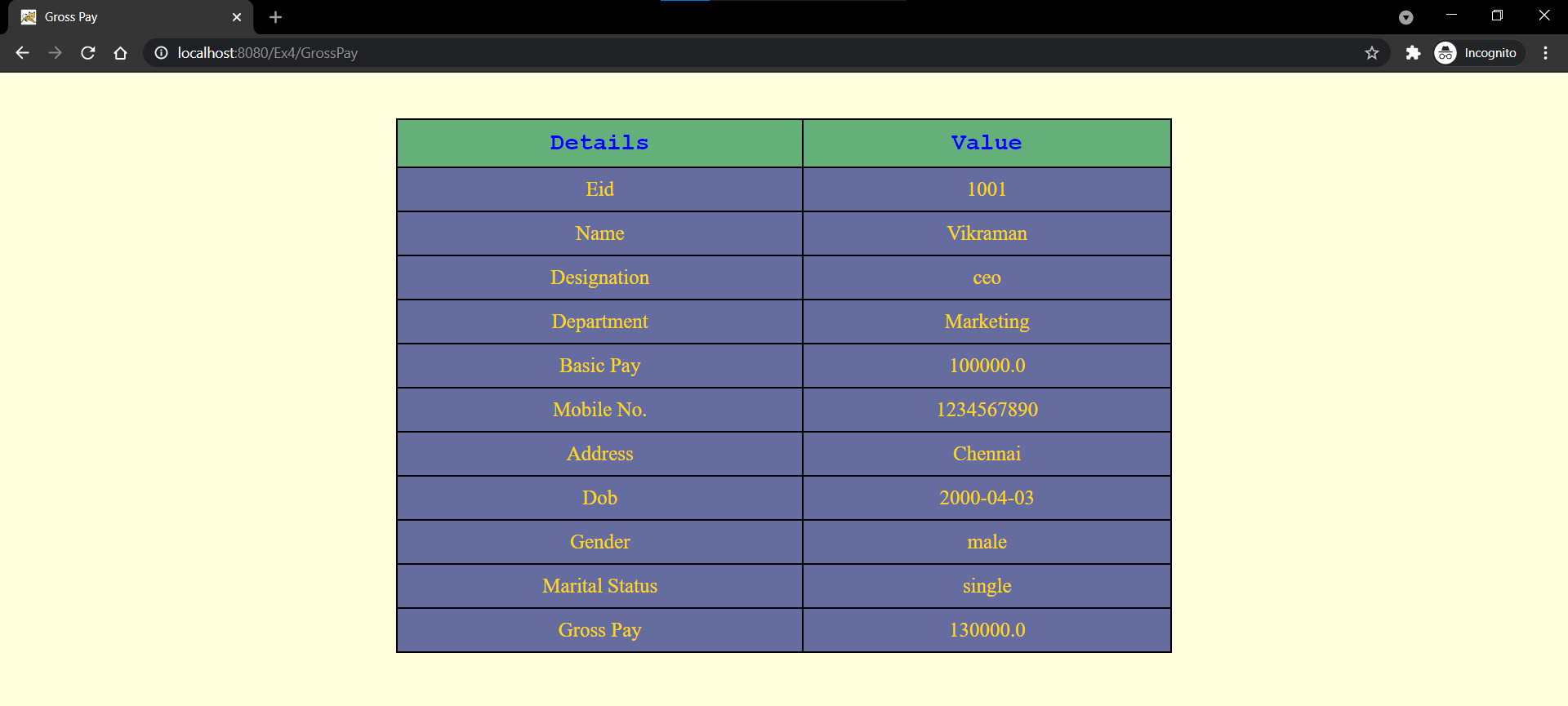
<url-pattern>**/GrossPay**</url-pattern>

</servlet-mapping>

</web-app>

**Screenshots:**





**4B**

**HTML Code:**

**login.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**Admin Login**</title>

</head>

<body>

<center><h1>**Admin Login**</h1></center>

<form method=**"post"** action=**"homepage.html"**>

<br><label for=**"uname"**>**User Name:**</label>

<input type=**"text"** id=**"uname"** name=**"name"** placeholder=**"Enter User Name"** value=**""** required><br>

<br><label for=**"password"**>**Password :**</label>

<input type=**"password"** id=**"password"** name=**"password"** value=**""** required>

<br><input type=**"submit"** value=**"Submit"** onclick=validate()>

</form>

<script src=**"script.js"**></script>

</body>

</html>

**hompage.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**Home Page**</title>

</head>

<body>

<center><h1>**Patient Details**</h1>

<nav style=**"font-size:20px"**>

<br><a href=**"add.html"**>**Add Record**</a><br>

<br><a href=**"update.html"**>**Update Record**</a><br>

<br><a href=**"delete.html"**>**Delete Record**</a><br>

<br><a href=**"view.html"**>**View Record**</a><br>

<br><a href=**"search.html"**>**Search Record**</a><br>

</nav></center>

</body>

</html>

**add.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**Add Record**</title>

</head>

<body>

<center><h1>**Add Patient**</h1></center>

<form method=**"post"** action=**"http://localhost:8080/Ex4\_PMS/Add"**>

<br><label for=**"name"**>**Patient name:**</label><br>

<input type=**"text"** id=**"name"** name=**"name"** placeholder=**"Enter Name"** value=**""** required><br>

<br><label for=**"age"**>**Age :**</label><br>

<input type=**"number"** id=**"age"** name=**"age"** value=**""** required><br>

<br><label for=**"address"**>**address:**</label><br>

<input type=**"text"** id=**"address"** name=**"address"** size=**"55"** placeholder=**"Enter address"** value=**""** required><br>

<br><label for=**"num"**>**Mobile No. :**</label><br>

<input type=**"tel"** id=**"num"** name=**"num"** placeholder=**"1234567890"** value=**""** required><br>

<br>**Gender:**<br>

<input type=**"radio"** id=**"male"** name=**"gender"** value=**"male"** required>

<label for=**"male"** style=**"color:black"**>**Male**</label><br>

<input type=**"radio"** id=**"female"** name=**"gender"** value=**"female"**>

<label for=**"female"** style=**"color:black"**>**Female**</label><br>

<br>**Marital Status:**<br>

<select name=**"marital\_status"** id=**"marital\_status"** required>

<option value=**"none"** selected disabled hidden> **Select Marital Status**</option>

<option value=**"single"**>**Single**</option>

<option value=**"married"**>**Married**</option>

<option value=**"divorced"**>**Divorced**</option>

<option value=**"widowed"**>**Widowed**</option>

</select><br>

<br><label for=**"date\_visit"**>**Date of Visit :**</label><br>

<input type=**"date"** id=**"date\_visit"** name=**"date\_visit"** value=**""** required><br>

<br><label for=**"illness"**>**illness:**</label><br>

<input type=**"text"** id=**"illness"** name=**"illness"** size=**"40"** placeholder=**"Enter illness"** value=**""** required><br>

<input type=**"submit"** value=**"Submit"**>

<input type=**"reset"** value=**"Reset"**>

</form>

</body>

</html>

**update.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**Update Record**</title>

</head>

<body>

<center><h1>**Update Patient Details**</h1></center>

<form method=**"post"** action=**"http://localhost:8080/Ex4\_PMS/Update"**>

<br><label for=**"id"**>**Patient id:**</label><br>

<input type=**"text"** id=**"id"** name=**"id"** placeholder=**"Enter patient Id"** value=**""** required><br>

<br><label for=**"address"**>**address:**</label><br>

<input type=**"text"** id=**"address"** name=**"address"** size=**"55"** placeholder=**"Enter new address"** value=**""**><br>

<br><label for=**"num"**>**Mobile No. :**</label><br>

<input type=**"tel"** id=**"num"** name=**"num"** placeholder=**"Enter new Mobile number"** value=**""**><br>

<input type=**"submit"** value=**"Submit"**>

<input type=**"reset"** value=**"Reset"**>

</form>

</body>

</html>

**view.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**View Record**</title>

</head>

<body>

<center><h1>**View Patient List**</h1></center>

<form method=**"post"** action=**"http://localhost:8080/Ex4\_PMS/View"**>

<input type=**"submit"** value=**"View"**>

</form>

</body>

</html>

**search.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**Search Record**</title>

</head>

<body>

<center><h1>**Delete Patient Details**</h1></center>

<form method=**"post"** action=**"http://localhost:8080/Ex4\_PMS/Search"**>

<br><label for=**"id"**>**Patient id:**</label><br>

<input type=**"text"** id=**"id"** name=**"id"** placeholder=**"Enter patient Id"** value=**""** required><br>

<input type=**"submit"** value=**"Submit"**>

</form>

</body>

</html>

**delete.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=**"utf-8"**>

<meta name=**"viewport"** content=**"width=device-width, initial-scale=1.0"**>

<link rel=**"stylesheet"** href=**"style.css"**>

<title>**Delete Record**</title>

</head>

<body>

<center><h1>**Delete Patient Details**</h1></center>

<form method=**"post"** action=**"http://localhost:8080/Ex4\_PMS/Delete"**>

<br><label for=**"id"**>**Patient id:**</label><br>

<input type=**"text"** id=**"id"** name=**"id"** placeholder=**"Enter patient Id"** value=**""** required><br>

<input type=**"submit"** value=**"Submit"**>

</form>

</body>

</html>

**style.css**

form**{**

**margin-left: 30%;**

**font-size:17px;**

**font-family:arial;**

**font-weight:bold;**

**color:blue;**

**background-color:lavender;**

**padding:30px;**

**padding-left: 50px;**

**border:5px dotted black;**

**border-radius: 20px;**

**width:40%;**

**}**

input**{**

**font-size:17px;**

**font-family:arial;**

**padding: 12px 20px;**

**margin: 8px 0;**

**}**

input**,**select**{**

**font-size:17px;**

**font-family:arial;**

**padding: 12px 20px;**

**margin: 8px 0;**

**}**

input**[**type=submit**],**input**[**type=button**]{**

**width:20%;**

**font-weight: bold;**

**background-color:lightgreen;**

**}**

input**[**type=reset**]{**

**width:20%;**

**font-weight: bold;**

**background-color:antiquewhite;**

**margin:40px;**

**}**

input**[**type=submit**]:hover,**input**[**type=reset**]:hover,**input**[**type=button**]:hover{**

**color:blue;**

**}**

table**,**th**,**td **{**

**border: 2px solid black;**

**border-collapse: collapse;**

**padding: 10px;**

**}**

th **{**

**background-color: #65af79;**

**font-size: 23px;**

**color: blue;**

**font-family:** "courier new"**;**

**}**

td **{**

**background-color: #656da0;**

**color: gold;**

**font-size: 20px;**

**list-style-type: none;**

**}**

table **{**

**margin-left: auto;**

**margin-right: auto;**

**text-align: center;**

**width: 50%;**

**}**

body **{**

**background-color: #FFFFE0**

**}**

a**:hover{**

**color:darkgreen;**

**}**

**script.js**

**function** validate**(){**

**var** uname**=document.**getElementById**(**"uname"**).**value**;**

**var** pass**=document.**getElementById**(**"password"**).**value**;**

**if(**uname**==**"viki" **&&** pass**==**"9500"**)**

**{**

**alert(**'Welcome viki'**);**

**return** **true;**

**}**

**else**

**{**

**alert(**'Login Failed, enter the correct details'**);**

**document.**getElementById**(**"uname"**).**value**=**""**;**

**document.**getElementById**(**"password"**).**value**=**""**;**

**return** **false;**

**}**

**}**

**function** load**()**

**{**

**window.location.**replace**(**"http://localhost:8080/Ex4\_PMS/homepage.html"**);**

**}**

**Servlet Code:**

**Add.java**

**import** java**.**io**.\*;**

**import** java**.**util**.\*;**

**import** javax**.**servlet**.\*;**

**import** javax**.**servlet**.**http**.\*;**

**import** java**.**sql**.\*;**

public class Add **extends** HttpServlet

**{**

public void doPost**(**HttpServletRequest request**,** HttpServletResponse response**)** **throws** ServletException**,** IOException

**{**

String JDBC\_DRIVER **=** "com.mysql.jdbc.Driver"**;**

String DB\_URL**=**"jdbc:mysql://localhost/patient"**;**

String USER **=** "root"**;**

String PASS **=** "9500"**;**

response**.**setContentType**(**"text/html"**);**

PrintWriter out **=** response**.**getWriter**();**

String name**=**request**.**getParameter**(**"name"**);**

String age**=**request**.**getParameter**(**"age"**);**

String address**=**request**.**getParameter**(**"address"**);**

String num**=**request**.**getParameter**(**"num"**);**

String gender**=**request**.**getParameter**(**"gender"**);**

String marital\_status**=**request**.**getParameter**(**"marital\_status"**);**

String date\_visit**=**request**.**getParameter**(**"date\_visit"**);**

String illness**=**request**.**getParameter**(**"illness"**);**

**try** **{**

// Register JDBC driver

Class**.**forName**(**"com.mysql.jdbc.Driver"**);**

// Open a connection

Connection conn **=** DriverManager**.**getConnection**(**DB\_URL**,** USER**,** PASS**);**

//Statement stmt = conn.createStatement();

PreparedStatement stmt **=** conn**.**prepareStatement**(**"INSERT INTO patient\_data (name,age,address,phone,gender,marital\_status,last\_visit,illness) VALUES(?,?,?,?,?,?,?,?)"**);**

//String sql="INSERT INTO patient\_data (name,age,address,phone,gender,marital\_status,last\_visit,illness) VALUES(?,?,?,?,?,?,?,?)";

stmt**.**setString**(**1**,**name**);**

stmt**.**setString**(**2**,**age**);**

stmt**.**setString**(**3**,**address**);**

stmt**.**setString**(**4**,**num**);**

stmt**.**setString**(**5**,**gender**);**

stmt**.**setString**(**6**,**marital\_status**);**

stmt**.**setString**(**7**,**date\_visit**);**

stmt**.**setString**(**8**,**illness**);**

// Execute SQL query

stmt**.**executeUpdate**();**

out**.**println**(**"<!DOCTYPE html>"**+**

"<html>"**+**

"<head>"**+**

"<meta charset='utf-8'>"**+**

"<meta name='viewport' content='width=device-width, initial-scale=1.0'>"**+**

"<link rel='stylesheet' href='style.css'>"**+**

"<title>View Added Record</title>"**+**

"</head>"**+**

"<body style='background-color:lightyellow'><br>"**+**

"<center><h1>Added Successfully</h1></center>"**+**

"<script>"**+**

"setTimeout(view, 1500);"**+**

"function view()"**+**

"{window.location.replace('http://localhost:8080/Ex4\_PMS/view.html');}"**+**

"</script>"**+**

"</body>"**+**

"</html>"**);**

// Clean-up environment

stmt**.**close**();**

conn**.**close**();**

**}** **catch(**SQLException se**)** **{**

//Handle errors for JDBC

se**.**printStackTrace**();**

**}** **catch(**Exception e**)** **{**

//Handle errors for Class.forName

e**.**printStackTrace**();**

**}**

**}**

**}**

**Update.java**

**import** java**.**io**.\*;**

**import** java**.**util**.\*;**

**import** javax**.**servlet**.\*;**

**import** javax**.**servlet**.**http**.\*;**

**import** java**.**sql**.\*;**

public class Update **extends** HttpServlet

**{**

public void doPost**(**HttpServletRequest request**,** HttpServletResponse response**)** **throws** ServletException**,** IOException

**{**

String JDBC\_DRIVER **=** "com.mysql.jdbc.Driver"**;**

String DB\_URL**=**"jdbc:mysql://localhost/patient"**;**

String USER **=** "root"**;**

String PASS **=** "9500"**;**

response**.**setContentType**(**"text/html"**);**

PrintWriter out **=** response**.**getWriter**();**

int patient\_id**=**Integer**.**parseInt**(**request**.**getParameter**(**"id"**));**

String address**=**request**.**getParameter**(**"address"**);**

String num**=**request**.**getParameter**(**"num"**);**

**try** **{**

// Register JDBC driver

Class**.**forName**(**"com.mysql.jdbc.Driver"**);**

// Open a connection

Connection conn **=** DriverManager**.**getConnection**(**DB\_URL**,** USER**,** PASS**);**

// Execute SQL query

**if(**address**!=**""**)**

**{**

PreparedStatement stmt **=** conn**.**prepareStatement**(**"UPDATE patient\_data SET address=? WHERE id="**+**patient\_id**);**

stmt**.**setString**(**1**,**address**);**

stmt**.**executeUpdate**();**

stmt**.**close**();**

**}**

**if(**num**!=**""**)**

**{**

PreparedStatement stmt **=** conn**.**prepareStatement**(**"UPDATE patient\_data SET phone=? WHERE id="**+**patient\_id**);**

stmt**.**setString**(**1**,**num**);**

stmt**.**executeUpdate**();**

stmt**.**close**();**

**}**

out**.**println**(**"<!DOCTYPE html>"**+**

"<html>"**+**

"<head>"**+**

"<meta charset='utf-8'>"**+**

"<meta name='viewport' content='width=device-width, initial-scale=1.0'>"**+**

"<link rel='stylesheet' href='style.css'>"**+**

"<title>View Added Record</title>"**+**

"</head>"**+**

"<body style='background-color:lightyellow'><br>"**+**

"<center><h1>Updated Successfully</h1></center>"**+**

"<script>"**+**

"setTimeout(view, 1500);"**+**

"function view()"**+**

"{window.location.replace('http://localhost:8080/Ex4\_PMS/view.html');}"**+**

"</script>"**+**

"</body>"**+**

"</html>"**);**

// Clean-up environment

conn**.**close**();**

**}** **catch(**SQLException se**)** **{**

//Handle errors for JDBC

se**.**printStackTrace**();**

**}** **catch(**Exception e**)** **{**

//Handle errors for Class.forName

e**.**printStackTrace**();**

**}**

**}**

**}**

**View.java**

**import** java**.**io**.\*;**

**import** java**.**util**.\*;**

**import** javax**.**servlet**.\*;**

**import** javax**.**servlet**.**http**.\*;**

**import** java**.**sql**.\*;**

public class View **extends** HttpServlet

**{**

public void doPost**(**HttpServletRequest request**,** HttpServletResponse response**)** **throws** ServletException**,** IOException

**{**

String JDBC\_DRIVER **=** "com.mysql.jdbc.Driver"**;**

String DB\_URL**=**"jdbc:mysql://localhost/patient"**;**

String USER **=** "root"**;**

String PASS **=** "9500"**;**

response**.**setContentType**(**"text/html"**);**

PrintWriter out **=** response**.**getWriter**();**

**try** **{**

// Register JDBC driver

Class**.**forName**(**"com.mysql.jdbc.Driver"**);**

// Open a connection

Connection conn **=** DriverManager**.**getConnection**(**DB\_URL**,** USER**,** PASS**);**

// Execute SQL query

Statement stmt **=** conn**.**createStatement**();**

String sql**=**"SELECT id,name,age,address,phone,gender,marital\_status,last\_visit,illness FROM patient\_data"**;**

ResultSet rs **=** stmt**.**executeQuery**(**sql**);**

out**.**println**(**"<!DOCTYPE html>"**+**

"<html>"**+**

"<head>"**+**

"<meta charset='utf-8'>"**+**

"<meta name='viewport' content='width=device-width, initial-scale=1.0'>"**+**

"<link rel='stylesheet' href='style.css'>"**+**

"<title>View Database</title>"**+**

"</head>"**+**

"<body style='background-color:lightyellow'><br>"**+**

"<br><table>"**+**

"<tr>"**+**

"<th>Patient Id</th>"**+**

"<th>Name</th>"**+**

"<th>Age</th>"**+**

"<th>Address</th>"**+**

"<th>Phone</th>"**+**

"<th>Gender</th>"**+**

"<th>Marital\_Status</th>"**+**

"<th>Date of Visit</th>"**+**

"<th>illness</th>"**+**

"</tr>"**);**

// Extract data from result set

**while(**rs**.**next**())**

**{**

//Retrieve by column name

int id**=**rs**.**getInt**(**"id"**);**

String name**=** rs**.**getString**(**"name"**);**

String age**=** rs**.**getString**(**"age"**);**

String address**=** rs**.**getString**(**"address"**);**

String phone**=** rs**.**getString**(**"phone"**);**

String gender**=** rs**.**getString**(**"gender"**);**

String marital\_status**=** rs**.**getString**(**"marital\_status"**);**

String last\_visit**=** rs**.**getString**(**"last\_visit"**);**

String illness**=** rs**.**getString**(**"illness"**);**

out**.**println**(**"<tr>"**+**

"<td>"**+**id**+**"</td>"**+**

"<td>"**+**name**+**"</td>"**+**

"<td>"**+**age**+**"</td>"**+**

"<td>"**+**address**+**"</td>"**+**

"<td>"**+**phone**+**"</td>"**+**

"<td>"**+**gender**+**"</td>"**+**

"<td>"**+**marital\_status**+**"</td>"**+**

"<td>"**+**last\_visit**+**"</td>"**+**

"<td>"**+**illness**+**"</td>"**+**

"</tr>"**);**

**}**

out**.**println**(**"</table><br><br><br>"**+**

"<center><input type='button' value='Home' onclick=load()></center>"**+**

"<script src='script.js'></script>"**+**

"</body>"**+**

"</html>"**);**

// Clean-up environment

rs**.**close**();**

stmt**.**close**();**

conn**.**close**();**

**}** **catch(**SQLException se**)** **{**

//Handle errors for JDBC

se**.**printStackTrace**();**

**}** **catch(**Exception e**)** **{**

//Handle errors for Class.forName

e**.**printStackTrace**();**

**}**

**}**

**}**

**Update.java**

**import** java**.**io**.\*;**

**import** java**.**util**.\*;**

**import** javax**.**servlet**.\*;**

**import** javax**.**servlet**.**http**.\*;**

**import** java**.**sql**.\*;**

public class Update **extends** HttpServlet

**{**

public void doPost**(**HttpServletRequest request**,** HttpServletResponse response**)** **throws** ServletException**,** IOException

**{**

String JDBC\_DRIVER **=** "com.mysql.jdbc.Driver"**;**

String DB\_URL**=**"jdbc:mysql://localhost/patient"**;**

String USER **=** "root"**;**

String PASS **=** "9500"**;**

response**.**setContentType**(**"text/html"**);**

PrintWriter out **=** response**.**getWriter**();**

int patient\_id**=**Integer**.**parseInt**(**request**.**getParameter**(**"id"**));**

String address**=**request**.**getParameter**(**"address"**);**

String num**=**request**.**getParameter**(**"num"**);**

**try** **{**

// Register JDBC driver

Class**.**forName**(**"com.mysql.jdbc.Driver"**);**

// Open a connection

Connection conn **=** DriverManager**.**getConnection**(**DB\_URL**,** USER**,** PASS**);**

// Execute SQL query

**if(**address**!=**""**)**

**{**

PreparedStatement stmt **=** conn**.**prepareStatement**(**"UPDATE patient\_data SET address=? WHERE id="**+**patient\_id**);**

stmt**.**setString**(**1**,**address**);**

stmt**.**executeUpdate**();**

stmt**.**close**();**

**}**

**if(**num**!=**""**)**

**{**

PreparedStatement stmt **=** conn**.**prepareStatement**(**"UPDATE patient\_data SET phone=? WHERE id="**+**patient\_id**);**

stmt**.**setString**(**1**,**num**);**

stmt**.**executeUpdate**();**

stmt**.**close**();**

**}**

out**.**println**(**"<!DOCTYPE html>"**+**

"<html>"**+**

"<head>"**+**

"<meta charset='utf-8'>"**+**

"<meta name='viewport' content='width=device-width, initial-scale=1.0'>"**+**

"<link rel='stylesheet' href='style.css'>"**+**

"<title>View Added Record</title>"**+**

"</head>"**+**

"<body style='background-color:lightyellow'><br>"**+**

"<center><h1>Updated Successfully</h1></center>"**+**

"<script>"**+**

"setTimeout(view, 1500);"**+**

"function view()"**+**

"{window.location.replace('http://localhost:8080/Ex4\_PMS/view.html');}"**+**

"</script>"**+**

"</body>"**+**

"</html>"**);**

// Clean-up environment

conn**.**close**();**

**}** **catch(**SQLException se**)** **{**

//Handle errors for JDBC

se**.**printStackTrace**();**

**}** **catch(**Exception e**)** **{**

//Handle errors for Class.forName

e**.**printStackTrace**();**

**}**

**}**

**}**

**Delete.java**

**import** java**.**io**.\*;**

**import** java**.**util**.\*;**

**import** javax**.**servlet**.\*;**

**import** javax**.**servlet**.**http**.\*;**

**import** java**.**sql**.\*;**

public class Delete **extends** HttpServlet

**{**

public void doPost**(**HttpServletRequest request**,** HttpServletResponse response**)** **throws** ServletException**,** IOException

**{**

String JDBC\_DRIVER **=** "com.mysql.jdbc.Driver"**;**

String DB\_URL**=**"jdbc:mysql://localhost/patient"**;**

String USER **=** "root"**;**

String PASS **=** "9500"**;**

response**.**setContentType**(**"text/html"**);**

PrintWriter out **=** response**.**getWriter**();**

int patient\_id**=**Integer**.**parseInt**(**request**.**getParameter**(**"id"**));**

**try** **{**

// Register JDBC driver

Class**.**forName**(**"com.mysql.jdbc.Driver"**);**

// Open a connection

Connection conn **=** DriverManager**.**getConnection**(**DB\_URL**,** USER**,** PASS**);**

// Execute SQL query

PreparedStatement stmt **=** conn**.**prepareStatement**(**"DELETE FROM patient\_data WHERE id="**+**patient\_id**);**

stmt**.**executeUpdate**();**

out**.**println**(**"<!DOCTYPE html>"**+**

"<html>"**+**

"<head>"**+**

"<meta charset='utf-8'>"**+**

"<meta name='viewport' content='width=device-width, initial-scale=1.0'>"**+**

"<link rel='stylesheet' href='style.css'>"**+**

"<title>View Added Record</title>"**+**

"</head>"**+**

"<body style='background-color:lightyellow'><br>"**+**

"<center><h1>Deleted Successfully</h1></center>"**+**

"<script>"**+**

"setTimeout(view, 1500);"**+**

"function view()"**+**

"{window.location.replace('http://localhost:8080/Ex4\_PMS/view.html');}"**+**

"</script>"**+**

"</body>"**+**

"</html>"**);**

// Clean-up environment

stmt**.**close**();**

conn**.**close**();**

**}** **catch(**SQLException se**)** **{**

//Handle errors for JDBC

se**.**printStackTrace**();**

**}** **catch(**Exception e**)** **{**

//Handle errors for Class.forName

e**.**printStackTrace**();**

**}**

**}**

**}**

**web.xml**

<web-app>

<servlet>

<servlet-name>**View**</servlet-name>

<servlet-class>**View**</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>**View**</servlet-name>

<url-pattern>**/View**</url-pattern>

</servlet-mapping>

<servlet>

<servlet-name>**Add**</servlet-name>

<servlet-class>**Add**</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>**Add**</servlet-name>

<url-pattern>**/Add**</url-pattern>

</servlet-mapping>

<servlet>

<servlet-name>**Update**</servlet-name>

<servlet-class>**Update**</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>**Update**</servlet-name>

<url-pattern>**/Update**</url-pattern>

</servlet-mapping>

<servlet>

<servlet-name>**Search**</servlet-name>

<servlet-class>**Search**</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>**Search**</servlet-name>

<url-pattern>**/Search**</url-pattern>

</servlet-mapping>

<servlet>

<servlet-name>**Delete**</servlet-name>

<servlet-class>**Delete**</servlet-class>

</servlet>

<servlet-mapping>

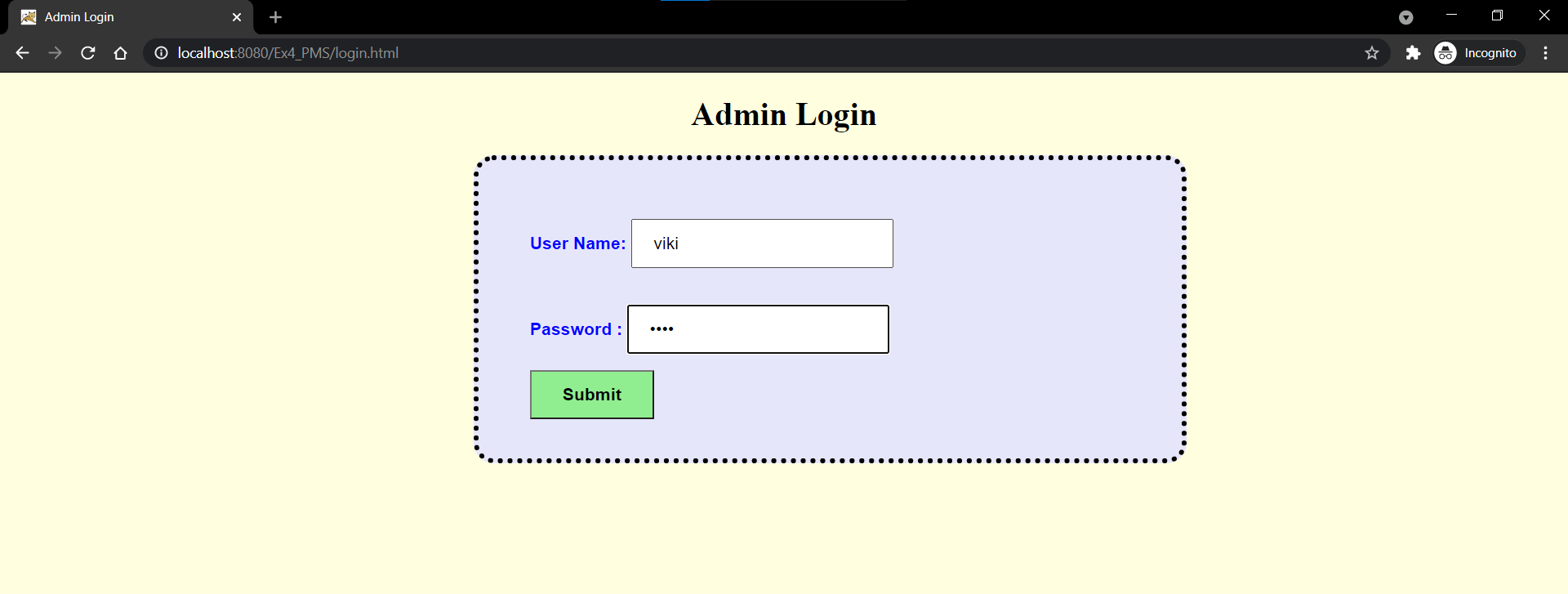
<servlet-name>**Delete**</servlet-name>

<url-pattern>**/Delete**</url-pattern>

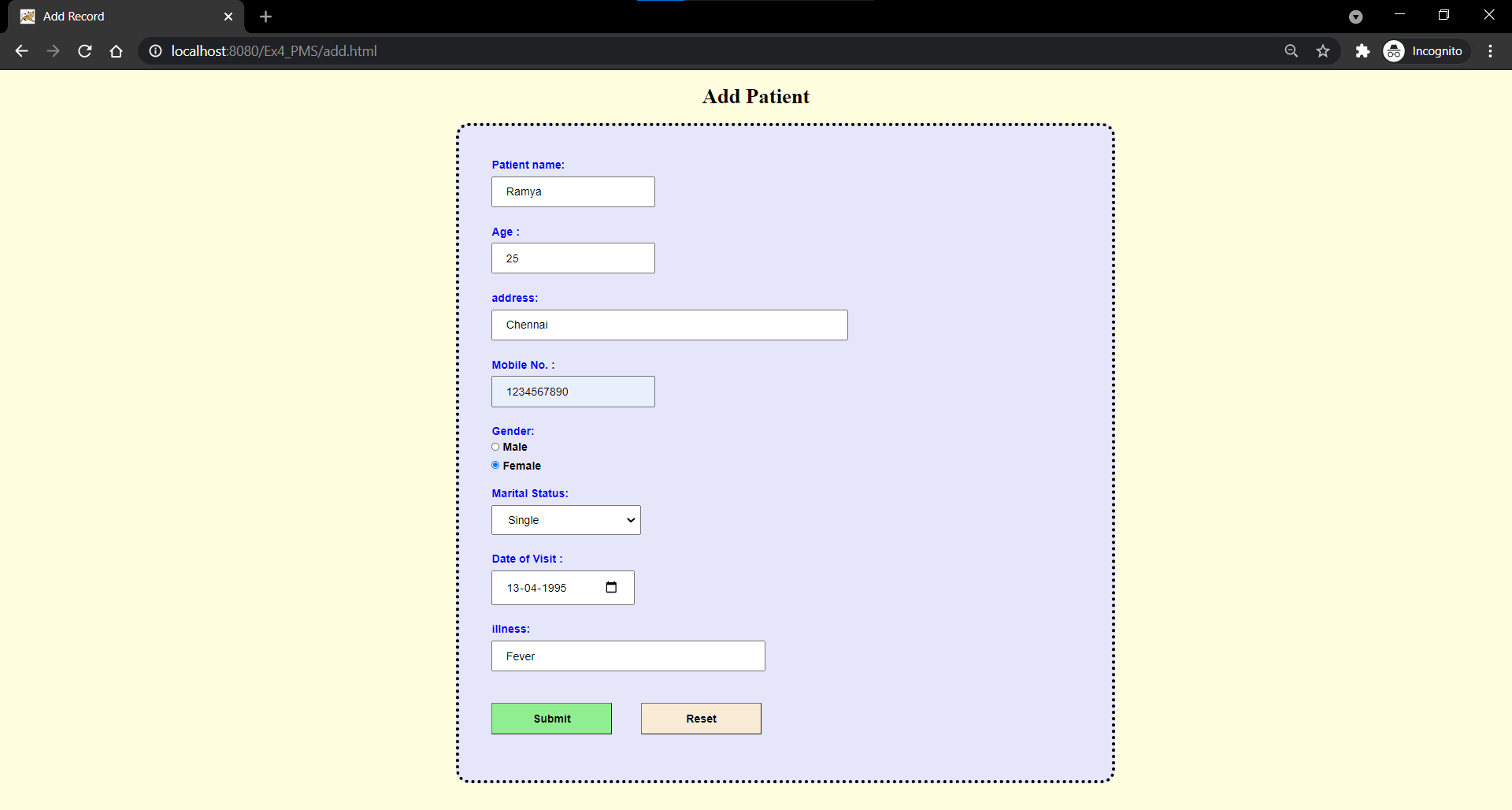
</servlet-mapping>

</web-app>

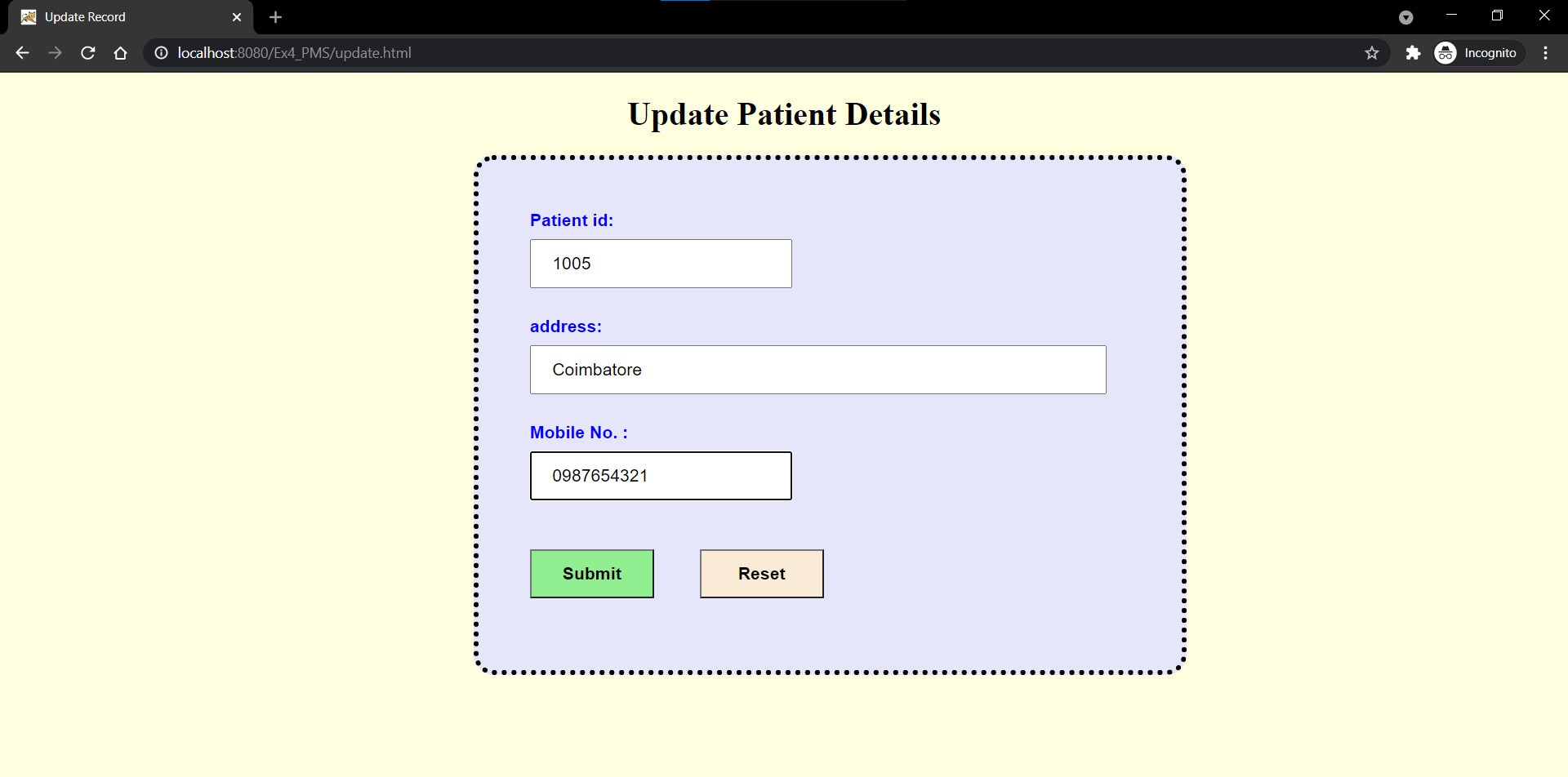
**Screenshots:**

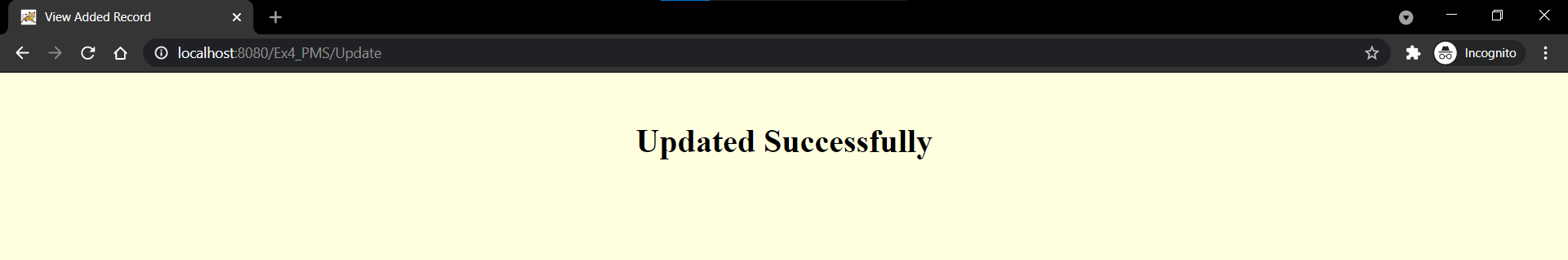




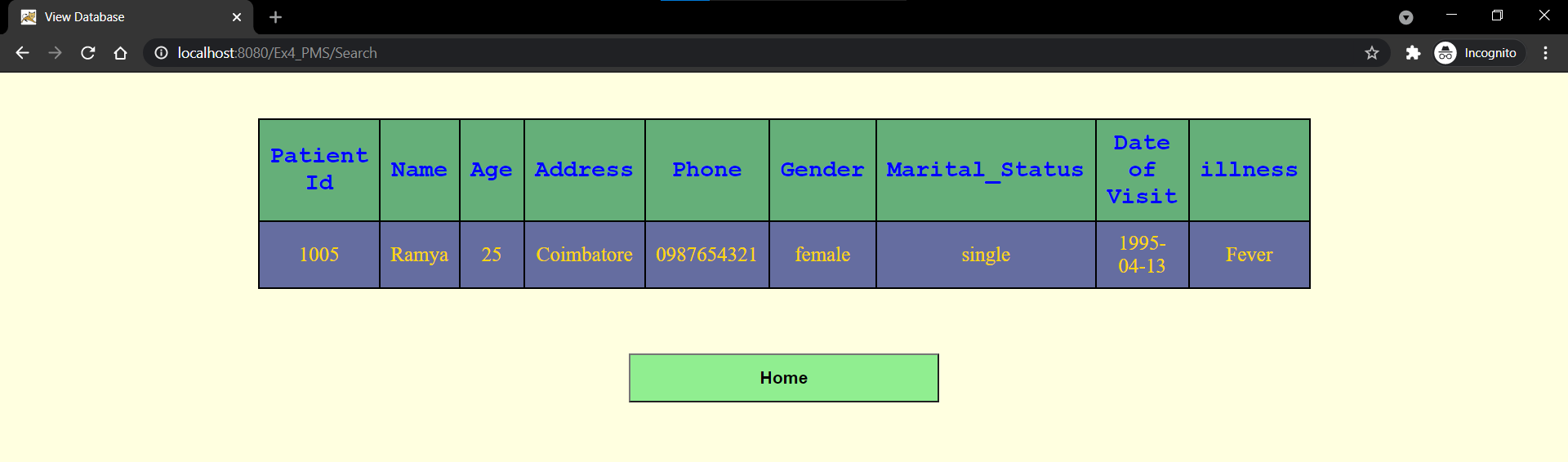


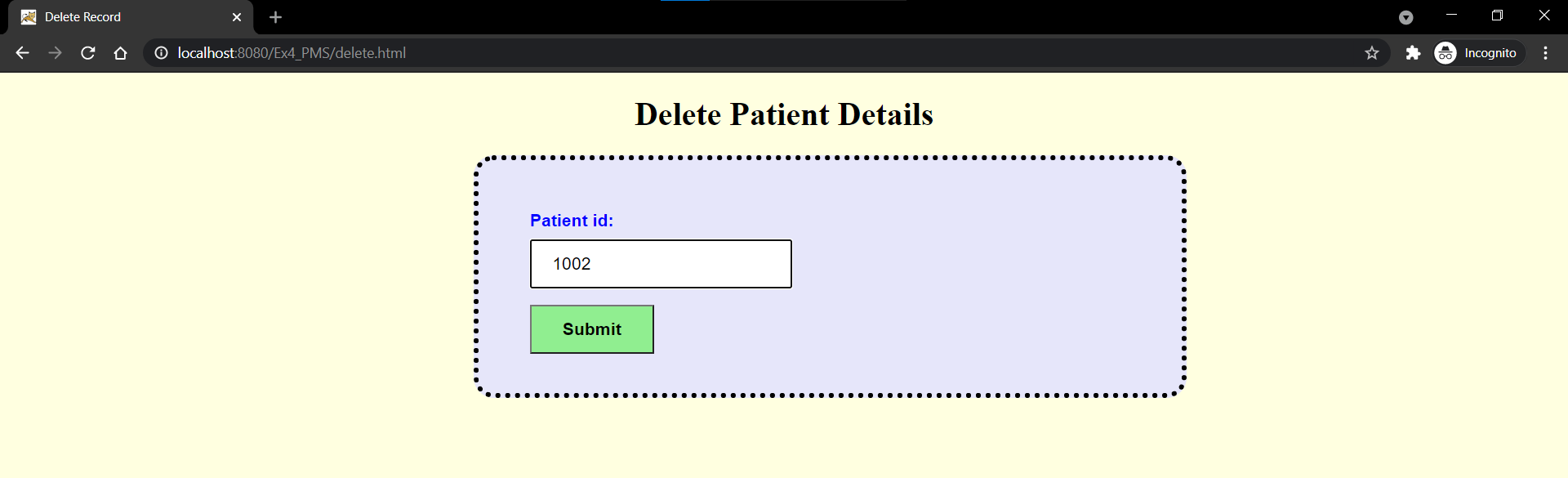


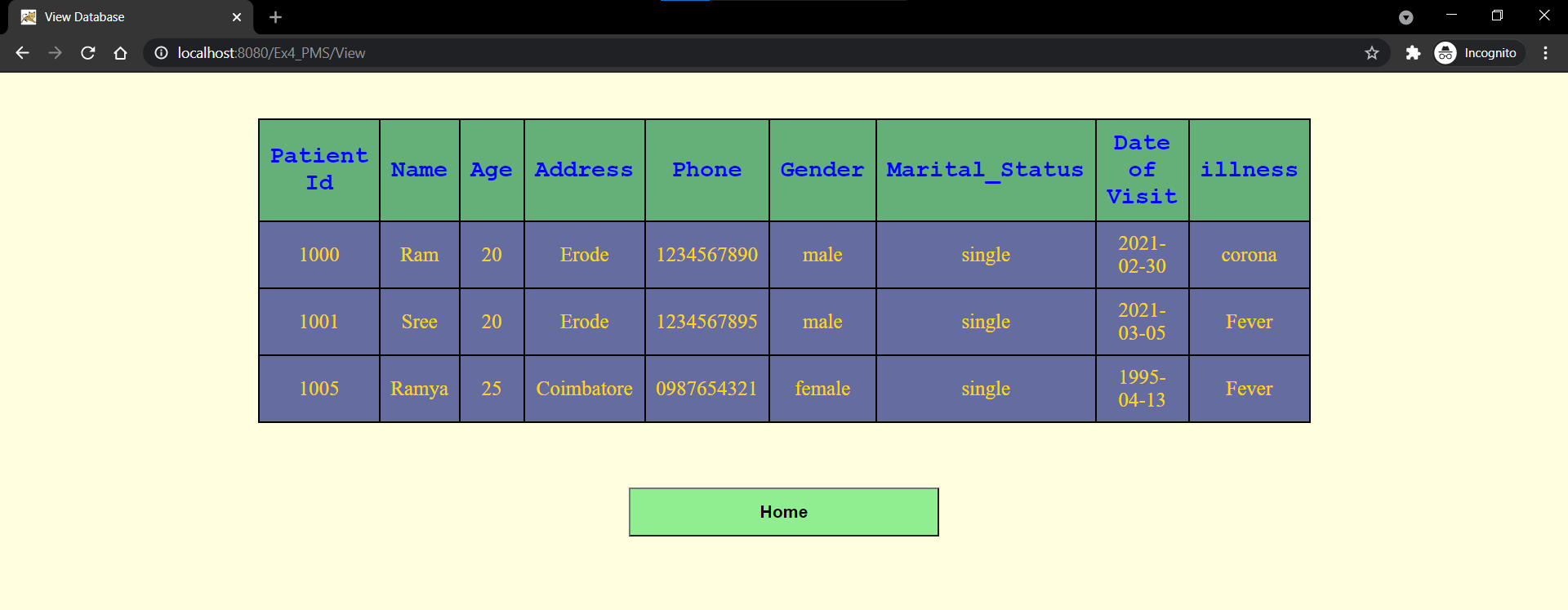












**Learning Outcomes:**

* I have understood the working of servlet and difference between GET and POST methods.
* I have learnt how to generate dynamic html response using servlet programming.
* I have learnt the database operations in MySQL and used it for the PMS database.
* I have understood the code for connecting database and servlet part.
* I have learnt to analyse and fix errors using inspect element and tomcat terminal.