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# UCS 1611 - Internet Programming Lab

## Exercise 4: Java Servlets and MySQL

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### **Learning objective:**

#### **1. Read form details and calculate gross pay:**

To 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.

- 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)

#### **2. Patient Management System**

To develop a Patient Management System (PMS) in a Hospital that maintains the patient records such that:

- 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 with links to add/update/search/delete record and view records.
- g. Clicking the links should invoke its corresponding html file from where the information is submitted to the corresponding Servlet.
- h. Similarly, perform ADD, UPDATE, VIEW and SEARCH using corresponding html and Servlet.
- i. UPDATE is invoked if phone number or Address of the patient is changed.
- j. SEARCH for particular patient based on Patient ID.
- k. After each operation ViewServlet should be invoked to view the changes in the Database

## Code- Calculate Gross Pay:

### index.html

```
<!DOCTYPE HTML>
<html>
  <head>
    <title>Employee Registration Form</title>
    <!-- Stylesheet -->
    <link href="style.css" rel='stylesheet' type='text/css' />
  </head>

  <body>
    <!--background-->
    <h1>Employee Registration Form </h1>
    <div class="register-form">
      <!-- Form starts here -->
      <form id="employee_form" name="employee_form" action="ServletOne" method="GET">
        <div class="main">
          <div class="field-text1">
            <input type="text" id="emp_name" name="emp_name" placeholder="Employee Name"
              minlength="6" required>
          </div>
          <div class="field-text1">
            <input type="text" id="emp_id" name="emp_id" placeholder="Employee ID">
          </div>
        </div>
        <div class="main">
          <div class="field-text1">
            <select class="form-control" id="dept" name="dept" style="width: 50%;">
              <option>Department</option>
              <option value="Thoracic Surgery">Thoracic Surgery</option>
              <option value="General Surgery">General Surgery</option>
              <option value="Neurological Surgery">Neurological Surgery</option>
              <option value="Orthopaedic Surgery">Orthopaedic Surgery</option>
            </select>
          </div>
          <div class="field-text1">
            <select class="form-control" id="desig" name="desig" style="width: 50%;">
              <option>Department</option>
              <option value="Chief">Chief</option>
              <option value="Attending">Attending</option>
            </select>
          </div>
        </div>
      </form>
    </div>
  </body>
</html>
```

```

        <option value="Resident">Resident</option>
        <option value="Intern">Intern</option>
    </select>
</div>
<div class="field-text1">
    <input type="text" id="basic" name="basic" placeholder="Basic
Salary" required="">
</div>
<div class="field-text1">
    <input type="text" id="Phone" name="Phone" placeholder="Phon
e Number"
        minlength="10" required>
</div>
</div>
<div class="main">
    <div class="field-text1">
        <input type="date" id="DOB" name="DOB" value="DOB" style="wi
dth: 50%;" min="2000-01-01" max="2015-12-31" required>
    </div>
</div>
<div class="radio-section" required>
    <h6>Gender</h6>
    <ul class="radio-buttons">
        <li>
            <input type="radio" id="male" name="selector2">
            <label for="a-option">Male</label>
            <div class="check"></div>
        </li>
        <li>
            <input type="radio" id="female" name="selector2">
            <label for="b-option">Female</label>
            <div class="check">
                <div class="inside"></div>
            </div>
        </li>
        <li>
            <input type="radio" id="other" name="selector2">
            <label for="b-option">Other</label>
            <div class="check">
                <div class="inside"></div>
            </div>
        </li>
    </ul>
    <div class="clear"></div>
</div>
<div class="main">
    <div class="field-text1">

```

```

        <select class="form-
control" id="Marital" name="Marital" style="width: 50%;" onchange="marStatus()
">
            <option>Marital Status</option>
            <option value="Single">Single</option>
            <option value="Married">Married</option>
            <option value="Divorced">Divorced</option>
        </select>
    </div>
</div>
<div class="field-text1">
    <textarea name="Message" id="Address" name="Address" placeholder="Address..."></textarea>
</div>
<input type="submit" id="Submit" name="Submit" value="submit">
<input type="reset" value="Clear Form">
<div class="clear"></div>
</form>
</div>
<!--copyright-->
<div class="copyright">
    <p>&copy; 2021 Doctor Registration Form | All Rights Reserved</p>
</div>
<!-- Java Script-->
<script src="js/index.js"></script>
</body>
</html>

```

## style.css

```

html,body,div,h1,h2,p,img,section
{
    display: block;
}

a
{
    text-decoration: none;
}

.clear
{
    clear: both;
}

img
{

```

```
    max-width: 100%;
}

body
{
    font-family: 'Source Sans Pro', sans-serif;
    font-size: 100%;
    background: url(emp.jpg)no-repeat center top;
    background-size: cover;
    background-position: center;
}

.register-form
{
    box-sizing: border-box;
    padding: 3vw;
    background: rgba(0, 0, 0, 0.78);
    max-width: 700px;
    margin: 0 auto;
}

h1
{
    font-size: 4vw;
    margin: 3.5vw 0vw 2vw;
    font-weight: 300;
    color: #fff;
    text-shadow: 3px 3px 3px #1d1d1d;
    letter-spacing: 5px;
    text-align: center;
    font-family: 'Source Sans Pro', sans-serif;
}

h2.sub-heading,
h3.sub-heading
{
    text-align: center;
    font-size: 24px;
    color: #23b4cc;
    margin-bottom: 14px;
    font-weight: 300;
    letter-spacing: 2px;
    background: rgba(255, 255, 255, 0.05);
    border-radius: 50px;
    box-shadow: 2px 2px 20px rgba(0, 0, 0, 0.86);
    font-family: 'Source Sans Pro', sans-serif;
}
```

```
/*-- form --*/

#addict li
{
  color: #23b4cc;
  appearance:button;
  display: inline-block;
  padding: 2px 5px;
  background-color: black;
  border-radius: 25px;
}

input[type="date"]::-webkit-calendar-picker-indicator
{
  color: black;
  display: block;
  background-color: white;
  opacity: 0.5;
  width: 20px;
  height: 20px;
  border-width: thin;
}

.radio-section
{
  text-align: left;
  margin: 0.7em 0;
}

.radio-section h6
{
  display: inline;
  color: #82bb3b;
  font-size: 18px;
  font-weight: 400;
  letter-spacing: 1.5px;
  font-family: 'Source Sans Pro', sans-serif;
}

.radio-section ul
{
  display: block;
}

.radio-buttons li input[type="radio"]
{
  cursor: pointer;
}
```

```

.radio-buttons li label
{
    color: #23b4cc;
    font-size: 15px;
    font-weight: 600;
    letter-spacing: 1px;
    font-family: 'Source Sans Pro', sans-serif;
}

.register-form input[type="text"],
.register-form input[type="email"],
.register-form textarea,
select.form-control,
input
{
    width:100%;
    font-weight: 300;
    color: #fff;
    font-size: 16px;
    letter-spacing: 1.2px;
    padding: 10px 10px;
    outline: none;
    background: rgba(255, 255, 255, 0);
    border: none;
    border-bottom: 1px solid rgba(255, 255, 255, 0.27);
    box-sizing: border-box;
    font-family: 'Source Sans Pro', sans-serif;
}

.register-forms textarea
{
    resize: none;
    height: 100px;
}

.field-agileinfo-spc
{
    margin-bottom: 1em;
}

.form-w3-agile-text
{
    width: 100%;
}

select.form-control option
{

```



```
    background: #000;
}

.register-form input[type="submit"],
.register-form input[type="reset"]
{
    text-transform: capitalize;
    background: #23b4cc;
    color: #fff;
    padding: 0.5em 1em;
    border: none;
    width: 48%;
    margin-top: 1em;
    float: left;
    outline: none;
    font-family: 'Source Sans Pro', sans-serif;
}

.register-form input[type="reset"]
{
    float: right;
}

.register-form input[type="submit"]
{
    background: #23b4cc;
}

.register-form input[type="submit"]:hover
{
    background: #82bb3b;
    color: #fff;
}

.register-form input[type="reset"]:hover
{
    background: #82bb3b;
    color: #fff;
}

.register-form ::-webkit-input-placeholder
{
    color: #fff;
}

.register-form label
{
    font-size: 13.5px;
}
```

```
    color: rgba(255, 255, 255, 0.83);
    letter-spacing: 2px;
    font-weight: 400;
    position: relative;
    margin-bottom: 5px;
    display: inline-block;
    text-transform: capitalize;
}
ul.radio-buttons li
{
    display: inline-block;
    margin: .8em 2em 0em .3em;
}
.copyright
{
    margin: 2em 1em;
    text-align: center;
}
.copyright p
{
    color: #fff;
    font-size: 16px;
    letter-spacing: 1.5px;
    text-shadow: 1px 1px 2px #000;
    font-weight: 400;
}
/*DISPLAY PAGE*/
.display_cont
{
    box-sizing: border-box;
    padding: 3vw;
    background: rgba(0, 0, 0, 0.78);
    max-width: 700px;
    margin: 0 auto;
    width: fit-content;
    border-radius: 25px;
}
h2,h3
{
    font-family: 'Source Sans Pro', sans-serif;
    letter-spacing: 1.5px;
    color: white;
}
.text_box
{
    color: #23b4cc;
```

## ServletOne.java

```
import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

public class ServletOne extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response
    )
        throws ServletException, IOException {

        // Set response content type
        response.setContentType("text/html");

        PrintWriter out = response.getWriter();
        String title = "Grey Sloan Memorial Hospital";
        String welcome = "Welcome "+request.getParameter("emp_name") + "!";
        int basic = Integer.parseInt(request.getParameter("basic"));
        int gross = 0;
        int hra=0,oa=0;
        String desig = request.getParameter("desig");

        // Calc Gross pay: Gross = Basic + HRA + Other Allowances
        if(desig.equals("Chief"))
        {
            hra = 50000;
            oa = 10000;
        }
        else if(desig.equals("Attending"))
        {
            hra = 40000;
            oa = 5000;
        }
        else if(desig.equals("Resident"))
        {
            hra = 30000;
            oa = 2500;
        }

        gross = basic+hra+oa;

        out.println(
            "<html>\n" +

            "<head>"+
            "<title>" + title + "</title>"+
            "<style>"+
```

```

        "div{box-sizing: border-
box;padding: 3vw;background: rgba(0, 0, 0, 0.78);max-
width: 700px;margin: 0 auto;height:700px;}"+
        "table td{color:#82bb3b;font-size:25px;}"+
        "h1,h2{color:white;font-size: 3vw;}"+
        "body {background: url(emp.jpg)no-repeat center top;background-
size: cover;background-position: center;}"+
        "</style>" +
        "</head>\n" +

        "<body>\n" +
        "    <div align = \"center\"><h1 align = \"center\">" + title + "<
/h1>\n" +
        "    <h2 align = \"center\">" + welcome + "</h1>\n" +
        "    <table>\n" +
        "        <tr>\n" +
        "            <td><b>Employee ID:</b>: </td>"+
        "            <td style=\"color:white\">" + request.getParameter("emp_i
d") + "</td>\n" +
        "        </tr>\n" +

        "        <tr>\n" +
        "            <td><b>Employee Name:</b>: </td>"+
        "            <td style=\"color:white\">" + request.getParameter("emp_n
ame") + "</td>\n" +
        "        </tr>\n" +

        "        <tr>\n" +
        "            <td><b>Designation:</b>: </td>"+
        "            <td style=\"color:white\">" + desig + "</td>\n" +
        "        </tr>\n" +

        "        <tr>\n" +
        "            <td><b>Department:</b>: </td>"+
        "            <td style=\"color:white\">" + request.getParameter("dept"
) + "</td>\n" +
        "        </tr>\n" +

        "        <tr>\n" +
        "            <td><b>Basic Pay:</b>: </td>"+
        "            <td style=\"color:white\">" + basic + "</td>\n" +
        "        </tr>\n" +

        "        <tr>\n" +
        "            <td><b>Gross Pay:</b>: </td>"+
        "            <td style=\"color:white\">" + gross + "</td>\n" +
        "        </tr>\n" +

```

```

        "<tr>\n" +
            "<td><b>Phone No.:</b>: </td>" +
            "<td style=\"color:white\">" + request.getParameter("Phone
") + "</td>\n" +
            "</tr>\n" +

            "<tr>\n" +
            "<td><b>DOB:</b>: </td>" +
            "<td style=\"color:white\">" + request.getParameter("DOB")
+ "</td>\n" +
            "</tr>\n" +

            "<tr>\n" +
            "<td><b>Address:</b>: </td>" +
            "<td style=\"color:white\">" + request.getParameter("Messa
ge") + "</td>\n" +
            "</tr>\n" +

            "<tr>" +
            "<td><b>Marital Status:</b>: </td>" +
            "<td style=\"color:white\">" + request.getParameter("Marit
al") + "</td>\n" +
            "</tr>\n" +
            "</table>\n</div>" +

            "</body>" +
            "</html>"
    );
}
}

```

## web.xml

```

<web-app>
    <servlet>
        <servlet-name>ServletOne</servlet-name>
        <servlet-class>ServletOne</servlet-class>
    </servlet>

    <servlet-mapping>
        <servlet-name>ServletOne</servlet-name>
        <url-pattern>/ServletOne</url-pattern>
    </servlet-mapping>
</web-app>

```

## OUTPUTS:

### Employee Registration Form

Dr. Derek Shepherd

1183

Neurological Surgery

Chief

10000000

2063140984

21-06-2000

Gender

☒ Male ☐ Female ☐ Other

Married

2771 Terra Street, Seattle, Washington

Submit Clear Form

© 2021 Doctor Registration Form | All Rights Reserved

### Grey Sloan Memorial Hospital

### Welcome Dr. Derek Shepherd!

**Employee ID::** 1183

**Employee Name::** Dr. Derek Shepherd

**Designation::** Chief

**Department::** Neurological Surgery

**Basic Pay::** 10000000

**Gross Pay::** 10060000

**Phone No.::** 2063140984

**DOB::** 2000-06-21

**Address::** 2771 Terra Street, Seattle, Washington

**Marital Status::** Married

## Code- Patient Management System

### index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Admin-Login</title>
    <link rel="stylesheet" href="style.css">
  </head>
  <body >
    <div>
      <div align="center" style="padding-left:20%;width: 60%;">
        <div>
          <h1>Admin Login</h1>
        </div>

        <div class="register-form">
          <form autocomplete="off">
            <fieldset>
              <h3>
                <i>Sign in to your account</i>
              </h3>

              <span id="invalid-
message" style="color: red; font-weight: 300;"></span>

              <div>
                <br>
                <span class="input-icon">
                  <input type="text" class="form-
detail" id="username" name="username" placeholder="Username">
                  <i class="fa fa-user"></i> </span>
                </div>
                <div>
                  <br>
                  <span class="input-icon">
                    <input type="password" class="form-
detail" id="password" name="password" placeholder="Password"><i class="fa fa-
lock"></i>
                    </span>
                  </div>
                <div>
                  <br>
                  <button type="submit" style="margin-
left: 140px;" class="button" name="submit" onclick="validate(event)">
                    Login <i class="fa fa-arrow-circle-
right"></i>
                  </button>
```

```

        </div>
    </fieldset>
</form>

    <div class="copyright">
        <br><br>
        &copy; <span class="text-bold text-
uppercase"> 2021|</span> <span>All rights reserved</span>
    </div>

</div>

</div>
<script src="index.js"></script>
</body>
<!-- end: BODY -->
</html>

```

## style.css

```

html,body,div,h1,h2,p,img,section
{
    display: block;
}

body
{
    font-family: 'Source Sans Pro', sans-serif;
    font-size: 100%;
    background-image: url(emp.jpg);
    background-size: cover;
    background-repeat: no-repeat;
}

.register-form
{
    box-sizing: border-box;
    padding: 3vw;
    background: rgba(0, 0, 0, 0.78);
    max-width: 700px;
    margin: 0 auto;
}

a,i,b,.copyright
{
    font-weight: 300;
    color: #fff;
    letter-spacing: 5px;
}

```



```

    text-align: center;
    font-family: 'Source Sans Pro', sans-serif;
}

h1
{
    font-size: 4vw;
    margin: 3.5vw 0vw 2vw;
    font-weight: 300;
    color: #fff;
    text-shadow: 3px 3px 3px #1d1d1d;
    letter-spacing: 5px;
    text-align: center;
    font-family: 'Source Sans Pro', sans-serif;
}

/* RECORD FORM */

input[type="date"]::-webkit-calendar-picker-indicator
{
    color: black;
    display: block;
    background-color: white;
    opacity: 0.5;
    width: 20px;
    height: 20px;
    border-width: thin;
}

.register-form input[type="text"],
.register-form input[type="password"],
.register-form textarea,
select.form-control,
input
{
    width:100%;
    font-weight: 300;
    color: #fff;
    font-size: 16px;
    letter-spacing: 1.2px;
    padding: 10px 10px;
    outline: none;
    background: rgba(255, 255, 255, 0);
    border: none;
    border-bottom: 1px solid rgba(255, 255, 255, 0.27);
    box-sizing: border-box;
    font-family: 'Source Sans Pro', sans-serif;
}

```

```
.register-form input[type="submit"],
.register-form input[type="reset"],
button,
.button
{
    text-transform: capitalize;
    font-size: larger;
    background: #23b4cc;
    color: #fff;
    padding: 0.5em 1em;
    border: none;
    width: 48%;
    margin-top: 1em;
    float: left;
    outline: none;
    font-family: 'Source Sans Pro', sans-serif;
    margin-right: 4px;
}

.register-form input[type="submit"]:hover
{
    background: #82bb3b;
    color: #fff;
}

.register-form input[type="reset"]:hover
{
    background: #82bb3b;
    color: #fff;
}

ul.radio-buttons li
{
    display: inline-block;
    margin: .8em 2em 0em .3em;
}

.radio-section
{
    text-align: left;
}

.radio-section h6,
h2
{
    display: inline;
    color: #82bb3b;
}
```

```
font-size: 15px;
font-weight: 400;
letter-spacing: 1.5px;
font-family: 'Source Sans Pro', sans-serif;
}
```

```
.radio-buttons li label
{
    color: #23b4cc;
    font-size: 15px;
    font-weight: 600;
    letter-spacing: 1px;
    font-family: 'Source Sans Pro', sans-serif;
}
```

```
select.form-control option
{
    background: #000;
}
```

```
/* ADMIN FORM */
.form-detail
{
    display: block;
    width: 50%;
    height: 34px;
    padding: 6px 12px;
    font-size: 14px;
    line-height: 1.42857143;
    color: #555;
    background-color: #fff;
    background-image: none;
    border: 1px solid #ccc;
    border-radius: 4px;
}
```

```
/*HOMEPAGE MENU*/
.vertical-menu
{
    width: 200px;
}
```

```
.vertical-menu a,
.menu-element
{
    background-color: #eee;
```

```

        color: black;
        display: block;
        padding: 12px;
        text-decoration: none;
    }

    .vertical-menu a:hover
    {
        background-color: #ccc;
    }

    .menu-element :hover
    {
        background-color: #ccc;
    }

    .vertical-menu a.active
    {
        background-color: #4c5eaf;
        color: white;
    }
}

```

## index.js

```

const admin_name = "admin";
const admin_pass = "2000";

function validate(event)
{
    event.preventDefault();
    let uname = document.getElementById("username").value;
    let pass = document.getElementById("password").value;

    if (uname == admin_name && pass == admin_pass)
    {
        window.location="add.html";
    }
    else
    {
        document.getElementById("invalid-
message").innerHTML="Invalid Credentials.Try Again!";
        document.getElementById("username").value = "";
        document.getElementById("password").value = "";
    }
}
}

```

## web.xml

```
<web-app>
  <servlet>
    <servlet-name>ServletAdd</servlet-name>
    <servlet-class>ServletAdd</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>ServletAdd</servlet-name>
    <url-pattern>/ServletAdd</url-pattern>
  </servlet-mapping>

  <servlet>
    <servlet-name>ServletView</servlet-name>
    <servlet-class>ServletView</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>ServletView</servlet-name>
    <url-pattern>/ServletView</url-pattern>
  </servlet-mapping>

  <servlet>
    <servlet-name>ServletSearch</servlet-name>
    <servlet-class>ServletSearch</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>ServletSearch</servlet-name>
    <url-pattern>/ServletSearch</url-pattern>
  </servlet-mapping>

  <servlet>
    <servlet-name>ServletDelete</servlet-name>
    <servlet-class>ServletDelete</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>ServletDelete</servlet-name>
    <url-pattern>/ServletDelete</url-pattern>
  </servlet-mapping>

  <servlet>
    <servlet-name>ServletUpdate</servlet-name>
    <servlet-class>ServletUpdate</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>ServletUpdate</servlet-name>
    <url-pattern>/ServletUpdate</url-pattern>
  </servlet-mapping>

  <servlet>
```

```

        <servlet-name>ServletUpdateDB</servlet-name>
        <servlet-class>ServletUpdateDB</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>ServletUpdateDB</servlet-name>
        <url-pattern>/ServletUpdateDB</url-pattern>
    </servlet-mapping>
</web-app>

```

## add.html

```

<!DOCTYPE html>
<html lang="en">
    <head>
        <title>Admin-Menu</title>
        <link rel="stylesheet" href="style.css">
    </head>
    <body>
        <h1>WELCOME ADMIN!</h1>
        <div>
            <div class="vertical-menu" style="float: left;">
                <a href="#" class="active">ADD RECORD</a>
                <a href="update.html">UPDATE RECORD</a>
                <a href="delete.html">DELETE RECORD</a>
                <a href="search.html">SEARCH RECORD</a>
                <a><form action="ServletView" method="GET">
                    <input type="submit" class="menu-element" style="background-
color: #eee; color: black; letter-spacing: 5px;" value="VIEW RECORDS">
                </form></a>
                <a href="index.html">LOG OUT</a>
            </div>

            <div class="register-form" style="float: right; margin-
right: 380px; margin-bottom: 30px; width: 40%;">
                <!-- Form starts here -->
                <form id="add_form" name="add_form" action="ServletAdd" method="GE
T" autocomplete="off">

                    <div class="field-text1">
                        <input type="number" id="id" name="id" placeholder="Patie
nt ID">
                    </div>

                    <div class="field-text1">
                        <input type="text" id="name" name="name" placeholder="Pat
ient Name"
                            minlength="6" required>
                    </div>

```

```

        <div class="field-text1">
            <input type="number" id="Age" name="Age" size="4" placeholder="Age" name="age" min="8" max="90" style="width: 50%;" required >
        </div>

        <div class="main">
            <div class="field-text1 radio-section">
                <h6>Date of Visit: </h6>
                <input type="date" id="DOV" name="DOV" style="width: 50%;" min="2000-01-01" max="2020-12-31" required>
            </div>
        </div>
        <div class="radio-section" required>
            <label for="gender"><h6>Gender: </h6></label>
            <ul class="radio-buttons">
                <li>
                    <input type="radio" id="male" name="gender" value="Male" >
                    <label for="Male">Male</label>
                </li>
                <li>
                    <input type="radio" id="female" name="gender" value="Female" >
                    <label for="Female">Female</label>
                </li>
                <li>
                    <input type="radio" id="other" name="gender" value="Other" >
                    <label for="Other">Other</label>
                </li>
            </ul>
            <div class="clear"></div>
        </div>
        <div class="main">
            <div class="field-text1">
                <select class="form-control" id="Marital" name="Marital" style="width: 50%;" onchange="marStatus()" >
                    <option>Marital Status</option>
                    <option value="Single">Single</option>
                    <option value="Married">Married</option>
                    <option value="Divorced">Divorced</option>
                </select>
            </div>
        </div>
        <br>
        <div class="field-text1">

```

```

        <textarea name="Message" id="Address" name="Address" placeholder="Address..."></textarea>
    </div>
    <input type="submit" id="Submit" name="Submit" value="Add Record">
    <input type="reset" value="Clear">
    <div class="clear"></div>
</form>
</div>
</div>

</body>
</html>

<!-- Name, age, ID, gender, address, marital status, Date of Visit -->

```

## ServletAdd.java

```

import java.io.*;
import java.sql.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

//javac -d WEB-INF/classes ServletAdd.java

public class ServletAdd extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response
    )
        throws ServletException, IOException {

        // Initialize the database
        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL="jdbc:mysql://localhost/patient";
        String USER = "root";
        String PASS = "mysql";

        //Setting Writer Object
        PrintWriter out = response.getWriter();

        //Default OP
        String toPrint = "<html>\n" +
            "<head>" +
            "<title>Add-Record</title><link rel='stylesheet' href='style.css'>" +
            "</head>\n" +
            "<body>\n" +

```



```

        "<div align = \"center\\\"><h1 align = \"center\\\">WELCOME ADMIN!</h1>\n" +
        "</div>" +
        "<div class='vertical-menu' style='float: left;'" +
        "<a><form action=\"ServletView\" method=\"GET\"><input type=\"submit\" class=\"menu-element\" style=\"background-color: #eee; color: black; letter-spacing: 5px;\" value=\"GO BACK\"></form></a>"+
        "<a href='index.html'>LOG OUT</a>"+
        "</div>";

    try
    {
        // Open a connection
        //Class.forName("com.mysql.jdbc.Driver");
        Connection conn = DriverManager.getConnection(DB_URL, USER, PASS);
        Statement stmt = conn.createStatement();
        String sql;

        //Retrieve form details
        int id = Integer.parseInt(request.getParameter("id"));
        int age = Integer.parseInt(request.getParameter("Age"));
        String p_name = request.getParameter("name");
        String dov = request.getParameter("DOV");
        String mar = request.getParameter("Marital");
        String addr = request.getParameter("Message");
        String gender = request.getParameter("gender");
        //Query to execute
        sql = "INSERT INTO `patient_details` (`id`,`p_name`,`age`,`gender`,`addr`,`mar`,`dov`) VALUES ('"+id+"','"+p_name+"','"+age+"','"+gender+"','"+addr+"','"+mar+"','"+dov+"')";
        stmt.execute(sql);

        // Set response content type
        response.setContentType("text/html");

        out.println(toPrint);
        out.println("<div class='register-form' style='float: right; margin-right: 380px; margin-bottom: 30px; width: 40%;'><i>INSERTED SUCCESSFULLY!</i></div></body></html>");
    }
    catch (Exception e)
    {
        e.printStackTrace();
        out.println(toPrint);
        out.println("<div class='register-form' style='float: right; margin-right: 380px; margin-

```

```

bottom: 30px; width: 40%;'><i>ERROR:\n\t\t"+e.getMessage()+"</i></div></body><
/html>");
    }
}
}
}

```

## update.html

```

<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Admin-Menu</title>
    <link rel="stylesheet" href="style.css">
  </head>
  <body>
    <h1>WELCOME ADMIN!</h1>
    <div class="vertical-menu" style="float: left;">
      <a href="add.html">ADD RECORD</a>
      <a href="#" class="active">UPDATE RECORD</a>
      <a href="delete.html">DELETE RECORD</a>
      <a href="search.html">SEARCH RECORD</a>
      <a><form action="ServletView" method="GET">
        <input type="submit" class="menu-element" style="background-
color: #eee; color: black; letter-spacing: 5px;" value="VIEW RECORDS">
      </form></a>
      <a href="index.html">LOG OUT</a>
    </div>

    <div class="register-form" style="float: right; margin-
right: 380px; margin-bottom: 30px; width: 40%;">
      <!-- Form starts here -->
      <form id="update_form" name="update_form" action="ServletUpdate" m
ethod="GET" autocomplete="off">
        <div class="field-text1">
          <input type="text" id="id" name="id" placeholder="Patient
ID">
        </div>
        <input type="submit" id="Submit" name="Submit" value="Update Re
cord">
        <input type="reset" value="Clear">
        <div class="clear"></div>
      </form>
    </div>

  </body>
</html>

```

## ServletUpdate.java

```
import java.io.*;
import java.sql.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

// Import Database Connection Class file
//import DatabaseConnection;
//javac -d WEB-INF/classes ServletUpdate.java

public class ServletUpdate extends HttpServlet
{
    public void doGet(HttpServletRequest request, HttpServletResponse response
    )
        throws ServletException, IOException
    {
        // Initialize the database
        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL="jdbc:mysql://localhost/patient";
        String USER = "root";
        String PASS = "mysql";

        //Setting Writer Object
        PrintWriter out = response.getWriter();

        //Default OP
        String toPrint = "<html>\n" +
            "<head>" +
            "<title>Add-Record</title><link rel='stylesheet' href='style.css'>" +
            "</head>\n" +
            "<body>\n" +
            "    <div align = \"center\"><h1 align = \"center\">WELCOME ADMIN!</h1>\n" +
            "</div>" +
            "<div class='vertical-menu' style='float: left;'>" +
            "    <a href='view.html'>GO BACK</a>" +
            "    <a href='index.html'>LOG OUT</a>" +
            "</div>";

        try
        {
            // Open a connection
            //Class.forName("com.mysql.jdbc.Driver");
            Connection conn = DriverManager.getConnection(DB_URL, USER, PASS);

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

```

String sql;

//Query to execute
int id = Integer.parseInt(request.getParameter("id"));

sql = "SELECT * FROM `patient_details` WHERE `id`='"+id+"'";
ResultSet rs = stmt.executeQuery(sql);
rs.next();

// Set response content type
response.setContentType("text/html");

out.print(toPrint);
out.println("<div class='register-
form' style='float: right;margin-right: 400px;margin-
bottom: 30px;width: 776.8px;color:white;width: 40%;'>");
    out.println("<form id='updateDB_form' name='updateDB_form' action=
'ServletUpdateDB' method='GET' autocomplete='off'>");

        out.println("<table align='center' style='color:white' class='radi
o-section'>");
        int age = Integer.parseInt(rs.getString("age"));
        String p_name = rs.getString("p_name");
        String gender = rs.getString("gender");
        String addr = rs.getString("addr");
        String mar = rs.getString("mar");
        String dov = rs.getString("dov");

        out.print("<input id='id' name='id' type='hidden' value='"+id+"'>"
);
        out.println("<tr><td><h6>Patient ID:</h6></td><td>" + id + "</td><
/tr><tr><td><br><h6>Name:</h6></td><td>" + p_name);
        out.print("</td></tr><tr><td><br><h6>Age:</h6></td><td><input type
='number' id='Age' name='Age' size='4' name='age' min='8' max='90' style='width
h: 50%;' value='"+age+"'>");
        out.print("</td></tr><tr><td><br><h6>Gender:</h6></td><td>" + gender
+"</td></tr><tr><td><br><h6>Address:</h6></td><td><textarea type='text' id='ad
dr' name='addr'>" + addr);
        out.print("</textarea></td></tr><tr><td><br><h6>Marital Status:</h
6></td><td><input type='text' id='mar' name='mar' value='"+mar+"'></td></tr><t
r><td><br><h6>Date of Visit:</h6></td><td><input type='date' id='dov' name='dov' mi
n='2000-01-01' max='2020-12-31' value='"+dov+"'></td></tr><tr><td><br><td><input type='submit' id='Submit' name='Submit'
value='Save Changes' style='width:fit-
content'></td></tr></form></div></body></html>");
    }
catch (Exception e)

```

```

        {
            e.printStackTrace();
            out.println("<i>ERROR:\n\t\tID not found!</i></div>");
        }
    }
}

```

## ServletUpdateUB.java

```

import java.io.*;
import java.sql.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

// Import Database Connection Class file
//import DatabaseConnection;
//javac -d WEB-INF/classes ServletUpdateDB.java

public class ServletUpdateDB extends HttpServlet
{
    public void doGet(HttpServletRequest request, HttpServletResponse response
    )
        throws ServletException, IOException
    {
        // Initialize the database
        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL="jdbc:mysql://localhost/patient";
        String USER = "root";
        String PASS = "mysql";

        //Setting Writer Object
        PrintWriter out = response.getWriter();

        //Default OP
        String toPrint = "<html>\n" +
            "<head>" +
                "<title>Update-
Record</title><link rel='stylesheet' href='style.css'>" +
            "</head>\n" +
            "<body>\n" +
                "<div align = \"center\"><h1 align = \"center\">WELCOME ADMIN!</h1>\n" +
            "</div>" +
            "<div class='vertical-menu' style='float: left;'>" +

```

```

        "<a><form action='ServletView' method='GET'><input type='submit'
class='menu-element' style='background-color: #eee; color: black; letter-
spacing: 5px;' value='GO BACK'></form></a>"+

        "<a href='index.html'>LOG OUT</a>"+
        "</div>";

try
{
    // Open a connection
    //Class.forName("com.mysql.jdbc.Driver");
    Connection conn = DriverManager.getConnection(DB_URL, USER, PASS);
    Statement stmt = conn.createStatement();

    String id = request.getParameter("id");
    int age = Integer.parseInt(request.getParameter("Age"));
    String mar = request.getParameter("mar");
    String dov = request.getParameter("dov");
    String addr = request.getParameter("addr");
    String sql = "UPDATE `patient_details` SET `addr`='"+addr+"', `dov`='"+dov+"', `age`='"+age+"', `mar`='"+mar+"' WHERE `id`='"+id;
    stmt.execute(sql);

    // Set response content type
    response.setContentType("text/html");
    out.println(toPrint);
    out.println("<div class='register-
form' style='float: right; margin-right: 380px; margin-
bottom: 30px; width: 40%;'><i>UPDATED SUCCESSFULLY!</i></div></body></html>");
}
catch (Exception e)
{
    e.printStackTrace();
    out.println(toPrint);
    out.println("<div class='register-
form' style='float: right; margin-right: 380px; margin-
bottom: 30px; width: 40%;'><i>ERROR:\n\t\t"+e.getMessage()+"</i></div></body><
/html>");
}
}
}

```

## delete.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Admin-Menu</title>
    <link rel="stylesheet" href="style.css">
  </head>
  <body>
    <h1>WELCOME ADMIN!</h1>
    <div class="vertical-menu" style="float: left;">
      <a href="add.html">ADD RECORD</a>
      <a href="update.html">UPDATE RECORD</a>
      <a href="#" class="active">DELETE RECORD</a>
      <a href="search.html">SEARCH RECORD</a>
      <a><form action="ServletView" method="GET">
        <input type="submit" class="menu-element" style="background-
color: #eee; color: black; letter-spacing: 5px;" value="VIEW RECORDS">
      </form></a>
      <a href="index.html">LOG OUT</a>
    </div>

    <div class="register-form" style="float: right; margin-
right: 380px; margin-bottom: 30px; width: 40%;">
      <!-- Form starts here -->
      <form id="delete_form" name="delete_form" action="ServletDelete" m
ethod="GET" autocomplete="off">
        <div class="field-text1">
          <input type="text" id="id" name="id" placeholder="Patient
ID">
        </div>
        <input type="submit" id="Submit" name="Submit" value="Delete Re
cord">
        <input type="reset" value="Clear">
        <div class="clear"></div>
      </form>
    </div>

  </body>
</html>
```

## ServletDelete.java

```
import java.io.*;
import java.sql.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

//javac -d WEB-INF/classes ServletView.java

public class ServletDelete extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response
)

        throws ServletException, IOException {

        // Initialize the database
        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL="jdbc:mysql://localhost/patient";
        String USER = "root";
        String PASS = "mysql";

        //Setting Writer Object
        PrintWriter out = response.getWriter();

        //Default OP
        String toPrint = "<html>\n" +
            "<head>" +
            "<title>Add-Record</title><link rel='stylesheet' href='style.css'>" +
            "<style>\n" +
            "    td{padding-left:10px;}" +
            "</style>\n" +
            "</head>\n" +
            "<body>\n" +
            "    <div align = \"center\"><h1 align = \"center\">WELCOME ADMIN!</h1>\n" +
            ">\n" +
            "    </div>" +
            "    <div class='vertical-menu' style='float: left;'>" +
            "        <a><form action=\"ServletView\" method=\"GET\"><input type=\"submit\" class=\"menu-element\" style=\"background-color: #eee; color: black; letter-spacing: 5px;\" value=\"GO BACK\"></form></a>" +
            "        <a href='index.html'>LOG OUT</a>" +
            "    </div>";

        try
        {

            // Open a connection
            //Class.forName("com.mysql.jdbc.Driver");
```



```

        Connection conn = DriverManager.getConnection(DB_URL, USER, PASS);
;
        Statement stmt = conn.createStatement();
        String sql;

        //Query to execute
        int id = Integer.parseInt(request.getParameter("id"));
        sql = "DELETE FROM `patient_details` WHERE `id`="+id+"";
        stmt.execute(sql);

        // Set response content type
        response.setContentType("text/html");

        out.println(toPrint);
        out.println("<div class='register-
form' style='float: right; margin-right: 380px; margin-
bottom: 30px; width: 40%;'><i> DELETED SUCCESSFULLY!</i></div></body></html>")
;
    }
    catch (Exception e)
    {
        e.printStackTrace();
        out.println(toPrint);
        out.println("<div class='register-
form' style='float: right; margin-right: 380px; margin-
bottom: 30px; width: 40%;'><i>ERROR:\n\t\tID not found!</i></div></body></html
>");
    }
}
}
}

```

## search.html

```

<!DOCTYPE html>
<html lang="en">
    <head>
        <title>Admin-Menu</title>
        <link rel="stylesheet" href="style.css">
    </head>
    <body>
        <h1>WELCOME ADMIN!</h1>
        <div class="vertical-menu" style="float: left;">
            <a href="add.html">ADD RECORD</a>
            <a href="update.html">UPDATE RECORD</a>
            <a href="delete.html">DELETE RECORD</a>
            <a href="#" class="active">SEARCH RECORD</a>
            <a><form action="ServletView" method="GET">
                <input type="submit" class="menu-element" style="background-
color: #eee; color: black; letter-spacing: 5px;" value="VIEW RECORDS">

```

```

        </form></a>
        <a href="index.html">LOG OUT</a>
    </div>
    <div class="register-form" style="float: right; margin-
right: 380px; margin-bottom: 30px; width: 40%;">
        <!-- Form starts here -->
        <form id="search_form" name="search_form" action="ServletSearch" m
ethod="GET" autocomplete="off">
            <div class="field-text1">
                <input type="text" id="id" name="id" placeholder="Patient
ID">
            </div>
            <input type="submit" id="Submit" name="Submit" value="Search Re
cord">
            <input type="reset" value="Clear">
            <div class="clear"></div>
        </form>
    </div>
</body>
</html>

```

## ServletSearch.java

```

import java.io.*;
import java.sql.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

//javac -d WEB-INF/classes ServletView.java

public class ServletSearch extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response
)
        throws ServletException, IOException {

        // Initialize the database
        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL="jdbc:mysql://localhost/patient";
        String USER = "root";
        String PASS = "mysql";

        //Setting Writer Object
        PrintWriter out = response.getWriter();

        //Default OP

```

```

String toPrint = "<html>\n" +
"<head>" +
"<title>Add-Record</title><link rel='stylesheet' href='style.css'>" +
"<style>\n" +
"    td{padding-left:10px;}"+
"</style>\n" +
"</head>\n" +
"<body>\n" +
"    <div align = \"center\"><h1 align = \"center\">WELCOME ADMIN!</h1>\n" +
">\n" +
"        </div>" +
"        <div class='vertical-menu' style='float: left;'>" +
"            <a><form action=\"ServletView\" method=\"GET\"><input type=\"submit\" class=\"menu-element\" style=\"background-color: #eee; color: black; letter-spacing: 5px;\" value=\"GO BACK\"></form></a>" +
"            <a href='index.html'>LOG OUT</a>" +
"        </div>";

try
{
    // Open a connection
    //Class.forName("com.mysql.jdbc.Driver");
    Connection conn = DriverManager.getConnection(DB_URL, USER, PASS);

    Statement stmt = conn.createStatement();
    String sql;

    //Query to execute
    int id = Integer.parseInt(request.getParameter("id"));
    sql = "SELECT * FROM `patient_details` WHERE `id`="+id+";";
    ResultSet rs = stmt.executeQuery(sql);
    rs.next();

    // Set response content type
    response.setContentType("text/html");

    out.print(toPrint);
    out.println("<div class='register-form' style='float: right;margin-right: 400px;margin-bottom: 30px;width: 776.8px;color:white;width: 40%;'>");
    out.println("<table align='center' style='color:white' class='radio-section'>");
    int age = Integer.parseInt(rs.getString("age"));
    String p_name = rs.getString("p_name");
    String gender = rs.getString("gender");
    String addr = rs.getString("addr");
    String mar = rs.getString("mar");

```

```

        String dov = rs.getString("dov");
        out.println("<tr><td><h6>Patient ID:</h6></td><td>" + id + "</td></tr><tr><td><br><h6>Name:</h6></td><td>" + p_name + "</td></tr><tr><td><br><h6>Age:</h6></td><td>" + age + "</td></tr><tr><td><br><h6>Gender:</h6></td><td>" + gender + "</td></tr><tr><td><br><h6>Address:</h6></td><td>" + addr + "</td></tr><tr><td><br><h6>Marital Status:</h6></td><td>" + mar + "</td></tr><tr><td><br><h6>Date of Visit:</h6></td><td>" + dov + "</td></tr></div></html></body>");
    }
    catch (Exception e)
    {
        e.printStackTrace();
        out.println("<i>ERROR:\n\t\tID not found!</i></div>");
    }
}
}

```

## ServletView.java

```

import java.io.*;
import java.sql.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

//javac -d WEB-INF/classes ServletView.java

public class ServletView extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response
    )
        throws ServletException, IOException {

        // Initialize the database
        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL="jdbc:mysql://localhost/patient";
        String USER = "root";
        String PASS = "mysql";

        //Setting Writer Object
        PrintWriter out = response.getWriter();

        //Default OP
        String toPrint = "<html>\n" +
            "<head>" +
            "<title>Add-Record</title><link rel='stylesheet' href='style.css'>" +
            "</head>\n" +
            "<body>\n" +

```



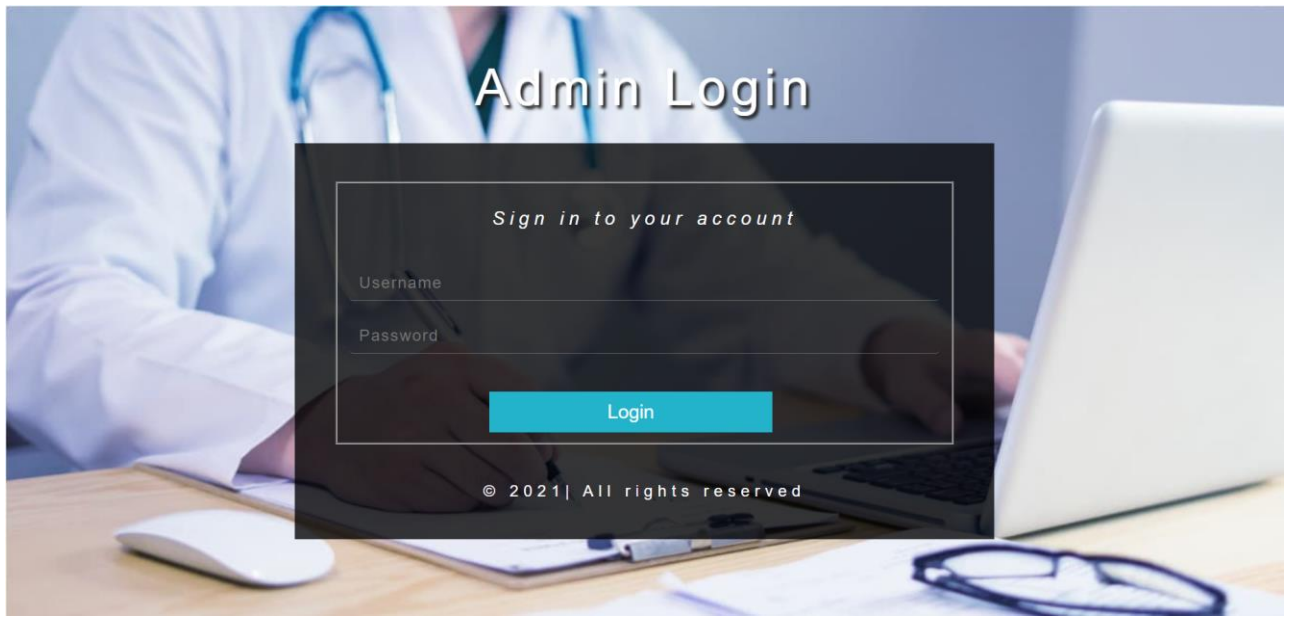
```

        String dov = rs.getString("dov");
        out.println("<tr><td>" + id + "</td><td>" + p_name + "</td><td>" + age + "</td><td>" + gender + "</td><td>" + addr + "</td><td>" + mar + "</td><td>" + dov + "</td></tr>");
    }
    out.println("</table></html></body>");
}
catch (Exception e)
{
    e.printStackTrace();
    out.println(toPrint);
    out.println("<div class='register-form' style='float: right; margin-right: 380px; margin-bottom: 30px; width: 40%;'><i>ERROR:\n\t\t"+e.getMessage()+"</i></div>");
}
}
}

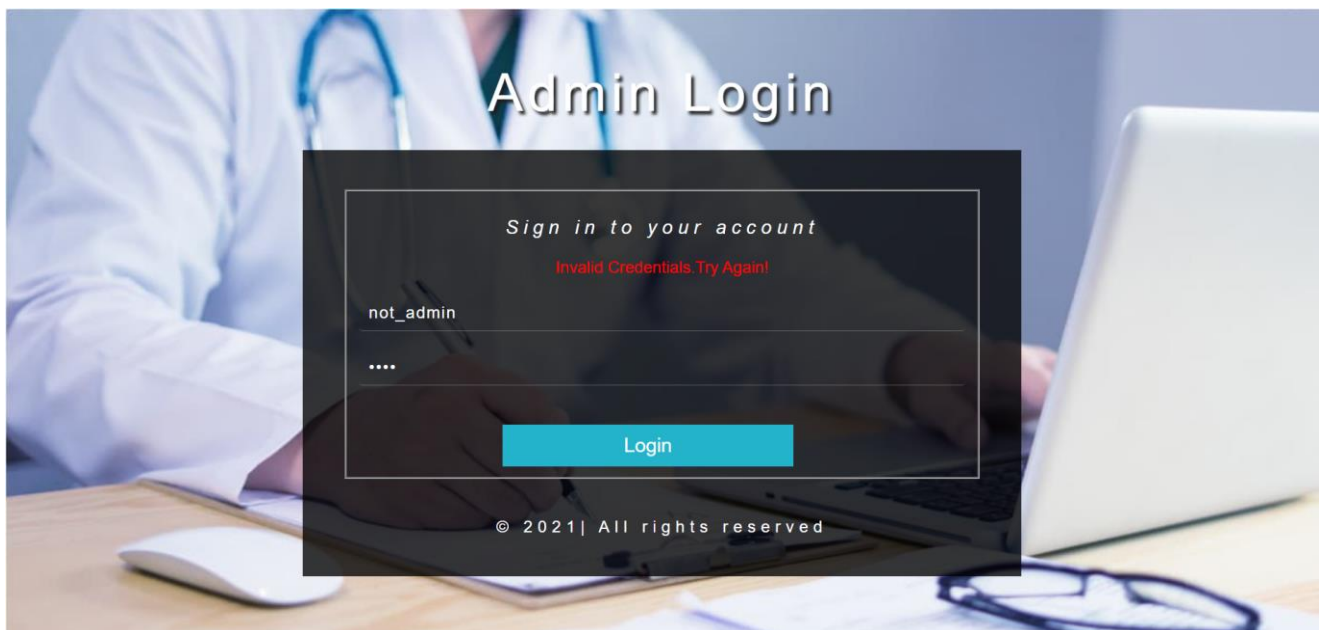
```

## OUTPUT SCREENSHOTS:

### Login Page:

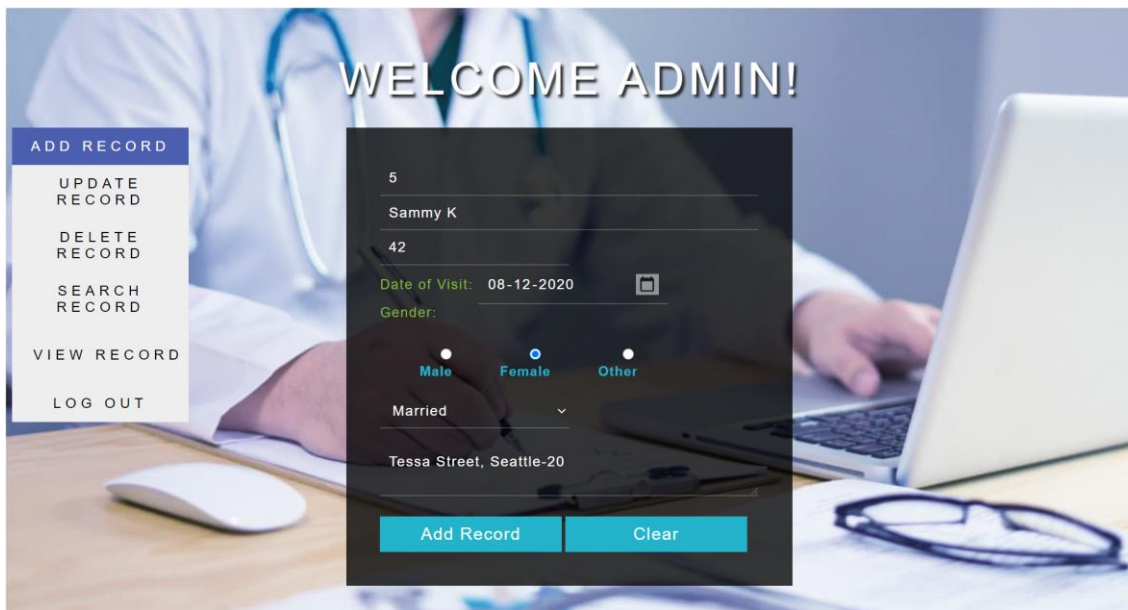


### Login Page: (Invalid Credentials entered)





## Add Record Page:



WELCOME ADMIN!

ADD RECORD

UPDATE RECORD

DELETE RECORD

SEARCH RECORD

VIEW RECORD

LOG OUT

5

Sammy K

42

Date of Visit: 08-12-2020

Gender:

Male Female Other

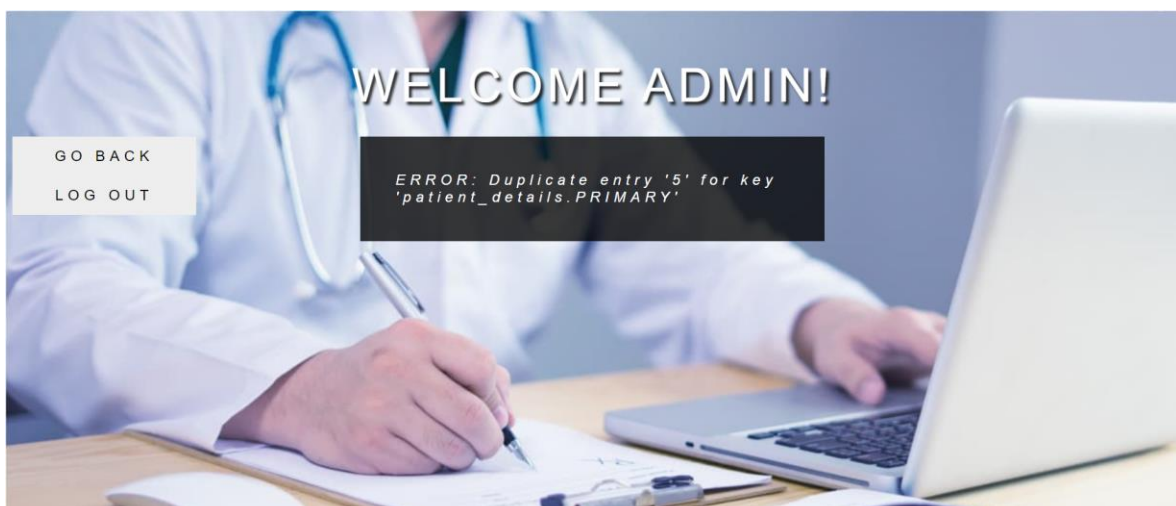
Married

Tessa Street, Seattle-20

Add Record Clear



(If wrong ID is entered)





## View Page:

WELCOME ADMIN!

ADD RECORD  
UPDATE RECORD  
DELETE RECORD  
SEARCH RECORD  
VIEW RECORD  
LOG OUT

Patient ID	Patient Name	Age	Gender	Address	Marital Status	Date of Visit
1	Swetha Saseendran	21	Female	Kodambakkam, Chennai-24	Single	2009-06-05
2	Swetha P	19	Female	Arivu Road, Arrakonam-14	Single	2019-01-09
3	Tarun V	11	Male	Bharathiyaar Road, Kanchipuram-26	Single	2020-12-19
4	Sowmya R	15	Female	Ambatore Estate, Chennai-07	Single	2018-07-17
5	Sammy K	42	Female	Tessa Street, Seattle-20	Married	2020-12-08

## Search Page:

WELCOME ADMIN!

ADD RECORD  
UPDATE RECORD  
DELETE RECORD  
SEARCH RECORD  
VIEW RECORD  
LOG OUT

4

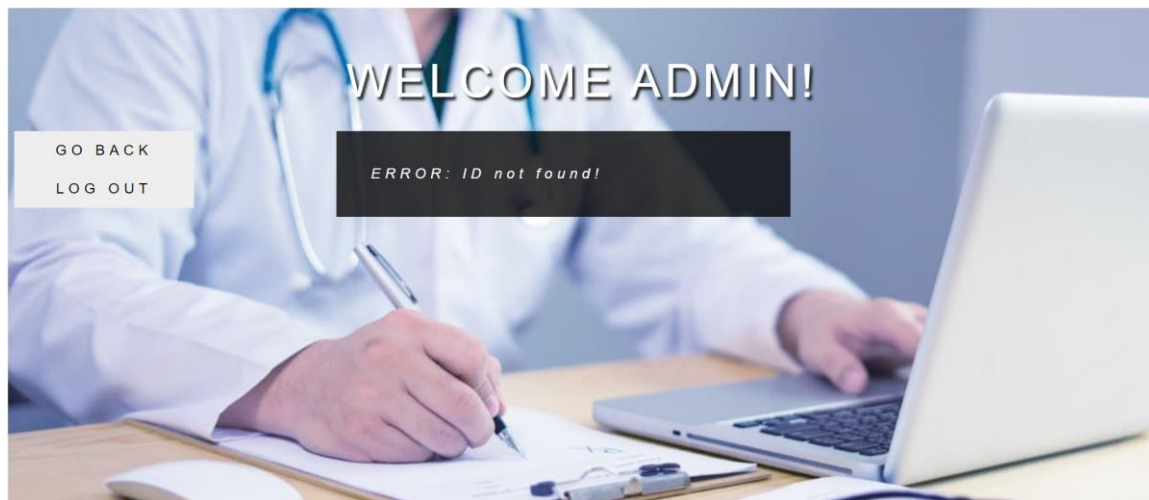
Search Record Clear

WELCOME ADMIN!

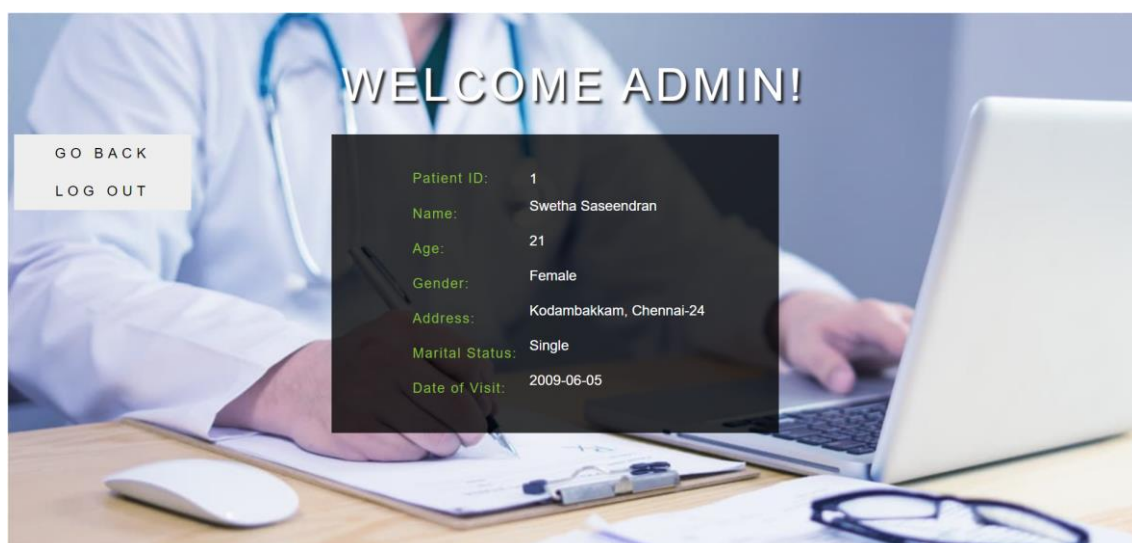
GO BACK  
LOG OUT

Patient ID: 4  
Name: Sowmya R  
Age: 15  
Gender: Female  
Address: Ambatore Estate, Chennai-07  
Marital Status: Single  
Date of Visit: 2018-07-17

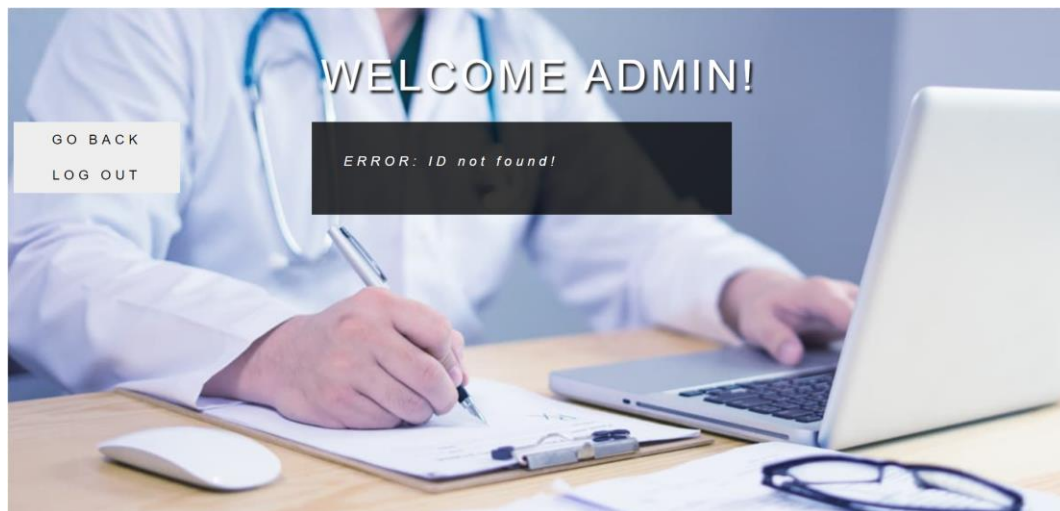
(If invalid ID is entered)



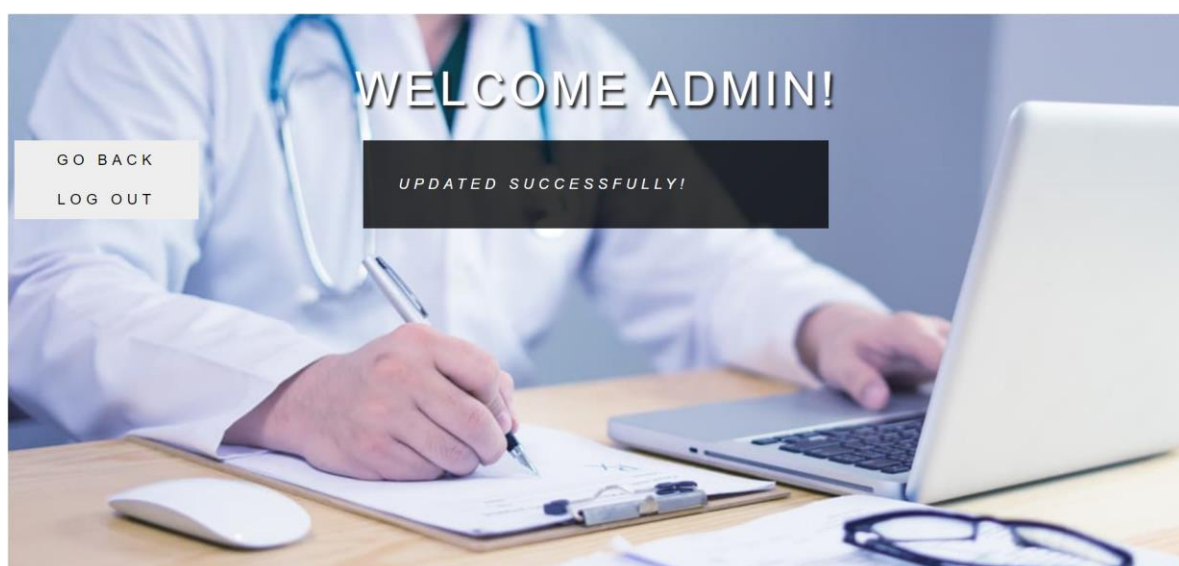
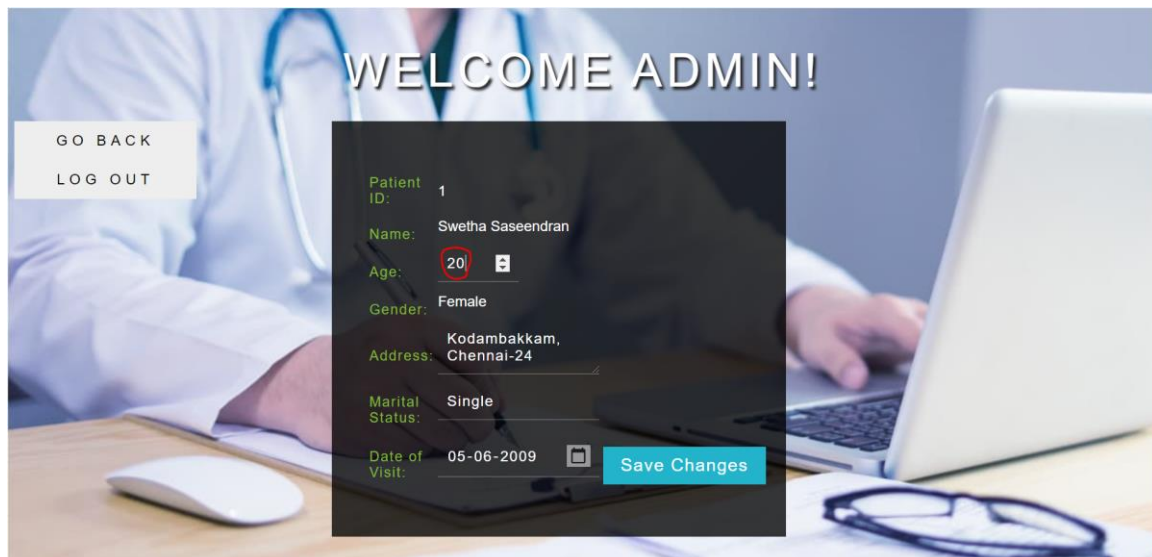
Update Record Page:



(If invalid ID is entered)



(Updating age)





## View Records:



WELCOME ADMIN!

ADD RECORD

UPDATE RECORD

DELETE RECORD

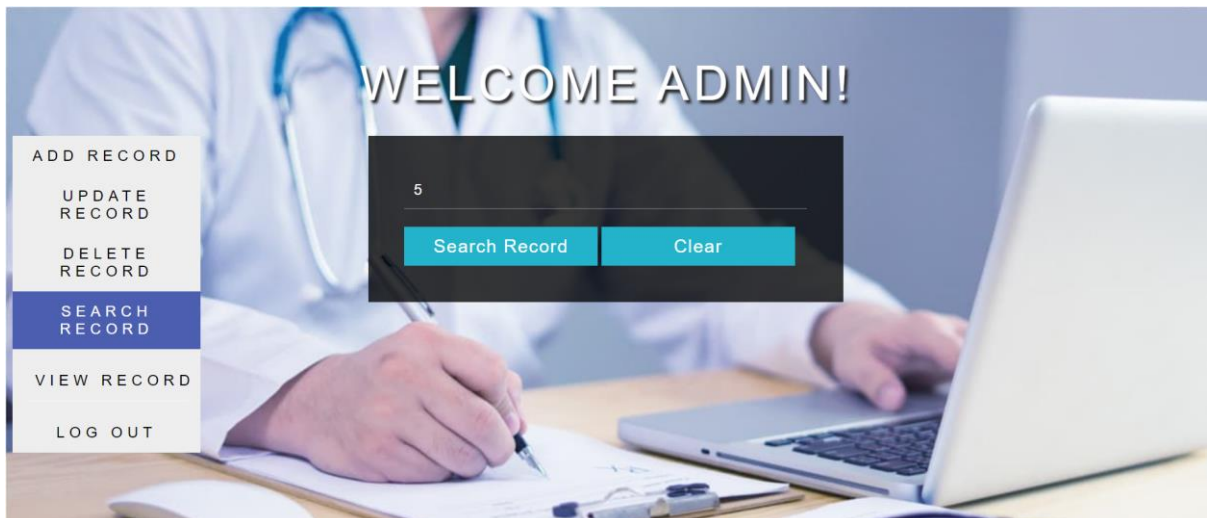
SEARCH RECORD

VIEW RECORD

LOG OUT

Patient ID	Patient Name	Age	Gender	Address	Marital Status	Date of Visit
1	Swetha Saseendran	20	Female	Kodambakkam, Chennai-24	Single	2009-06-05
2	Swetha P	19	Female	Arivu Road, Arrakonam-14	Single	2019-01-09
3	Tarun V	11	Male	Bharathiyaar Road, Kanchipuram-26	Single	2020-12-19
4	Sowmya R	15	Female	Ambatore Estate, Chennai-07	Single	2018-07-17
5	Sammy K	42	Female	Tessa Street, Seattle-20	Married	2020-12-08

## Delete Page:



WELCOME ADMIN!

ADD RECORD

UPDATE RECORD

DELETE RECORD


SEARCH RECORD

VIEW RECORD

LOG OUT

5

Search Record Clear



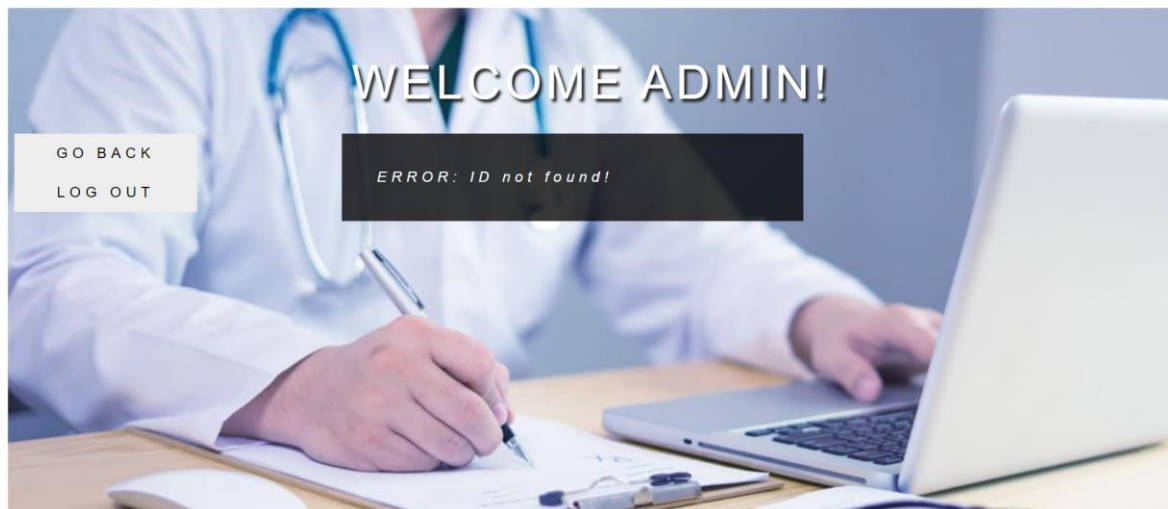
WELCOME ADMIN!

GO BACK

LOG OUT

DELETED SUCCESSFULLY!

(If invalid ID is entered)



View Page:



MySQL Database:

```
MySQL 8.0 Command Line Client
mysql>
mysql> SELECT * FROM patient_details;
+----+-----+-----+-----+-----+-----+-----+
| id | p_name          | age | gender | addr                                     | mar  | dov          |
+----+-----+-----+-----+-----+-----+-----+
| 1  | Swetha Saseendran | 20  | Female | Kodambakkam, Chennai-24                | Single | 2009-06-05  |
| 2  | Swetha P          | 19  | Female | Arivu Road, Arrakonam-14                | Single | 2019-01-09  |
| 3  | Tarun V           | 11  | Male   | Bharathiyaar Road, Kanchipuram-26       | Single | 2020-12-19  |
| 4  | Sowmya R          | 15  | Female | Ambatore Estate, Chennai-07             | Single | 2018-07-17  |
+----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

## **LEARNING OUTCOME:**

- Learnt to develop interactive web applications using HTML forms and servlets and that servlets are deployed on the server to create dynamic web pages.
- Learnt how to use request and response objects provided to a servlet to read parameters and to produce an HTML response.
- Understood how to use Java exception handling to handle errors in servlet applications.
- Understood the role of JDBC in Java persistence code, and use JDBC for persistence in servlet applications.
- Learnt how to connect to a JDBC-compliant database (MySQL), and manipulate the Patient database and retrieve data from the Patient database to display them in a readable format on HTTP page using the servlet response object.
- Learnt to write query for relational data, and parse result sets and perform updates, inserts and deletes on relational data using SQL actions.
- Understood the importance of making web pages accessible, well-formed and user friendly.