Java Full-Stack Project

GenrePick

The GenrePick is an advanced web-based application designed to cater to the needs of cinephiles seeking personalized movie recommendations. This project utilizes a robust combination of technologies: HTML, CSS, and JavaScript for the frontend to ensure an engaging and user-friendly interface, and Mysql(java jdbc) for the backend to handle data processing and management efficiently.

Objective:

The primary objective of the GenrePick is to provide users with an intuitive platform where they can discover movies based on their genre preferences. By typing a genre into the search bar, users receive a curated list of movies that align with their interests, facilitating the exploration of new films they may not have encountered otherwise.

Key Features:

1. **User-Friendly Interface:**
   - A clean and responsive design implemented using HTML and CSS.
   - Interactive elements and dynamic content updates powered by JavaScript to enhance user experience.
2. **Backend Processing:**
   - Java JDBC is to store user data like login id and password and storing new users data, is employed for backend development.
   - Efficient handling of user requests and database interactions to retrieve and display movie data.
3. **Genre-Based Search:**
   - A search functionality that allows users to type in their desired movie genre.
   - The system processes the input and returns a list of movies matching the

specified genre.

4. **Personalized Recommendations:**
   - The recommendation algorithm ensures that users receive relevant and high-quality movie suggestions.
   - The system leverages a comprehensive movie database to provide diverse and updated recommendations.

Target Audience:

The Movie Recommendation System is aimed at movie enthusiasts who are eager to discover new films tailored to their tastes. By offering a simple yet powerful tool for finding movies, the system enhances the overall viewing experience for users.

Technology Stack:

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** java JDBC
- **Database:** Mysql Integrated database to store and manage movie information

Conclusion:

The GenrePick is a valuable tool for movie lovers, enabling them to easily find movies that match their genre preferences. By integrating modern web technologies and a robust backend framework, the project delivers a seamless and efficient user experience, ultimately enriching the way users explore and enjoy movies.

Process:

mysql command line interface:

Install mysql connector also while installing mysql.

mysql-connector-j-9.0.0.jar

And save the root admin password or create a user with all admin privileges. (note down the password).

1 Create a database.

2. Create a table to store registered users and to retrieve login information.

3. Example created database name "genrepick".

CREATE DATABASE genrepick;

4. Create a table. For example "users" for this case

CREATE TABLE users (

id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,

Name VARCHAR(50),

Email VARCHAR(100) UNIQUE,

Username VARCHAR(100) UNIQUE,

Password VARCHAR(100),

PRIMARY KEY (id)

);

Desc users;

```
+----------+--------------+------+-----+---------+----------------+
| Field    | Type         | Null | Key | Default | Extra          |
+----------+--------------+------+-----+---------+----------------+
| Name     | varchar(50)  | YES  |     | NULL    |                |
| Email    | varchar(100) | YES  | UNI | NULL    |                |
| Username | varchar(100) | YES  | UNI | NULL    |                |
| Password | varchar(100) | YES  |     | NULL    |                |
| id       | int          | NO   | PRI | NULL    | auto_increment |
+----------+--------------+------+-----+---------+----------------+
```

For this project's sake insert a sample value into the table.

INSERT INTO users (Name, Email, Username, Password)

VALUES ('John Doe', 'john.doe@example.com', 'johndoe', 'password123');

Actual inserted data into the table:

INSERT INTO users (Name, Email, Username, Password)

VALUES ('Vishal', 'vishal@gmail.com', 'Vishal', 123456);

Installation of Tomcat:

https://www.youtube.com/watch?v=v9nqZBSZQ0U&t=143s

Make sure Tomcat is installed before starting this project.

Eclipse IDE:

Install Eclipse Ide for java and web developers;

After installing this ide create a new dynamic web project from new.

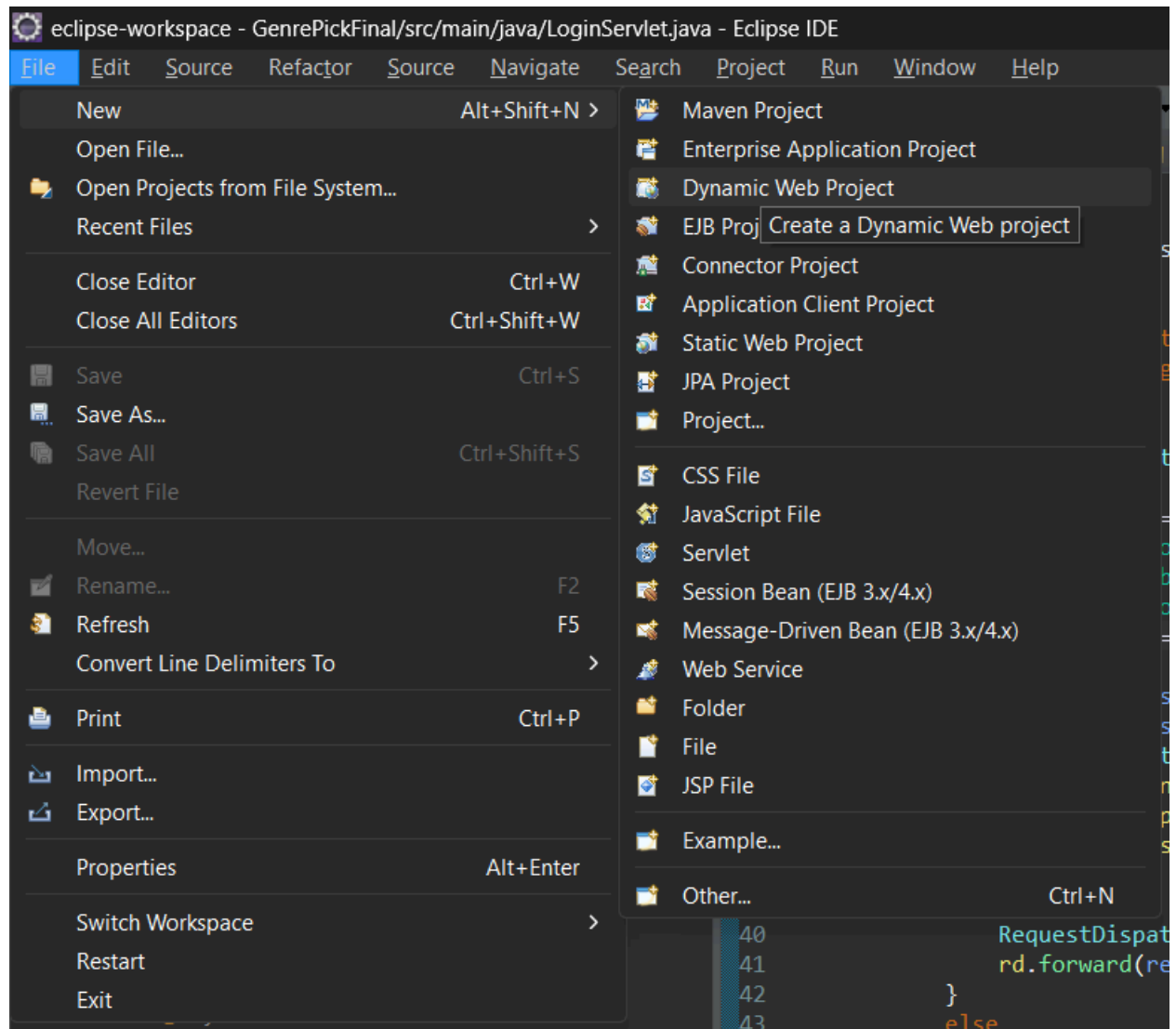Select options as shown in the screenshots.

Give name.

After creating project successfully.

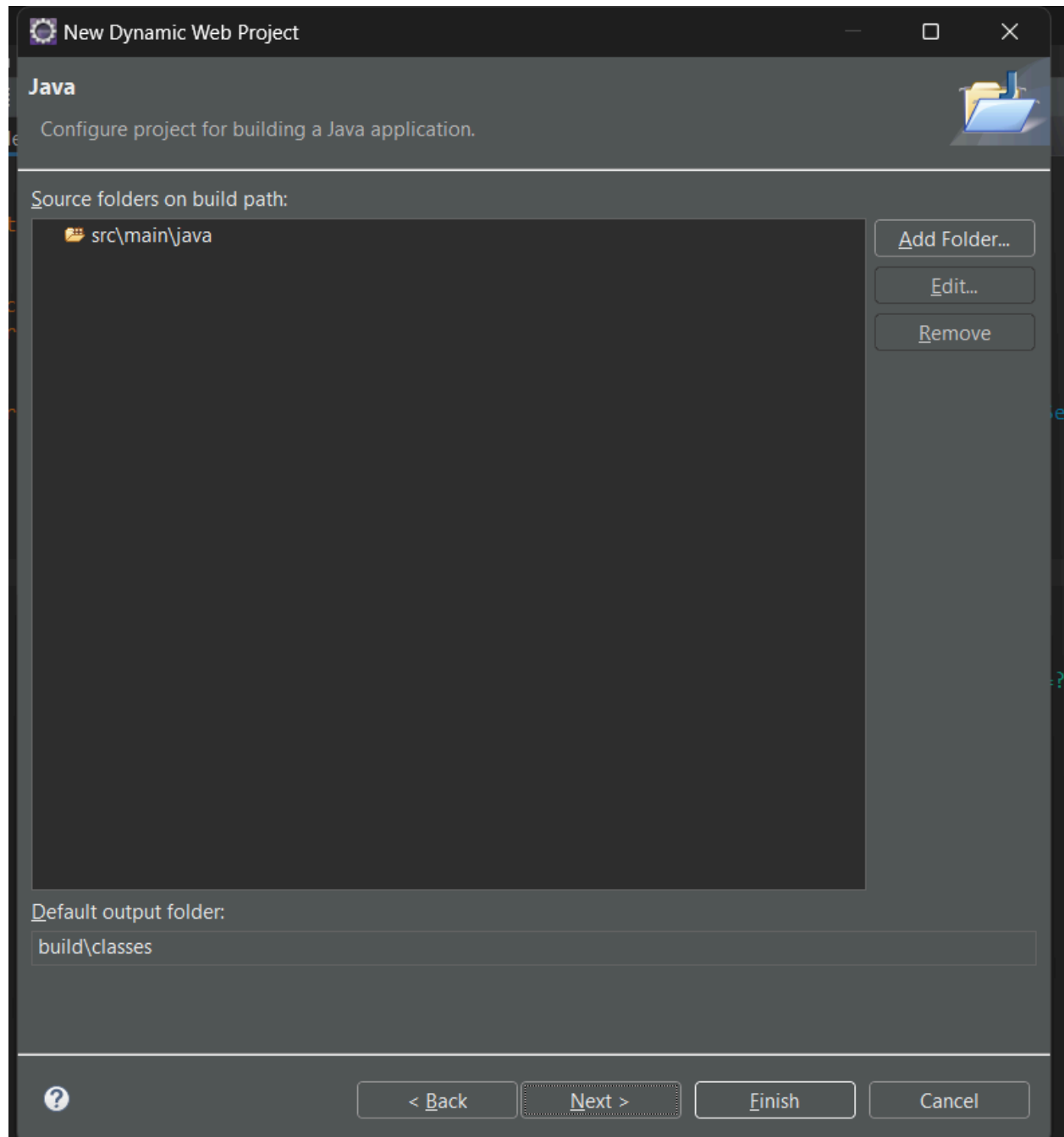Now add html files for the frontend by right clicking on the webapp folder
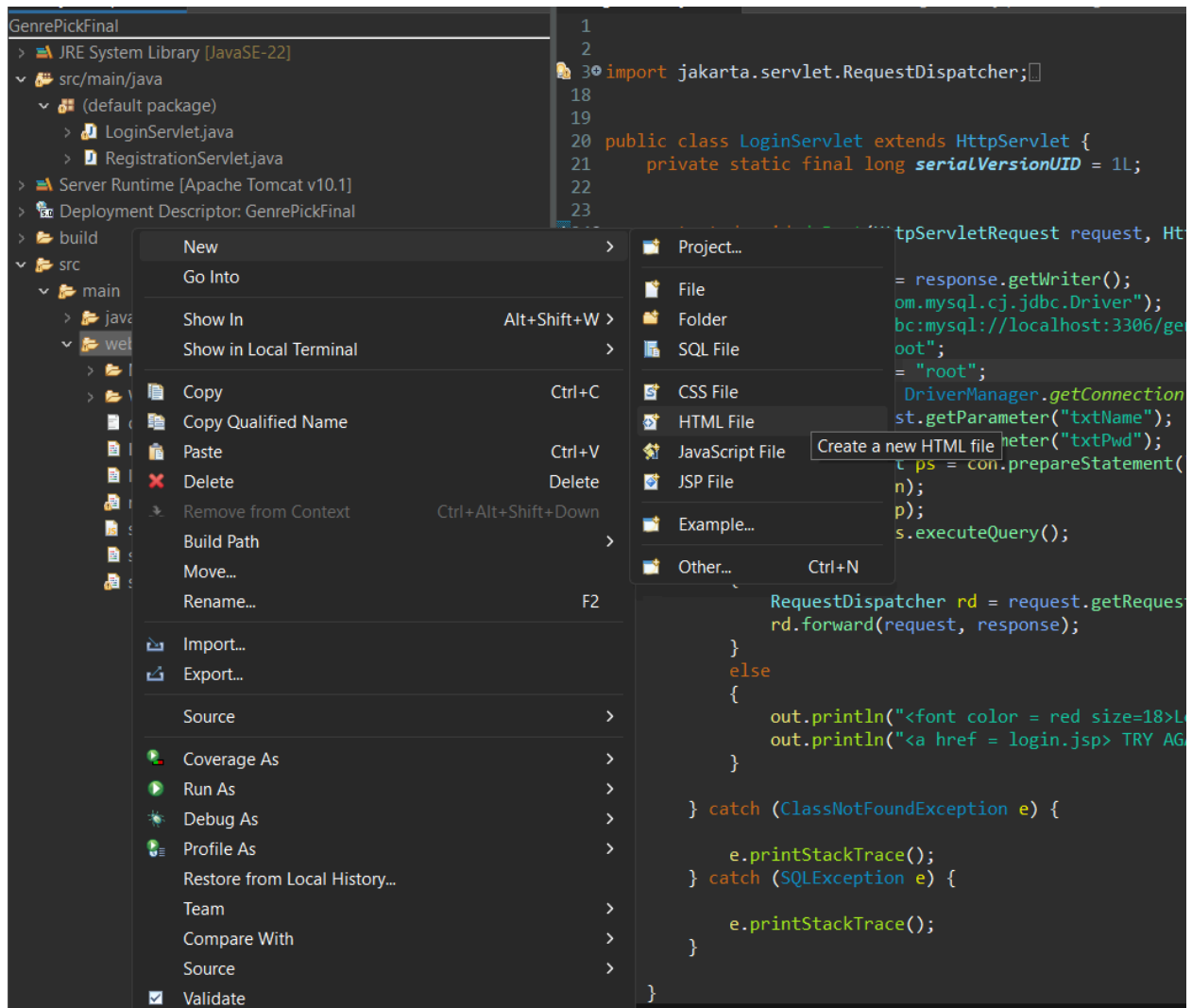
Add the html code based on your project.

If needed add css file in the same way.

Link css to html in the html code.

After writing the code. If your project needs to have Login and Registration pages, that should work with JDBC. we need "Jsp and Servlet files".

Index.html(initial frontend page code):

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>GenrePick.com</title>
  <link rel="stylesheet" href="styles.css">
</head>
<body>
```

```html
<!-- Header -->
<header>
  <div class="container">
    <h1>GenrePick</h1>
    <p>A Movie Recommendation System</p>
    <p>A New way of watching movies!</p>

  </div>
</header>
<!-- Navigation -->
<nav>
  <div class="container">
    <ul>
      <li><a href="index.html">Home</a></li>
      <li><a href="#about">About</a></li>
      <li><a href="login.jsp">Login</a></li>
      <li><a href="registration.jsp">Register</a></li>
    </ul>
  </div>
</nav>
<!-- Main Content -->
<main>
  <section>

    <ul>
      <li>Click this button to search movies based on Genre > </li>
      <li><button onclick="redirectToAnotherPage()"
        style="background-color: #4CAF50; /* Green */
            border: none;
            color: white;
            padding: 15px 32px;
            text-align: center;
            text-decoration: none;
            display: inline-block;
            font-size: 16px;
            margin: 10px;
            cursor: pointer;
            border-radius: 5px;">Click Me!  </button>
      <script>
        function redirectToAnotherPage() {
            // Redirect to another page
```

```html
            window.location.href = 'system.html';
          }
        </script></li>
      </ul>
    </section>
    <!-- About Us Section -->
    <section id="about">
      <div class="container">
        <h2>About GenrePick</h2>
        <p>At GenrePick, we believe that everyone has a unique taste in movies, and we are
here to help you find films that resonate with your preferences. Whether you're in the mood
for a mind-bending Sci-Fi adventure, a heartwarming romance, or a thrilling action-packed
blockbuster, we have got you covered.</p><br>
        <p>Our platform is designed to provide you with a seamless and enjoyable
experience. Simply type in the genre you are interested in, and we will present you with a
curated list of movies that fit your criteria. Our database is constantly updated to include
the latest and greatest films, ensuring that you never run out of options.</p><br>
        <p>We are passionate about movies and dedicated to helping you find the perfect
film for any occasion. Our team of movie enthusiasts works tirelessly to bring you a diverse
selection of genres and themes, so you can always find something new and exciting to
watch.</p><br>
        <p>Thank you for choosing GenrePick.com. We hope you enjoy your movie discovery
journey with us!</p>
      </div>
    </section>
    <!-- Services Section -->
    <section>
      <div class="container">
        <h2>Services</h2>
        <p>We provide personalized movie recommendations based on your preferred
genres. Simply enter a genre, and we'll present you with a curated list of movies that match
your taste.</p>
      </div>
    </section>
  </main>
  <!-- Footer -->
  <footer>
    <div class="container">
      <p>&copy; 2024 GenrePick. All rights reserved.</p>
    </div>
  </footer>
```

```
</body>
</html>
```

styles.css(css for index.html)

```css
@charset "UTF-8";
/* Reset default browser styles */
* {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}
/* Global styles */
body {
  font-family: Arial, sans-serif;
  line-height: 1.6;
  background-color: #f0f0f0;
}
.container {
  width: 80%;
  margin: 0 auto;
  padding: 20px;
}
/* Header styles */
header {
  background-color: #c54651;
  color: white;
  padding: 10px 0;
  text-align: center;
}
header h1 {
  font-size: 2.5em;
  margin-bottom: 10px;
}
/* Navigation styles */
nav {
  background-color: #0f70b5;
  color: white;
```

```css
}
nav ul {
  list-style-type: none;
  padding: 10px 0;
  text-align: center;
}
nav ul li {
  display: inline;
  margin: 0 10px;
}
nav ul li a {
  color: white;
  text-decoration: none;
}
nav ul li a:hover {
  text-decoration: underline;
}
/* Main content styles */
main {
  padding: 20px 0;
}
main ul{
  list-style-type: none;
  padding: 10px 0;
  text-align: center;
}
main ul li {
  display: inline;
  margin: 0 10px;
}
main ul li a {
  color: #0f70b5;
  text-decoration: none;
}
main ul li a:hover {
  text-decoration: underline;
}
section {
  background-color: #fff;
  margin-bottom: 20px;
  padding: 20px;
```

```css
}
section h2 {
  font-size: 1.8em;
  margin-bottom: 10px;
}
/* Footer styles */
footer {
  background-color: #15b93b;
  color: white;
  text-align: center;
  padding: 10px 0;
}
```

Data.csv file for movies data:

```csv
Movie Name,Genre,Theme

Interstellar,Sci-Fi,Space Exploration

Inception,Sci-Fi,Mind-bending

The Godfather,Crime,Family

Titanic,Romance,Tragedy

The Dark Knight,Action,Heroism

Forrest Gump,Drama,Life Journey

The Matrix,Sci-Fi,Reality

Schindler's List,History,Holocaust

Pulp Fiction,Crime,Nonlinear Storytelling

The Shawshank Redemption,Drama,Hope

The Lion King,Animation,Coming of Age

Jersey,Drama,Motivation

Star Wars,Sci-Fi,Adventure
```

```
The Lord of the Rings: The Return of the King,Fantasy,Heroic Journey

Avatar,Sci-Fi,Environmentalism

Gladiator,Action,Revenge

Black Panther,Action,Cultural Identity

La La Land,Romance,Chasing Dreams

The Social Network,Drama,Innovation

The Avengers,Action,Teamwork

Parasite,Thriller,Social Inequality

The Silence of the Lambs,Horror,Crime Investigation

Coco,Animation,Family

The Wolf of Wall Street,Biography,Ambition

Frozen,Animation,Sisterhood

The Pursuit of Happyness,Biography,Determination

Joker,Drama,Psychological Exploration

Braveheart,History,Freedom

Good Will Hunting,Drama,Self-Discovery

Mad Max: Fury Road,Action,Survival

Her,Sci-Fi,Artificial Intelligence

Kalki 2898AD,Sci-Fi, Fight For Tomorrow

Brinda,Thriller, Investigation
```

system.html page:

```html
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>GenrePick.com</title>
  <style>
    /* Reset default browser styles */
    * {
      margin: 0;
      padding: 0;
      box-sizing: border-box;
    }
    /* Global styles */
    body {
      font-family: Arial, sans-serif;
      line-height: 1.6;
      background-color: #f0f0f0;
    }
    .container {
      width: 80%;
      margin: 0 auto;
      padding: 20px;
    }
    /* Header styles */
    header {
      background-color: #c54651;
      color: white;
      padding: 10px 0;
      text-align: center;
    }
    header h1 {
      font-size: 2.5em;
      margin-bottom: 10px;
    }
    /* Navigation styles */
    nav {
      background-color: #0f70b5;
      color: white;
    }
    nav ul {
      list-style-type: none;
```

```css
    padding: 10px 0;
    text-align: center;
}
nav ul li {
    display: inline;
    margin: 0 10px;
}
nav ul li a {
    color: white;
    text-decoration: none;
}
nav ul li a:hover {
    text-decoration: underline;
}
/* Main content styles */
main {
    padding: 20px 0;
}
main ul {
    list-style-type: none;
    padding: 10px 0;
    text-align: center;
}
main ul li {
    display: inline;
    margin: 0 10px;
}
main ul li a {
    color: #0f70b5;
    text-decoration: none;
}
main ul li a:hover {
    text-decoration: underline;
}
/* Section styles */
section {
    background-color: #fff;
    margin-bottom: 20px;
    padding: 20px;
    border-radius: 8px;
    box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
```

```css
    text-align: center;
}
section h2 {
    font-size: 1.8em;
    margin-bottom: 20px;
}
section input[type="text"] {
    padding: 10px;
    width: 60%;
    max-width: 300px;
    margin-bottom: 20px;
    border: 1px solid #ccc;
    border-radius: 4px;
    font-size: 1em;
}
section button {
    padding: 10px 20px;
    background-color: #0f70b5;
    color: white;
    border: none;
    border-radius: 4px;
    cursor: pointer;
    font-size: 1em;
}
section button:hover {
    background-color: #0d5c9e;
}
section #csvData {
    margin-top: 20px;
}
/* Footer styles */
footer {
    background-color: #15b93b;
    color: white;
    text-align: center;
    padding: 10px 0;
}
table {
    width: 100%;
    border-collapse: collapse;
}
```

```html
    th, td {
      border: 1px solid black;
      padding: 8px;
      text-align: left;
    }
    th {
      background-color: #f2f2f2;
    }
  </style>
</head>
<body>
  <!-- Header -->
  <header>
    <div class="container">
      <h1>Movie System by Genre</h1>
      <p>A New way of watching movies!</p>
    </div>
  </header>
  <!-- Main Content -->
  <main>
    <center>
   <section>
      <h2>Type the Genre That You Want To See Movies Upon!    </h2>
      <input type="text" id="genreInput" placeholder="Eg: Sci-Fi">
      <button id="filterButton">Filter</button>
      <br>
      <div id="csvData"></div>
      <br>
   </section>
   </center>
  </main>
  <!-- Footer -->
  <footer>
    <div class="container">
      <p>&copy; 2024 GenrePick. All rights reserved.</p>
    </div>
  </footer>
  <!-- Include PapaParse library -->
  <script src="https://cdnjs.cloudflare.com/ajax/libs/PapaParse/5.3.0/papaparse.min.js"></script>
  <script src="script.js"></script>
</body>
```
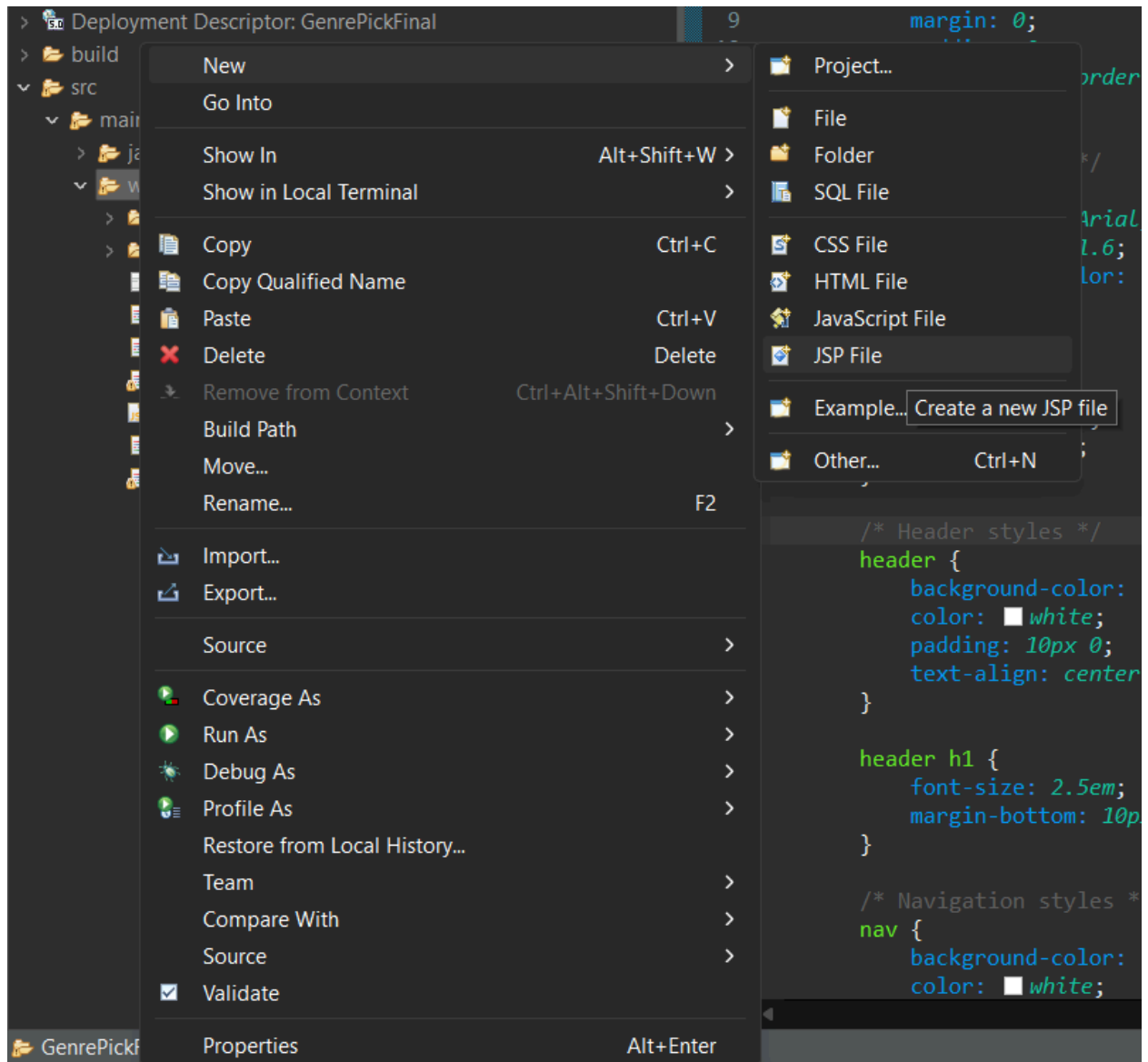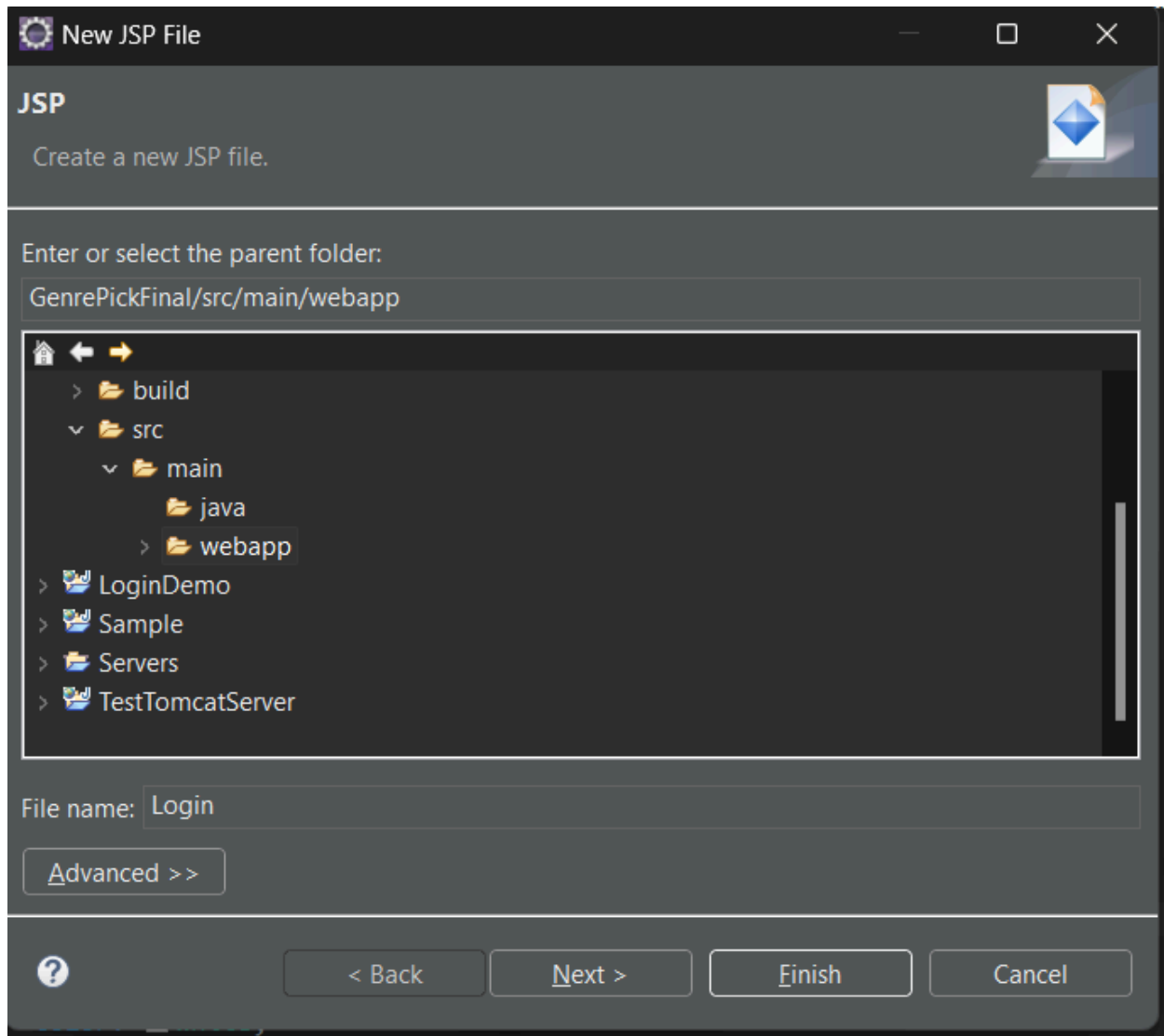
```html
</html>
```

script.js

```javascript
let csvData = [];
document.addEventListener('DOMContentLoaded', loadCSV);
document.getElementById('filterButton').addEventListener('click', filterData);
function loadCSV() {
  Papa.parse('data.csv', {
    download: true,
    header: true,
    dynamicTyping: true,
    complete: function(results) {
      csvData = results.data;
      console.log(csvData); // For debugging
    }
  });
}
function filterData() {
  const genreInput = document.getElementById('genreInput').value.toLowerCase();
  const filteredData = csvData.filter(row => row.Genre &&
row.Genre.toLowerCase().includes(genreInput));
  displayData(filteredData);
}
function displayData(data) {
  const csvDataDiv = document.getElementById('csvData');
  csvDataDiv.innerHTML = '';
  if (data.length === 0) {
    csvDataDiv.innerHTML = '<p>No data available for the selected genre</p>';
    return;
  }
  const table = document.createElement('table');
  const headerRow = document.createElement('tr');
  // Create header row
  const headers = Object.keys(data[0]);
  headers.forEach(header => {
    const th = document.createElement('th');
    th.textContent = header;
    headerRow.appendChild(th);
  });
```

```javascript
    table.appendChild(headerRow);
    // Create data rows
    data.forEach(row => {
        const tr = document.createElement('tr');
        headers.forEach(header => {
            const td = document.createElement('td');
            td.textContent = row[header];
            tr.appendChild(td);
        });
        table.appendChild(tr);
    });
    csvDataDiv.appendChild(table);
}
```

From webapp right click and select new jsp file and create login.jsp file

Login.jsp code:

```jsp
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html lang="en">
<head>
 <meta charset="UTF-8">
 <meta name="viewport" content="width=device-width, initial-scale=1.0">
 <title>Login Form</title>
 <style>
    /* Reset default browser styles */
```

```css
* {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}
/* Global styles */
body {
  font-family: Arial, sans-serif;
  line-height: 1.6;
  background-color: #f0f0f0;
}
.container {
  width: 80%;
  margin: 0 auto;
  padding: 20px;
}
/* Header styles */
header {
  background-color: #c54651;
  color: white;
  padding: 10px 0;
  text-align: center;
}
header h1 {
  font-size: 2.5em;
  margin-bottom: 10px;
}
/* Main content styles */
main {
  padding: 20px 0;
}
section {
  background-color: #fff;
  margin-bottom: 20px;
  padding: 20px;
}
section h2 {
  font-size: 1.8em;
  margin-bottom: 10px;
}
section label {
```

```css
      color: #000;
      display: block;
      margin-bottom: 8px;
      font-size: 1em;
    }
    section input[type="text"], section input[type="password"] {
      padding: 10px;
      width: 60%;
      max-width: 300px;
      margin-bottom: 20px;
      border: 1px solid #ccc;
      border-radius: 4px;
      font-size: 1em;
      display: block;
      margin: 0 auto 20px auto;
    }
    section input[type="submit"] {
      padding: 10px 20px;
      background-color: #0f70b5;
      color: white;
      border: none;
      border-radius: 4px;
      cursor: pointer;
      font-size: 1em;
    }
    section input[type="submit"]:hover {
      background-color: #0d5c9e;
    }
    /* Footer styles */
    footer {
      background-color: #15b93b;
      color: white;
      text-align: center;
      padding: 10px 0;
    }
  </style>
</head>
<body>
  <header>
    <div class="container">
      <h1>GenrePick Login Form</h1>
```

```html
      </div>
    </header>
    <main>
      <center>
      <section>
        <h2>Login Here!</h2>
        <form action="LoginServlet" method="post">
    <label for="txtName">Enter Name:</label>
    <input type="text" id="txtName" name="txtName" required>

    <label for="txtPwd">Enter Password:</label>
    <input type="password" id="txtPwd" name="txtPwd" required>

    <button type="submit">Login</button>

</form>
      </section>
      </center>
    </main>
    <footer>
      <div class="container">
        <p>&copy; 2024 GenrePick. All rights reserved.</p>
      </div>
    </footer>
</body>
</html>
```

Example 2:

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <title>User Login</title>
  <link rel="stylesheet" type="text/css" href="login.css">
</head>
<body>
  <div class="hero">
```

```html
    <div class="container">
      <h1>User Login</h1>
      <form action="LoginServlet" method="post">
        <label for="txtName">Enter Name:</label>
        <input type="text" id="txtName" name="txtName" required>

        <label for="txtPwd">Enter Password:</label>
        <input type="password" id="txtPwd" name="txtPwd" required>

        <button type="submit">Login</button>
        <button type="reset">Reset</button>
      </form>
    </div>
  </div>
</body>
</html>
```
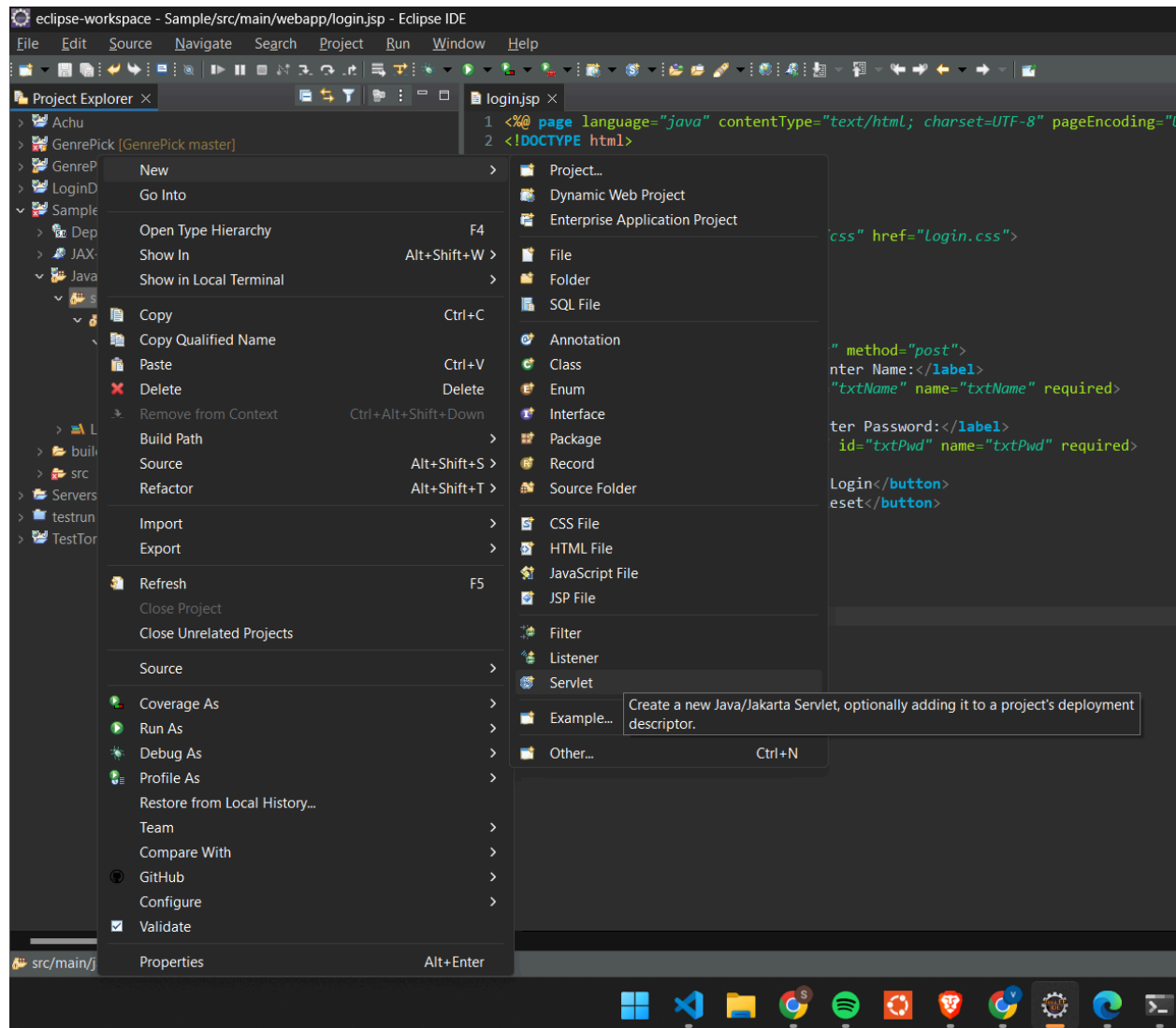
And create LoginServlet at javaResources/src

After clicking Srevlet name it LoginServlet:

LoginServlet.java:

import jakarta.servlet.RequestDispatcher;

import jakarta.servlet.ServletException;

```java
import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.io.PrintWriter;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;



public class LoginServlet extends HttpServlet {

        private static final long serialVersionUID = 1L;



        protected void doPost(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {

                try {

                        PrintWriter out = response.getWriter();

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

                        String url = "jdbc:mysql://localhost:3306/genrepick";
```

```
                    String user = "root";

                    String password = "root";

                    Connection con = DriverManager.getConnection(url,user,password);

                    String n = request.getParameter("txtName");

                    String p = request.getParameter("txtPwd");

                    PreparedStatement ps = con.prepareStatement("select * from users
where Username=? and Password=?");

                    ps.setString(1, n);

                    ps.setString(2, p);

                    ResultSet rs = ps.executeQuery();

                    if(rs.next())

                    {

                             RequestDispatcher rd =
request.getRequestDispatcher("welcome.jsp");

                             rd.forward(request, response);

                    }

                    else

                    {

                             out.println("<font color = red size=18>Login Failed!!<br>");

                             out.println("<a href = login.jsp> TRY AGAIN!!</a>");

                    }


            } catch (ClassNotFoundException e) {
```

```
                    e.printStackTrace();

            } catch (SQLException e) {


                    e.printStackTrace();

            }



        }



}
```

And same create Registration.jsp in webapp section:

```jsp
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Registration Page</title>
</head>
<body>
  <header>
    <div class="container">
      <h1>GenrePick Registration Page</h1>
    </div>
  </header>
  <main>
    <center>
    <section>
      <h2>Register Here</h2>
      <form action="RegistrationServlet" method="post">
        <label for="Name">Name:</label>
        <input type="text" id="Name" name="Name" required>
        <label for="Email">Email:</label>
```

```html
            <input type="email" id="Email" name="Email" required>
            <label for="Username">Username:</label>
            <input type="text" id="Username" name="Username" required>
            <label for="password">Password:</label>
            <input type="password" id="password" name="password" required>
            <input type="submit" value="Submit">
        </form>
      </section>
      </center>
  </main>
</body>
</html>
```

RegistrationServlet.java:

import jakarta.servlet.RequestDispatcher;

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.io.PrintWriter;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.SQLException;

@WebServlet("/registerServlet")

```java
public class RegistrationServlet extends HttpServlet {

    private static final long serialVersionUID = 1L;


    protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {

        response.setContentType("text/html");

        PrintWriter out = response.getWriter();


        // Retrieve form data

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

        String email = request.getParameter("Email");

        String username = request.getParameter("Username");

        String password = request.getParameter("password");


        Connection con = null;

        PreparedStatement ps = null;


        try {

            // Load MySQL driver

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


            // Connect to the database

            String url = "jdbc:mysql://localhost:3306/genrepick";

            String user = "root";
```

```java
String dbPassword = "root";

con = DriverManager.getConnection(url, user, dbPassword);


// SQL query to insert the new user

String query = "INSERT INTO users (Name, Email, Username, Password) VALUES (?, ?, ?, ?)";

ps = con.prepareStatement(query);


// Set the values in the query

ps.setString(1, name);

ps.setString(2, email);

ps.setString(3, username);

ps.setString(4, password);


// Execute the query

int rowCount = ps.executeUpdate();


if (rowCount > 0) {

    out.println("<font color='green'>Registration successful!</font>");

    RequestDispatcher rd = request.getRequestDispatcher("login.jsp");

    rd.include(request, response);

} else {

    out.println("<font color='red'>Registration failed. Please try again.</font>");

    RequestDispatcher rd = request.getRequestDispatcher("registration.jsp");
```

```java
            rd.include(request, response);

        }



    } catch (ClassNotFoundException | SQLException e) {

        e.printStackTrace();

        out.println("<font color='red'>An error occurred. Please try again later.</font>");

    } finally {

        try {

            if (ps != null) ps.close();

            if (con != null) con.close();

        } catch (SQLException e) {

            e.printStackTrace();

        }

    }

  }

}
```
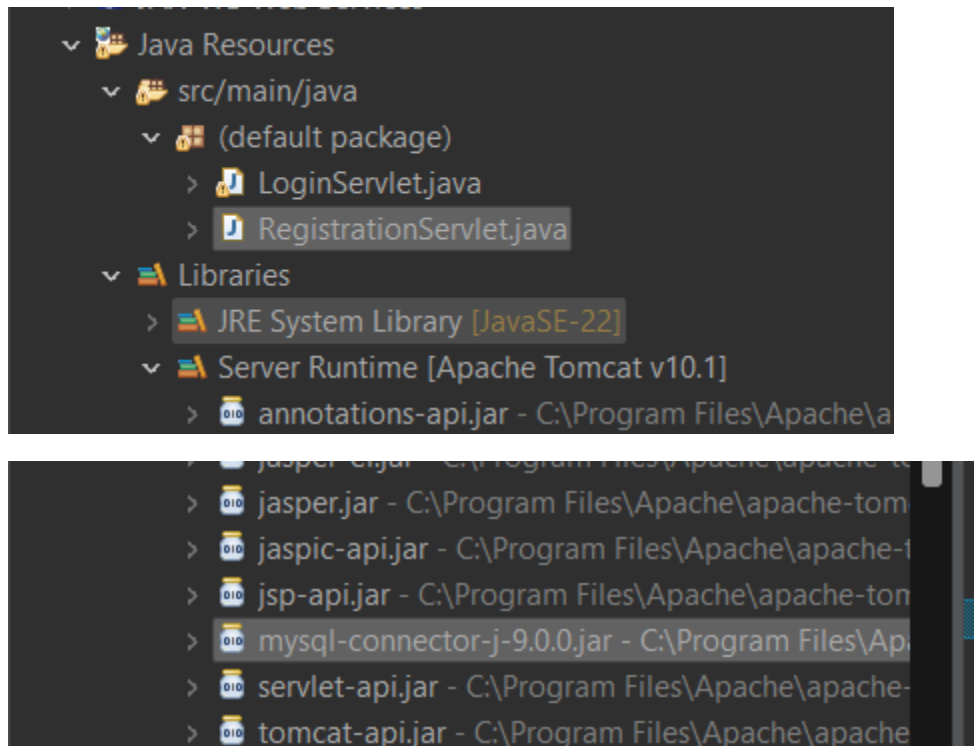
Add the first installed Tomcat jar file to lib section in java resources in the project file:

After these are created and added,

There is a chance of occurring errors because of

1. **Renaming file names(you can type capital letters instead of small letters vice-versa.)**
2. **When redirecting pages which are not created.**
3. **Not changing database name according to your database and table name also.**
4. **After everything is completed run the index,html file as server and select the installed tomcat version.**

   Thats it.

GenrePick Github repository:

https://github.com/VishalSingoju/GenrePick