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Introduction

The main objective of this mini-project is to design a dynamic and responsive website for a student information management system. This web application is full-fledged logic using new technologies in the market with maximum functionalities, efficiency, and optimal speed on a web.

Development Environment and Programming Tools

Development Environment

The development environment we used to develop the mini system are: -

- **Eclipse IDE 2021-03:** - we prefer this IDE since It is the fastest Java IDE and This IDE will help us to create a good web application.
- **Apache Tomcat:** - we prefer this server because it is open-source, and it's free to use. Easy to install and configure. Multiple applications can run at the same time without any issues.

Programming Language

- **Java Programming language**
We will use Java Server Page (JSP) to implement our web Application.
- **MySQL query language**
MYSQL is one of the most popular query languages in the world. It has a greater advantage in speed, robustness, and flexible licensing policy over other backend database tools. Due to the above reason, we select MySQL to implement the database.

Markup languages

- **HTML and CSS**
we will use HTML (Hypertext markup language) to build the structure of our website and CSS to style our website.

Framework and Library

- Bootstrap
- mysql-connector-java-8.0.25

System Requirement

On client-side

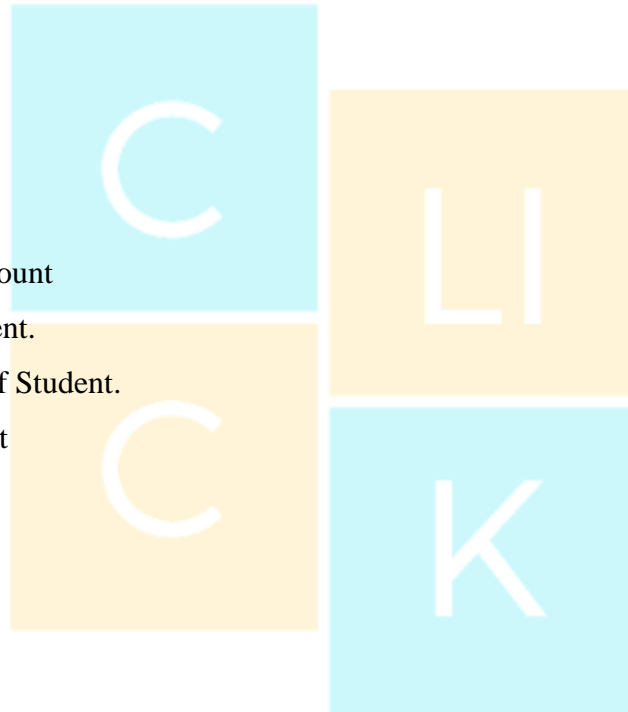
- Operating System (Any)
- Web Browser (IE, Mozilla Firefox, Google Chrome, Safari, Opera ...)

On server-side

- Web Server (Apache Tomcat)
- MySQL

Features

- Login
- Create an Account
- Register Student.
- Display List of Student.
- Search Student
- Logout

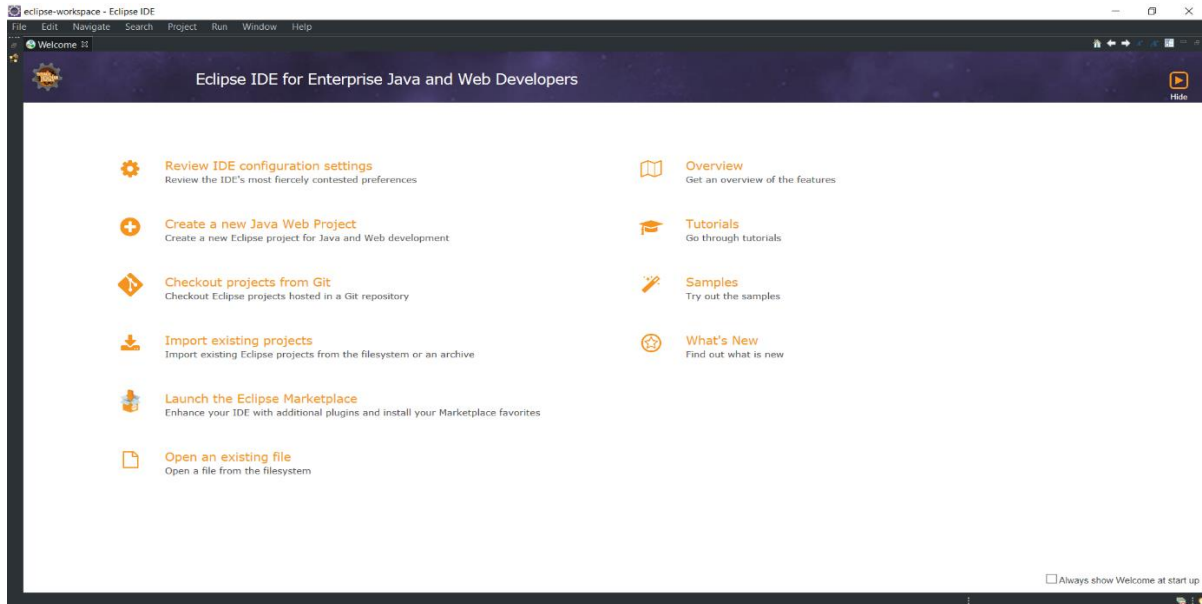


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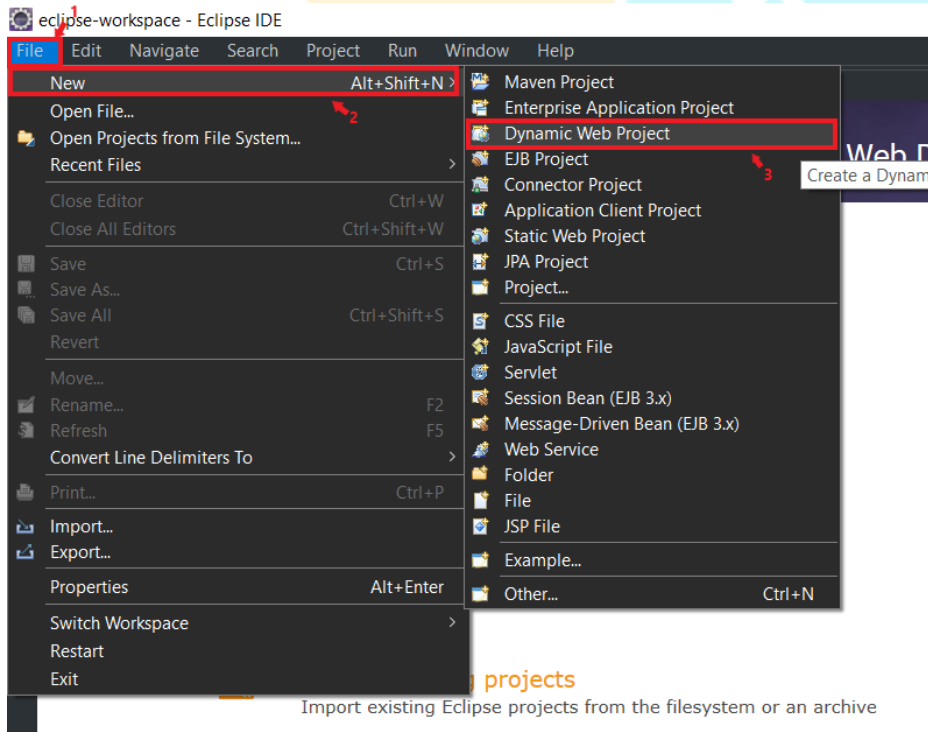
Screenshots

Steps to create dynamic web project in eclipse

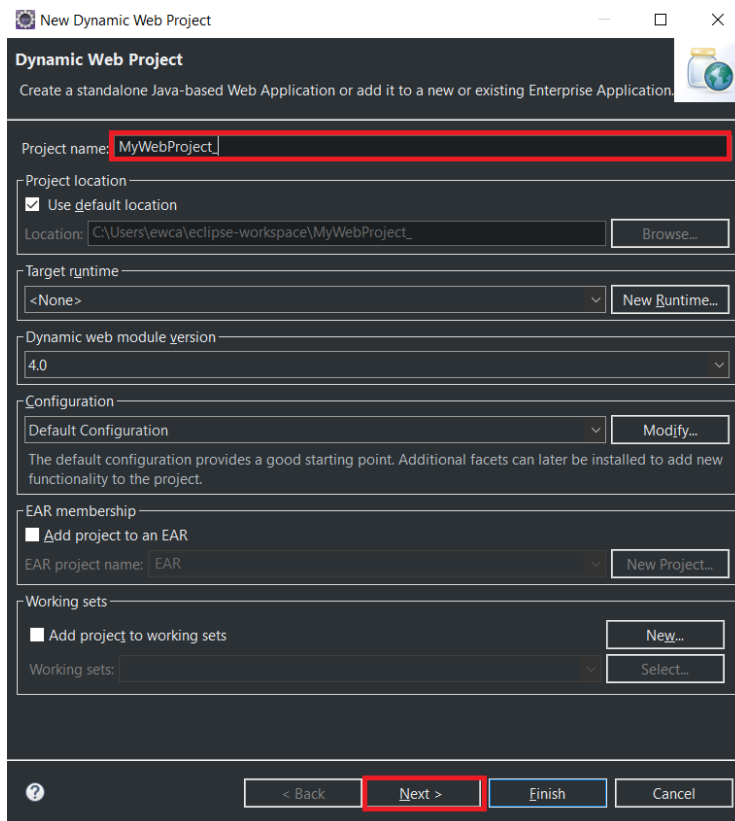
Step:1 Launch Eclipse IDE for Enterprise Java and Web Developers.



Step: 2 Open Dynamic Web Project, Click File > New > Dynamic Web Project as shown in the figure.

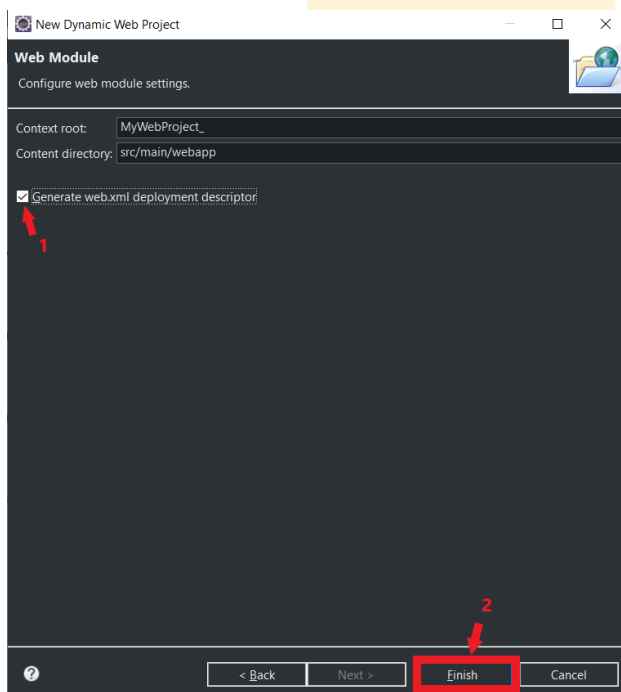


Step: 3 Name the project e.g. MyWebProject.

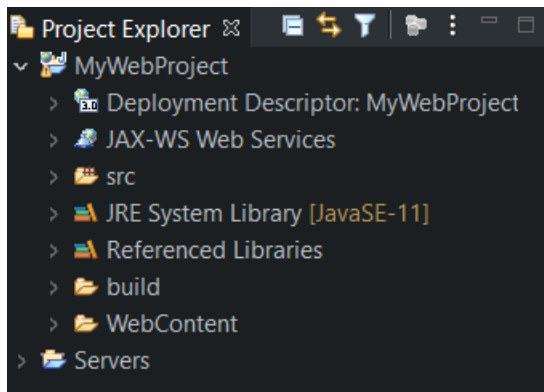


Then click “Next”.

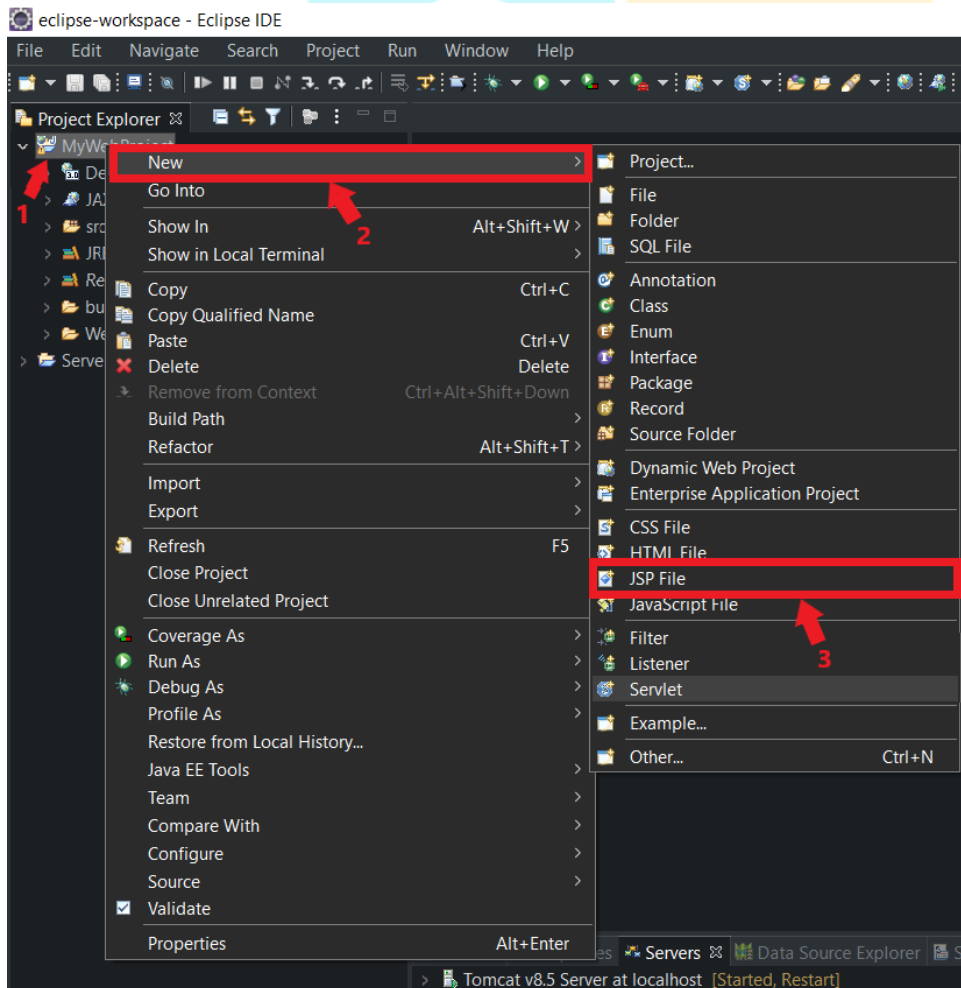
After that select “Generate web.xml deployment descriptor” and click “Finish”.



After that you will see something like this in the project explorer tab.



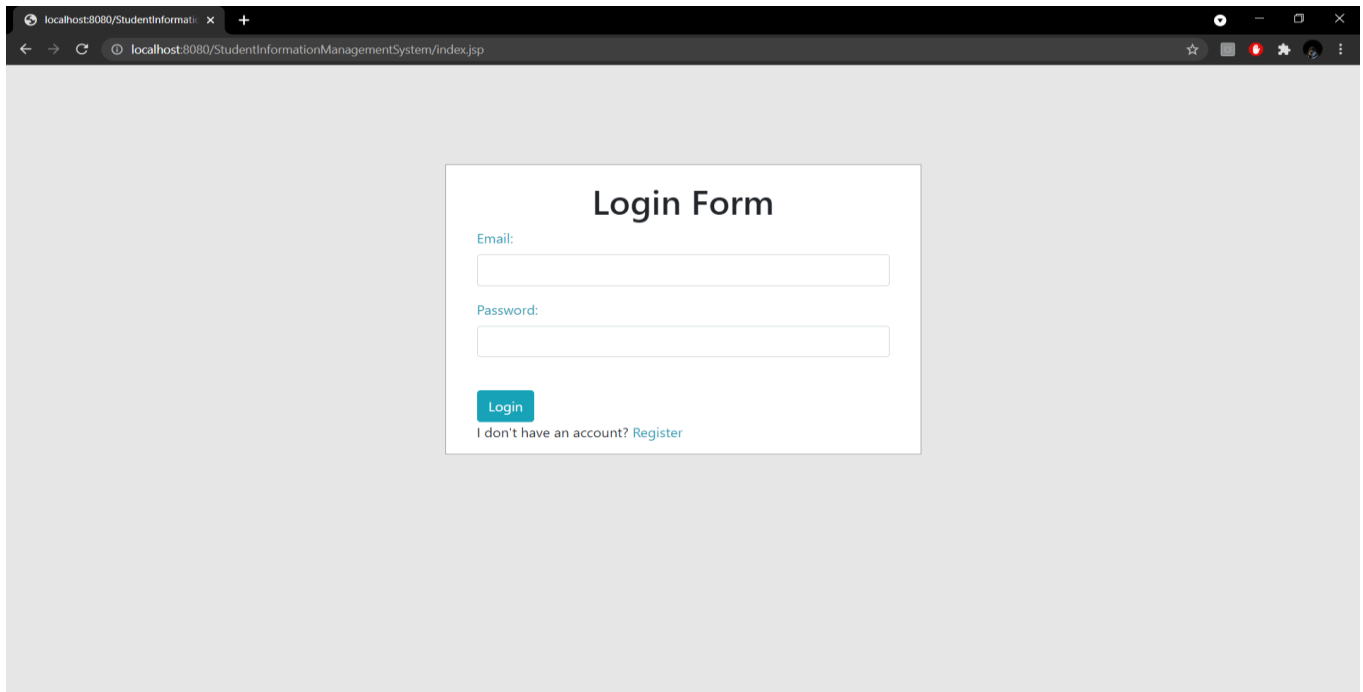
Right-click on your project e.g. MyWebProject and create a new Servlet as shown in the figure.



Give the name as “index.jsp” and select “Next”. Select “Finish” on the next screen

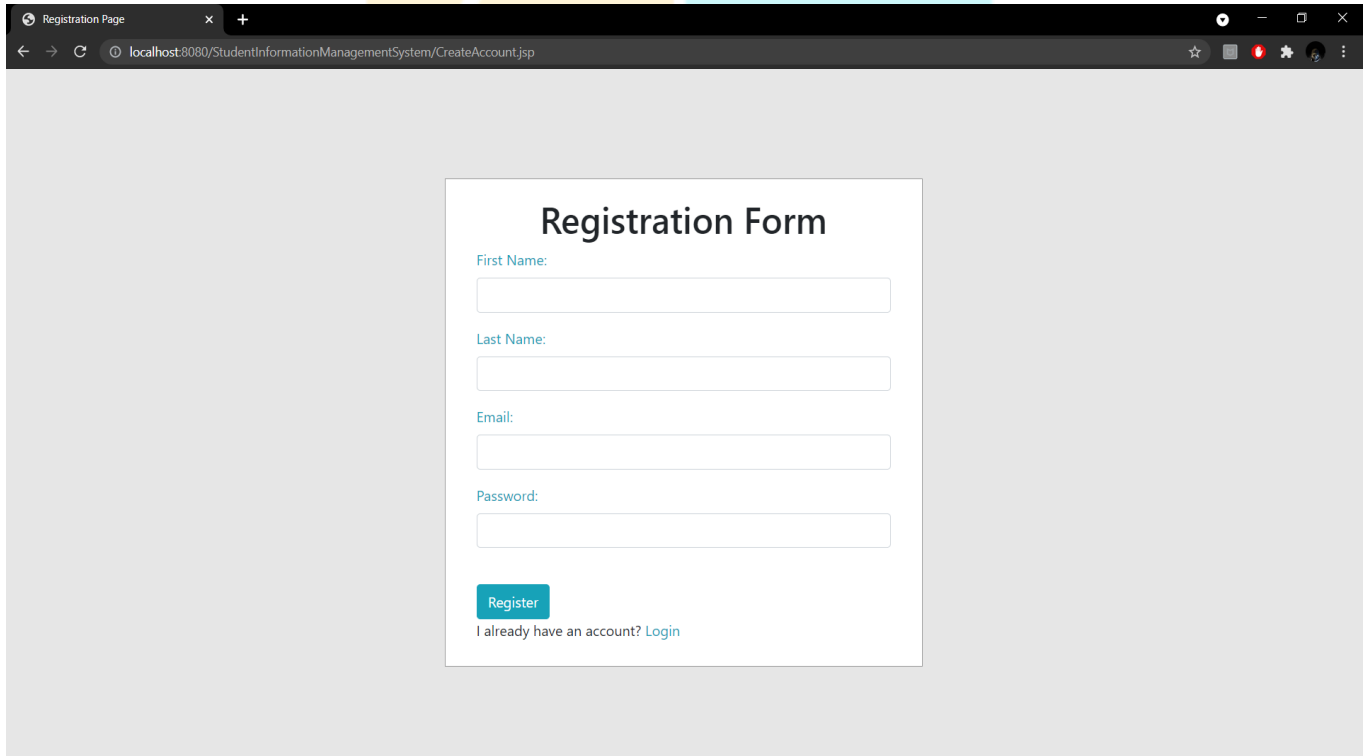
For more tutorial [Click Here](#).

UI (User Interface)



A screenshot of a web browser displaying the login page of a Student Information Management System. The browser's address bar shows the URL `localhost:8080/StudentInformationManagementSystem/index.jsp`. The page features a central white box with the title "Login Form". Inside this box, there are two input fields: "Email:" and "Password:". Below the password field is a blue "Login" button. At the bottom of the box, there is a link that says "I don't have an account? [Register](#)".

Figure 1: Login Page



A screenshot of a web browser displaying the registration page of a Student Information Management System. The browser's address bar shows the URL `localhost:8080/StudentInformationManagementSystem/CreateAccount.jsp`. The page features a central white box with the title "Registration Form". Inside this box, there are four input fields: "First Name:", "Last Name:", "Email:", and "Password:". Below the password field is a blue "Register" button. At the bottom of the box, there is a link that says "I already have an account? [Login](#)".

Figure 2: Registration Page

Invalid username and/or password Please [Try Again!](#)



Figure 3: Error Page

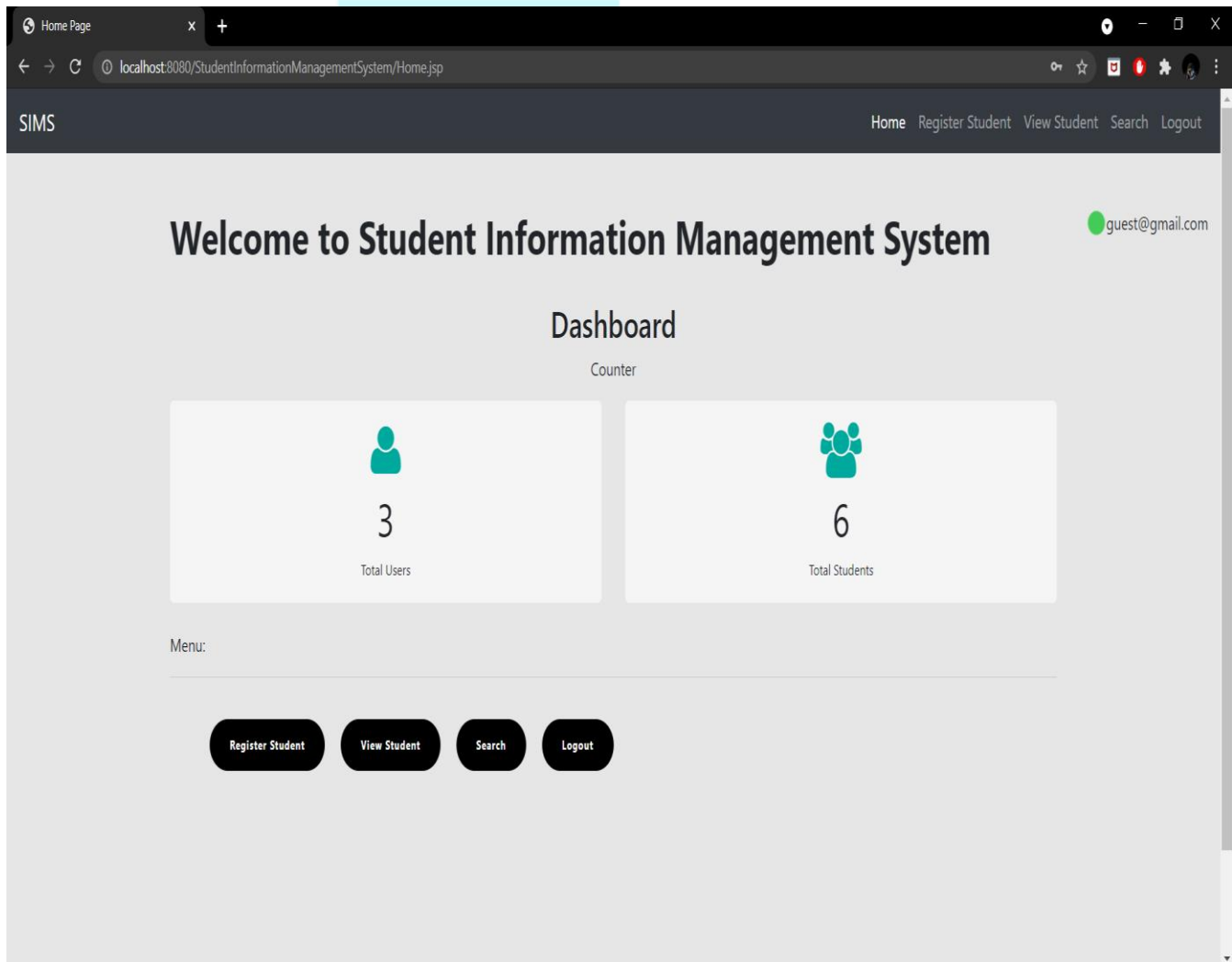
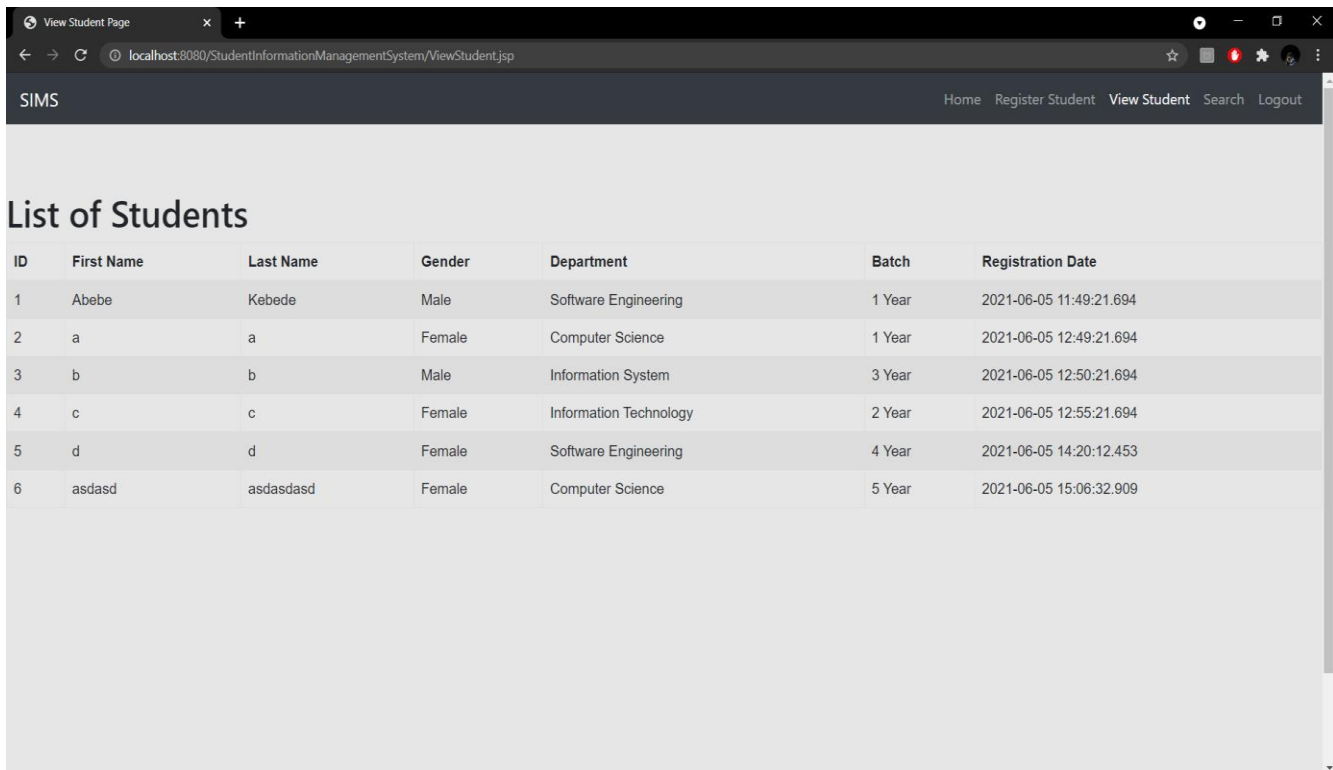


Figure 4: Home Page



View Student Page

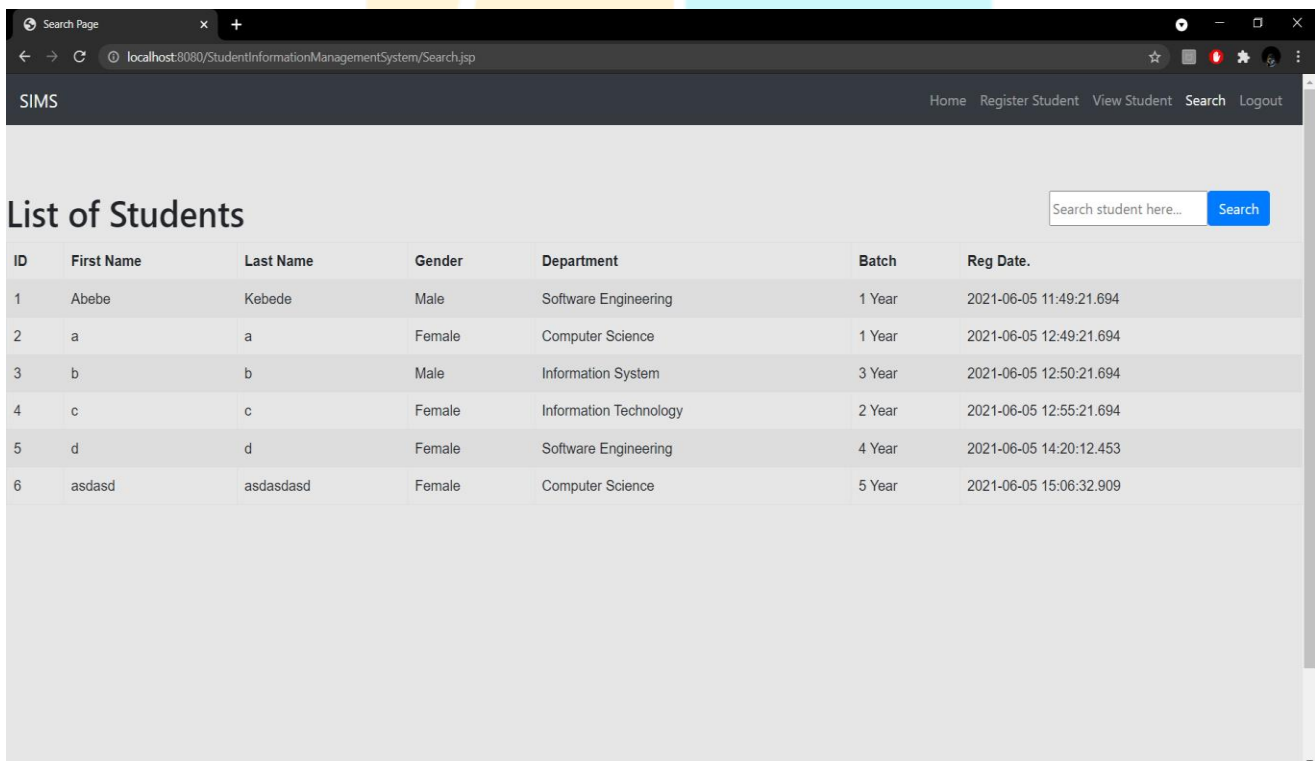
localhost:8080/StudentInformationManagementSystem/ViewStudent.jsp

SIMS Home Register Student View Student Search Logout

List of Students

ID	First Name	Last Name	Gender	Department	Batch	Registration Date
1	Abebe	Kebede	Male	Software Engineering	1 Year	2021-06-05 11:49:21.694
2	a	a	Female	Computer Science	1 Year	2021-06-05 12:49:21.694
3	b	b	Male	Information System	3 Year	2021-06-05 12:50:21.694
4	c	c	Female	Information Technology	2 Year	2021-06-05 12:55:21.694
5	d	d	Female	Software Engineering	4 Year	2021-06-05 14:20:12.453
6	asdasd	asdasdasd	Female	Computer Science	5 Year	2021-06-05 15:06:32.909

Figure 5: Display list of registered student.



Search Page

localhost:8080/StudentInformationManagementSystem/Search.jsp

SIMS Home Register Student View Student Search Logout

List of Students

Search student here... Search

ID	First Name	Last Name	Gender	Department	Batch	Reg Date.
1	Abebe	Kebede	Male	Software Engineering	1 Year	2021-06-05 11:49:21.694
2	a	a	Female	Computer Science	1 Year	2021-06-05 12:49:21.694
3	b	b	Male	Information System	3 Year	2021-06-05 12:50:21.694
4	c	c	Female	Information Technology	2 Year	2021-06-05 12:55:21.694
5	d	d	Female	Software Engineering	4 Year	2021-06-05 14:20:12.453
6	asdasd	asdasdasd	Female	Computer Science	5 Year	2021-06-05 15:06:32.909

Figure 6: Search student page.

Source code

User Validation (LoginHandler.jsp)

```
<%@ page language="java" contentType="text/html; charset= UTF-8"
    pageEncoding="UTF-8"%>
<%@ page import="java.sql.*" %>

<%
    String uname = request.getParameter("email");
    session.setAttribute("uname",uname);

    String pw = request.getParameter("pass");

    try{
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con =
        DriverManager.getConnection("jdbc:mysql://localhost/sims","root","");
        PreparedStatement ps = con.prepareStatement("SELECT * FROM userinfo WHERE Email=? AND
        Password=?");
        ps.setString(1, uname);
        ps.setString(2, pw);

        ResultSet rs = ps.executeQuery();
        if (rs.next())
        {
            response.sendRedirect("Home.jsp");
        }
        else
        {
            response.sendRedirect("LoginError.jsp");
        }
    }
    catch (SQLException e)
    {
        out.print(e.getMessage());
    }
%>
```

Create an account (Regiser.jsp)

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%@ page import="java.sql.*"%>
<%@ page import="java.util.Date"%>

<%
    Connection conn = null;
    PreparedStatement ps = null;
    userinfo user = new userinfo();
    Date date = new Date();
    Timestamp timeStamp = new Timestamp(date.getTime());
    String fname = request.getParameter("fname");
```

```

user.setFirstName(fname);
String lname = request.getParameter("lname");
user.setLastName(lname);
String email = request.getParameter("email");
user.setEmail(email);
session.setAttribute("uname", email);
String pw = request.getParameter("password");
user.setPassword(pw);
try {
    Class.forName("com.mysql.cj.jdbc.Driver");
    conn = DriverManager.getConnection("jdbc:mysql://localhost/sims","root","");
    ps = conn.prepareStatement("INSERT INTO userinfo
        (FirstName ,LastName ,Email ,Password ,RegDate)"
        + "values(?,?,?,?,?)");
    ps.setString(1, user.getFirstName());
    ps.setString(2, user.getLastName());
    ps.setString(3, user.getEmail());
    ps.setString(4, user.getPassword());
    ps.setTimestamp(5, timeStamp);

    ps.executeUpdate();
    response.sendRedirect("Home.jsp");
} catch (Exception e) {
    System.out.print(e.getMessage());
}
%>

```

Add Students into database (RegisterStudentHandler.java)

```

<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%@ page import="java.sql.*"%>
<%@ page import="java.util.Date"%>

<%
Connection conn = null;
PreparedStatement ps = null;
studentinfo student = new studentinfo();
Date date = new Date();
Timestamp timeStamp = new Timestamp(date.getTime());
String fname = request.getParameter("firstname");
student.setFirstname(fname);
String lname = request.getParameter("lastname");
student.setLastname(lname);
String gender = request.getParameter("gender");
student.setGender(gender);
String dept = request.getParameter("department");
student.setDepartment(dept);
String batch = request.getParameter("batch");
student.setBatch(batch);
String desc = request.getParameter("description");
student.setDescription(desc);

```

```

try {
    Class.forName("com.mysql.cj.jdbc.Driver");
    conn = DriverManager.getConnection("jdbc:mysql://localhost/sims","root","");
    ps = conn.prepareStatement("INSERT INTO studentinfo (FirstName ,LastName ,Gender
,Department ,Batch ,Description ,RegDate)"
        + "values(?,?,?,?,?,?,?)");
    ps.setString(1, student.getFirstname());
    ps.setString(2, student.getLastname());
    ps.setString(3, student.getGender());
    ps.setString(4, student.getDepartment());
    ps.setString(5, student.getBatch());
    ps.setString(6, student.getDescription());
    ps.setTimestamp(7, timeStamp);

    ps.executeUpdate();
    response.sendRedirect("ViewStudent.jsp");
} catch (Exception e) {
    System.out.print(e.getMessage());
}
%>

```

Display List of Student (ViewStudent.jsp)

```

<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%@ page import="java.sql.*" %>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>View Student Page</title>
<link rel="stylesheet"
    href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">
<script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js">
</script>
<script
src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>
<link href="css/Style.css" rel="stylesheet">

<style>
table {
    font-family: arial, sans-serif;
    border-collapse: collapse;
    width: 100%;
}
td, th {
    border: 1px solid #dddddd;
    text-align: left;
    padding: 8px;
}

```

```

tr:nth-child(even) {
    background-color: #dddddd;
}
</style>
</head>
<body>
<!-- ===== Navbar ===== -->
<nav class="navbar navbar-expand-md bg-dark navbar-dark">
<a class="navbar-brand" href="#">SIMS</a>
<button class="navbar-toggler" type="button" data-toggle="collapse"
data-target="#collapsibleNavbar">
<span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="collapsibleNavbar">
<ul class="navbar-nav ml-auto">
<li class="nav-item">
<a class="nav-link" href="Home.jsp">Home</a>
</li>
<li class="nav-item">
<a class="nav-link" href="RegisterStudent.jsp">Register Student</a>
</li>
<li class="nav-item active">
<a class="nav-link" href="ViewStudent.jsp">View Student</a>
</li>
<li class="nav-item">
<a class="nav-link" href="Search.jsp">Search</a>
</li>
<li class="nav-item">
<a class="nav-link" href="Logout.jsp">Logout</a>
</li>
</ul></div>
</nav><br><br><br>
<!-- ===== End Navbar ===== -->

<div class="row" style="float:right">
</div>
<h1>List of Students</h1>
<table>
<tr>
<th>ID</th>
<th>First Name</th>
<th>Last Name</th>
<th>Gender</th>
<th>Department</th>
<th>Batch</th>
<th>Registration Date</th>
</tr>
<%
try{
Class.forName("com.mysql.cj.jdbc.Driver");
Connection conn = DriverManager.getConnection("jdbc:mysql://localhost/sims","root", "");
String Query = "SELECT * FROM studentinfo";
Statement stm = conn.createStatement();
ResultSet rs = stm.executeQuery(Query);

```

```

        while (rs.next()) {
            %>
            <tr>
            <td><%= rs.getString("Id") %></td>
            <td><%= rs.getString("FirstName") %></td>
            <td><%= rs.getString("LastName") %></td>
            <td><%= rs.getString("Gender") %></td>
            <td><%= rs.getString("Department") %></td>
            <td><%= rs.getString("Batch") %></td>
            <td><%= rs.getString("RegDate") %></td>
            </tr>
            <%
            }
        }catch (Exception e) {
            out.print(e.getMessage());
        }
        %>

    </table>
    <footer style="margin-top:50vh;">
        All Right Reserved.
    </footer>
</body>
</html>

```

Search Student Page (Search.jsp)

```

<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%@ page import="java.sql.*" %>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Search Page</title>
<link rel="stylesheet"
    href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">
<script
    src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script
    src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js">
</script>
<script
    src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>
<link href="css/Style.css" rel="stylesheet">

<style>
table {
    font-family: arial, sans-serif;
    border-collapse: collapse;
    width: 100%;
}

td, th {

```

```

        border: 1px solid #dddddd;
        text-align: left;
        padding: 8px;
    }

    tr:nth-child(even) {
        background-color: #dddddd;
    }
</style>
</head>
<body>
<!-- ===== Navbar ===== -->
<nav class="navbar navbar-expand-md bg-dark navbar-dark">
<a class="navbar-brand" href="#">SIMS</a>
<button class="navbar-toggler" type="button" data-toggle="collapse"
data-target="#collapsibleNavbar">
<span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="collapsibleNavbar">
<ul class="navbar-nav ml-auto">
<li class="nav-item">
<a class="nav-link" href="Home.jsp">Home</a>
</li>
<li class="nav-item">
<a class="nav-link" href="RegisterStudent.jsp">Register Student</a>
</li>
<li class="nav-item"><a class="nav-link" href="ViewStudent.jsp">View Student</a>
</li>
<li class="nav-item active"><a class="nav-link" href="Search.jsp">Search</a>
</li>
<li class="nav-item"><a class="nav-link" href="Logout.jsp">Logout</a>
</li>
</ul>
</div>
</nav><br><br><br><!-- ===== End Navbar ===== -->
<form action="#" method="post">
<div class="row" style="float:right;margin-right:5vh;">
<input type="text" name="searchTxt" id="search" placeholder="Search student
here..." />
<button class="btn btn-primary" type="submit" name="search"
id="submit">Search</button>
</div>
<h1>List of Students</h1>
<table>
    <tr>
        <th>ID</th>
        <th>First Name</th>
        <th>Last Name</th>
        <th>Gender</th>
        <th>Department</th>
        <th>Batch</th>
        <th>Reg Date.</th>
    </tr>
<%
try{

```

```

        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection conn = DriverManager.getConnection("jdbc:mysql://localhost/sims","root"," ");
        String Query = "SELECT * FROM studentinfo";
        String lsearch = request.getParameter("searchTxt");
        if(lsearch!=null && !(lsearch.equals(""))){
            Query+=" WHERE CONCAT (FirstName,Department,Batch,RegDate) like '%" +lsearch+"%' " ;
        }

        Statement stm = conn.createStatement();
        ResultSet rs = stm.executeQuery(Query);
        while (rs.next()) {
            %>
            <tr>
            <td><%= rs.getString("Id") %></td>
            <td><%= rs.getString("FirstName") %></td>
            <td><%= rs.getString("LastName") %></td>
            <td><%= rs.getString("Gender") %></td>
            <td><%= rs.getString("Department") %></td>
            <td><%= rs.getString("Batch") %></td>
            <td><%= rs.getString("RegDate") %></td>
            </tr>
            <%
        }
    }catch (Exception e) {
        out.print(e.getMessage());
    }
    %>

</table>
</form>
<footer style="margin-top:50vh;">
    All Right Reserved.
</footer>
</body>
</html>

```

Logout Page (Logout.jsp)

```

<%
    session.removeAttribute("uname");
    session.invalidate();
    response.sendRedirect("index.jsp");
%>

```

Future Scope

- ➡ Action (Edit & Delete)
- ➡ User validation using email and password recovery.
- ➡ Improving Security (Password Encryption).