Experiment 8

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Semester: 6th	**DOP: 17/03/025**
Subject: Java	**Subject Code:22CSH-359**

Problem - 8.1

Aim

1. Setting Up Environment

Installing JDK: Downloaded and installed the Java Development Kit.

Installing Apache Tomcat: Downloaded from tomcat.apache.org and extract it.

Choosing an IDE: Used VS Code, Eclipse, or IntelliJ for development.

Creating login.html
Code :

```html
<!DOCTYPE html>
<html>
<head><title>Login</title></head>
<body>
  <form method="post" action="login">
    Username: <input type="text" name="Trilok_Rauniyar" required /><br/>
    Password: <input type="password" name="Tri@123#" required /><br/>
    <input type="submit" value="Login" />
  </form>
</body>
</html>
```

Creating LoginServlet.java
Code :

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

public class LoginServlet extends HttpServlet {
  protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
```

```
if ("admin".equals(user) && "1234".equals(pass)) {
out.println("<h2>Welcome, " + user + "!</h2>");
} else {
response.sendRedirect("login.html");
}
}
}
```

Configuring web.xml
code:

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

5. Deploying and Runing

Place login.html inside:
WebContent
src/main/webapp
Compiled and builded the project.
Copied the .war file
Started Tomcat server.

Output:

Problem - 8.2

Aim :

Setting Up Database (MySQL)
 code :
CREATE DATABASE EmployeeDB;
USE EmployeeDB;
CREATE TABLE employees (
   id INT PRIMARY KEY,
   name VARCHAR(50),
   department VARCHAR(50),
   salary DOUBLE
);
INSERT INTO employees VALUES
(101, 'Alice', 'HR', 50000),
(102, 'Bob', 'IT', 60000),
(103, 'Charlie', 'Finance', 55000);
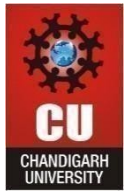
Setting Up Java Project
 Added MySQL JDBC Driver:

<dependency>
  <groupId>mysql</groupId>
  <artifactId>mysql-connector-java</artifactId>
  <version>8.0.33</version>
</dependency>

Database Connection Class (DBConnection.java)
    code :

```java
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

public class DBConnection {
    public static Connection getConnection() throws SQLException {
        String url = "jdbc:mysql://localhost:3306/EmployeeDB";
        String user = "Trilok_Rauniyar";
        String pass = "Tri@123#";
        return DriverManager.getConnection(url, user, pass);
    }
}
```

 EmployeeServlet.java

  code :

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

public class EmployeeServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {

  String idParam = request.getParameter("id");
  response.setContentType("text/html");
  PrintWriter out = response.getWriter();

  out.println("<html><head><title>Employee Management</title>");
  out.println("<link rel='stylesheet' href='https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css'/>");
  out.println("</head><body class='container'>");
  out.println("<h2 class='mt-3'>Employee Records</h2>");

  out.println("<form class='mb-3' method='get'>");
  out.println("Search by ID: <input type='text' name='id' class='form-control w-25 d-inline'/>");
  out.println("<input type='submit' value='Search' class='btn btn-primary ms-2'/>");
  out.println("</form>");
```

```java
try (Connection conn = DBConnection.getConnection()) {
        PreparedStatement stmt;
        if (idParam != null && !idParam.isEmpty()) {
            stmt = conn.prepareStatement("SELECT * FROM employees WHERE id = ?");
            stmt.setInt(1, Integer.parseInt(idParam));
        } else {
            stmt = conn.prepareStatement("SELECT * FROM employees");
        }

        ResultSet rs = stmt.executeQuery();

        out.println("<table class='table table-bordered'><tr><th>ID</th><th>Name</th><th>
Department</th><th>Salary</th></tr>");
        boolean found = false;
        while (rs.next()) {
            found = true;
            out.println("<tr><td>" + rs.getInt("id") + "</td><td>" +
                rs.getString("name") + "</td><td>" +
                rs.getString("department") + "</td><td>" +
                rs.getDouble("salary") + "</td></tr>");
        }
        if (!found) {
            out.println("<tr><td colspan='4' class='text-center'>No records found.</td></tr>");
        }
        out.println("</table>");

    } catch (Exception e) {
        out.println("<p class='text-danger'>Error: " + e.getMessage() + "</p>");
    }

    out.println("</body></html>");
  }
}
```
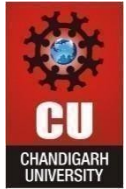
Configuring:
```xml
<web-app xmlns="http://jakarta.ee/xml/ns/jakartaee" version="5.0">
   <servlet>
     <servlet-name>EmployeeServlet</servlet-name>
     <servlet-class>EmployeeServlet</servlet-class>
   </servlet>
   <servlet-mapping>
     <servlet-name>EmployeeServlet</servlet-name>
     <url-pattern>/EmployeeServlet</url-pattern>
   </servlet-mapping>
 </web-app>
```

Output :

```
+------------------------------+
|       Search Employee        |
+------------------------------+
| Enter ID: [_____] [Search]|
+------------------------------+


+-----------------------------------------------+
| ID | Name      | Department | Salary          |
|----|-----------|------------|-----------------|
|101 | Alice     | HR         | 50000.00        |
|102 | Bob       | IT         | 60000.00        |
|103 | Charlie   | Finance    | 55000.00        |
+-----------------------------------------------+
```

8.3

Setting Up MySQL Database
 code:
CREATE DATABASE StudentDB;
USE StudentDB;
CREATE TABLE attendance (
    id INT AUTO_INCREMENT PRIMARY KEY,
    student_name VARCHAR(100),
    date DATE,
    status VARCHAR(10)
);

INSERT INTO attendance (student_name, date, status)
VALUES
('Alice', '2025-04-10', 'Present'),
('Bob', '2025-04-10', 'Absent');

Setting Up Java Project
 Added MySQL JDBC Driver:
 <dependency>
 <groupId>mysql</groupId>
 <artifactId>mysql-connector-java</artifactId>
 <version>8.0.33</version>
</dependency>

Database Connection Utility – DBConnection.java

```java
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

public class DBConnection {
    public static Connection getConnection() throws SQLException {
        String url = "jdbc:mysql://localhost:3306/StudentDB";
        String user = "amrit_paudel";
        String pass = "amrit@123#";
        return DriverManager.getConnection(url, user, pass);
    }
}
```

Creating JSP Form – attendance.jsp
  code :

```jsp
<%@ page import="java.sql.*" %>
<!DOCTYPE html>
<html>
<head>
    <title>Student Attendance</title>
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css"/>
</head>
<body class="container mt-5">
    <h2>Submit Attendance</h2>
    <form method="post" action="AttendanceServlet" class="mb-4">
        <div class="mb-3">
            <label>Student Name:</label>
            <input type="text" name="student_name" class="form-control" required />
        </div>
        <div class="mb-3">
            <label>Date:</label>
            <input type="date" name="date" class="form-control" required />
        </div>
        <div class="mb-3">
            <label>Status:</label>
            <select name="status" class="form-control">
                <option>Present</option>
                <option>Absent</option>
            </select>
        </div>
        <input type="submit" value="Submit" class="btn btn-primary" />
    </form>
```

```html
<h3>Attendance Records</h3>
    <table class="table table-bordered">
        <tr><th>ID</th><th>Name</th><th>Date</th><th>Status</th></tr>
        <%
            try {
                Connection conn = DBConnection.getConnection();
                Statement stmt = conn.createStatement();
                ResultSet rs = stmt.executeQuery("SELECT * FROM attendance");
                while(rs.next()) {
                    out.print("<tr><td>" + rs.getInt("id") + "</td><td>" +
                            rs.getString("student_name") + "</td><td>" +
                            rs.getDate("date") + "</td><td>" +
                            rs.getString("status") + "</td></tr>");
                }
            } catch(Exception e) {
                out.print("<tr><td colspan='4'>Error: " + e.getMessage() + "</td></tr>");
            }
        %>
    </table>
</body>
</html>
```

Creating Servlet
  code :
```java
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import java.sql.*;

public class AttendanceServlet extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {

        String name = request.getParameter("student_name");
        String date = request.getParameter("date");
        String status = request.getParameter("status");

        try (Connection conn = DBConnection.getConnection()) {
            String query = "INSERT INTO attendance (student_name, date, status) VALUES (?, ?, ?)";
            PreparedStatement stmt = conn.prepareStatement(query);
            stmt.setString(1, name);
            stmt.setString(2, date);
            stmt.setString(3, status);
            stmt.executeUpdate();
        } catch (Exception e) {
            e.printStackTrace();
        }
        response.sendRedirect("attendance.jsp");
    }
}
```

```
+--------------------------------+
|       Submit Attendance        |
+--------------------------------+
| Name:      [_____]       |
| Date:      [__YYYY-MM-DD__]    |
| Status:  [Present ▼]           |
| [     Submit    ]              |
+--------------------------------+


+----------------------------------------------------+
| ID | Student Name | Date         | Status          |
|----|--------------|--------------|-------------    |
| 1  | Alice        | 2025-04-10   | Present         |
| 2  | Bob          | 2025-04-10   | Absent          |
| 3  | Charlie      | 2025-04-10   | Present         |
+----------------------------------------------------+
```