



Experiment 8

Student Name: Nalin Pradhan

Branch: CSE

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Subject: Java

UID: 22BCS16857

Section: IOT-642 (B)

DOP: 17/03/025

Subject Code:22CSH-359

Problem - 8.1

Aim

1. Setting Up Environment

Installing JD:K: 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 :

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

Creating LoginServlet.java

Code :

```
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:

```
+-----+
|      Login Form      |
+-----+
| Username: [          ] |
| Password: [          ] |
| [    Login    ]       |
+-----+
```

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:

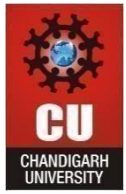
<dependency>

<groupId>mysql</groupId>

<artifactId>mysql-connector-java</artifactId>

<version>8.0.33</version>

</dependency>



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Database Connection Class (DBConnection.java)

code :

```
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 = "amrit_paudel";
        String pass = "amrit@123#";
        return DriverManager.getConnection(url, user, pass);
    }
}
```

EmployeeServlet.java

code :

```
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>");
    }
}
```

```
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();

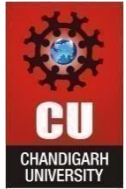
    out.println("<table class='table table-bordered'><tr><th>ID</th><th>Name</th><th>
Department</th><th>Salary</th></tr>");
    boolean found = false;
    while (rs.next()) {
        found = true;
        out.println("<tr><td>" + rs.getInt("id") + "</td><td>" +
            rs.getString("name") + "</td><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:

```
<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>
```



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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

```
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 :

```
<% @ 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>
```

<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 :

```
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

```
+-----+
```