TASK 1

Create an attendance management system for university-level graduates using Java, following the MVC architecture, and employing Maven as a build tool. This system utilizes MySQL or another database for backend data management and deploys on a Tomcat server to allow live access and usage.

Project Structure

css

```
src/main/java/
  ├── model/Student.java
  ├── dao/StudentDAO.java
 └── controller/AttendanceServlet.java
src/main/webapp/
 └── attendance.jsp
```

MySQL Table

sql

```
CREATE DATABASE attendance_db;
CREATE TABLE students (
   id INT AUTO_INCREMENT PRIMARY KEY,
   name VARCHAR(100),
   present BOOLEAN
);
```

Model: Student.java

Java

```
public class Student {
   private int id;
   private String name;
   private boolean present;


}
```

DAO: StudentDAO.java

Java

```
public class StudentDAO {
    private Connection connect() throws SQLException {
        return DriverManager.getConnection("jdbc:mysql://localhost:3306/attendance_db", "root", "password");
    }
    public List<Student> getAllStudents() throws SQLException {
        List<Student> list = new ArrayList<>();
        ResultSet rs = connect().createStatement().executeQuery("SELECT * FROM students");
        while (rs.next()) {
            Student s = new Student();
            s.setId(rs.getInt("id"));
            s.setName(rs.getString("name"));
            s.setPresent(rs.getBoolean("present"));
            list.add(s);
        }
        return list;
    }
}
```

Controller: AttendanceServlet.java

Java

```
@WebServlet("/attendance")
public class AttendanceServlet extends HttpServlet {
    protected void doGet(HttpServletRequest req, HttpServletResponse res)
        throws ServletException, IOException {
        try {
            List<Student> list = new StudentDAO().getAllStudents();
            req.setAttribute("students", list);
            req.getRequestDispatcher("attendance.jsp").forward(req, res);
        } catch (SQLException e) { throw new ServletException(e); }
    }
}
```

View: attendance.jsp

Jsp

```
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<html><body>
<h2>Attendance Records</h2>
<table border="1">
<tr><th>ID</th><th>Name</th><th>Present</th></tr>
<c:forEach var="s" items="${students}">
<tr><td>${s.id}</td><td>${s.name}</td>
<td><c:choose><c:when test="${s.present}">Yes</c:when><c:otherwise>No</c:otherwise></c:choose></td>
</tr></c:forEach></table></body></html>
```

Maven

```
<dependency>
  <groupId>mysql</groupId><artifactId>mysql-connector-java</artifactId><version>8.0.29</version>
</dependency>
```

Formula: Attendance %

Attendance % = (Days Present ÷ Total Days) × 100

TASK 2

A simple project for beginners is good to start. It can be built using Swing in Java. Here, the application tells you the no of words, the entered paragraph has.

Project Structure

css

```
WordCounter/
 └── src/
     └── WordCounterApp.java
```

Java Code – WordCounterApp.java

Java

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

public class WordCounterApp extends JFrame implements ActionListener {
    JTextArea textArea;
    JButton countButton;
    JLabel resultLabel;

    public WordCounterApp() {
        setTitle("Word Counter");
        setSize(400, 300);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLayout(new BorderLayout());

        textArea = new JTextArea("Enter your paragraph here...");
        countButton = new JButton("Count Words");
        resultLabel = new JLabel("Word Count: 0");

        countButton.addActionListener(this);

        add(new JScrollPane(textArea), BorderLayout.CENTER);
        add(countButton, BorderLayout.SOUTH);
        add(resultLabel, BorderLayout.NORTH);

        setVisible(true);
    }

    public void actionPerformed(ActionEvent e) {
        String text = textArea.getText().trim();
        if (text.isEmpty()) {
            resultLabel.setText("Word Count: 0");
        } else {
            String[] words = text.split("\\s+");
            resultLabel.setText("Word Count: " + words.length);
        }
    }

    public static void main(String[] args) {
        new WordCounterApp();
    }
}
```