import java.sql.\*;

import java.util.\*;

public class Main {

static Scanner sc = new Scanner(System.in);

public static void main(String[] args) {

if (!DatabaseConnection.connect()) {

System.out.println("Exiting program due to database connection failure.");

return;

}

int choice;

do {

System.out.println("\n===== Attendance Management System =====");

System.out.println("1. Add Student");

System.out.println("2. Mark Attendance");

System.out.println("3. View Attendance");

System.out.println("4. Exit");

System.out.print("Enter choice: ");

while (!sc.hasNextInt()) {

System.out.print("Please enter a valid number: ");

sc.next();

}

choice = sc.nextInt();

switch (choice) {

case 1:

addStudent();

break;

case 2:

markAttendance();

break;

case 3:

viewAttendance();

break;

case 4:

System.out.println("Exiting... Goodbye!");

break;

default:

System.out.println("Invalid choice! Try again.");

}

} while (choice != 4);

DatabaseConnection.close();

}

static void addStudent() {

sc.nextLine(); // consume leftover newline

System.out.print("Enter student name: ");

String name = sc.nextLine();

try {

PreparedStatement pst = DatabaseConnection.conn.prepareStatement("INSERT INTO students(name) VALUES(?)");

pst.setString(1, name);

pst.executeUpdate();

System.out.println("Student added successfully!");

} catch (SQLException e) {

System.out.println("Error adding student: " + e.getMessage());

}

}

static void markAttendance() {

System.out.print("Enter student ID: ");

while (!sc.hasNextInt()) {

System.out.print("Please enter a valid student ID: ");

sc.next();

}

int id = sc.nextInt();

sc.nextLine(); // consume leftover newline

System.out.print("Enter date (YYYY-MM-DD): ");

String date = sc.nextLine();

try {

PreparedStatement pst = DatabaseConnection.conn

.prepareStatement("INSERT INTO attendance(student\_id, date) VALUES(?, ?)");

pst.setInt(1, id);

pst.setString(2, date);

pst.executeUpdate();

System.out.println("Attendance marked!");

} catch (SQLException e) {

System.out.println("Error marking attendance: " + e.getMessage());

}

}

static void viewAttendance() {

try {

Statement st = DatabaseConnection.conn.createStatement();

ResultSet rs = st.executeQuery(

"SELECT s.id, s.name, a.date FROM students s JOIN attendance a ON s.id = a.student\_id ORDER BY a.date DESC");

System.out.println("\nID | Name | Date");

System.out.println("---------------------------");

while (rs.next()) {

System.out.printf("%d | %s | %s\n", rs.getInt("id"), rs.getString("name"), rs.getString("date"));

}

} catch (SQLException e) {

System.out.println("Error viewing attendance: " + e.getMessage());

}

}

}

class DatabaseConnection {

static Connection conn;

static boolean connect() {

try {

conn = DriverManager.getConnection("jdbc:mysql://localhost:3306/attendancedb", "root", "");

System.out.println("Connected to database!");

return true;

} catch (SQLException e) {

System.out.println("Database connection error: " + e.getMessage());

conn = null;

return false;

}

}

static void close() {

try {

if (conn != null && !conn.isClosed()) {

conn.close();

System.out.println("Database connection closed.");

}

} catch (SQLException e) {

System.out.println("Error closing connection: " + e.getMessage());

}

}

}