Problem Statement:
You are required to build a Java application that performs the following tasks using JDBC:

- Connect to a MySQL (or any relational) database named student_db.
- Create a table named students with the following schema if it doesn't already exist:

  ```
  CREATE TABLE students (
  id INT PRIMARY KEY AUTO_INCREMENT,
  name VARCHAR(50),
  grade INT
  );
  ```

- Insert at least 3 records into the table.
- Retrieve all records using a ResultSet that is scrollable and read-only, and:
- Display records in forward and backward directions.
- Move the cursor to the second row and display it.

Retrieve the records using a ResultSet that is updatable, and:

- Update the grade of a specific student.
- Insert a new student record.
- Delete a student record.

```
import java.sql.*;

public class JDBCResultSetExample {
    public static void main(String[] args) {
        String url = "jdbc:mysql://localhost:3306/student_db";  // Your DB name
        String user = "root";                                   // Your DB username
        String password = "your_password";                      // Your DB password

        try (
            Connection con = DriverManager.getConnection(url, user, password);
            Statement stmt = con.createStatement(
                ResultSet.TYPE_SCROLL_INSENSITIVE,
                ResultSet.CONCUR_READ_ONLY
            )
        ) {
            Class.forName("com.mysql.cj.jdbc.Driver");

            // Step 1: Create table if not exists
            String createTableSQL = """
```

```
            CREATE TABLE IF NOT EXISTS students (
                id INT PRIMARY KEY AUTO_INCREMENT,
                name VARCHAR(50),
                grade INT
            );
            """;
        stmt.executeUpdate(createTableSQL);

        // Step 2: Insert sample records (if needed)
        stmt.executeUpdate("INSERT INTO students (name, grade) VALUES ('Alice', 85), ('Bob',
78), ('Charlie', 90)");

        // Step 3: Scrollable ResultSet - Display forward and backward
        ResultSet rs = stmt.executeQuery("SELECT * FROM students");

        System.out.println("---- Forward Direction ----");
        while (rs.next()) {
            System.out.println(rs.getInt("id") + " " + rs.getString("name") + " " + rs.getInt("grade"));
        }

        System.out.println("---- Backward Direction ----");
        while (rs.previous()) {
            System.out.println(rs.getInt("id") + " " + rs.getString("name") + " " + rs.getInt("grade"));
        }

        // Step 4: Move to 2nd row and display
        if (rs.absolute(2)) {
            System.out.println("---- Second Row ----");
            System.out.println(rs.getInt("id") + " " + rs.getString("name") + " " + rs.getInt("grade"));
        }

        // Step 5: Updatable ResultSet
        Statement updatableStmt = con.createStatement(
            ResultSet.TYPE_SCROLL_SENSITIVE,
            ResultSet.CONCUR_UPDATABLE
        );
        ResultSet updatableRs = updatableStmt.executeQuery("SELECT * FROM students");

        // Update grade of first record
        if (updatableRs.first()) {
            updatableRs.updateInt("grade", 95);
            updatableRs.updateRow();
            System.out.println("Updated grade of first student to 95");
        }
```

```
            // Insert a new student
            updatableRs.moveToInsertRow();
            updatableRs.updateString("name", "Diana");
            updatableRs.updateInt("grade", 88);
            updatableRs.insertRow();
            System.out.println("Inserted new student: Diana");

            // Delete the last record
            if (updatableRs.last()) {
                System.out.println("Deleting student: " + updatableRs.getString("name"));
                updatableRs.deleteRow();
            }

        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```