

LAB 7

Program 1:

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

public class StudentDatabase {
    private static final String JDBC_URL =
"jdbc:mysql://localhost:3306/student_database";

    private static final String USERNAME = "your_username";

    private static final String PASSWORD = "your_password";

    public static void main(String[] args) {
        String createTableSQL = "CREATE TABLE students ("
        + "id INT AUTO_INCREMENT PRIMARY KEY,"
        + "name VARCHAR(100),"
        + "age INT,"
        + "grade VARCHAR(10)"
        + ")";

        String insertDataSQL = "INSERT INTO students (name, age, grade) VALUES "
        + "('John Doe', 20, 'A'),"
        + "('Jane Smith', 21, 'B'),"
        + "('Mike Johnson', 22, 'C')";

        try (Connection connection = DriverManager.getConnection(JDBC_URL, USERNAME,
        PASSWORD);

        Statement statement = connection.createStatement()) {
            statement.execute(createTableSQL);

            System.out.println("Table created
            successfully.");

            statement.executeUpdate(insertDataSQL);

            System.out.println("Data inserted successfully.");

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

Program 2:

```
import java.sql.*;

public class StudentDatabase {
    static final String JDBC_URL = "jdbc:mysql://localhost:3306/student_db";

    static final String USERNAME = "username";

    static final String PASSWORD = "password";

    public static void main(String[] args) {
        try (Connection connection = DriverManager.getConnection(JDBC_URL, USERNAME,
            PASSWORD)) {
            createTable(connection);

            insertData(connection, "John Doe", 25, "Computer Science");

            updateData(connection, "John Doe", 26);

            deleteData(connection, "John Doe");

        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    private static void createTable(Connection connection) throws SQLException {
        String sql = "CREATE TABLE IF NOT EXISTS students (" +
            "id INT AUTO_INCREMENT PRIMARY KEY," +
            "name VARCHAR(255) NOT NULL," +
            "age INT NOT NULL," +
            "major VARCHAR(255) NOT NULL)";

        try (Statement statement = connection.createStatement()) {
            statement.execute(sql);
        }
    }

    private static void insertData(Connection connection, String name, int age, String
        major) throws
        SQLException {
        String sql = "INSERT INTO students (name, age, major) VALUES (?, ?, ?)";
```

```

try (PreparedStatement preparedStatement = connection.prepareStatement(sql)) {

preparedStatement.setString(1, name);
preparedStatement.setInt(2, age);
preparedStatement.setString(3, major);
preparedStatement.executeUpdate();
}
}

private static void updateData(Connection connection, String name, int newAge)
throws
SQLException {
    String sql = "UPDATE students SET age = ? WHERE name = ?";
    try (PreparedStatement preparedStatement = connection.prepareStatement(sql)) {
        preparedStatement.setInt(1, newAge);
        preparedStatement.setString(2, name);
        preparedStatement.executeUpdate();
    }
}

private static void deleteData(Connection connection, String name) throws
SQLException {
    String sql = "DELETE FROM students WHERE name = ?";

    try (PreparedStatement preparedStatement = connection.prepareStatement(sql))
    {

        preparedStatement.setString(1, name);

        preparedStatement.executeUpdate();
    }
}
}

```