DBMSL ASSIGNMENT – 8

Roll No.: 31446

Write a program to implement MySQL/Oracle database connectivity with any front end language to implement Database navigation operations (add, delete, edit etc.)

CREATE TABLE

```
mysql> CREATE TABLE students(
    -> id INT PRIMARY KEY AUTO_INCREMENT,
    -> name VARCHAR(50),
    -> age INT,
    -> department VARCHAR(50)
    -> );
```

JAVA PROGRAM

```
package mypackage;

import java.sql.*;
import java.util.Scanner;

public class DatabaseNavigation {

    // Update with your MySQL credentials
    static final String JDBC_URL =
"jdbc:mysql://localhost:3306/te31446_db";
    static final String USER = "root";
    static final String PASSWORD = "pass@123";

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        try (Connection conn = DriverManager.getConnection(JDBC_URL,
USER, PASSWORD)) {
            System.out.println("Connected to MySQL database
successfully!");

            while (true) {
                System.out.println("\n===== DATABASE NAVIGATION MENU
=====");
                System.out.println("1. Add Record");
                System.out.println("2. View All Records");
                System.out.println("3. Update Record");
                System.out.println("4. Delete Record");
                System.out.println("5. Exit");
                System.out.print("Enter your choice: ");
                int choice = sc.nextInt();

                switch (choice) {
                    case 1 -> addRecord(conn, sc);
                    case 2 -> viewRecords(conn);
                    case 3 -> updateRecord(conn, sc);
                    case 4 -> deleteRecord(conn, sc);
                    case 5 -> {
                        System.out.println("Exiting...");
                        sc.close();
                        return;
                    }
                    default -> System.out.println("Invalid choice. Try
again.");
                }
            }
```

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

    // Add new record
    static void addRecord(Connection conn, Scanner sc) throws
SQLException {
        System.out.print("Enter name: ");
        sc.nextLine();
        String name = sc.nextLine();
        System.out.print("Enter age: ");
        int age = sc.nextInt();
        System.out.print("Enter department: ");
        sc.nextLine();
        String dept = sc.nextLine();

        String sql = "INSERT INTO students (name, age, department) VALUES
(?, ?, ?)";
        PreparedStatement stmt = conn.prepareStatement(sql);
        stmt.setString(1, name);
        stmt.setInt(2, age);
        stmt.setString(3, dept);
        stmt.executeUpdate();

        System.out.println("Record added successfully!");
    }

    // View all records
    static void viewRecords(Connection conn) throws SQLException {
        String sql = "SELECT * FROM students";
        Statement stmt = conn.createStatement();
        ResultSet rs = stmt.executeQuery(sql);

        System.out.println("\n--- Student Records ---");
        while (rs.next()) {
            System.out.printf("ID: %d | Name: %s | Age: %d | Department:
%s%n",
                    rs.getInt("id"), rs.getString("name"),
rs.getInt("age"), rs.getString("department"));
        }
    }

    // Update a record
    static void updateRecord(Connection conn, Scanner sc) throws
SQLException {
        System.out.print("Enter ID to update: ");
        int id = sc.nextInt();
        System.out.print("Enter new age: ");
        int age = sc.nextInt();
        sc.nextLine();
        System.out.print("Enter new department: ");
        String dept = sc.nextLine();

        String sql = "UPDATE students SET age = ?, department = ? WHERE
id = ?";
        PreparedStatement stmt = conn.prepareStatement(sql);
```

```
        stmt.setInt(1, age);
        stmt.setString(2, dept);
        stmt.setInt(3, id);

        int rows = stmt.executeUpdate();
        if (rows > 0)
            System.out.println("Record updated successfully!");
        else
            System.out.println("No record found with ID " + id);
    }

    // Delete a record
    static void deleteRecord(Connection conn, Scanner sc) throws
SQLException {
        System.out.print("Enter ID to delete: ");
        int id = sc.nextInt();

        String sql = "DELETE FROM students WHERE id = ?";
        PreparedStatement stmt = conn.prepareStatement(sql);
        stmt.setInt(1, id);

        int rows = stmt.executeUpdate();
        if (rows > 0)
            System.out.println("Record deleted successfully!");
        else
            System.out.println("No record found with ID " + id);
    }
}
```

OUTPUT

```
Connected to MySQL database successfully!

===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 1
Enter name: Ramesh Sharma
Enter age: 21
Enter department: CS
Record added successfully!

===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 1
Enter name: Vijay Verma
Enter age: 24
Enter department: IT
Record added successfully!
```

```
===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 2

--- Student Records ---
ID: 1 | Name: Ramesh Sharma | Age: 21 | Department: CS
ID: 2 | Name: Vijay Verma | Age: 24 | Department: IT

===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 3
Enter ID to update: 2
Enter new age: 25
Enter new department: CS
Record updated successfully!

===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 2

--- Student Records ---
ID: 1 | Name: Ramesh Sharma | Age: 21 | Department: CS
ID: 2 | Name: Vijay Verma | Age: 25 | Department: CS

===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 4
Enter ID to delete: 2
Record deleted successfully!

===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 2

--- Student Records ---
ID: 1 | Name: Ramesh Sharma | Age: 21 | Department: CS
```

```
===== DATABASE NAVIGATION MENU =====
1. Add Record
2. View All Records
3. Update Record
4. Delete Record
5. Exit
Enter your choice: 5
Exiting...
```