VNRVJIET

Name of the Laboratory:

Name of the Experiment:

Experiment No: **Date:**

Week-4

Aim: Develop a java standalone application that connects with the database (Oracle / mySql) and perform the CRUD operation on the database tables

Codes:

- **Student.java**

```
//CRUD: create,Read,Update,Delete operations

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.Scanner;

public class StudentCRUD {

    static String DB_URL = "jdbc:mysql://localhost:3306/demo";
    static String USER = "root";
    static String PASS = "1@Thirupathi";
    // static String sql3 = "Insert into student values (?,?,?)";

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

        try {
            // Step 1: Register the JDBC driver
            // Class.forName("oracle.jdbc.driver.OracleDriver"); // MySQL Driver
            // Step 2: Open a connection
            conn = DriverManager.getConnection(DB_URL, USER, PASS);

            int choice;
            do {
                System.out.println("\n*** Student CRUD Application ***");
                System.out.println("1. Insert Student");
                System.out.println("2. Display Students");
                System.out.println("3. Update Student");
                System.out.println("4. Delete Student");
                System.out.println("5. Exit");
                System.out.print("Enter your choice: ");
                choice = sc.nextInt();
                sc.nextLine();  // consume newline

                switch (choice)
                {
                    case 1: insertStudent(conn, sc); break;
```

```
                case 2: displayStudents(conn);   break;
                case 3: updateStudent(conn, sc); break;
                case 4: deleteStudent(conn, sc); break;
                case 5: System.out.println("Exiting..."); break;
                default: System.out.println("Invalid choice. Please try again.");
            }
        } while (choice != 5);

    } catch (Exception e) {
        e.printStackTrace();
    } finally {
        try {
            if (conn != null) conn.close();
        } catch (SQLException e) {
            e.printStackTrace();
        }
        sc.close();
    }
}

// Method to insert a new student
private static void insertStudent(Connection conn, Scanner sc) {
    try {
        System.out.print("Enter Student Name: ");
        String name = sc.nextLine();
        System.out.print("Enter Register Number: ");
        String regNo = sc.nextLine();
        System.out.print("Enter Marks for Subject 1: ");
        int mark1 = sc.nextInt();
        System.out.print("Enter Marks for Subject 2: ");
        int mark2 = sc.nextInt();
        System.out.print("Enter Marks for Subject 3: ");
        int mark3 = sc.nextInt();

        String insertSQL = "INSERT INTO student (name, roll_no, mark1, mark2, mark3) VALUES (?, ?, ?, ?, ?)";
        PreparedStatement pstmt = conn.prepareStatement(insertSQL);
        pstmt.setString(1, name);
        pstmt.setString(2, regNo);
        pstmt.setInt(3, mark1);
        pstmt.setInt(4, mark2);
        pstmt.setInt(5, mark3);

        int rows = pstmt.executeUpdate();
        System.out.println(rows + " row(s) inserted successfully!");

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

// Method to display all students
private static void displayStudents(Connection conn) {
    try {
        String selectSQL = "SELECT * FROM student";
        Statement stmt = conn.createStatement();
        ResultSet rs = stmt.executeQuery(selectSQL);

        System.out.println("\nStudent Data:");
        while (rs.next()) {
            String name = rs.getString("name");
            String regNo = rs.getString("roll_no");
            int mark1 = rs.getInt("mark1");
            int mark2 = rs.getInt("mark2");
            int mark3 = rs.getInt("mark3");

            System.out.println("Name: " + name + ", Reg. No: " + regNo +
```

```
                        ", Marks: [" + mark1 + ", " + mark2 + ", " + mark3 + "]");
            }
            rs.close();
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    // Method to update student information
    private static void updateStudent(Connection conn, Scanner sc) {
        try {
            System.out.print("Enter Register Number of Student to Update: ");
            String regNo = sc.nextLine();
            // sc.nextLine();  // consume newline
            System.out.print("Enter New Name: ");
            String newName = sc.nextLine();
            System.out.print("Enter New Marks for Subject 1: ");
            int newMark1 = sc.nextInt();
            System.out.print("Enter New Marks for Subject 2: ");
            int newMark2 = sc.nextInt();
            System.out.print("Enter New Marks for Subject 3: ");
            int newMark3 = sc.nextInt();

            // System.out.println(regNo+newName+newMark1+newMark2+newMark3);

            String updateSQL = "UPDATE student SET name=?, mark1=?, mark2=?, mark3=? WHERE roll_no=?";
            PreparedStatement pstmt = conn.prepareStatement(updateSQL);
            pstmt.setString(1, newName);
            pstmt.setString(5, regNo);
            pstmt.setInt(2, newMark1);
            pstmt.setInt(3, newMark2);
            pstmt.setInt(4, newMark3);

            int rows = pstmt.executeUpdate();
            System.out.println(rows + " row(s) updated successfully!");

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

    // Method to delete a student
    private static void deleteStudent(Connection conn, Scanner sc)
    {
        try {
            System.out.print("Enter Register Number of Student to Delete: ");
            String regNo = sc.nextLine();

            String deleteSQL = "DELETE FROM student WHERE roll_no=?";
            PreparedStatement pstmt = conn.prepareStatement(deleteSQL);
            pstmt.setString(1, regNo);

            int rows = pstmt.executeUpdate();
            System.out.println(rows + " row(s) deleted successfully!");

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

- **Sql**

```
CREATE TABLE student (
    name VARCHAR(100),
    roll_no VARCHAR(100),
    mark1 INT,
    mark2 INT,
    mark3 INT
);
```

OUTPUT :

```
*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 1
Enter Student Name: bharath
Enter Register Number: 23071a05j6
Enter Marks for Subject 1: 50
Enter Marks for Subject 2: 60
Enter Marks for Subject 3: 70
1 row(s) inserted successfully!

*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 1
Enter Student Name: sunil
Enter Register Number: 23071a05j2
Enter Marks for Subject 1: 20
Enter Marks for Subject 2: 30
Enter Marks for Subject 3: 40
1 row(s) inserted successfully!
```

```
*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 3
Enter Register Number of Student to Update: 23071a05j4
Enter New Name: karthik
Enter New Marks for Subject 1: 100
Enter New Marks for Subject 2: 100
Enter New Marks for Subject 3: 100
1 row(s) updated successfully!

*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 4
Enter Register Number of Student to Delete: 23071a0515
1 row(s) deleted successfully!

*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 5
Exiting...
pkarthikreddy@P-karthik-Reddy JDBCconnection %
```

```
*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 1
Enter Student Name: sanath
Enter Register Number: 23071a0515
Enter Marks for Subject 1: 40
Enter Marks for Subject 2: 50
Enter Marks for Subject 3: 60
1 row(s) inserted successfully!

*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 1
Enter Student Name: venkat
Enter Register Number: 23071a05j3
Enter Marks for Subject 1: 50
Enter Marks for Subject 2: 60
Enter Marks for Subject 3: 80
1 row(s) inserted successfully!

*** Student CRUD Application ***
1. Insert Student
2. Display Students
3. Update Student
4. Delete Student
5. Exit
Enter your choice: 2

Student Data:
Name: karthik, Reg. No: 23071a05j4, Marks: [30, 40, 50]
Name: bharath, Reg. No: 23071a05j6, Marks: [50, 60, 70]
Name: sunil, Reg. No: 23071a05j2, Marks: [20, 30, 40]
Name: sanath, Reg. No: 23071a0515, Marks: [40, 50, 60]
Name: venkat, Reg. No: 23071a05j3, Marks: [50, 60, 80]
```

name	roll_no	mark1	mark2	mark3
karthik	23071a05j4	100	100	100
bharath	23071a05j6	50	60	70
sunil	23071a05j2	20	30	40
venkat	23071a05j3	50	60	80