Lab 3

SQL Basics and JDBC

1. Write a Java program to connect with MySQL database.
2. Write a Java program to create a database whose name provided by user from console..
3. Inside the database created above, create a table named **employee** having following attributes using Java code.
    a. RollNo(PRIMARY KEY)
    b. Firstname
    c. Lastname
    d. Address
    e. Email (UNIQUE)
    f. DateOfBirth
4. Write a Java Program to insert record of students in the student table created above from console where user can insert as much data as s/he wants. Hint: Ask a question want to insert more data?(y/n) and insert accordingly
5. Write a Java program to display all the records of student who live in **Kathmandu.**
6. Write a Java Program to update the name of 5th record you have in your student table to **Ram Sharma.**
7. Write a Java Program to delete the record of last student.

Lab3.java

```
import javax.swing.*;
import java.sql.*;
import java.util.Scanner;

public class Lab3 {

   public static void main(String[] args) {
      String DBName = JOptionPane.showInputDialog("Enter The Name Of Database You want to Create:");

      try {
         Connection conn = DriverManager.getConnection("Jdbc:mysql://localhost/", "root", "");
         // Database creation query
         String query = "CREATE DATABASE " + DBName;
         PreparedStatement pst = conn.prepareStatement(query);
         pst.executeUpdate();
         System.out.println("Database created successfully!");

         // Table creation query
         Connection con = DriverManager.getConnection("Jdbc:mysql://localhost/" + DBName, "root", "");
```

```
        String tquery = "CREATE TABLE employee( RollNo INT PRIMARY KEY, Firstname
VARCHAR(50), Lastname VARCHAR(50), Address VARCHAR(100), Email
VARCHAR(100) UNIQUE, DateOfBirth DATE)";
        PreparedStatement pst1 = con.prepareStatement(tquery);
        pst1.executeUpdate();
        System.out.println("Table created successfully!");

        // Data insertion
        String iquery = "INSERT INTO employee (RollNo, Firstname, Lastname, Address,
Email, DateOfBirth) VALUES (?, ?, ?, ?, ?, ?)";
        PreparedStatement pst2 = con.prepareStatement(iquery);
        Scanner sc = new Scanner(System.in);

        String continueInput;
        do {
            System.out.print("Enter RollNo: ");
            int rollNo = sc.nextInt();
            sc.nextLine(); // Consume newline

            System.out.print("Enter Firstname: ");
            String firstname = sc.nextLine();

            System.out.print("Enter Lastname: ");
            String lastname = sc.nextLine();

            System.out.print("Enter Address: ");
            String address = sc.nextLine();

            System.out.print("Enter Email: ");
            String email = sc.nextLine();
            System.out.print("Enter DateOfBirth (yyyy-mm-dd): ");
            String dob = sc.nextLine();

            pst2.setInt(1, rollNo);
            pst2.setString(2, firstname);
            pst2.setString(3, lastname);
            pst2.setString(4, address);
            pst2.setString(5, email);
            pst2.setDate(6, java.sql.Date.valueOf(dob));
            pst2.executeUpdate();
            System.out.print("Want to insert more data? (y/n): ");
            continueInput = sc.nextLine();
        } while (continueInput.equalsIgnoreCase("y"));
        System.out.println("Data inserted successfully!");
```

```
        // Data selection query
        String squery = "SELECT * FROM employee WHERE Address = ?";
        PreparedStatement pst3 = con.prepareStatement(squery);
        pst3.setString(1, "Kathmandu");

        ResultSet rs = pst3.executeQuery();
        while (rs.next()) {
            System.out.println("RollNo: " + rs.getInt("RollNo"));
            System.out.println("Firstname: " + rs.getString("Firstname"));
            System.out.println("Lastname: " + rs.getString("Lastname"));
            System.out.println("Address: " + rs.getString("Address"));
            System.out.println("Email: " + rs.getString("Email"));
            System.out.println("DateOfBirth: " + rs.getDate("DateOfBirth"));
        }
        System.out.println("End of data.");

        //update query
        String uquery = "SELECT RollNo FROM employee ORDER BY RollNo LIMIT 4, 1";
        PreparedStatement pst4 = con.prepareStatement(uquery);
        ResultSet rs1 = pst4.executeQuery();
        if (rs1.next()) {
            int rollNo = rs1.getInt("RollNo");
            System.out.println("rollno is " + rollNo);
            String updatequery = "UPDATE employee SET Firstname = 'Ram', Lastname =
'Sharma' WHERE RollNo = ?";
            PreparedStatement pstmt = con.prepareStatement(updatequery);
            pstmt.setInt(1, rollNo);
            pstmt.executeUpdate();
            System.out.println("Record updated successfully!");

        } else {
            System.out.println("5th record does not exist.");
        }

        // Deletion query
        String dquery = "SELECT RollNo FROM employee ORDER BY RollNo DESC LIMIT
1";
        PreparedStatement pst5 = con.prepareStatement(dquery);
        ResultSet rs2 = pst5.executeQuery();

        if (rs2.next()) {
            int rollNo = rs2.getInt("RollNo");
            String deletequery = "DELETE FROM employee WHERE RollNo = ?";
            PreparedStatement pstmt = con.prepareStatement(deletequery);
            pstmt.setInt(1, rollNo);
```

```
            pstmt.executeUpdate();
            System.out.println("Last record deleted successfully!");
        } else {
            System.out.println("No records to delete.");
        }
    } catch (Exception e) {
        System.out.println("SQL Error: " + e.getMessage());

    }
  }
}
```

Discussion and Conclusion:
In this lab, we learn and discussed about database using SQL and JDBC. We learn different task in SQL like create, update, delete and read operation. We called DriverManager class to connect to database and use PreparedStatement.