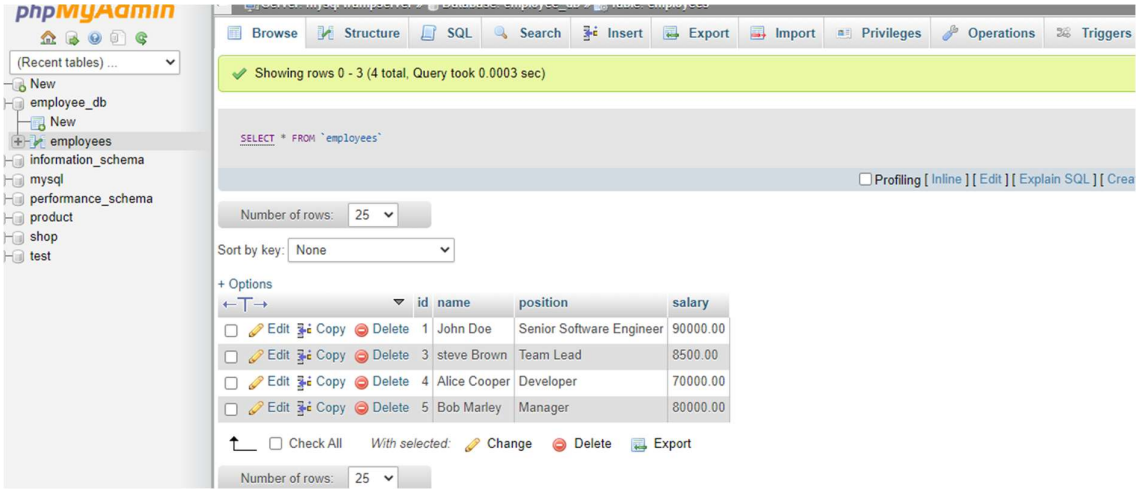
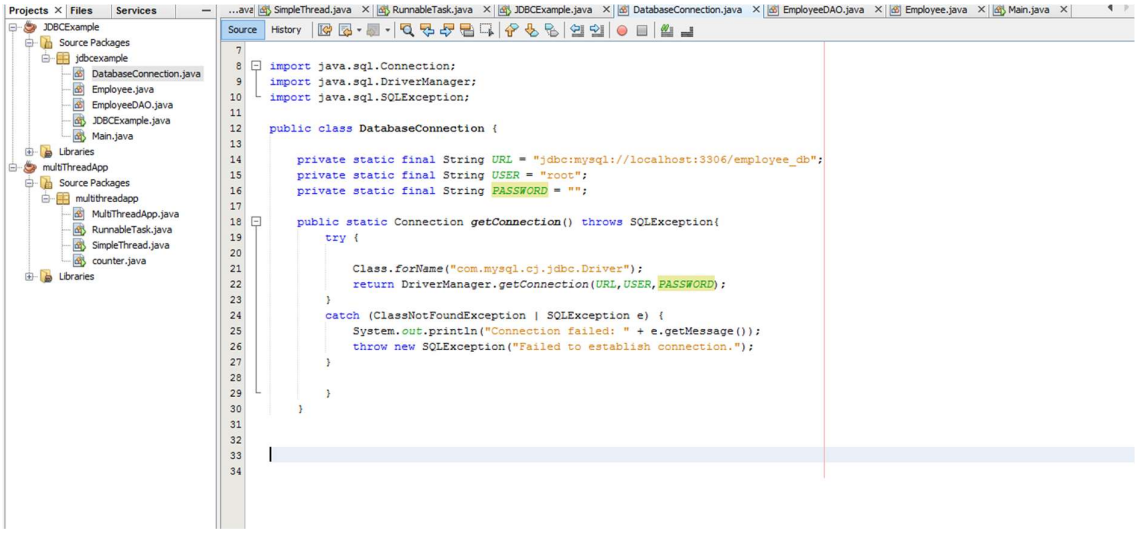
1. Set Up MySQL Database

```
CREATE DATABASE employee_db;

USE employee_db;

CREATE TABLE employees (
    id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100),
    position VARCHAR(100),
    salary DECIMAL(10, 2)
);
```



2. Establish JDBC Connection

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

public class DatabaseConnection {
    private static final String URL =
"jdbc:mysql://localhost:3306/employee_db"; // Database URL
    private static final String USER = "root"; // Your MySQL username
    private static final String PASSWORD = "password"; // Your MySQL
password

    public static Connection getConnection() throws SQLException {
        try {
            // Load the JDBC driver
            Class.forName("com.mysql.cj.jdbc.Driver");
            // Return the database connection
            return DriverManager.getConnection(URL, USER, PASSWORD);
        } catch (ClassNotFoundException | SQLException e) {
            System.out.println("Connection failed: " + e.getMessage());
            throw new SQLException("Failed to establish connection.");
        }
    }
}
```

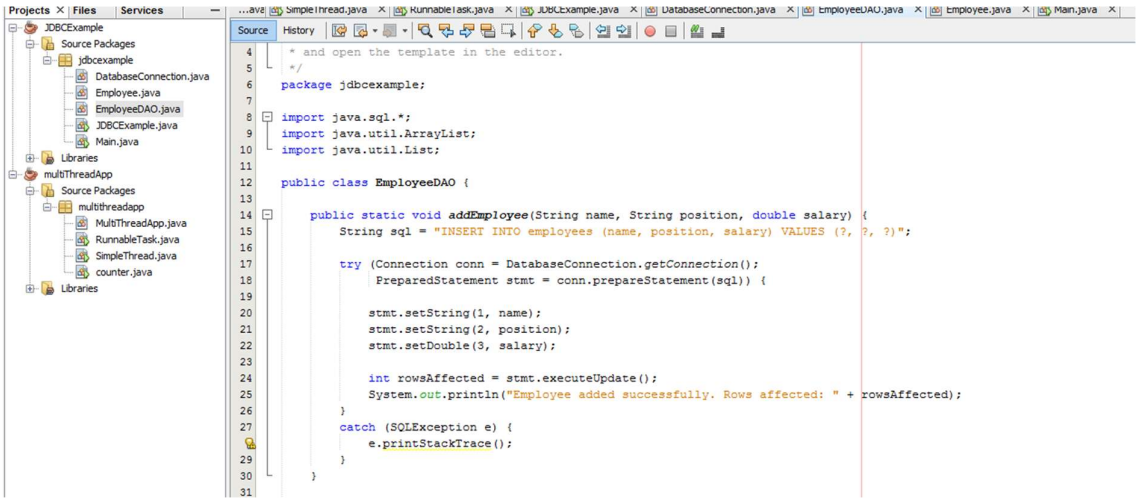


3. Perform CRUD Operations

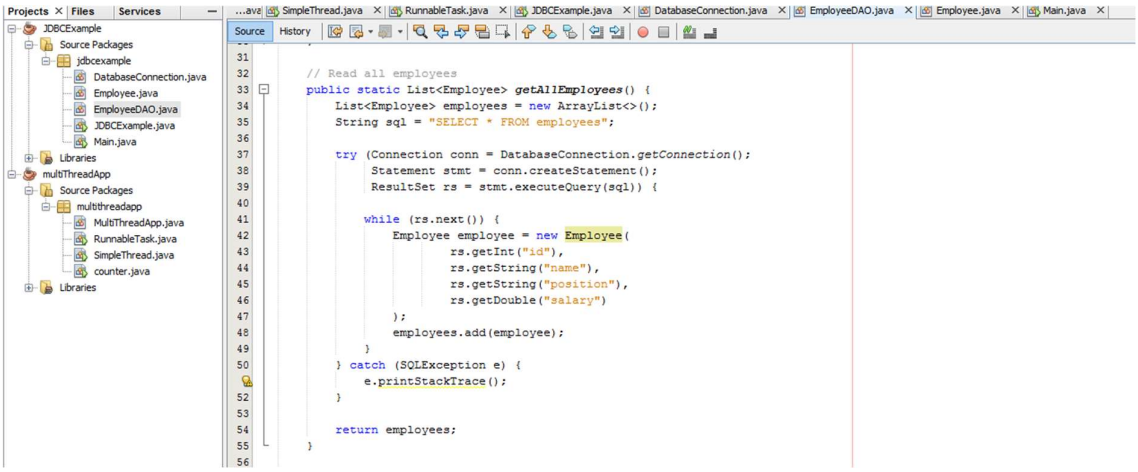
```
import java.sql.*;
import java.util.ArrayList;
import java.util.List;

public class EmployeeDAO {

    // Create an employee
    public static void addEmployee(String name, String position, double
salary) {
        String sql = "INSERT INTO employees (name, position, salary) VALUES
(?, ?, ?)";

        try (Connection conn = DatabaseConnection.getConnection();
             PreparedStatement stmt = conn.prepareStatement(sql)) {

            stmt.setString(1, name);
            stmt.setString(2, position);
            stmt.setDouble(3, salary);

            int rowsAffected = stmt.executeUpdate();
            System.out.println("Employee added successfully. Rows affected:
" + rowsAffected);
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    // Read all employees
    public static List<Employee> getAllEmployees() {
        List<Employee> employees = new ArrayList<>();
        String sql = "SELECT * FROM employees";

        try (Connection conn = DatabaseConnection.getConnection();
             Statement stmt = conn.createStatement();
             ResultSet rs = stmt.executeQuery(sql)) {

            while (rs.next()) {
                Employee employee = new Employee(
                    rs.getInt("id"),
                    rs.getString("name"),
                    rs.getString("position"),
                    rs.getDouble("salary")
                );
                employees.add(employee);
            }
        } catch (SQLException e) {
            e.printStackTrace();
        }

        return employees;
    }

    // Update an employee's information
    public static void updateEmployee(int id, String name, String position,
double salary) {
        String sql = "UPDATE employees SET name = ?, position = ?, salary =
? WHERE id = ?";
```

```
        try (Connection conn = DatabaseConnection.getConnection();
             PreparedStatement stmt = conn.prepareStatement(sql)) {

            stmt.setString(1, name);
            stmt.setString(2, position);
            stmt.setDouble(3, salary);
            stmt.setInt(4, id);

            int rowsAffected = stmt.executeUpdate();
            System.out.println("Employee updated successfully. Rows
affected: " + rowsAffected);
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    // Delete an employee
    public static void deleteEmployee(int id) {
        String sql = "DELETE FROM employees WHERE id = ?";

        try (Connection conn = DatabaseConnection.getConnection();
             PreparedStatement stmt = conn.prepareStatement(sql)) {

            stmt.setInt(1, id);
            int rowsAffected = stmt.executeUpdate();
            System.out.println("Employee deleted successfully. Rows
affected: " + rowsAffected);
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }
}
```

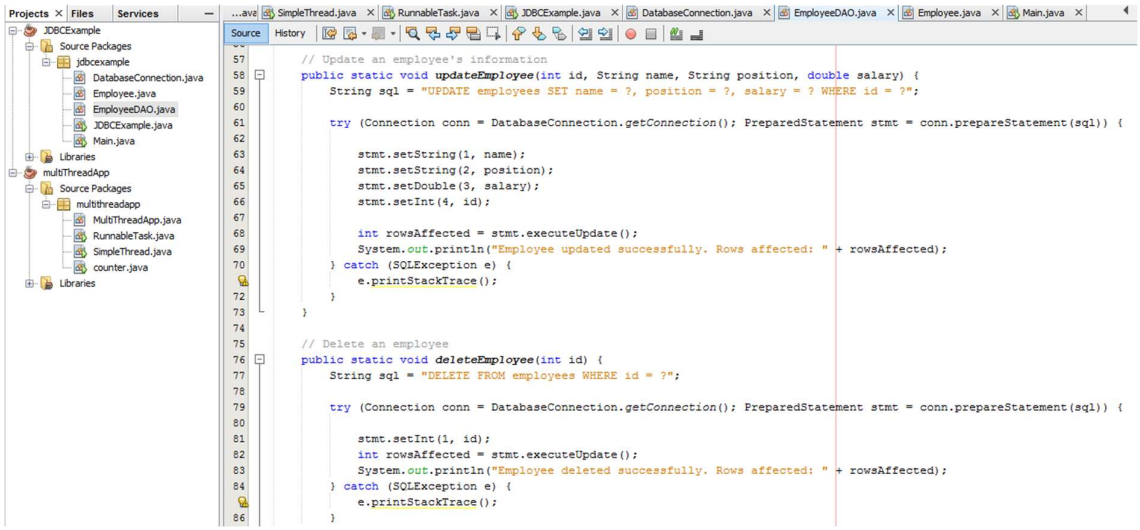
Code:



```
 * and open the template in the editor.
 */
package jdbcexample;

import java.sql.*;
import java.util.ArrayList;
import java.util.List;

public class EmployeeDAO {

    public static void addEmployee(String name, String position, double salary) {
        String sql = "INSERT INTO employees (name, position, salary) VALUES (?, ?, ?)";

        try (Connection conn = DatabaseConnection.getConnection();
             PreparedStatement stmt = conn.prepareStatement(sql)) {

            stmt.setString(1, name);
            stmt.setString(2, position);
            stmt.setDouble(3, salary);

            int rowsAffected = stmt.executeUpdate();
            System.out.println("Employee added successfully. Rows affected: " + rowsAffected);
        }
        catch (SQLException e) {
            e.printStackTrace();
        }
    }
```



```
    // Read all employees
    public static List<Employee> getAllEmployees() {
        List<Employee> employees = new ArrayList<>();
        String sql = "SELECT * FROM employees";

        try (Connection conn = DatabaseConnection.getConnection();
             Statement stmt = conn.createStatement();
             ResultSet rs = stmt.executeQuery(sql)) {

            while (rs.next()) {
                Employee employee = new Employee(
                        rs.getInt("id"),
                        rs.getString("name"),
                        rs.getString("position"),
                        rs.getDouble("salary")
                );
                employees.add(employee);
            }
        } catch (SQLException e) {
            e.printStackTrace();
        }

        return employees;
    }
```

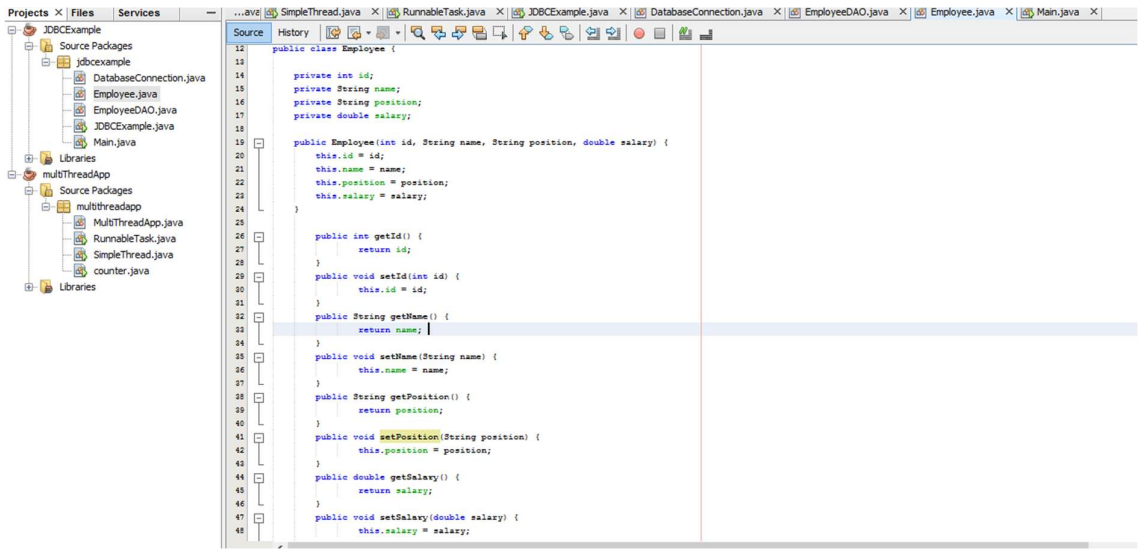


```
    // Update an employee's information
    public static void updateEmployee(int id, String name, String position, double salary) {
        String sql = "UPDATE employees SET name = ?, position = ?, salary = ? WHERE id = ?";

        try (Connection conn = DatabaseConnection.getConnection(); PreparedStatement stmt = conn.prepareStatement(sql)) {

            stmt.setString(1, name);
            stmt.setString(2, position);
            stmt.setDouble(3, salary);
            stmt.setInt(4, id);

            int rowsAffected = stmt.executeUpdate();
            System.out.println("Employee updated successfully. Rows affected: " + rowsAffected);
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    // Delete an employee
    public static void deleteEmployee(int id) {
        String sql = "DELETE FROM employees WHERE id = ?";

        try (Connection conn = DatabaseConnection.getConnection(); PreparedStatement stmt = conn.prepareStatement(sql)) {

            stmt.setInt(1, id);
            int rowsAffected = stmt.executeUpdate();
            System.out.println("Employee deleted successfully. Rows affected: " + rowsAffected);
        } catch (SQLException e) {
            e.printStackTrace();
        }
```

4. Create `Employee.java` Class

```
public class Employee {
    private int id;
    private String name;
    private String position;
    private double salary;

    public Employee(int id, String name, String position, double salary)
{
        this.id = id;
        this.name = name;
        this.position = position;
        this.salary = salary;
    }

    // Getters and setters
    public int getId() { return id; }
    public void setId(int id) { this.id = id; }

    public String getName() { return name; }
    public void setName(String name) { this.name = name; }

    public String getPosition() { return position; }
    public void setPosition(String position) { this.position = position;
}

    public double getSalary() { return salary; }
    public void setSalary(double salary) { this.salary = salary; }

    @Override
    public String toString() {
        return "Employee{id=" + id + ", name='" + name + "', position='"
+ position + "', salary=" + salary + '}';
    }
}
```

Code:

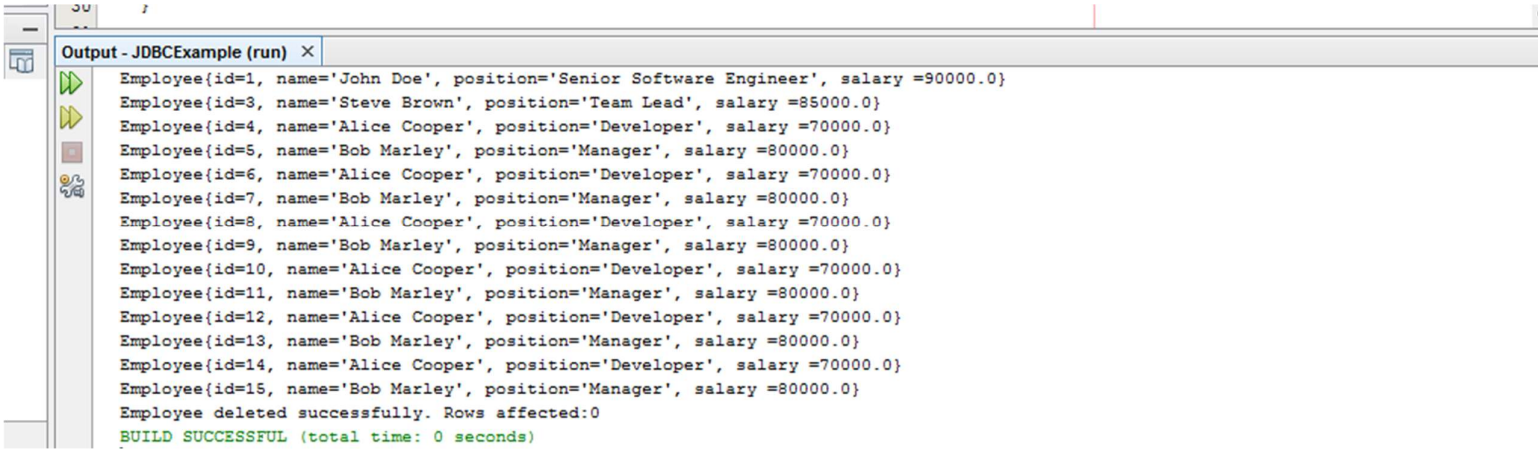


5. Test the Application

```
import java.util.List;

public class Main {
    public static void main(String[] args) {
        // Add employees
        EmployeeDAO.addEmployee("Alice Cooper", "Developer", 70000);
        EmployeeDAO.addEmployee("Bob Marley", "Manager", 80000);

        // Update employee
        EmployeeDAO.updateEmployee(1, "John Doe", "Senior Software
Engineer", 90000);

        // Get all employees
        List<Employee> employees = EmployeeDAO.getAllEmployees();
        employees.forEach(System.out::println);

        // Delete employee
        EmployeeDAO.deleteEmployee(2);
    }
}
```

Code:

Output:


Output - JDBCExample (run)
Employee{id=1, name='John Doe', position='Senior Software Engineer', salary =90000.0}
Employee{id=3, name='Steve Brown', position='Team Lead', salary =85000.0}
Employee{id=4, name='Alice Cooper', position='Developer', salary =70000.0}
Employee{id=5, name='Bob Marley', position='Manager', salary =80000.0}
Employee{id=6, name='Alice Cooper', position='Developer', salary =70000.0}
Employee{id=7, name='Bob Marley', position='Manager', salary =80000.0}
Employee{id=8, name='Alice Cooper', position='Developer', salary =70000.0}
Employee{id=9, name='Bob Marley', position='Manager', salary =80000.0}
Employee{id=10, name='Alice Cooper', position='Developer', salary =70000.0}
Employee{id=11, name='Bob Marley', position='Manager', salary =80000.0}
Employee{id=12, name='Alice Cooper', position='Developer', salary =70000.0}
Employee{id=13, name='Bob Marley', position='Manager', salary =80000.0}
Employee{id=14, name='Alice Cooper', position='Developer', salary =70000.0}
Employee{id=15, name='Bob Marley', position='Manager', salary =80000.0}
Employee deleted successfully. Rows affected:0
BUILD SUCCESSFUL (total time: 0 seconds)