JAVA - J2EE Batch 2

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# Assignment-12

## 1  PROBLEM STATEMENT

Create a Java application to perform basic CRUD operations on a database.

- Create a DAO layer to interact with Oracle database

**Duration**: 1 hour

→

```java
package com.main;
public class Employee {
    private int id;
    private String department;
    private double salary;
    private String name;

    public Employee(int id, String department, String name, double salary) {
        super();
        this.id = id;
        this.department = department;
        this.salary = salary;
        this.name = name;
    }
    public int getId() {
        return id;
    }
    public void setId(int id) {
        this.id = id;
    }
    public String getDepartment() {
        return department;
    }
    public void setDepartment(String department) {
        this.department = department;
    }
    public double getSalary() {
        return salary;
    }
    public void setSalary(double salary) {
        this.salary = salary;
    }
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
}
```

```java
1  package com.main;
2
3  import java.sql.Connection;
4  import java.sql.DriverManager;
5  import java.sql.PreparedStatement;
6  import java.sql.ResultSet;
7  import java.sql.SQLException;
8  import java.util.ArrayList;
9  import java.util.List;
10
11 public class EmployeeDao {
12     private static final String JDBC_URL = "jdbc:oracle:thin:@localhost:1521:XE";
13     private static final String USERNAME = "wipro";
14     private static final String PASSWORD = "wipro123";
15
16     private Connection connection;
17     private PreparedStatement statement;
18     private ResultSet resultSet;
19
20     public void connect() throws SQLException {
21         connection = DriverManager.getConnection(JDBC_URL, USERNAME, PASSWORD);
22     }
23
24     public void disconnect() throws SQLException {
25         if (resultSet != null) {
26             resultSet.close();
27         }
28
29         if (statement != null) {
30             statement.close();
31         }
32         if (connection != null) {
33             connection.close();
34         }
35     }
36
37     public void createEmployee(Employee employee) throws SQLException {
38         connect();
39         String query = "INSERT INTO Employee_tbl (id, name, department, salary) VALUES (?, ?, ?, ?)";
40         statement = connection.prepareStatement(query);
41         statement.setInt(1, employee.getId());
42         statement.setString(2, employee.getName());
43         statement.setString(3, employee.getDepartment());
```

```java
44              statement.setDouble(4, employee.getSalary());
45              statement.executeUpdate();
46              disconnect();
47          }
48
49⊖     public List<Employee> readEmployees() throws SQLException {
50              connect();
51              List<Employee> employees = new ArrayList<>();
52              String query = "SELECT id, name, department, salary FROM Employee_tbl";
53              statement = connection.prepareStatement(query);
54              resultSet = statement.executeQuery();
55              while (resultSet.next()) {
56                  int id = resultSet.getInt("id");
57                  String name = resultSet.getString("name");
58                  String department = resultSet.getString("department");
59                  double salary = resultSet.getDouble("salary");
60                  employees.add(new Employee(id, name, department, salary));
61              }
62              disconnect();
63              return employees;
64          }
65
66⊖     public void updateEmployee(Employee employee) throws SQLException {
67              connect();
68              String query = "UPDATE Employee_tbl SET name=?, department=?, salary=? WHERE id=?";
69              statement = connection.prepareStatement(query);
70              statement.setString(1, employee.getName());
71              statement.setString(2, employee.getDepartment());
72              statement.setDouble(3, employee.getSalary());
73              statement.setInt(4, employee.getId());
74              statement.executeUpdate();
75              disconnect();
76          }
77
78⊖     public void deleteEmployee(int id) throws SQLException {
79              connect();
80              String query = "DELETE FROM Employee_tbl WHERE id=?";
81              statement = connection.prepareStatement(query);
82              statement.setInt(1, id);
83              statement.executeUpdate();
84              disconnect();
85          }
86 }
```

```java
1  package com.main;
2
3⊕ import java.sql.SQLException;□
5
6  public class EmployeeMain {
7⊖     public static void main(String[] args) {
8          EmployeeDao employeeDao = new EmployeeDao();
9
10         try {
11             // Create a new employee
12             Employee newEmployee = new Employee(1, "Aman", "IT", 87000.0);
13             employeeDao.createEmployee(newEmployee);
14             System.out.println("Employee created successfully.");
15
16             // Read all employees
17             List<Employee> employees = employeeDao.readEmployees();
18             System.out.println("List of Employees:");
19             for (Employee employee : employees) {
20                 System.out.println(employee.getId() + ", " + employee.getName()
21                         + ", " + employee.getDepartment() + ", " + employee.getSalary());
22             }
23
24             // Update an employee
25             Employee employeeToUpdate = new Employee(1, "Avi", "Marketing", 84000.0);
26             employeeDao.updateEmployee(employeeToUpdate);
27             System.out.println("Employee updated successfully.");
28
29             // Delete an employee
30             int employeeIdToDelete = 2;
31             employeeDao.deleteEmployee(employeeIdToDelete);
32             System.out.println("Employee deleted successfully.");
33         } catch (SQLException e) {
34             e.printStackTrace();
35         }
36     }
37 }
```

```
SQL> select * from Employee_tbl;

        ID NAME                          DEPARTMENT                          SALARY
---------- ----------------------------- ----------------------------- ----------
         1 Marketing                     Avi                                84000
```