1. Create a DatabaseConnection.java class to establish a connection to your database

```
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 = "316830059"; // 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.");
        }
    }
}
```

```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
 */

/**
 *
 * @author NIRWAN
 */
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 = "316830059"; // Your MySQL password

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

2. Create EmployeeDAO.java for 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();
        }
    }
}
```

```java
 */
package jdbcexample;

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( string:sql)) {

            stmt.setString( i:1,  string:name);
            stmt.setString( i:2,  string:position);
            stmt.setDouble( i:3,  d:salary);

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

```java
// 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( string: sql)) {

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

    return employees;
}
```

```java
// 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( string: sql)) {

        stmt.setString( i: 1,  string: name);
        stmt.setString( i: 2,  string: position);
        stmt.setDouble( i: 3,  d: salary);
        stmt.setInt( i: 4,  il: id);

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

```java
// 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( string:sql)) {

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


}
```

3. 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 + '}';
    }
}
```

```java
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;
    }
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 + '}';
    }
}
```

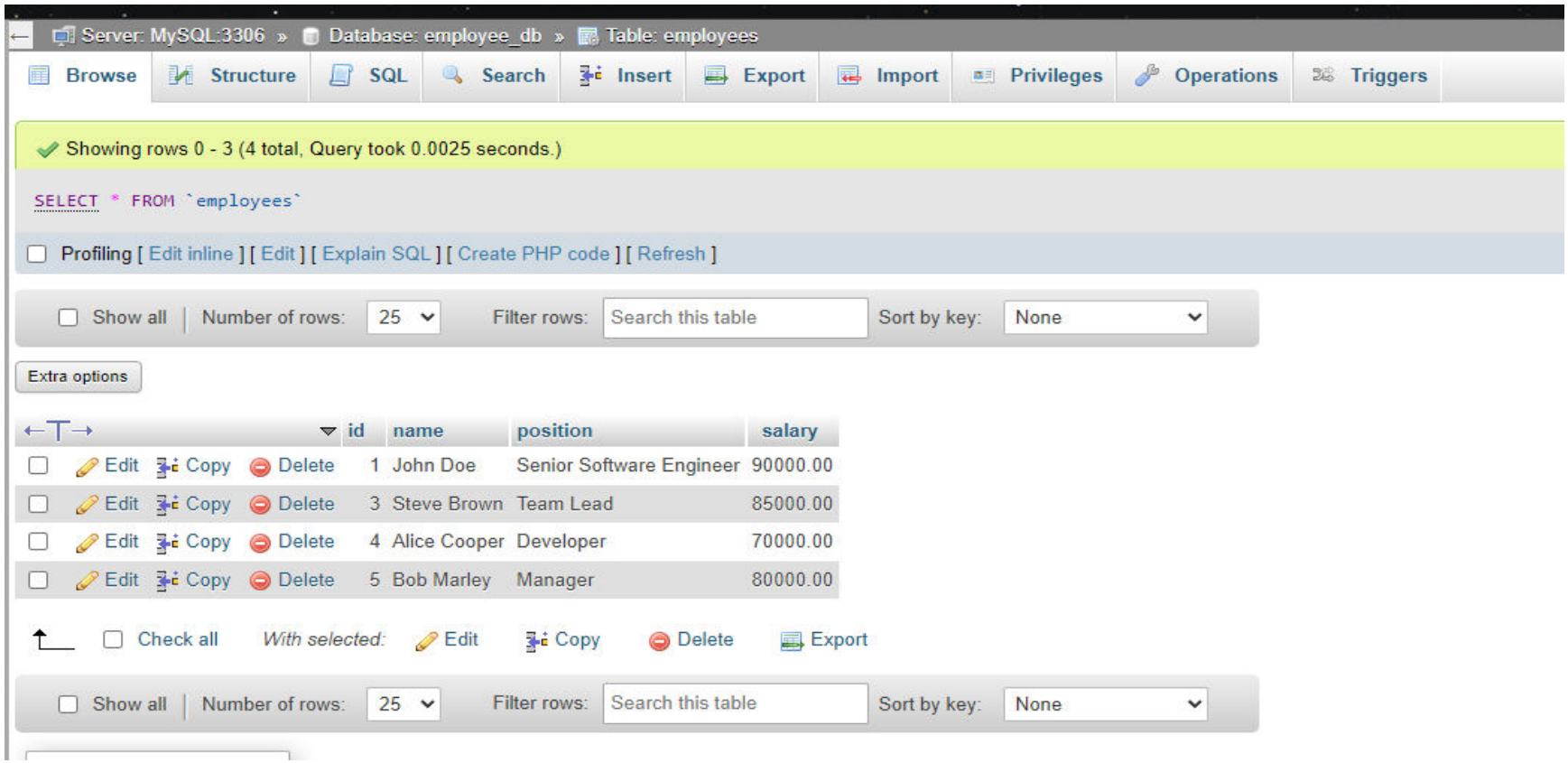
4. Create a Main.java class to test the CRUD operations

```
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);
    }
}
```

```java
    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        // Add employees
        EmployeeDAO.addEmployee( name: "Alice Cooper",  position: "Developer",  salary: 70000);
        EmployeeDAO.addEmployee( name: "Bob Marley",  position: "Manager",  salary: 80000);

        // Update employee
        EmployeeDAO.updateEmployee( id: 1,  name: "John Doe",  position: "Senior Software Engineer",  salary: 90000);

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

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

Output

```
Output - JDBCExample (run)
run:
Employee added successfully. Rows affected: 1
Employee added successfully. Rows affected: 1
Employee updated successfully. Rows affected: 1
Employee{id=1, name='John Doe', position='Senior Software Engineer', salary=90000.0}
Employee{id=2, name='Jane Smith', position='HR Manager', salary=65000.0}
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 deleted successfully. Rows affected: 1
BUILD SUCCESSFUL (total time: 2 seconds)
```


Server: MySQL:3306 » Database: employee_db » Table: employees
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Triggers
Showing rows 0 - 3 (4 total, Query took 0.0025 seconds.)
SELECT * FROM `employees`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
Extra options
id name position salary
Edit Copy Delete 1 John Doe Senior Software Engineer 90000.00
Edit Copy Delete 3 Steve Brown Team Lead 85000.00
Edit Copy Delete 4 Alice Cooper Developer 70000.00
Edit Copy Delete 5 Bob Marley Manager 80000.00
Check all With selected: Edit Copy Delete Export
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None