DEVELOP CRUD PROGRAM FOR MEMBER TABLE USING SPRING BOOT AND MYBATIS

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April 23rd, 2021

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Project Setup

MemberVo

Mapper

MemberDao

MembersService

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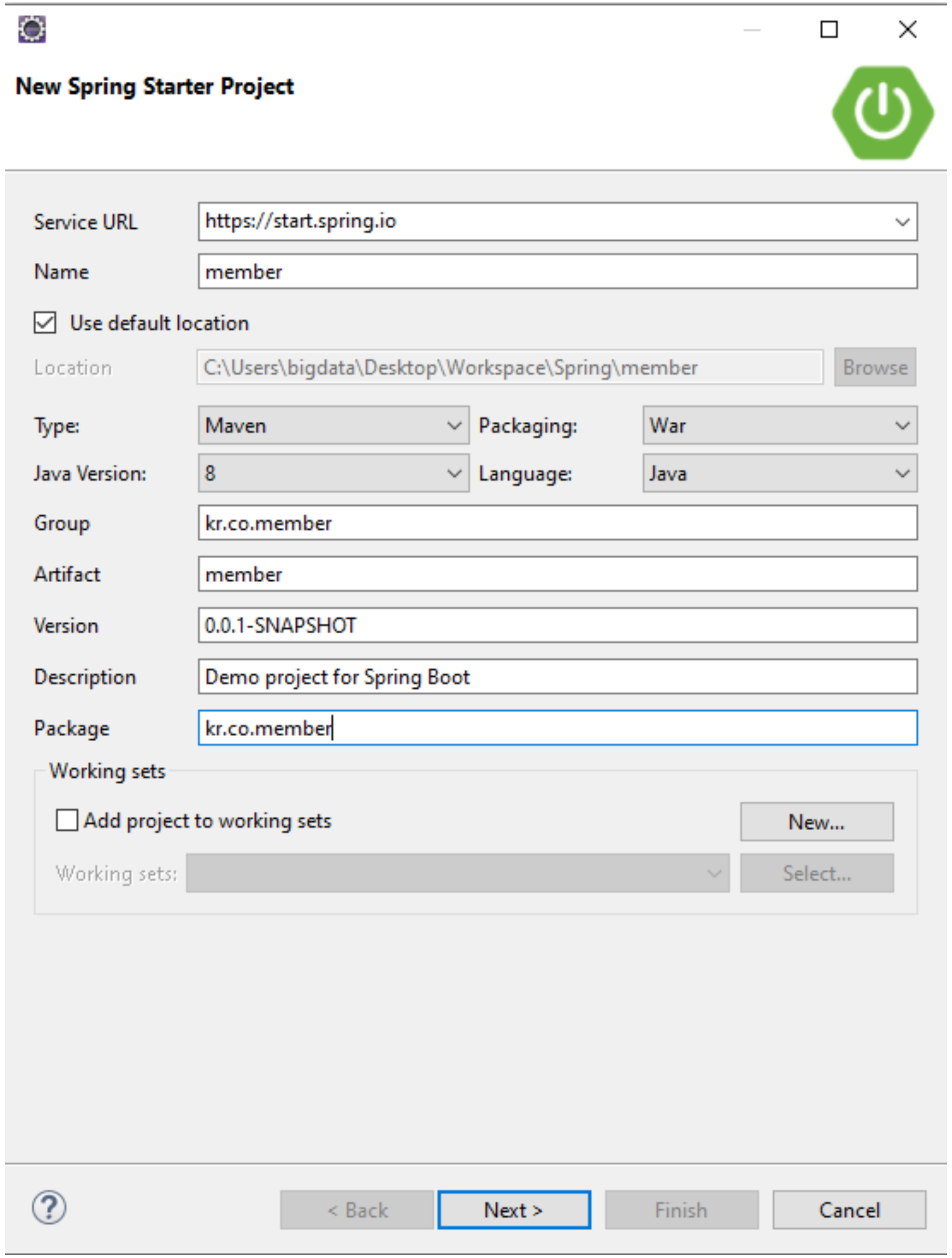
INSERT Operation

SELECT Operation

UPDATE Operation

DELETE Operation



New Spring Starter Project

Service URL: https://start.spring.io

Name: member

☑ Use default location

Location: C:\Users\bigdata\Desktop\Workspace\Spring\member

Type: Maven

Packaging: War

Java Version: 8

Language: Java

Group: kr.co.member

Artifact: member

Version: 0.0.1-SNAPSHOT

Description: Demo project for Spring Boot

Package: kr.co.member

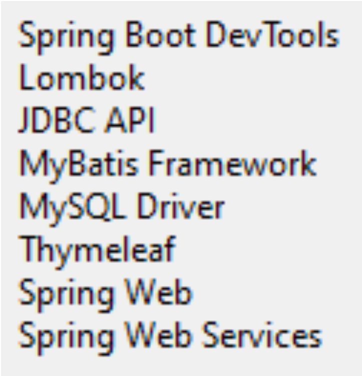
Working sets

☐ Add project to working sets

Working sets:

SPRING STARTER PROJECT

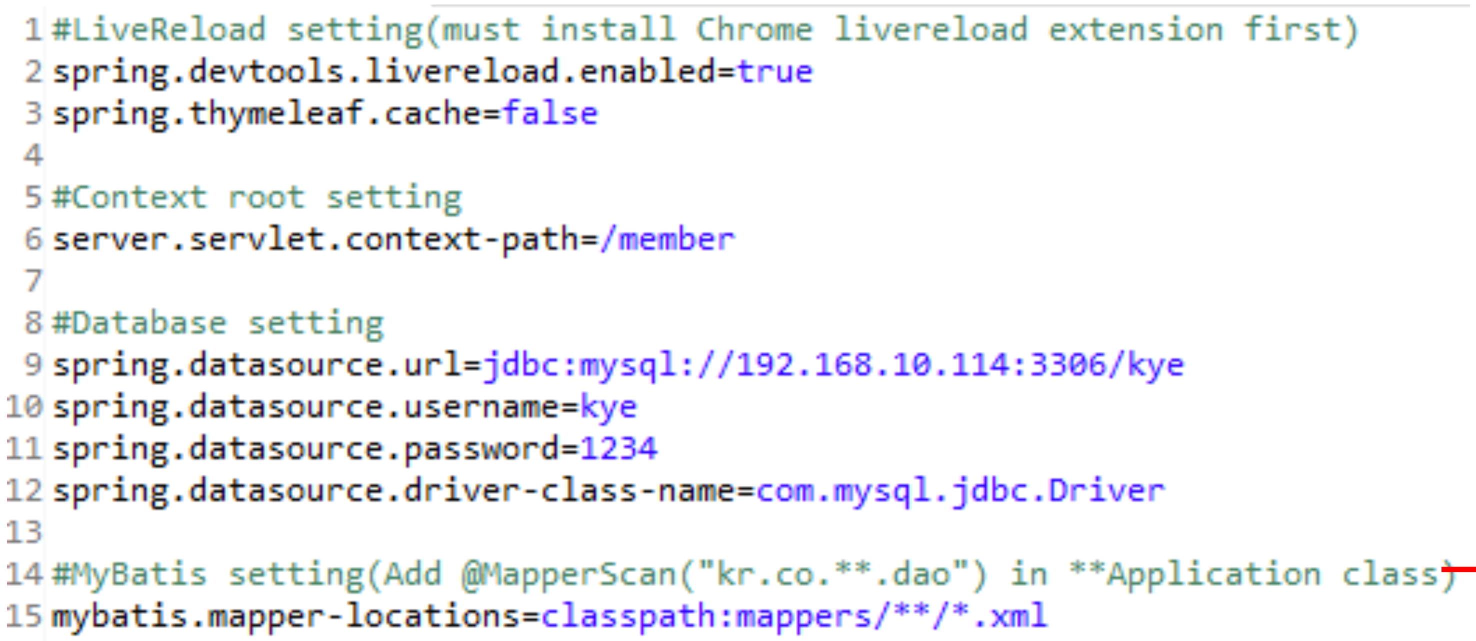
- Add a new Spring Starter Project named as “member” and change the setting as shown.
  - Packaging: War
  - Java Version: 8
  - Language: Java
- Click Next and add eight necessary dependencies.



Spring Boot DevTools
Lombok
JDBC API
MyBatis Framework
MySQL Driver
Thymeleaf
Spring Web
Spring Web Services

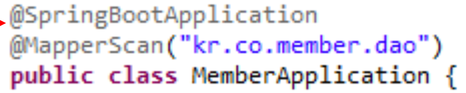
APPLICATION PROPERTIES

- Save LiveReload, Context Root, MySQL database, MyBatis settings at application.properties located in src/main/resources.

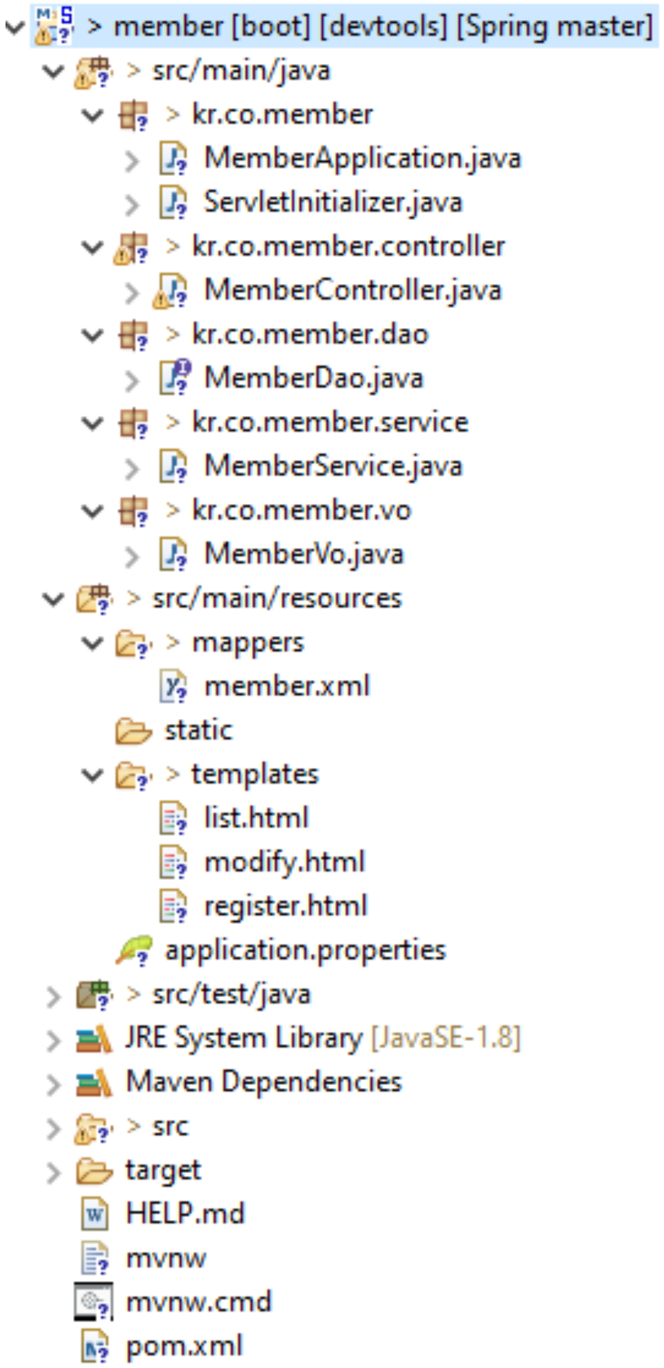


```
#LiveReload setting(must install Chrome livereload extension first)
spring.devtools.livereload.enabled=true
spring.thymeleaf.cache=false

#Context root setting
server.servlet.context-path=/member

#Database setting
spring.datasource.url=jdbc:mysql://192.168.10.114:3306/kye
spring.datasource.username=kye
spring.datasource.password=1234
spring.datasource.driver-class-name=com.mysql.jdbc.Driver

#MyBatis setting(Add @MapperScan("kr.co.**.dao") in **Application class)
mybatis.mapper-locations=classpath:mappers/**/*.xml
```

src/main/java/kr/co/member



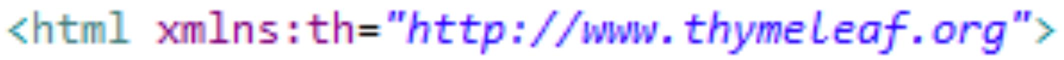
```
@SpringBootApplication
@MapperScan("kr.co.member.dao")
public class MemberApplication {
```



```
v > member [boot] [devtools] [Spring master]
  v > src/main/java
    v > kr.co.member
      > MemberApplication.java
      > ServletInitializer.java
    v > kr.co.member.controller
      > MemberController.java
    v > kr.co.member.dao
      > MemberDao.java
    v > kr.co.member.service
      > MemberService.java
    v > kr.co.member.vo
      > MemberVo.java
  v > src/main/resources
    v > mappers
        member.xml
      static
    v > templates
        list.html
        modify.html
        register.html
      application.properties
  > > src/test/java
  > JRE System Library [JavaSE-1.8]
  > Maven Dependencies
  > > src
  > target
    HELP.md
    mvnw
    mvnw.cmd
    pom.xml
```

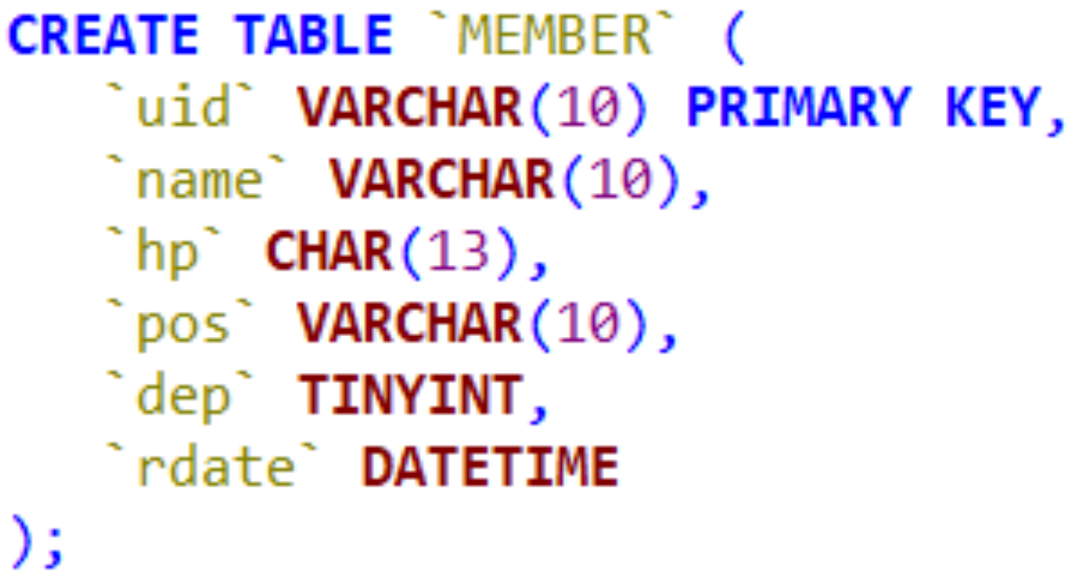
PROJECT STRUCTURE

- Create a new folder for mappers and add a new MyBatis XML Mapper under src/main/resources folder.
- Create the Vo, Controller, Dao, and Service classes with the same package names respectively.
- Create the view components including list, modify, and register pages in src/main/resources/templates folder. Include Thymeleaf namespace in the html tag.



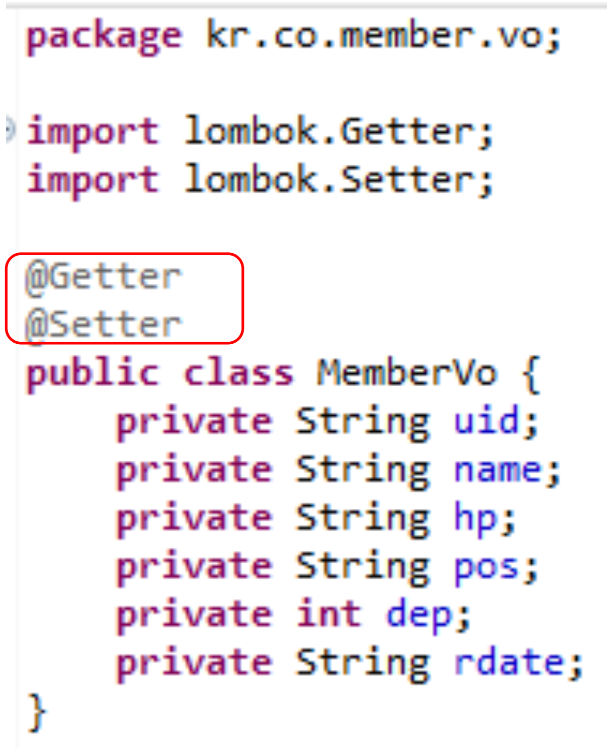
```
<html xmlns:th="http://www.thymeleaf.org">
```

VO



```
CREATE TABLE `MEMBER` (
    `uid` VARCHAR(10) PRIMARY KEY,
    `name` VARCHAR(10),
    `hp` CHAR(13),
    `pos` VARCHAR(10),
    `dep` TINYINT,
    `rdate` DATETIME
);
```

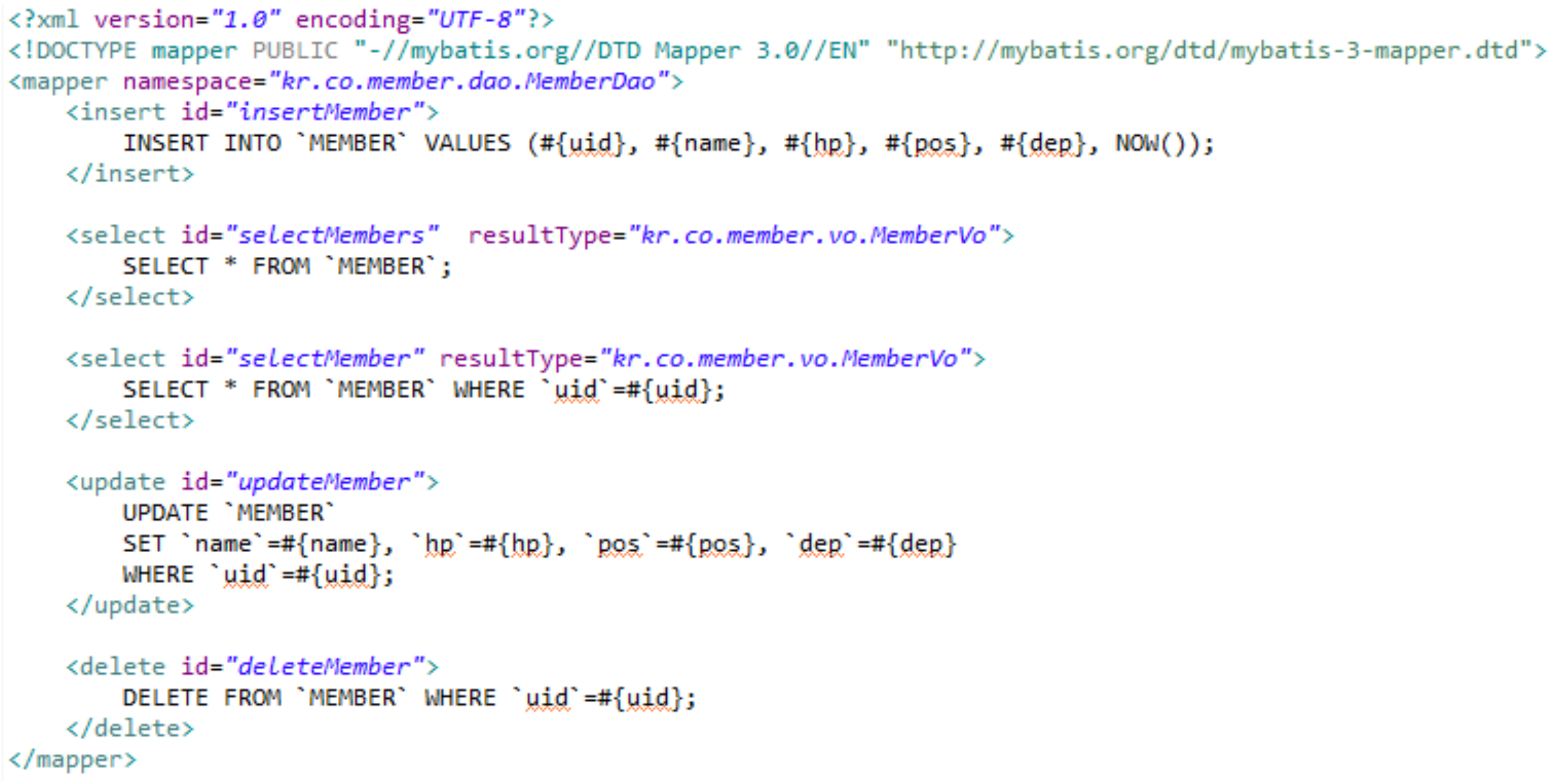
Create the table `MEMBER` in the SQL database including 6 fields: user id as a primary key, name, phone number, position, department, and start date.



```
package kr.co.member.vo;

import lombok.Getter;
import lombok.Setter;

@Getter
@Setter
public class MemberVo {
    private String uid;
    private String name;
    private String hp;
    private String pos;
    private int dep;
    private String rdate;
}
```

Add @Getter and @Setter annotations to make Lombok build getter and setter methods.

MAPPER

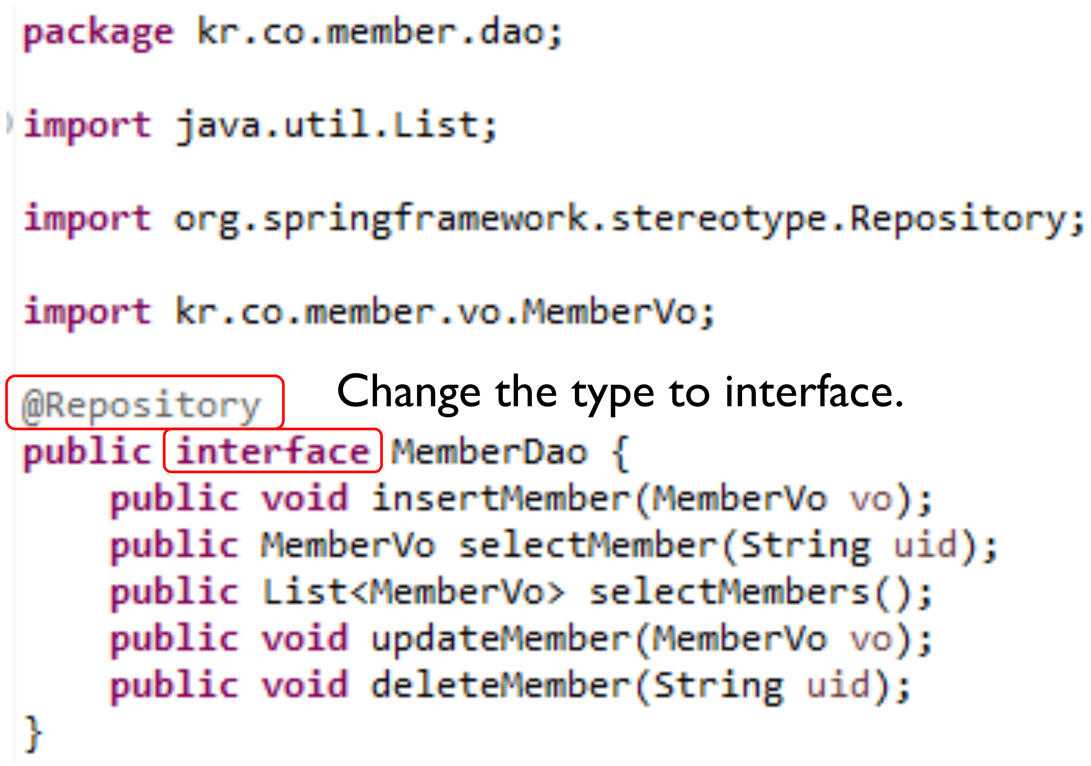


```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE mapper PUBLIC "-//mybatis.org//DTD Mapper 3.0//EN" "http://mybatis.org/dtd/mybatis-3-mapper.dtd">
<mapper namespace="kr.co.member.dao.MemberDao">
    <insert id="insertMember">
        INSERT INTO `MEMBER` VALUES (#{uid}, #{name}, #{hp}, #{pos}, #{dep}, NOW());
    </insert>

    <select id="selectMembers"  resultType="kr.co.member.vo.MemberVo">
        SELECT * FROM `MEMBER`;
    </select>

    <select id="selectMember" resultType="kr.co.member.vo.MemberVo">
        SELECT * FROM `MEMBER` WHERE `uid`=#{uid};
    </select>

    <update id="updateMember">
        UPDATE `MEMBER`
        SET `name`=#{name}, `hp`=#{hp}, `pos`=#{pos}, `dep`=#{dep}
        WHERE `uid`=#{uid};
    </update>

    <delete id="deleteMember">
        DELETE FROM `MEMBER` WHERE `uid`=#{uid};
    </delete>
</mapper>
```

Write all the SQL Query Statements in src/main/resources/mappers/member.xml.

DAO

@Repository
To access the required
data from the database

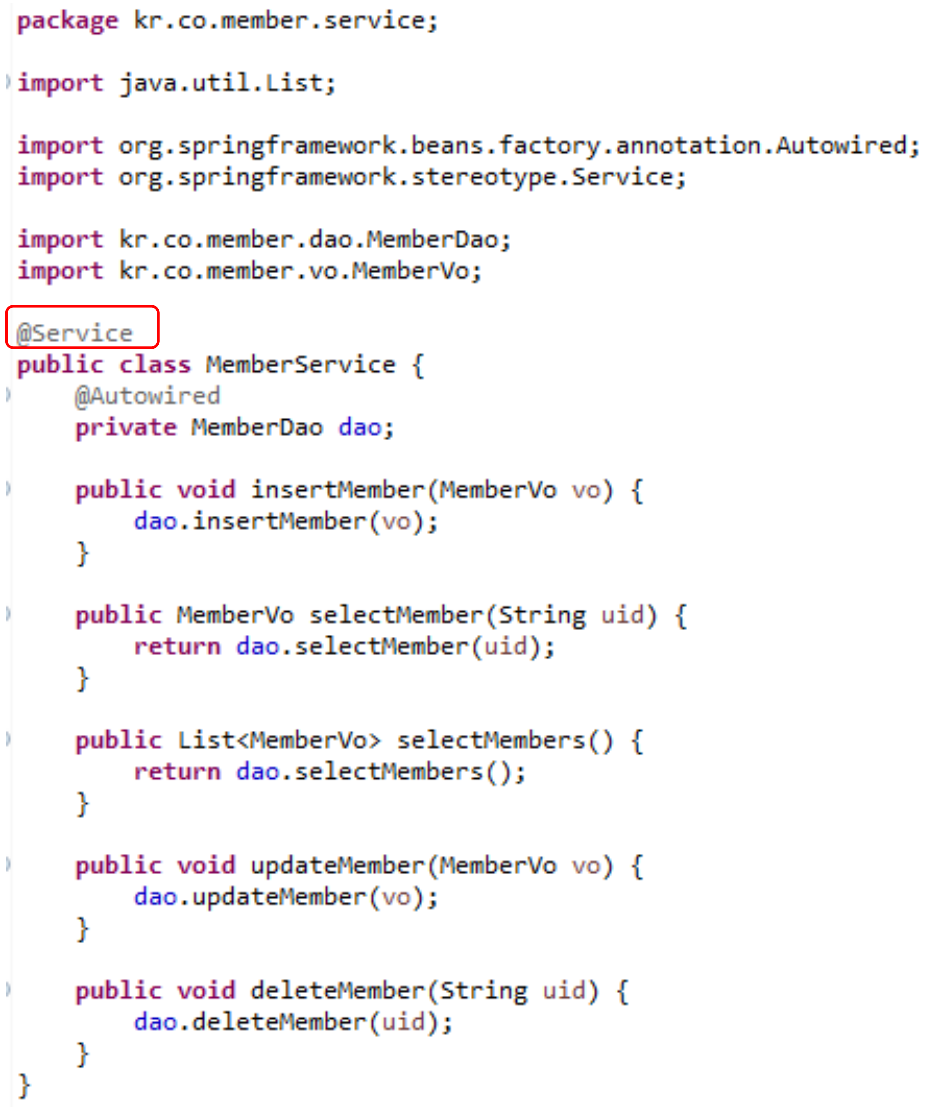


```
package kr.co.member.dao;

import java.util.List;

import org.springframework.stereotype.Repository;

import kr.co.member.vo.MemberVo;

@Repository
public interface MemberDao {
    public void insertMember(MemberVo vo);
    public MemberVo selectMember(String uid);
    public List<MemberVo> selectMembers();
    public void updateMember(MemberVo vo);
    public void deleteMember(String uid);
}
```

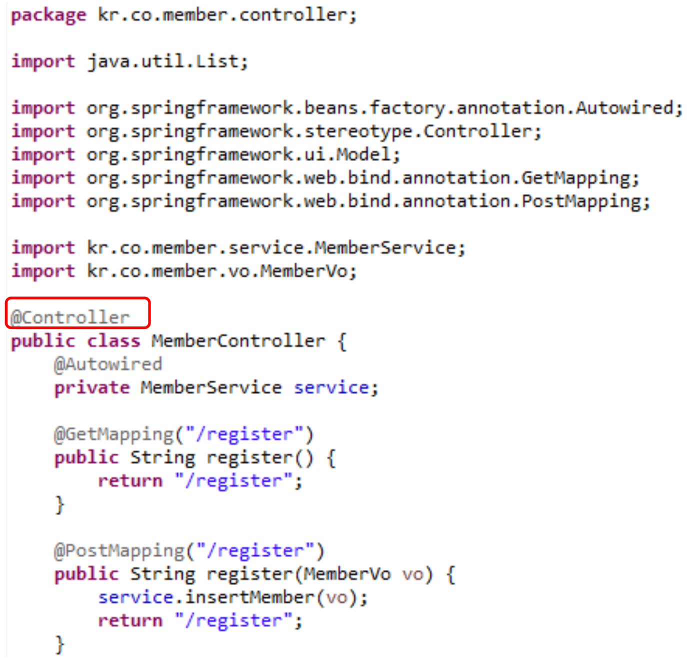
Change the type to interface.

SERVICE

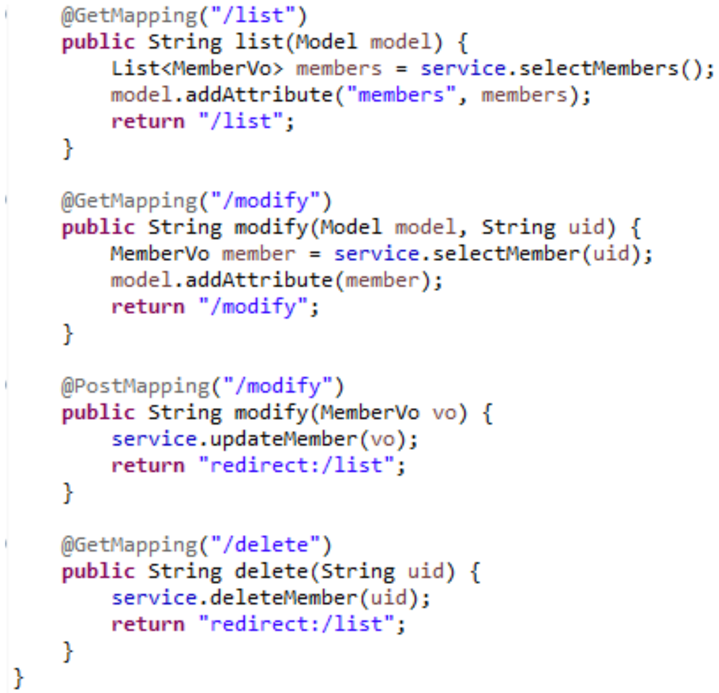
@Service
To carry out different transactions for each function



```java
package kr.co.member.service;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;

import kr.co.member.dao.MemberDao;
import kr.co.member.vo.MemberVo;

@Service
public class MemberService {
    @Autowired
    private MemberDao dao;

    public void insertMember(MemberVo vo) {
        dao.insertMember(vo);
    }

    public MemberVo selectMember(String uid) {
        return dao.selectMember(uid);
    }

    public List<MemberVo> selectMembers() {
        return dao.selectMembers();
    }

    public void updateMember(MemberVo vo) {
        dao.updateMember(vo);
    }

    public void deleteMember(String uid) {
        dao.deleteMember(uid);
    }
}
```



```java
package kr.co.member.controller;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Controller;
import org.springframework.ui.Model;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.PostMapping;

import kr.co.member.service.MemberService;
import kr.co.member.vo.MemberVo;

@Controller
public class MemberController {
    @Autowired
    private MemberService service;

    @GetMapping("/register")
    public String register() {
        return "/register";
    }

    @PostMapping("/register")
    public String register(MemberVo vo) {
        service.insertMember(vo);
        return "/register";
    }
```



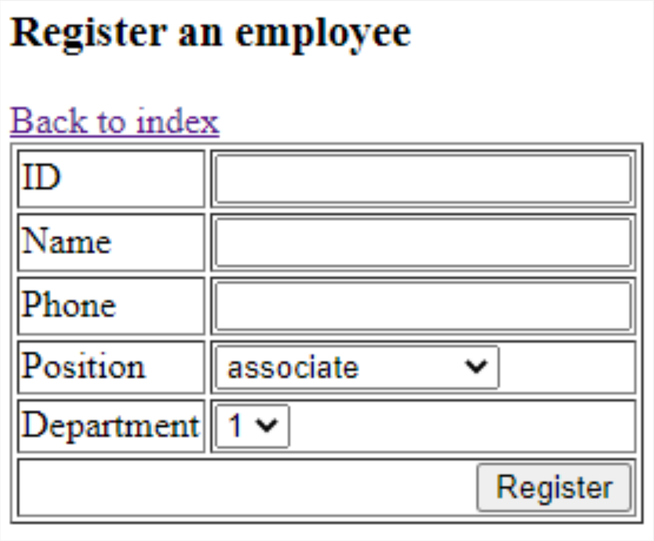
```java
    @GetMapping("/list")
    public String list(Model model) {
        List<MemberVo> members = service.selectMembers();
        model.addAttribute("members", members);
        return "/list";
    }

    @GetMapping("/modify")
    public String modify(Model model, String uid) {
        MemberVo member = service.selectMember(uid);
        model.addAttribute(member);
        return "/modify";
    }

    @PostMapping("/modify")
    public String modify(MemberVo vo) {
        service.updateMember(vo);
        return "redirect:/list";
    }

    @GetMapping("/delete")
    public String delete(String uid) {
        service.deleteMember(uid);
        return "redirect:/list";
    }
}
```

CONTROLLER

@Controller

To navigate between the different views

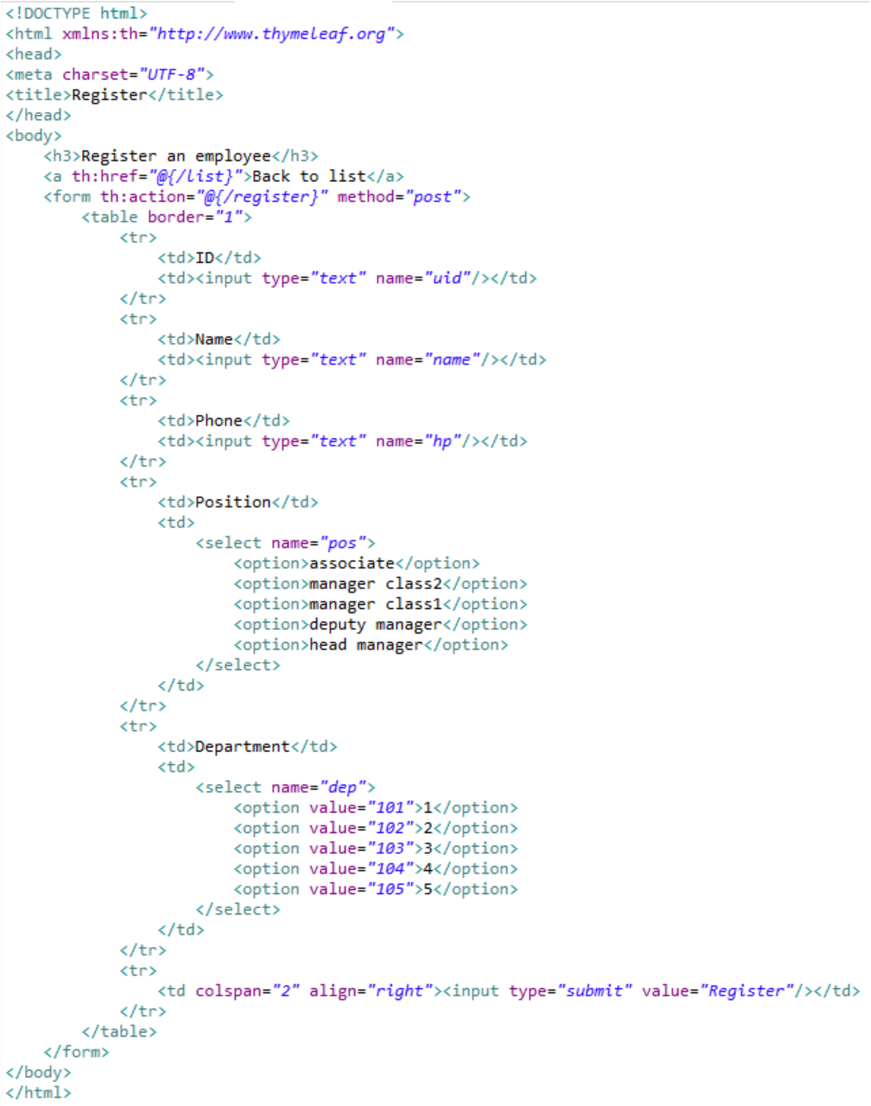
INSERT – REGISTER.HTML



Register an employee

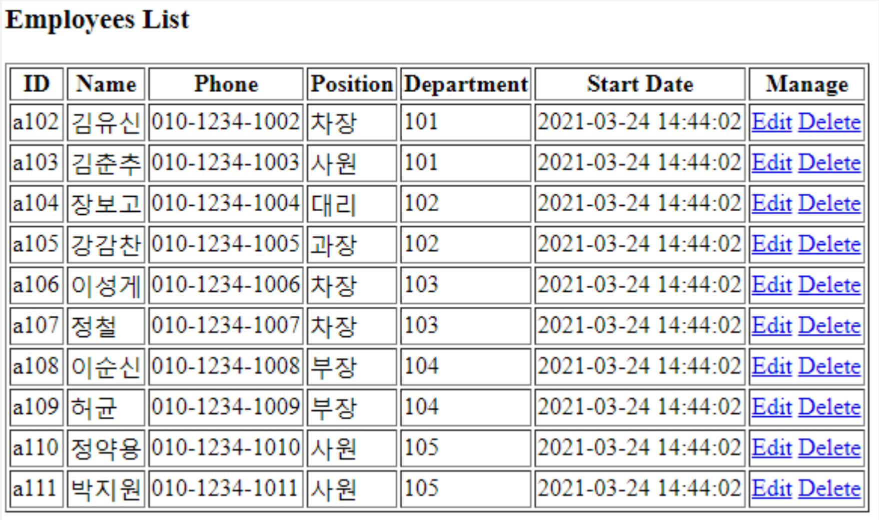
Back to index

ID	
Name	
Phone	
Position	associate
Department	1
	Register



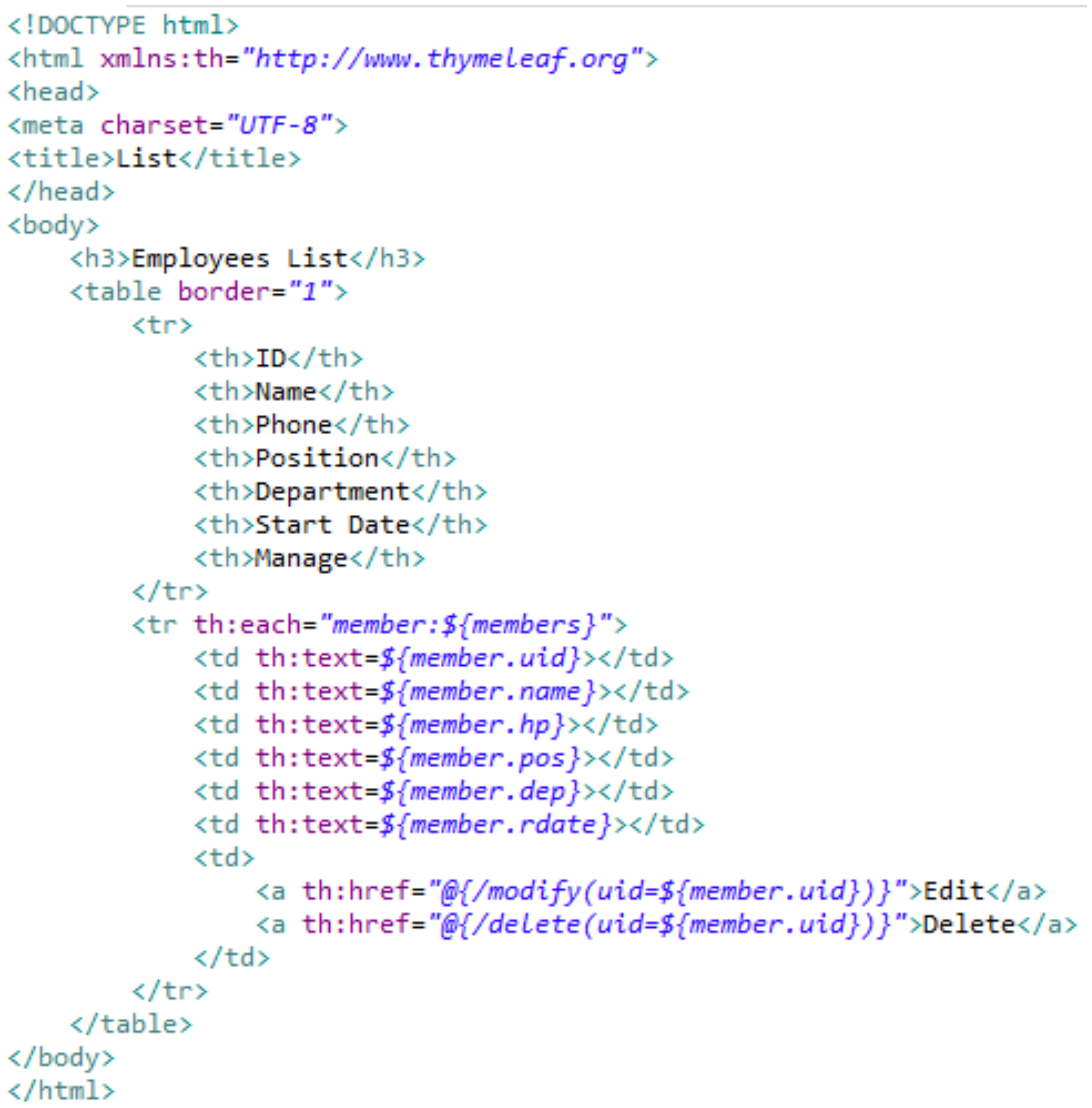
```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org">
<head>
<meta charset="UTF-8">
<title>Register</title>
</head>
<body>
    <h3>Register an employee</h3>
    <a th:href="@{/list}">Back to list</a>
    <form th:action="@{/register}" method="post">
        <table border="1">
            <tr>
                <td>ID</td>
                <td><input type="text" name="uid"/></td>
            </tr>
            <tr>
                <td>Name</td>
                <td><input type="text" name="name"/></td>
            </tr>
            <tr>
                <td>Phone</td>
                <td><input type="text" name="hp"/></td>
            </tr>
            <tr>
                <td>Position</td>
                <td>
                    <select name="pos">
                        <option>associate</option>
                        <option>manager class2</option>
                        <option>manager class1</option>
                        <option>deputy manager</option>
                        <option>head manager</option>
                    </select>
                </td>
            </tr>
            <tr>
                <td>Department</td>
                <td>
                    <select name="dep">
                        <option value="101">1</option>
                        <option value="102">2</option>
                        <option value="103">3</option>
                        <option value="104">4</option>
                        <option value="105">5</option>
                    </select>
                </td>
            </tr>
            <tr>
                <td colspan="2" align="right"><input type="submit" value="Register"/></td>
            </tr>
        </table>
    </form>
</body>
</html>
```

SELECT - LIST.HTML



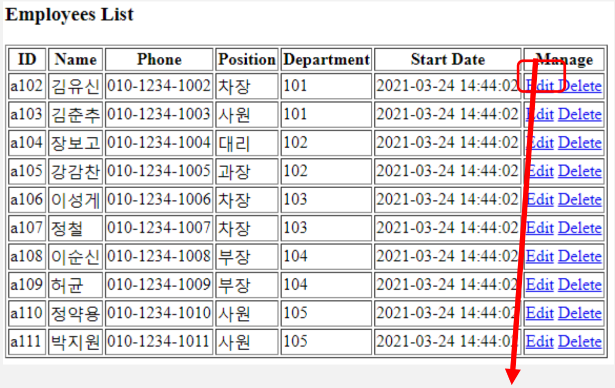
Employees List

ID	Name	Phone	Position	Department	Start Date	Manage
a102	김유신	010-1234-1002	차장	101	2021-03-24 14:44:02	Edit Delete
a103	김춘추	010-1234-1003	사원	101	2021-03-24 14:44:02	Edit Delete
a104	장보고	010-1234-1004	대리	102	2021-03-24 14:44:02	Edit Delete
a105	강감찬	010-1234-1005	과장	102	2021-03-24 14:44:02	Edit Delete
a106	이성계	010-1234-1006	차장	103	2021-03-24 14:44:02	Edit Delete
a107	정철	010-1234-1007	차장	103	2021-03-24 14:44:02	Edit Delete
a108	이순신	010-1234-1008	부장	104	2021-03-24 14:44:02	Edit Delete
a109	허균	010-1234-1009	부장	104	2021-03-24 14:44:02	Edit Delete
a110	정약용	010-1234-1010	사원	105	2021-03-24 14:44:02	Edit Delete
a111	박지원	010-1234-1011	사원	105	2021-03-24 14:44:02	Edit Delete



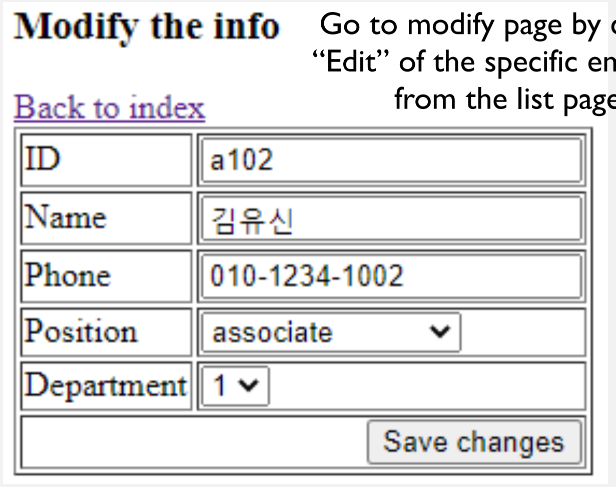
```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org">
<head>
<meta charset="UTF-8">
<title>List</title>
</head>
<body>
    <h3>Employees List</h3>
    <table border="1">
        <tr>
            <th>ID</th>
            <th>Name</th>
            <th>Phone</th>
            <th>Position</th>
            <th>Department</th>
            <th>Start Date</th>
            <th>Manage</th>
        </tr>
        <tr th:each="member:${members}">
            <td th:text=${member.uid}></td>
            <td th:text=${member.name}></td>
            <td th:text=${member.hp}></td>
            <td th:text=${member.pos}></td>
            <td th:text=${member.dep}></td>
            <td th:text=${member.rdate}></td>
            <td>
                <a th:href="@{/modify(uid=${member.uid})}">Edit</a>
                <a th:href="@{/delete(uid=${member.uid})}">Delete</a>
            </td>
        </tr>
    </table>
</body>
</html>
```

UPADATE – MODIFY.HTML



Employees List

ID	Name	Phone	Position	Department	Start Date	Manage
a102	김유신	010-1234-1002	차장	101	2021-03-24 14:44:02	Edit Delete
a103	김춘추	010-1234-1003	사원	101	2021-03-24 14:44:02	Edit Delete
a104	장보고	010-1234-1004	대리	102	2021-03-24 14:44:02	Edit Delete
a105	강감찬	010-1234-1005	과장	102	2021-03-24 14:44:02	Edit Delete
a106	이성게	010-1234-1006	차장	103	2021-03-24 14:44:02	Edit Delete
a107	정철	010-1234-1007	차장	103	2021-03-24 14:44:02	Edit Delete
a108	이순신	010-1234-1008	부장	104	2021-03-24 14:44:02	Edit Delete
a109	허균	010-1234-1009	부장	104	2021-03-24 14:44:02	Edit Delete
a110	정약용	010-1234-1010	사원	105	2021-03-24 14:44:02	Edit Delete
a111	박지원	010-1234-1011	사원	105	2021-03-24 14:44:02	Edit Delete

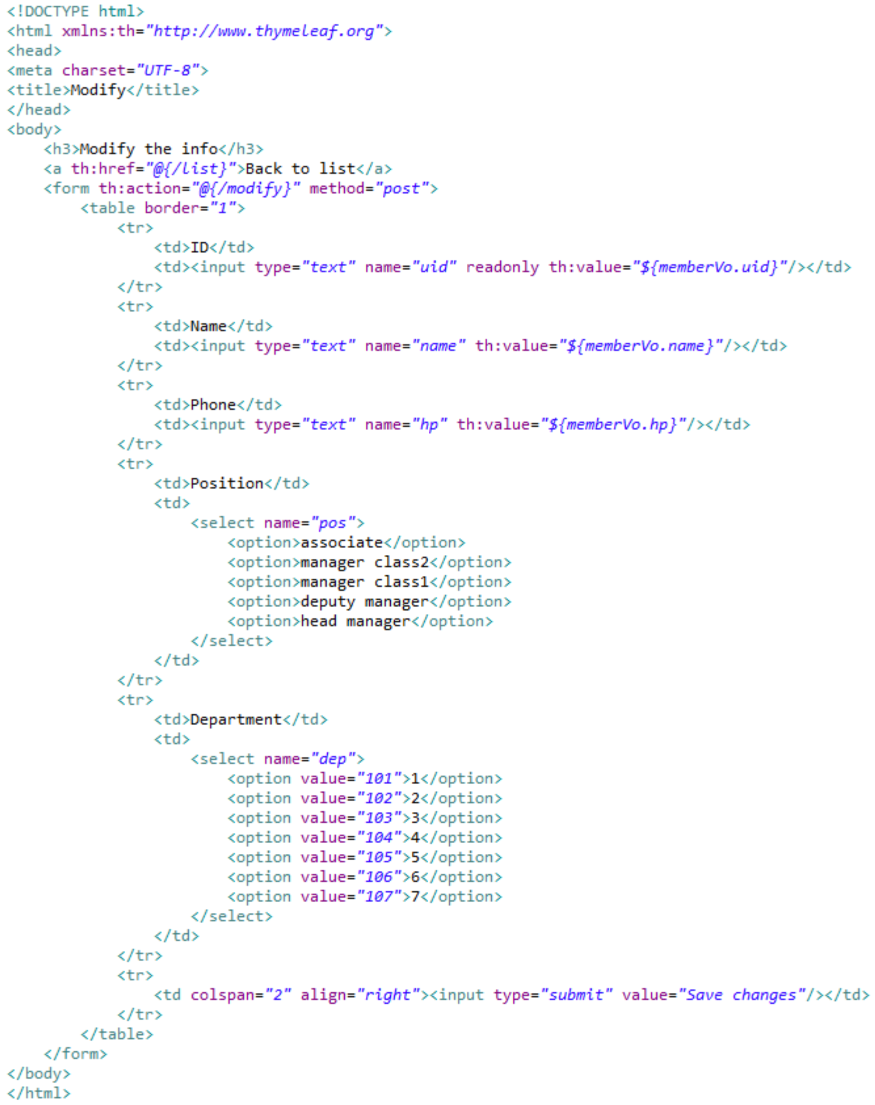


Modify the info

Back to index

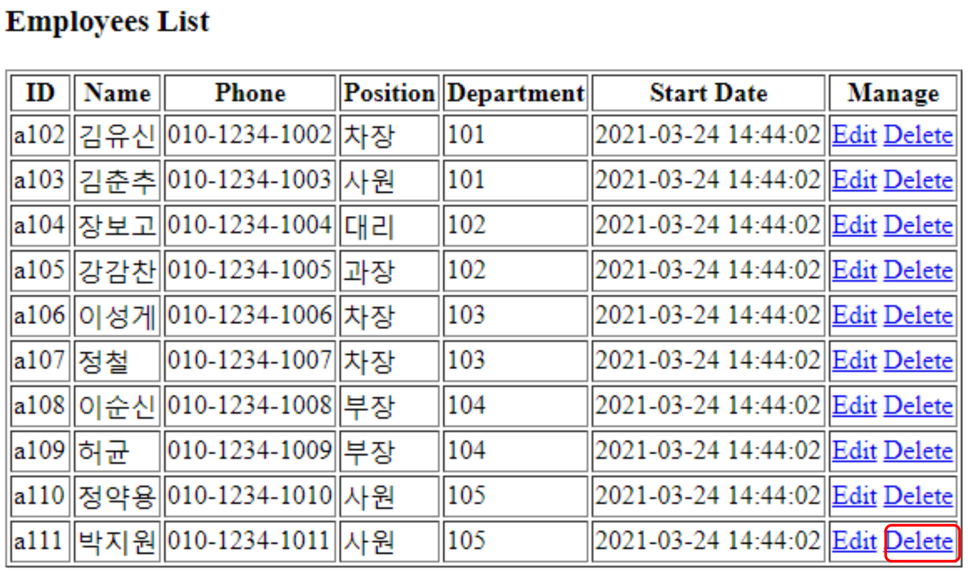
ID	a102
Name	김유신
Phone	010-1234-1002
Position	associate
Department	1

Go to modify page by clicking “Edit” of the specific employee from the list page.



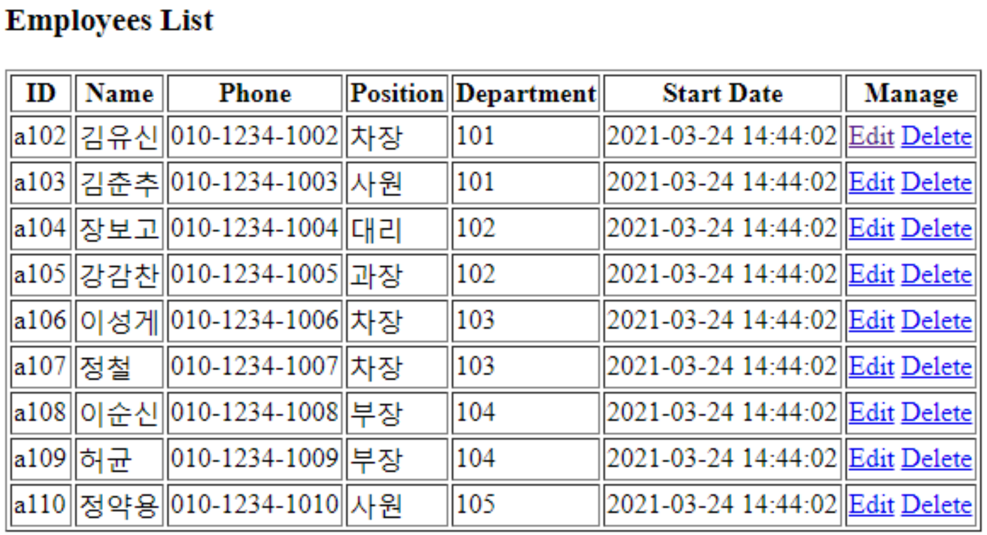
```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org">
<head>
<meta charset="UTF-8">
<title>Modify</title>
</head>
<body>
    <h3>Modify the info</h3>
    <a th:href="@{/list}">Back to list</a>
    <form th:action="@{/modify}" method="post">
        <table border="1">
            <tr>
                <td>ID</td>
                <td><input type="text" name="uid" readonly th:value="${memberVo.uid}"/></td>
            </tr>
            <tr>
                <td>Name</td>
                <td><input type="text" name="name" th:value="${memberVo.name}"/></td>
            </tr>
            <tr>
                <td>Phone</td>
                <td><input type="text" name="hp" th:value="${memberVo.hp}"/></td>
            </tr>
            <tr>
                <td>Position</td>
                <td>
                    <select name="pos">
                        <option>associate</option>
                        <option>manager class2</option>
                        <option>manager class1</option>
                        <option>deputy manager</option>
                        <option>head manager</option>
                    </select>
                </td>
            </tr>
            <tr>
                <td>Department</td>
                <td>
                    <select name="dep">
                        <option value="101">1</option>
                        <option value="102">2</option>
                        <option value="103">3</option>
                        <option value="104">4</option>
                        <option value="105">5</option>
                        <option value="106">6</option>
                        <option value="107">7</option>
                    </select>
                </td>
            </tr>
            <tr>
                <td colspan="2" align="right"><input type="submit" value="Save changes"/></td>
            </tr>
        </table>
    </form>
</body>
</html>
```

DELETE – LIST.HTML



Employees List

ID	Name	Phone	Position	Department	Start Date	Manage
a102	김유신	010-1234-1002	차장	101	2021-03-24 14:44:02	Edit Delete
a103	김춘추	010-1234-1003	사원	101	2021-03-24 14:44:02	Edit Delete
a104	장보고	010-1234-1004	대리	102	2021-03-24 14:44:02	Edit Delete
a105	강감찬	010-1234-1005	과장	102	2021-03-24 14:44:02	Edit Delete
a106	이성계	010-1234-1006	차장	103	2021-03-24 14:44:02	Edit Delete
a107	정철	010-1234-1007	차장	103	2021-03-24 14:44:02	Edit Delete
a108	이순신	010-1234-1008	부장	104	2021-03-24 14:44:02	Edit Delete
a109	허균	010-1234-1009	부장	104	2021-03-24 14:44:02	Edit Delete
a110	정약용	010-1234-1010	사원	105	2021-03-24 14:44:02	Edit Delete
a111	박지원	010-1234-1011	사원	105	2021-03-24 14:44:02	Edit Delete



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a103	김춘추	010-1234-1003	사원	101	2021-03-24 14:44:02	Edit Delete
a104	장보고	010-1234-1004	대리	102	2021-03-24 14:44:02	Edit Delete
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a107	정철	010-1234-1007	차장	103	2021-03-24 14:44:02	Edit Delete
a108	이순신	010-1234-1008	부장	104	2021-03-24 14:44:02	Edit Delete
a109	허균	010-1234-1009	부장	104	2021-03-24 14:44:02	Edit Delete
a110	정약용	010-1234-1010	사원	105	2021-03-24 14:44:02	Edit Delete

Redirect to list page after performing the delete operation.