[ 14 ] Mybatis - I

처음 JSP&Servlet을 이용할 때는 많은 코드양으로 DB에 접근하다가, Spring에서는 JDBC Template을 이용해서 코드양을 많이 줄일 수 있었다. Mybatis를 이용하면 코드를 더 줄일 수 있고, 자바 코드가 아닌 xml 파일로 DB에 엑세스한다. MyBatis는 DB접근을 자바가 아닌 xml로 대체하도록 하는 라이브러리이다. SQL 코드를 자바코드와 분리시키는데 목적이 있다.

진행순서

- pom.xml:필요라이브러리 의존추가

- web.xml :한글처리. \*.do

- db.properties : DB환경설정정보

- root-context.xml에 dataSource 빈생성

- DTO

- xml 생성 :mapper(empList,deptList) + config

- root-context.xml에 SqlSessionfactoryBean, sessionTemplate(SqlSessionTemplate) 빈생성

- 실행 첫화면 : css 추가해서 테스트

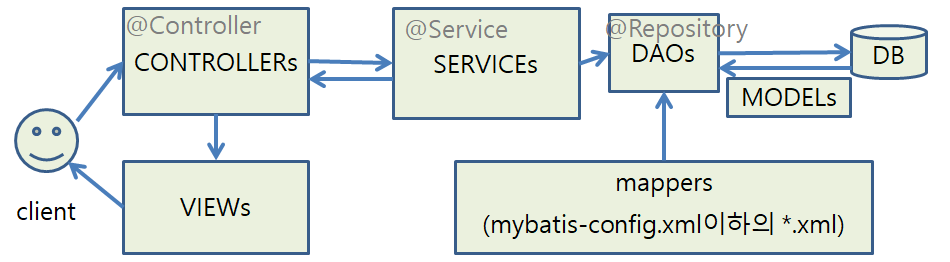
- DAO

- Service

- Controller

- emp.jsp

MyBatis 간편 예제





**pom.xml**

<!-- lombok -->

<dependency>

<groupId>org.projectlombok</groupId>

<artifactId>lombok</artifactId>

<version>1.18.26</version>

<scope>provided</scope>

</dependency>

<!-- https://mvnrepository.com/artifact/org.springframework/spring-jdbc -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-jdbc</artifactId>

<version>${org.springframework-version}</version>

</dependency>

<!-- https://mvnrepository.com/artifact/org.mybatis/mybatis 3.5.5-->

<dependency>

<groupId>org.mybatis</groupId>

<artifactId>mybatis</artifactId>

<version>3.5.6</version>

</dependency>

<!-- <https://mvnrepository.com/artifact/org.mybatis/mybatis-spring> 2.0.5 -->

<dependency>

<groupId>org.mybatis</groupId>

<artifactId>mybatis-spring</artifactId>

<version>2.0.6</version>

</dependency>

**web.xml**

<servlet-mapping>

<servlet-name>appServlet</servlet-name>

<url-pattern>\*.do</url-pattern>

</servlet-mapping>

<filter>

<filter-name>encodingFilter</filter-name>

<filter-class>org.springframework.web.filter.CharacterEncodingFilter</filter-class>

<init-param>

<param-name>encoding</param-name>

<param-value>UTF-8</param-value>

</init-param>

<init-param>

<param-name>forceEncoding</param-name>

<param-value>true</param-value>

</init-param>

</filter>

<filter-mapping>

<filter-name>encodingFilter</filter-name>

<url-pattern>/\*</url-pattern>

</filter-mapping>

**index.jsp**

<body>

<jsp:forward page=*"home.do"*/>

<%-- <jsp:forward page="emp.do"/> --%>

</body>

**HomeController.java**

**package** com.ch.ch16;

**import** org.springframework.stereotype.Controller;

**import** org.springframework.web.bind.annotation.RequestMapping;

**import** org.springframework.web.bind.annotation.RequestMethod;

@Controller

**public** **class** HomeController {

@RequestMapping(value = "home", method = RequestMethod.***GET***)

**public** String home() {

**return** "home";

}

}

**emp.css**

@charset *"UTF-8"*;

*#wrap* { width:*700px*; margin: *0* *auto*; background-color: *white*; text-align: *center*;}

**form** { width:*700px*; margin:*10px* *auto*;}

**table** {width:*100%*;}

**table** **th** { background-color: *#43BDE6*; color:*white*; padding: *10px*; text-align: *center*;}

**table** **td** { padding: *10px* *2px*; text-align: *center*; }

**table** **tr**{background-color: *#BFF0FF*;}

**table** **tr***:HOVER* {background-color: *#AFE0F0*;}

**table** **caption**{padding: *5px* *5px* *10px*; font-size: *2em*; font-weight: *bold*;}

**input**[type=text]*:FOCUS* { background-color: *lightyellow*;}

**input**[type=text] { margin: *0* *10px*;}

**src/main/resources/META-INF/property/db.properties**

db.driverClassName=oracle.jdbc.driver.OracleDriver

db.url=jdbc:oracle:thin:@localhost:1521:xe

db.username=teamname

db.password=teamname

create user teamname identified by teampw;

grant dba to teamname;

@c:/demo.sql

revoke dba from teamname;

drop user teamname cascade;

**root-context.xml**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<beans xmlns=*"http://www.springframework.org/schema/beans"*

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"*

xmlns:context=*"http://www.springframework.org/schema/context"*

xsi:schemaLocation=*"http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd*

*http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context-3.1.xsd"*>

<!-- Root Context: defines shared resources visible to all other web components -->

<context:property-placeholder location=*"classpath:META-INF/property/db.properties"*/>

<bean id=*"dataSource"* class=*"org.springframework.jdbc.datasource.DriverManagerDataSource"*>

<property name=*"driverClassName"* value=*"${db.driverClassName}"*/>

<property name=*"url"* value=*"${db.url}"*/>

<property name=*"username"* value=*"${db.username}"*/>

<property name=*"password"* value=*"${db.password}"*/>

</bean>

</beans>

**model/Dept.java**

@Data

**public** **class** Dept {

**private** **int** deptno;

**private** String dname;

**private** String loc;

}

**model/Emp.java**

@Data

**public** **class** Emp {

**private** **int** empno;

**private** String ename;

**private** String job;

**private** **int** mgr; // 상사 사번

**private** Date hiredate;

**private** **int** sal; // 봉급

**private** **int** comm; // 상여

**private** **int** deptno; // 부서번호

}

**src/main/resources/META-INF/db/emp.sql**

SELECT \* FROM DEPT;

SELECT \* FROM EMP;

SELECT \* FROM EMP WHERE ENAME LIKE '%'||'A'||'%';

SELECT \* FROM EMP WHERE JOB LIKE '%'||'E'||'%';

SELECT \* FROM EMP WHERE DEPTNO = 20;

-- Dept.xml의 id=deptList

SELECT \* FROM DEPT;

-- Emp.xml의 id=empList

SELECT \* FROM EMP WHERE 1=1

AND ENAME LIKE '%'||'A'||'%'

AND JOB LIKE '%'||'M'||'%'

AND DEPTNO = 30;

**src/main/resources/META-INF/sqlmap/config/mybatis-config.xml**

<!-- <http://www.mybatis.org> products탭의 docs 클릭 -> 좌측 Configuration XML 메뉴의 objectFactory 위편 소스 이용 -->

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<!DOCTYPE configuration

PUBLIC "-//mybatis.org//DTD Config 3.0//EN"

"http://mybatis.org/dtd/mybatis-3-config.dtd">

<configuration>

<typeAliases>

<typeAlias alias=*"Dept"* type=*"com.tj.b.model.Dept"*/> 별명은 대소문자 구별 안함

<typeAlias alias=*"Emp"* type=*"com.tj.b.model.Emp"*/>

</typeAliases>

<mappers>

<mapper resource=*"META-INF/sqlmap/mappers/Dept.xml"*/>

<mapper resource=*"META-INF/sqlmap/mappers/Emp.xml"*/>

</mappers>

</configuration>

**src/main/resources/META-INF/sqlmap/mappers/Dept.xml**

<?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=*"Dept"*>

<resultMap type=*"Dept"* id=*"DeptResult"*>

<result property=*"deptno"* column=*"deptno"*/>

<result property=*"dname"* column=*"dname"*/>

<result property=*"loc"* column=*"loc"*/>

</resultMap>

<select id=*"deptList"* resultMap=*"DeptResult"*>

<![CDATA[

SELECT \* FROM DEPT

]]>

</select>

</mapper>

**src/main/resources/META-INF/sqlmap/mappers/Emp.xml**

<?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=*"Emp"*>

<resultMap type=*"Emp"* id=*"EmpResult"*>

<result property=*"empno"* column=*"empno"*/>

<result property=*"ename"* column=*"ename"*/>

<result property=*"job"* column=*"job"*/>

<result property=*"mgr"* column=*"mgr"*/>

<result property=*"hiredate"* column=*"hiredate"*/>

<result property=*"sal"* column=*"sal"*/>

<result property=*"comm"* column=*"comm"*/>

<result property=*"deptno"* column=*"deptno"*/>

</resultMap>

<select id=*"empList"* parameterType=*"Emp"* resultMap=*"EmpResult"*>

SELECT \* FROM EMP where 1=1

<if test=*"ename!=null and ename!=''"*>

AND ENAME LIKE '%'||#{ename}||'%'

</if>

<if test=*"job!=null and job!=''"*>

AND JOB LIKE '%'||#{job}||'%'

</if>

<if test=*"deptno!=0"*>

and deptno = #{deptno}

</if>

</select>

</mapper>

**root-context.xml**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<beans xmlns=*"http://www.springframework.org/schema/beans"*

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"*

xmlns:context=*"http://www.springframework.org/schema/context"*

xsi:schemaLocation=*"http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd*

*http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context-3.1.xsd"*>

<context:property-placeholder location=*"classpath:META-INF/property/db.properties"*/>

<bean id=*"dataSource"* class=*"org.springframework.jdbc.datasource.DriverManagerDataSource"*>

<property name=*"driverClassName"* value=*"${db.driverClassName}"*/>

<property name=*"url"* value=*"${db.url}"*/>

<property name=*"username"* value=*"${db.username}"*/>

<property name=*"password"* value=*"${db.password}"*/>

</bean>

<bean id=*"sqlSessionFactory"* class=*"org.mybatis.spring.SqlSessionFactoryBean"*>

<property name=*"dataSource"* ref=*"dataSource"*/>

<property name=*"configLocation"* value=*"classpath:META-INF/sqlmap/config/mybatis-config.xml"*/>

</bean>

<bean id=*"sqlSessionTemplate"* class=*"org.mybatis.spring.SqlSessionTemplate"*>

<constructor-arg index=*"0"* ref=*"sqlSessionFactory"*/>

</bean>

</beans>

index.jsp를 실행하여 실행이 되면 필요한 bean이 spring 컨테이너에 생성되어 쉽고 효율적으로 DAO와 SERVICE를 만들 수 있다.

**dao/DeptDao.java**

**package** com.tj.b.dao;

**import** java.util.List;

**import** com.tj.b.model.Dept;

**public** **interface** DeptDao { **public** List<Dept> deptList();}

**dao/EmpDao.java**

**package** com.tj.b.dao;

**import** java.util.List;

**import** com.tj.b.model.Emp;

**public** **interface** EmpDao {**public** List<Emp> empList(Emp schEmp);}

**dao/DeptDaoImpl.java**

**package** com.tj.b.dao;

**import** java.util.List;

**import** org.apache.ibatis.session.SqlSession;

**import** org.springframework.beans.factory.annotation.Autowired;

**import** org.springframework.stereotype.Repository;

**import** com.tj.b.model.Dept;

@Repository

**public** **class** DeptDaoImpl **implements** DeptDao {

@Autowired

**private** SqlSession sessionTemplate;

@Override

**public** List<Dept> deptList() {

**return** sessionTemplate.selectList("deptList");

}

}

**dao/EmpDaoImpl.java**

**package** com.tj.b.dao;

**import** java.util.List;

**import** org.mybatis.spring.SqlSessionTemplate;

**import** org.springframework.beans.factory.annotation.Autowired;

**import** org.springframework.stereotype.Repository;

**import** com.tj.b.model.Emp;

@Repository

**public** **class** EmpDaoImpl **implements** EmpDao {

@Autowired

**private** SqlSessionTemplate sessionTemplate;

@Override

**public** List<Emp> empList(Emp scEmp) {

//schEmp.getEname() -> "A" and schEmp.getJob()-> "E" and schEmp.getDeptno() -> 20

**return** sessionTemplate.selectList("empList", search);

}

}

**service/EmpService.java**

**import** java.util.List;

**import** com.tj.b.model.Dept;

**import** com.tj.b.model.Emp;

**public** **interface** EmpService {

**public** List<Dept> deptList();

**public** List<Emp> empList(Emp schEmp);

}

**service/EmpServiceImpl.java**

**import** java.util.List;

**import** org.springframework.beans.factory.annotation.Autowired;

**import** org.springframework.stereotype.Service;

**import** com.tj.b.dao.DeptDao;

**import** com.tj.b.dao.EmpDao;

**import** com.tj.b.model.Dept;

**import** com.tj.b.model.Emp;

@Service

**public** **class** EmpServiceImpl **implements** EmpService {

@Autowired

**private** EmpDao eDao;

@Autowired

**private** DeptDao dDao;

@Override

**public** List<Dept> deptList() {

**return** dDao.deptList();

}

@Override

**public** List<Emp> empList(Emp schEmp) {

**if**(schEmp.getEname()!=**null**) {

schEmp.setEname(schEmp.getEname().toUpperCase());

}

**if**(schEmp.getJob()!=**null**) {

schEmp.setJob(schEmp.getJob().toUpperCase());

}

**return** eDao.empList(search);

}

}

**servlet-context.xml**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<beans:beans xmlns=*"http://www.springframework.org/schema/mvc"*

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"*

xmlns:beans=*"http://www.springframework.org/schema/beans"*

xmlns:context=*"http://www.springframework.org/schema/context"*

xsi:schemaLocation=*"http://www.springframework.org/schema/mvc http://www.springframework.org/schema/mvc/spring-mvc.xsd*

*http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd*

*http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context.xsd"*>

<annotation-driven />

<resources mapping=*"/css/\*\*"* location=*"/css/"* />

<beans:bean class=*"org.springframework.web.servlet.view.InternalResourceViewResolver"*>

<beans:property name=*"prefix"* value=*"/WEB-INF/views/"* />

<beans:property name=*"suffix"* value=*".jsp"* />

</beans:bean>

<context:component-scan base-package=*"com.tj.b"* />

</beans:beans>

**emp.css**

@charset *"UTF-8"*;

*#wrap* { width:*700px*; margin: *0* *auto*; background-color: *white*; text-align: *center*;}

**form** { width:*700px*; margin:*10px* *auto*;}

**table** {width:*100%*;}

**table** **th** { background-color: *#43BDE6*; color:*white*; padding: *10px*; text-align: *center*;}

**table** **td** { padding: *10px* *2px*; text-align: *center*; }

**table** **tr**{background-color: *#BFF0FF*;}

**table** **tr***:HOVER* {background-color: *#AFE0F0*;}

**table** **caption**{padding: *5px* *5px* *10px*; font-size: *2em*; font-weight: *bold*;}

**input**[type=text]*:FOCUS* { background-color: *lightyellow*;}

**input**[type=text] { margin: *0* *10px*;}

**EmpController.java**

**package** com.tj.b.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.ModelAttribute;

**import** org.springframework.web.bind.annotation.RequestMapping;

**import** org.springframework.web.bind.annotation.RequestMethod;

**import** com.tj.b.model.Dept;

**import** com.tj.b.model.Emp;

**import** com.tj.b.service.EmpService;

@Controller

**public** **class** EmpController {

@Autowired

**private** EmpService service;

@ModelAttribute("deptList")

**public** List<Dept> deptList(){

**return** service.deptList();

}

@RequestMapping(value="emp", method=RequestMethod.***GET***)

**public** String emp(@ModelAttribute("schEmp") Emp schEmp, Model model) {

model.addAttribute("empList", eService.empList(schEmp));

**return** "emp";

}

}

**emp.jsp**

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<%@taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"*%>

<%@taglib prefix=*"fmt"* uri=*"http://java.sun.com/jsp/jstl/fmt"*%>

<c:set var=*"conPath"* value=*"*${pageContext.request.contextPath }*"*/>

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">

<html>

<head>

<meta http-equiv=*"Content-Type"* content=*"text/html; charset=UTF-8"*>

<link href=*"*${conPath }*/css/emp.css"* rel=*"stylesheet"*>

<script src=*"https://code.jquery.com/jquery-3.6.4.min.js"*></script>

<script>

$(**function**(){

$('select').change(**function**(){

$('form').submit();

});

});

$(document).ready(**function**() {

$('input[type=text]').keyup(**function**() {

$('form').submit();

});

});

</script>

</head>

<body>

<div id=*"wrap"*>

<form action=*"*${conPath }*/emp.do"*>

사원명 <input type=*"text"* name=*"ename"* value=*"*${schEmp.ename }*"* size=*"10"*> 직책 <input type=*"text"* name=*"job"* value=*"*${schEmp.job }*"* size=*"10"*> 부서 <select name=*"deptno"*>

<option value=*"0"*>모든부서</option>

<c:forEach var=*"dept"* items=*"*${deptList }*"*>

<option value=*"*${dept.deptno }*"*

<c:if test="${dept.deptno eq schEmp.deptno }">

selected="selected"

</c:if>

>${dept.dname}</option>

</c:forEach>

</select> &nbsp;

<input type=*"submit"* value=*"검색"*>

</form>

<table>

<tr><th>사원번호</th><th>이름</th><th>직책</th><th>관리자</th><th>입사일</th><th>급여</th><th>상여</th><th>부서번호</th></tr>

<c:forEach var=*"emp"* items=*"*${empList}*"*>

<tr><td>${emp.empno }</td>

<td>${emp.ename }</td>

<td>${emp.job }</td>

<td>${emp.mgr }</td>

<td><fmt:formatDate value=*"*${emp.hiredate }*"* pattern=*"yy년MM월dd일"*/> </td>

<td align=*"right"*><fmt:formatNumber value=*"*${emp.sal }*"* pattern=*"#,###,###"*/></td>

<td align=*"right"*><fmt:formatNumber value=*"*${emp.comm }*"* pattern=*"#,###,####"*/></td>

<td>${emp.deptno }</td>

</tr>

</c:forEach>

</table>

</div>

</body></html>