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| **□ 수행평가 - 빅데이터를 활용한 IoT 시스템 개발(feat.커넥티드카)** | | | | | | |
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| **과정명** | | 빅데이터를 활용한 IoT 시스템 개발(feat.커넥티드카) | | | | |
| **교과목명** | | IoT 운영시스템 구축 응용기술 | | **훈련교사** | | 이진만 |
| **과정명** | | Web Client 기술 이해  Dynamic Web 기술 이해  Web Server 기술 이해 | | | | |
| **수행날짜** | | 2019.07.05 | 훈련생명 | | 김소희 | |
| **과제개요** | | | | | | |
| 1. HTML5, CSS3.0, JavaScript를 이용하여 Dynamic Web Client를 구축 하시오 2. SpringMVC Framework를 이용하여 Web Server Application을 구축 하시오 3. Dynamic Web Client와 Web Server Application을 구축 하시오 4. 시스템 구조 5. 구현 화면 및 소스 코드 정리 | | | | | | |
| **시스템 구조**     1. **Pom.xml**   <project xmlns=*"http://maven.apache.org/POM/4.0.0"*  xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"*  xsi:schemaLocation=*"http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd"*>  <modelVersion>4.0.0</modelVersion>  <groupId>smvc4</groupId>  <artifactId>smvc4</artifactId>  <version>0.0.1-SNAPSHOT</version>  <packaging>war</packaging>  <build>  <sourceDirectory>src</sourceDirectory>  <plugins>  <plugin>  <artifactId>maven-compiler-plugin</artifactId>  <version>3.8.0</version>  <configuration>  <source>1.8</source>  <target>1.8</target>  </configuration>  </plugin>  <plugin>  <artifactId>maven-war-plugin</artifactId>  <version>3.2.1</version>  <configuration>  <warSourceDirectory>web</warSourceDirectory>  </configuration>  </plugin>  </plugins>  </build>  <properties>  <java-version>1.8</java-version>  <org.springframework-version>4.2.5.RELEASE</org.springframework-version>  <org.aspectj-version>1.6.5</org.aspectj-version>  <org.slf4j-version>1.7.18</org.slf4j-version>  </properties>  <dependencies>  <!-- Spring -->  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-context</artifactId>  <version>${org.springframework-version}</version>  <exclusions>  <!-- Exclude Commons Logging in favor of SLF4j -->  <exclusion>  <groupId>commons-logging</groupId>  <artifactId>commons-logging</artifactId>  </exclusion>  </exclusions>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-webmvc</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-aop</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-beans</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-core</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-expression</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-jdbc</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-messaging</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-tx</artifactId>  <version>${org.springframework-version}</version>  </dependency>  <!-- AspectJ -->  <dependency>  <groupId>org.aspectj</groupId>  <artifactId>aspectjrt</artifactId>  <version>${org.aspectj-version}</version>  </dependency>  <dependency>  <groupId>org.aspectj</groupId>  <artifactId>aspectjtools</artifactId>  <version>${org.aspectj-version}</version>  </dependency>  <dependency>  <groupId>org.aspectj</groupId>  <artifactId>aspectjweaver</artifactId>  <version>${org.aspectj-version}</version>  </dependency>  <!-- Logging -->  <dependency>  <groupId>org.slf4j</groupId>  <artifactId>slf4j-api</artifactId>  <version>${org.slf4j-version}</version>  </dependency>  <dependency>  <groupId>org.slf4j</groupId>  <artifactId>jcl-over-slf4j</artifactId>  <version>${org.slf4j-version}</version>  <scope>runtime</scope>  </dependency>  <dependency>  <groupId>org.slf4j</groupId>  <artifactId>slf4j-log4j12</artifactId>  <version>${org.slf4j-version}</version>  </dependency>  <dependency>  <groupId>log4j</groupId>  <artifactId>log4j</artifactId>  <version>1.2.15</version>  <exclusions>  <exclusion>  <groupId>javax.mail</groupId>  <artifactId>mail</artifactId>  </exclusion>  <exclusion>  <groupId>javax.jms</groupId>  <artifactId>jms</artifactId>  </exclusion>  <exclusion>  <groupId>com.sun.jdmk</groupId>  <artifactId>jmxtools</artifactId>  </exclusion>  <exclusion>  <groupId>com.sun.jmx</groupId>  <artifactId>jmxri</artifactId>  </exclusion>  </exclusions>  <scope>runtime</scope>  </dependency>  <!-- @Inject -->  <dependency>  <groupId>javax.inject</groupId>  <artifactId>javax.inject</artifactId>  <version>1</version>  </dependency>  <!-- Servlet -->  <dependency>  <groupId>javax.servlet</groupId>  <artifactId>javax.servlet-api</artifactId>  <version>3.0.1</version>  <scope>provided</scope>  </dependency>  <dependency>  <groupId>javax.servlet</groupId>  <artifactId>jstl</artifactId>  <version>1.2</version>  </dependency>  <!-- Tiles3 -->  <dependency>  <groupId>org.apache.tiles</groupId>  <artifactId>tiles-core</artifactId>  <version>3.0.3</version>  </dependency>  <dependency>  <groupId>org.apache.tiles</groupId>  <artifactId>tiles-extras</artifactId>  <version>3.0.3</version>  </dependency>  <!-- MyBatis -->  <dependency>  <groupId>org.mybatis</groupId>  <artifactId>mybatis</artifactId>  <version>3.2.3</version>  </dependency>  <dependency>  <groupId>org.mybatis</groupId>  <artifactId>mybatis-spring</artifactId>  <version>1.2.2</version>  </dependency>  <!-- DBCP -->  <dependency>  <groupId>commons-dbcp</groupId>  <artifactId>commons-dbcp</artifactId>  <version>1.2.2</version>  </dependency>  <!-- Test -->  <dependency>  <groupId>junit</groupId>  <artifactId>junit</artifactId>  <version>4.7</version>  <scope>test</scope>  </dependency>  <dependency>  <groupId>commons-fileupload</groupId>  <artifactId>commons-fileupload</artifactId>  <version>1.3.1</version>  </dependency>  <dependency>  <groupId>org.springframework</groupId>  <artifactId>spring-jms</artifactId>  <version>4.2.5.RELEASE</version>  </dependency>  <dependency>  <groupId>aopalliance</groupId>  <artifactId>aopalliance</artifactId>  <version>1.0</version>  </dependency>  <dependency>  <groupId>cglib</groupId>  <artifactId>cglib</artifactId>  <version>2.2</version>  </dependency>  <!-- json request -->  <dependency>  <groupId>com.fasterxml.jackson.core</groupId>  <artifactId>jackson-databind</artifactId>  <version>2.3.3</version>  </dependency>  <dependency>  <groupId>org.codehaus.jackson</groupId>  <artifactId>jackson-mapper-asl</artifactId>  <version>1.9.11</version>  </dependency>  <dependency>  <groupId>taglibs</groupId>  <artifactId>standard</artifactId>  <version>1.1.2</version>  </dependency>  <dependency>  <groupId>com.googlecode.json-simple</groupId>  <artifactId>json-simple</artifactId>  <version>1.1</version>  </dependency>  </dependencies>  </project>   1. **Myspring.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:aop=*"http://www.springframework.org/schema/aop"*  xmlns:context=*"http://www.springframework.org/schema/context"*  xmlns:p=*"http://www.springframework.org/schema/p"*  xmlns:tx=*"http://www.springframework.org/schema/tx"*  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-4.2.xsd*  *http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop-4.2.xsd*  *http://www.springframework.org/schema/tx http://www.springframework.org/schema/tx/spring-tx-4.2.xsd"*>  <context:component-scan base-package=*"com.\*"* />  <tx:annotation-driven transaction-manager=*"txManager"* />    <!-- 1. Database Setting -->  <bean  class=*"org.springframework.jdbc.datasource.DriverManagerDataSource"*  id=*"dataSource"*>  <property value=*"oracle.jdbc.driver.OracleDriver"*  name=*"driverClassName"* />  <property value=*"jdbc:oracle:thin:@70.12.114.57:1521:xe"*  name=*"url"* />  <property value=*"db"* name=*"username"* />  <property value=*"db"* name=*"password"* />  </bean>  <!-- 2. Transaction Setting -->  <bean  class=*"org.springframework.jdbc.datasource.DataSourceTransactionManager"*  id=*"txManager"*>  <property name=*"dataSource"* ref=*"dataSource"* />  </bean>  <!-- 3. MyBatis Setting -->  <bean class=*"org.mybatis.spring.SqlSessionFactoryBean"*  id=*"sqlSessionFactory"*>  <property name=*"dataSource"* ref=*"dataSource"* />  <property value=*"classpath:com/config/mybatis.xml"*  name=*"configLocation"* />  </bean>  <!-- 4. Spring Mybatis Connect -->  <bean class=*"org.mybatis.spring.SqlSessionTemplate"*  id=*"sqlSessionTemplate"*>  <constructor-arg ref=*"sqlSessionFactory"* />  </bean>  <!-- 5. Mapper Setting -->  <bean class=*"org.mybatis.spring.mapper.MapperScannerConfigurer"*>  <property value=*"com.mapper"* name=*"basePackage"* />  </bean>  </beans>   1. **Web.xml**   <?xml version=*"1.0"* encoding=*"UTF-8"*?>  <web-app xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns=*"http://xmlns.jcp.org/xml/ns/javaee"* xsi:schemaLocation=*"http://xmlns.jcp.org/xml/ns/javaee http://xmlns.jcp.org/xml/ns/javaee/web-app\_4\_0.xsd"* id=*"WebApp\_ID"* version=*"4.0"*>  <display-name>smvc4</display-name>  <welcome-file-list>  <welcome-file>index.html</welcome-file>  <welcome-file>index.htm</welcome-file>  <welcome-file>index.jsp</welcome-file>  <welcome-file>default.html</welcome-file>  <welcome-file>default.htm</welcome-file>  <welcome-file>default.jsp</welcome-file>  </welcome-file-list>    <!-- Spring Dispatcher -->  <servlet>  <servlet-name>action</servlet-name>  <servlet-class>org.springframework.web.servlet.DispatcherServlet</servlet-class>  <init-param>  <param-name>contextConfigLocation</param-name>  <param-value>/WEB-INF/config/spring.xml</param-value>  </init-param>  </servlet>  <servlet-mapping>  <servlet-name>action</servlet-name>  <url-pattern>\*.mc</url-pattern>  </servlet-mapping>  <!-- Encoding Filter -->  <filter>  <filter-name>enc</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>  </filter>  <filter-mapping>  <filter-name>enc</filter-name>  <url-pattern>/\*</url-pattern>  </filter-mapping>  </web-app>   1. **Spring.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:aop=*"http://www.springframework.org/schema/aop"*  xmlns:context=*"http://www.springframework.org/schema/context"*  xmlns:p=*"http://www.springframework.org/schema/p"*  xmlns:tx=*"http://www.springframework.org/schema/tx"*  xmlns:mvc=*"http://www.springframework.org/schema/mvc"*  xsi:schemaLocation=*"http://www.springframework.org/schema/mvc http://www.springframework.org/schema/mvc/spring-mvc-4.2.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-4.2.xsd*  *http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop-4.2.xsd*  *http://www.springframework.org/schema/tx http://www.springframework.org/schema/tx/spring-tx-4.2.xsd"*>  <context:component-scan base-package=*"com.\*"* />  <mvc:annotation-driven />  <tx:annotation-driven transaction-manager=*"txManager"*/>  <!-- ViewResolver -->  <bean id=*"viewResolver"*  class=*"org.springframework.web.servlet.view.InternalResourceViewResolver"*>  <property name=*"prefix"* value=*"/view/"* />  <property name=*"suffix"* value=*".jsp"* />  <property name=*"order"* value=*"0"* />  </bean>  <!-- File Upload -->  <bean  class=*"org.springframework.web.multipart.commons.CommonsMultipartResolver"*  id=*"multipartResolver"*>  <property value=*"500000000"* name=*"maxUploadSize"* />  </bean>  <!-- Multi language -->  <bean class=*"org.springframework.context.support.ResourceBundleMessageSource"*  id=*"messageSource"*>  <property name=*"basenames"*>  <list>  <value>messages/messages</value>  </list>  </property>  </bean>  <bean  class=*"org.springframework.web.servlet.i18n.SessionLocaleResolver"*  id=*"localeResolver"*>  </bean>  <mvc:interceptors>  <bean class=*"org.springframework.web.servlet.i18n.LocaleChangeInterceptor"*>  <property value=*"lang"* name=*"paramName"* />  </bean>  </mvc:interceptors>  <!-- DataBase Setting -->  <!-- 1. Database Setting -->  <bean class=*"org.springframework.jdbc.datasource.DriverManagerDataSource"*  id=*"dataSource"*>  <property value=*"oracle.jdbc.driver.OracleDriver"*  name=*"driverClassName"* />  <property value=*"jdbc:oracle:thin:@70.12.114.57:1521:xe"*  name=*"url"* />  <property value=*"db"* name=*"username"* />  <property value=*"db"* name=*"password"* />  </bean>  <!-- 2. Transaction Setting -->  <bean class=*"org.springframework.jdbc.datasource.DataSourceTransactionManager"*  id=*"txManager"*>  <property name=*"dataSource"* ref=*"dataSource"* />  </bean>  <!-- 3. MyBatis Setting -->  <bean class=*"org.mybatis.spring.SqlSessionFactoryBean"*  id=*"sqlSessionFactory"*>  <property name=*"dataSource"* ref=*"dataSource"* />  <property value=*"classpath:com/config/mybatis.xml"*  name=*"configLocation"* />  </bean>  <!-- 4. Spring Mybatis Connect -->  <bean class=*"org.mybatis.spring.SqlSessionTemplate"*  id=*"sqlSessionTemplate"*>  <constructor-arg ref=*"sqlSessionFactory"* />  </bean>  <!-- 5. Mapper Setting -->  <bean class=*"org.mybatis.spring.mapper.MapperScannerConfigurer"*>  <property value=*"com.mapper"* name=*"basePackage"* />  </bean>  </beans>   1. **Com.vo (product.java)**   package com.vo;  import java.util.Date;  import org.springframework.web.multipart.MultipartFile;  public class Product {  public int id;  public String name;  public double price;  public Date regdate;  public String imgname;  MultipartFile mf; // 화면에서 입력한 파일이 셋팅되어 자동으로 올라옴    public Product() {  }  public Product(String name, double price, String imgname) {  this.name = name;  this.price = price;  this.imgname = imgname;  }  public Product(int id, String name, double price, String imgname) {  this.id = id;  this.name = name;  this.price = price;  this.imgname = imgname;  }  public Product(int id, String name, double price, Date regdate, String imgname) {  this.id = id;  this.name = name;  this.price = price;  this.regdate = regdate;  this.imgname = imgname;  }    public Product(int id, String name, double price, Date regdate, String imgname, MultipartFile mf) {  this.id = id;  this.name = name;  this.price = price;  this.regdate = regdate;  this.imgname = imgname;  this.mf = mf;  }  public MultipartFile getMf() {  return mf;  }  public void setMf(MultipartFile mf) {  this.mf = mf;  }  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 double getPrice() {  return price;  }  public void setPrice(double price) {  this.price = price;  }  public Date getRegdate() {  return regdate;  }  public void setRegdate(Date regdate) {  this.regdate = regdate;  }  public String getImgname() {  return imgname;  }  public void setImgname(String imgname) {  this.imgname = imgname;  }  @Override  public String toString() {  return "Product [id=" + id + ", name=" + name + ", price=" + price + ", regdate=" + regdate + ", imgname="  + imgname + "]";  }  }   1. **Com.config** 2. **Mybatis.xml**   <?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 type=*"com.vo.User"* alias=*"user"*/>  <typeAlias type=*"com.vo.Product"* alias=*"product"*/>  </typeAliases>    <mappers>  <mapper resource=*"com/config/usermapper.xml"*/>  <mapper resource=*"com/config/productmapper.xml"*/>  </mappers>  </configuration>   1. **Productmapper.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=*"com.mapper.ProductMapper"*>  <insert id=*"insert"* parameterType=*"product"*>  INSERT INTO T\_PRODUCT VALUES (PSEQ.NEXTVAL,#{name},#{price},SYSDATE,#{imgname})  </insert>    <update id=*"update"* parameterType=*"product"*>  UPDATE T\_PRODUCT SET  NAME=#{name},PRICE=#{price},IMGNAME=#{imgname} WHERE ID=#{id}  </update>    <delete id=*"delete"* parameterType=*"INTEGER"*>  DELETE FROM T\_PRODUCT WHERE ID=#{obj}  </delete>    <select id=*"select"* parameterType=*"Integer"* resultType=*"product"*>  SELECT \* FROM T\_PRODUCT WHERE ID=#{obj}  </select>    <select id=*"selectall"* resultType=*"product"*>  SELECT \* FROM T\_PRODUCT  </select>  </mapper>   1. **Com.frame** 2. **Dao.java**   **package** com.frame;  **import** java.util.ArrayList;  **public** **interface** Dao<K,V> {  **public** **void** insert(V v) **throws** Exception;  **public** **void** update(V v) **throws** Exception;  **public** **void** delete(K k) **throws** Exception;  **public** V select(K k) **throws** Exception;  **public** ArrayList<V> select() **throws** Exception;}   1. **Biz.java**   package com.frame;  import java.util.ArrayList;  import org.springframework.transaction.annotation.Transactional;  public interface Biz<K,V> {  @Transactional  public void register(V v) throws Exception;  @Transactional  public void modify(V v) throws Exception;  @Transactional  public void remove(K k) throws Exception;  public V get(K k) throws Exception;  public ArrayList<V> get() throws Exception;}   1. **Com.mapper (ProductMapper.java)**   package com.mapper;  import java.util.ArrayList;  import com.vo.Product;  public interface ProductMapper {  public void insert(Product obj);  public void delete(int obj);  public void update(Product obj);  public Product select(int obj);  public ArrayList<Product> selectall();  }   1. **Product** 2. **Productdao.java**   package com.product;  import java.util.ArrayList;  import org.springframework.beans.factory.annotation.Autowired;  import org.springframework.stereotype.Repository;  import com.frame.Dao;  import com.mapper.ProductMapper;  import com.vo.Product;  @Repository("pdao")  public class ProductDao implements Dao<Integer, Product> {  @Autowired  ProductMapper pm;    @Override  public void insert(Product v) throws Exception {  pm.insert(v);  }  @Override  public void update(Product v) throws Exception {  pm.update(v);  }  @Override  public void delete(Integer k) throws Exception {  pm.delete(k);  }  @Override  public Product select(Integer k) throws Exception {  pm.select(k);  return pm.select(k);  }  @Override  public ArrayList<Product> select() throws Exception {  pm.selectall();  return pm.selectall();  }  }   1. **Productbiz.java**   package com.product;  import java.util.ArrayList;  import javax.annotation.Resource;  import org.springframework.stereotype.Service;  import com.frame.Biz;  import com.frame.Dao;  import com.vo.Product;  @Service("pbiz")  public class ProductBiz implements Biz<Integer, Product> {  @Resource(name="pdao")  Dao<Integer, Product> dao;    @Override  public void register(Product v) throws Exception {  dao.insert(v);  }  @Override  public void modify(Product v) throws Exception {  dao.update(v);  }  @Override  public void remove(Integer k) throws Exception {  dao.delete(k);  }  @Override  public Product get(Integer k) throws Exception {  dao.select(k);  return dao.select(k);  }  @Override  public ArrayList<Product> get() throws Exception {  dao.select();  return dao.select();  }  }   1. **Com.controller** 2. **MainController.java**   package com.controller;  import java.io.IOException;  import java.io.PrintWriter;  import java.util.ArrayList;  import javax.annotation.Resource;  import javax.servlet.http.HttpServletRequest;  import javax.servlet.http.HttpServletResponse;  import javax.servlet.http.HttpSession;  import org.json.simple.JSONArray;  import org.json.simple.JSONObject;  import org.springframework.stereotype.Controller;  import org.springframework.web.bind.annotation.RequestMapping;  import org.springframework.web.bind.annotation.ResponseBody;  import org.springframework.web.servlet.ModelAndView;  import com.frame.Biz;  import com.vo.Product;  import com.vo.User;  @Controller  public class MainController {  @Resource (name="ubiz")  Biz<String,User> biz;    @Resource (name="pbiz")  Biz<Integer,Product> pbiz;  @RequestMapping("/main.mc")  public ModelAndView main() {  ModelAndView mv = new ModelAndView();  mv.setViewName("main");  return mv;  }    @RequestMapping("/login.mc")  public ModelAndView login() {  ModelAndView mv = new ModelAndView();  mv.addObject("center", "login");  mv.addObject("navi", Navi.login);  mv.setViewName("main");  return mv;  }    @RequestMapping("/loginimpl.mc")  public ModelAndView loginimpl(ModelAndView mv,  HttpServletRequest request,  HttpSession session) {  String id = request.getParameter("id");  String pwd = request.getParameter("pwd");  try {  User dbuser = biz.get(id);  if(pwd.equals(dbuser.getPwd())) {  session.setAttribute("loginuser", dbuser);  mv.addObject("center", "loginok");  } else{  mv.addObject("center", "loginfail");  }  } catch (Exception e) {  mv.addObject("center", "loginfail");  }  mv.setViewName("main");  return mv;  }    @RequestMapping("/logout.mc")  public ModelAndView logout(ModelAndView mv,  HttpSession session) {  if(session != null) {  session.invalidate();  }  mv.setViewName("main");  return mv;  }    @RequestMapping("/register.mc")  public ModelAndView register() {  ModelAndView mv = new ModelAndView();  mv.addObject("center", "register");  mv.addObject("navi", Navi.register);  mv.setViewName("main");  return mv;  }    @RequestMapping("/aboutus.mc")  public ModelAndView aboutus() {  ModelAndView mv = new ModelAndView();  mv.addObject("center", "aboutus");  mv.addObject("navi", Navi.aboutus);  mv.setViewName("main");  return mv;  }    // @ResponseBody -> Jason 데이터로 그대로 내려간다  @RequestMapping("/pdata.mc")  @ResponseBody  public void pdata(HttpServletResponse rep) {  ArrayList<Product> plist = null;  try {  plist=pbiz.get();  } catch (Exception e) {  e.printStackTrace();  }    JSONArray ja = new JSONArray();  for(Product p:plist) {  JSONObject jo = new JSONObject();  jo.put("name", p.getName());  jo.put("y", p.getPrice());  ja.add(jo);  }    PrintWriter out = null;  try {  rep.setCharacterEncoding("UTF-8");  rep.setContentType("text/json;charset=UTF-8");  // json으로 보낸다고 써줘야함  out = rep.getWriter();  } catch (IOException e) {  e.printStackTrace();  }  out.print(ja.toJSONString());  }  }   1. **ProductController.java**   package com.controller;  import java.util.ArrayList;  import javax.annotation.Resource;  import javax.servlet.http.HttpServletRequest;  import org.springframework.stereotype.Controller;  import org.springframework.web.bind.annotation.RequestMapping;  import org.springframework.web.servlet.ModelAndView;  import com.frame.Biz;  import com.vo.Product;  @Controller  public class ProductController {  @Resource(name="pbiz")  Biz<Integer,Product> biz;    @RequestMapping("/productadd.mc")  public ModelAndView padd() {  ModelAndView mv = new ModelAndView();  mv.addObject("center", "product/add");  mv.addObject("navi", Navi.productadd);  mv.setViewName("main");  return mv;  }    @RequestMapping("/productaddimpl.mc")  public ModelAndView paddimpl(ModelAndView mv,  Product product) {  String imgname = product.getMf().getOriginalFilename();  product.setImgname(imgname);  try {  biz.register(product);  Util.saveFile(product.getMf());  mv.addObject("center", "registerok");  } catch (Exception e) {  e.printStackTrace();  }  mv.setViewName("main");  return mv;  }    @RequestMapping("/productlist.mc")  public ModelAndView plist(ModelAndView mv,  HttpServletRequest request) {  ArrayList<Product> list = null;  try {  list = biz.get();  request.setAttribute("plist", list);  } catch (Exception e) {  e.printStackTrace();  }  mv.addObject("center", "product/list");  mv.addObject("navi", Navi.productlist);  mv.setViewName("main");  return mv;  }    @RequestMapping("/productdetail.mc")  public ModelAndView pdetail(ModelAndView mv, Integer id) {  Product product =null;  try {  product= biz.get(id);  mv.addObject("productdetail", product);  mv.addObject("center", "product/detail");  } catch (Exception e) {  e.printStackTrace();  }  mv.setViewName("main");  return mv;  }    @RequestMapping("/productdelete.mc")  public String pdelete(ModelAndView mv, Integer id) {  try {  biz.remove(id);  } catch (Exception e) {  e.printStackTrace();  }  return "redirect:productlist.mc"; // redirect  }    @RequestMapping("/productupdate.mc")  public ModelAndView pupdate(ModelAndView mv, Integer id) {  Product product = null;  try {  product = biz.get(id);  mv.addObject("productupdate", product);  mv.addObject("center", "product/update");  } catch (Exception e) {  e.printStackTrace();  }  mv.setViewName("main");  return mv;  }  @RequestMapping("/productupdateimpl.mc")  public String pupdateimpl(Product product) {  try {  biz.modify(product);  } catch (Exception e) {  e.printStackTrace();  }  return "redirect:productdetail.mc?id="+product.getId();  }  }   1. **Util.java**   package com.controller;  import java.io.FileOutputStream;  import org.springframework.web.multipart.MultipartFile;  public class Util {  public static void saveFile(MultipartFile mf) {  String dir="C:\\spring\\smvc3\\web\\img\\";  byte [] data;  String imgname = mf.getOriginalFilename();  try {  data = mf.getBytes();  FileOutputStream fo = new FileOutputStream(dir+imgname);  fo.write(data);  fo.close();  } catch (Exception e) {  }  }  }   1. **Navi.java**   **package** com.controller;  **public** **class** Navi {  **public** **static** String *home* = "<a href='main.mc'>HOME</a>";  **public** **static** String *login* = *home* + " > Login";  **public** **static** String *register* = *home* + " > Register";  **public** **static** String *aboutus* = *home* + " > About Us";  **public** **static** String *useradd* = *home* + " > User > Add";  **public** **static** String *userlist* = *home* + " > User > List";  **public** **static** String *productadd* = *home* + " > Product > Add";  **public** **static** String *productlist* = *home* + " > Product > List";  } | | | | | | |
| 1. **Main.jsp**   <%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*  pageEncoding=*"UTF-8"*%>  <%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"*%>  <!DOCTYPE html>  <html>  <head>  <meta charset=*"UTF-8"*>  <title>Insert title here</title>  <script  src=*"https://ajax.googleapis.com/ajax/libs/jquery/1.12.4/jquery.min.js"*></script>  <script src=*"https://code.highcharts.com/highcharts.js"*></script>  <script src=*"https://code.highcharts.com/modules/data.js"*></script>  <script src=*"https://code.highcharts.com/modules/drilldown.js"*></script>  <script type=*"text/javascript"*  src=*"//dapi.kakao.com/v2/maps/sdk.js?appkey=6aa6c11f183d05f3c7006fec6522d483"*></script>  <style>  \* {  margin: *0*;  padding: *0*;  }  **a** {  text-decoration: *none*;  color: *black*;  }  **header,** **nav,** **section,** **footer** {  margin: *0 auto*;  }  **header** {  width: *900px*;  height: *150px*;  background: *#B2EBF4*;  text-align: *center*;  }  **nav** {  width: *900px*;  height: *30px*;  background: *#D5D5D5*;  }  **section** {  width: *900px*;  height: *600px*;  background: *white*;  }  **footer** {  width: *900px*;  height: *50px*;  background: *#A6A6A6*;  }  *.center\_page* {  margin: *0 auto*;  width: *880px*;  height: *580px*;  background: *white*;  }  **header**>**h3** {  line-height: *60px*;  }  **header**>**h1** {  line-height: *50px*;  }  **nav**>**a** {  margin: *5px 5px*;  }  </style>  </head>  <body>  <header>  <h3>  <c:choose>  <c:when test=*"*${loginuser != null }*"*>  <a href=*""*>${loginuser.id} 님</a>  <a href=*"logout.mc"*>LOGOUT</a>  <a href=*"aboutus.mc"*>ABOUT US</a>  </c:when>  <c:otherwise>  <a href=*"login.mc"*>LOGIN</a>  <a href=*"register.mc"*>REGISTER</a>  <a href=*"aboutus.mc"*>ABOUT US</a>  </c:otherwise>  </c:choose>  </h3>  <h1>  <a href=*"useradd.mc"*>USERADD</a> <a href=*"userlist.mc"*>USERLIST</a> <a  href=*"productadd.mc"*>PRODUCTADD</a> <a href=*"productlist.mc"*>PRODUCTLIST</a>  </h1>  </header>  <nav>  <c:choose>  <c:when test=*"*${navi==null }*"*>  <a href=*"main.mc"*>HOME</a>  </c:when>  <c:otherwise>  ${navi }  </c:otherwise>  </c:choose>  </nav>  <section>  <c:choose>  <c:when test=*"*${center == null }*"*>  <jsp:include page=*"center.jsp"*></jsp:include>  </c:when>  <c:otherwise>  <jsp:include page=*"*${center }*.jsp"*></jsp:include>  </c:otherwise>  </c:choose>  </section>  <footer></footer>  </body></html>   1. **Product** 2. **Add.jsp**   <%@ page language=*"java"* contentType=*"text/html; charset=EUC-KR"*  pageEncoding=*"UTF-8"*%>  <%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"*%>  <div class=*"center\_page"*>  <h1>Product Add Page</h1>  <form enctype=*"multipart/form-data"* action=*"productaddimpl.mc"* method=*"POST"*>  NAME <input type=*"text"* name=*"name"*><br>  PRICE <input type=*"number"* name=*"price"*><br>  IMG <input type=*"file"* name=*"mf"*><br>  <input type=*"submit"* value=*"REGISTER"*><br>  </form></div>   1. **List.jsp**   <%@ page language=*"java"* contentType=*"text/html; charset=EUC-KR"*  pageEncoding=*"UTF-8"*%>  <%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"*%>  <div class=*"center\_page"*>  <h1>Product List Page</h1>  <table>  <tbody>  <c:forEach var=*"p"* items=*"*${plist }*"*>  <tr>  <td><h4><a href=*"productdetail.mc?id=*${p.id }*"*>${p.id }</a> ${p.name }</h4></td>  </tr>  </c:forEach>  </tbody>  </table></div>   1. Detail.jsp   <%@ page language=*"java"* contentType=*"text/html; charset=EUC-KR"*  pageEncoding=*"UTF-8"*%>  <%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"*%>  <div class=*"center\_page"*>  <h1>Product Detail Page</h1>  <h1>${productdetail.id }</h1>  <h1>${productdetail.name }</h1>  <h1>${productdetail.price }</h1>  <h1>${productdetail.regdate }</h1>  <img src=*"img/*${productdetail.imgname }*"*><br>  <a href=*"productdelete.mc?id=*${productdetail.id }*"*>DELETE</a>  <a href=*"productupdate.mc?id=*${productdetail.id }*"*>UPDATE</a>  </div>   1. **Register.jsp ( 지도 뿌리기)**   <%@ page language=*"java"* contentType=*"text/html; charset=EUC-KR"*  pageEncoding=*"UTF-8"*%>  <%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"*%>  <script>  $(document).ready(**function**() {  **var** container = document.getElementById('map');  **var** options = {  center : **new** kakao.maps.LatLng(33.450701, 126.570667),  level : 3  };  **var** map = **new** kakao.maps.Map(container, options);  });  </script>  <body>  <div class=*"center\_page"*>  <h1>REGISTER PAGE</h1>  <div id=*"map"* style="width: *500px*; height: *400px*;"></div>  </div></body>   1. **Aboutus.jsp (데이터 받아와서 그래프 뿌리기)**   <%@ page language=*"java"* contentType=*"text/html; charset=EUC-KR"*  pageEncoding=*"UTF-8"*%>  <%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"*%>  <script>  **function** chart1(pdata) {  Highcharts.chart('container',  {  chart : {  type : 'column'  },  title : {  text : 'The price of Our Products'  },  xAxis : {  type : 'Products'  },  yAxis : {  title : {  text : 'Price'  }  },  legend : {  enabled : **false**  },  plotOptions : {  series : {  borderWidth : 0,  dataLabels : {  enabled : **true**,  format : '{point.y:.1f}'  }  }  },  tooltip : {  headerFormat : '<span style="font-size:11px">{series.name}</span><br>',  pointFormat : '<span style="color:{point.color}">{point.name}</span>: <b>{point.y:.2f}%</b> of total<br/>'  },  series : [ {  name : "Products",  colorByPoint : **true**,  data : pdata  } ],    });  }; // end  $(document).ready(**function**() {  $.ajax({  url:"pdata.mc",  success:**function**(pdata){  chart1(pdata);}  })  });  </script>  <div class=*"center\_page"*>  <h1>ABOUT US</h1>  <div id=*"container"*  style="min-width: *310px*; height: *400px*; margin: *0 auto*"></div>  </div> | | | | | | |