**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 https://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.sarje</groupId>

<artifactId>spr-mvc-hello-app</artifactId>

<version>0.0.1-SNAPSHOT</version>

<packaging>war</packaging>

<name>spr-mvc-hello-app</name>

<description>Spring Porject</description>

<build>

<plugins>

<plugin>

<artifactId>maven-compiler-plugin</artifactId>

<version>3.8.1</version>

<configuration>

<release>11</release>

</configuration>

</plugin>

<plugin>

<artifactId>maven-war-plugin</artifactId>

<version>3.2.3</version>

</plugin>

</plugins>

</build>

<properties>

<spring.version>4.3.20.RELEASE</spring.version>

<aspectj.version>1.8.13</aspectj.version>

<mysql.connector.version>8.0.13</mysql.connector.version>

<hibernate.version>4.3.0.Final</hibernate.version>

</properties>

<dependencies>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-core</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-beans</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context-support</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-jdbc</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-orm</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-web</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-webmvc</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-aop</artifactId>

<version>${spring.version}</version>

</dependency>

<dependency>

<groupId>org.aspectj</groupId>

<artifactId>aspectjrt</artifactId>

<version>${aspectj.version}</version>

</dependency>

<dependency>

<groupId>org.aspectj</groupId>

<artifactId>aspectjweaver</artifactId>

<version>${aspectj.version}</version>

</dependency>

<dependency>

<groupId>mysql</groupId>

<artifactId>mysql-connector-java</artifactId>

<version>${mysql.connector.version}</version>

</dependency>

<dependency>

<groupId>org.hibernate</groupId>

<artifactId>hibernate-core</artifactId>

<version>${hibernate.version}</version>

</dependency>

<dependency>

<groupId>org.hibernate</groupId>

<artifactId>hibernate-entitymanager</artifactId>

<version>${hibernate.version}</version>

</dependency>

<dependency>

<groupId>org.hibernate</groupId>

<artifactId>hibernate-ehcache</artifactId>

<version>${hibernate.version}</version>

</dependency>

<dependency>

<groupId>commons-fileupload</groupId>

<artifactId>commons-fileupload</artifactId>

<version>1.4</version>

</dependency>

</dependencies>

</project>

**Car.java**

package com.sarje.model;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.Table;

*@Entity*

*@Table*(name = "table\_car1")

public class Car {

*@Id*

*@GeneratedValue*(strategy = *GenerationType*.***IDENTITY***)

private int id;

private String make;

private String model;

private float price;

private String image;

public Car() {

}

public Car(int id) {

super();

this.id = id;

}

public Car(String make, String model, float price) {

super();

this.make = make;

this.model = model;

this.price = price;

}

public Car(int id, String make, String model, float price) {

super();

this.id = id;

this.make = make;

this.model = model;

this.price = price;

}

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public String getMake() {

return make;

}

public void setMake(String make) {

this.make = make;

}

public String getModel() {

return model;

}

public void setModel(String model) {

this.model = model;

}

public float getPrice() {

return price;

}

public void setPrice(float price) {

this.price = price;

}

public String getImage() {

return image;

}

public void setImage(String image) {

this.image = image;

}

*@Override*

public String toString() {

return id + " " + make + " " + model + " " + price;

}

}

**CarDao.java**

package com.sarje.dao;

import java.util.List;

import com.sarje.model.Car;

public interface CarDao {

public void save(Car car);

public void update(Car car);

public void deleteById(int id);

public Car selectById(int id);

public List<Car> selectAll();

public void upload(int id, String image);

}

**CarDaoImpl.java**

package com.sarje.dao;

import java.util.List;

import org.hibernate.Query;

import org.hibernate.Transaction;

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

import org.springframework.orm.hibernate4.HibernateTemplate;

import org.springframework.stereotype.Repository;

import com.sarje.model.Car;

*@Repository*

public class CarDaoImpl implements CarDao {

*@Autowired*

private HibernateTemplate hibernateTemplate;

*@Override*

public void save(Car car) {

hibernateTemplate.execute(session->{

Transaction t = session.beginTransaction();

session.save(car);

t.commit();

session.flush();

session.close();

return null;

});

}

*@Override*

public void update(Car car) {

hibernateTemplate.execute(session->{

Transaction t = session.beginTransaction();

session.update(car);

t.commit();

session.flush();

session.close();

return null;

});

}

*@Override*

public void deleteById(int id) {

hibernateTemplate.execute(session->{

Transaction t = session.beginTransaction();

session.delete(new Car(id));

t.commit();

session.flush();

session.close();

return null;

});

}

*@Override*

public Car selectById(int id) {

return hibernateTemplate.execute(session->{

Transaction t = session.beginTransaction();

Car car = (Car)session.get(Car.class, id);

t.commit();

session.flush();

session.close();

return car;

});

}

*@Override*

public List<Car> selectAll() {

return hibernateTemplate.execute(session->{

Transaction t = session.beginTransaction();

Query q = session.createQuery("from Car");

List<Car> lst = q.list();

t.commit();

session.flush();

session.close();

return lst;

});

}

*@Override*

public void upload(int id,String image) {

hibernateTemplate.execute(session->{

Transaction t = session.beginTransaction();

Car car = (Car)session.get(Car.class, id);

car.setImage(image);

t.commit();

session.flush();

session.close();

return null;

});

}

}

**CarService.java**

package com.sarje.service;

import java.util.List;

import com.sarje.model.Car;

public interface CarService {

public void add(Car car);

public void modify(Car car);

public void removeById(int id);

public Car getById(int id);

public List<Car> getAll();

public void upload(int id, String image);

}

**CarServiceImpl.java**

package com.sarje.service;

import java.util.List;

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

import org.springframework.stereotype.Service;

import com.sarje.dao.CarDao;

import com.sarje.model.Car;

*@Service*

public class CarServiceImpl implements CarService {

*@Autowired*

private CarDao carDao;

*@Override*

public void add(Car car) {

carDao.save(car);

}

*@Override*

public void modify(Car car) {

carDao.update(car);

}

*@Override*

public void removeById(int id) {

carDao.deleteById(id);

}

*@Override*

public Car getById(int id) {

return carDao.selectById(id);

}

*@Override*

public List<Car> getAll() {

return carDao.selectAll();

}

*@Override*

public void upload(int id, String image) {

carDao.upload(id, image);

}

}

**CarValidator.java**

package com.sarje.service;

import org.springframework.stereotype.Service;

import org.springframework.validation.Errors;

import org.springframework.validation.ValidationUtils;

import org.springframework.validation.Validator;

import com.sarje.model.Car;

*@Service*

public class CarValidator implements Validator {

*@Override*

public boolean supports(Class<?> clazz) {

return clazz.equals(Car.class);

}

*@Override*

public void validate(Object target, Errors errors) {

ValidationUtils.*rejectIfEmptyOrWhitespace*(errors, "make", "make\_err", "make required");

ValidationUtils.*rejectIfEmptyOrWhitespace*(errors, "model", "model\_err", "model required");

Car car = (Car) target;

if (car.getPrice() <= 0) {

errors.rejectValue("price", "price\_err", "price can not be 0 or less");

}

}

}

**CarController.java**

package com.sarje.cntr;

import java.nio.file.Files;

import java.nio.file.Path;

import java.nio.file.Paths;

import java.nio.file.StandardCopyOption;

import java.util.List;

import javax.servlet.ServletContext;

import javax.servlet.http.HttpServletRequest;

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

import org.springframework.stereotype.Controller;

import org.springframework.ui.ModelMap;

import org.springframework.validation.BindingResult;

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

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

import org.springframework.web.bind.annotation.RequestParam;

import org.springframework.web.multipart.commons.CommonsMultipartFile;

import com.sarje.model.Car;

import com.sarje.service.CarService;

import com.sarje.service.CarValidator;

*@Controller*

public class CarController {

*@Autowired*

private CarService carService;

*@Autowired*

private CarValidator carValidator;

*@RequestMapping*(value = {"/car\_add\_form.htm"})

public String carAddForm(ModelMap model) {

model.put("car", new Car());

return "car\_add\_form";

}

*@RequestMapping*(value = {"/car\_add.htm"},method = *RequestMethod*.***POST***)

public String carAdd(Car car,BindingResult result, ModelMap model) {

carValidator.validate(car, result);

if(result.hasErrors())

return "car\_add\_form";

carService.add(car);

model.put("car", car);

return "car\_add\_form";

}

*@RequestMapping*(value = {"/car\_list.htm"},method = *RequestMethod*.***GET***)

public String carList(ModelMap model) {

List<Car> lst = carService.getAll();

model.put("cars", lst);

return "car\_list";

}

*@RequestMapping*(value = {"/car\_delete.htm"},method = *RequestMethod*.***GET***)

public String carDelete(*@RequestParam*(name = "id") int id, ModelMap model) {

carService.removeById(id);

List<Car> lst = carService.getAll();

model.put("cars", lst);

return "car\_list";

}

*@RequestMapping*(value = {"/car\_update\_form.htm"},method = *RequestMethod*.***GET***)

public String carUpdateForm(*@RequestParam*(name = "id") int id, ModelMap model) {

Car c = carService.getById(id);

model.put("car", c);

return "car\_update\_form";

}

*@RequestMapping*(value = {"/car\_update.htm"},method = *RequestMethod*.***POST***)

public String carUpdate(Car car, ModelMap model) {

carService.modify(car);

List<Car> lst = carService.getAll();

model.put("cars", lst);

return "car\_list";

}

*@RequestMapping*(value = {"/car\_upload.htm"},method = *RequestMethod*.***POST***)

public String carUpload(*@RequestParam* int id, *@RequestParam* CommonsMultipartFile image, ModelMap model, HttpServletRequest request) {

try {

ServletContext sc = request.getServletContext();

String filePath = sc.getRealPath("images");

Path path = Paths.*get*(filePath);

if(!Files.*exists*(path)) {

Files.*createDirectory*(path);

}

String fileName = image.getOriginalFilename();

fileName = fileName.substring(fileName.lastIndexOf('.'));

fileName = id+fileName;

path = path.resolve(fileName);

Files.*copy*(image.getInputStream(), path, *StandardCopyOption*.***REPLACE\_EXISTING***);

System.***out***.println(path);

carService.upload(id, fileName);

}catch (Exception e) {

e.printStackTrace();

}

List<Car> lst = carService.getAll();

model.put("cars", lst);

return "car\_list";

}

}

**Index.jsp**

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

pageEncoding=*"UTF-8"*%>

<!**DOCTYPE** html>

<**html**>

<**head**>

<**meta** charset=*"UTF-8"*>

<**title**>Welcome Page</**title**>

</**head**>

<**body**>

<**div** align=*"center"*>

<**h2**>Car Management System</**h2**>

<**br**> <**a** href=*"car\_add\_form.htm"*><**b**>Add Car</**b**></**a**> <**br**> <**br**>

<**a** href=*"car\_list.htm"*><**b**>View Car List</**b**></**a**>

</**div**>

</**body**>

</**html**>

**car\_add\_form.jsp**

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

pageEncoding=*"UTF-8"*%>

<%@ **taglib** uri=*"http://www.springframework.org/tags/form"* prefix=*"spr"*%>

<!**DOCTYPE** html>

<**html**>

<**head**>

<**meta** charset=*"UTF-8"*>

<**title**>Car Add Form</**title**>

<**script** type=*"text/javascript"*>

**function** alertName() {

alert("Record added successfully");

}

</**script**>

</**head**>

<**body**>

<**div** align=*"center"*>

<**h2**>Car add form</**h2**>

<**br**> <**br**>

<**spr:form** action=*"car\_add.htm"* commandName=*"car"* method=*"post"*>

<**div**>

<**label**>Make :</**label**>

<**spr:input** path=*"make"* />

<**span** style="color: *red*"><**spr:errors** path=*"make"*></**spr:errors**>

</**span**>

</**div**>

<**br**>

<**div**>

<**label**>Model :</**label**>

<**spr:input** path=*"model"* />

<**span** style="color: *red*"><**spr:errors** path=*"model"*></**spr:errors**>

</**span**>

</**div**>

<**br**>

<**div**>

<**label**>Price :</**label**>

<**spr:input** path=*"price"* />

<**span** style="color: *red*"><**spr:errors** path=*"price"*></**spr:errors**>

</**span**>

</**div**>

<**br**>

<%-- <spr:button>Add</spr:button> --%>

<**button** onclick="myFunction()">Add</**button**>

<**script**>

**function** myFunction() {

alert("Record added successfully...");

}

</**script**>

</**spr:form**>

<**br**> <**br**> <**a** href=*"index.jsp"*>Back to Home page</**a**>

</**div**>

</**body**>

</**html**>

**car\_update\_form.jsp**

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

pageEncoding=*"UTF-8"*%>

<%@ **taglib** uri=*"http://www.springframework.org/tags/form"* prefix=*"spr"*%>

<!**DOCTYPE** html>

<**html**>

<**head**>

<**meta** charset=*"UTF-8"*>

<**title**>Car Update Form</**title**>

</**head**>

<**body**>

<**div** align=*"center"*>

<**h2**>Car update form</**h2**>

<**br**>

<**spr:form** action=*"car\_update.htm"* commandName=*"car"* method=*"post"*>

<**spr:hidden** path=*"id"* />

<**div**>

<**label**>Make :</**label**>

<**spr:input** path=*"make"* />

</**div**>

<**br**>

<**div**>

<**label**>Model :</**label**>

<**spr:input** path=*"model"* />

</**div**>

<**br**>

<**div**>

<**label**>Price :</**label**>

<**spr:input** path=*"price"* />

</**div**>

<**br**>

<%-- <spr:button>Update</spr:button> --%>

<**button** onclick="myFunction1()">Update</**button**>

<**script**>

**function** myFunction1() {

alert("Record updated successfully...");

}

</**script**>

</**spr:form**>

<**br**> <**br**> <**a** href=*"index.jsp"*>Back to Home page</**a**>

</**div**>

</**body**>

</**html**>

**car\_upload.jsp**

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

pageEncoding=*"UTF-8"*%>

<!**DOCTYPE** html>

<**html**>

<**head**>

<**meta** charset=*"UTF-8"*>

<**title**>Upload Page</**title**>

</**head**>

<**body**>

<**div** align=*"center"*>

<**h2**>Upload the Car</**h2**>

<**form** action=*"car\_upload.htm"* method=*"post"*

enctype=*"multipart/form-data"*>

<**input** type=*"hidden"* name=*"id"*

value=*"*<%=request.getParameter("id")%>*"*>

<**div**>

<**label**>Select image </**label**><**br**>

<**br**> <**input** type=*"file"* name=*"image"*>

</**div**>

<**br**>

<**button** type=*"submit"* onclick="myFunction2()">Upload</**button**>

<**script**>

**function** myFunction2() {

alert("Record uploaded successfully...");

}

</**script**>

</**form**>

</**div**>

</**body**>

</**html**>

**car\_list.jsp**

<%@**page** import=*"com.sarje.model.Car"*%>

<%@**page** import=*"java.util.List"*%>

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

pageEncoding=*"UTF-8"*%>

<%

List<Car> lst = (List<Car>) request.getAttribute("cars");

%>

<!**DOCTYPE** html>

<**html**>

<**head**>

<**meta** charset=*"UTF-8"*>

<**title**>Car List</**title**>

</**head**>

<**body**>

<**div** align=*"center"*>

<**h1** align=*"center"*>Car List</**h1**>

<**table** border=*"1"* width=*"100%"*>

<**thead**>

<**tr** align=*"center"*>

<**th**>Make</**th**>

<**th**>Model</**th**>

<**th**>Price</**th**>

<**th**>Delete</**th**>

<**th**>Update</**th**>

<**th**>Upload</**th**>

</**tr**>

</**thead**>

<**tbody**>

<%

for (Car car : lst) {

%>

<**tr** align=*"center"*>

<**td**><%=car.getMake()%></**td**>

<**td**><%=car.getModel()%></**td**>

<**td**><%=car.getPrice()%></**td**>

<**td**><**a** href=*"car\_delete.htm?id=*<%=car.getId()%>*"*>Delete</**a**></**td**>

<**td**><**a** href=*"car\_update\_form.htm?id=*<%=car.getId()%>*"*>Update</**a**></**td**>

<**td**><**a** href=*"car\_upload.jsp?id=*<%=car.getId()%>*"*> <**img**

alt=*"no image"* src=*"images/*<%=car.getImage()%>*"* width=*"100"*

height=*"100"*>

</**a**></**td**>

</**tr**>

<%

}

%>

</**tbody**>

</**table**>

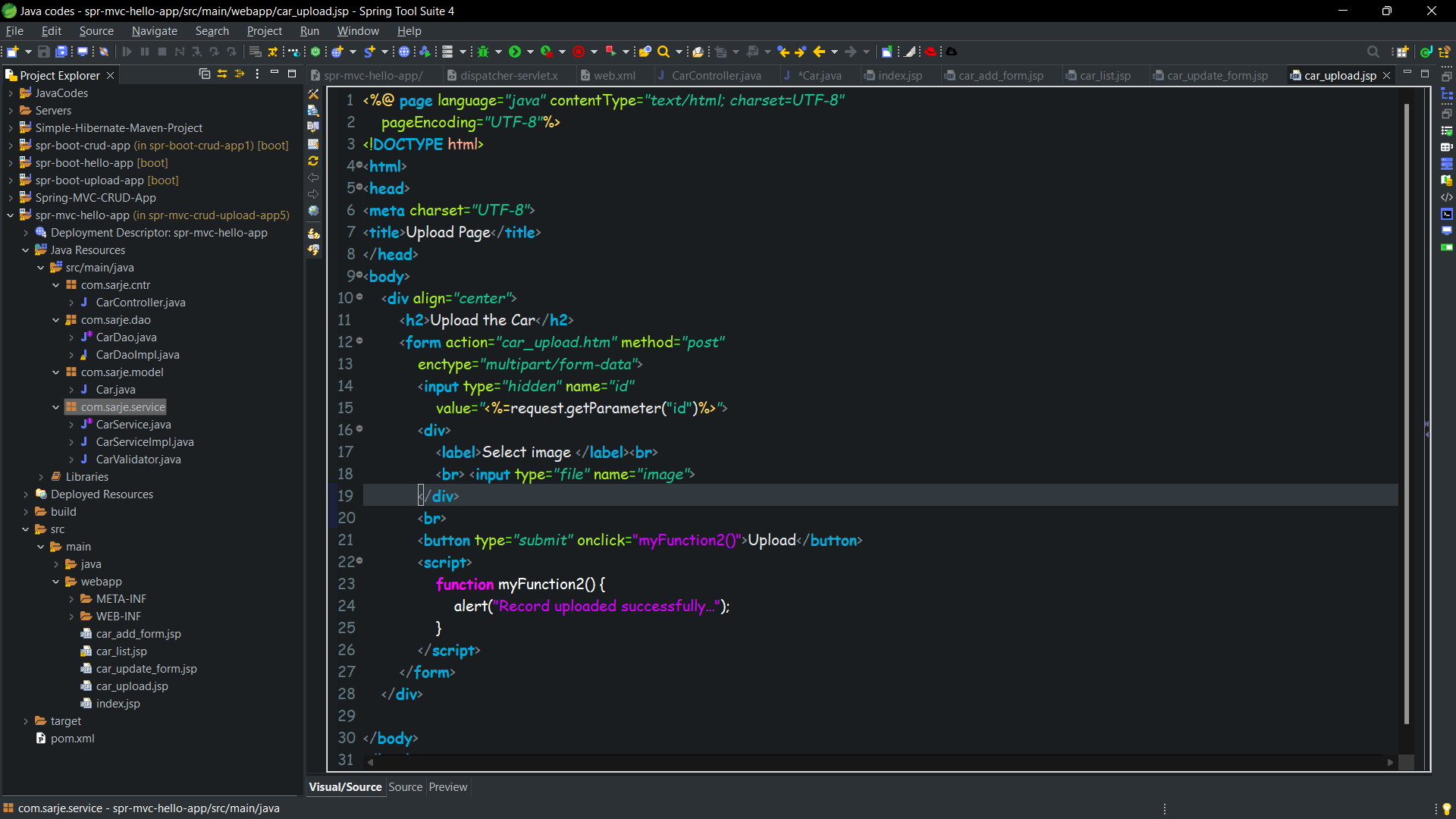
<**br**> <**br**> <**a** href=*"index.jsp"*>Back to Home page</**a**>

</**div**>

</**body**>

</**html**>

**Project Structure**



**Web Pages**

