武汉纺织大学

Web应用开发课程设计

**基于SSM的echarts组件实现地图的显示**

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# 1 需求分析

设计一个基于echarts组件和SSM框架的百度地图，数据来自于数据库，来显示学生信息(点坐标)

## 1.1地图

当程序运行时，显示百度地图，且可以对地图进行一系列操作

## 1.2echarts组件

与百度地图结合使用，通过增量渲染技术（4.0+），配合各种细致的优化，使地图能够展示来自数据库中的数据

## 1.3各项功能

### 1.3.1 展示数据

当程序运行时，数据库中的数据通过ajax以json格式送到页面，以坐标的方式展现在地图上

# **2 系统设计**

## 2.1用户用例图

系统分为用户，各角色的用户用例如下图2-1所示：

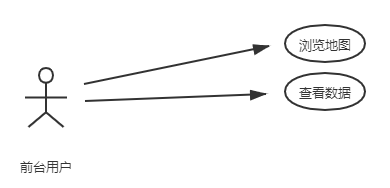


图2-1 用户用例图

## 2.2 ER图

数据库设计2张表，，对应的ER图如图3-1所示。

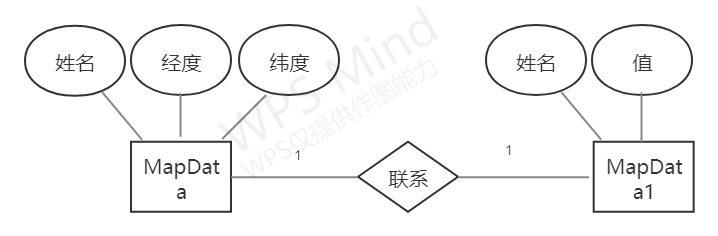
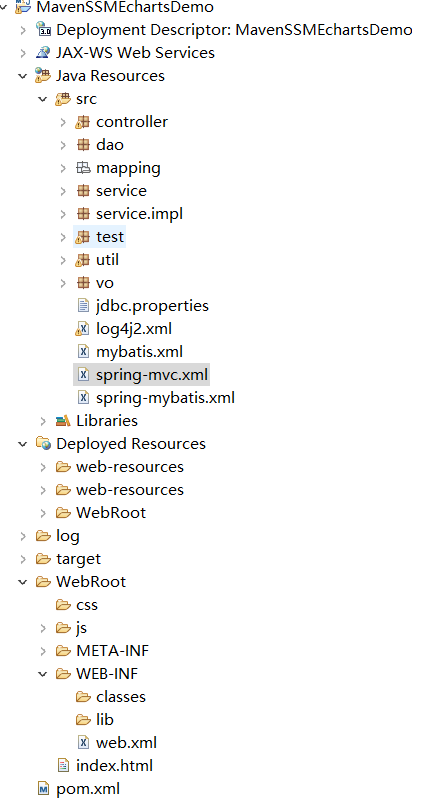
%3CmxGraphModel%3E%3Croot%3E%3CmxCell%20id%3D%220%22%2F%3E%3CmxCell%20id%3D%221%22%20parent%3D%220%22%2F%3E%3Cmysql.table%20entity.table.tableName%3D%22uses%22%20label%3D%22uses%22%20id%3D%222%22%3E%3CmxCell%20style%3D%22swimlane%3BfontStyle%3D0%3BchildLayout%3DstackLayout%3Bhorizontal%3D1%3Bhtml%3D1%3BstartSize%3D26%3BfillColor%3D%23b0e3e6%3BhorizontalStack%3D0%3BresizeParent%3D1%3BresizeParentMax%3D0%3BresizeLast%3D0%3Bcollapsible%3D1%3BmarginBottom%3D0%3BswimlaneFillColor%3D%23ffffff%3Balign%3Dcenter%3BfontSize%3D13%3BstrokeColor%3D%230e8088%3Brounded%3D0%3Bshadow%3D1%3Bcomic%3D0%3Bglass%3D0%3BgradientDirection%3Dsouth%3BgradientColor%3D%23ffffff%3B%22%20vertex%3D%221%22%20connectable%3D%220%22%20parent%3D%221%22%3E%3CmxGeometry%20x%3D%2260%22%20y%3D%2250%22%20width%3D%22310%22%20height%3D%22130%22%20as%3D%22geometry%22%2F%3E%3C%2FmxCell%3E%3C%2Fmysql.table%3E%3Cmysql.column%20entity.column.tableName%3D%22uses%22%20entity.column.name%3D%22userName%22%20entity.column.dataType%3D%22VARCHAR%22%20entity.column.PK%3D%22true%22%20label%3D%22%26lt%3Bimg%20title%3D%26quot%3BPrimary%20Key%26quot%3B%20src%3D%26quot%3Bimg%2Fdb%2Fkey1.png%26quot%3B%20width%3D%26quot%3B16%26quot%3B%20height%3D%26quot%3B16%26quot%3B%20align%3D%26quot%3Btop%26quot%3B%26gt%3B%26amp%3Bnbsp%3B%26lt%3Bfont%20size%3D%26quot%3B1%26quot%3B%20face%3D%26quot%3BTahoma%26quot%3B%26gt%3B%26lt%3Bspan%20style%3D%26quot%3Bfont-size%3A%2013px%26quot%3B%26gt%3B%26lt%3Bb%26gt%3Bid%20int%20primary%20key%26lt%3B%2Fb%26gt%3B%26lt%3B%2Fspan%26gt%3B%26lt%3B%2Ffont%26gt%3B%22%20entity.column.oldName%3D%22id%22%20entity.column.datalen%3D%2220%22%20entity.column.decimals%3D%22%22%20entity.column.autoIncreament%3D%22%22%20entity.column.unsigned%3D%22%22%20entity.column.bin%3D%22%22%20entity.column.ascii%3D%22%22%20entity.column.unicode%3D%22%22%20entity.column.unique%3D%22%22%20entity.column.isNotNull%3D%22NOT%20NULL%22%20entity.column.defaultValue%3D%22%22%20entity.column.comment%3D%22%22%20entity.column.enum%3D%22%22%20entity.column.set%3D%22%22%20entity.column.enumSetValue%3D%22%22%20id%3D%223%22%3E%3CmxCell%20style%3D%22text%3Bhtml%3D1%3BstrokeColor%3Dnone%3BfillColor%3Dnone%3BspacingLeft%3D4%3BspacingRight%3D4%3Boverflow%3Dhidden%3Brotatable%3D0%3BportConstraint%3Deastwest%3BfontSize%3D12%3BverticalAlign%3Dmiddle%3B%22%20vertex%3D%221%22%20parent%3D%222%22%3E%3CmxGeometry%20y%3D%2226%22%20width%3D%22310%22%20height%3D%2226%22%20as%3D%22geometry%22%2F%3E%3C%2FmxCell%3E%3C%2Fmysql.column%3E%3Cmysql.column%20entity.column.tableName%3D%22uses%22%20entity.column.name%3D%22chrName%22%20entity.column.datalen%3D%2220%22%20entity.column.dataType%3D%22VARCHAR%22%20label%3D%22%26lt%3Bimg%20title%3D%26quot%3BPrimary%20Key%26quot%3B%20src%3D%26quot%3Bimages%2Fspacer.gif%26quot%3B%20width%3D%26quot%3B16%26quot%3B%20height%3D%26quot%3B16%26quot%3B%20align%3D%26quot%3Btop%26quot%3B%26gt%3B%26amp%3Bnbsp%3B%26lt%3Bfont%20size%3D%26quot%3B1%26quot%3B%20face%3D%26quot%3BTahoma%26quot%3B%26gt%3B%26lt%3Bspan%20style%3D%26quot%3Bfont-size%3A%2013px%26quot%3B%26gt%3B%26lt%3Bb%26gt%3Bname%20varchar(10)%26lt%3B%2Fb%26gt%3B%26lt%3B%2Fspan%26gt%3B%26lt%3B%2Ffont%26gt%3B%22%20entity.column.oldName%3D%22name%22%20entity.column.decimals%3D%22%22%20entity.column.autoIncreament%3D%22%22%20entity.column.unsigned%3D%22%22%20entity.column.bin%3D%22%22%20entity.column.ascii%3D%22%22%20entity.column.unicode%3D%22%22%20entity.column.PK%3D%22false%22%20entity.column.unique%3D%22%22%20entity.column.isNotNull%3D%22%22%20entity.column.defaultValue%3D%22%22%20entity.column.comment%3D%22%22%20entity.column.enum%3D%22%22%20entity.column.set%3D%22%22%20entity.column.enumSetValue%3D%22%22%20id%3D%224%22%3E%3CmxCell%20style%3D%22text%3Bhtml%3D1%3BstrokeColor%3Dnone%3BfillColor%3Dnone%3BspacingLeft%3D4%3BspacingRight%3D4%3Boverflow%3Dhidden%3Brotatable%3D0%3BportConstraint%3Deastwest%3BfontSize%3D12%3BverticalAlign%3Dmiddle%3B%22%20vertex%3D%221%22%20parent%3D%222%22%3E%3CmxGeometry%20y%3D%2252%22%20width%3D%22310%22%20height%3D%2226%22%20as%3D%22geometry%22%2F%3E%3C%2FmxCell%3E%3C%2Fmysql.column%3E%3Cmysql.column%20entity.column.tableName%3D%22uses%22%20entity.column.name%3D%22password%22%20entity.column.datalen%3D%2250%22%20entity.column.dataType%3D%22VARCHAR%22%20label%3D%22%26lt%3Bimg%20title%3D%26quot%3BPrimary%20Key%26quot%3B%20src%3D%26quot%3Bimages%2Fspacer.gif%26quot%3B%20width%3D%26quot%3B16%26quot%3B%20height%3D%26quot%3B16%26quot%3B%20align%3D%26quot%3Btop%26quot%3B%26gt%3B%26amp%3Bnbsp%3B%26lt%3Bfont%20size%3D%26quot%3B1%26quot%3B%20face%3D%26quot%3BTahoma%26quot%3B%26gt%3B%26lt%3Bspan%20style%3D%26quot%3Bfont-size%3A%2013px%26quot%3B%26gt%3B%26lt%3Bb%26gt%3Bname%20varchar(10)%26lt%3B%2Fb%26gt%3B%26lt%3B%2Fspan%26gt%3B%26lt%3B%2Ffont%26gt%3B%22%20entity.column.oldName%3D%22chrName%22%20entity.column.decimals%3D%22%22%20entity.column.autoIncreament%3D%22%22%20entity.column.unsigned%3D%22%22%20entity.column.bin%3D%22%22%20entity.column.ascii%3D%22%22%20entity.column.unicode%3D%22%22%20entity.column.PK%3D%22false%22%20entity.column.unique%3D%22%22%20entity.column.isNotNull%3D%22%22%20entity.column.defaultValue%3D%22%22%20entity.column.comment%3D%22%E5%AF%86%E7%A0%81%22%20entity.column.enum%3D%22%22%20entity.column.set%3D%22%22%20entity.column.enumSetValue%3D%22%22%20id%3D%225%22%3E%3CmxCell%20style%3D%22text%3Bhtml%3D1%3BstrokeColor%3Dnone%3BfillColor%3Dnone%3BspacingLeft%3D4%3BspacingRight%3D4%3Boverflow%3Dhidden%3Brotatable%3D0%3BportConstraint%3Deastwest%3BfontSize%3D12%3BverticalAlign%3Dmiddle%3B%22%20vertex%3D%221%22%20parent%3D%222%22%3E%3CmxGeometry%20y%3D%2278%22%20width%3D%22310%22%20height%3D%2226%22%20as%3D%22geometry%22%2F%3E%3C%2FmxCell%3E%3C%2Fmysql.column%3E%3Cmysql.column%20entity.column.tableName%3D%22uses%22%20entity.column.name%3D%22role%22%20entity.column.datalen%3D%2220%22%20entity.column.dataType%3D%22VARCHAR%22%20label%3D%22%26lt%3Bimg%20title%3D%26quot%3BPrimary%20Key%26quot%3B%20src%3D%26quot%3Bimages%2Fspacer.gif%26quot%3B%20width%3D%26quot%3B16%26quot%3B%20height%3D%26quot%3B16%26quot%3B%20align%3D%26quot%3Btop%26quot%3B%26gt%3B%26amp%3Bnbsp%3B%26lt%3Bfont%20size%3D%26quot%3B1%26quot%3B%20face%3D%26quot%3BTahoma%26quot%3B%26gt%3B%26lt%3Bspan%20style%3D%26quot%3Bfont-size%3A%2013px%26quot%3B%26gt%3B%26lt%3Bb%26gt%3Bname%20varchar(10)%26lt%3B%2Fb%26gt%3B%26lt%3B%2Fspan%26gt%3B%26lt%3B%2Ffont%26gt%3B%22%20entity.column.oldName%3D%22chrName%22%20entity.column.decimals%3D%22%22%20entity.column.autoIncreament%3D%22%22%20entity.column.unsigned%3D%22%22%20entity.column.bin%3D%22%22%20entity.column.ascii%3D%22%22%20entity.column.unicode%3D%22%22%20entity.column.PK%3D%22false%22%20entity.column.unique%3D%22%22%20entity.column.isNotNull%3D%22%22%20entity.column.defaultValue%3D%22%22%20entity.column.comment%3D%22%E8%A7%92%E8%89%B2%22%20entity.column.enum%3D%22%22%20entity.column.set%3D%22%22%20entity.column.enumSetValue%3D%22%22%20id%3D%226%22%3E%3CmxCell%20style%3D%22text%3Bhtml%3D1%3BstrokeColor%3Dnone%3BfillColor%3Dnone%3BspacingLeft%3D4%3BspacingRight%3D4%3Boverflow%3Dhidden%3Brotatable%3D0%3BportConstraint%3Deastwest%3BfontSize%3D12%3BverticalAlign%3Dmiddle%3B%22%20vertex%3D%221%22%20parent%3D%222%22%3E%3CmxGeometry%20y%3D%22104%22%20width%3D%22310%22%20height%3D%2226%22%20as%3D%22geometry%22%2F%3E%3C%2FmxCell%3E%3C%2Fmysql.column%3E%3Cmysql.table%20entity.table.tableName%3D%22product%22%20label%3D%22product%22%20id%3D%227%22%3E%3CmxCell%20style%3D%22swimlane%3BfontStyle%3D0%3BchildLayout%3DstackLayout%3Bhorizontal%3D1%3Bhtml%3D1%3BstartSize%3D26%3BfillColor%3D%23b0e3e6%3BhorizontalStack%3D0%3BresizeParent%3D1%3BresizeParentMax%3D0%3BresizeLast%3D0%3Bcollapsible%3D1%3BmarginBottom%3D0%3BswimlaneFillColor%3D%23ffffff%3Balign%3Dcenter%3BfontSize%3D13%3BstrokeColor%3D%230e8088%3Brounded%3D0%3Bshadow%3D1%3Bcomic%3D0%3Bglass%3D0%3BgradientDirection%3Dsouth%3BgradientColor%3D%23ffffff%3B%22%20vertex%3D%221%22%20connectable%3D%220%22%20parent%3D%221%22%3E%3CmxGeometry%20x%3D%2260%22%20y%3D%22210%22%20width%3D%22310%22%20height%3D%22130%22%20as%3D%22geometry%22%2F%3E%3C%2FmxCell%3E%3C%2Fmysql.table%3E%3Cmysql.column%20entity.column.tableName%3D%22product%22%20entity.column.name%3D%22barcode%22%20entity.column.dataType%3D%22VARCHAR%22%20entity.column.PK%3D%22true%22%20label%3D%22%26lt%3Bimg%20title%3D%26quot%3BPrimary%20Key%26quot%3B%20src%3D%26quot%3Bimg%2Fdb%2Fkey1.png%26quot%3B%20width%3D%26quot%3B16%26quot%3B%20height%3D%26quot%3B16%26quot%3B%20align%3D%26quot%3Btop%26quot%3B%26gt%3B%26amp%3Bnbsp%3B%26lt%3Bfont%20size%3D%26quot%3B1%26quot%3B%20face%3D%26quot%3BTahoma%26quot%3B%26gt%3B%26lt%3Bspan%20style%3D%26quot%3Bfont-size%3A%2013px%26quot%3B%26gt%3B%26lt%3Bb%26gt%3Bid%20int%20primary%20key%26lt%3B%2Fb%26gt%3B%26lt%3B%2Fspan%26gt%3B%26lt%3B%2Ffont%26gt%3B%22%20entity.column.oldName%3D%22id%22%20entity.column.datalen%3D%2210%22%20entity.column.decimals%3D%22%22%20entity.column.autoIncreament%3D%22%22%20entity.column.unsigned%3D%22%22%20entity.column.bin%3D%22%22%20entity.column.ascii%3D%22%22%20entity.column.unicode%3D%22%22%20entity.column.unique%3D%22%22%20entity.column.isNotNull%3D%22NOT%20NULL%22%20entity.column.defaultValue%3D%22%22%20entity.column.comment%3D%22%22%20entity.column.enum%3D%22%22%20entity.column.set%3D%22%22%20entity.column.enumSetValue%3D%22%22%20id%3D%228%22%3E%3CmxCell%20style%3D%22text%3Bhtml%3D1%3BstrokeColor%3Dnone%3BfillColor%3Dnone%3BspacingLeft%3D4%3BspacingRight%3D4%3Boverflow%3Dhidden%3Brotatable%3D0%3BportConstraint%3Deastwest%3BfontSize%3D12%3BverticalAlign%3Dmiddle%3B%22%20vertex%3D%221%22%20parent%3D%227%22%3E%3CmxGeometry%20y%3D%2226%22%20width%3D%22310%22%20height%3D%2226%22%20as%3D%22geometry%22%2F%3E%3C%2FmxCell%3E%3C%2Fmysql.column%3E%3Cmysql.column%20entity.column.tableName%3D%22product%22%20entity.column.name%3D%22productName%22%20entity.column.datalen%3D%2250%22%20entity.column.dataType%3D%22VARCHAR%22%20label%3D%22%26lt%3Bimg%20title%3D%26quot%3BPrimary%20Key%26quot%3B%20src%3D%26quot%3Bimages%2Fspacer.gif%26quot%3B%20width%3D%26quot%3B16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

图3-1 数据库ER图

# **3 系统实现**

## 3.1 项目结构



## 3.2 配置文件

在项目下新建Source Folder，名为resources

### 3.2.1 jdbc.properties文件

该配置文件主要是以文件形式保存数据库的驱动类名称，连接数据库的URL地址，访问数据库的用户名及对应的密码，程序运行时会读取该文件相关信息，避免硬编码，当相关信息发生变化时，只需修改配置文件而不用修改源代码，增加程序的可扩展型。

DBDRIVER=com.mysql.jdbc.Driver

DBURL=jdbc:mysql://localhost:3306/javaweb?useUnicode=true&characterEncoding=UTF-8

DBUSER=root

PASSWORD=jiankang10086/

### 3.2.2 log4j2.xml文件

log4j2 的 xml 配置与程序的调用以解决 [Java](http://lib.csdn.net/base/java" \o "Java 知识库" \t "https://blog.csdn.net/li1367356/article/details/_blank) 程序的日志和跟踪;共有8个级别，按照从低到高为：All < Trace < Debug < Info < Warn < Error < Fatal < OFF.

　　　　　　All:最低等级的，用于打开所有日志记录.

　　　　　　Trace:是追踪，就是程序推进以下，你就可以写个trace输出，所以trace应该会特别多，不过没关系，我们可以设置最低日志级别不让他输出.

　　　　　　Debug:指出细粒度信息事件对调试应用程序是非常有帮助的.

　　　　　　Info:消息在粗粒度级别上突出强调应用程序的运行过程.

　　　　　　Warn:输出警告及warn以下级别的日志.

　　　　　　Error:输出错误信息日志.

　　　　　　Fatal:输出每个严重的错误事件将会导致应用程序的退出的日志.

　　　　　　OFF:最高等级的，用于关闭所有日志记录.

　　　　　　程序会打印高于或等于所设置级别的日志，设置的日志等级越高，打印出来的日志就越少

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

<!--日志级别以及优先级排序: OFF > FATAL > ERROR > WARN > INFO > DEBUG > TRACE > ALL -->

<!-- status配置Log4j2启动和加载配置文件时的日志输出登记 -->

<Configuration status="info">

<!--appenders:定义输出内容,输出格式,输出方式,日志保存策略等,常用其下三种标签[console,File,RollingFile] -->

<!--Appender可以理解为日志的输出目的地 -->

<Appenders>

<!--console :控制台输出的配置 -->

<Console name="Console" target="SYSTEM\_OUT">

<!-- %d 输出日志时间点的日期或时间 %t 输出产生该日志事件的线程名 %p 输出优先级，即DEBUG,INFO,WARN,ERROR,FATAL

%F 输出日志消息产生时所在的文件名称 %c 输出所属的类目,通常就是所在类的全名 %L 输出代码中的行号 -->

<PatternLayout

pattern="%d{YYYY-MM-dd HH:mm:ss} %-5p [%c,%L]- %msg%n" />

</Console>

<RollingFile name="RollingFile" filename="log/ZycTest.log"

filepattern="${logPath}/%d{YYYYMMddHHmmss}-fargo.log">

<PatternLayout

pattern="%d{YYYY-MM-dd HH:mm:ss} %-5p [%c,%L] - %msg%n" />

<Policies>

<SizeBasedTriggeringPolicy size="100 MB" />

</Policies>

<DefaultRolloverStrategy max="20" />

</RollingFile>

</Appenders>

<!--定义logger，只有定义了logger并引入的appender，appender才会生效 -->

<Loggers>

<!-- Logger节点用来单独指定日志的形式，可以为通过name属性设置指定包下的class指定不同的日志级别等 , 可以设置Logger的additivity="false"只在自定义的Appender中进行输出 -->

<logger name="dao" level="debug" additivity="false">

<appender-ref ref="Console" />

</logger>

<!-- Root节点用来指定项目的根日志，如果没有单独指定Logger，那么就会默认使用该Root日志输出 -->

<Root level="info">

<AppenderRef ref="Console" />

<AppenderRef ref="RollingFile" />

</Root>

</Loggers>

</Configuration>

### 3.2.3 mybatis.xml文件

配置读取对应的日志文件

<?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>

<settings>

<setting name="logImpl" value="LOG4J2" />

</settings>

</configuration>

### 3.2.4 spring-mvc.xml文件

1 配置 <mvc:annotation-driven/>  
2 配置 <context:component-scan base-package="com.springmvc.controller"/> //配置controller的注入  
3 配置视图解析器

<mvc:annotation-driven/>   相当于注册了DefaultAnnotationHandlerMapping(映射器)和AnnotationMethodHandlerAdapter(适配器)两个bean.即解决了@Controller注解的使用前提配置。

context:component-scan  对指定的包进行扫描，实现注释驱动Bean定义，同时将bean自动注入容器中使用。即解决了@Controller标识的类的bean的注入和使用。

<?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"

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

xmlns:aop="http://www.springframework.org/schema/aop"

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.xsd

http://www.springframework.org/schema/mvc

http://www.springframework.org/schema/mvc/spring-mvc.xsd

http://www.springframework.org/schema/tx

http://www.springframework.org/schema/tx/spring-tx.xsd

http://www.springframework.org/schema/aop

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

<mvc:annotation-driven>

<!-- 消息转换器 ,指定输出内容类型 -->

<mvc:message-converters

register-defaults="true">

<bean

class="org.springframework.http.converter.json.MappingJackson2HttpMessageConverter">

<property name="supportedMediaTypes"

value="text/plain;charset=UTF-8" />

</bean>

</mvc:message-converters>

</mvc:annotation-driven>

<!-- 扫描类包，将标注Spring注解的类自动转化Bean，同时完成Bean的注入 -->

<context:component-scan

base-package="controller" />

<context:component-scan base-package="service" />

<!-- <mvc:default-servlet-handler/> -->

<!--配置视图解析器 -->

<!-- ViewResolver 视图解析器 用于将返回的ModelAndView对象进行分离 InternalResourceViewResolver：用于支持Servlet、JSP视图解析；

viewClass：JstlView表示JSP模板页面需要使用JSTL标签库，classpath中必须包含jstl的相关jar包； prefix和suffix：查找视图页面的前缀和后缀（前缀[逻辑视图名]后缀），

比如传进来的逻辑视图名为hello，则该该jsp视图页面应该存放在“/hello.jsp”； -->

<bean

class="org.springframework.web.servlet.view.InternalResourceViewResolver">

<property name="prefix" value="/"></property> <!-- 视图放在webroot/下 -->

<property name="suffix" value=".jsp"></property>

</bean>

</beans>

### 3.2.5 spring-mybatis.xml文件

1 配置 <context:component-scan base-package="com.rhzh"/> //自动扫描,将标注Spring注解的类自动转化Bean，同时完成Bean的注入  
2 加载数据资源属性文件  
3配置数据源三种数据源的配置方式 [http://blog.csdn.net/yangyz\_love/article/details/8199207](http://blog.csdn.net/yangyz_love/article/details/8199207" \t "https://blog.csdn.net/yijiemamin/article/details/_blank)  
4 配置sessionfactory  
5 装配Dao接口  
6 声明式事务管理   
7 注解事务切面

<?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"

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

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.xsd

http://www.springframework.org/schema/mvc

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

<!-- 扫描类包，将标注Spring注解的类自动转化Bean，同时完成Bean的注入 -->

<context:component-scan base-package="service" />

<context:component-scan

base-package="service.impl" />

<context:component-scan base-package="dao" />

<context:component-scan base-package="mapping" />

<!-- 引入jdbc配置文件 -->

<bean id="propertyConfigurer"

class="org.springframework.beans.factory.config.PropertyPlaceholderConfigurer">

<property name="location" value="classpath:jdbc.properties" />

</bean>

<!-- 数据库连接池 -->

<bean id="dataSource"

class="com.alibaba.druid.pool.DruidDataSource" destroy-method="close">

<property name="driverClassName" value="${driver}" />

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

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

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

<!-- 初始化连接大小 -->

<property name="initialSize" value="${initialSize}"></property>

<!-- 连接池最大数量 -->

<property name="maxActive" value="${maxActive}"></property>

<!-- 连接池最小空闲 -->

<property name="minIdle" value="${minIdle}"></property>

<!-- 获取连接最大等待时间 -->

<property name="maxWait" value="${maxWait}"></property>

<!-- 验证连接是否可用，使用的SQL语句 -->

<property name="validationQuery" value="SELECT 1"></property>

</bean>

<!-- spring和MyBatis完美整合，不需要mybatis的配置映射文件 -->

<bean id="sqlSessionFactory"

class="org.mybatis.spring.SqlSessionFactoryBean">

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

<!-- <property name="configLocation" value="classpath:mybatis.xml"></property> -->

<!-- 自动扫描mapping.xml文件 -->

<property name="mapperLocations"

value="classpath:mapping/\*.xml"></property>

</bean>

<!-- DAO接口所在包名，Spring会自动查找其下的类 -->

<bean class="org.mybatis.spring.mapper.MapperScannerConfigurer">

<property name="basePackage" value="dao" />

<property name="sqlSessionFactoryBeanName"

value="sqlSessionFactory"></property>

</bean>

<!-- (事务管理)transaction manager, use JtaTransactionManager for global tx -->

<bean id="transactionManager"

class="org.springframework.jdbc.datasource.DataSourceTransactionManager">

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

</bean>

</beans>

## 3.3 VO类MapData.java

描述该文件作用，并对里面的关键代码进行解释

**public** **class** MapData {

**private String Name;**

**private String a;**

**private String b;**

//构造方法、getter,setter，toString方法,自行补充

}

## 3.4 DAO接口类IMapDataDAO.java

描述该文件作用，并对里面的关键代码进行解释

**package dao;**

**import java.util.List;**

**import vo.MapData;**

**import vo.MapData1;**

**public interface IMapDataDAO {**

**//获取所有数据**

**public List<MapData> get();**

**//获取部分数据**

**public List<MapData1> getNameAndValue();**

**}**

## 3.5 接口映射文件MapDataMapper.xml

描述该文件作用，并对里面的关键信息进行解释

<?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="dao.IMapDataDAO">

<select id="get" resultType="vo.MapData">

select \* from MapData

</select>

<select id="getNameAndValue" resultType="vo.MapData1">

select Name,VALUE FROM

mapdata

</select>

</mapper>

## 

## 3.6 服务接口层IMapDataService.java

package service;

import java.util.List;

import vo.MapData;

import vo.MapData1;

public interface IMapDataService {

public List<MapData> get();

public List<MapData1> getNameAndValue();

}

## 3.8 服务实现层IMapDataImpl.java

package service.impl;

import java.util.List;

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

import org.springframework.stereotype.Service;

import dao.IMapDataDAO;

import service.IMapDataService;

import vo.MapData;

import vo.MapData1;

@Service

public class MapDataImpl implements IMapDataService{

@Autowired

private IMapDataDAO mapdataDAO;

@Override

public List<MapData> get() {

// TODO Auto-generated method stub

return mapdataDAO.get();

}

@Override

public List<MapData1> getNameAndValue(){

return mapdataDAO.getNameAndValue();

}

}

## 3.9 工具包Util

### 3.9.1 DBUtil.java

描述数据库连接公共类

package util;

import java.io.FileInputStream;

import java.io.IOException;

import java.sql.\*;

import java.util.Properties;

public class DBUtil {

private static String driver;

private static String url;

private static String username;

private static String password;

static {

try

{ // 实例化配置属性的对象

}

Properties properties = new Properties();

}

//将配置文件加载进去

properties.load(new FileInputStream("../jdbc.properties"));

//通过Key来获取

Value driver =properties.getProperty("driverName");

url = properties.getProperty("url");

username = properties.getProperty("username");

password = properties.getProperty("password"); Class.forName(driver); }

catch(IOException e) { e.printStackTrace(); } catch (ClassNotFoundException e) {

// TODO Auto-generated catch block e.printStackTrace(); } }

public static Connection getConnection() throws ClassNotFoundException, SQLException{

Class.forName("com.mysql.jdbc.Driver");

Connection connection= DriverManager.getConnection("jdbc:mysql://localhost:3306/javaweb?characterEncoding=utf-8&user=root&password=jiankang10086/");

return connection;

}

public static void closeALL(ResultSet resultSet, Statement statement,Connection connection){

if (resultSet!=null){

try {

resultSet.close();

} catch (SQLException e) {

e.printStackTrace();

}

}

if (statement!=null){

try {

statement.close();

} catch (SQLException e) {

e.printStackTrace();

}

}

if (connection!=null){

try {

connection.close();

} catch (SQLException e) {

e.printStackTrace();

}

}

}

}

### 3.6.2 MapData.java

该类主要实现生成随机数据并插入到数据库中，包含学生名字和坐标

package util;

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.util.Random;

public class MapData {

public static void main(String[] args) {

ResultSet resultSet = null;

PreparedStatement statement = null;

Connection connection = null;

String string1= "赵,钱,孙,李,周,吴,郑,王,冯,陈,褚,卫,蒋,沈,韩,杨,朱,秦,尤,许,何,吕,施,张,孔,曹,严,华,金,魏,陶,姜,戚,谢,邹,喻,柏,水,窦,章,云,苏,潘,葛,奚,范,彭,郎,鲁,韦,昌,马,苗";

String string2="澄邈、德泽、海超、海阳、海荣、海逸、海昌、瀚钰、瀚文、涵亮、涵煦、明宇、涵衍、浩皛、浩波、浩博、浩初、浩宕、浩歌、浩广、浩邈、浩气、浩思、浩言、鸿宝、鸿波、鸿博、鸿才、鸿畅、鸿畴、鸿达、鸿德、鸿飞、鸿风、鸿福、鸿光、鸿晖、鸿朗、鸿文、鸿轩、鸿煊、鸿骞、鸿远、鸿云、鸿哲、鸿祯、鸿志、鸿卓、嘉澍、光济、澎湃、彭泽、鹏池、鹏海、浦和、浦泽、瑞渊、越泽、博耘、德运、辰宇、辰皓、辰钊、辰铭、辰锟、辰阳、辰韦、辰良、辰沛、晨轩、晨涛、晨濡、晨潍、鸿振、吉星、铭晨、起运、运凡、运凯、运鹏、运浩、运诚、运良、运鸿、运锋、运盛、运升、运杰、运珧、运骏、运凯、运乾、维运、运晟、运莱、运华、耘豪、星爵、星腾、星睿、星泽、星鹏、星然、震轩、震博、康震、震博、振强、振博、振华、振锐、振凯、振海、振国、振平、昂然、昂雄、昂杰、昂熙、昌勋、昌盛、昌淼、昌茂、昌黎、昌燎、昌翰、晨朗、德明、德昌、德曜、范明、飞昂、高旻、晗日、昊然、昊天、昊苍、昊英、昊宇、昊嘉、昊明、昊伟、昊硕、昊磊、昊东、鸿晖、鸿朗、华晖、金鹏、晋鹏、敬曦、景明、景天、景浩、俊晖、君昊、昆琦、昆鹏、昆纬、昆宇、昆锐、昆卉、昆峰、昆颉、昆谊、昆皓、昆鹏、昆明、昆杰、昆雄、昆纶、鹏涛、鹏煊、曦晨、曦之、新曦、旭彬、旭尧、旭鹏、旭东、旭炎、炫明、宣朗、学智、轩昂、彦昌、曜坤、曜栋、曜文、曜曦、曜灿、曜瑞、智伟、智杰、智刚、智阳、昌勋、昌盛、昌茂、昌黎、昌燎、昌翰、晨朗、昂然、昂雄、昂杰、昂熙、范明、飞昂、高朗";

String[] strings1=string1.split(",");

String[] strings2=string2.split("、");

/\*

\* for (String string : strings2) { System.out.println(string); } for (String

\* string : strings1) { System.out.println(string); }

\*/

for(int i=1;i<201;i++){

// 范围98.0 ~ 120.0

// 范围24.0 ~ 40.0

Random random=new Random();

int num = random.nextInt(strings1.length);

String ChrName=strings1[num]+strings2[num];

//System.out.println(ChrName);

double a = Math.random() \* 22.0 + 98.0;

double b = Math.random() \* 16.0 + 24.0;

String sqlString="INSERT INTO MapData (ChrName,a,b) VALUES ('"+ChrName+"', '"+a+"', '"+b+"');";

System.out.println(sqlString);

try {

connection = DBUtil.getConnection();

statement=connection.prepareStatement(sqlString);

int result = statement.executeUpdate();

if (result != 0) {

System.out.println("插入成功！");

}

} catch (Exception e) {

e.printStackTrace();

}finally {

DBUtil.closeALL(resultSet, statement, connection);

}

}

}

}

## 3.7 服务层DataController.java

控制器程序，调用服务层数据并处理后传给前端显示

package controller;

import java.awt.image.BufferedImage;

import java.io.IOException;

import java.util.ArrayList;

import java.util.HashMap;

import java.util.List;

import java.util.Map;

import javax.imageio.ImageIO;

import javax.servlet.ServletOutputStream;

import javax.servlet.http.Cookie;

import javax.servlet.http.HttpServletResponse;

import javax.servlet.http.HttpSession;

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

import org.springframework.stereotype.Controller;

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

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

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

import com.google.gson.Gson;

import service.IMapDataService;

import vo.MapData;

import vo.MapData1;

@Controller

public class DataController {

//private IMapDataService

@Autowired

private IMapDataService imapservice;

// 获取对象数据

@RequestMapping(value = "/ajaxGetData.do", method = RequestMethod.POST)

@ResponseBody

public Map<String, List<Double>> echartsJSON() {

// 存放返回信息的Map

Map<String, List<Double>> map = new HashMap<String, List<Double>>();

List<MapData> mapDatas=imapservice.get();

for (MapData mapData : mapDatas) {

List<Double> list = new ArrayList();

list.add(Double.parseDouble(mapData.getA()));

list.add(Double.parseDouble(mapData.getB()));

//map.put("name", mapData.getChrName());

map.put(mapData.getName(), list);

}

return map;

}

// 获取对象数据

@RequestMapping(value = "/ajaxGetData1.do", method = RequestMethod.POST)

@ResponseBody

public List<MapData1> echartsJSON1() {

// 存放返回信息的Map

//Map<String, Object> map = new HashMap<String, Object>();

List<MapData1> mapData1s=imapservice.getNameAndValue();

System.out.println(mapData1s);

System.err.println( mapData1s);

return mapData1s;

}

}

## 3.9 TestMybatis.java

描测试mybatis操作是否成功

package test;

import java.util.List;

import org.apache.logging.log4j.LogManager;

import org.apache.logging.log4j.Logger;

import org.junit.Test;

import org.junit.runner.RunWith;

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

import org.springframework.test.context.ContextConfiguration;

import org.springframework.test.context.junit4.SpringJUnit4ClassRunner;

import service.IMapDataService;

import vo.MapData;

import vo.MapData1;

//让测试在Spring容器环境下执行

@RunWith(SpringJUnit4ClassRunner.class)

@ContextConfiguration(locations = { "classpath:spring-mybatis.xml" })

public class TestMyBatis {

private static Logger log = LogManager.getLogger(Test.class.getName());

@Autowired

private IMapDataService mapdataservice;

@Test

public void test5() {

List<MapData1> mapDatas = mapdataservice.getNameAndValue();

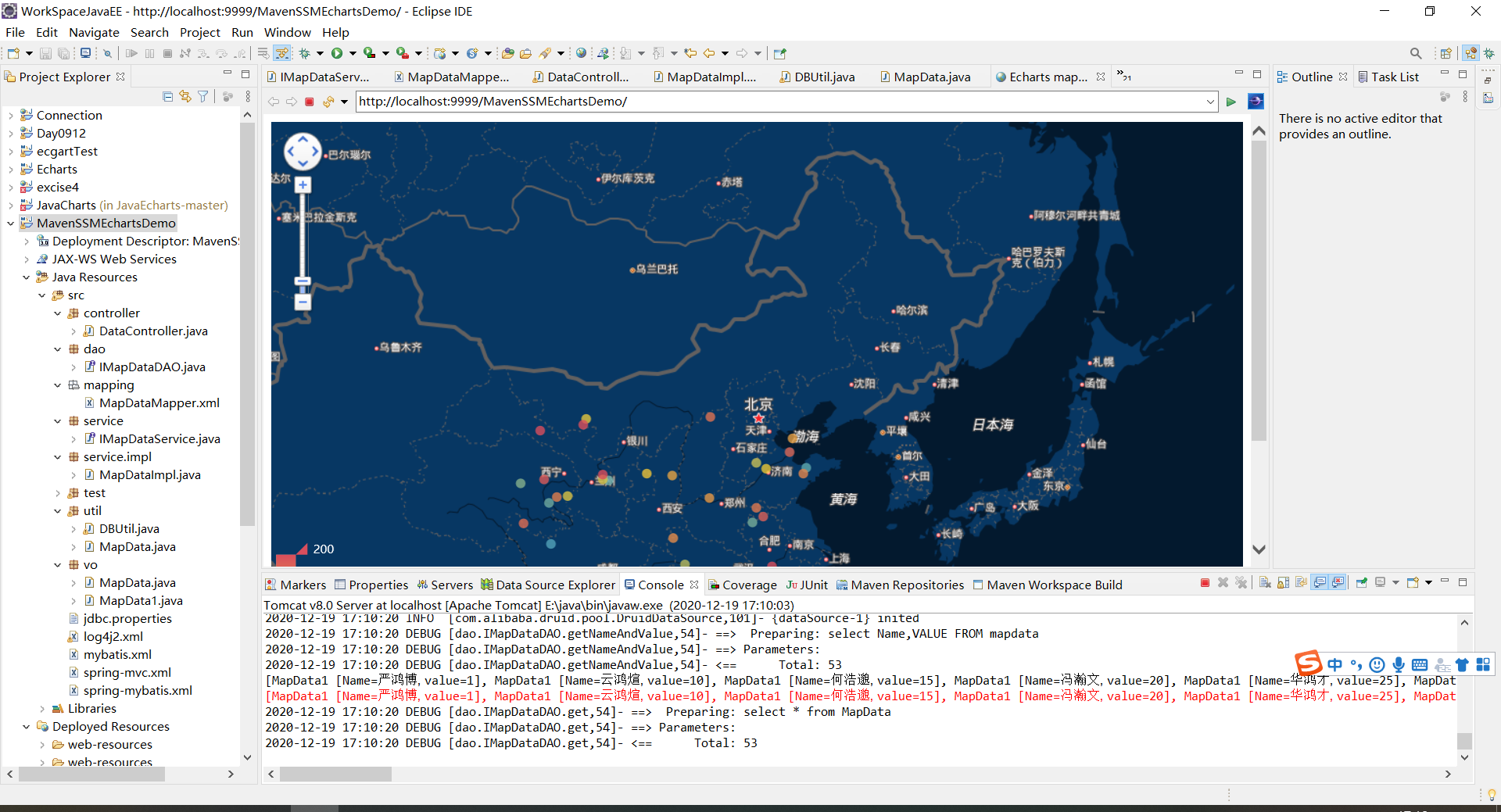
for (MapData1 mapData : mapDatas) {

System.err.println(mapData+"OOOOOOOOOOOOOOOOOOOOOOOOOOOO");

}

}

}



**4.0 example.js**

var bmapChart = echarts.init(document.getElementById('map-wrap'));

function querydata1(){

var p=[];

$.ajax({

async : false,

cache:false,

type: 'post',

contentType: "application/x-www-form-urlencoded; charset=utf-8",

scriptCharset: 'utf-8',

url: "ajaxGetData1.do",

success:function(data){ //请求成功后处理函数。

p=JSON.parse(data);

} ,

error: function () {//请求失败处理函数

}

});

return p;

}

function querygeoCoordMap(){

var p={};

$.ajax({

async : false,

cache:false,

type: 'post',

contentType: "application/x-www-form-urlencoded; charset=utf-8",

scriptCharset: 'utf-8',

url: "ajaxGetData.do",

success:function(data){ //请求成功后处理函数。

p=JSON.parse(data);

} ,

error: function () {//请求失败处理函数

}

});

return p;

}

var data = querydata1();

var geoCoordMap = querygeoCoordMap();

var convertData = function(data) {

var res = [];

for(var i = 0; i < data.length; i++) {

var geoCoord = geoCoordMap[data[i].name];

if(geoCoord) {

res.push({

name: data[i].name,

value: geoCoord.concat(data[i].value)

});

}

}

return res;

}

var option = {

bmap: {

center: [116.307698, 40.056975], //中心位置坐标

zoom: 5, //地图缩放比例

roam: true, //开启用户缩放和拖拽

mapStyle: { // 百度地图自定义样式

styleJson: [

// 陆地

{

"featureType": "land",

"elementType": "all",

"stylers": {

"color": "#073763"

}

},

// 水系

{

"featureType": "water",

"elementType": "all",

"stylers": {

"color": "#073763",

"lightness": -54

}

},

// 国道与高速

{

"featureType": "highway",

"elementType": "all",

"stylers": {

"color": "#45818e"

}

},

// 边界线

{

"featureType": "boundary",

"elementType": "all",

"stylers": {

"color": "#ffffff",

"lightness": -62,

"visibility": "on"

}

},

// 行政标注

{

"featureType": "label",

"elementType": "labels.text.fill",

"stylers": {

"color": "#ffffff",

"visibility": "on"

}

},

{

"featureType": "label",

"elementType": "labels.text.stroke",

"stylers": {

"color": "#444444",

"visibility": "on"

}

}

]

}

},

series: [{

name: '销量',

type: 'scatter',

coordinateSystem: 'bmap', // 坐标系使用bmap

data: convertData(data)

}],

visualMap: { // 视觉映射组件

type: 'continuous',

min: 0,

max: 200,

calculable: true,

inRange: {

color: ['#50a3ba', '#eac736', '#d94e5d']

},

textStyle: {

color: '#fff'

}

}

}

bmapChart.setOption(option);

var bmap = bmapChart.getModel().getComponent('bmap').getBMap(); //百度地图实例

bmap.addControl(new BMap.NavigationControl());//缩放控件

bmap.addControl(new BMap.ScaleControl());//比例尺

# **4.0index.html**

<!DOCTYPE html>

<html>

<head lang="en">

<meta charset="UTF-8">

<title>Echarts map Demo</title>

<style>

/\*去除左下角百度地图的logo\*/

.anchorBL {

display: none

}

</style>

</head>

<body>

<div id="map-wrap" style="height: 600px;"></div>

</body>

<script type="text/javascript" src="js/jquery-3.5.0.min.js"></script>

<script

src="http://api.map.baidu.com/api?v=2.0&ak=53oVIOgmSIejwV7EfphPgTynOZbIiVYu"></script>

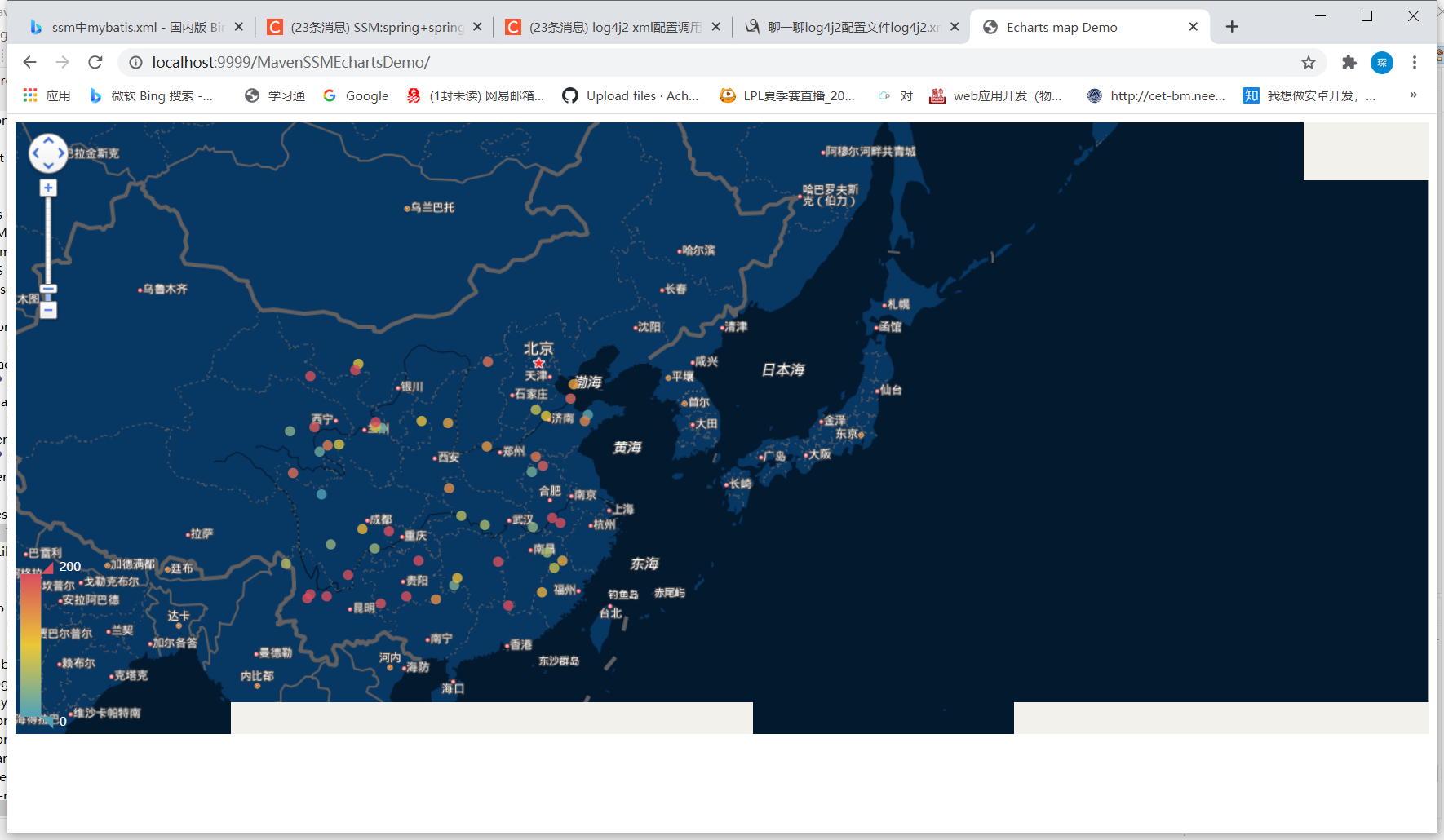
<script src="js/echarts.js"></script>

<script src="js/bmap.js"></script>

<script type="text/javascript" src="js/example2.js"></script>

</html>

# **4. 系统测试**



# **5. 系统总结**

本次课程设计

1：就是对echarts的学习，其中要看懂组件的方法和对象。看懂之后进行修改和自定义运用

2：出现在对bmap.js和百度地图API的调用，都配置好了也调用了echarts等等相关的js，但是网页一直显示不出来，反反复复一直试错，也请教同学和老师了，最后发现是自己的粗心导致，所以细节特别重要，做事和做人都要在意细节！！！

3：对于ajax传递数据，各个参数一定弄懂，因为我刚开始一直将async这个设置为true,async. 默认是true，即为异步方式，$.Ajax执行后，会继续执行ajax后面的脚本，直到服务器端返回数据后，触发$.Ajax里的success方法，这时候执行的是两个线程。若要将其设置为false，则所有的请求均为同步请求，在没有返回值之前，同步请求将锁住浏览器，用户其它操作必须等待请求完成才可以执行,导致我success方法出来后一直得不到数据的值！！！

4.最后学习新东西还是要脚踏实地，不能想着速成，凡事都要take your time！