# 百知教育 — Spring系列课程 — MVC框架整合

# 第一章、MVC框架整合思想

## 1. 搭建Web运行环境

```xml
<dependency>
  <groupId>javax.servlet</groupId>
  <artifactId>javax.servlet-api</artifactId>
  <version>3.1.0</version>
  <scope>provided</scope>
</dependency>

<dependency>
  <groupId>javax.servlet</groupId>
  <artifactId>jstl</artifactId>
  <version>1.2</version>
</dependency>

<!-- https://mvnrepository.com/artifact/javax.servlet.jsp/javax.servlet.jsp-api -->
<dependency>
  <groupId>javax.servlet.jsp</groupId>
  <artifactId>javax.servlet.jsp-api</artifactId>
  <version>2.3.1</version>
  <scope>provided</scope>
</dependency>

<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-web</artifactId>
  <version>5.1.14.RELEASE</version>
</dependency>

<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-core</artifactId>
  <version>5.1.14.RELEASE</version>
</dependency>

<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-beans</artifactId>
  <version>5.1.14.RELEASE</version>
</dependency>


<dependency>
  <groupId>org.springframework</groupId>
```

```xml
    <artifactId>spring-tx</artifactId>
    <version>5.1.14.RELEASE</version>
  </dependency>

  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-jdbc</artifactId>
    <version>5.1.14.RELEASE</version>
  </dependency>

  <dependency>
    <groupId>org.mybatis</groupId>
    <artifactId>mybatis-spring</artifactId>
    <version>2.0.2</version>
  </dependency>

  <dependency>
    <groupId>com.alibaba</groupId>
    <artifactId>druid</artifactId>
    <version>1.1.18</version>
  </dependency>

  <dependency>
    <groupId>mysql</groupId>
    <artifactId>mysql-connector-java</artifactId>
    <version>5.1.48</version>
  </dependency>

  <dependency>
    <groupId>org.mybatis</groupId>
    <artifactId>mybatis</artifactId>
    <version>3.4.6</version>
  </dependency>

  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <version>4.11</version>
    <scope>test</scope>
  </dependency>

  <!-- https://mvnrepository.com/artifact/org.springframework/spring-context -->
  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-context</artifactId>
    <version>5.1.4.RELEASE</version>
  </dependency>

  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-aop</artifactId>
    <version>5.1.14.RELEASE</version>
  </dependency>

  <dependency>
    <groupId>org.aspectj</groupId>
    <artifactId>aspectjrt</artifactId>
    <version>1.8.8</version>
  </dependency>

  <dependency>
    <groupId>org.aspectj</groupId>
    <artifactId>aspectjweaver</artifactId>
    <version>1.8.3</version>
  </dependency>

  <dependency>
    <groupId>org.slf4j</groupId>
    <artifactId>slf4j-log4j12</artifactId>
    <version>1.7.25</version>
  </dependency>

  <dependency>
    <groupId>log4j</groupId>
    <artifactId>log4j</artifactId>
    <version>1.2.17</version>
  </dependency>
```

## 2. 为什么要整合MVC框架

```
1. MVC框架提供了控制器(Controller)调用Service
   DAO ---》 Service
2. 请求响应的处理
3. 接受请求参数 request.getParameter("")
4. 控制程序的运行流程
5. 视图解析 (JSP JSON Freemarker Thyemeleaf )
```

## 3. Spring可以整合那些MVC框架

```
1. struts1
2. webwork
3. jsf
4. struts2
5. springMVC
```

## 4.Spring整合MVC框架的核心思路

### 1. 准备工厂

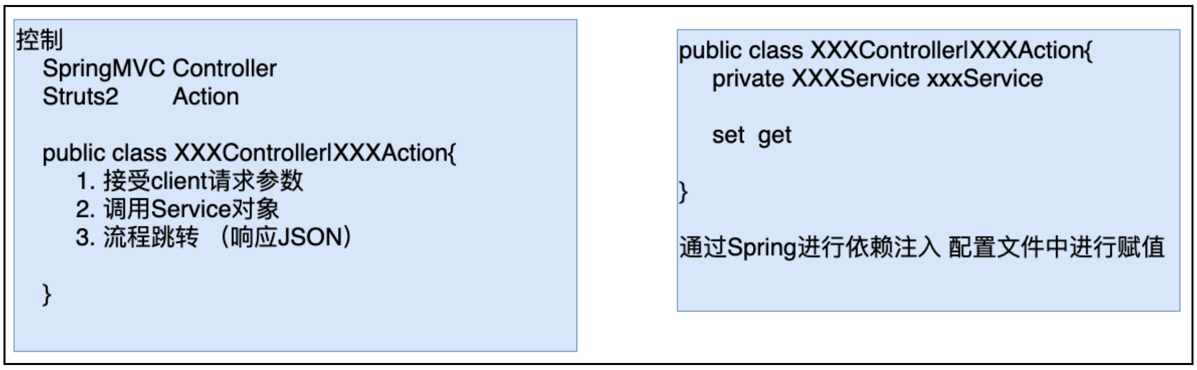
```
1. Web开发过程中如何创建工厂
      ApplicationContext ctx = new
ClassPathXmlApplicationContext("/applicationContext.xml");
                                   WebXmlApplicationContext()
2. 如何保证工厂唯一同时被共用
   被共用：Web request|session|ServletContext(application)
   工厂存储在ServletContext这个作用域中
ServletContext.setAttribute("xxxx",ctx);

```

```
   唯一：ServletContext对象 创建的同时 ---》 ApplicationContext ctx = new ClassPathXmlApplicationContext("/applicationContext.xml");

         ServletContextListener ---> ApplicationContext ctx = new ClassPathXmlApplicationContext("/applicationContext.xml");
         ServletContextListener 在ServletContext对象创建的同时，被调用(只会被调用一次) ，把工厂创建的代码，写在ServletContextListener中，也会保证只调用
         一次，最终工厂就保证了唯一性
 3. 总结
       ServletContextListener(唯一)
              ApplicationContext ctx = new ClassPathXmlApplicationContext("/applicationContext.xml");
              ServletContext.setAttribute("xxx",ctx) (共用)

 4. Spring封装了一个ContextLoaderListener
      1. 创建工厂
      2. 把工厂存在ServletContext中
```

```
ContextLoaderListener使用方式

web.xml

<listener>
    <listener-class>org.springframework.web.context.ContextLoaderListener</listener-class>
</listener>

<context-param>
    <param-name>contextConfigLocation</param-name>
    <param-value>classpath:applicationContext.xml</param-value>
</context-param>

```

## 2. 代码整合

```
依赖注入：把Sevice对象注入个控制器对象。
```


控制
  SpringMVC Controller
  Struts2 Action

  public class XXXControllerIXXXAction{
    1. 接受client请求参数
    2. 调用Service对象
    3. 流程跳转 （响应JSON)

  }

public class XXXControllerIXXXAction{
   private XXXService xxxService

   set get

}

通过Spring进行依赖注入 配置文件中进行赋值

# 第二章、Spring与Struts2框架整合 (选学)

## 1. Spring与Struts2整合思路分析

```
1. Struts2中的Action需要通过Spring的依赖注入获得Service对象。
```

## 2. Spring与Struts2整合的编码实现

- 搭建开发环境
  - 引入相关jar (Spring Struts2)

    ```xml
    <dependency>
      <groupId>org.apache.struts</groupId>
      <artifactId>struts2-spring-plugin</artifactId>
      <version>2.3.8</version>
    </dependency>
    ```

  - 引入对应的配置文件
    - applicationContext.xml
    - struts.xml
    - log4j.properties
  - 初始化配置

    ```xml
    <listener>
      <listener-class>org.springframework.web.context.ContextLoaderListener</listener-class>
    </listener>

    <context-param>
      <param-name>contextConfigLocation</param-name>
      <param-value>classpath:applicationContext.xml</param-value>
    </context-param>

    <filter>
      <filter-name>struts2</filter-name>
      <filter-class>org.apache.struts2.dispatcher.ng.filter.StrutsPrepareAndExecuteFilter</filter-class>
    </filter>
    <filter-mapping>
      <filter-name>struts2</filter-name>
      <url-pattern>/*</url-pattern>
    </filter-mapping>
    ```

    - Spring (ContextLoaderListener —> Web.xml)
    - Struts2(Filter —> Web.xml)
- 编码
  - 开发Service对象

    ```
    最终在Spring配置文件中创建Service对象
    <bean id="userService" class="com.baizhi.struts2.UserServiceImpl"/>
    ```

  - 开发Action对象
    - 开发类

```java
public class RegAction implements Action{
   private UserService userService;
   set get

   public String execute(){
       userService.register();
       return Action.SUCCESS;
   }
}
```

- Spring (applicationContext.xml)

```xml
<bean id="regAction" class="com.baizhi.struts2.RegAction" scope="prototype">
    <property name="userService" ref=""/>
</bean
```

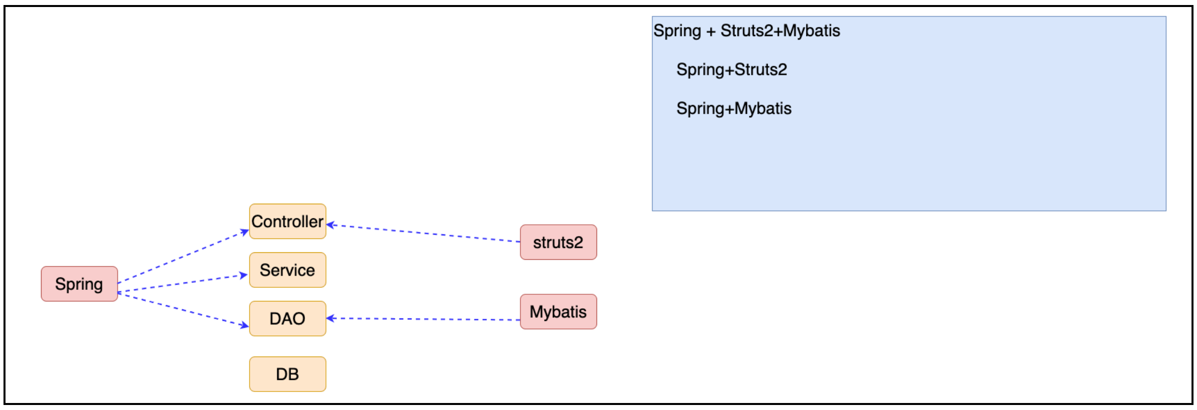
- Struts2(struts.xml)

```xml
<package name="ssm" extends="struts-default">
  url reg.action  ---> 会接受到用户的请求后，创建RegAction这个类的对象 进行相应的处理

  <action name="reg" class="regAction">
    <result name="success">/index.jsp</result>
  </action>
</package>
```

## 3. Spring+Struts2+Mybatis整合(SSM)

### 1. 思路分析

```
SSM = Spring+Struts2  Spring+Mybatis
```



### 2. 整合编码

- 搭建开发环境
  - 引入相关jar (Spring Struts2 Mybatis)

```


```

```xml
    <dependency>
      <groupId>org.apache.struts</groupId>
      <artifactId>struts2-spring-plugin</artifactId>
      <version>2.3.8</version>
    </dependency>

    <dependency>
      <groupId>javax.servlet</groupId>
      <artifactId>javax.servlet-api</artifactId>
      <version>3.1.0</version>
      <scope>provided</scope>
    </dependency>

    <dependency>
      <groupId>javax.servlet</groupId>
      <artifactId>jstl</artifactId>
      <version>1.2</version>
    </dependency>

    <!--
https://mvnrepository.com/artifact/javax.servlet.jsp/javax.se
rvlet.jsp-api -->
    <dependency>
      <groupId>javax.servlet.jsp</groupId>
      <artifactId>javax.servlet.jsp-api</artifactId>
      <version>2.3.1</version>
      <scope>provided</scope>
    </dependency>

    <dependency>
      <groupId>org.springframework</groupId>
      <artifactId>spring-web</artifactId>
      <version>5.1.14.RELEASE</version>
    </dependency>

    <dependency>
      <groupId>org.springframework</groupId>
      <artifactId>spring-core</artifactId>
      <version>5.1.14.RELEASE</version>
    </dependency>

    <dependency>
      <groupId>org.springframework</groupId>
      <artifactId>spring-beans</artifactId>
      <version>5.1.14.RELEASE</version>
    </dependency>


    <dependency>
      <groupId>org.springframework</groupId>
      <artifactId>spring-tx</artifactId>
      <version>5.1.14.RELEASE</version>
    </dependency>

    <dependency>
```

```xml
        <groupId>org.springframework</groupId>
        <artifactId>spring-jdbc</artifactId>
        <version>5.1.14.RELEASE</version>
      </dependency>

      <dependency>
        <groupId>org.mybatis</groupId>
        <artifactId>mybatis-spring</artifactId>
        <version>2.0.2</version>
      </dependency>

      <dependency>
        <groupId>com.alibaba</groupId>
        <artifactId>druid</artifactId>
        <version>1.1.18</version>
      </dependency>

      <dependency>
        <groupId>mysql</groupId>
        <artifactId>mysql-connector-java</artifactId>
        <version>5.1.48</version>
      </dependency>

      <dependency>
        <groupId>org.mybatis</groupId>
        <artifactId>mybatis</artifactId>
        <version>3.4.6</version>
      </dependency>

      <dependency>
        <groupId>junit</groupId>
        <artifactId>junit</artifactId>
        <version>4.11</version>
        <scope>test</scope>
      </dependency>

      <!-- https://mvnrepository.com/artifact/org.springframework/spring-context -->
      <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-context</artifactId>
        <version>5.1.4.RELEASE</version>
      </dependency>

      <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-aop</artifactId>
        <version>5.1.14.RELEASE</version>
      </dependency>

      <dependency>
        <groupId>org.aspectj</groupId>
        <artifactId>aspectjrt</artifactId>
        <version>1.8.8</version>
        </dependency>

        <dependency>
          <groupId>org.aspectj</groupId>
          <artifactId>aspectjweaver</artifactId>
          <version>1.8.3</version>
        </dependency>

        <dependency>
          <groupId>org.slf4j</groupId>
          <artifactId>slf4j-log4j12</artifactId>
          <version>1.7.25</version>
        </dependency>

        <dependency>
          <groupId>log4j</groupId>
          <artifactId>log4j</artifactId>
          <version>1.2.17</version>
        </dependency>




```

- 引入对应的配置文件
  - applicationContext.xml
  - struts.xml
  - log4j.properties
  - xxxxMapper.xml
- 初始化配置
  - Spring (ContextLoaderListener —> Web.xml)
  - Struts2(Filter —> Web.xml)

```
<listener>
  <listener-class>org.springframework.web.context.ContextLoaderListener</listener-class>
</listener>

<context-param>
  <param-name>contextConfigLocation</param-name>
  <param-value>classpath:applicationContext.xml</param-value>
</context-param>

<filter>
  <filter-name>struts2</filter-name>
  <filter-class>org.apache.struts2.dispatcher.ng.filter.StrutsPrepareAndExecuteFilter</filter-class>
</filter>
<filter-mapping>
<filter-name>struts2</filter-name>
  <url-pattern>/*</url-pattern>
</filter-mapping>
```

- 编码
  - DAO (Spring+Mybatis)

```
1. 配置文件的配置
    1. DataSource
    2. SqlSessionFactory ----> SqlSessionFactoryBean
        1. dataSource
        2. typeAliasesPackage
        3. mapperLocations
    3. MapperScannerConfigur ---> DAO接口实现类
2. 编码
    1. entity
    2. table
    3. DAO接口
    4. 实现Mapper文件
```

  - Service (Spring添加事务)

```
1. 原始对象 ---》 注入DAO
2. 额外功能 ---》 DataSourceTransactionManager ---> dataSource
3. 切入点 + 事务属性
   @Transactional(propagation,readOnly...)
4. 组装切面
   <tx:annotation-driven
```

  - Controller (Spring+Struts2)

```
1. 开发控制器 implements Action 注入Service
2. Spring的配置文件
    1. 注入 Service
    2. scope = prototype
3. struts.xml
    <action class="spring配置文件中action对应的id值"/>
```

## 4. Spring开发过程中多配置文件的处理

```
Spring会根据需要，把配置信息分门别类的放置在多个配置文件中，便于后续的管理及维护。

DAO  ------  applicationContext-dao.xml
Service ---  applicationContext-service.xml
Action  ---  applicationContext-action.xml

注意：虽然提供了多个配置文件，但是后续应用的过程中，还要进行整合
```

- 通配符方式

```
1. 非web环境
   ApplicationContext ctx = new
ClassPathXmlApplicationContext("/applicationContext-*.xml");
2. web环境
   <context-param>
       <param-name>contextConfigLocation</param-name>
       <param-value>classpath:applicationContext-*.xml</param-
value>
   <context-param>
```

- <import标签

```
applicationContext.xml 目的 整合其他配置内容
    <import resource="applicationContext-dao.xml " />
    <import resource="applicationContext-service.xml " />
    <import resource="applicationContext-action.xml " />

1. 非web环境
   ApplicationContext ctx = new
ClassPathXmlApplicationContext("/applicationContext.xml");
2. web环境
   <context-param>
       <param-name>contextConfigLocation</param-name>
       <param-value>classpath:applicationContext.xml</param-value>
   <context-param>

```