SPRING APPLICATION

XÂY DỰNG DEMO CHO ỨNG DỤNG SPRING

THUỘC TÍNH TÀI LIỆU

Tiêu đề:	Xây dựng demo cho ứng dụng Spring
Chủ đề:	Spring application
Tác giả:	Laptrinh.vn
Từ khóa:	Spring, ibatis

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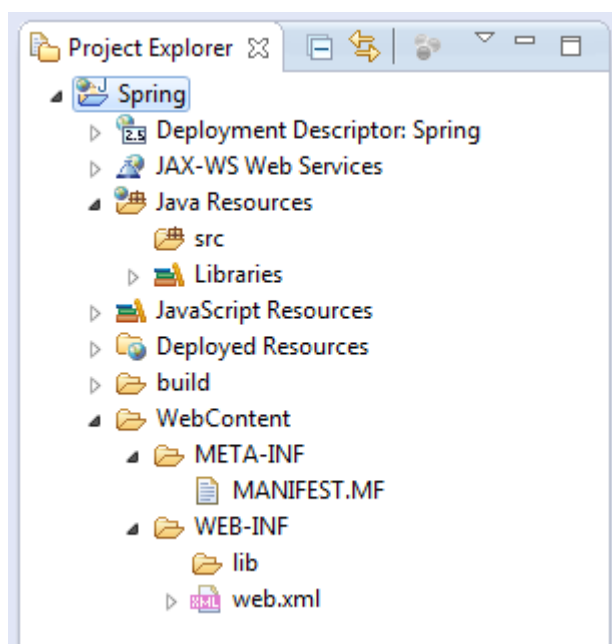
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2.   GIỚI THIỆU

3.   XÂY DỰNG ỨNG DỤNG

3.1.   Dynamic Web project

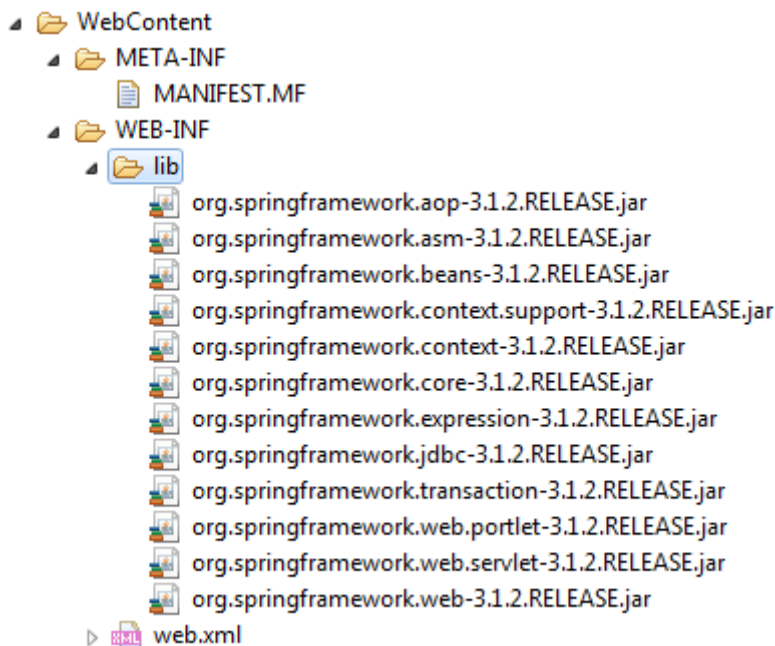### 3.1.1.   Create java web application

Sử dụng thư viện Spring

Download: http://www.springsource.org/spring-framework

Copy vào thư mục lib

Thêm 2 thư viện để ghi log

log4j-1.2.17.jar   commons-logging-1.1.1.jar

Chỉnh sửa file WEB-INF\web.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:web="http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd"
      xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd"
      id="WebApp_ID" version="2.5">
      <display-name>Spring</display-name>

      <servlet>
            <servlet-name>dispatcher</servlet-name>
            <servlet-
class>org.springframework.web.servlet.DispatcherServlet</servlet-class>
            <load-on-startup>1</load-on-startup>
      </servlet>
      <servlet-mapping>
            <servlet-name>dispatcher</servlet-name>
            <url-pattern>*.htm</url-pattern>
      </servlet-mapping>

      <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>
```

```
</web-app>
```

Thêm file WEB-INF\dispatcher-servlet.xml

```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:p="http://www.springframework.org/schema/p"
       xmlns:context="http://www.springframework.org/schema/context"
       xsi:schemaLocation="http://www.springframework.org/schema/beans
       http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
       http://www.springframework.org/schema/context
       http://www.springframework.org/schema/context/spring-context-3.0.xsd">

       <context:component-scan base-package="springapp.web.controller" />

</beans>
```

3.1.2. Xây dựng controller

Tạo package *springapp.web.controller*

Tạo class: `HelloController`

```java
package springapp.web.controller;

import org.springframework.stereotype.Controller;
import org.springframework.ui.Model;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.servlet.ModelAndView;

/**
 * Description: Hello controller
 * @author DatNH
 *
 * Detail:
 * - @: annotation java
 *
 */
@Controller
public class HelloController {

    /**
     * Nhan request /hello, xu ly thong tin
     * @return
     */
    @RequestMapping("/hello")
    public ModelAndView hello(Model model) {

        // set session value
        model.addAttribute("name", "DatNH");

        return new ModelAndView("hello.jsp");
    }
```

```
        @RequestMapping("/helloworld")
        public String helloworld(Model model) {

                model.addAttribute("name", "DatNH");

                return "hello.jsp";
        }

}
```

Tạo file WebContent/hello.jsp

```html
<html>
<head>
<title>Hello World</title>
</head>
<body>
    <h1>Chương trình được xây dựng dựa trên  framework MVC Sping 3</h1>
    <p>Xin chào: <b>${name}</b></p>
</body>

</html>
```

Kết quả

http://localhost:4003/Spring/hello.html

Chương trình được xây dựng dựa trên framework MVC Spring 3

Xin chào: **DatNH**

3.1.3. Cấu hình thư mục jsp

Thêm vào file dispatcher-servlet.xml

```xml
<bean id="viewResolver"

        class="org.springframework.web.servlet.view.InternalResourceViewResolver"
                p:prefix="/WEB-INF/jsp/" p:suffix=".jsp" />
```

Sửa lại file controller

```java
return new ModelAndView("hello");
```

Tạo thư mục WEB-INF/jsp và copy file hello.jsp vào

3.1.4. Sử dụng Sitemap

Download: http://www.opensymphony.com/sitemesh

Copy lib sitemesh-2.4.x.jar vào thư mục WEB-INF/lib

Thêm filter vào web.xml

```xml
<!-- Sitemesh -->
    <filter>
            <filter-name>sitemesh</filter-name>
            <filter-
class>com.opensymphony.module.sitemesh.filter.PageFilter</filter-class>
    </filter>
    <filter-mapping>
            <filter-name>sitemesh</filter-name>
            <url-pattern>/*</url-pattern>

    </filter-mapping>
```

Tạo một số thư mục trong WebContent/
- decorators : Thư mục gồm tất cả các file decorator (e.g. main.jsp, printable.jsp).
- includes: Thư mục gồm tất cả các file sẽ được include tới các file khác (e.g. header.jsp, footer.jsp, copyright.jsp).
- images: Thư mục bao gồm tất cả các ảnh (e.g. background.gif, logo.gif).
- styles: Thư mục bao gồm tất cả CSS styles (e.g. ie4.css, ns4.css).
- scripts: Thư mục bao gồm tất cả các scripts (JavaScript, VBScript files).

Tạo file WEB-INF/decorators.xml

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

<decorators defaultdir="/decorators">
    <decorator name="main" page="main.jsp">
            <pattern>/*</pattern>
    </decorator>
</decorators>
```

Tạo file: /includes/header.jsp

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>

[HEADER]

<hr/>
```

Tạo file: /includes/footer.jsp

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>

<hr/>

[FOOTER]
```

Tạo file: /includes/taglibs.jsp

```
<%@ taglib prefix="decorator" uri="http://www.opensymphony.com/sitemesh/decorator" %>
```

Tạo 1 file decorator : /decorators/main.jsp

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>
<%@ include file="/includes/taglibs.jsp"%>

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<title>[springapp] <decorator:title/> </title>
</head>
<body>
   <div id="container">
      <%@ include file="/includes/header.jsp"%>
      <div id="content">
         <decorator:body />
      </div>
      <%@ include file="/includes/footer.jsp"%>
   </div>
</body>
</html>
```

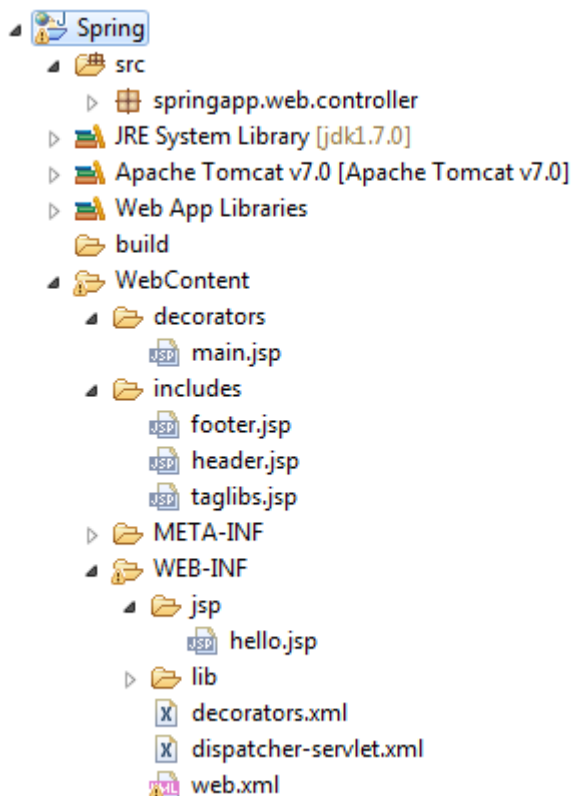Kết quả

http://localhost:4003/Spring/hello.html

[HEADER]

Chương trình được xây dựng dựa trên framework MVC Spring 3

Xin chào: **DatNH**

[FOOTER]

Cấu trúc project

```
▲ 🔲 Spring
   ▲ 🗁 src
      ▷ ⊞ springapp.web.controller
   ▷ ◼ JRE System Library [jdk1.7.0]
   ▷ ◼ Apache Tomcat v7.0 [Apache Tomcat v7.0]
   ▷ ◼ Web App Libraries
      🗁 build
   ▲ 🗁 WebContent
      ▲ 🗁 decorators
            🗋 main.jsp
      ▲ 🗁 includes
            🗋 footer.jsp
            🗋 header.jsp
            🗋 taglibs.jsp
      ▷ 🗁 META-INF
      ▲ 🗁 WEB-INF
         ▲ 🗁 jsp
               🗋 hello.jsp
         ▷ 🗁 lib
            🗋 decorators.xml
            🗋 dispatcher-servlet.xml
            🗋 web.xml
```

3.2. Connect Database

Tải thư viện JDBC driver phù hợp, ở đây dùng MySQL

Tạo file context.xml trong META-INF

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

<Context>
    <Resource
        name="jdbc/SpringMySqlDS"
        auth="Container"
        type="javax.sql.DataSource"
        driverClassName="com.mysql.jdbc.Driver"
        url="jdbc:mysql://localhost:3306/spring"
        removeAbandoned="true"
        maxActive="75"
        maxIdle="30"
        maxWait="-1"
        username="root"
        password="nguyendat"
        validationQuery="select 1 from dual"
    />

</Context>
```

3.2.1. Sử dụng iBatis

Download: http://code.google.com/p/mybatis/

Project	Description	Links
MyBatis 3	SQL Mapping Framework for Java	download | docs
Generator	Code generator for MyBatis and iBATIS	download | docs

Trong web.xml, tạo một reference tới resource **SpringMySqlDS**

```xml
<resource-ref>
            <description>Chat Datasource</description>
            <res-ref-name>jdbc/SpringMySqlDS</res-ref-name>
            <res-type>javax.sql.DataSource</res-type>
            <res-auth>Container</res-auth>
      </resource-ref>
```

Tạo các package

- springapp.core.dao

- springapp.core.dao.xml

- springapp.core.model

- springapp.core.service

Copy mybatis-3.2.0-SNAPSHOT.jar vào WEB-INF/lib

Tạo file mybatisConfig.xml trong springapp.core.dao.xml

Cấu hình environments:

```xml
<configuration>
      <environments default="development">
            <environment id="development">
                  <transactionManager type="MANAGED">
                        <property name="closeConnection" value="true" />
                  </transactionManager>
                  <dataSource type="JNDI">
                        <property name="data_source"
value="java:comp/env/jdbc/SpringMySqlDS" />
                  </dataSource>
            </environment>
      </environments>
</configuration>
```

Tạo file mapping database table và java class

- Khai báo và mapping column table với thuộc tính trong java

- Thực hiện câu lệnh generator

```
cd /d C:\Users\Phoenix\workspace\juno\Spring\generator\ (tùy thư mục nhé)

java -jar mybatis-generator-core-1.3.1.jar -configfile generatorConfig.xml -overwrite -tables user
```

Các class đã được generator

UserMapper.java   UserMapper.xml   User.java

Xử lý dữ liệu

- Tạo service class

  - Interface: UserServiceLocal.java

  - Class: UserService

- Tạo bean cho UserService

  - File web.xml

Thêm cấu hình applicationContext.xml

```xml
<context-param>
            <param-name>contextConfigLocation</param-name>
            <param-value>
                /WEB-INF/applicationContext.xml
            </param-value>
    </context-param>
    <listener>
            <listener-
class>org.springframework.web.context.ContextLoaderListener</listener-class>

    </listener>
```

  - File applicationContext.xml

    Application context: Khai báo các bean session sử dụng trong chương trình.

```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:jee="http://www.springframework.org/schema/jee"
    xmlns:p="http://www.springframework.org/schema/p"
    xsi:schemaLocation="http://www.springframework.org/schema/beans
            http://www.springframework.org/schema/beans/spring-beans-3.1.xsd
            http://www.springframework.org/schema/jee
    http://www.springframework.org/schema/jee/spring-jee-2.5.xsd">

    <bean id="userService" class="springapp.core.service.UserService" />

</beans>
```

o File myBatisConfig.xml

```xml
<mapper resource="springapp/core/dao/xml/UserMapper.xml" />
```

- Xử lý Controller

    o File UserController.java

```java
package springapp.web.controller;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Controller;
import org.springframework.ui.Model;
import org.springframework.web.bind.annotation.RequestMapping;

import springapp.core.model.User;
import springapp.core.service.UserServiceLocal;

/**
 * User controller
 * @author DatNh
 *
 */
@Controller
public class UserController {

	@Autowired
	private UserServiceLocal userService;

	@RequestMapping("/user")
	public String helloworld(Model model) {

		User user = userService.selectByPrimaryKey(1);

		model.addAttribute("user", user);

		return "user";
	}

}
```

o File user.jsp

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>

<html>
<head>
<title>Hello World</title>
</head>
<body>
   <h1>User demo</h1>
   <p>Xin chào: <b>${user.username}</b></p>
</body>

</html>
```

o   File UserServiceLocal.java

```java
package springapp.core.service;

import springapp.core.model.User;

/**
 *
 * @author DatNH
 *
 */
public interface UserServiceLocal {

        User selectByPrimaryKey(int id);

}
```

o   File UserService.java

```java
package springapp.core.service;

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

import springapp.core.dao.UserMapper;
import springapp.core.model.User;

/**
 * User service
 * @author DatNH
 *
 */
public class UserService implements UserServiceLocal {

        @Override
        public User selectByPrimaryKey(int id) {
                SqlSessionFactory sqlMapper = MyBatisService.getSessionFactory();
                SqlSession sqlSession = sqlMapper.openSession(true);

                UserMapper mapper = sqlSession.getMapper(UserMapper.class);

                User user = mapper.selectByPrimaryKey(id);

                sqlSession.close();

                return user;
        }
}
```

3.3.   Displaytag, jstl & một số thư viện khác

Copy thư viện

displaytag-1.2.jar

jstl.jar   javax.servlet.jsp.jstl-1.2.1.jar   javax.servlet.jsp.jstl-api-1.2.1.jar

aopalliance-1.0.jar   commons-lang-2.6.jar   commons-beanutils-1.8.3.jar

File taglibs.jsp

```
@RequestMapping("/user/list")
      public String list(Model model) {

              List userList = userService.getAll();

              model.addAttribute("userList", userList);

              return "userList";
      }
```

File UserServiceLocal.java

```
List<User> getAll();
```

File UserService.java

```
      @Override
      public List<User> getAll() {
              SqlSessionFactory sqlMapper = MyBatisService.getSessionFactory();
              SqlSession sqlSession = sqlMapper.openSession(true);

              UserMapper mapper = sqlSession.getMapper(UserMapper.class);

              List<User> userList = mapper.getAll();

              sqlSession.close();

              return userList;

      }
```

File UserMapper.java

```
List<User> getAll();
```

File UserMapper.xml

```
<select id="getAll" resultMap="BaseResultMap">
        select
             <include refid="Base_Column_List" />
        from user

    </select>
```

File userList.jsp

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>
<%@ include file="/includes/taglibs.jsp"%>

<html>
<head>
<title>Hello World</title>
</head>
<body>
    <h1>User List</h1>

    <div>
         <display:table name="${userList}" class="simple wid100" id="user"
requestURI="" pagesize="15">
             <display:column title="STT" class="stt" > <c:out
value="${user_rowNum}"/> </display:column>
             <display:column title="Username" property="username" />
             <display:column title="Password" property="password"/>
             <display:column title="Timestamp" property="timestamp"/>
             <display:column title="Create Date" property="createDate"
format="{0,date,dd/MM/yyyy HH:mm:ss}" />
         </display:table>
    </div>
</body>

</html>
```

Kết quả

[HEADER]

User List

One item found.1

STT	Username	Password	Timestamp	Create Date
1	datnh	123456	1234567890	17/11/2013 00:00:00

[FOOTER]