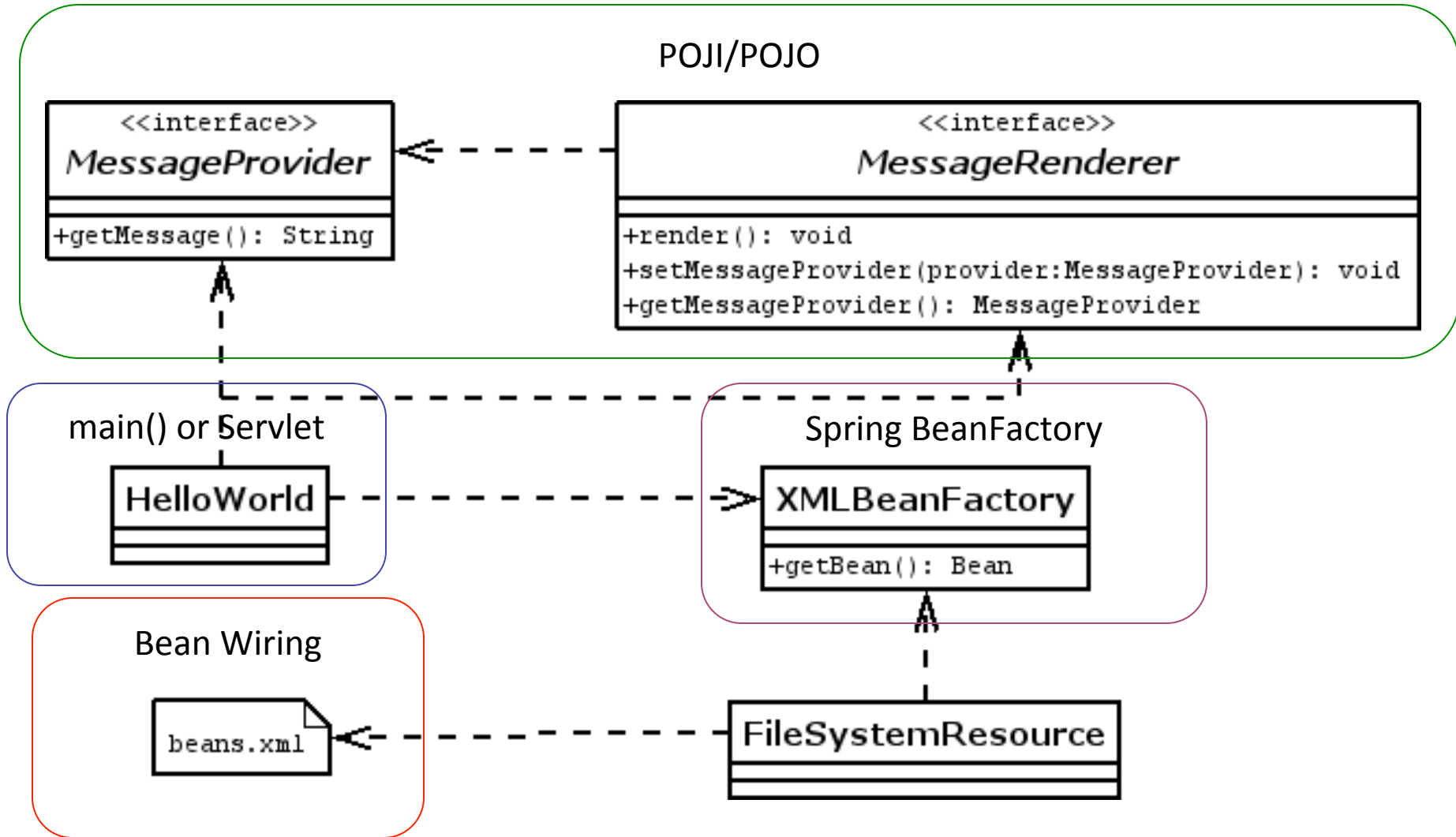


Metaprogramming and Model-View-Controller with Spring, Hibernate, and Android

Typical Spring Application



Multi-Arg Constructor Injection

- We can specify the order of constructor arguments with index

```
<bean id="provider" class="com.simexusa.examples.Person">
  <constructor-arg index="0">
    <value>David</value>
  </constructor-arg>
  <constructor-arg index="1">
    <value>Janzen</value>
  </constructor-arg>
</bean>
```

```
public class Person {
  private String firstName, lastName;
  public Person(String fname, String lname) {
    this.firstName = fname;
    this.lastName = lname;
  }
}
```

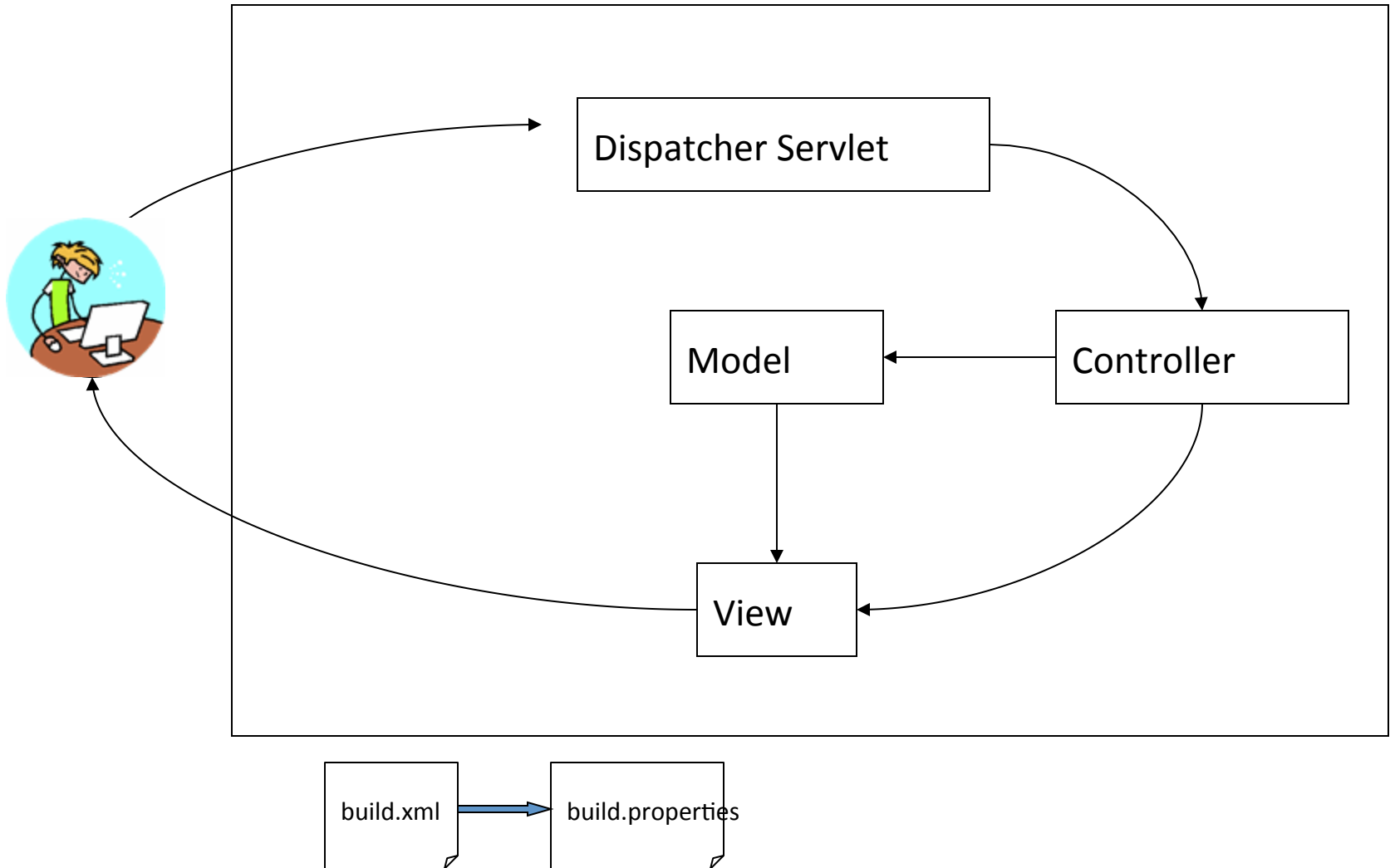
```
public class Books { //in examples/DIExamples/Books.java
    private List titles;
    public void setTitles(List titles) { this.titles = titles; }
    public List getTitles() { return this.titles; }
}
```

```
public class TestBooks extends TestCase { //in examples/DIExamples/TestBooks.java
    public void testTitles() {
        //write testTitlesbeans.xml
```

```
<bean id="shelf" class="Books">
    <property name="titles">
        <list>
            <value>Spring in Action</value>
            <value>Pro Spring</value>
            <value>Hibernate Quickly</value>
        </list>
    </property>
</bean>
```

```
XmlBeanFactory factory = new XmlBeanFactory(new
    FileSystemResource("testTitlesbeans.xml"));
Books b = (Books)factory.getBean("shelf");
assertEquals(b.getTitles().get(0),"Spring in Action");
} }
```

Spring MVC Architecture



Configuring web.xml

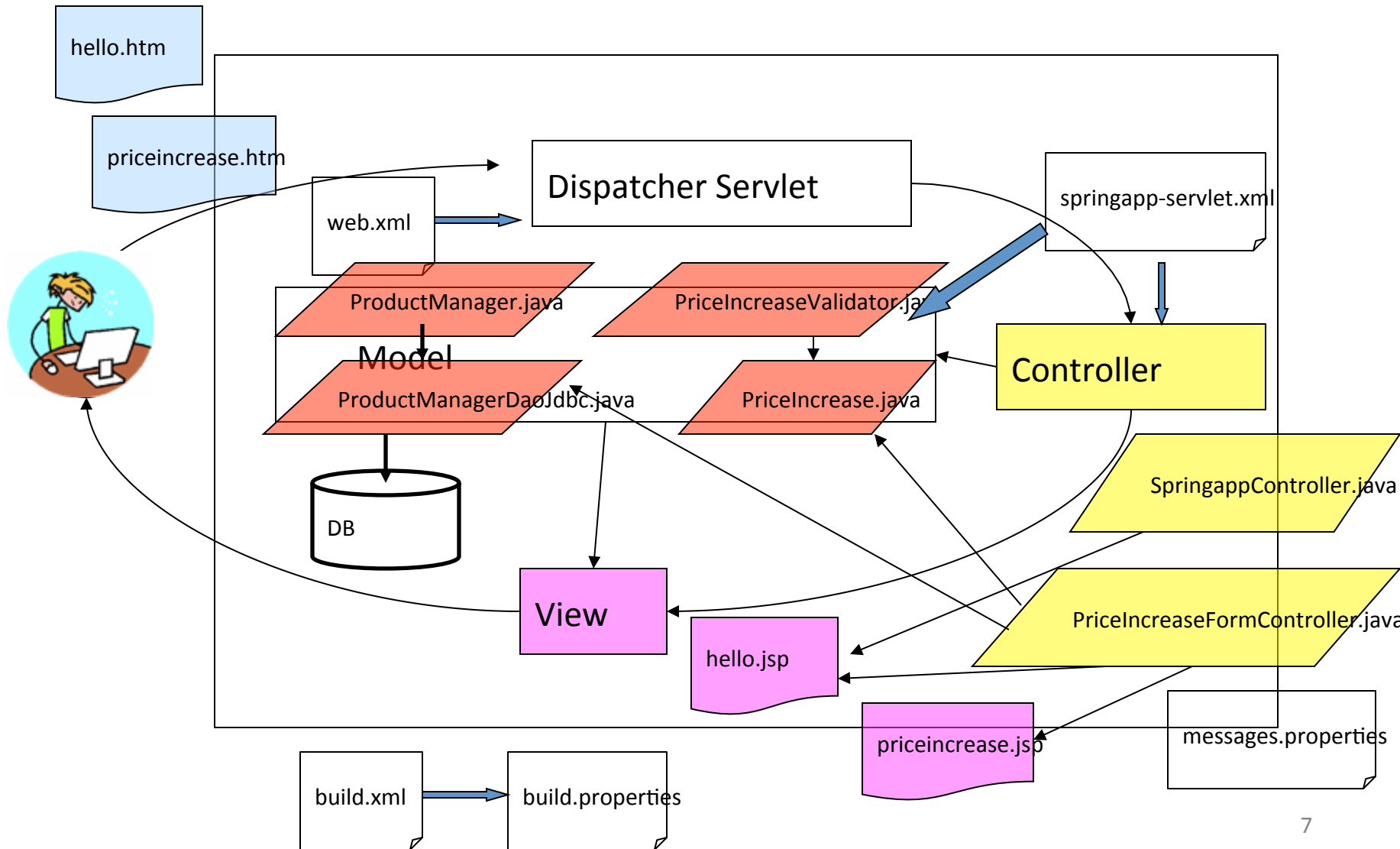
- war/WEB-INF/web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"
    'http://java.sun.com/dtd/web-app_2_3.dtd'>
<web-app>
  <servlet>
    <servlet-name>springapp</servlet-name>
    <servlet-class>org.springframework.web.servlet.DispatcherServlet</servlet-
class>
    <load-on-startup>1</load-on-startup>
  </servlet>
  <servlet-mapping>
    <servlet-name>springapp</servlet-name>
    <url-pattern>*.htm</url-pattern>
  </servlet-mapping>
  <welcome-file-list>
    <welcome-file>
      index.jsp
    </welcome-file>
  </welcome-file-list>
</web-app>
```

Identify a Spring DispatcherServlet

Route all *.htm to this servlet

Adding a Database



Configuring Our First Mapping

- See `HibernateApplications/ch03/src/java/com/simexusa/com`
- Run `ch03/build.xml` then look in HSQLDB DatabaseManager

```
package com.simexusa.simple;
public class One {
    private Long id;
    private int something;
    public void setId(Long id) {
        this.id = id;
    }
    public Long getId() {
        return id;
    }
    public void setSomething(int i) {
        something = i;
    }
    public int getSomething() {
        return something;
    }
}
```

```
<?xml version="1.0"?>
<!DOCTYPE hibernate-mapping PUBLIC
    "-//Hibernate/Hibernate Mapping DTD 3.0//EN"
    "http://hibernate.sourceforge.net/hibernate-
    mapping-3.0.dtd">
<hibernate-mapping package="com.simexusa.simple">
    <class name="One" table="one">
        <id name="id" column="uid" type="long">
            <generator class="native"/>
        </id>
        <property name="something" type="integer"/>
    </class>
</hibernate-mapping>
```

id	something

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.simexusa.adventdevotions"
    android:versionCode="2"
    android:versionName="1.0">
    <application android:icon="@drawable/star" android:label="@string/app_name" android:debuggable="true">
        <activity android:name=".AdventDevos"
            android:label="@string/app_name">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name=".Devo"/>
    </application>
    <uses-sdk android:minSdkVersion="3" />
    <uses-permission android:name="android.permission.INTERNET" />
</manifest>
```

Each upload to Market requires versionCode increment

android:versionCode="2"

Specifies icon for launching app

Specifies name for launching app

Specifies activity to be launched at startup

Security permissions requested from user on install

layout.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:qwad="http://schemas.android.com/apk/res/com.simexusa.campusmaps_demo"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content">
    <TextView
        android:id="@+id/myLocation"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content" />
    <RelativeLayout
        android:orientation="vertical"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent" >
        <com.simexusa.campusmaps_demo.CampusMapView
            android:id="@+id/map"
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:adjustViewBounds="true"
            android:scaleType="centerInside"
            android:src="@drawable/campusmapsicon"
            />
        <ZoomControls
```