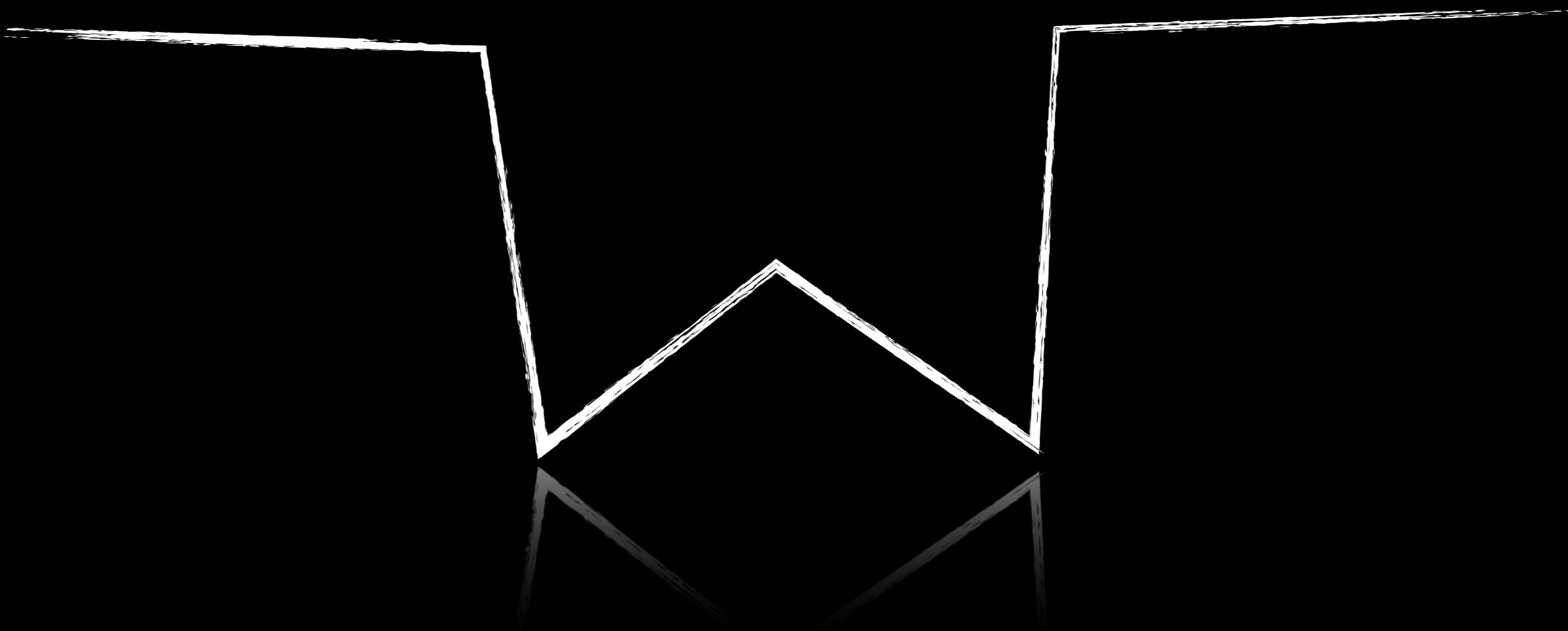


WICKET



Apache Wicket

Michael Plöd / Olaf Siefart
Senacor Technologies AG



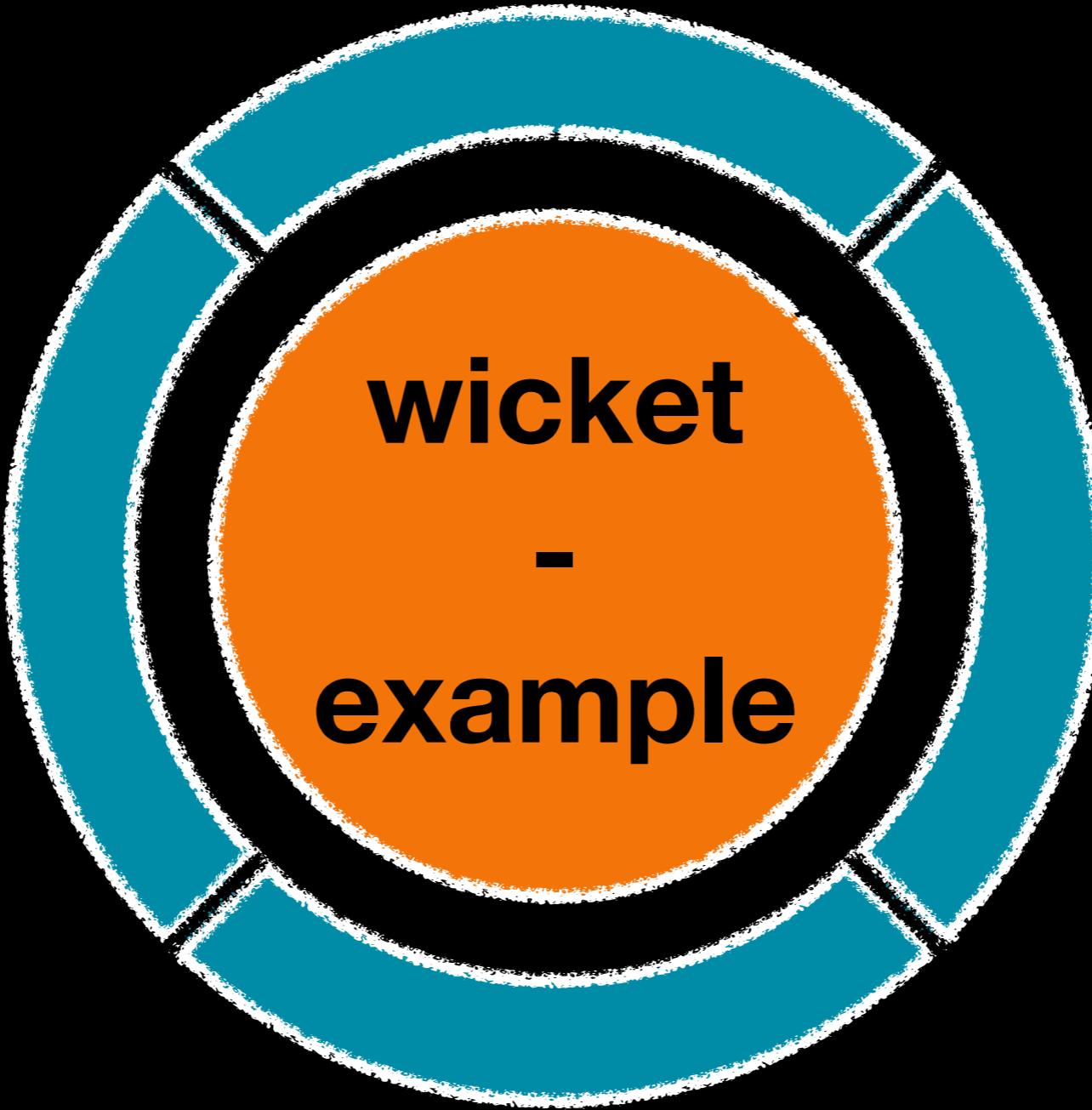
Quickstart

```
mvn archetype:create  
  -DarchetypeGroupId=org.apache.wicket  
  -DarchetypeArtifactId=  
    wicket-archetype-quickstart  
  -DarchetypeVersion=1.4.5  
  -DgroupId=com.senacor  
  -DartifactId=wicket-example
```

WebApplication.java

HomePage.java

HomePage.html



wicket
-
example

web.xml

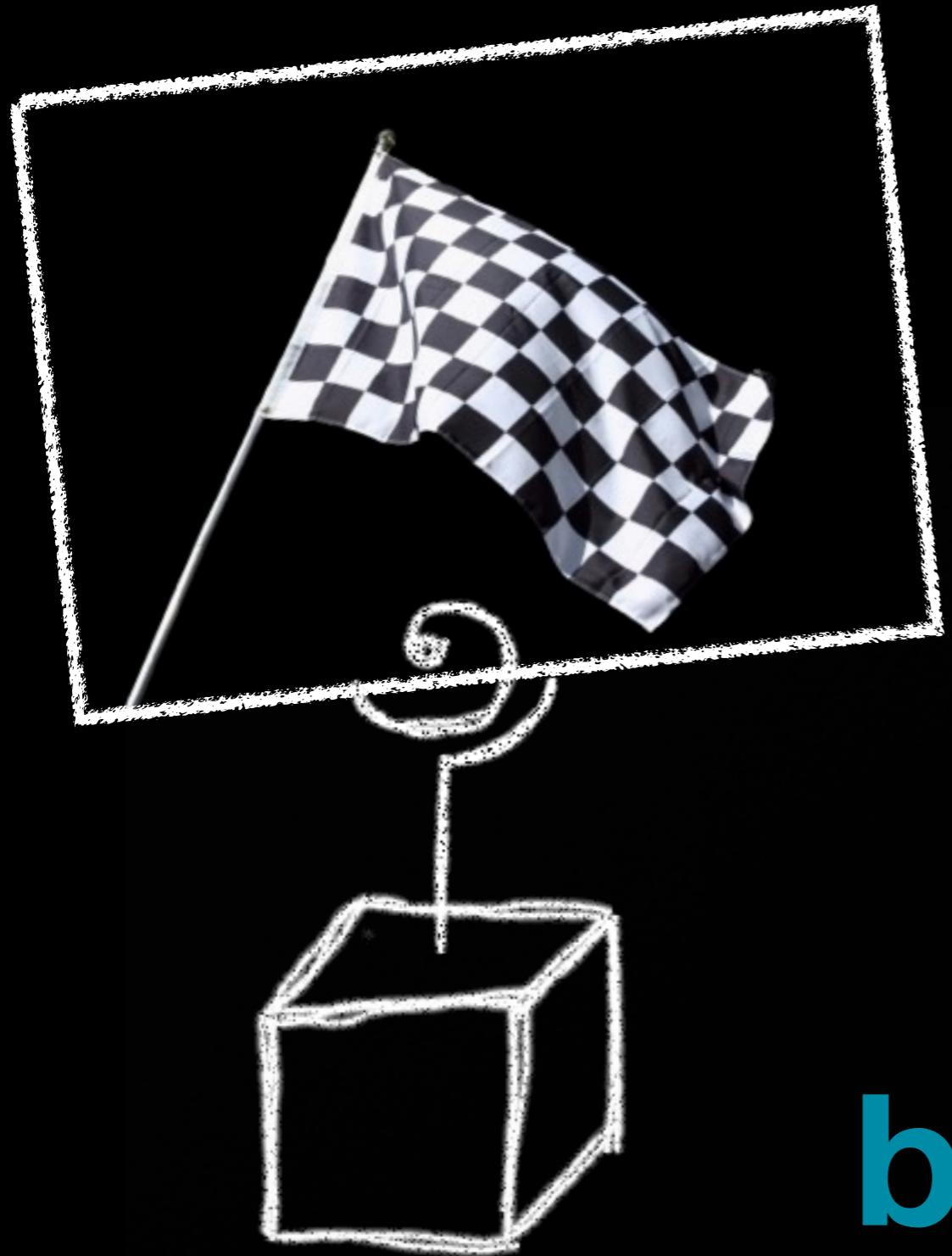
web.xml configures Application



```
<web-app ... >
    <display-name>wicket-example</display-name>

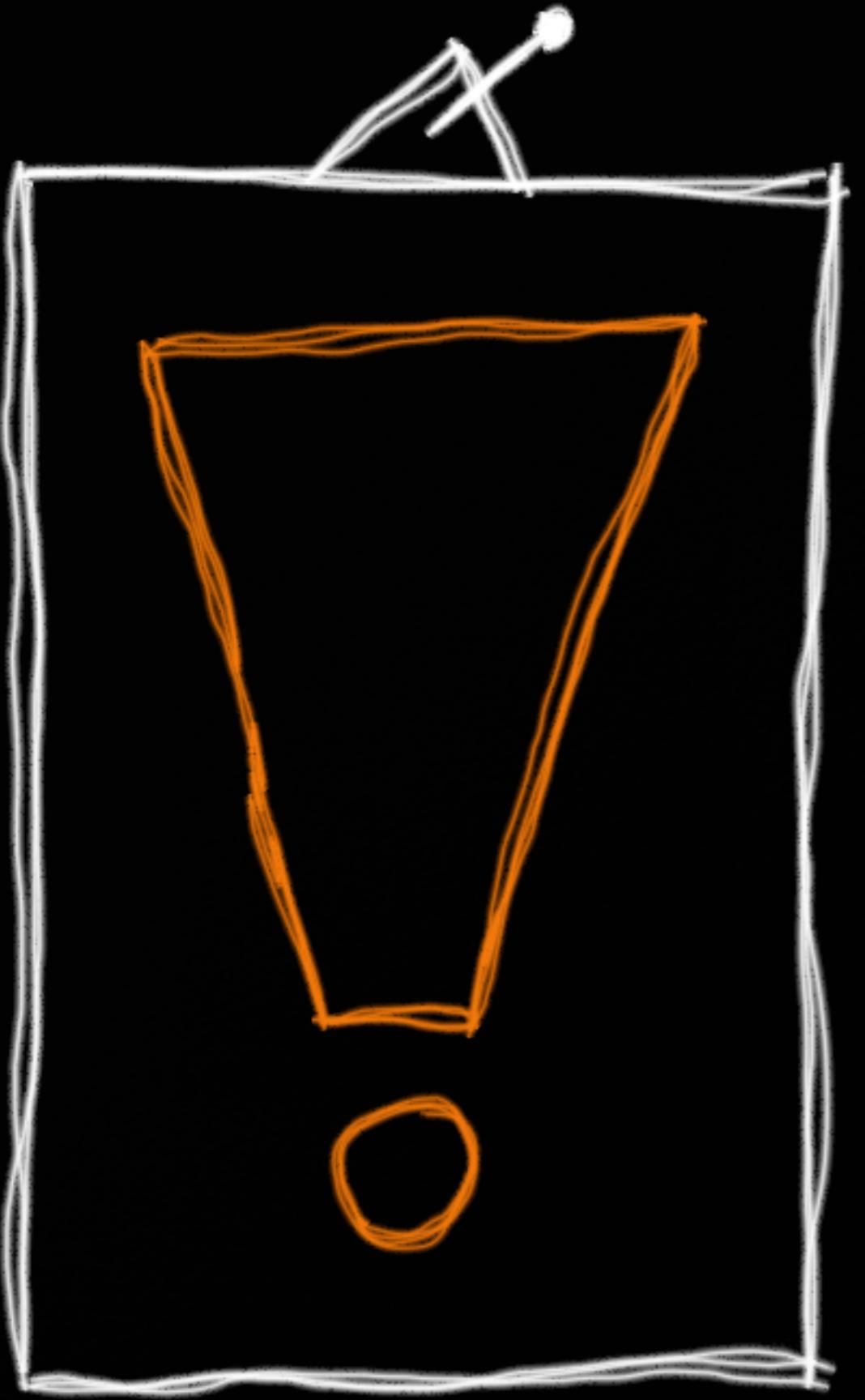
    <filter>
        <filter-name>wicket.wicket-example</filter-name>
        <filter-class>org.apache.wicket.protocol.http.WicketFilter</filter-class>
        <init-param>
            <param-name>applicationClassName</param-name>
            <param-value>com.senacor.WicketApplication</param-value>
        </init-param>
    </filter>

    <filter-mapping>
        <filter-name>wicket.wicket-example</filter-name>
        <url-pattern>/*</url-pattern>
    </filter-mapping>
</web-app>
```



Application
is responsible for
bootstrapping

```
package com.senacor;  
  
import org.apache.wicket.protocol.http.WebApplication;  
  
public class WicketApplication extends WebApplication  
{  
    public WicketApplication() {}  
  
    public Class<HomePage> getHomePage()  
    {  
        return HomePage.class;  
    }  
}
```

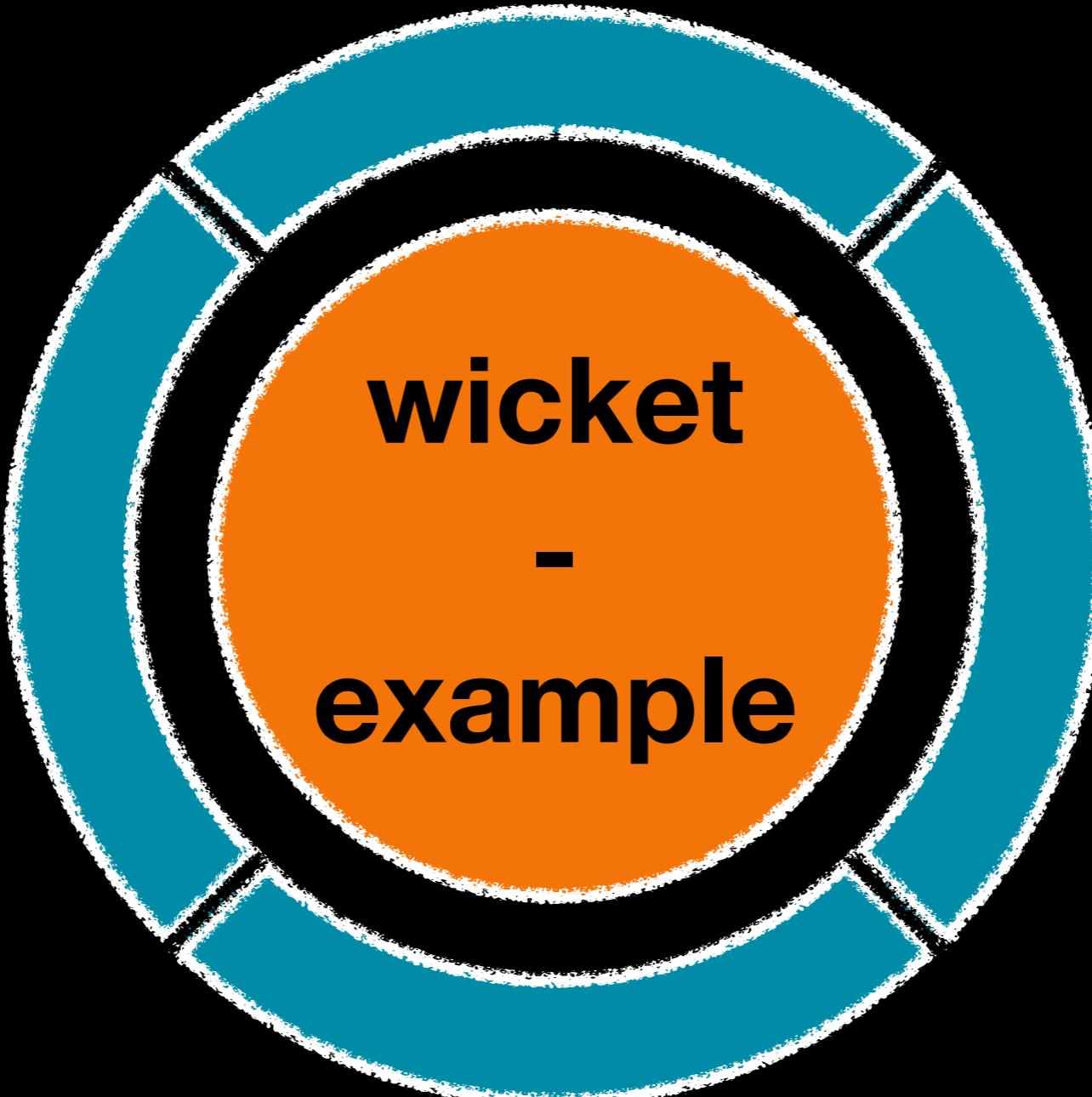


no additional
configuration

WebApplication.java

HomePage.java

HomePage.html



wicket
-
example

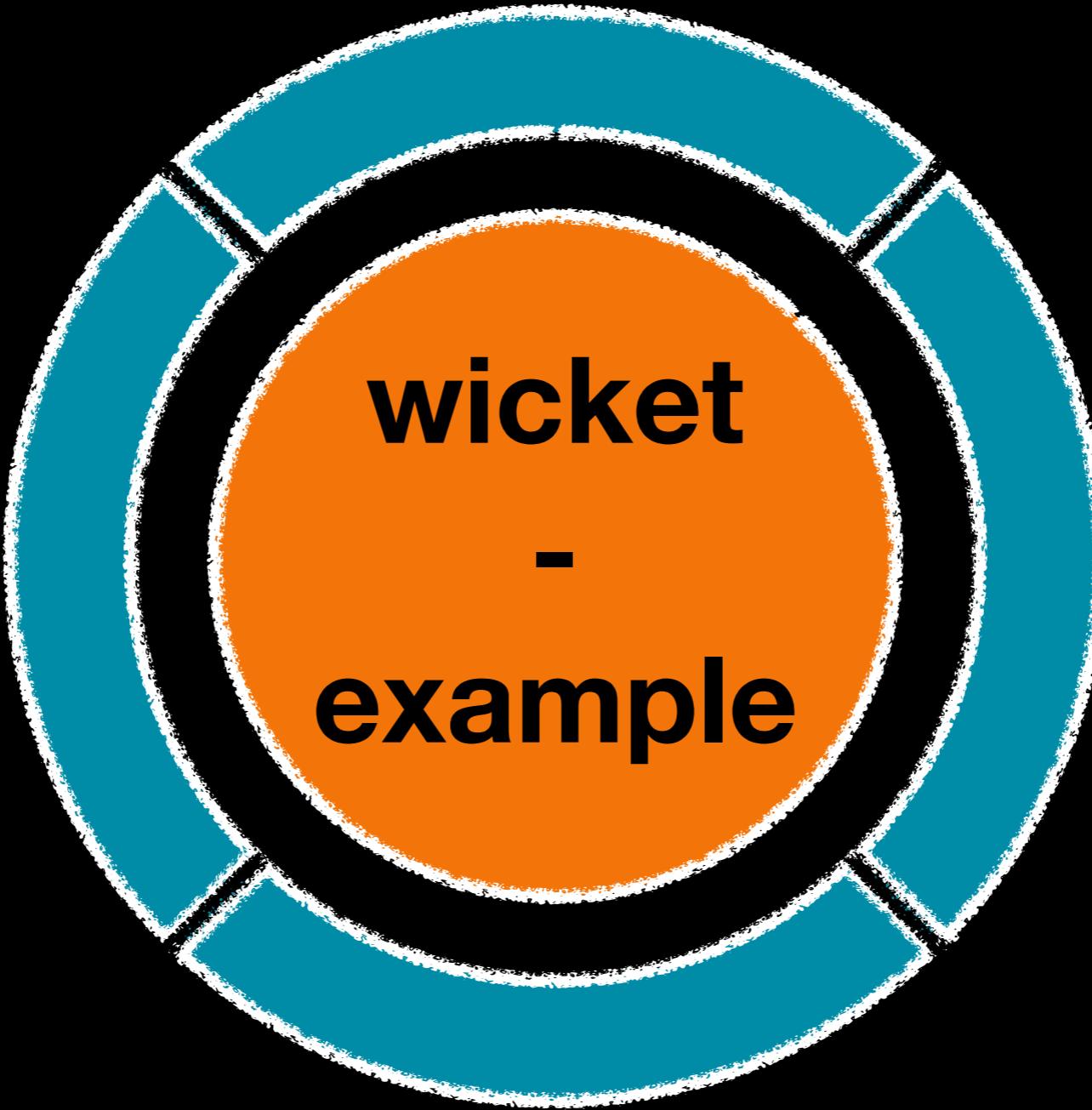
The logo consists of three concentric circles. The innermost circle is orange with the word "wicket" at the top and "example" at the bottom, separated by a small black dash. This is surrounded by a thick black ring, which is further surrounded by a larger teal ring.

web.xml

WebApplication.java

HomePage.java

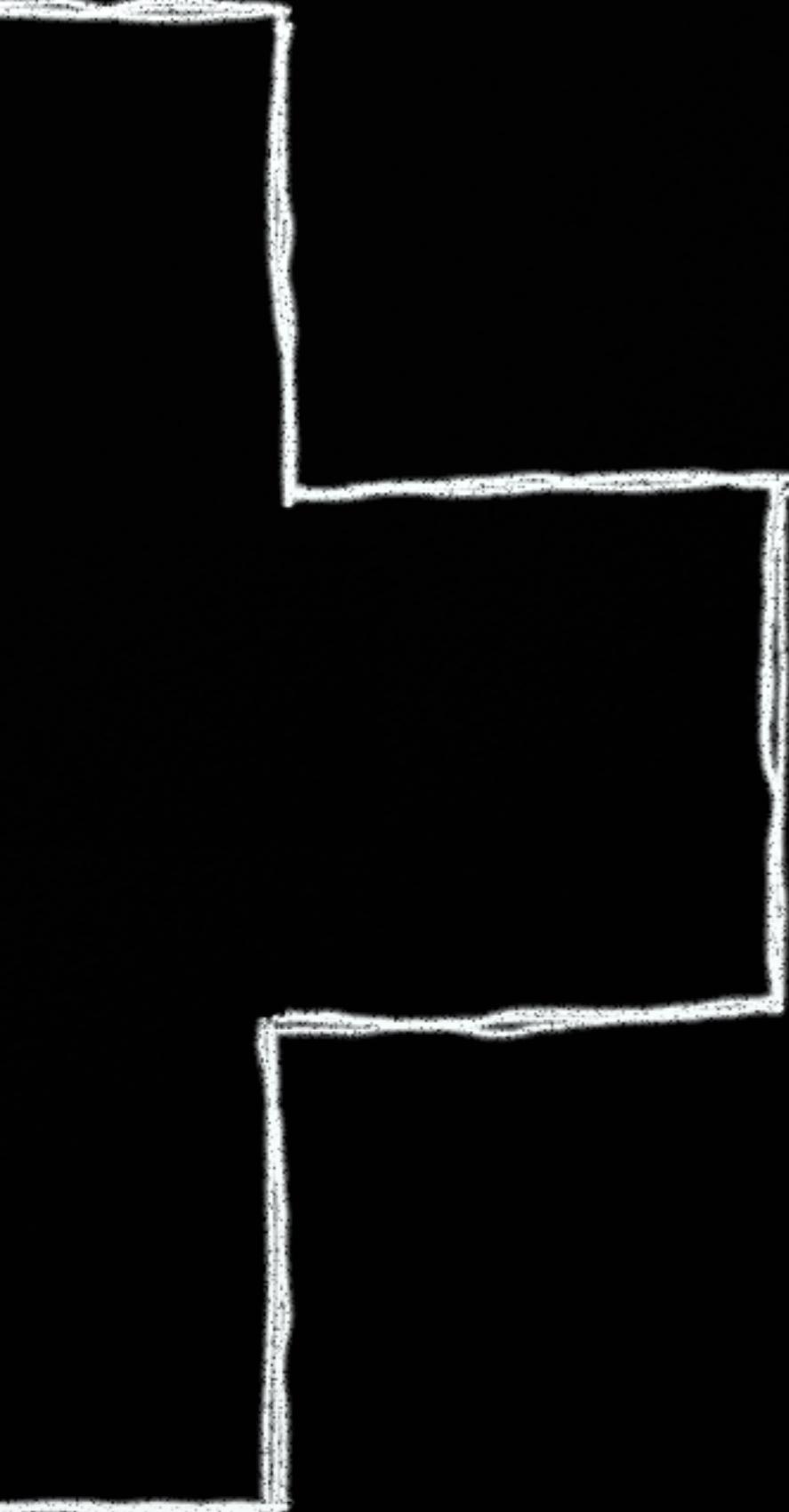
HomePage.html



wicket
-
example

web.xml

Page
defines the Java part

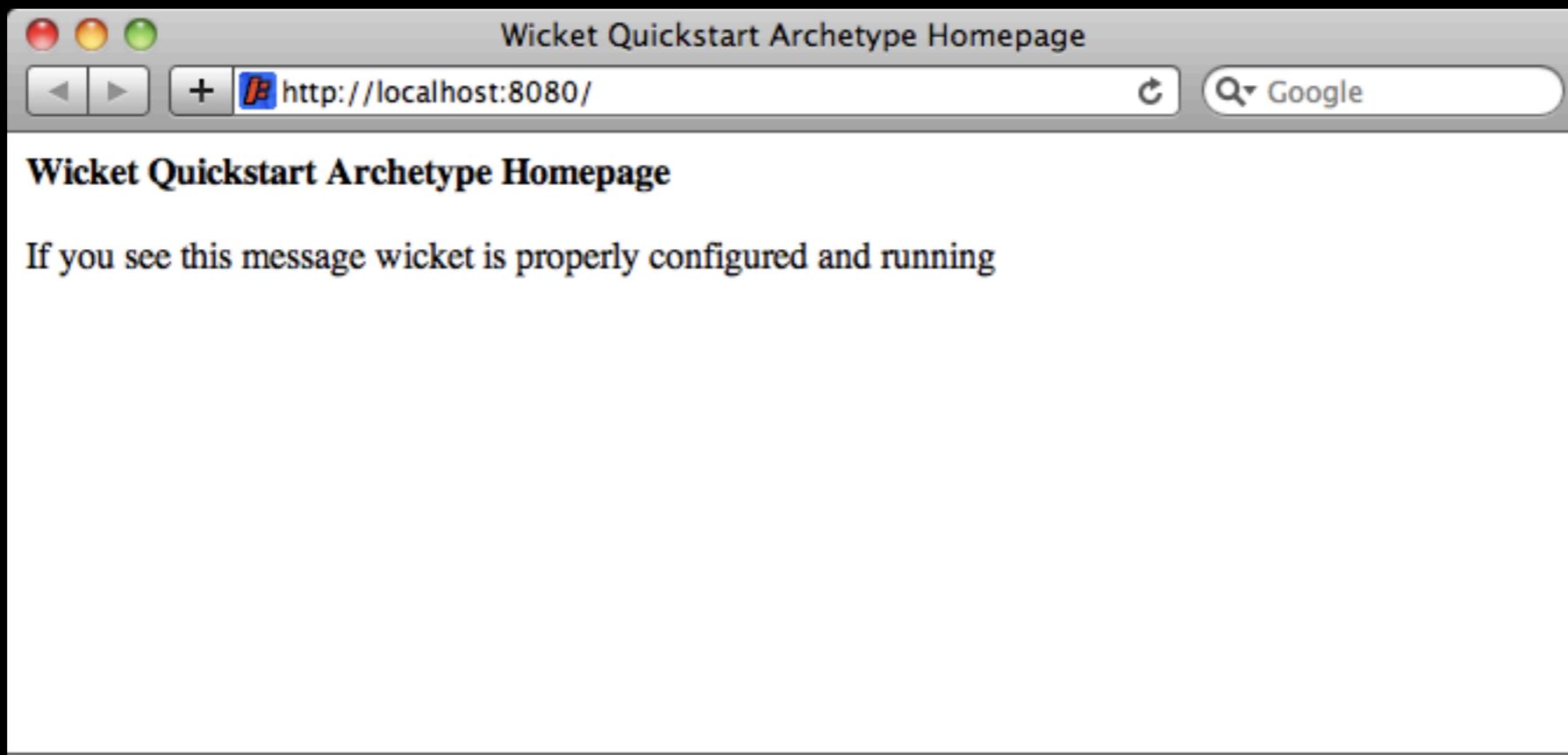


HTML

defines the markup part

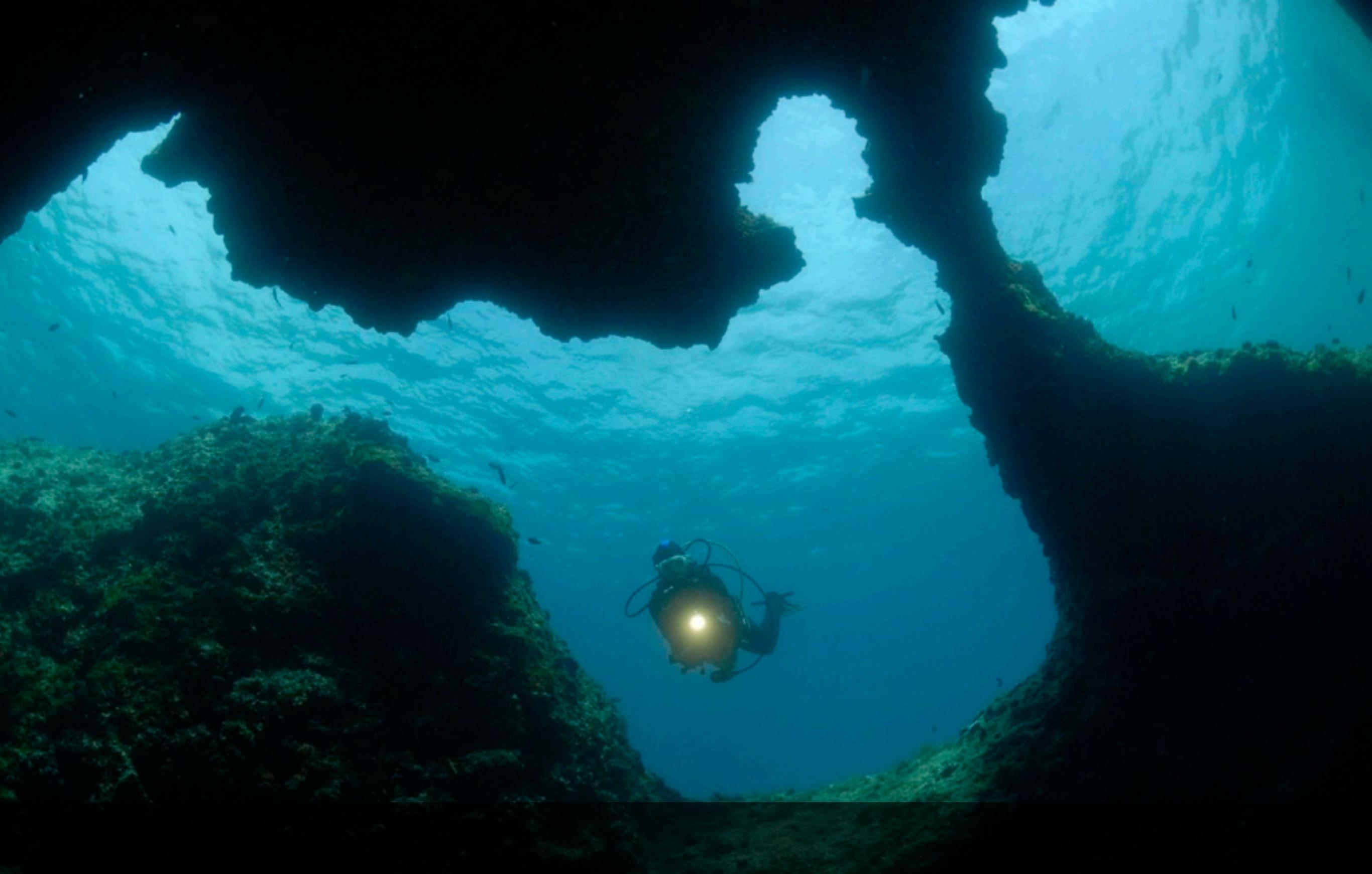
```
public class HomePage extends WebPage {  
    public HomePage(final PageParameters parameters) {  
        add(new Label("message",  
                     "If you see this message wicket is  
                     properly configured and running"));  
    }  
}
```

```
<html xmlns:wicket=  
      "http://wicket.apache.org/dtds.data/wicket-xhtml1.4-strict.dtd">  
  <head>  
    <title>Wicket Quickstart Archetype Homepage</title>  
  </head>  
  <body>  
    <strong>Wicket Quickstart Archetype Homepage</strong>  
    <br/><br/>  
    <span wicket:id="message">message will be here</span>  
  </body>  
</html>
```

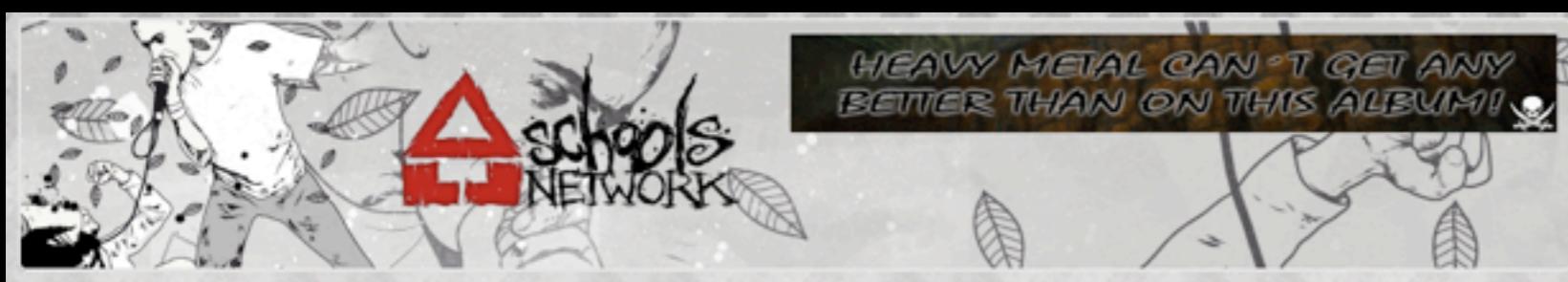


message will be here

```
add(new Label("message",
    "If you see this message wicket is
    properly configured and running"));
```



Let's dive in



Home News CD Reviews Show Reviews Interviews Bilder Tour Blog

GO ▶

Allschools Network

Latest News

DOWN TO NOTHING - "Number One"

DOWN TO NOTHING haben mit "Number One" einen neuen Song online gestellt. Checkt ihn [Mehr lesen](#)

CHUCK RAGAN - Tourupdate

Hier die Dates: 11.03.2010 Düsseldorf (Ger), Zakk 12.03.2010 Münster (Ger), Sputnikhalle 13.03.2010 Bremen (Ger), ... [Mehr lesen](#)

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Das Konzert am Samstag von den DROPKICK MURPHYS in Offenbach war restlos ausverkauft. Für die drei letzten Termine diese Woche sind noch ... [Mehr lesen](#)

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Verlosung

Hoch den Rock Vol. 4 Verlosung



ALLSCHOOLS PRESENTS: HOCH DEN ROCK VOL. 4

Jeden 2. Freitag im Monat ist das Stahlwerk wieder mit einer amtlichen Rockveranstaltung am Start und

Bonuslevel

Gewinnt 4 Tickets für Hoch den Rock

DU MÖCHTEST AUCH EIN TICKET FÜR HOCH DEN ROCK? MELDE DICH MIT DEINER E-MAIL AN UND GEWINNE! WEISST DU NOCH NICHT WIE VIEL SIE KOSTEN? SCHAU DANN IN DIESESE SEITE UND LÄUF DABEI MIT!

JOIN THE COMMUNITY

Benutzername:

Passwort:

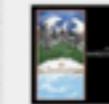
LOGIN ▶

[Passwort vergessen?](#)

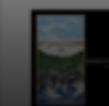
Recommended CDs



Another Breath
The God Complex



Make Do And Mend
Bodies Of Water



Bodies Of Water
Bodies Of Water

WHAT'S ON THIS WEEK

CALENDAR



UNDEROATH & ARCHITECTS
Tour 2010



TOUR
BODIES OF WATER

Page

The screenshot shows the homepage of the Allschools Network website. The header features a banner with the text "HEAVY METAL CAN'T GET ANY BETTER THAN ON THIS ALBUM!" and a skull icon. Below the banner is a navigation bar with links: Home, News, CD Reviews, Show Reviews, Interviews, Bilder, Tour, Blog, and a search bar with a "GO" button. The main content area has a red header "Allschools Network". Underneath, there's a section for "Latest News" with articles about DOWN TO NOTHING, CHUCK RAGAN, ALESANA, DROPKICK MURPHYS, and BLAKFISH. To the right, there's a "JOIN THE COMMUNITY" section with login fields for username and password, and links for "LOGIN" and "Passwort vergessen?". Below that is a "Recommended CDs" section with thumbnails for "Another Breath" by The God Complex and "Make Do And Mend Bodies Of Water". Further down, there's a "WHAT'S ON THIS WEEK" section featuring "ALLSCHOOLS PRESENTS: HOCH DEN ROCK VOL. 4 Verlosung" and "UNDEROATH & ARCHITECTS Tour 2010". The footer contains legal text and a "GUTSACHT" stamp.

Custom Component

The screenshot shows the homepage of the Allschools Network website. At the top, there is a banner with the text "HEAVY METAL CAN'T GET ANY BETTER THAN ON THIS ALBUM!" and a skull icon. Below the banner is a navigation bar with links: Home, News, CD Reviews, Show Reviews, Interviews, Bilder, Tour, Blog, and a search bar with a "GO" button.

Allschools Network

Latest News

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DOWN TO NOTHING haben mit "Number One" einen neuen Song online gestellt. Checkt ihn [Mehr lesen](#)

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Hoch den Rock Vol. 4 Verlosung

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Jeden 2. Freitag im Monat ist das Stahlwerk wieder mit einer amtlichen Rockveranstaltung am Start und

Gewinnspiel

Gewinnspiel # Hoch den Rock Vol. 4
Jeden 2. Freitag im Monat ist das Stahlwerk wieder mit einer amtlichen Rockveranstaltung am Start und

RECOMMENDED CDs

Another Breath
The God Complex

Make Do And Mend
Bodies Of Water

WHAT'S ON THIS WEEK

CALENDAR

ALLSCHOOLS PRESENTS

UNDEROATH & ARCHITECTS
Tour 2010

A group of five people standing outdoors in a wooded area.

10.03. BERLIN - Udo
02.04. CHEMNITZ - AJZ Tiefstack
03.04. MÜNCHEN - Muffatwerk

RECOMMENDED CDs

Another Breath
The God Complex

Make Do And Mend
Bodies Of Water

Another Breath
The God Complex

Make Do And Mend
Bodies Of Water

WHAT'S ON THIS WEEK

CALENDAR

Form

The screenshot shows the homepage of the Allschools Network website. At the top, there's a banner with a black and white illustration of a person and the text "HEAVY METAL CAN'T GET ANY BETTER THAN ON THIS ALBUM!" with a skull icon. Below the banner is a navigation bar with links: Home, News, CD Reviews, Show Reviews, Interviews, Bilder, Tour, Blog, and a search bar with a "GO" button. The main content area has a red header "Allschools Network". Underneath, there's a section for "Latest News" with several articles listed:

- DOWN TO NOTHING – "Number One"**
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Below the news, there's a "Verlosung" (giveaway) section for "Hoch den Rock Vol. 4 Verlosung" featuring a poster for "HOCH DEN ROCK VOL. 4". To the right, there's a "JOIN THE COMMUNITY" login form with fields for "Benutzername:" and "Passwort:", a "LOGIN ▶" button, and a "Passwort vergessen?" link. The entire login form is highlighted with a thick orange border.

On the right side of the main content area, there's a "WHAT'S ON THIS WEEK" calendar section titled "ALLSCHOOLS PRESENTS" showing tour dates for "UNDEROATH & ARCHITECTS" in Berlin, Chemnitz, and München. Below this, there are sections for "Recommended CDs" featuring album covers and titles like "Another Breath" by The God Complex and "Make Do And Mend Bodies Of Water" by Bodies Of Water.

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Allschools Network

Latest News

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Jeden 2. Freitag im Monat ist das Stahlwerk wieder mit einer amtlichen Rockveranstaltung am Start und

Gewinnspiel

Gewinnspiel # Hoch den Rock Vol. 4
Gewinnspiel # Hoch den Rock Vol. 4 mit Biffy Clyro und Blakfish am 10.03.2010 im Stahlwerk Düsseldorf

JOIN THE COMMUNITY

WHAT'S ON THIS WEEK

ALLSCHOOLS PRESENTS

UNDEROATH
19.03. BERLIN - Udo
02.04. CHEMNITZ - AJZ Tiefstack
03.04. MÜNCHEN - Muffathwerk

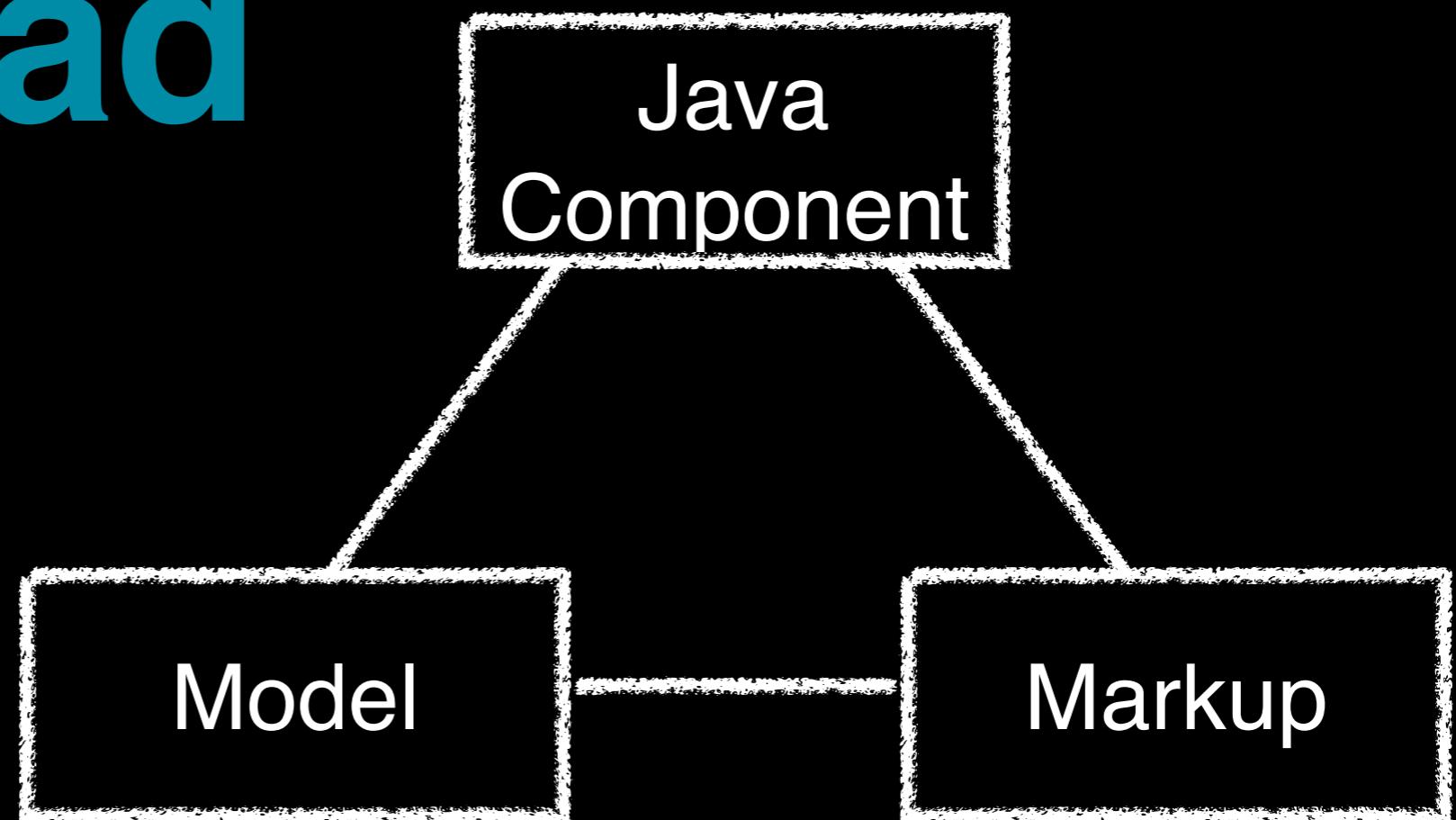
UNDEROATH & ARCHITECTS
Tour 2010

Recommended CDs

- Another Breath**
The God Complex
- Make Do And Mend**
Bodies Of Water

Label

Wicket Component Triad



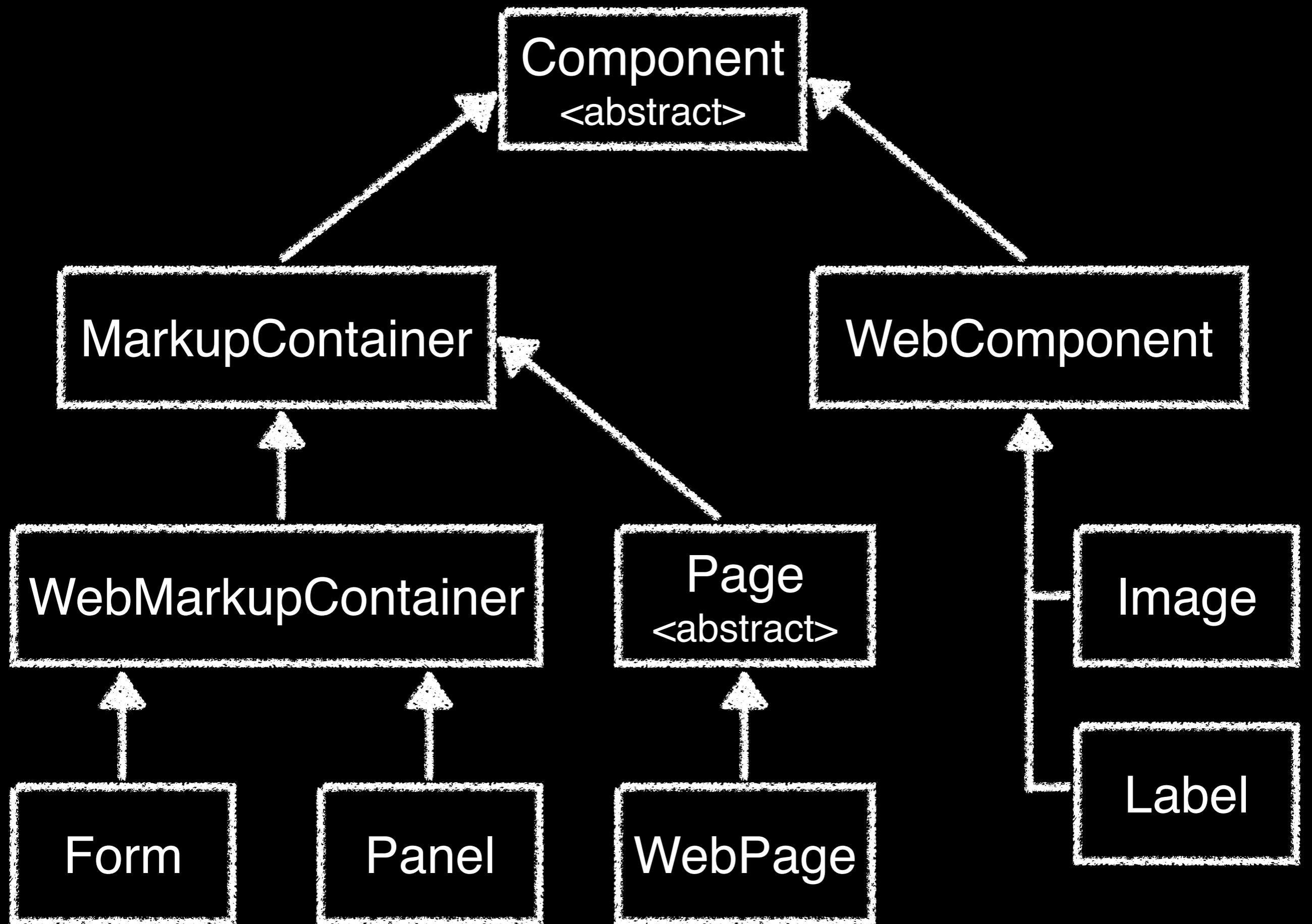


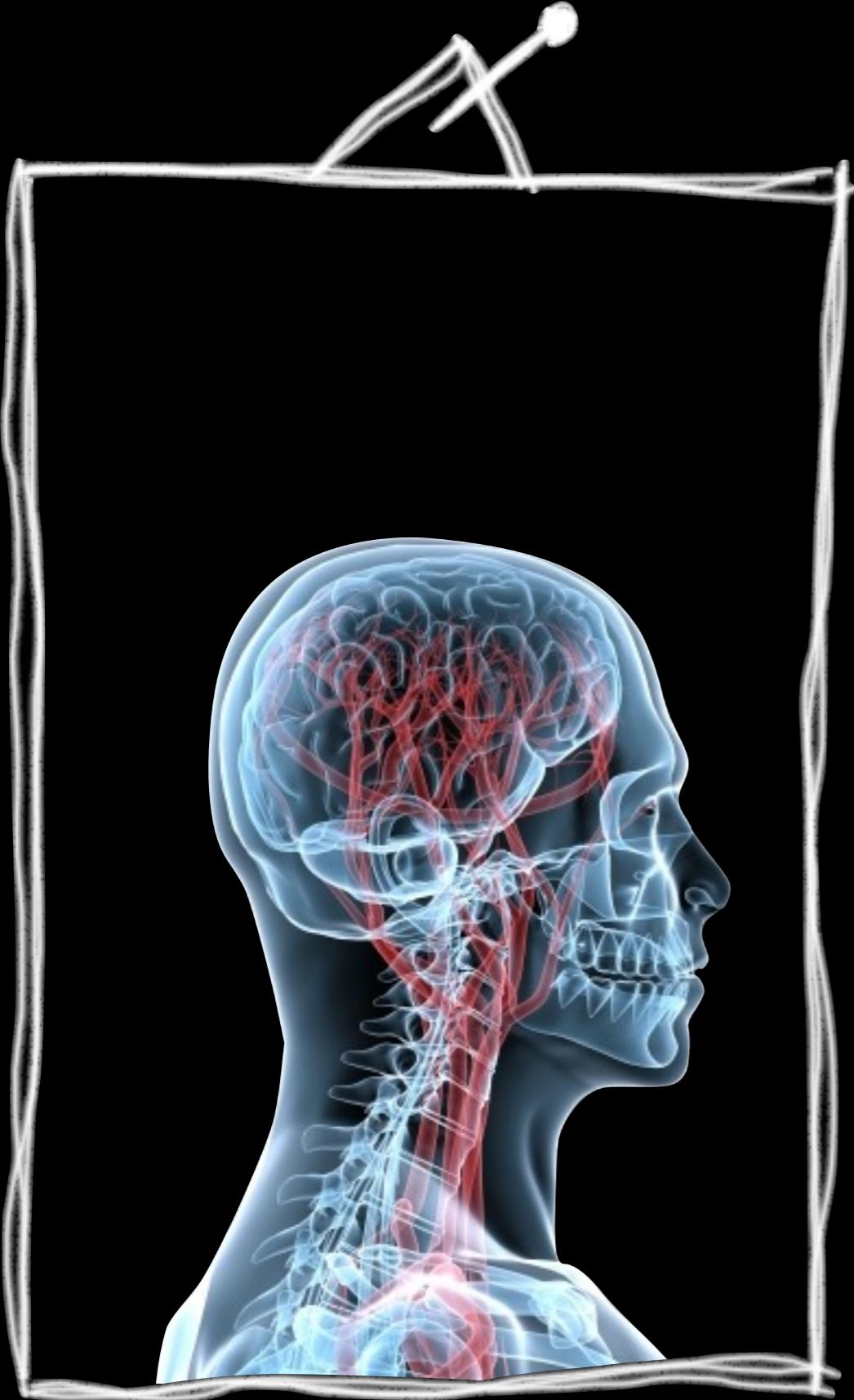
**Java components provide
behaviour**



On the Java side

**Everything
is a
Component**





A Page
is the head of a
**Component
Tree**

HomePage

ExternalLink(„link“)

Image(„pic“)

Label(„link_text“)

Label(„welcome“)

```
ExternalLink link = new ExternalLink("link", "http://www.twitter.com");
link.add(new Label("link_text", "Twitter"));
link.add(new Image("pic", "twitter.png"));
add(link);
add(new Label("welcome", "My link collection"));
```

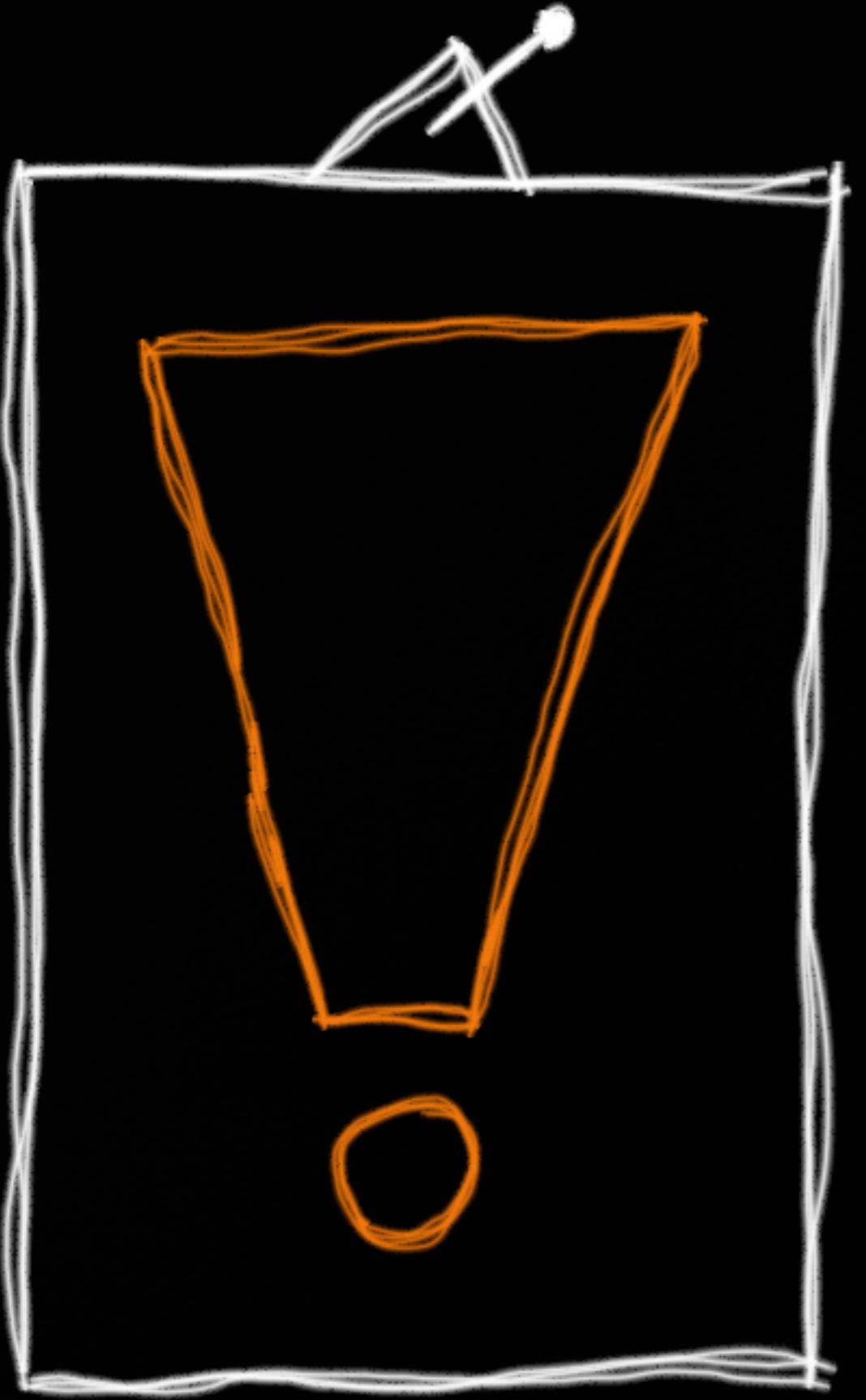
```
<body>
<span wicket:id= "welcome"/>
<a wicket:id="link">
  <img wicket:id="pic"/>
  <span wicket:id="link_text"/>
</a>
</body>
```



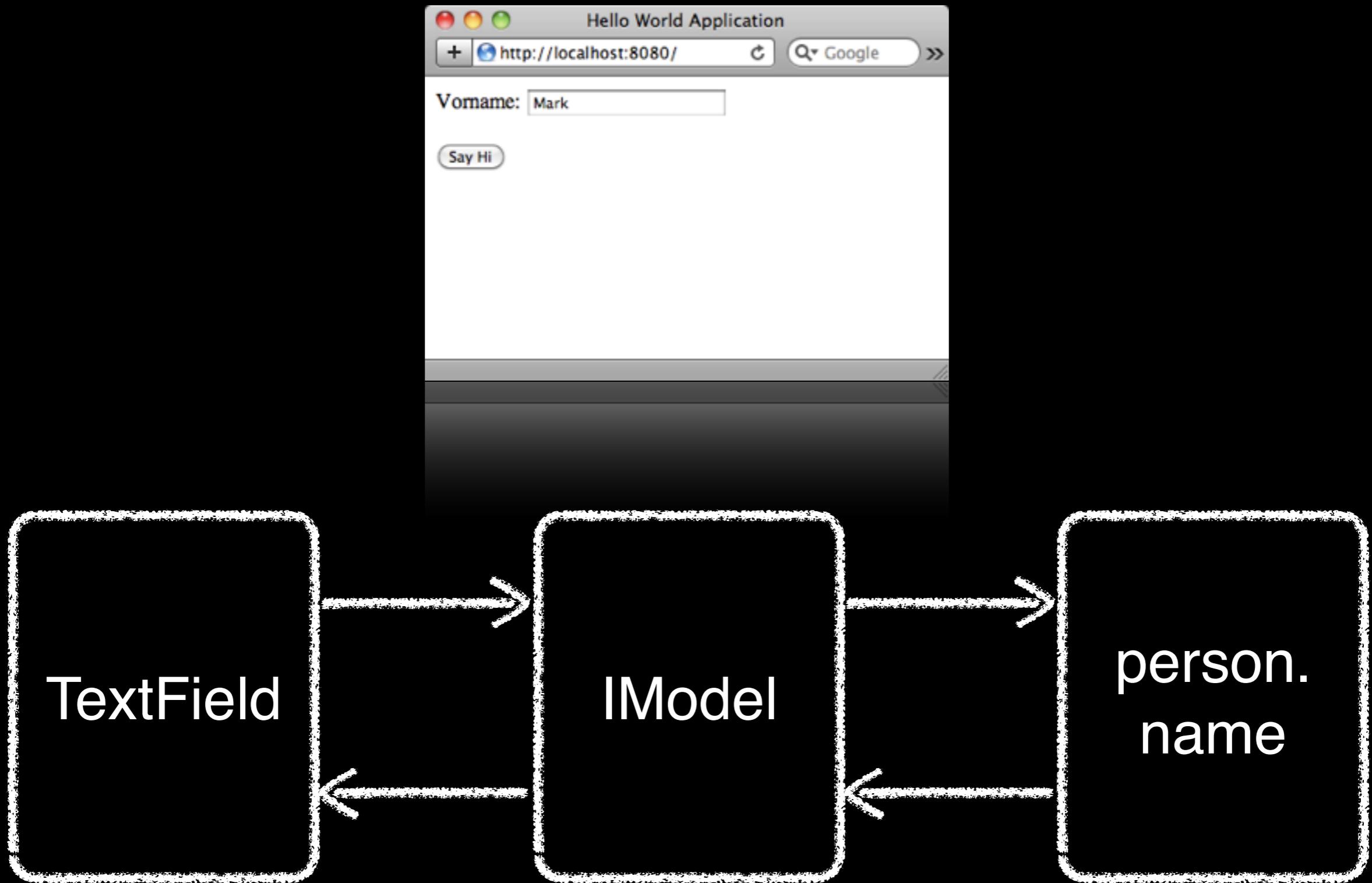
Models



Models
provide data



Understanding
Models is crucial



Model

```
new Label<String>("lastname", "Plöd");
```

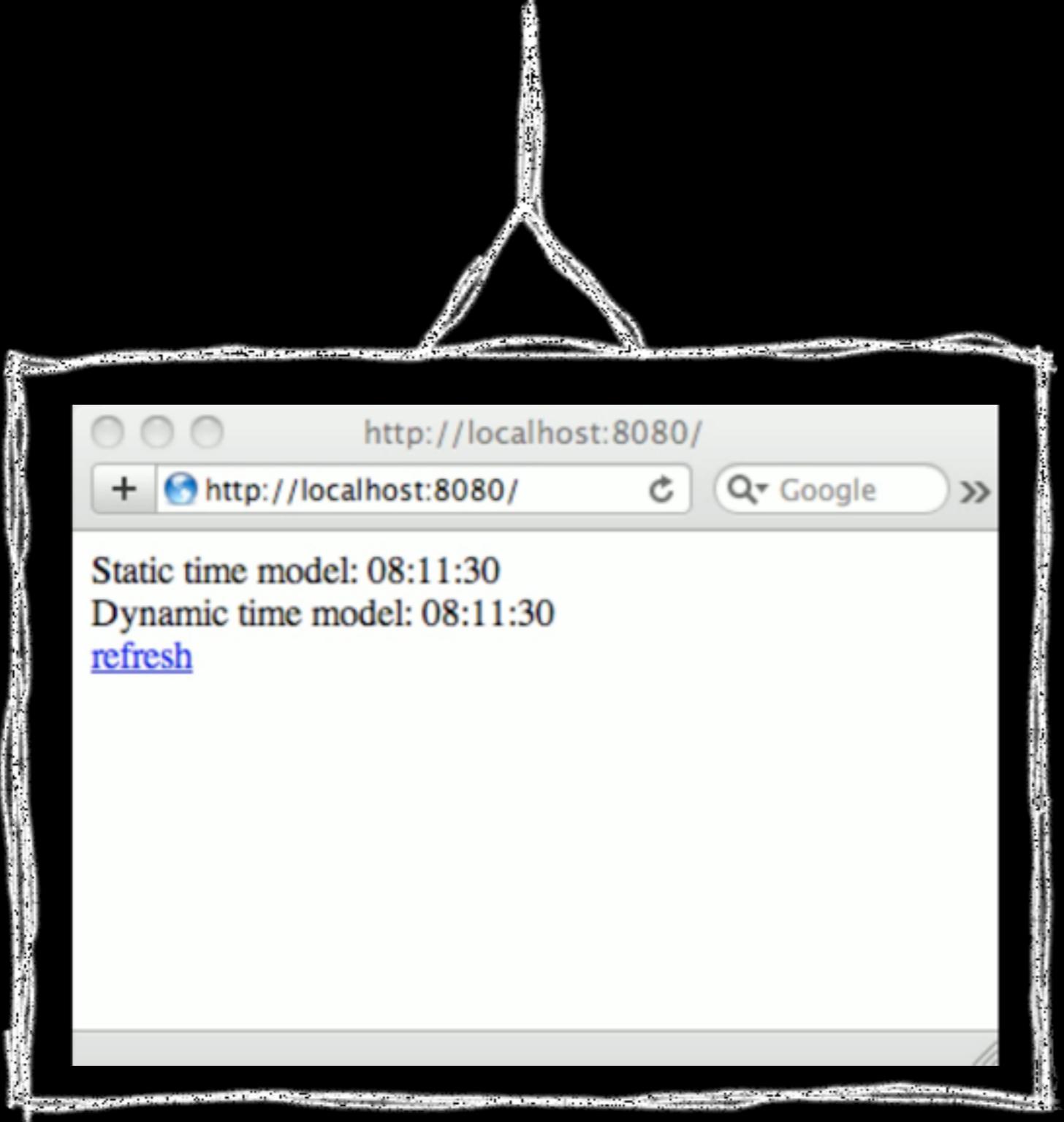
```
new Label<String>("lastname", person.getLastname());
```

```
new Label<Date>("birthday",  
    new Model<Date>(person.getBirthday()));
```

```
final SimpleDateFormat df = ...
```

```
String time = df.format(new Date());  
Model clock = new Model(time);  
add(new Label("static_clock", clock));
```

```
Model<String> dynClock = new Model<String>() {  
    @Override  
    public String getObject() {  
        return df.format(new Date());  
    }  
};  
add(new Label("dynamic_clock", dynClock));  
  
add(new Link("refresh"){ public void onClick() {}});
```

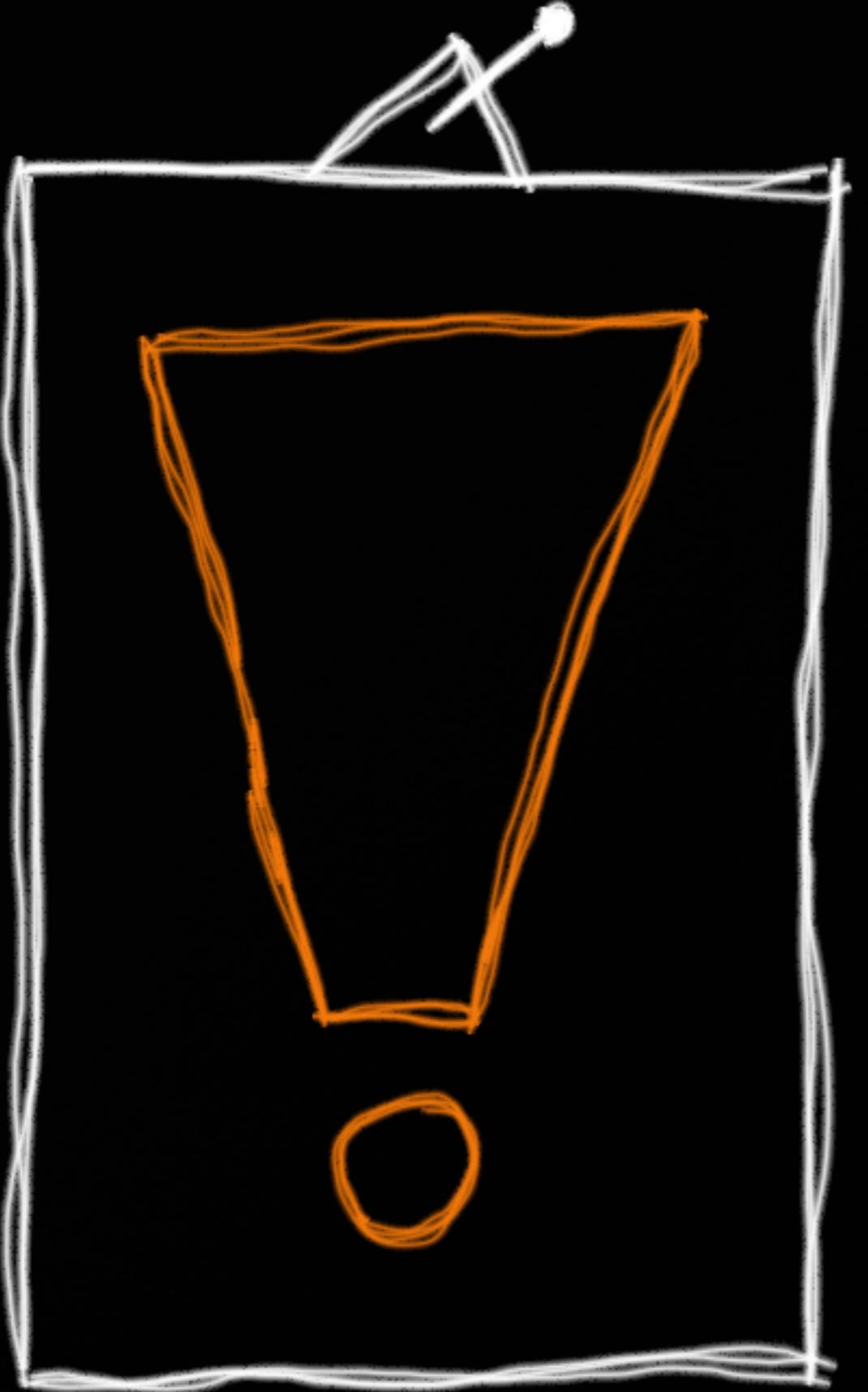


Static vs Dynamic Models

```
final SimpleDateFormat df = ...
```

```
String time = df.format(new Date());  
Model clock = new Model(time);  
add(new Label("static_clock", clock));
```

```
Model<String> dynClock = new Model<String>() {  
    @Override  
    public String getObject() {  
        return df.format(new Date());  
    }  
};  
add(new Label("dynamic_clock", dynClock));  
  
add(new Link("refresh"){ public void onClick() {}});
```



Model is not
null-safe

PropertyModels

```
Person p = ....;
new Label<Date>("birthday",
    new PropertyModel<Date>(p, "birthday"));
new Label<String>("firstname",
    new PropertyModel<String>(p, "firstname"));

setModel(new CompoundPropertyModel(p));
new Label<Date>("birthday");
new Label<String>("firstname");
```

Each component tree

gets

Serialized

to a

PageMap



Detachable Models reduce memory footprint



```
private class PersonModel extends LoadableDetachableModel {  
    private long id;  
    public PersonModel(long id) {  
        this.id = id;  
    }  
    @Override  
    protected Object load() {  
        return personService.getPersonById(this.id);  
    }  
}
```

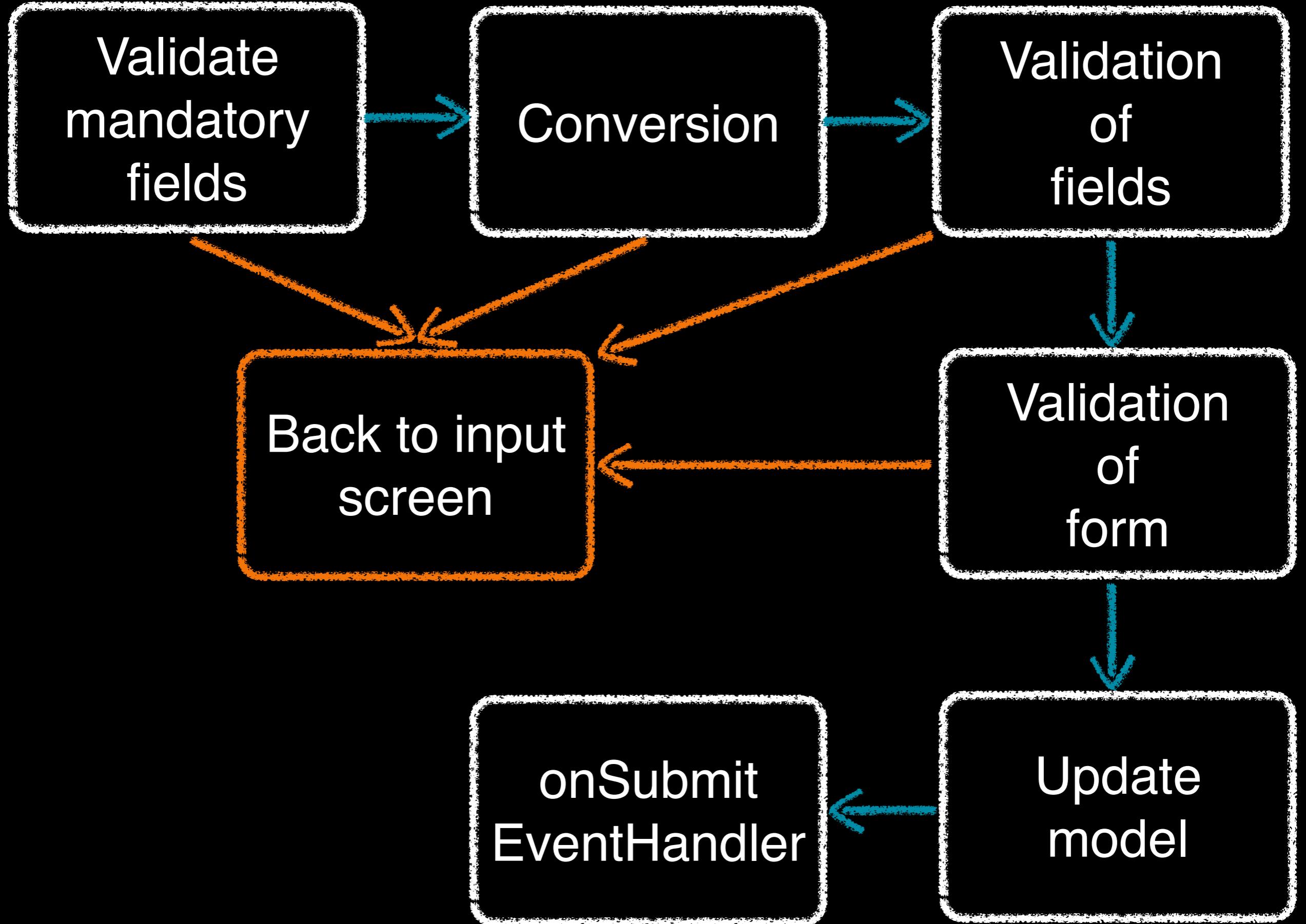
```
setModel(new CompoundPropertyModel(new PersonModel(123));  
new Label<Date>("birthday");  
new Label<String>("firstname";
```

RULES

- Self-Contained
- Plain Java
- Reusable

Form Processing





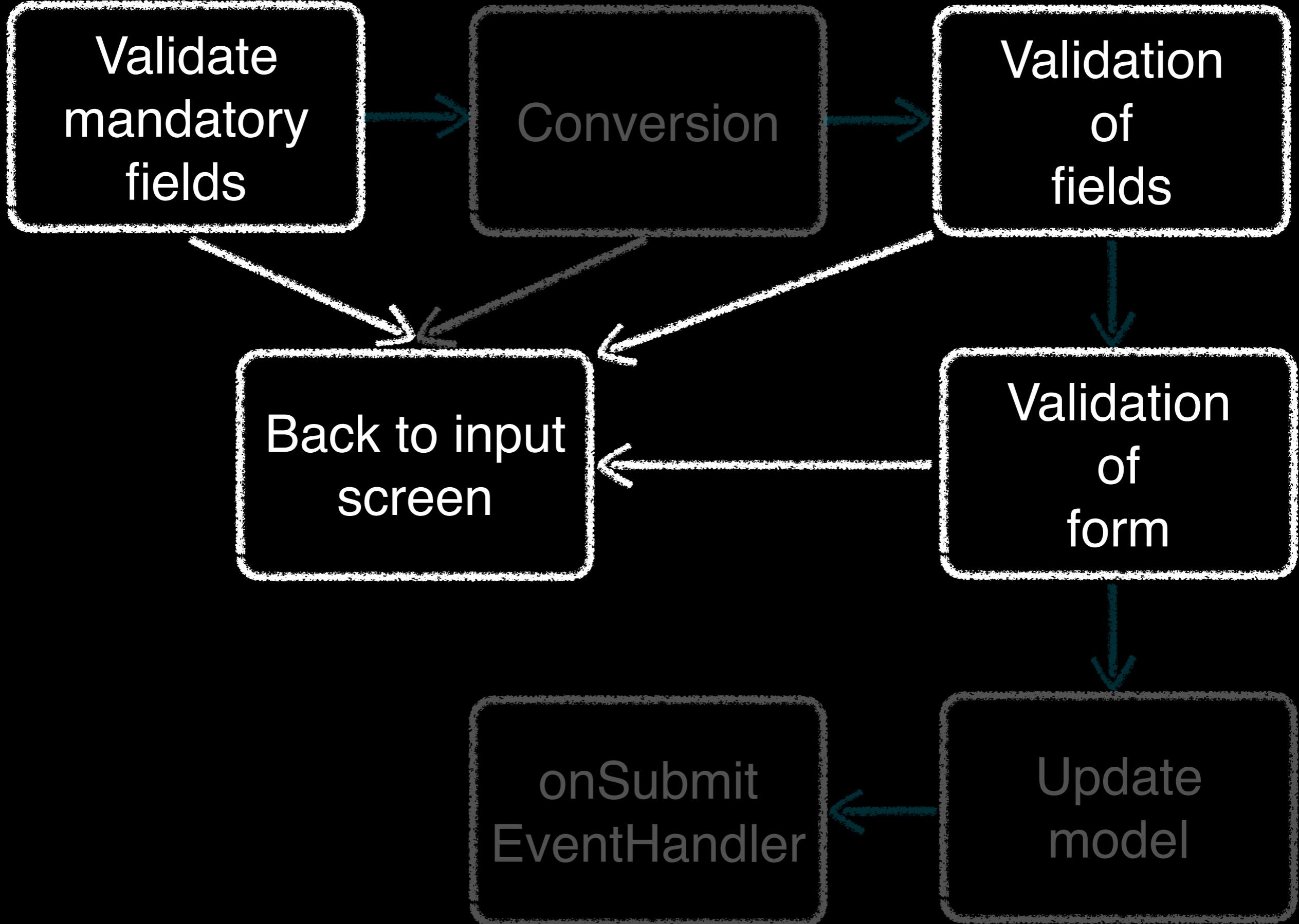
```
Form<Person>form = new Form<Person>("form") {  
    @Override  
    protected void onSubmit() {  
        Person p = getModelObject();  
        // do something  
    }  
};  
  
form.setModel(  
    new CompoundPropertyModel<Person>(new Person()));  
form.add(new TextField("firstname"));  
form.add(new TextField("lastname"));  
form.add(new Button("save"));  
add(form);
```

„Programming today is a race between software engineers striving to build bigger and better idiot-proof programs, and the universe trying to build bigger and better idiots.

So far, the universe is winning.“

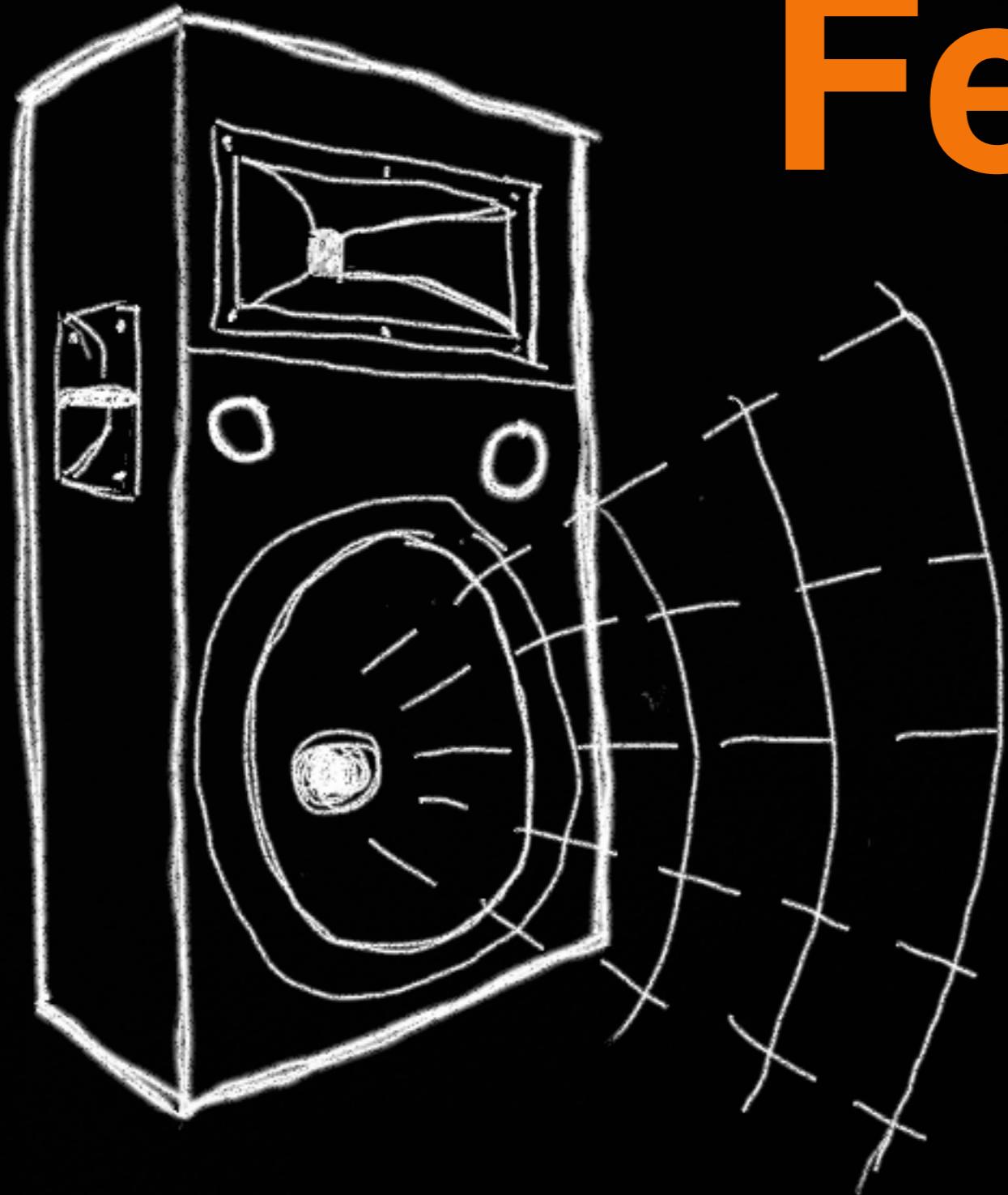
-- Robert Cringely --



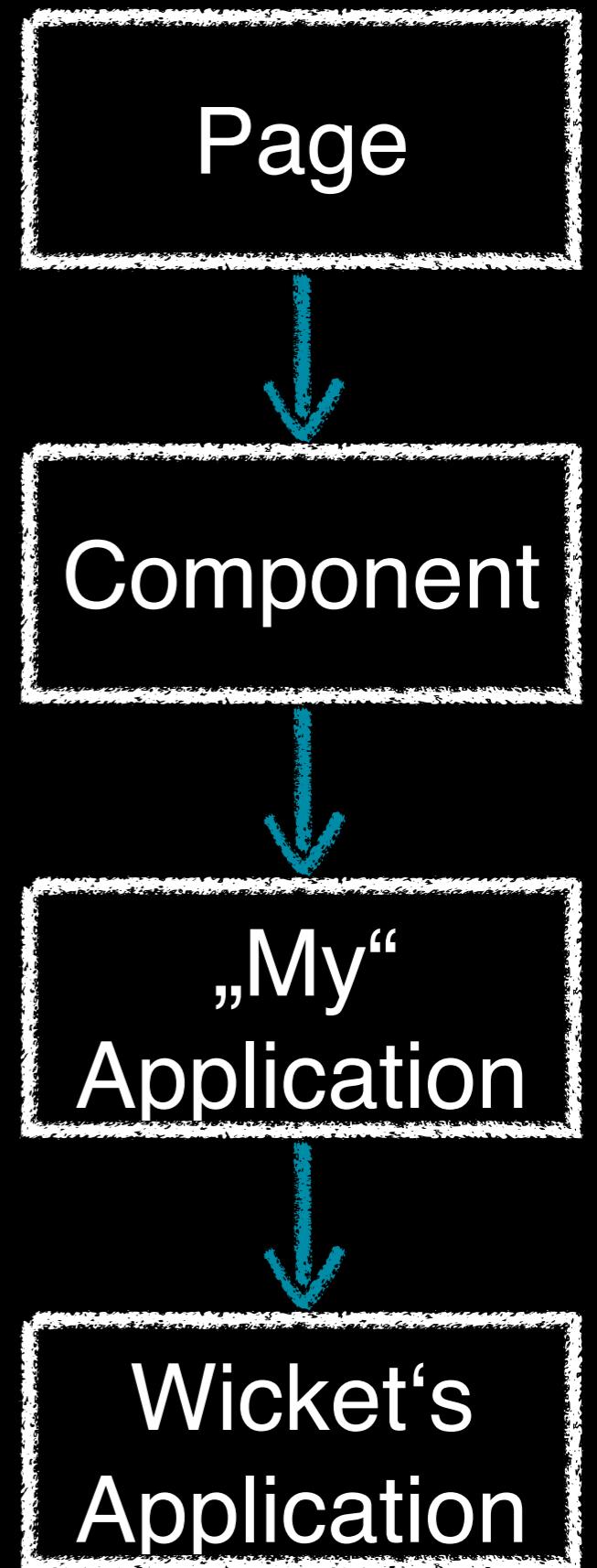


```
form.add(new TextField("firstname").setRequired(true));  
  
form.add(new TextField("email")  
        .setRequired(true)  
        .add(EmailAddressValidator.getInstance()));  
  
form.add(new TextField("age")  
        .add(NumberValidator.minimum(18)));  
  
form.add(new TextField("username")  
        .add(StringValidator.lengthBetween(6, 10)));  
  
form.add(new TextField("username")  
        .add(new PatternValidator("[a-zA-Z0-9]*"))  
        .add(StringValidator.lengthBetween(6, 10)));
```

Providing Feedback



Hierarchy of Feedback Messages



#MyPage.java

```
Form form = new Form("myform");
form.add(new TextField("email")
        .setRequired(true)
        .add(EmailAddressValidator.getInstance()));
form.add(new TextField("age")
        .setRequired(true)
        .add(NumberValidator.minimum(18)));
form.add(new FeedbackPanel("feedback"));
```

#MyPage.java

```
Form form = new Form("myform");
form.add(new TextField("email")
        .setRequired(true)
        .add(EmailAddressValidator.getInstance()));
form.add(new TextField("age")
        .setRequired(true)
        .add(NumberValidator.minimum(18)));
form.add(new FeedbackPanel("feedback"));
```

#MyPage.properties

```
Required=Please enter a ${label}
myform.email.Required=Please provide an email address
myform.email.EmailAddressValidator=Email address invalid
NumberValidator.minimum=Not enough
```

Let's take the



next steps

AJAX

is easy



```
final SimpleDateFormat df = ...
```

```
String time = df.format(new Date());  
Model clock = new Model(time);  
add(new Label("static_clock", clock));
```

```
Model<String> dynClock = new Model<String>() {  
    @Override  
    public String getObject() {  
        return df.format(new Date());  
    }  
};  
add(new Label("dynamic_clock", dynClock));  
  
add(new Link("refresh"){ public void onClick() {}});
```

```
Model<String> dynClock = new Model<String>() {  
    ...  
};  
final Label label = new Label("dynamic_clock", dynClock);  
label.setOutputMarkupId(true);  
add(label);  
  
add(new AjaxLink("refresh") {  
    @Override  
    public void onClick(AjaxRequestTarget target) {  
        target.addComponent(label);  
    }  
});
```

YES

that's all

```
final Form<Person>form = new Form<Person>("form");
form.setOutputMarkupId(true);
form.setModel(...);
form.add(new TextField("id").setActive(false));
form.add(new TextField("firstname"));
form.add(new TextField("lastname"));
form.add(new AjaxSubmitLink("save") {
    @Override
    public void onClick(AjaxRequestTarget target, Form<Person> f) {
        Person p = f.getModelObject();
        Person savedPerson = save(p);
        form.setModel(...); //with saved Person
        target.addComponent(form);
    }
});
```

AJAX Components

AjaxLink

AjaxSubmitLink

AutoCompleteTextField

AjaxEditableLabel

There is no difference

between

AJAX-

and

usual-

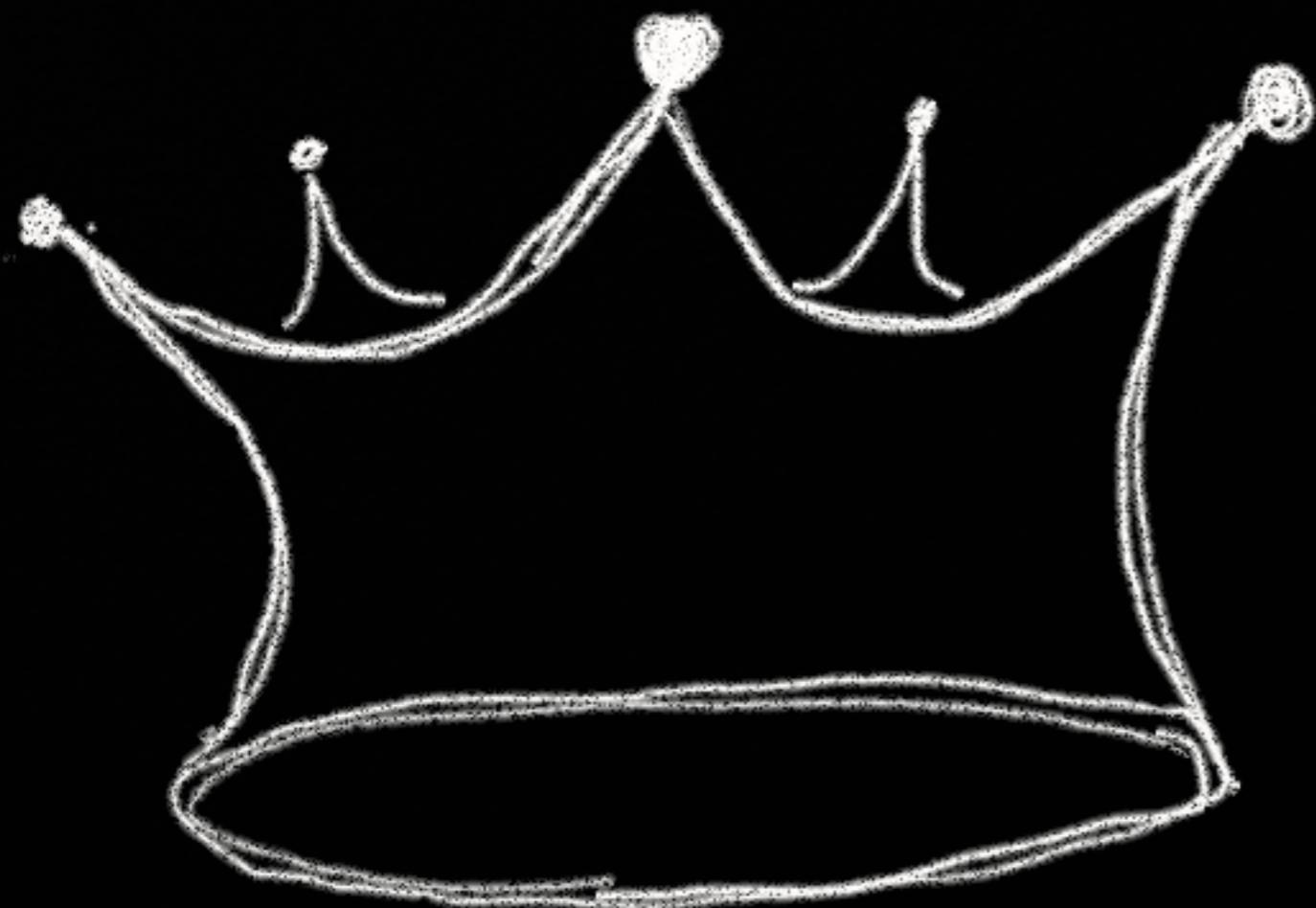
components





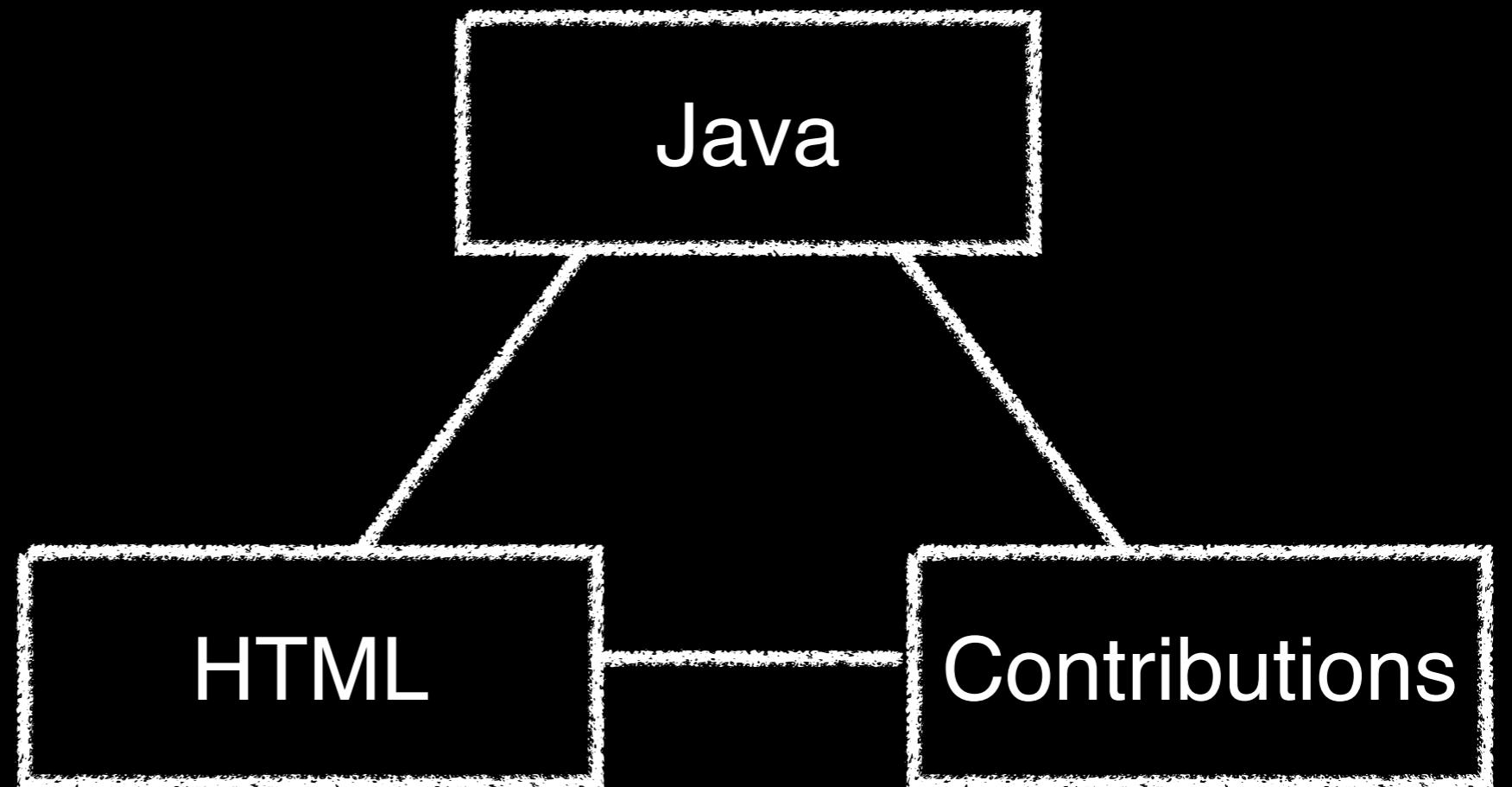
Creating Custom Components

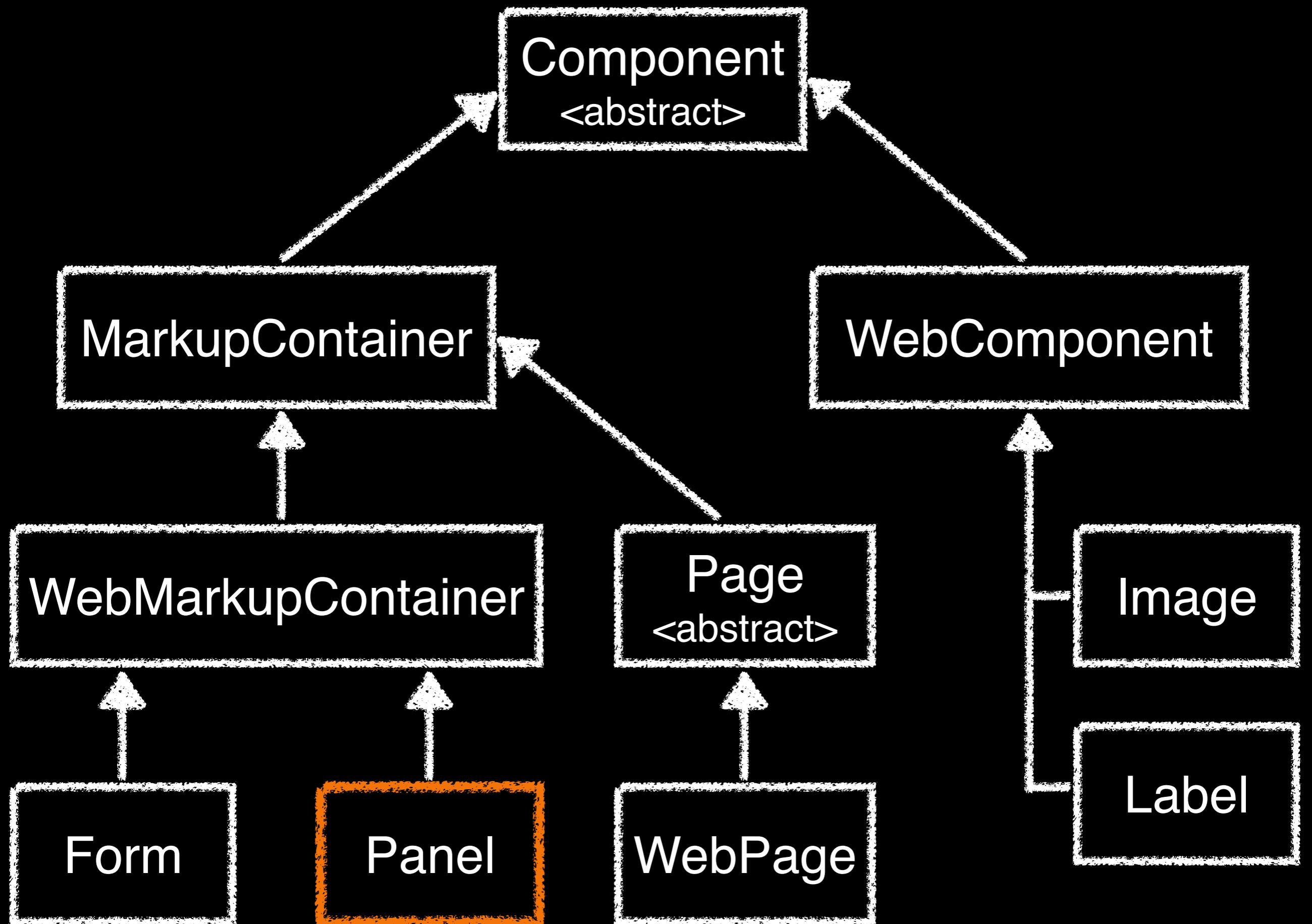
Object Orientation



is
KING

Components





```
public class LabelDropDownChoice extends Panel {  
    public LabelDropDownChoice(String id) {  
        super(id);  
        CompoundPropertyModel labels =  
            new CompoundPropertyModel(new LoadableDetachableModel() {  
                @Override  
                protected Object load() {  
                    return labelService.retrieveAll();  
                }  
            });  
        add(new DropDownChoice("label", labels, new IChoiceRenderer()  
        {  
            public Object getDisplayValue(Object object) {return ((Label)object).getName();}  
  
            public String getIdValue(Object object, int index) {  
                return Long.toString(((Label)object).getId());  
            }  
        }));  
    }  
}
```

```
<wicket:panel>
  <select wicket:id="label">
    <option>site 1</option>
    <option>site 2</option>
  </select>
</wicket:panel>
```

Consistent Layouts

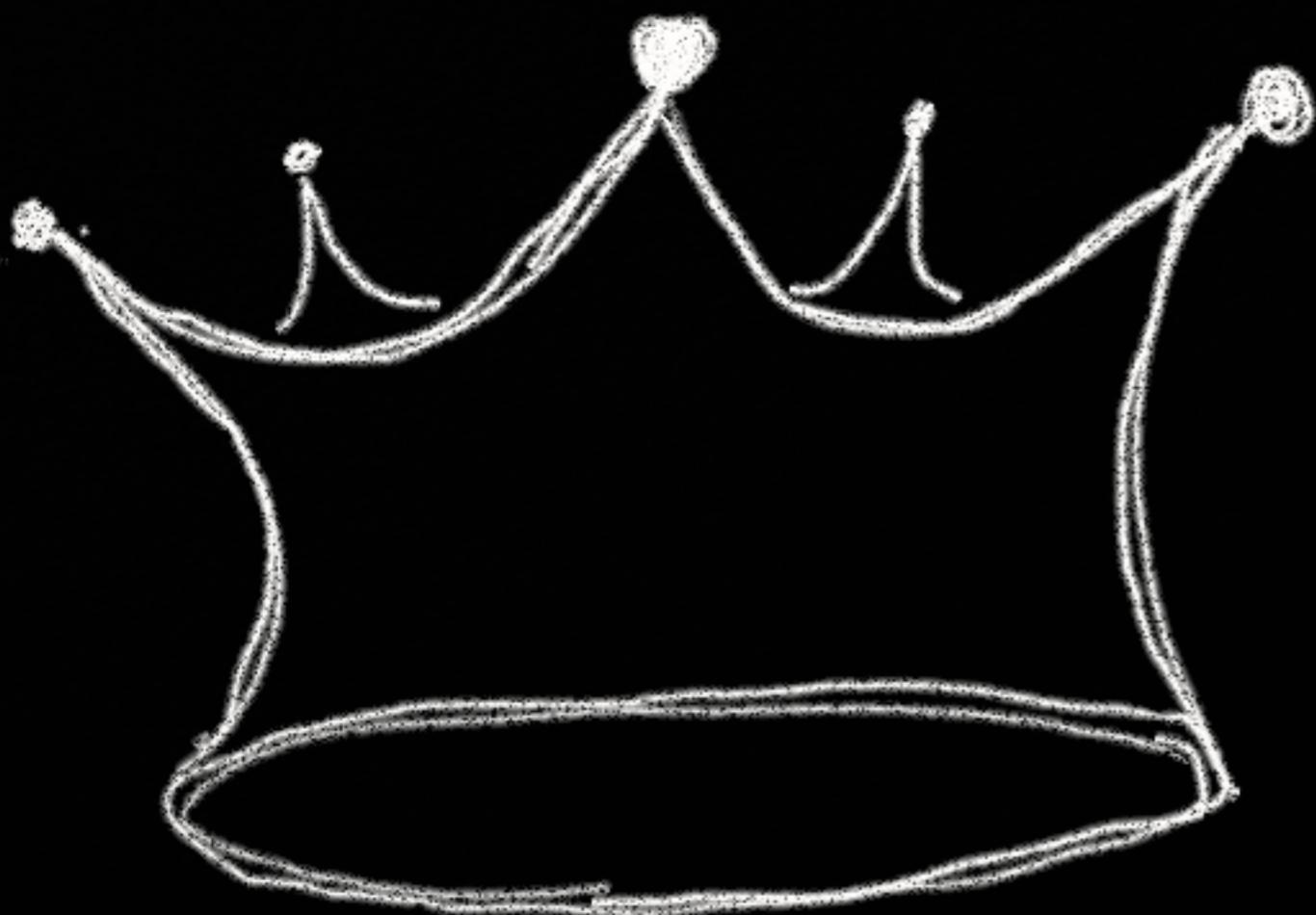
The screenshot shows the homepage of the Allschools Network website. At the top, there is a banner featuring a black and white illustration of a person's head and shoulders, with the text "HEAVY METAL CAN'T GET ANY BETTER THAN ON THIS ALBUM!" and a skull icon. Below the banner is a navigation bar with links: Home, News, CD Reviews, Show Reviews, Interviews, Bilder, Tour, Blog, and a search bar with a "GO" button. The main content area has a header "Allschools Network". To the right, there is a "JOIN THE COMMUNITY" section with fields for "Benutzername:" and "Passwort:", a "LOGIN" button, and a link for "Passwort vergessen?". Below this is a "Recommended CDs" section with two items: "Another Breath" by The God Complex and "Make Do And Mend" by Bodies Of Water. To the right of the community section is a "WHAT'S ON THIS WEEK" calendar, which is currently empty. Below the calendar is a section titled "allschools PRESENTS" featuring a photo of a band and tour dates: "19.03. BERLIN - Lido", "02.04. CHEMNITZ - AJZ Telehook", and "03.04. MÜNCHEN - Muffathalle". The bottom right corner shows a small image of a person's face.

Object Orientation

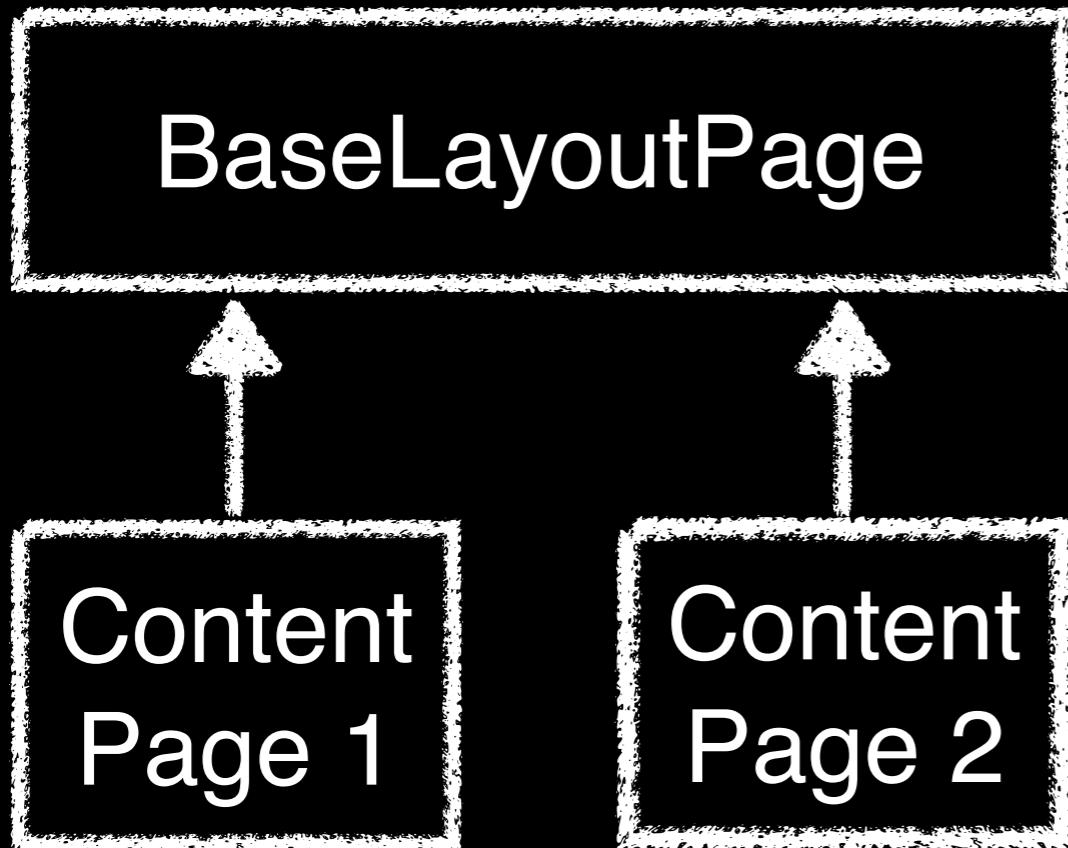
is

KING

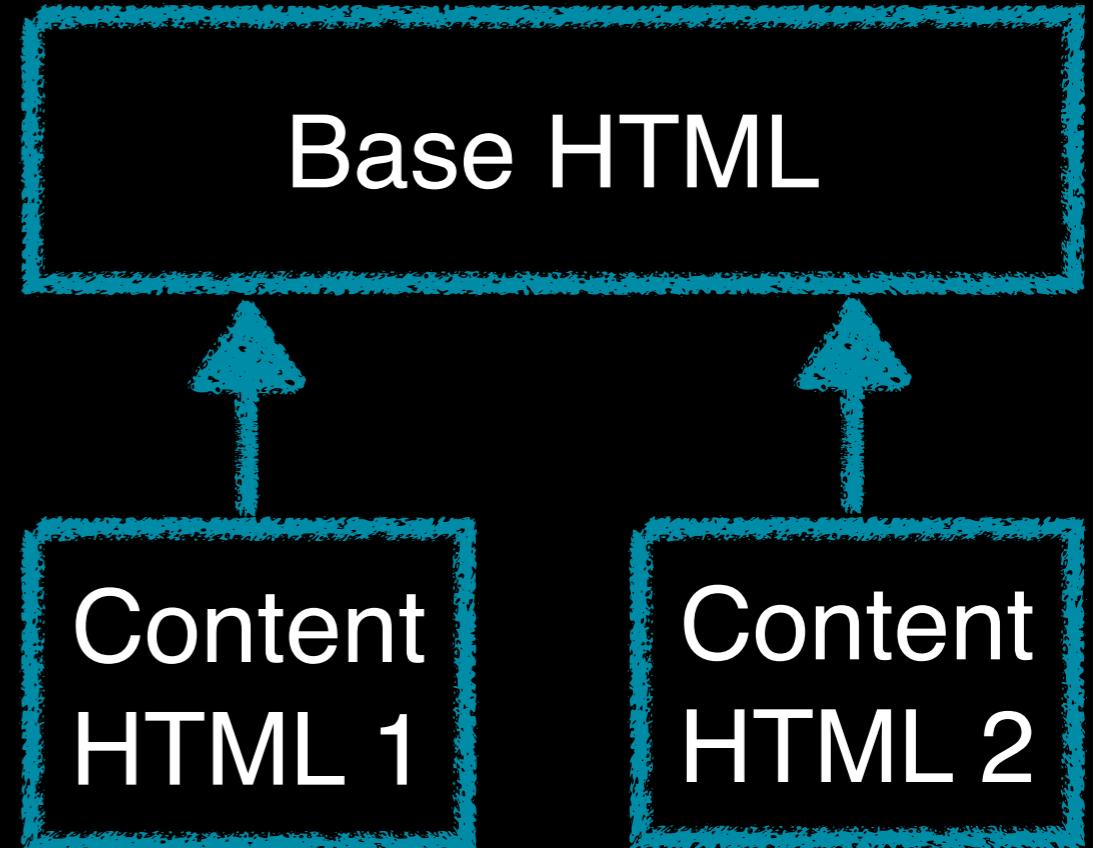
AGAIN



```
public abstract class  
BaseLayoutPage extends  
WebPage {  
...  
}
```

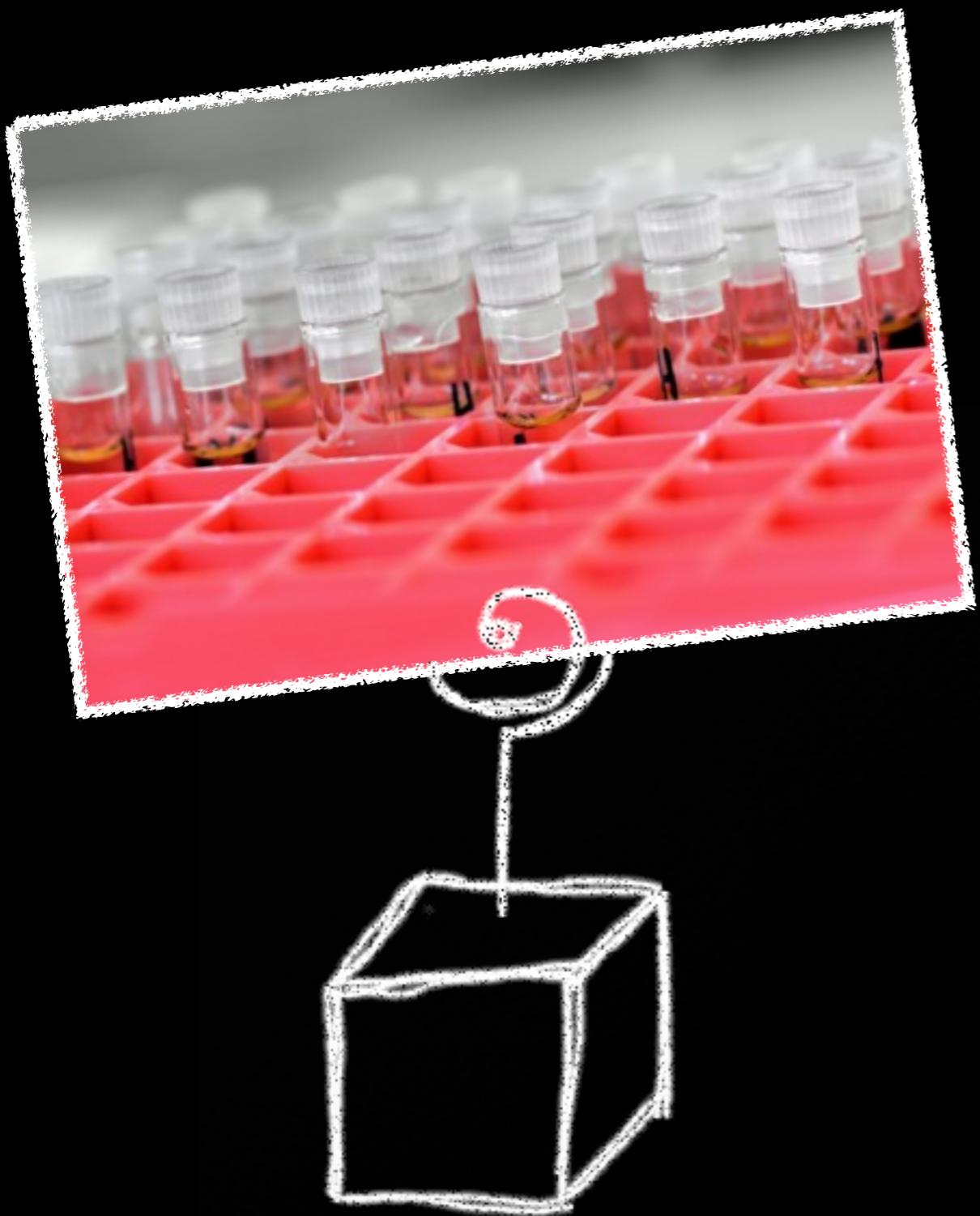


```
<html>  
  <head>...</head>  
  <div id="main">  
    <wicket:child/>  
  </div>  
</html>
```



```
public class ContentPage  
extends BaseLayoutPage {  
...  
}
```

```
<wicket:extend>  
  ...  
</wicket:extend>
```



Testing Wicket Applications

66 public class HomePage extends WebPage {
 public HomePage() {
 final SimpleDateFormat df = new SimpleDateFormat("hh:mm:ss");
 add(new Label("static_clock", new Model(df.format(new Date()))));
 Model<String> dynClock = new Model<String>() {
 @Override
 public String getObject() {
 return df.format(new Date());
 }
 };
 final Label label = new Label("dynamic_clock", dynClock);
 label.setOutputMarkupId(true);
 add(label);
 add(new AjaxLink("refresh") {
 @Override
 public void onClick(AjaxRequestTarget target) {
 target.addComponent(label);
 }
 });
 }
}

```
public class TestHomePage extends TestCase {  
    private WicketTester tester;  
    @Override  
    public void setUp() {  
        tester = new WicketTester(new WicketApplication());  
    }  
  
    public void testRenderMyPage() throws Exception {  
        tester.startPage(HomePage.class);  
        tester.assertRenderedPage(HomePage.class);  
        final SimpleDateFormat df = new SimpleDateFormat("hh:mm:ss");  
        Date before = new Date();  
        tester.assertLabel("static_clock", df.format(before));  
        tester.assertLabel("dynamic_clock", df.format(before));  
        Thread.sleep(2000);  
        tester.clickLink("refresh", true);  
        Date after = new Date();  
        tester.assertLabel("static_clock", df.format(before));  
        tester.assertLabel("dynamic_clock", df.format(after));  
    }  
}
```

There is much more

Security

Error Pages

RESTful URLs

Spring

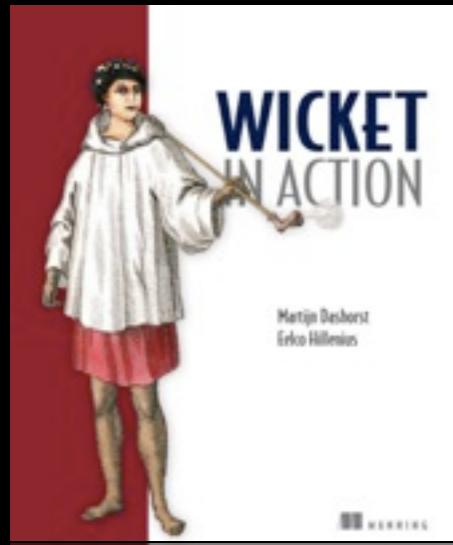
...





Pro & Contra

Further Reading



Wicket In Action

Martijn Dashorst, Eelco Hillenius
Manning

Wicket

Roland Förther, Olaf Siefart, Carl-Eric Menzel
dpunkt Verlag

Questions?



**Michael Plöd
Olaf Siefart
Senacor Technologies AG**