Server Pages

Web Engineering

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Technology Overview

Grails	***Web app platform***
Groovy	*"PHP" for Java*
Geb & Spock	*Test support*
Gradle	*Build system*
Spring Boot	*Enterprise Web*

The story so far

Static Pages - HTML, CSS

MVC - Model, View, Controller

Static Page

Server Page

Engineering Aspects

Well-formed & valid HTML, CSS

Avoid duplication (in CSS)

Testing pages and navigation

Validating Models (imp., decl.)

MVC separation of concerns

Request - Response

server

controller

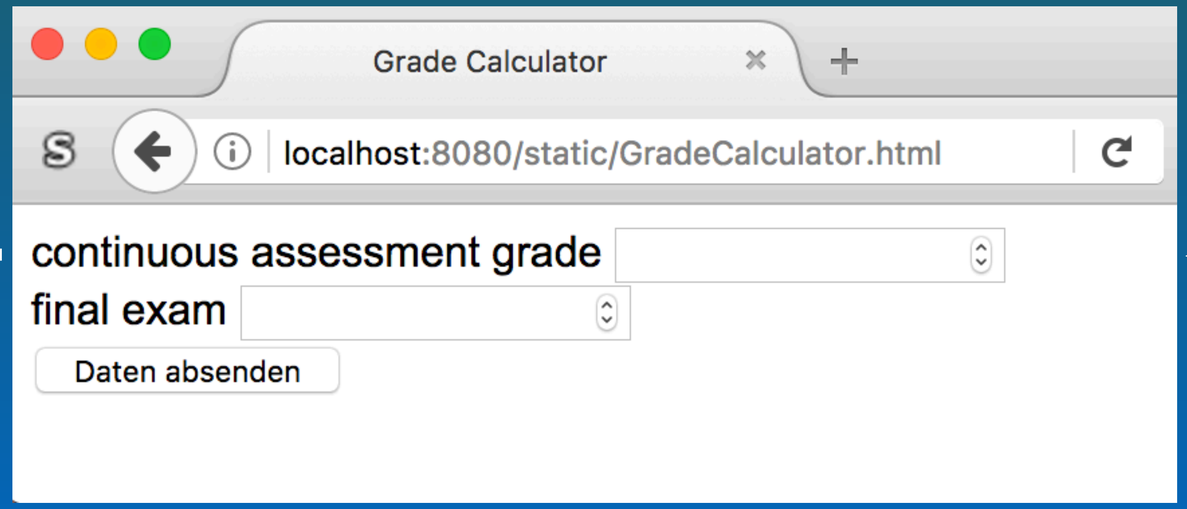
```
class MyController
  def myAction(en, exam)
```

request

response

client

view



Server Page 1: GSP

use of view binding

```
<p> Your average is <output>${ result }</output>.</p>

<p> Back to the <a href="/static/GradeCalculator.html">calculator</a>.</p>
```

Page structure: four ways

GSP	*Server page with values*
Template	*Local composition*
TagLib	*Global composition*
Layout	*Inverse composition*

Server Page 2: Template

gsp

```
<tmpl:form_row name="en"    label="En"    calculatorInstance="${calculatorInstance}" />
```

_form_row.gsp

```
<label for='${name}'>${label}</label>
<input type="number decimal" name="${name}" value="${calculatorInstance.getProperty(name)}"
       required="true" min="1.0" max="6.0" id="${name}"
```

Templates

static/structural

Parts of a page - as a page

Avoid in-page duplication

Sep. of concerns - abstraction

Compositional

Server Page 3: Taglib

gsp

```
<mvc:decorate grade="${calculatorInstance.result}">
  <output>${calculatorInstance.result}</output>
</mvc:decorate>
```

DecorationTagLib

```
def decorate = { attributes, body ->
    String grade = attributes.grade
    // ...
    out << body()
```

TagLibs

Parts of content - as a method

Can enclose a body

Can be used inside tags

All Grails tags are so defined

Templates & TagLibs

either can be used

as tag

as method

Server Page 4: Layout

gsp

```
<head>
  <meta name="layout" content="form"/>
```

layout/form.gsp

```
<h1><g:layoutTitle default="Form"/></h1>

<g:layoutBody/>
```

Layouts

Imposed embedding - as a page

Inverse composition (sitemesh)

Avoid duplication

Improve consistency

Allow multi-tenant apps

Page structure: four ways

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