



Vaadin

@joonaslehtinen
Founder & CEO

Introduction to **Vaadin Framework**

User interface framework for rich web applications

User Interface Components

Window Caption + X

☰ ☰ ☰ 🔗 ↺ ↻

Selected Another One more

Subtitle

Normal type for plain text. Etiam at risus et justo dignissim congue. Phasellus laoreet lorem vel

Footer text OK Cancel

📅 9/2/14

Option One ▾

Option One

Option Two

Option Three

✉ me@vaadin.com

Drop down ▾

caption	description
Lorem ipsum	Dolor sit amet
Consectetur quid	Securi etiam tamquam
Eu fugiat	Nulla pariatur lorem
Ipsum dolor	Sit amet consectetur
Quid securi	Etiam tamquam eu
Fugiat nulla	Pariatur lorem ipsum
Dolor sit	Amet consectetur quid

📄 Lorem ipsum x 📄 Dolor sit x 🔍 A < >

Content for tab 1

📄 Panel caption One Two Three

Button

Option One Option Two Option Three

Option One Option Two Option Three



Developer

Rich

Productivity

UX

java } html >

 New in 7

 Add-ons

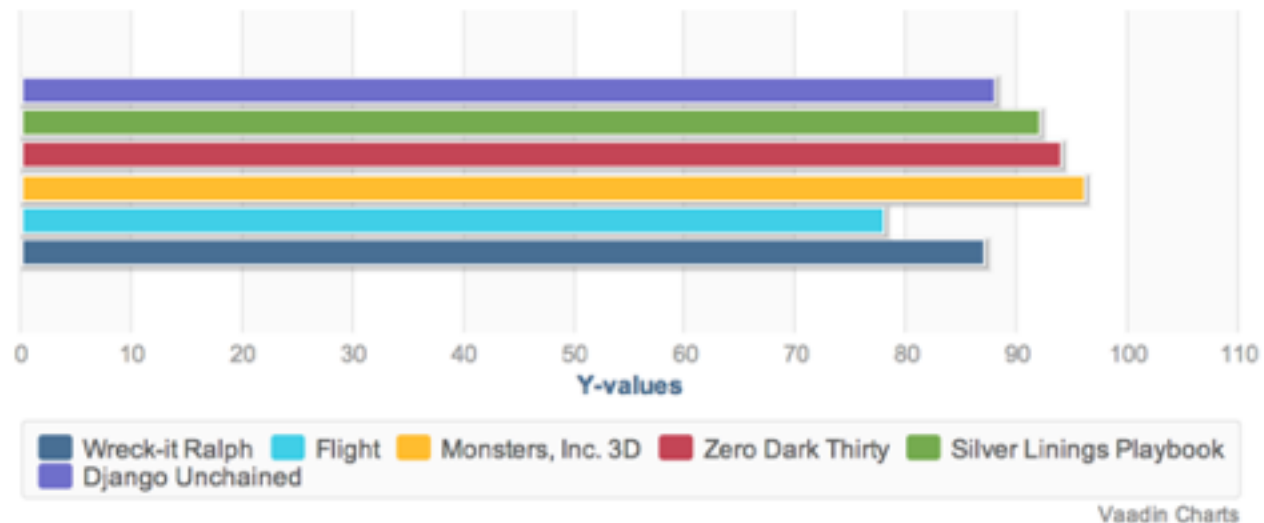
 User interface



 Foundation

 Data binding

TOP GROSSING MOVIES



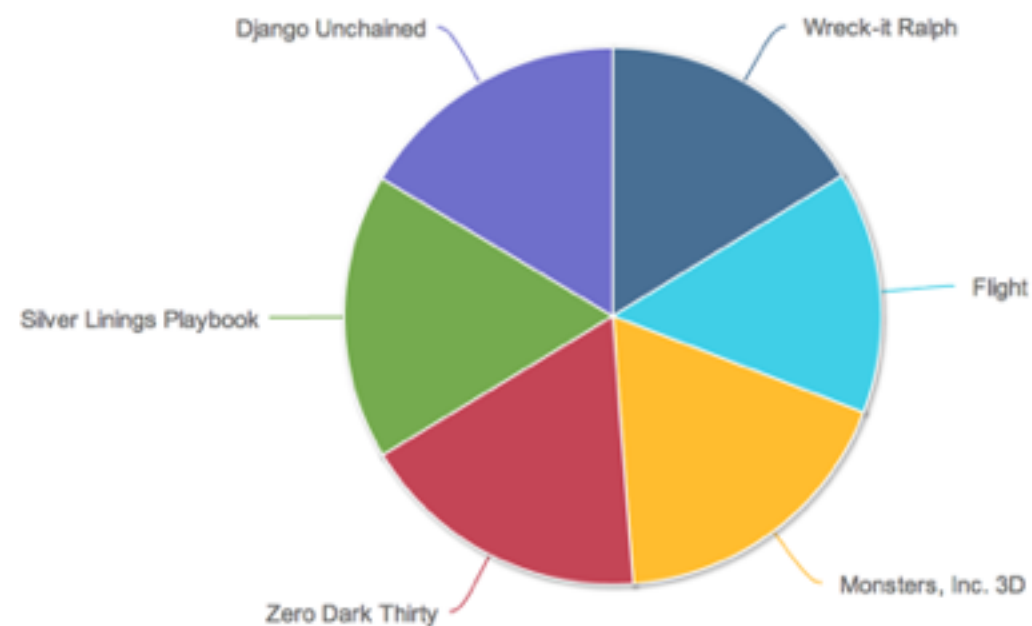
NOTES

- Remember to:
- Zoom in and out in the Sales view
 - Filter the transactions and drag a set of them to the Reports tab
 - Create a new report
 - Change the schedule of the movie theater

TOP 10 TITLES BY REVENUE

	Title	Revenue
1	Skyfall	\$61266.4
2	Wreck-it Ralph	\$57261.37
3	Silver Linings Playbook	\$54930.16
4	Lincoln	\$54785.75
5	Life of Pi	\$49687.61
6	Flight	\$46322.71
7	Monsters, Inc. 3D	\$41018.66
8	Django Unchained	\$35166.89
9	Rise of the Guardians	\$34929.45
10	The Impossible	\$29322.2

POPULAR MOVIES



- DASHBOARD
- SALES
- TRANSACTIONS
- REPORTS
- SCHEDULE

	SUN 2/3/13	MON 2/4/13	TUE 2/5/13	WED 2/6/13	THU 2/7/13	FRI 2/8/13	SAT 2/9/13
11:00 AM							
12 PM							
1 PM							
2 PM							
2:17 PM							
3 PM							
4 PM							
5 PM							
6 PM							
6:23 PM							
7 PM							
8 PM							
8:23 PM							
9 PM							
10 PM							

Les Miserables



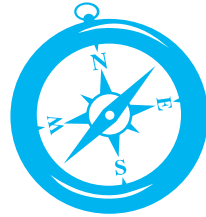
Date 07-00-2013
 Starts 11:00 AM
 Ends 01:50 PM
 Duration 170 minutes
 Synopsis Set against the backdrop of 19th-century France, Les Miserables tells an enthralling story of broken dreams and unrequited love, passion, sacrifice and redemption—a timeless testament to the survival of the human spirit. Jackman plays ex-prisoner Jean Valjean, hunted for decades by the ruthless policeman Javert (Crowe) after he breaks parole. When Valjean agrees to care for factory worker Fantine's (Hathaway) young daughter, Cosette, their lives change forever. In December 2012, the world's longest-running musical brings its power to the big screen in Tom Hooper's sweeping and spectacular interpretation of Victor Hugo's epic tale. -- (C) Universal

Close

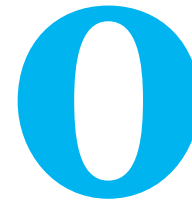
Desktop browsers



IE 6/7



Safari



Opera



IE 8



IE 9



IE 10+



Chrome



Firefox

Tablets

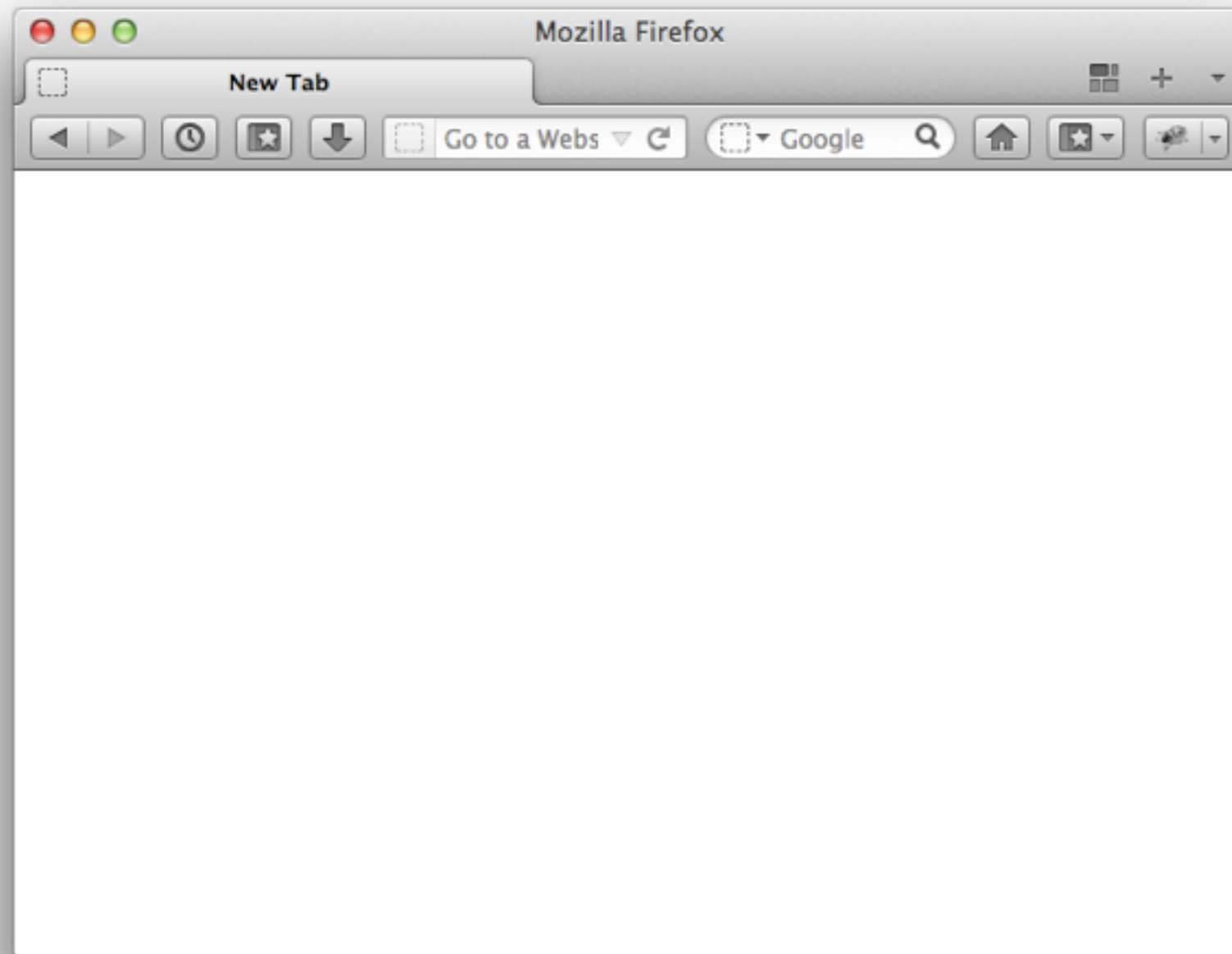
iPad
Android
Windows

Phones

iPhone
Android
WP

How does server-side UI work, really?

```
TextField name = new TextField("Name");  
Button greetButton = new Button("Greet");  
  
layout.addComponent(name, greetButton);  
  
greetButton.addClickListener(  
    e -> Notification.show("Hi " + name.getValue()));
```

- Initial HTML
- CSS (theme)
- Images
- JavaScript

1.2M total



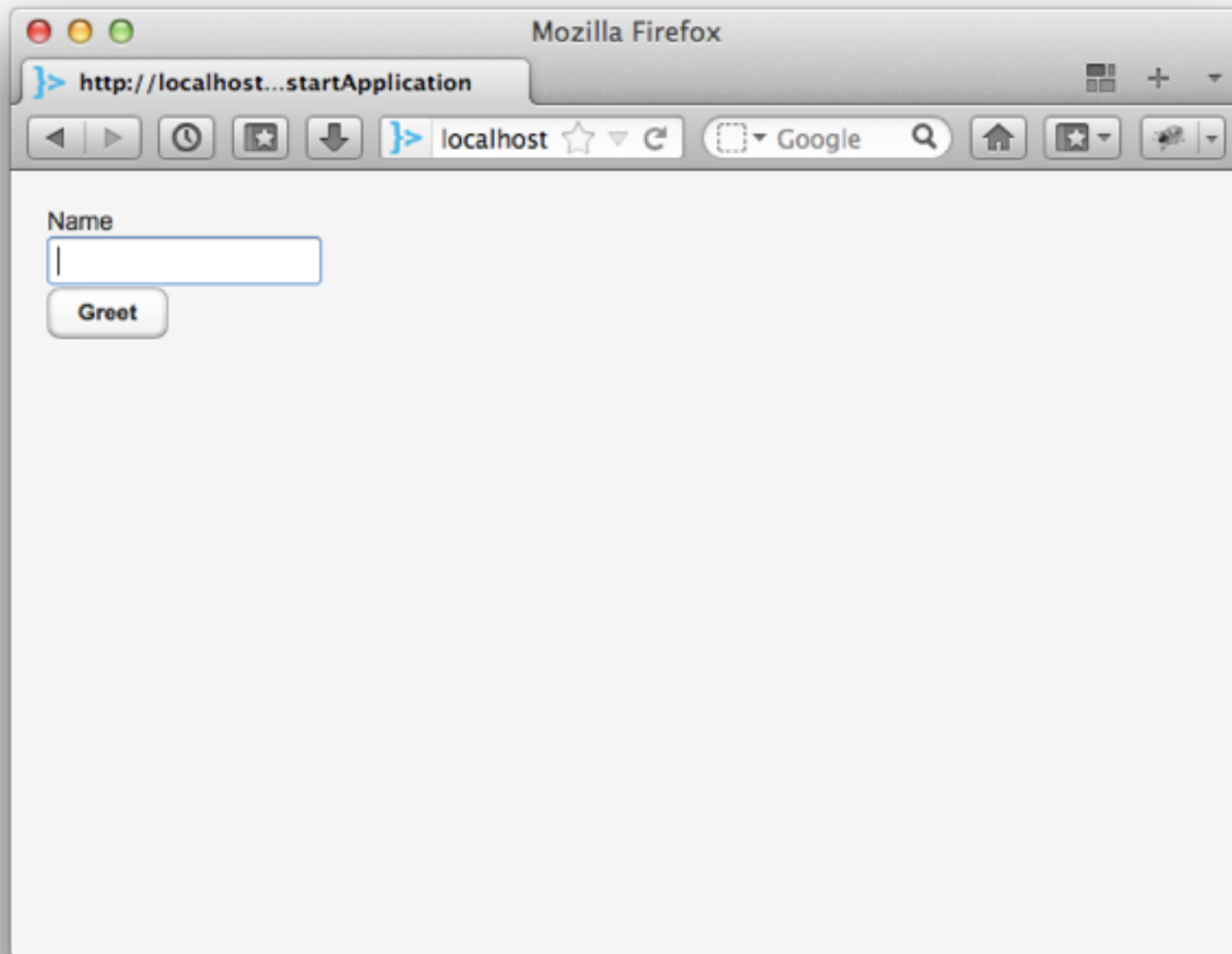
compress

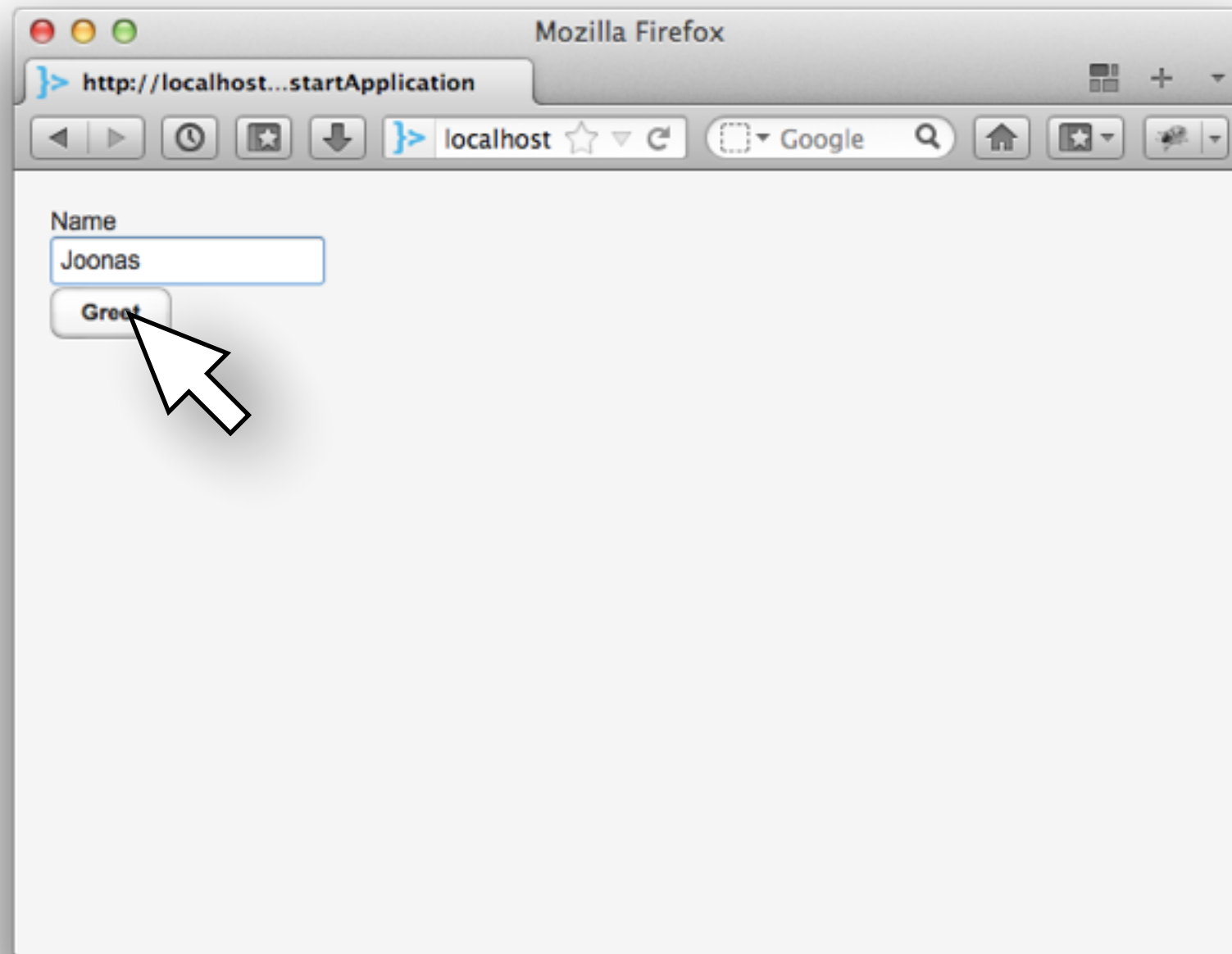
307k



**reduced
widgetset**

135k



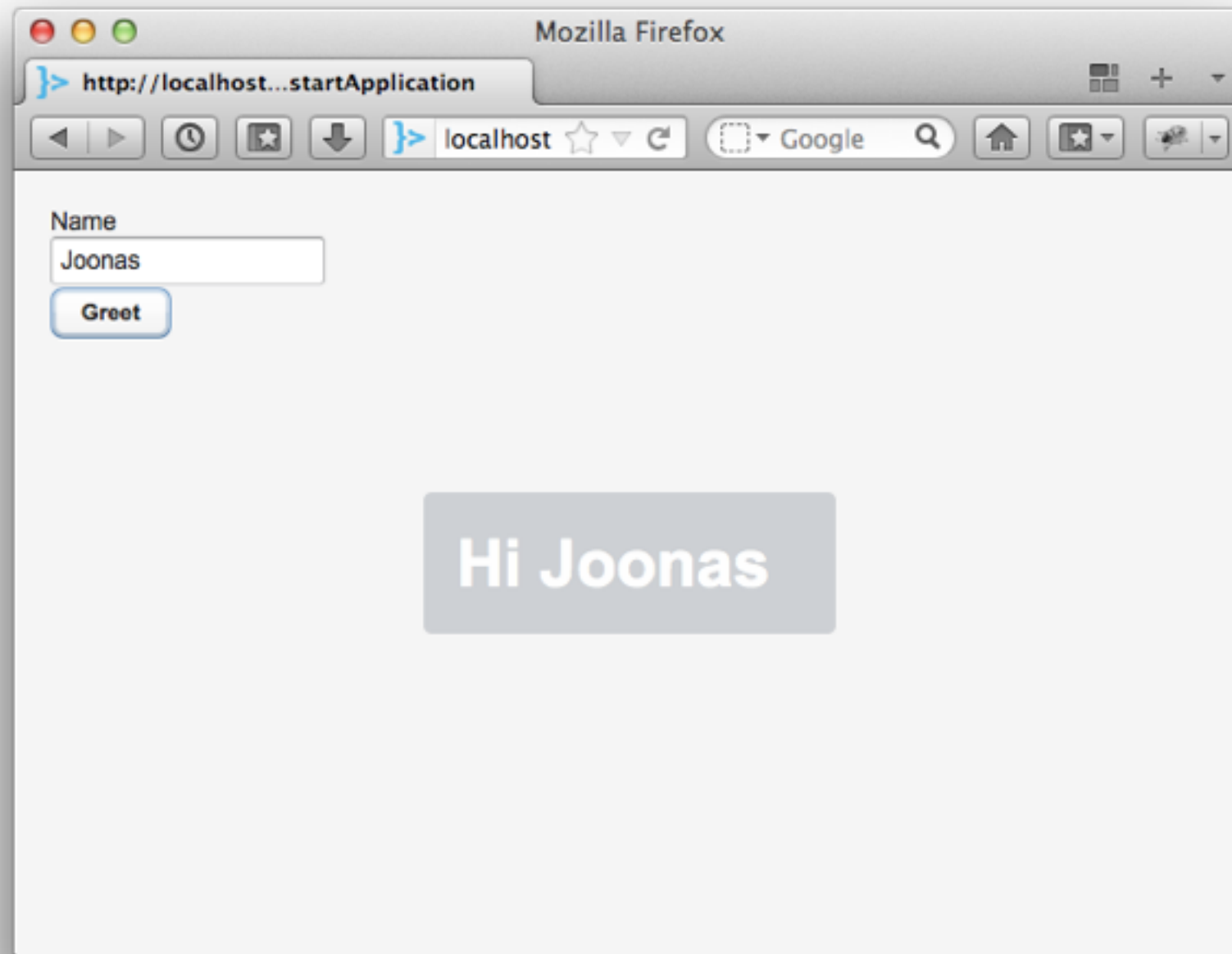


- name="Joonas"
- button clicked

261 bytes

```
TextField name = new TextField("Name");  
Button greetButton = new Button("Greet");  
  
layout.addComponent(name, greetButton);
```

```
greetButton.addClickListener(  
    e -> Notification.show("Hi " + name.getValue()));
```



- name="Joonas"
- button clicked

261 bytes



- Add notification

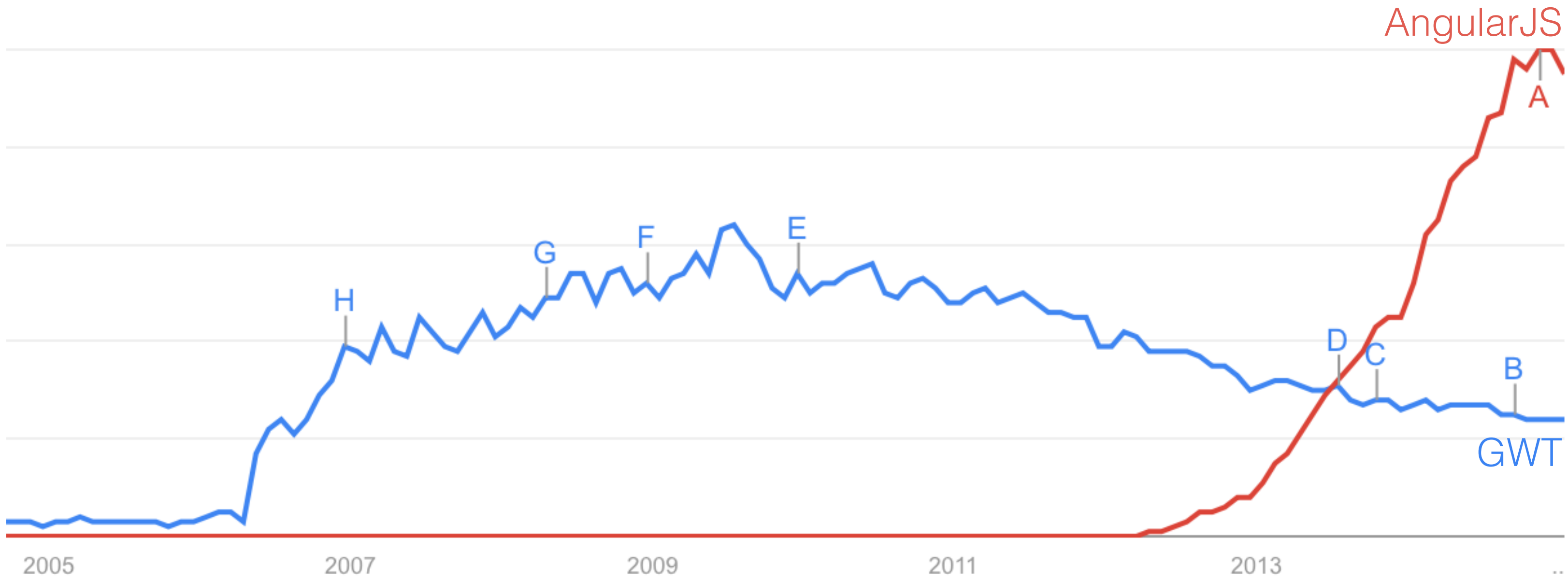
267 bytes

Trends changing **Web Frameworks**

Client -
Model View Whatever

Disruptive trend today







AngularJS: Spreadsheet for HTML

A:C17: (C2) +C5-C15

	A	B	C	D
1	INCOME SUMMARY 1988: Sloane Camera and Video			
2				
3		Q1	Q2	Q3
4	-----			
5	Net Sales	\$10,000.00	\$13,000.00	\$16,000.00
6	-----			
7				
8	Costs and Expenses:			
9	Salary	1,500.00	1,500.00	1,500.00
10	Int	1,000.00	1,200.00	1,400.00
11	Rent	350.00	350.00	350.00
12	Ads	500.00	1,000.00	2,000.00
13	COG	3,000.00	4,000.00	5,000.00
14	-----			
15	Op Exp	6,350.00	8,050.00	10,250.00
16	-----			
17	Op Income	\$3,650.00	\$4,950.00	\$5,750.00
18				
19				
20				

SUM1988S.WK3

```
=SUM(A1:A100)
```

```
<input type="text"  
  ng-model="yourName">
```

```
<h1>Hello {{yourName}}! </h1>
```

```
=SUM(A1:A100)
```

Enables

business people
to build
financial "apps"

```
<input type="text"  
ng-model="yourName">
```

Enables

designers
to build

```
<h1>Hello {{yourName}}</h1>
```

web prototypes

**Design
driven**

"Designed by
a developer"

Developer productivity

Powerful testing

Web Components

The next disruptive trend?



```
<x-gangnam-style>  
</x-gangnam-style>
```





CUSTOM ELEMENTS

This specification describes the method for enabling the author to define and use new types of DOM elements in a document.



HTML IMPORTS

HTML Imports are a way to include and reuse HTML documents in other HTML documents.



TEMPLATES

This specification describes a method for declaring inert DOM subtrees in HTML



SHADOW DOM

This specification describes a method of establishing and maintaining functional boundaries between DOM trees

The background features a light gray gradient with several large, white, organic, blob-like shapes scattered across it. At the bottom, there are three white circles of varying sizes. The word "disruptive" is centered in a bold, black, sans-serif font.

disruptive

Simplification

Reusability

Robustness

Enables

developers & designers
to build UIs that would
otherwise be too hard or
expensive

Component oriented web frameworks

vaadin }>



ext js

Automated Communication

Statically typed Java

Statically typed Java

Components

Components



GWT



Automated Communication

Statically typed Java

Statically typed Java



METE  **R**





Disruption

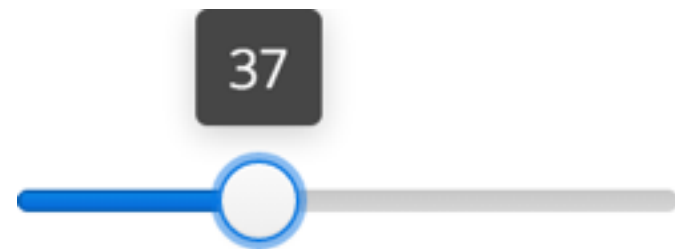
Opportunity :)

The Vaadin logo is a large, white, stylized letter 'V' on a blue background. The 'V' is composed of two thick, rounded strokes that meet at the top and bottom, creating a central negative space. The top stroke curves to the right, and the bottom stroke curves to the left, giving it a dynamic, flowing appearance.

Vaadin Components

Vaadin Components 0.1

`<v-slider>`



`</v-slider>`

`<v-grid>`

	2012		2013	
Item	H1	H2	H1	H2
<input type="text" value="Filter"/>				
Development	\$3,257.69	\$5,106.88	\$8,485.62	\$7,384.9
Maintenance	\$2,917.32	\$4,526.13	\$2,821.95	\$7,910.2
Sales	\$8,979.92	\$3,819.35	\$7,038.58	\$7,693.7
Support	\$3,245.45	\$8,778.59	\$9,495.74	\$4,529.7
Consulting	\$6,436.85	\$4,649.55	\$1,917.99	\$3,929.7
	\$86,282.84	\$112,847.87	\$121,991.67	\$109,548.7

`</v-grid>`

`<v-progress-bar>`



`</v-progress-bar>`

Valo

A completely new look and feel for your applications.



Login Register

User Name

Password

[Forgot your password?](#)

gin Register

User Name

Password

[Forgot your password?](#)

Login Register

User Name

Password

[Forgot your password?](#)

Login Register

User Name

Password

[Forgot your password?](#)

Login Register

User Name

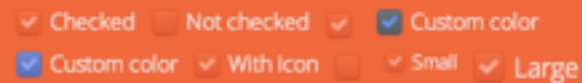
Password

[Forgot your password?](#)

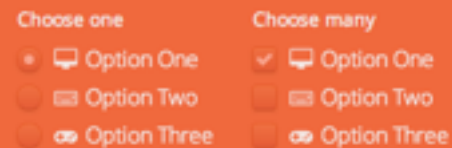
Menu Bars



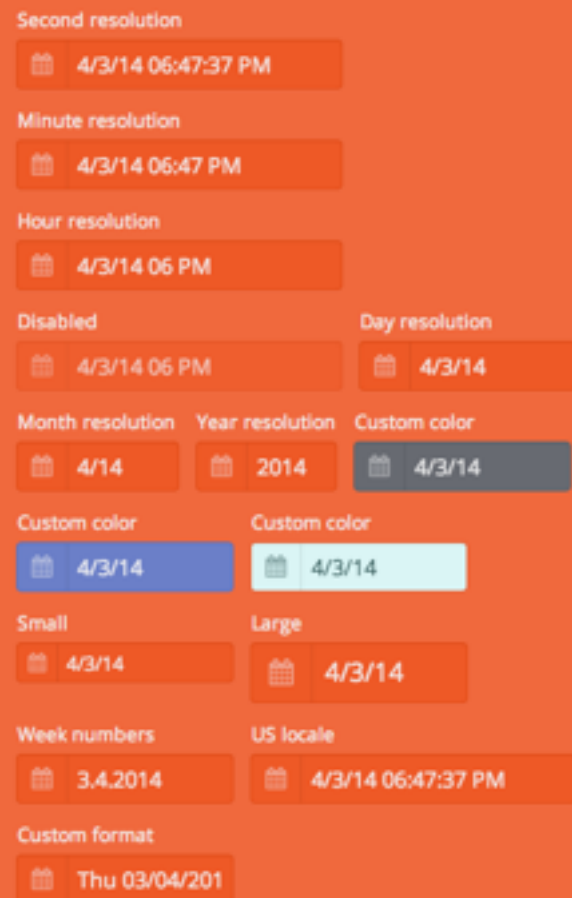
Check Boxes



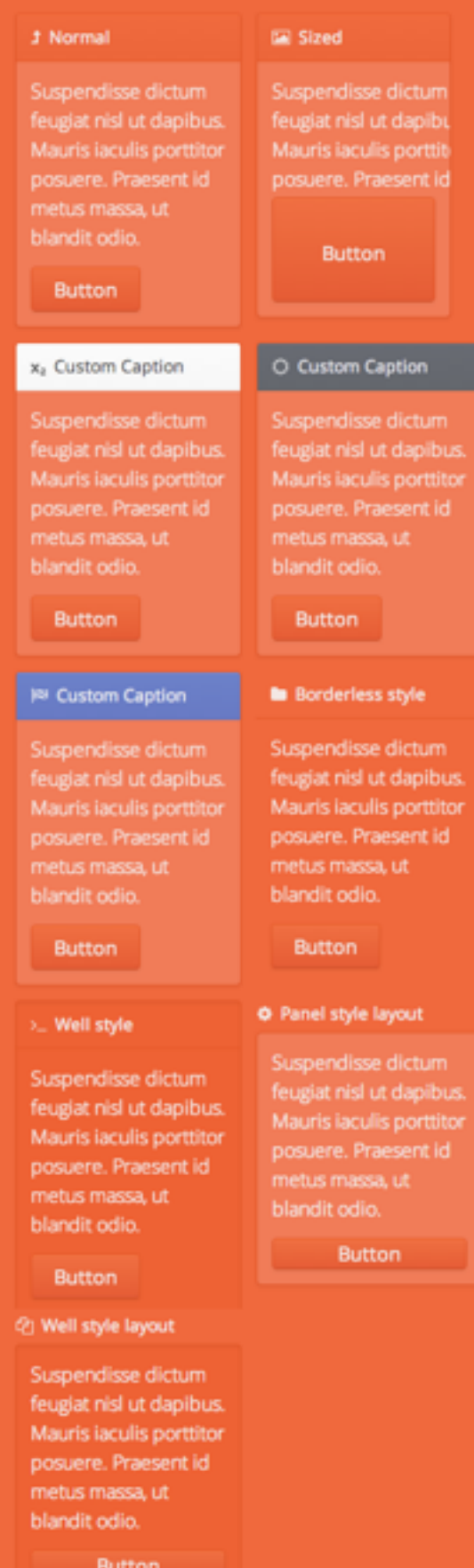
Option Groups



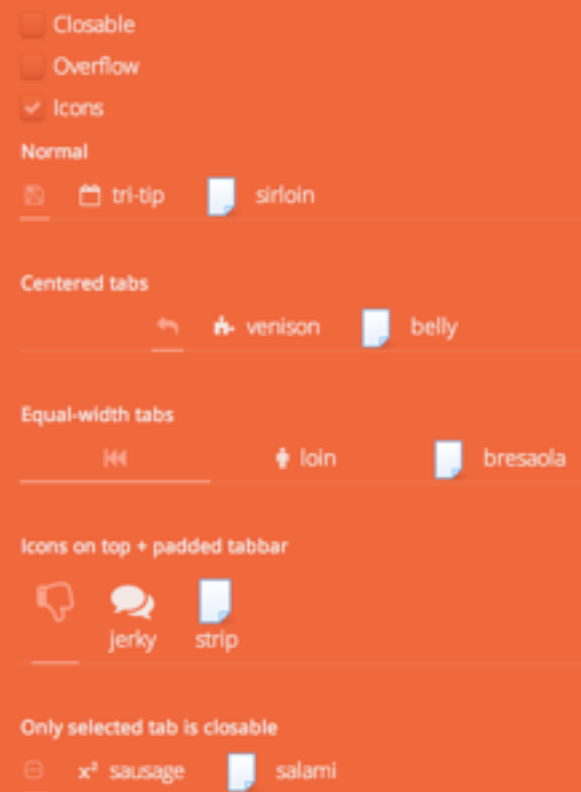
Date Fields



Panels & Layout panels



Tabs



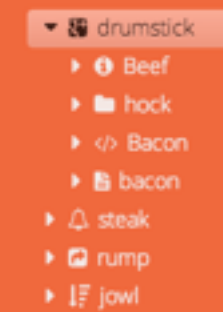
Color Pickers



Accordions



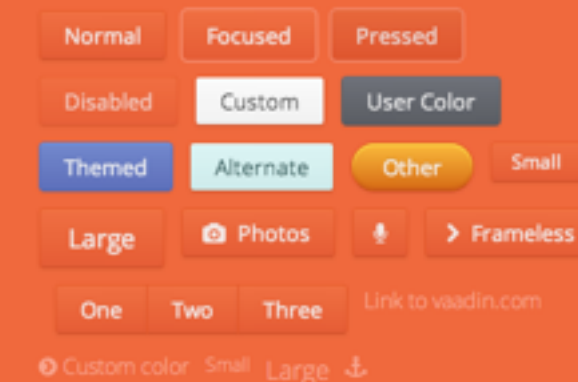
Tree



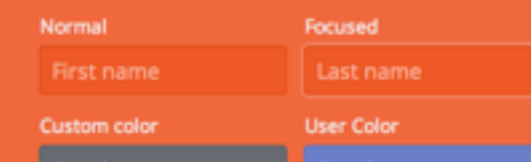
Tables



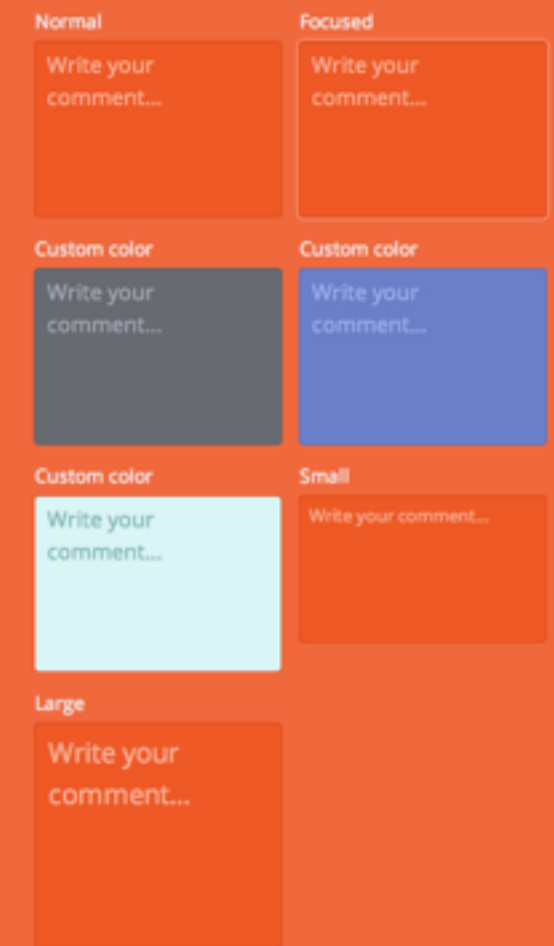
Buttons



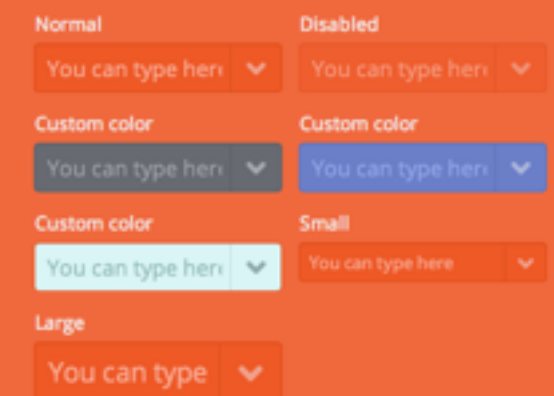
Text Fields



Text Areas



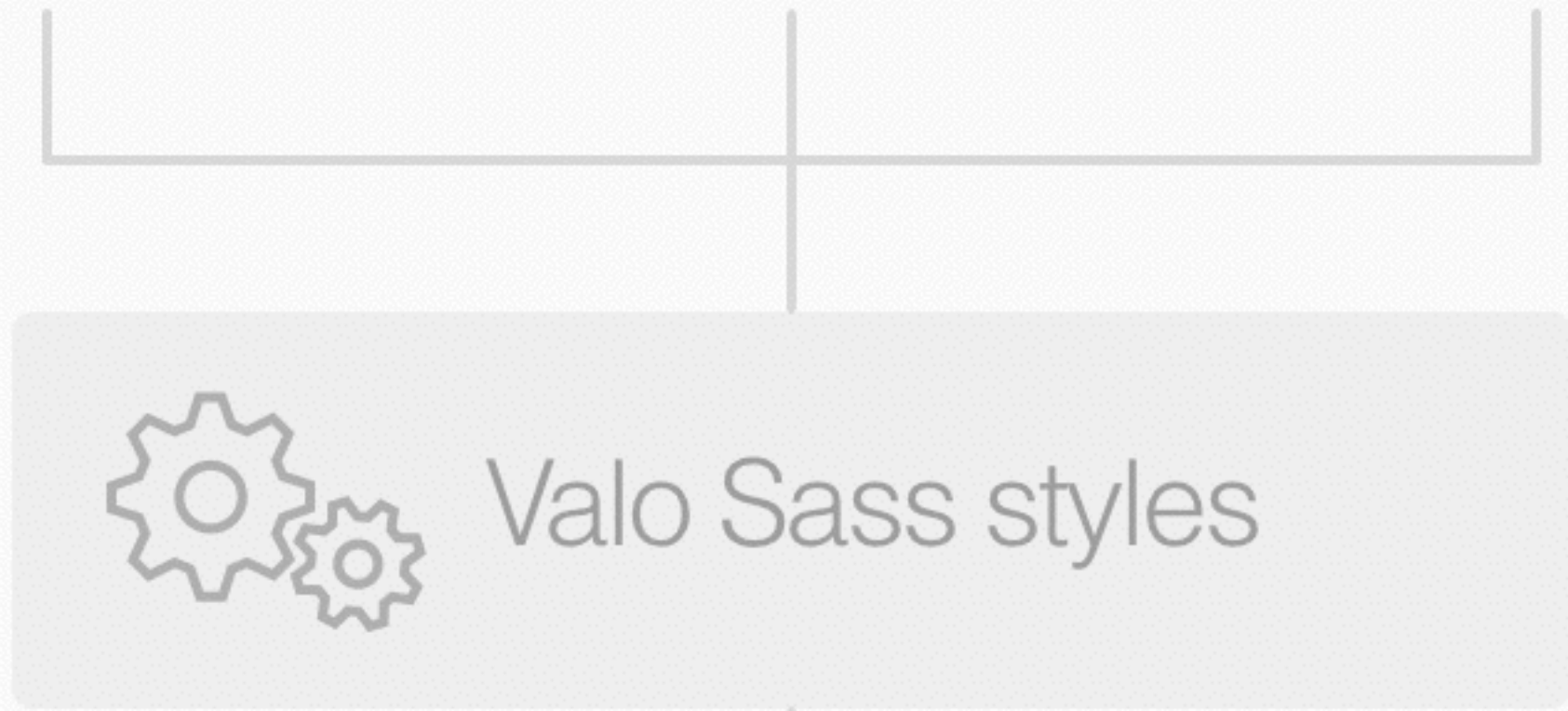
Combo Boxes



Theme 1
variables

Theme 2
variables

Theme 3
variables





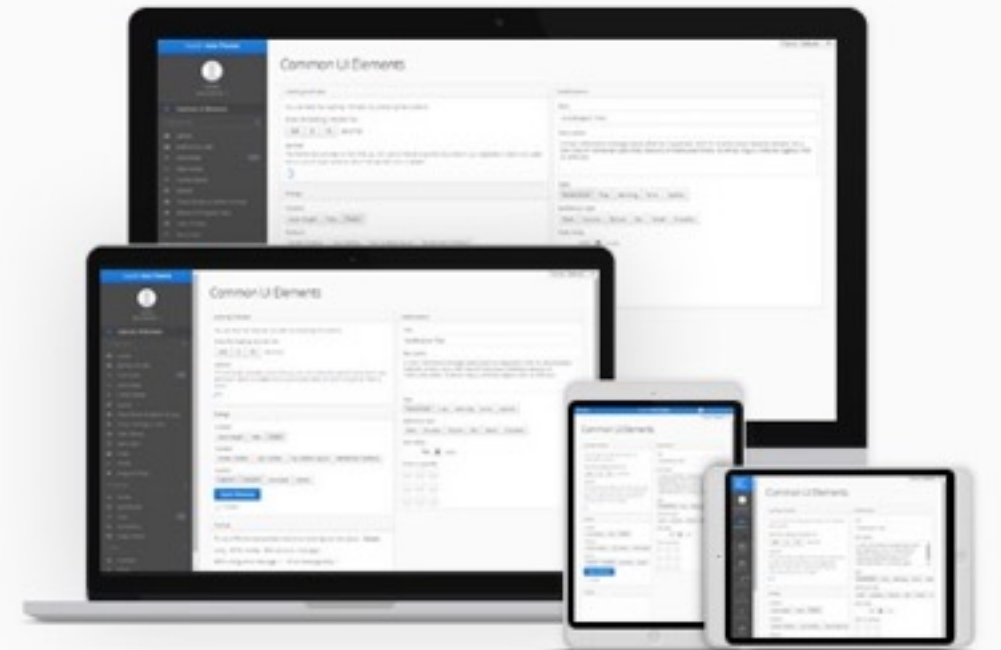
9/14



9/14



9/14



Valo Theme Test

demo.vaadin.com/valo-theme/#!/common

Vaadin Valo Theme

Color Pickers

Menu Bars

Trees

Tables

Drag and Drop

Containers 5

Panels

Split Panels

Tabs 123

Accordions

Common UI Elements

Loading Indicator

You can test the loading indicator by pressing the button below.

Show the loading indicator for...

0.8 3 15 seconds

Spinner

The theme also provides a mixin that you can use to add a spinner to your application. The button below reveals which the spinner mixin is added.

Show spinner

Notifications

Title

Notification Title

Description

Common UI Elements

Components 13

Labels

Buttons & Links

Text Fields 123

Date Fields

Valo Theme Test

demo.vaadin.com/valo-theme/#!/tables

Theme: Metro

Tables

Hierarchical
 Footer
 Sized
 Expand ratios
 Stripes
 Vertical lines

Horizontal lines
 Borderless
 Compact
 Small
 Row index

Row caption
 Row icon
 Row count

caption	icon
Lorem ipsum	MICROPHONE
Consectetur quid	CHEVRON
Eu fugiat	CHEVRON
Ipsum dolor	CHILD
Quid securi	CIRCLE
Fugiat nulla	CIRCLE

Valo Theme Test

demo.vaadin.com/valo-theme/#!/

Vaadin Valo Theme

Theme: Default

No indicator

With ticks (not in IE8 & IE9)

Toggle imitation

Vertical

Vertical, sized

Custom handle

**Super fast
lazy loading
rendering engine**

Mobile friendly

<v-grid>

Renderers

Complex headers and footers



Vaadin Labs

- stuff is still experimental
- timeline is not set.

vaadin }>

Automated Communication

Statically typed Java

Components

vaadin }> Framework

Automated Communication

Statically typed Java

vaadin }> Components

web Components



<v-component> / JS API

AngularJS
API

GWT
API

Automatic
communication

Java Server
API

Edit customer

First name

Last name

Email *

Birth day

Status

Save

Cancel



```

<v-absolute-layout id="absoluteLayout">
  <v-label id="label" size-auto="true" :top="0px" :left="21px">
    <h3>Edit customer</h3>
  </v-label>
  <v-form-layout id="formLayout" margin="" :top="69px" :right="22px" :left="20px">
    <v-text-field caption="First name" id="firstName" width-full="true"></v-text-field>
    <v-text-field caption="Last name" id="lastName" width-full="true"></v-text-field>
    <v-text-field caption="Email" required="true" id="email"></v-text-field>
    <v-popup-date-field caption="Birth day" id="birthDay"></v-popup-date-field>
    <v-native-select caption="Status" id="status"></v-native-select>
  </v-form-layout>
  <v-horizontal-layout spacing="true" id="horizontalLayout" width="100%"
    :right="22px" :bottom="17px" :left="20px">
    <v-button style-name="primary" id="save" plain-text="">Save</v-button>
    <v-button id="cancel" plain-text="">Cancel</v-button>
    <v-button style-name="FontAwesome" id="delete" plain-text="" :e
  </v-horizontal-layout>
</v-absolute-layout>

```

Edit customer


First name

Last name

Email *

Birth day

Status

Save Cancel 

design.html



Edit customer

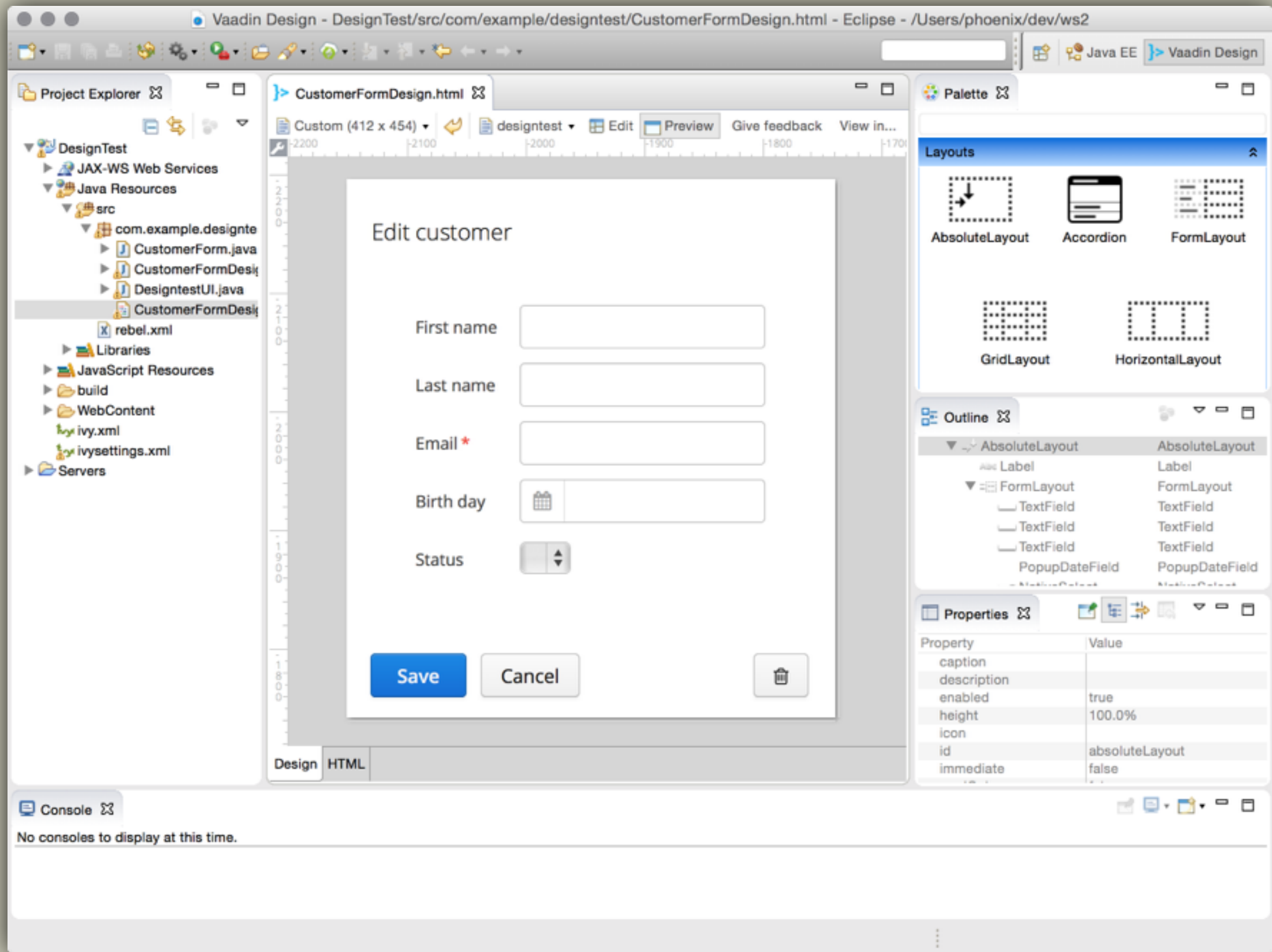
First name

Last name

Email*

Birth day

Status



Project Explorer

- DesignTest
 - JAX-WS Web Services
 - Java Resources
 - src
 - com.example.designtest
 - CustomerForm.java
 - CustomerFormDesign.html
 - DesigntestUI.java
 - CustomerFormDesign.html
 - rebel.xml
 - Libraries
 - JavaScript Resources
 - build
 - WebContent
 - ivy.xml
 - ivysettings.xml
 - Servers

CustomerFormDesign.html

Custom (412 x 454) | designtest | Edit | Preview | Give feedback | View in...

Edit customer

First name

Last name

Email *

Birth day

Status

Design | HTML

Palette

Layouts

- AbsoluteLayout
- Accordion
- FormLayout
- GridLayout
- HorizontalLayout

Outline

- AbsoluteLayout
 - Label
- FormLayout
 - TextField
 - TextField
 - TextField
 - PopupDateField
 - NativeDateField

Properties

Property	Value
caption	
description	
enabled	true
height	100.0%
icon	
id	absoluteLayout
immediate	false

Console

No consoles to display at this time.

Vaadin Design - DesignTest/src/com/example/designtest/CustomerFormDesign.html - Eclipse - /Users/phoenix/dev/ws2

Project Explorer

- DesignTest
 - JAX-WS Web Services
 - Java Resources
 - src
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 - CustomerForm.java
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 - DesigntestUI.java
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 - rebel.xml
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 - JavaScript Resources
 - build
 - WebContent
 - ivy.xml
 - ivysettings.xml
 - Servers

*CustomerFormDesign.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset="UTF-8" name="design-properties" content="{&quot;gridl
5 </head>
6 <body>
7 <v-absolute-layout caption="" id="absolutelayout">
8 <v-label id="label" size-auto="true" :top="@px" :left="21px">
9 <h3>Edit customer</h3>
10 </v-label>
11 <v-form-layout id="formLayout" margin="" :top="69px" :right="22px">
12 <v-text-field caption="First name" id="firstName" width-full="true
13 <v-text-field caption="Last name" id="lastName" width-full="true">
14 <v-text-field caption="Email" required="true" id="email" width-ful
15 <v-popup-date-field caption="Birth day" id="birthDay" width-full=
16 <v-native-select caption="Status" id="status"></v-native-select>
17 </v-form-layout>
18 <v-horizontal-layout spacing="true" id="horizontalLayout" width-ful
19 <v-button style-name="primary" id="save" plain-text="">
20 Save
21 </v-button>
22 <v-button id="cancel" plain-text="">
23 Cancel
24 </v-button>
25 <v-button style-name="FontAwesome" id="delete" plain-text="" :right
26 </v-button>
27 </v-horizontal-layout>
28 </v-absolute-layout>
29 </body>
30 </html>
```

Palette

Layouts

- AbsoluteLayout
- Accordion
- FormLayout
- GridLayout
- HorizontalLayout

Outline

- AbsoluteLayout
 - Label
- FormLayout
 - TextField
 - TextField
 - TextField
 - TextField
 - PopupDateField
 - NativeSelect

Properties

Property	Value
caption	
description	
enabled	true
height	100.0%
icon	
id	absoluteLayout
immediate	false

Console

No consoles to display at this time.

DOCTYPE:html

Vaadin Design - DesignTest/src/com/example/designtest/CustomerFormDesign.html - Eclipse - /Users/phoenix/dev/ws2

Project Explorer

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 - rebel.xml
 - Libraries
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 - build
 - WebContent
 - ivy.xml
 - ivysettings.xml
 - Servers

*CustomerFormDesign.html

Custom (412 x 454) | designtest | Edit | Preview | Give feedback | View in...

External computer and devices that are able to connect to your computer can view the design using this URL.

<https://10.0.1.7:53533/oded>

Only show browsers on this computer

First name

Last name

Email *

Birth day

Status

Save Cancel

Palette

Layouts

- AbsoluteLayout
- Accordion
- FormLayout
- GridLayout
- HorizontalLayout

Outline

- AbsoluteLayout
 - Label
 - FormLayout
 - TextField
 - TextField
 - TextField
 - PopupDateField
 - NativeDateField

Properties

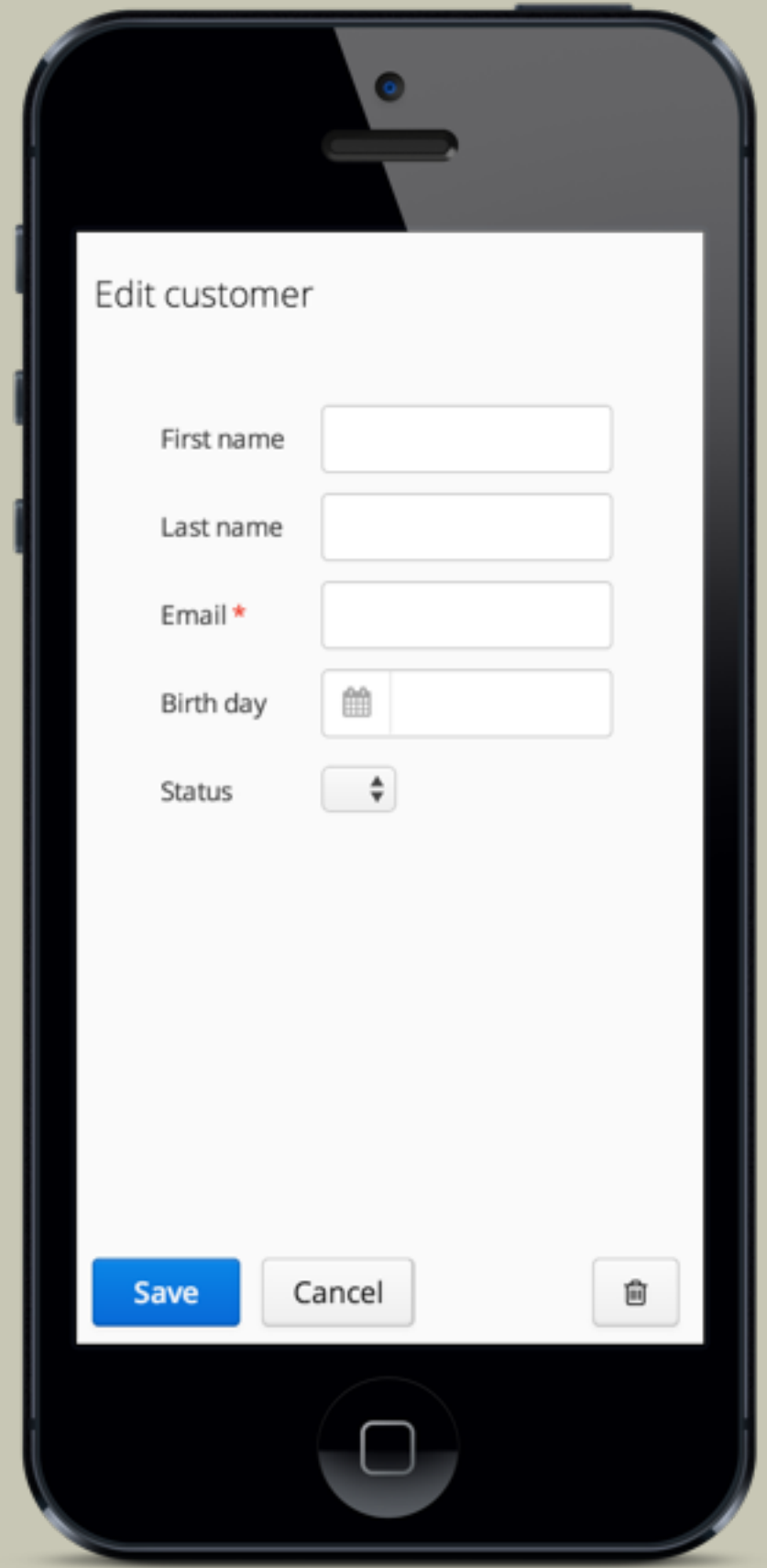
Property	Value
caption	
description	
enabled	true
height	100.0%
icon	
id	absoluteLayout
immediate	false

Design HTML

Console

No consoles to display at this time.

DOCTYPE:html



design.html



vaadin }>
Framework



Edit customer

First name

Last name

Email*

Birth day

Status

vaadin }>
Designer

design.html



vaadin }>
Framework



Edit customer

First name

Last name

Email*

Birth day

Status

vaadin }>
Designer

vaadin }>
Components

design.html



Edit customer

First name

Last name

Email*

Birth day

Status



Not if, but when?

**Do web components
actually work?**



CUSTOM ELEMENTS

This specification describes the method for enabling the author to define and use new types of DOM elements in a document.



HTML IMPORTS

HTML Imports are a way to include and reuse HTML documents in other HTML documents.



TEMPLATES

This specification describes a method for declaring inert DOM subtrees in HTML

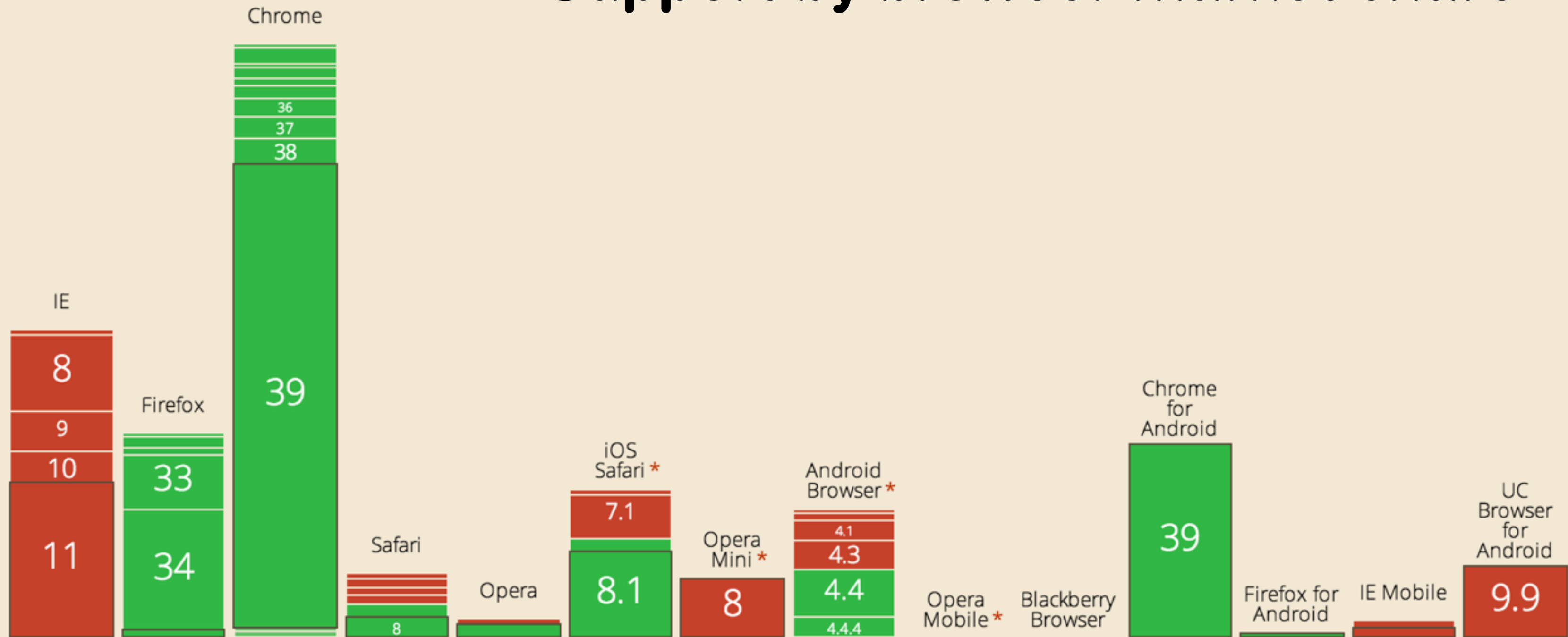


SHADOW DOM

This specification describes a method of establishing and maintaining functional boundaries between DOM trees

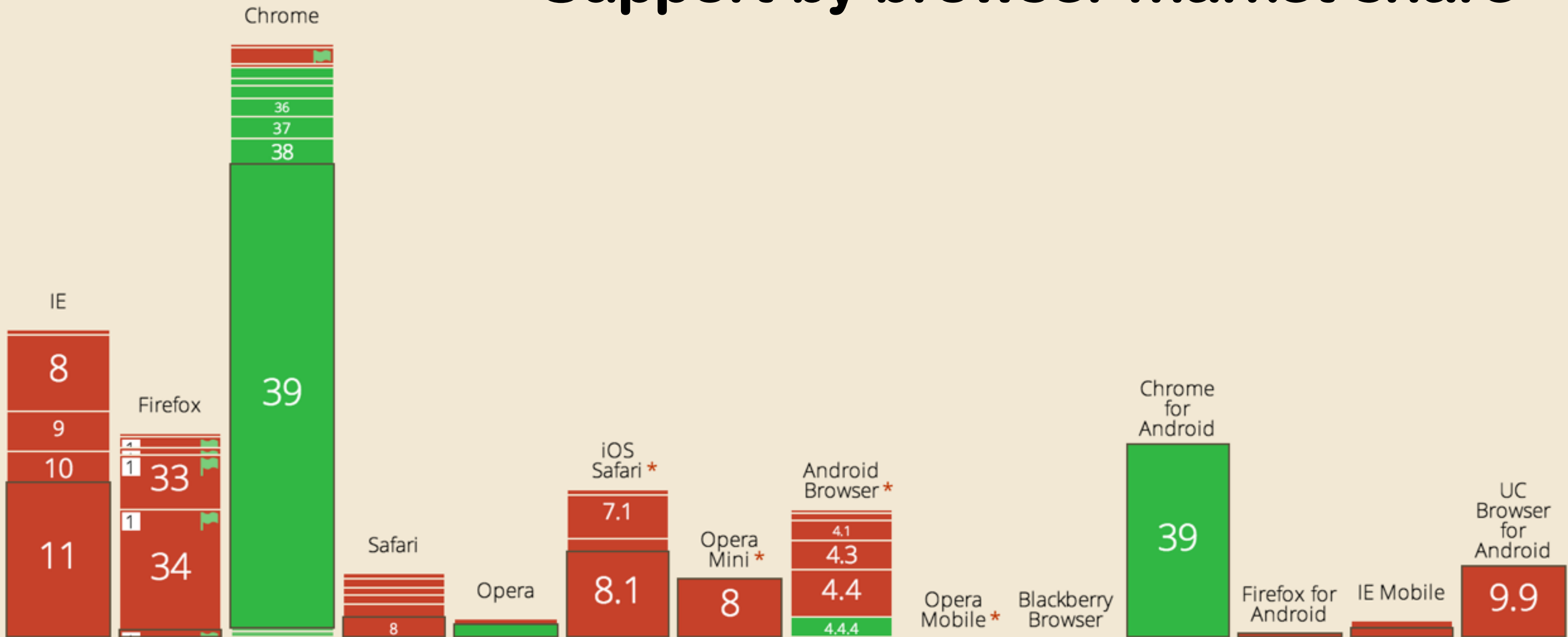
HTML Template

Support by browser market share



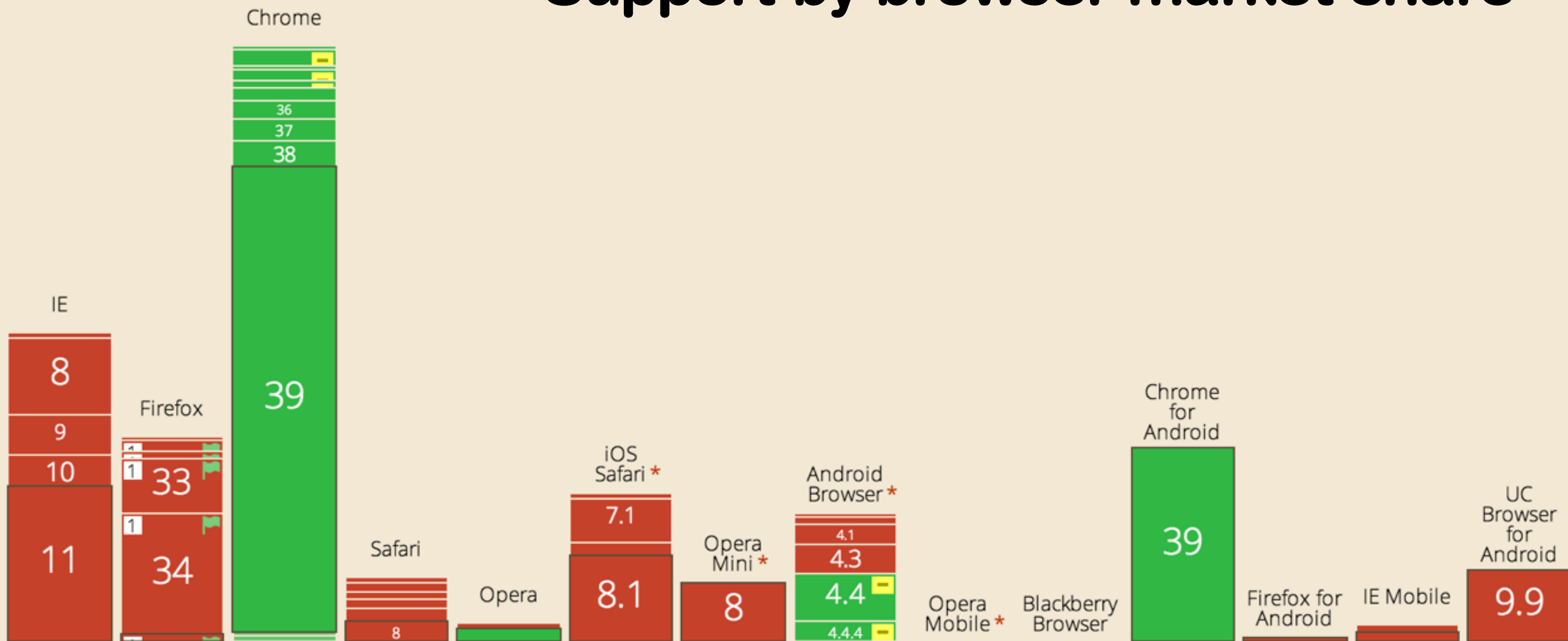
Custom Elements

Support by browser market share



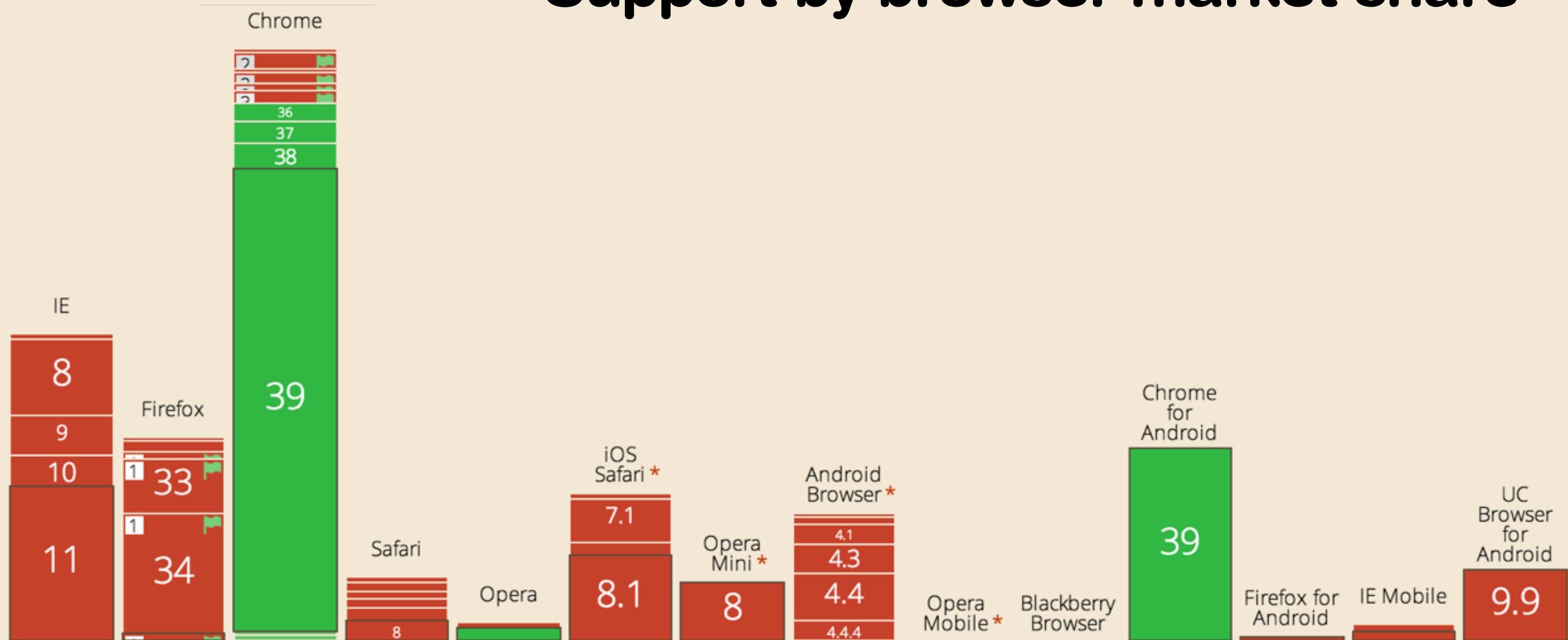
Shadow DOM

Support by browser market share




















HTML Import

Support by browser market share



Summary

Only works in blink

	CHROME	OPERA	FIREFOX	SAFARI	IE
HTML Template					
Custom Element					
Shadow DOM					
HTML Import					

Do web components
actually work?

No, but Yes :)

webcomponents.js
Polyfill

<http://webcomponents.org/polyfills/>



Web Components

Custom Elements

HTML Imports

Shadow DOM

DOM

WeakMap

Mutation Observers

Timeline

When could you really use web components

Evergreen browsers (polyfilled)

With full CSS sandbox (native)

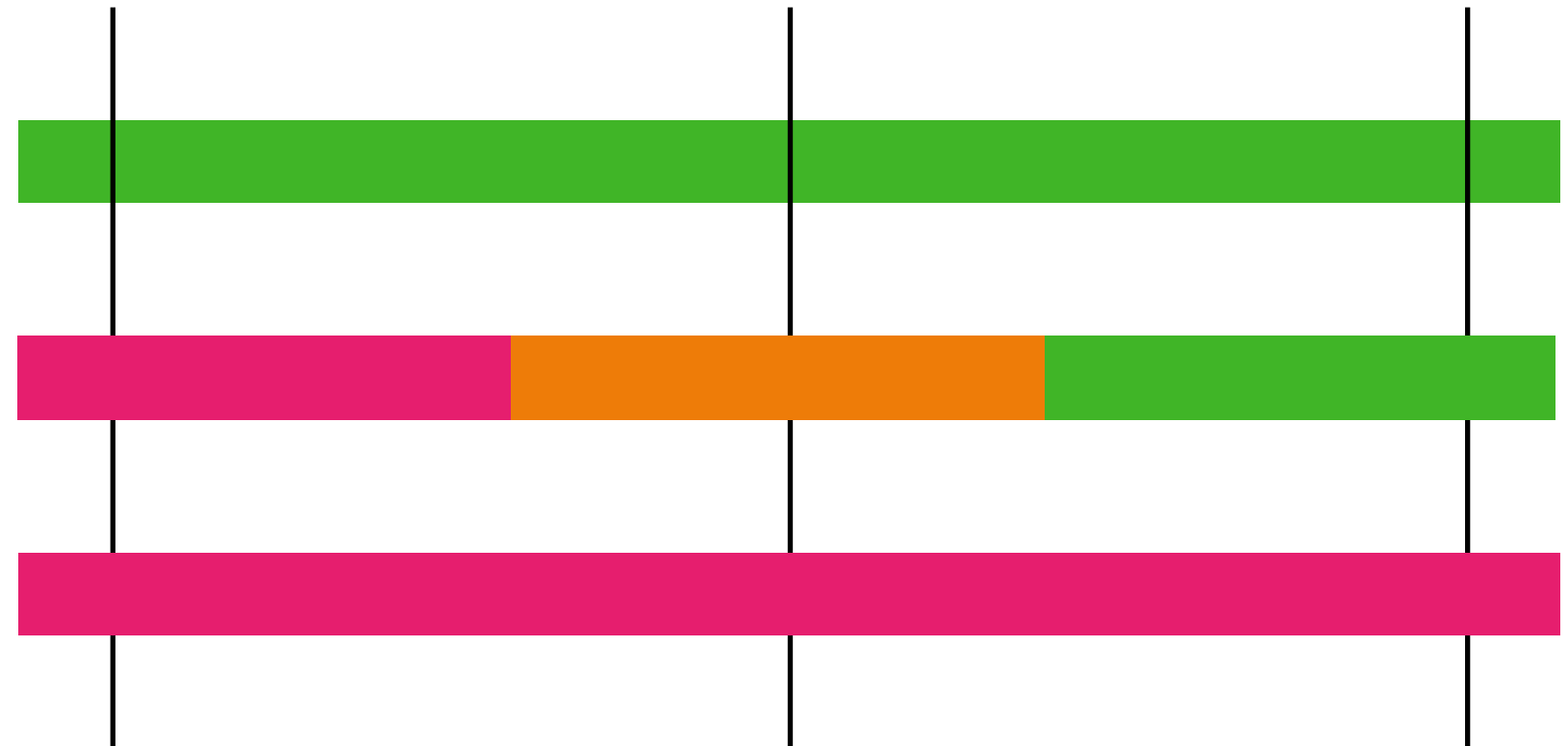
Old browsers

IE <10, Safari <6, < latest iOS/FF/Chrome/Android

Today

Soonish?

∞



Building Web Components

With GWT

<v-grid>

193 files

32 kLOC

17 months

5 persons

No human sacrifices ;)

</v-grid>

```
Elements.registerElement("v-grid", new WCVGrid());
```

```
@JsExport
```

```
@JsType
```

```
public class WCVGrid extends HTMLElement.Prototype implements Lifecycle.Attached {  
    private Grid<JsArrayMixed> grid = new Grid<>();
```

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public void attachedCallback() {  
    HTMLShadow shadow = createShadowRoot();  
    shadow.appendChild(style);  
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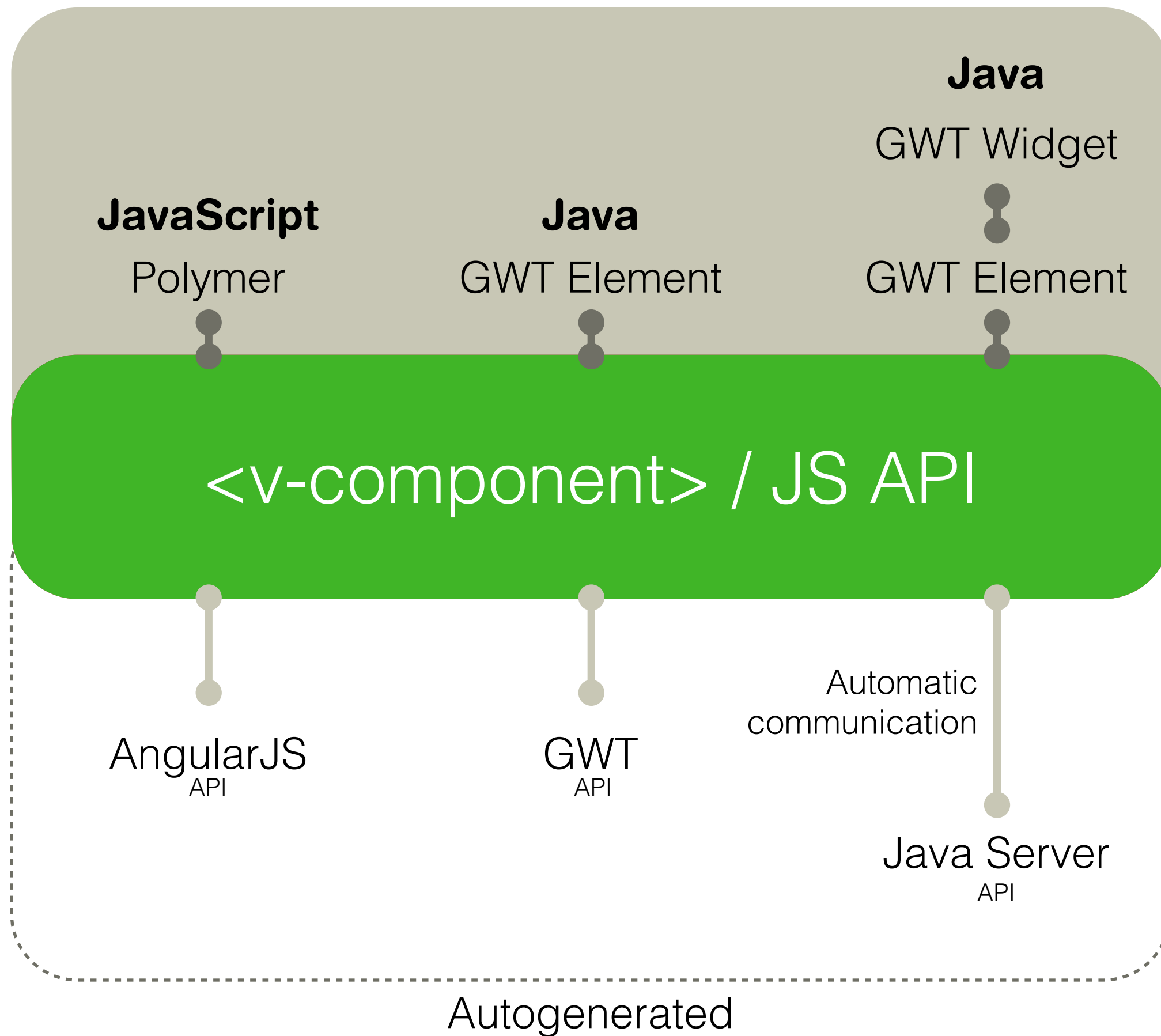
<v-component> / JS API

AngularJS
API

GWT
API

Automatic
communication

Java Server
API

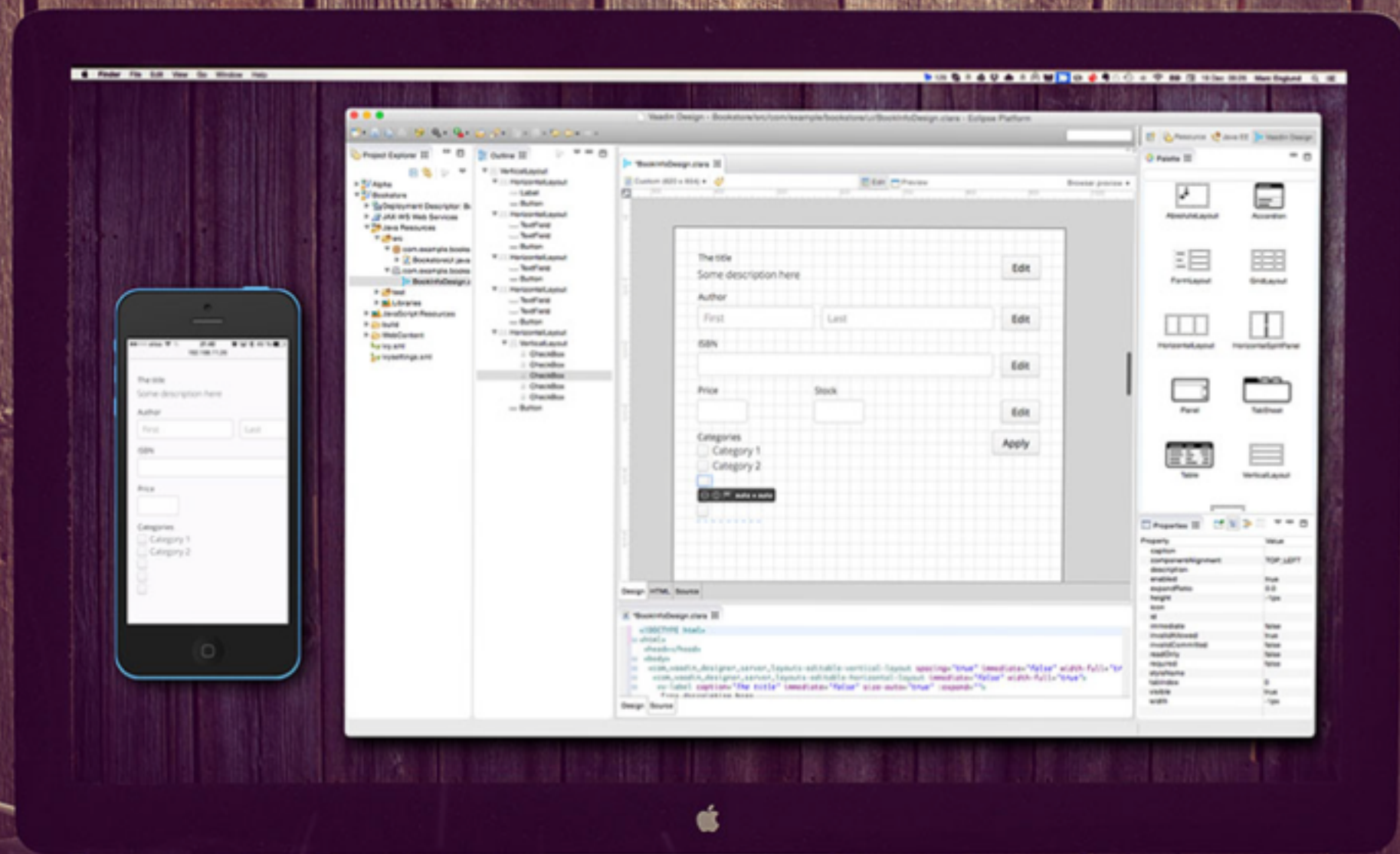


github.com/vaadin/components

Getting started



Designer






Vaadin Labs

vaadin.com/labs



Elements

Slider



Buttons

BASIC BUTTON

NOT RAISED

Java

```
@Tag("paper-slider")
@Import("VAADIN/bower_components/paper-slider/paper-slider")
public interface PaperSlider extends Element {
    public static PaperSlider create() {
        return Elements.create(PaperSlider.class);
    }

    public double setValue(double value);

    @UpdatedBy("core-change")
    public double getValue();
}

PaperSlider slider = PaperSlider.create();
slider.setValue(50);
slider.addEventListener("change", arguments -> {
    Notification.show("Value changed: " + slider.getValue());
});
```



Vaadin Labs

vaadin.com/labs



Components

Superhero Roster

Rank	Name	Vitals	Coordinates	Status
1	The Nuclear Vet...		(40.626503, -3.69...	On a Mission
2	The Elegent Gun...		(40.189249, -3.96...	Sleeping
3	The Aqua Fighter		(40.641626, -3.75...	On a Mission
4	The Swift Whiz		(40.865964, -3.40...	On a Mission
5	Master Clever W...		(40.715796, -3.26...	Shopping
6	Cool Fighter		(40.270589, -3.49...	Training
7	Professor Dark ...		(40.275024, -3.24...	Hanging out

Close Superhero Edit

Sami Ekblad, a.k.a.
Master Clever
Wolverine

[Call Hero](#)

Vitals Heart rate Caffeine

IQ 437

Height 232 cm



Vaadin Labs

vaadin.com/labs

vaadin-components-0.1.0.zip

- [vaadin-components.js](#)
- [Polymer HTML files](#)
- [GWT API wrappers](#)
- [AngularJS support](#)

Read more at <http://vaadin.com/labs>

experimental

Bower vaadin-components

- [vaadin-components.js](#)
- Polymer HTML files
 - AngularJS support

Read more at <http://vaadin.com/labs>

experimental

cdn.vaadin.com

- [vaadin-components.js](#)
- [Polymer HTML files](#)
- [AngularJS support](#)

Read more at <http://vaadin.com/labs>

experimental

vaadin-widgets-7.4.0.jar

- Grid Widget API
 - Stable and supported
 - Wide browser support
 - IE8+
 - All the modern ones: FF, Chrome, iOS, Android, ...
- Example: <https://github.com/Artur-/grid-gwt>

Get from <http://vaadin.com/download>
or Maven

beta

vaadin }> thinking of U and I

slides

slideshare.com/joonaslehtinen
feel free to reuse :)

@joonaslehtinen

Founder & CEO
joonas@vaadin.com

vaadin }>