

Microsoft

WWW09

THE NEXT WEB NOW

<3
YOUR
WEB

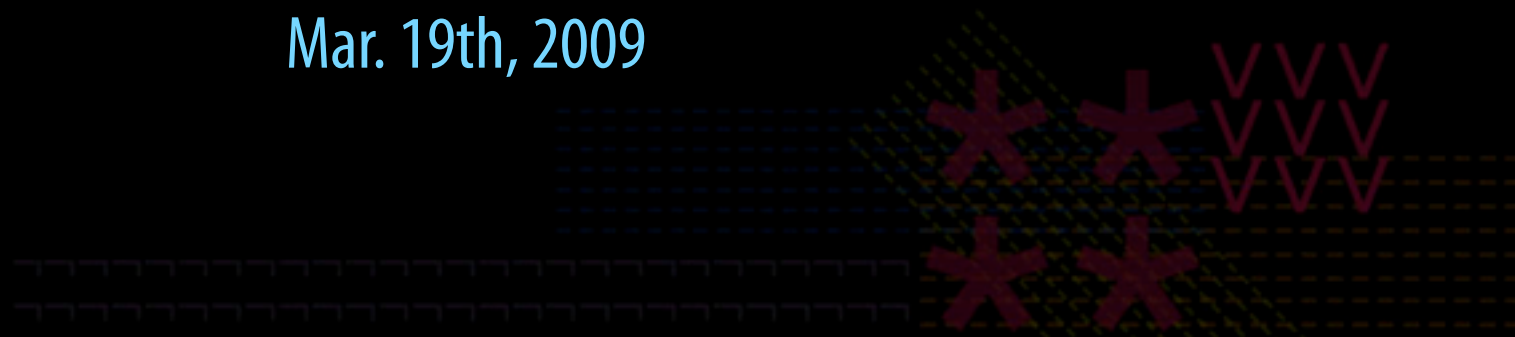
Interactive Prototyping with DHTML

tips, techniques, tools, libraries and frameworks for rapid prototyping

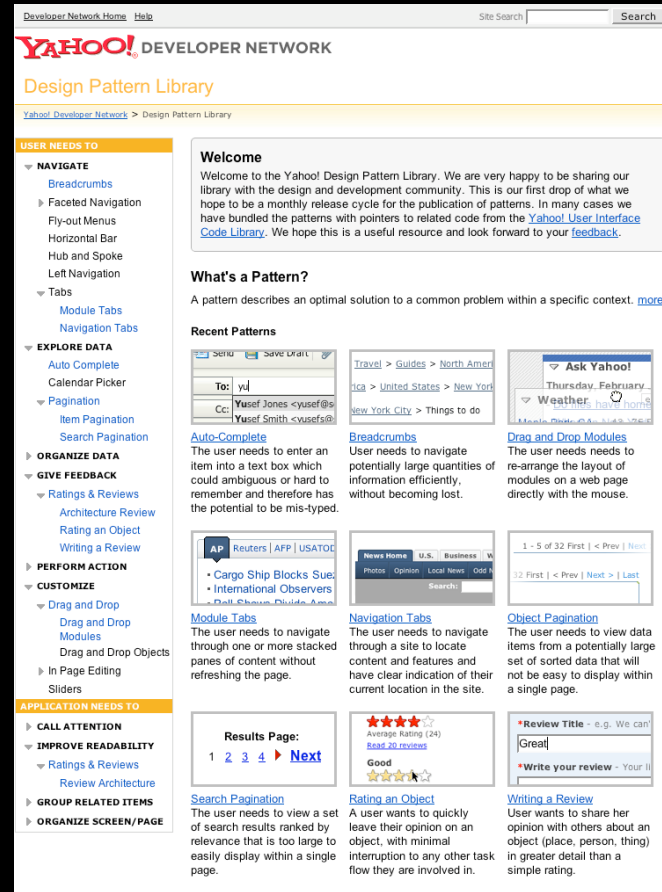
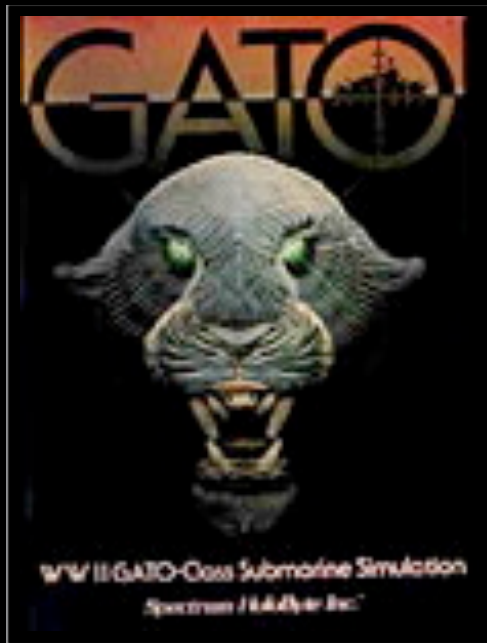
Mix 09

Bill Scott

Mar. 19th, 2009



My Background



Rico

JavaScript for Rich Internet Applications

Home Features Demos Documentation Downloads About

An open-source JavaScript library for creating rich internet applications. Rico provides full Ajax support, drag and drop management and a cinematic effects library.

BACKGROUND

Rico is a Spanish word meaning rich. The goal of Rico is to provide a rich experience for web sites using Ajax technology.

Rico is just one small part of a larger effort at Sabre Airline Solutions to create a suite of rich internet components, behaviors and effects for the web application space.

The library is a fully object-oriented JavaScript library. Recently we refactored the library to extend the excellent [prototype.js](#) effort from the Ruby on Rails folks.

OPEN SOURCE

Rico is provided free and open-source ([license 2.0 License](#)) for either your personal or commercial use. [Sabre Airline Solutions](#) retains the copyright on the Rico code produced at Sabre.

BROWSER SUPPORT

Rico has been tested on IE 5.5, IE 6, Firefox 1.0x/Win, Camino/Mac, Firefox 1.0x/Mac. Currently there is no Safari or Mac IE 5.2 support. Support will be provided in a near future release for Safari.

AJAX SUPPORT

Ajax is the term that describes a set of web development techniques for creating interactive web applications. One of the key ingredients is the JavaScript object XMLHttpRequest. Rico provides a very simple interface for registering Ajax request handlers as well as HTML elements or JavaScript objects as Ajax response objects. Multiple elements and/or objects may be updated as the result of one Ajax request. Want to get started learning? Check out our [demos](#) and then read our two Ajax tutorials on the [Documentation](#) page.

DRAG AND DROP

Desktop applications have long used drag and drop in their interfaces to simplify user interaction. Rico provides one of the simplest interfaces for enabling your web application to support drag and drop. Just register any HTML element or JavaScript object as a draggable and any other HTML element or JavaScript object as a drop zone and Rico handles the rest.

CINEMATIC EFFECTS

When actions are no longer occurring just at the page level but within the page itself, more clues are required to clue the user on what has transpired. Cinematic effects such as scaling and smooth sliding transitions can communicate change in richer ways than traditional web applications have explored before. Rico provides several cinematic effects as well as some simple visual style effects in a very simple interface.

BEHAVIORS

Take some raw HTML and sprinkle in some behaviors and what do you get? Well in Rico you can get an [Accordion](#) component like those found in Macromedia Flex and Lasso. Just nest some DIVs and with one line of JavaScript turn your div panels into an accordion. And the latest behavior is the LiveGrid. LiveGrid allows you to connect an HTML table up to a stream of Ajax responses. Ajax requests are automatically called during table scrolling. The result is now HTML tables can hold an unlimited amount of data scrolled into view on the fly as needed! More behaviors are planned!

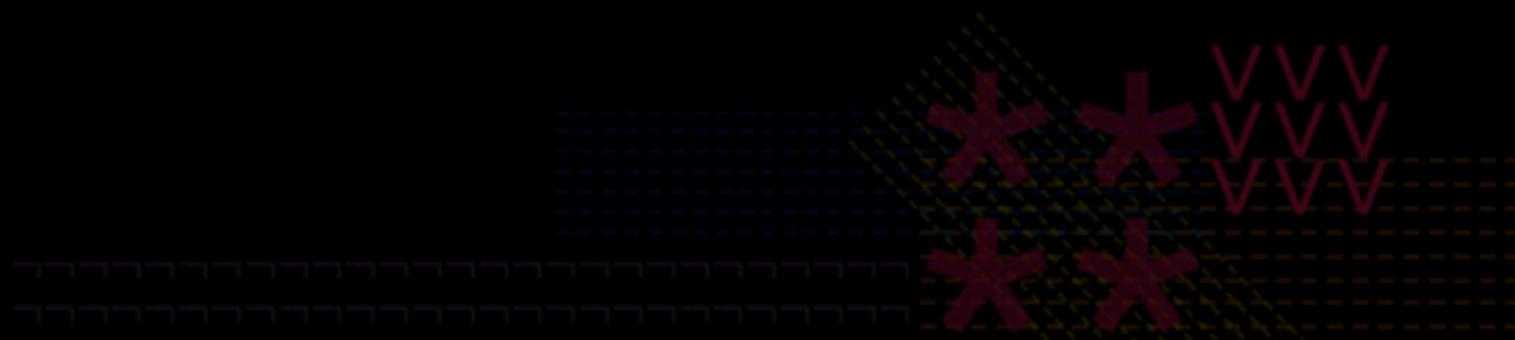
NEW! LiveGrid Behavior!



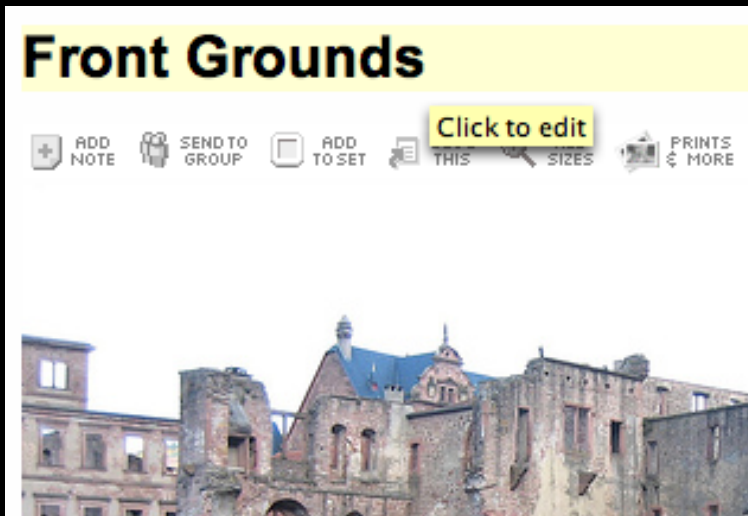
the challenge

interaction is dynamic

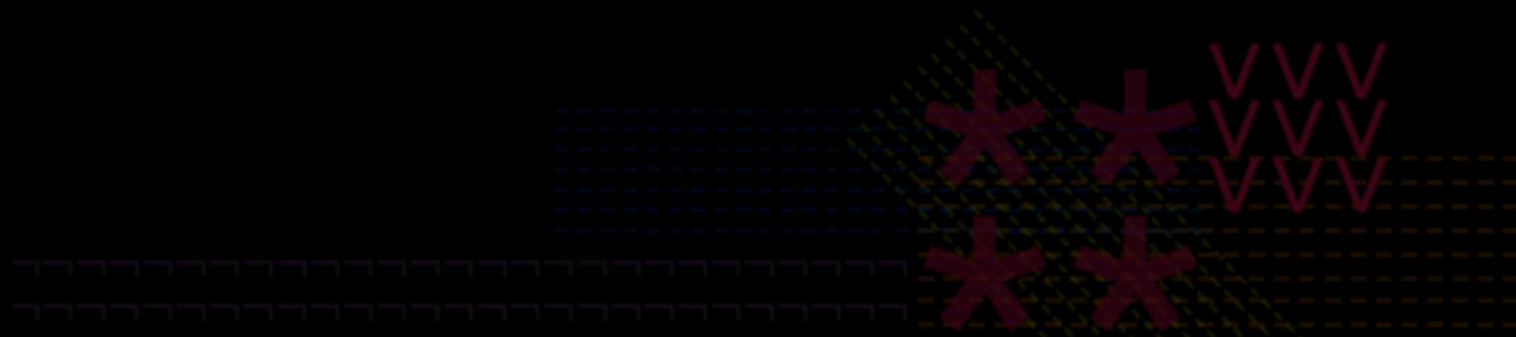
Interaction is Nuanced



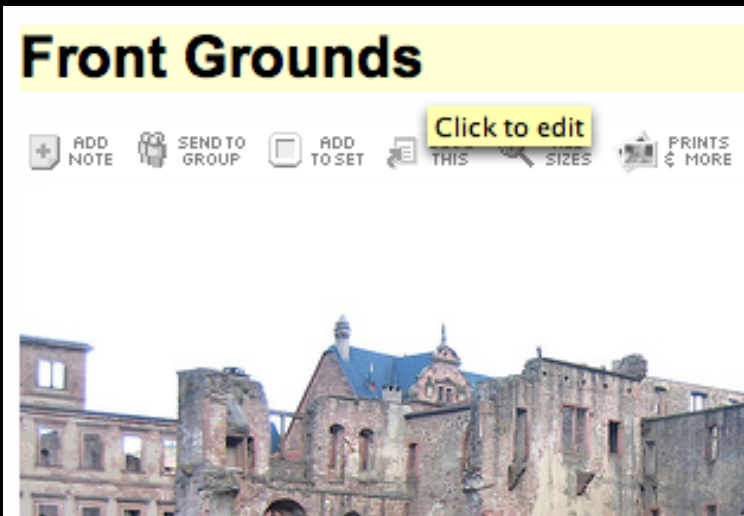
Interaction is Nuanced



flickr. inline edit



Interaction is Nuanced



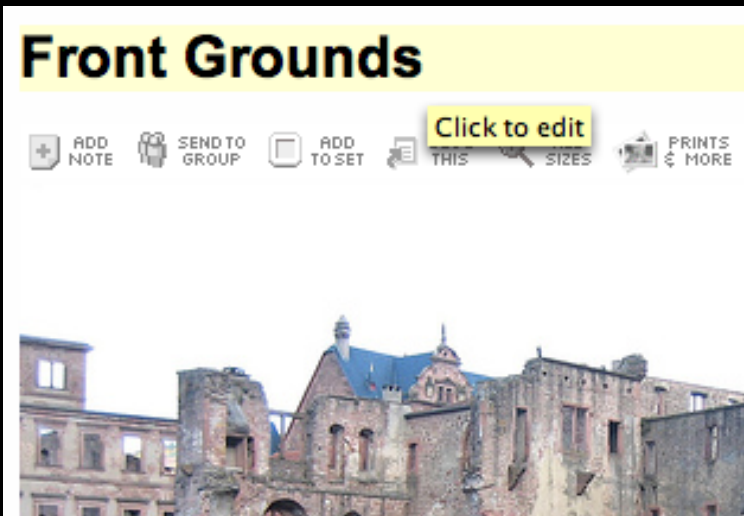
flickr. inline edit

A screenshot of the USGS Hawaiian Volcano Observatory website. The main content area features a large image of a lava flow with the title "When Lava Enters the Sea: Growth & Collapse of Lava Deltas". Below the image is a caption: "Photograph by C. Heliker on November 12, 1992." To the left is a sidebar with navigation links: "Kilauea", "Mauna Loa", "Earthquakes", "Other Volcanoes", "Volcanic Hazards", "Types", "Lava Zones", and "About HVO". To the right is a "YAHOO! GOBBLER" sidebar with sections for "Projects (8)", "Geography: Land...", "Birds' Nests", and "Scratchpad".

y! teachers. drag & drop



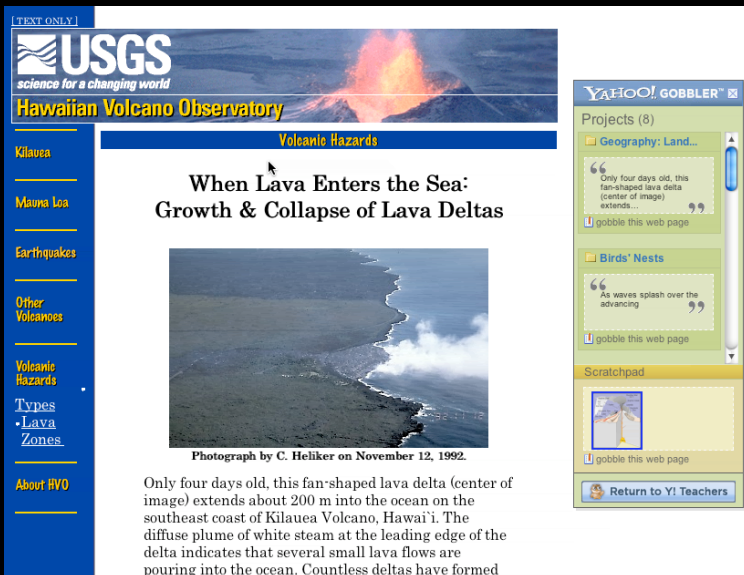
Interaction is Nuanced



flickr. inline edit



backpackit. contextual tools



y! teachers. drag & drop

Interaction is Nuanced

Front Grounds



flickr. inline edit

Pick Up at the Store

- ☐ Milk
- ☐ Orange Juice
- ☐ Tomatoes
- ☐ Lettuce
- ☐ Bread
- ☐ Chips

backpackit. contextual tools

[TEXT ONLY]

USGS
science for a changing world

Hawaiian Volcano Observatory

Volcanic Hazards

When Lava Enters the Sea: Growth & Collapse of Lava Deltas



Photograph by C. Heliker on November 12, 1992.

Only four days old, this fan-shaped lava delta (center of image) extends about 200 m into the ocean on the southeast coast of Kilauea Volcano, Hawai'i. The diffuse plume of white steam at the leading edge of the delta indicates that several small lava flows are pouring into the ocean. Countless deltas have formed

YAHOO! GOBBLER

Projects (8)

- Geography: Land...
- Birds' Nests
- Scratchpad

Return to Y! Teachers

y! teachers. drag & drop

0 items in **my bag** **checkout**

Pique polo

only at gap.com

overview you'll also like

Soft cotton pique knit.
Short-sleeved, button neckline.
♦ [Need large quantities? Click for Corporate Apparel](#)
♦ 100% Cotton. Machine wash. imported.

regular **tall**

Buy More and Save

select Color: **royal grape**

\$29.50 **Buy 2 or more, \$25.00 each**

~~\$29.50~~ **\$9.99**

select Size: **XS** S M L XL XXL XXXL

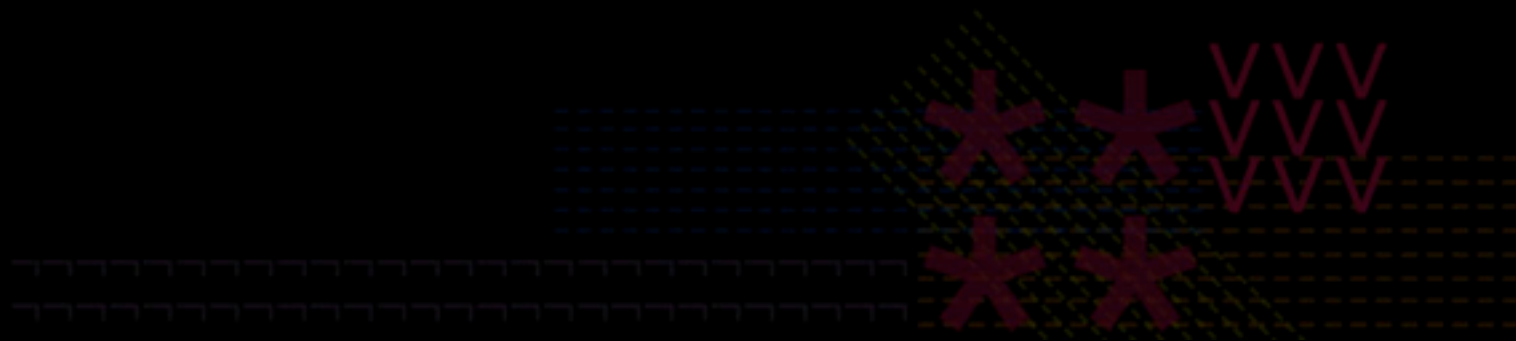
size chart

Quantity: 1

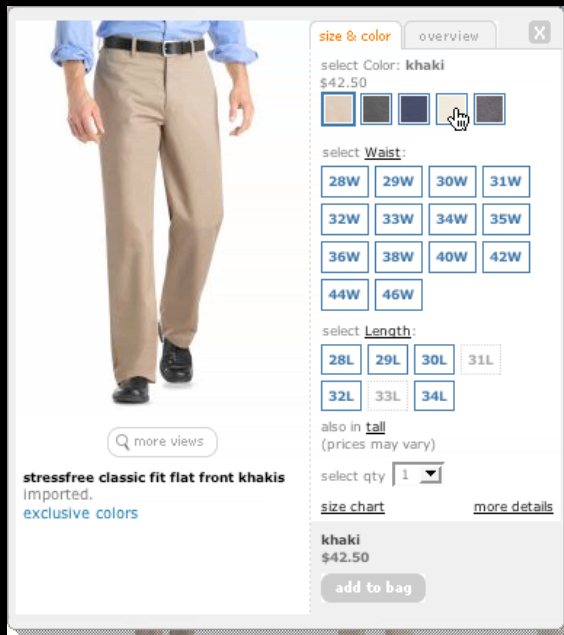
royal grape **\$29.50 \$9.99** **add to bag**

the gap. inline assistant

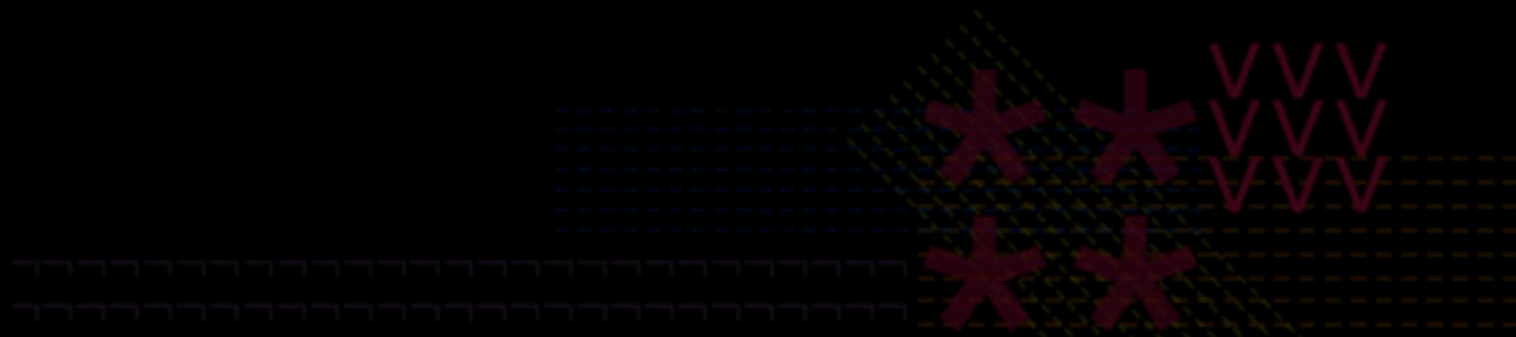
Interaction is Nuanced



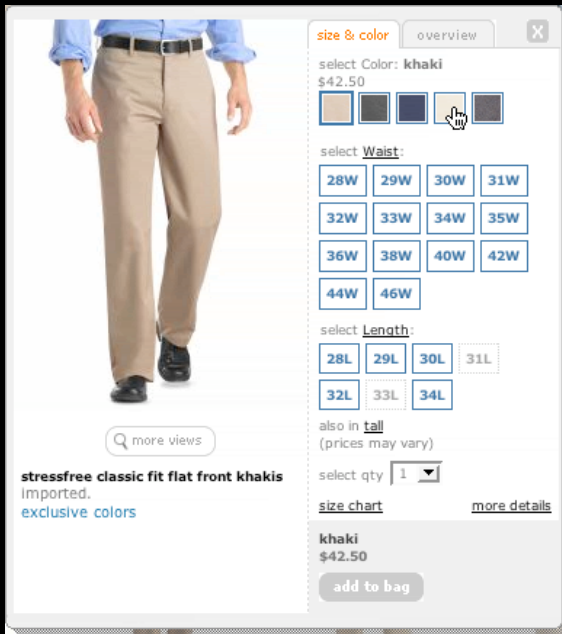
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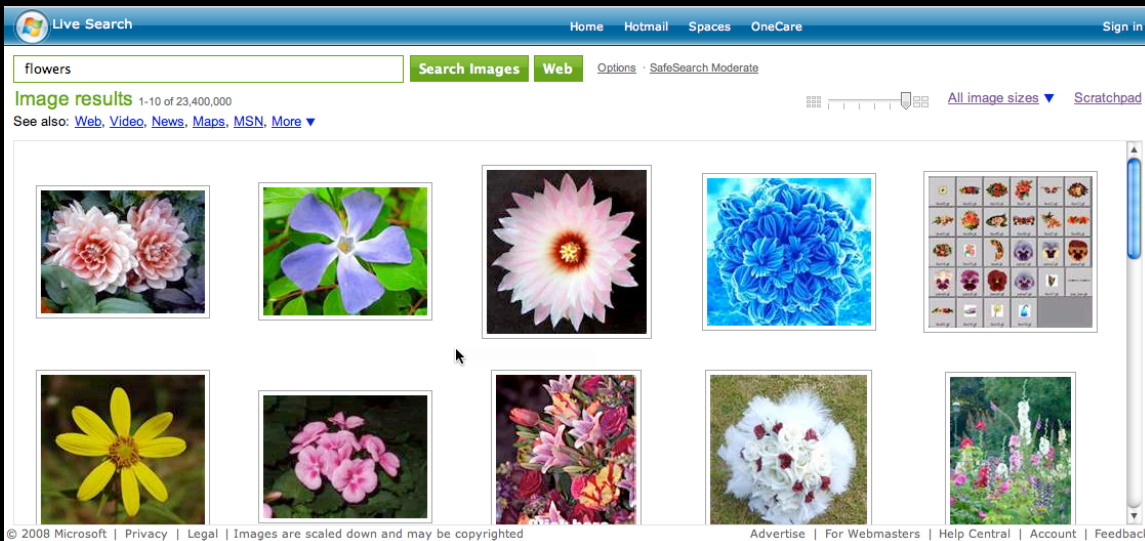
the gap. inline assistant



Interaction is Nuanced

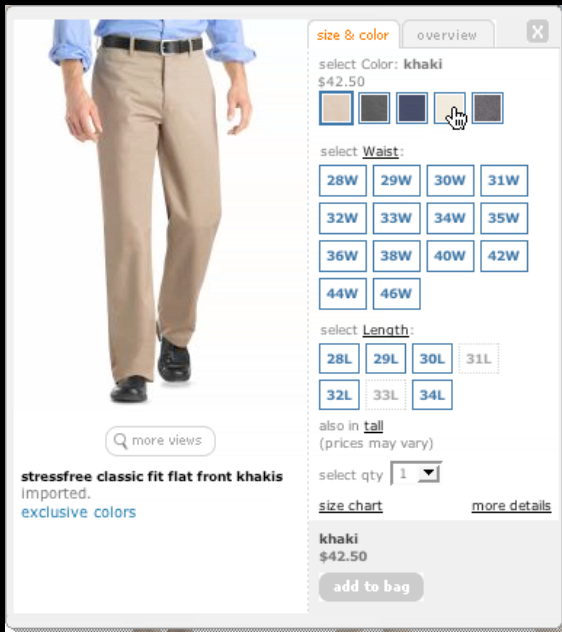


the gap. inline assistant

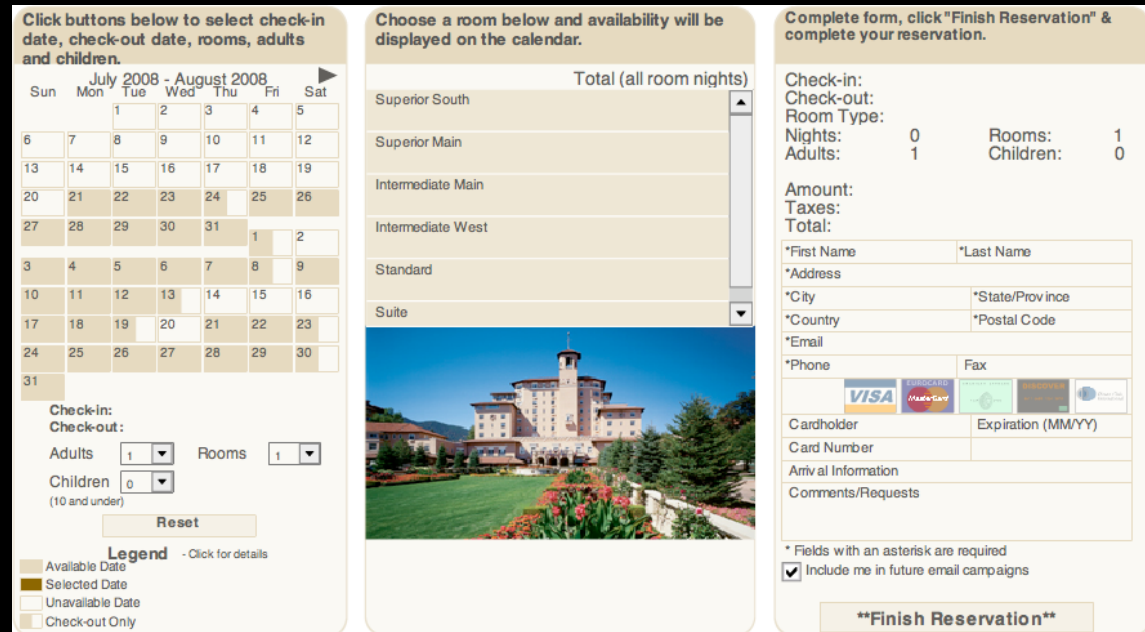


microsoft live. paged scrolling

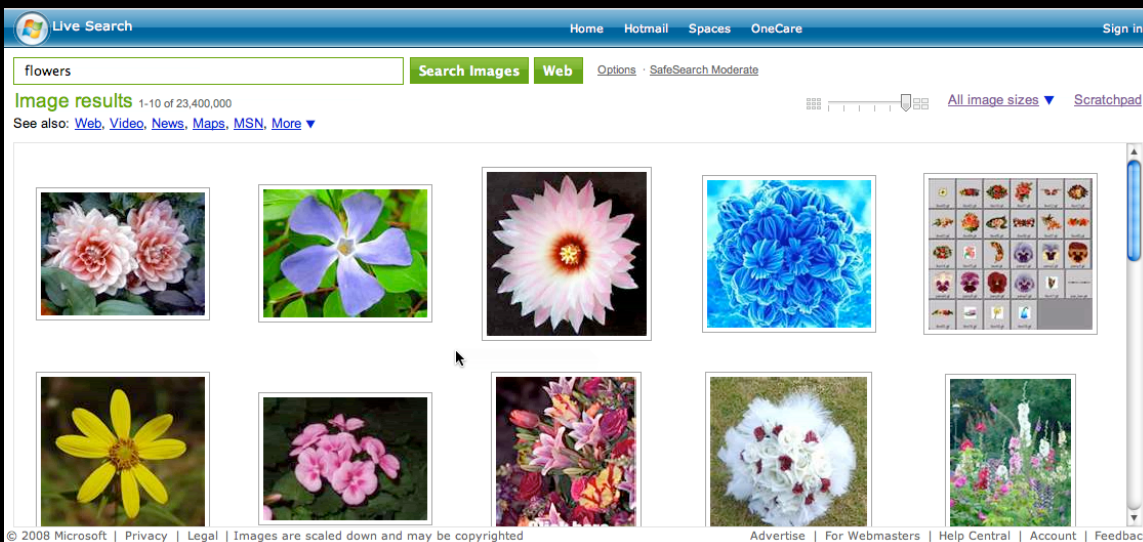
Interaction is Nuanced



the gap. inline assistant

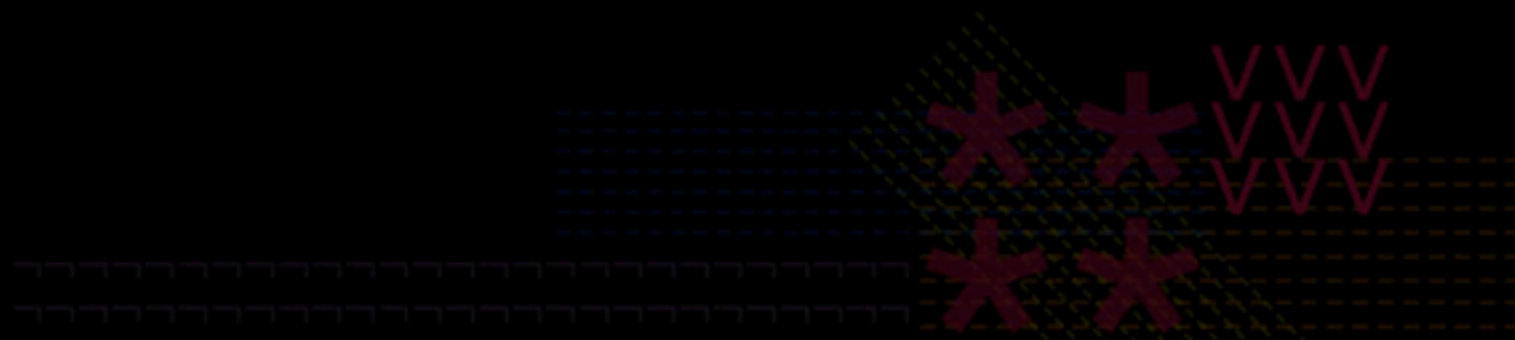


broadmoor hotel. one page checkout

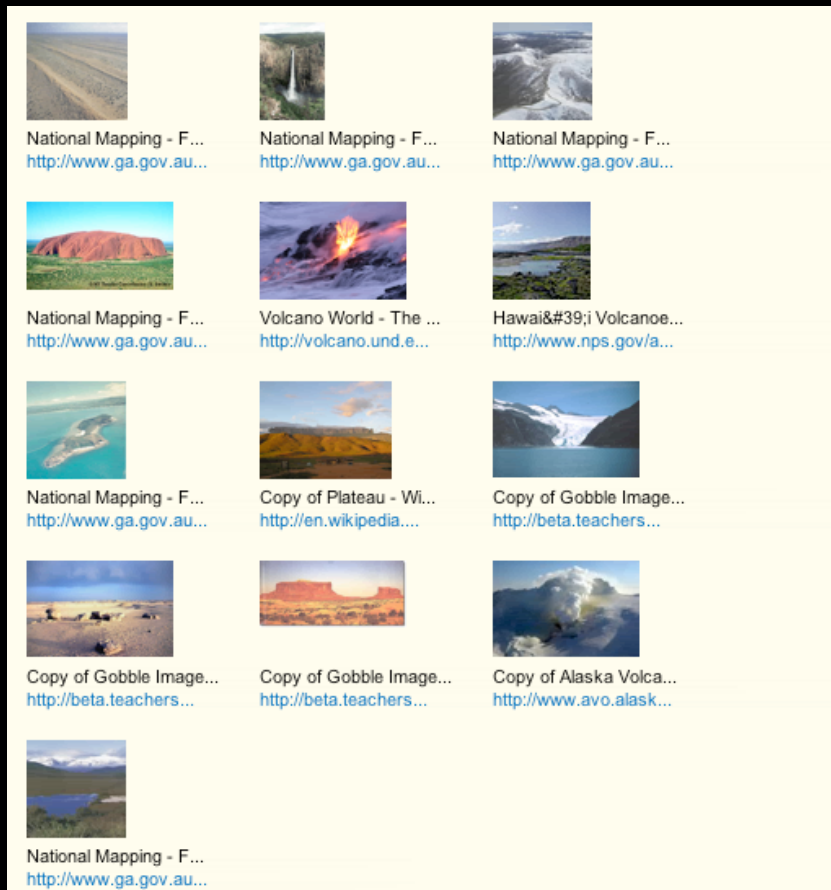


microsoft live. paged scrolling

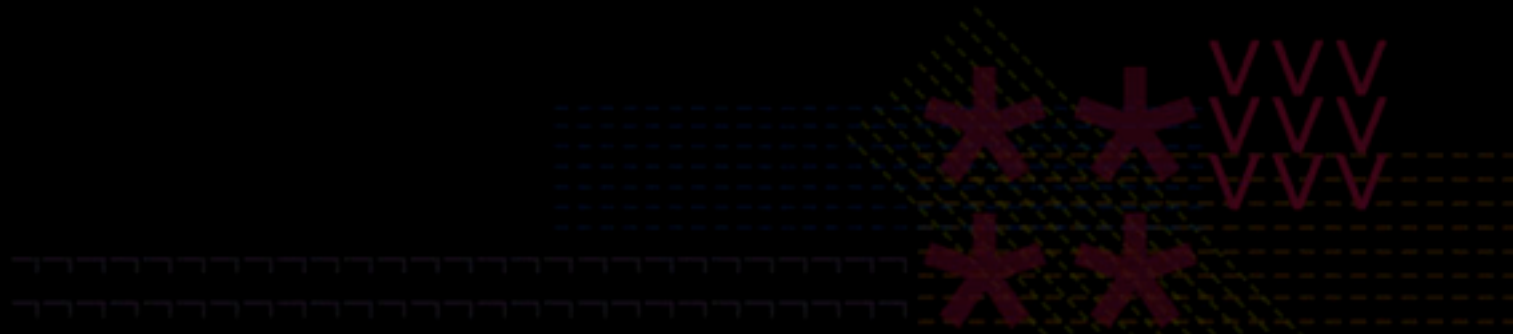
Devil is in the Details



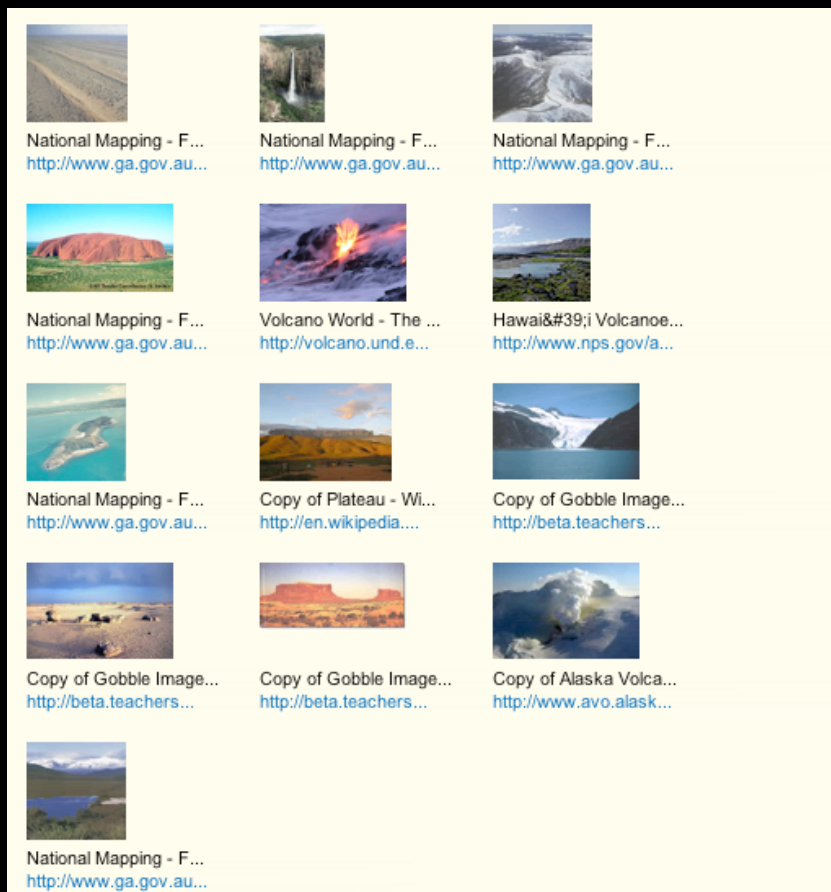
Devil is in the Details



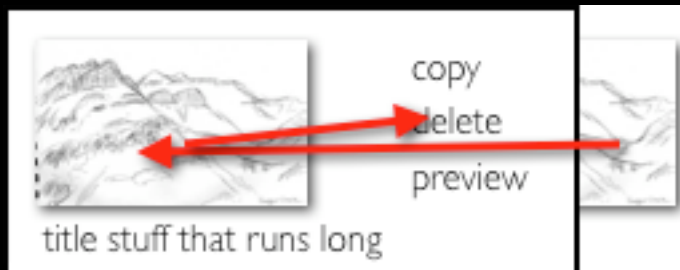
y! teachers. anti-pattern. hover & cover



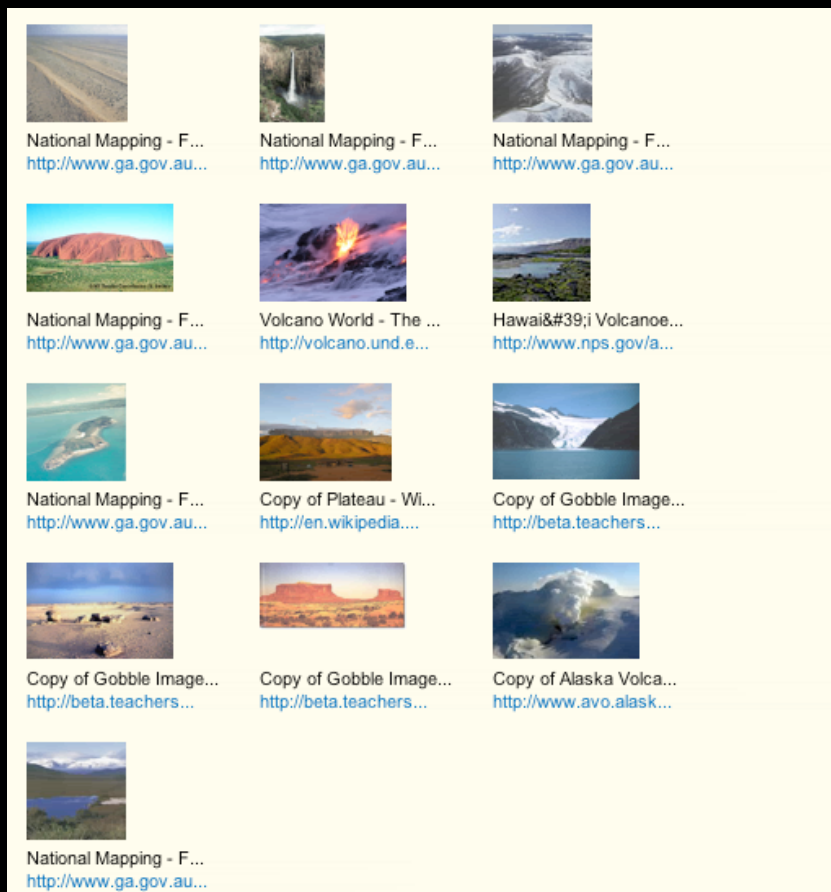
Devil is in the Details



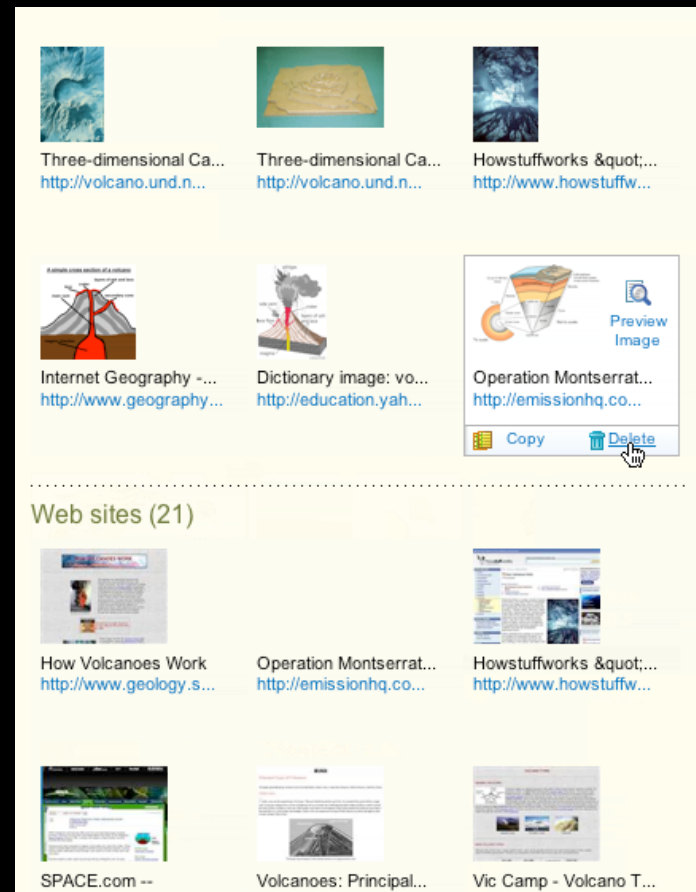
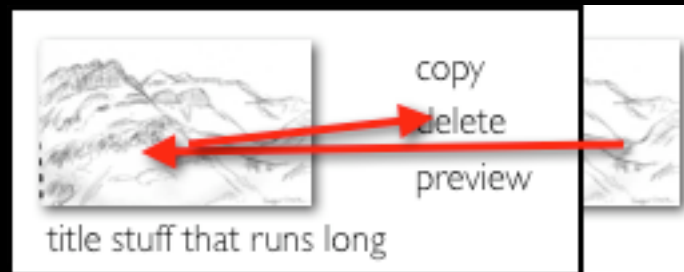
y! teachers. anti-pattern. hover & cover



Devil is in the Details



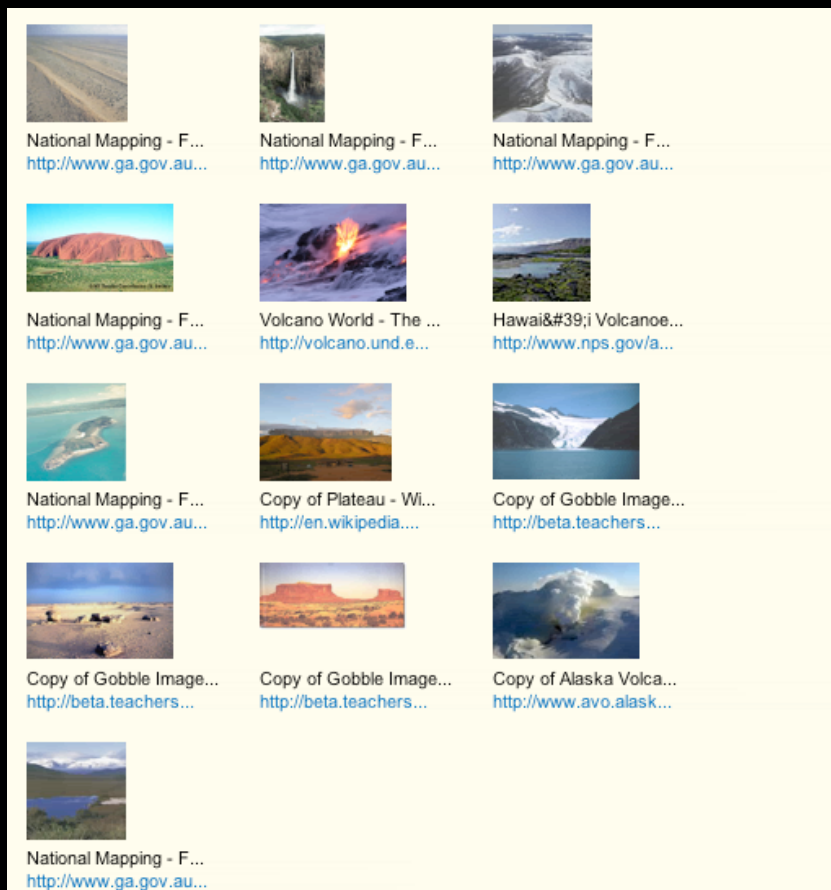
y! teachers. anti-pattern. hover & cover



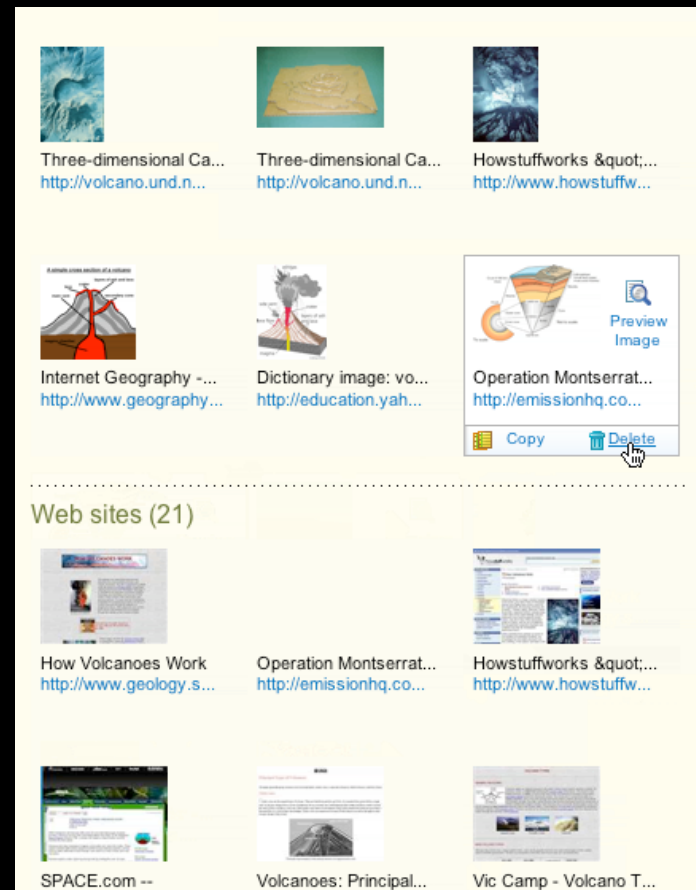
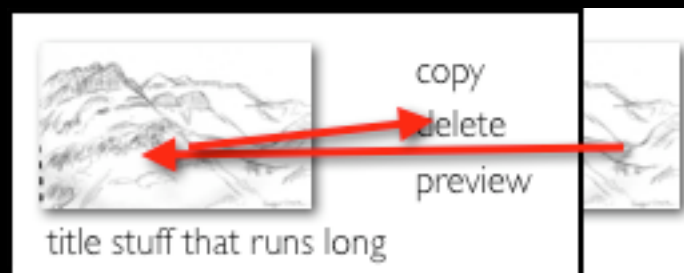
y! teachers. anti-pattern. hover & cover - resolved



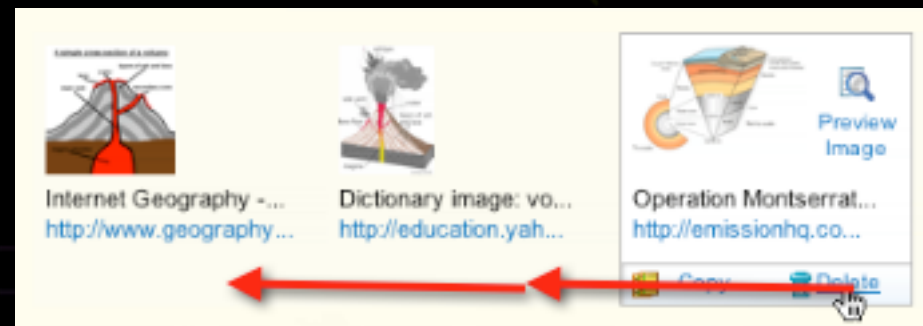
Devil is in the Details



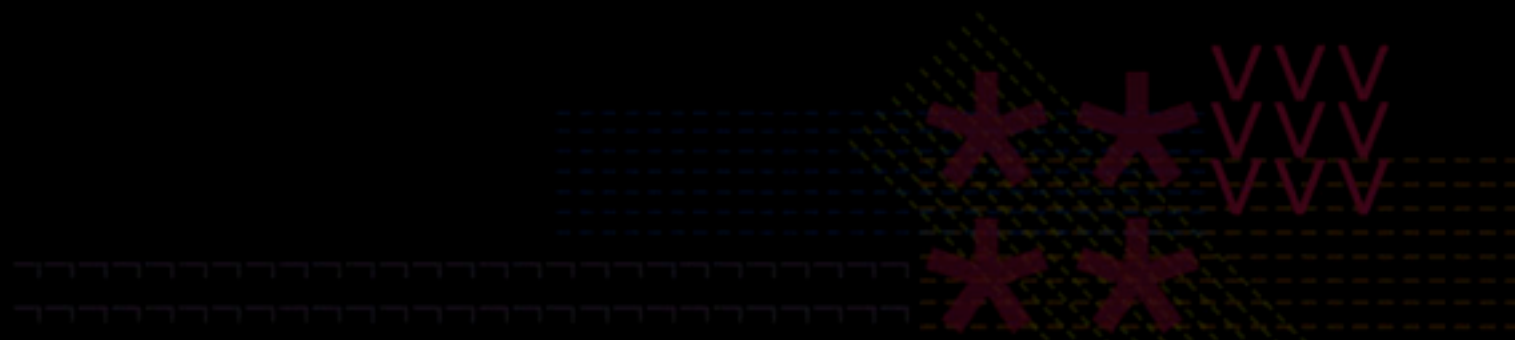
y! teachers. anti-pattern. hover & cover



y! teachers. anti-pattern. hover & cover - resolved



Devil is in the Details



Devil is in the Details

YAHOO! PHOTOS Welcome, **b.scott**
[[Sign Out](#), [My Account](#)] [All My Photos](#)

[Home](#) [Prints & Gifts](#) [View Cart](#) [Settings](#) [Help](#)

[+ Upload Photos](#)

All My Photos

[Slideshow](#) [Create](#) [Share](#) [Edit](#) [Prints & Gifts](#)

Drag photos into this tray and choose a task above.

Sort by: [Date](#)



Sunset



Underneath



View from the Top



Eiffel Pulley



From Second Floor Up

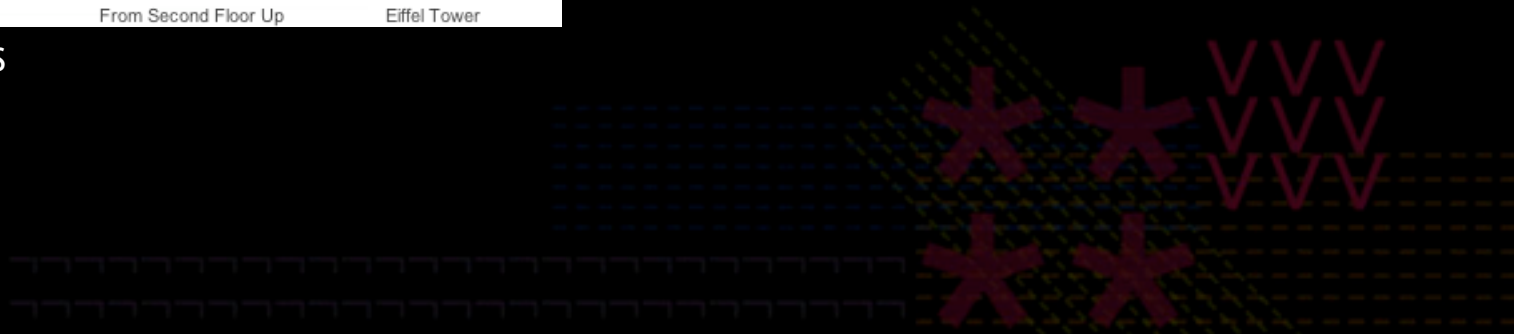


Eiffel Tower

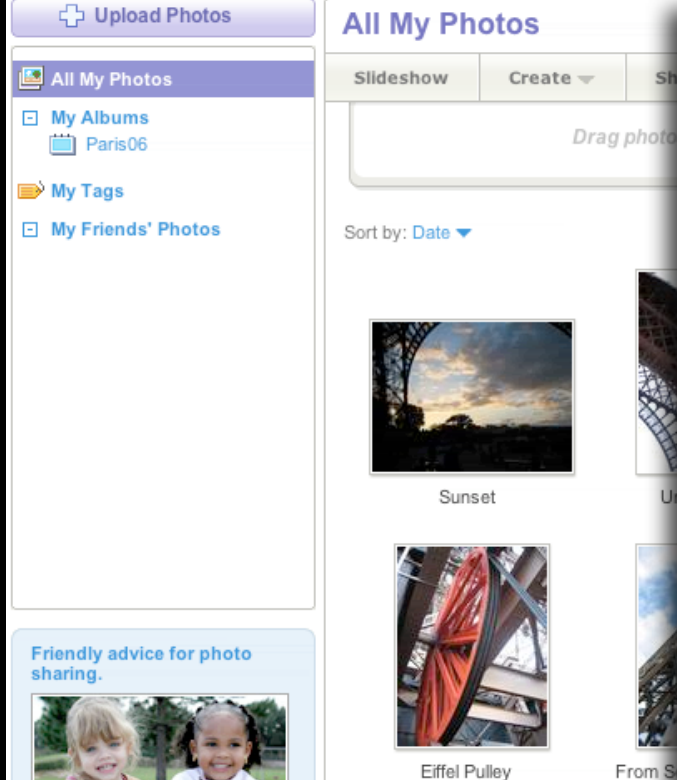
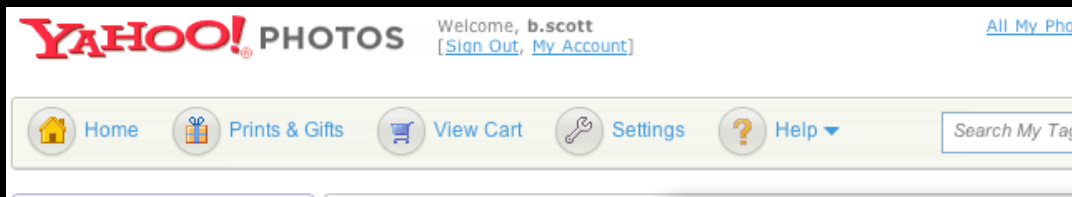
Friendly advice for photo sharing.



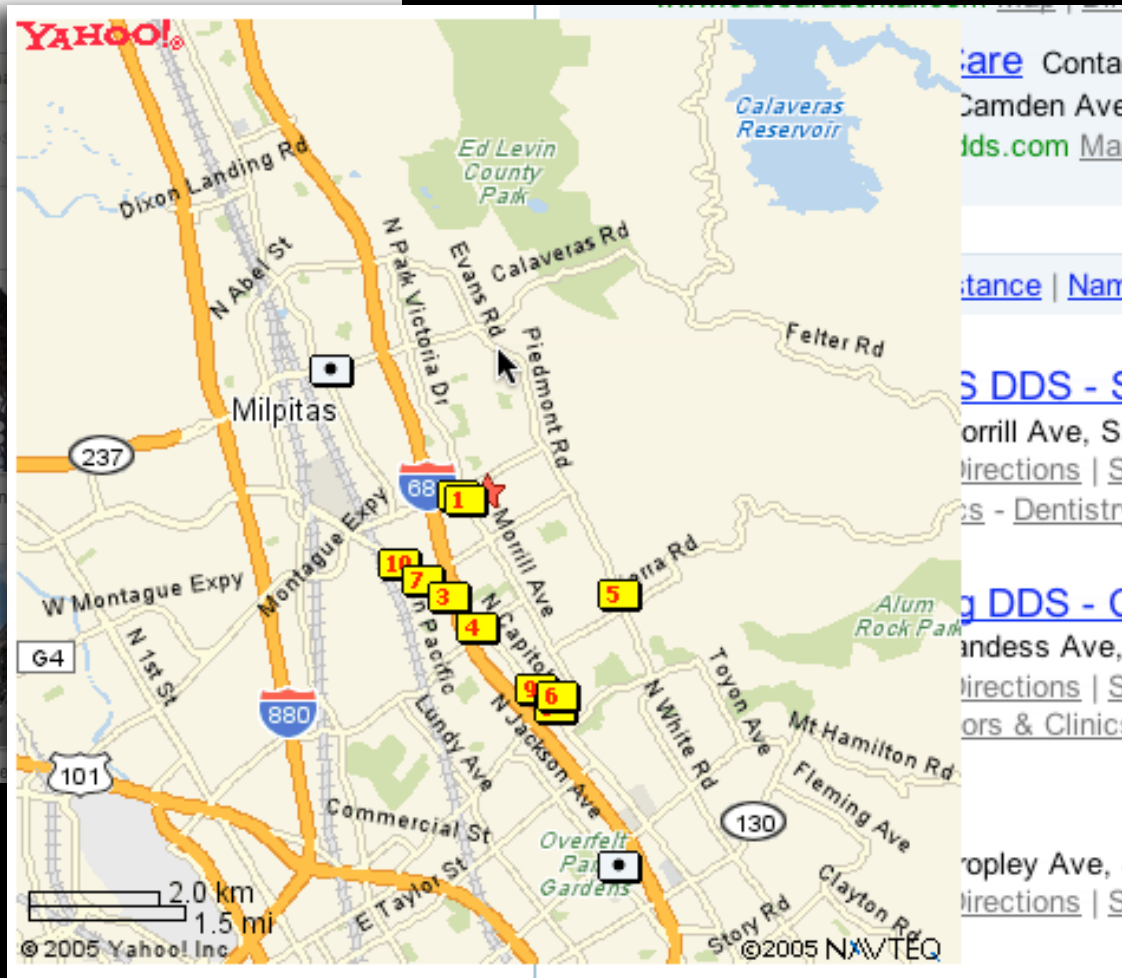
y! photos. anti-pattern. idiot boxes



Devil is in the Details



y! photos. anti-pattern. idiot boxes



y! maps. anti-pattern. mouse trap

Timing Concerns

timing is important

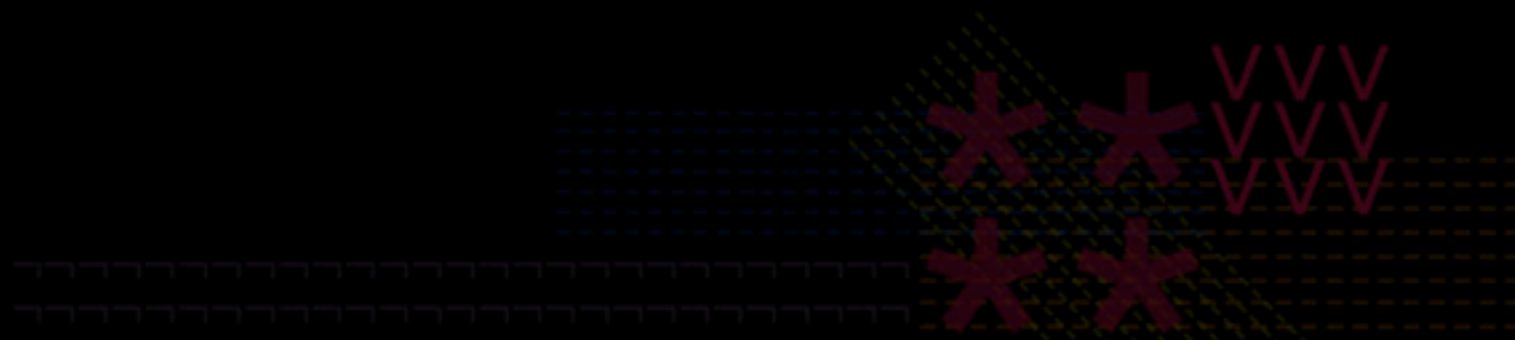
makes actions seem faster

slows down interaction for understanding

reveals state change

shows relationships between objects

focuses attention



Timing Concerns

timing is important

makes actions seem faster

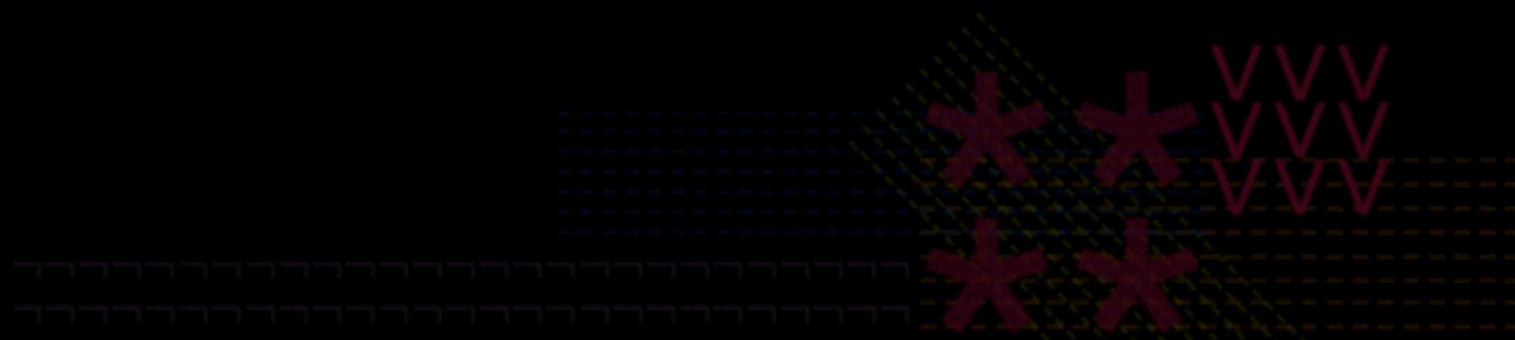
slows down interaction for understanding

reveals state change

shows relationships between objects

focuses attention

Connecting...



Timing Concerns

timing is important

makes actions seem faster

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Connecting...

The screenshot shows the Yahoo! Plus homepage with a grey header and a white main content area. The header includes the Yahoo! Plus logo, a search bar, and navigation links. The main content area is divided into several sections: a Scoreboard for NHL and NBA games, a Message Center, a Weather section, a Software News section, an eHub section, and a Best Fare Tracker. A loading bar is visible at the top right of the main content area, indicating that some content is still loading.

Scoreboard

TODAY

NHL

Game	Score	Time
Tampa Bay vs. Dallas	5 - 3	13:15 2nd

NBA

Game	Score	Time
Dallas vs. LA Clippers	0 - 0	10:30 ET

YESTERDAY

no games for selected teams

Listen to live audio of college games

Best Fare Tracker

Depart: New York, NY - all

Paris, France - all \$193.00

Depart: Seattle/Tacoma, WA

Message Center

Check Email

Launch Messenger 14 friends on

Weather

Location	Temp	Forecast
Dallas, TX	40...75 F	
Denton, TX	35...75 F	
Sunnyvale, CA	42...57 F	
Boulder Creek, CA	39...59 F	
Gilroy, CA	38...57 F	
San Jose, CA	42...58 F	

Software News

- AccuRev gives software configuration system global focus - 5 hours ago
- Anti-virus Software: The Next Big Worm Target? - 10 hours ago
- India's Satyam logs 64 percent rise in third-quarter profit - 10 hours ago
- Cisco Patches Router, Call Manager Software - 1 day ago

eHub

- eHub Interviews Prodigem - 11 hours ago
- Veetro - 20 hours ago
- MediaMax - 2 days ago
- iOWEYOU - 2 days ago
- HyperSuper - 2 days ago

BayCHI Monthly Program Events

Timing Concerns

Lists

☐ Remove this item

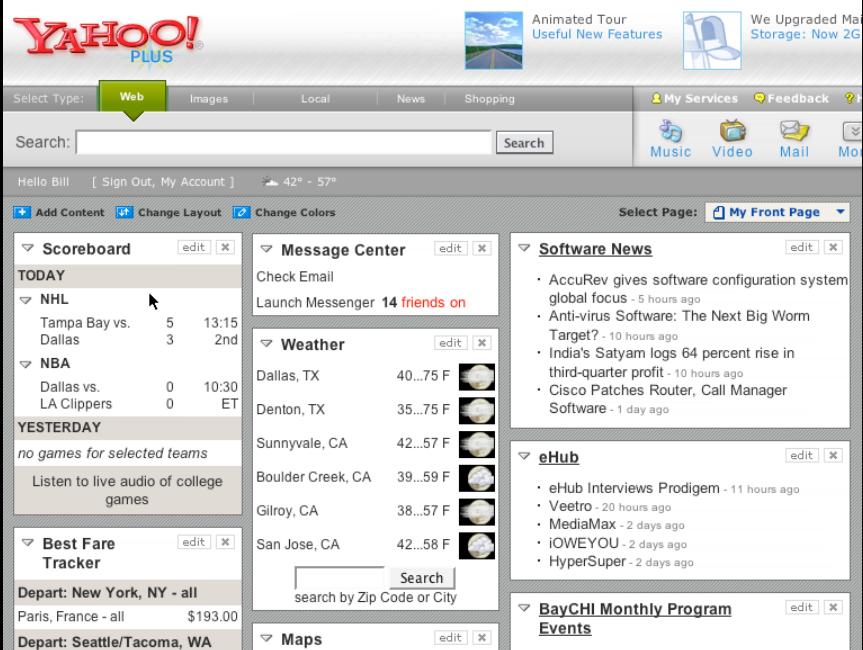
☐ And this one too

 [Edit](#) ☐ adding a new item

or [I'm done adding items](#)

timing is important
makes actions seem faster
slows down interaction for understanding
reveals state change
shows relationships between objects
focuses attention

Connecting...



The screenshot shows the Yahoo! Plus homepage with a complex layout. At the top is the Yahoo! Plus logo and navigation links. Below is a search bar and a weather widget. The main content area is divided into several sections: Scoreboard (showing NHL and NBA games), Message Center (with a 'Launch Messenger' button), Weather (showing temperatures for various locations), Software News (with a list of articles), eHub (with a list of links), and Best Fare Tracker (showing flight prices). A 'Connecting...' status bar is visible at the top right of the main content area.

Timing Concerns

Lists

☐ Remove this item

☐ And this one too

☐ [Edit](#) ☐ adding a new item

or

Women GapBody GapMaternity GapKids babyGap **my account**
see order status
sign in

3 items in **my bag**

Shoes, Belts & More

bags 1 2 >> [See All](#)



Premium canvas duffle bag
\$49.50



urban nylon sling
\$34.50



urban nylon backpack
\$29.50



nylon commuter bag
\$68.00

timing is important

makes actions seem faster

slows down interaction for understanding

reveals state change

shows relationships between objects

focuses attention

Connecting...

YAHOO! PLUS

Animated Tour Useful New Features We Upgraded Mail Storage: Now 2GB

Select Type: **Web** Images Local News Shopping

Search:

Hello Bill [Sign Out, My Account] 42° - 57°

Select Page: **My Front Page**

Scoreboard

TODAY

NHL

Tampa Bay vs. Dallas	5 3	13:15 2nd
----------------------	-----	-----------

NBA

Dallas vs. LA Clippers	0 0	10:30 ET
------------------------	-----	----------

YESTERDAY

no games for selected teams

Listen to live audio of college games

Best Fare Tracker

Depart: New York, NY - all

Paris, France - all \$193.00

Depart: Seattle/Tacoma, WA

Message Center

Check Email

Launch Messenger **14 friends on**

Weather

Dallas, TX	40...75 F
Denton, TX	35...75 F
Sunnyvale, CA	42...57 F
Boulder Creek, CA	39...59 F
Gilroy, CA	38...57 F
San Jose, CA	42...58 F

search by Zip Code or City

Maps

Software News

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- MediaMax - 2 days ago
- iOWEYOU - 2 days ago
- HyperSuper - 2 days ago

BayCHI Monthly Program Events

Timing Concerns

Lists

☐ Remove this item

☐ And this one too

☐ Edit ☐ adding a new item

Add item or I'm done adding items

Women GapBody GapMaternity GapKids babyGap my account see order status sign in

3 items in my bag checkout

Shoes, Belts & More

1 2 >> See All

bags



Premium canvas duffle bag \$49.50



urban nylon sling \$34.50



urban nylon backpack \$29.50



nylon commuter bag \$68.00

Batch Organize Your Sets Finished? Go home! flickr

Edit photos Permissions Edit dates Add tags Add to set Clear this batch



timing is important
makes actions seem faster
slows down interaction for understanding
reveals state change
shows relationships between objects
focuses attention

Connecting...

YAHOO! PLUS

Animated Tour Useful New Features We Upgraded Mail Storage: Now 2GB

Select Type: Web Images Local News Shopping

Search: Search

My Services Feedback

Music Video Mail

Hello Bill [Sign Out, My Account] 42° - 57°

Add Content Change Layout Change Colors Select Page: My Front Page

Scoreboard

TODAY

NHL

Tampa Bay vs. Dallas	5 3	13:15 2nd
----------------------	-----	-----------

NBA

Dallas vs. LA Clippers	0 0	10:30 ET
------------------------	-----	----------

YESTERDAY

no games for selected teams

Listen to live audio of college games

Best Fare Tracker

Depart: New York, NY - all

Paris, France - all	\$193.00
---------------------	----------

Depart: Seattle/Tacoma, WA

Message Center

Check Email

Launch Messenger 14 friends on

Weather

Dallas, TX	40...75 F
Denton, TX	35...75 F
Sunnyvale, CA	42...57 F
Boulder Creek, CA	39...59 F
Gilroy, CA	38...57 F
San Jose, CA	42...58 F

Search

search by Zip Code or City

Software News

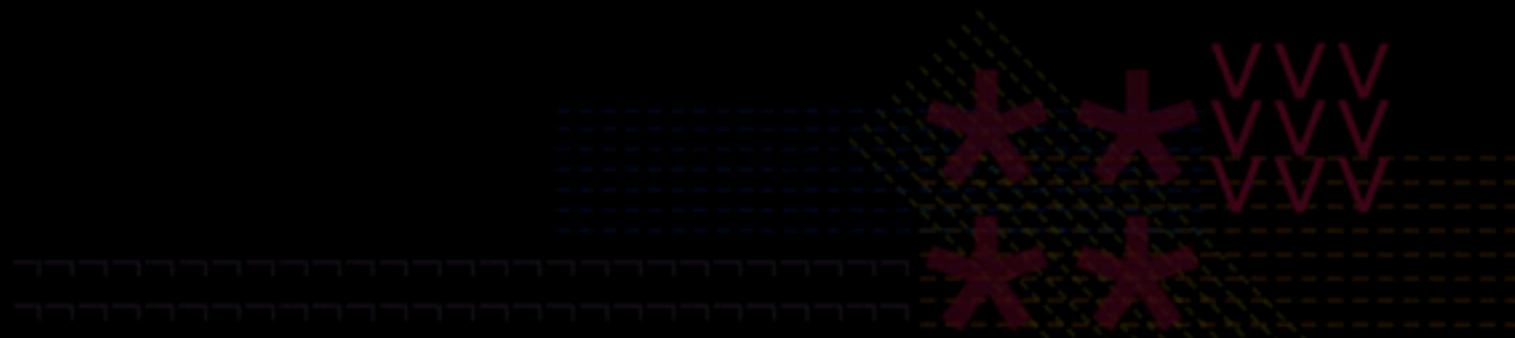
- AccuRev gives software configuration system global focus - 5 hours ago
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BayCHI Monthly Program Events

Timing Concerns

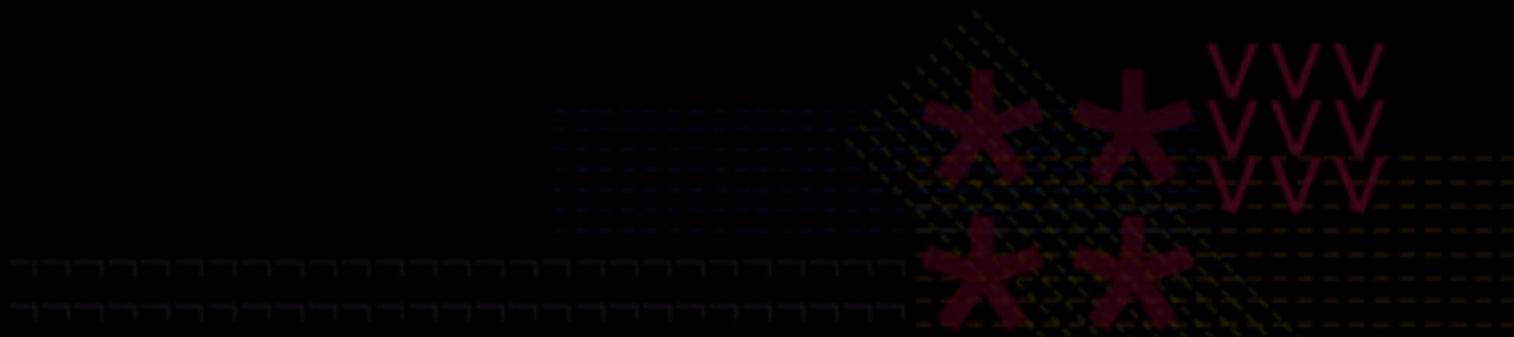


Timing Concerns

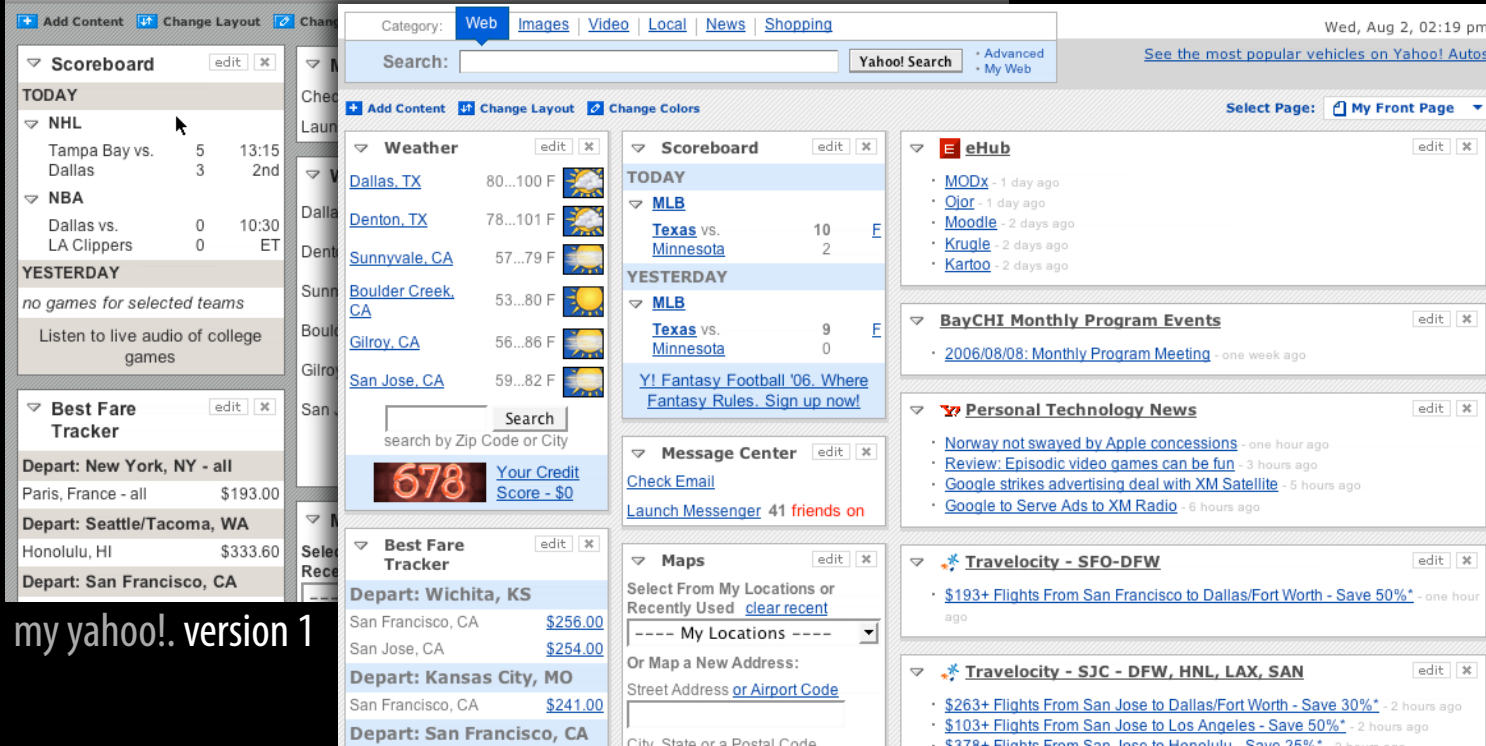
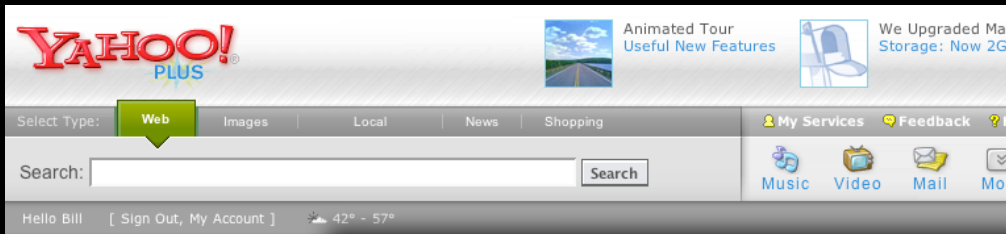
The screenshot displays the 'my.yahoo!' version 1 interface. At the top is the 'YAHOO! PLUS' logo. Below it is a navigation bar with 'Select Type:' followed by 'Web' (highlighted), 'Images', 'Local', 'News', and 'Shopping'. To the right are links for 'Animated Tour', 'Useful New Features', and 'We Upgraded Mail Storage: Now 2GB'. A search bar is located below the navigation bar. The main content area is divided into several widgets:

- Scoreboard**: Shows 'TODAY' and 'YESTERDAY' games. Today's games include NHL (Tampa Bay vs. Dallas) and NBA (Dallas vs. LA Clippers). Yesterday's games are listed as 'no games for selected teams'.
- Message Center**: Includes 'Check Email' and 'Launch Messenger 14 friends on'.
- Weather**: Lists weather for Dallas, TX (40...75 F), Denton, TX (35...75 F), Sunnyvale, CA (42...57 F), Boulder Creek, CA (39...59 F), Gilroy, CA (38...57 F), and San Jose, CA (42...58 F). It also includes a 'Search' button for 'search by Zip Code or City'.
- Software News**: Lists news items such as 'AccuRev gives software configuration system global focus - 5 hours ago', 'Anti-virus Software: The Next Big Worm Target? - 10 hours ago', 'India's Satyam logs 64 percent rise in third-quarter profit - 10 hours ago', and 'Cisco Patches Router, Call Manager Software - 1 day ago'.
- eHub**: Lists items like 'eHub Interviews Prodigem - 11 hours ago', 'Veetro - 20 hours ago', 'MediaMax - 2 days ago', 'iOWEYOU - 2 days ago', and 'HyperSuper - 2 days ago'.
- Best Fare Tracker**: Shows flight prices for 'Depart: New York, NY - all' (\$193.00), 'Depart: Seattle/Tacoma, WA' (\$333.60), and 'Depart: San Francisco, CA'.
- Maps**: Includes a 'Select From My Locations or Recently Used' dropdown and a 'clear recent' link.

my yahoo!. version 1



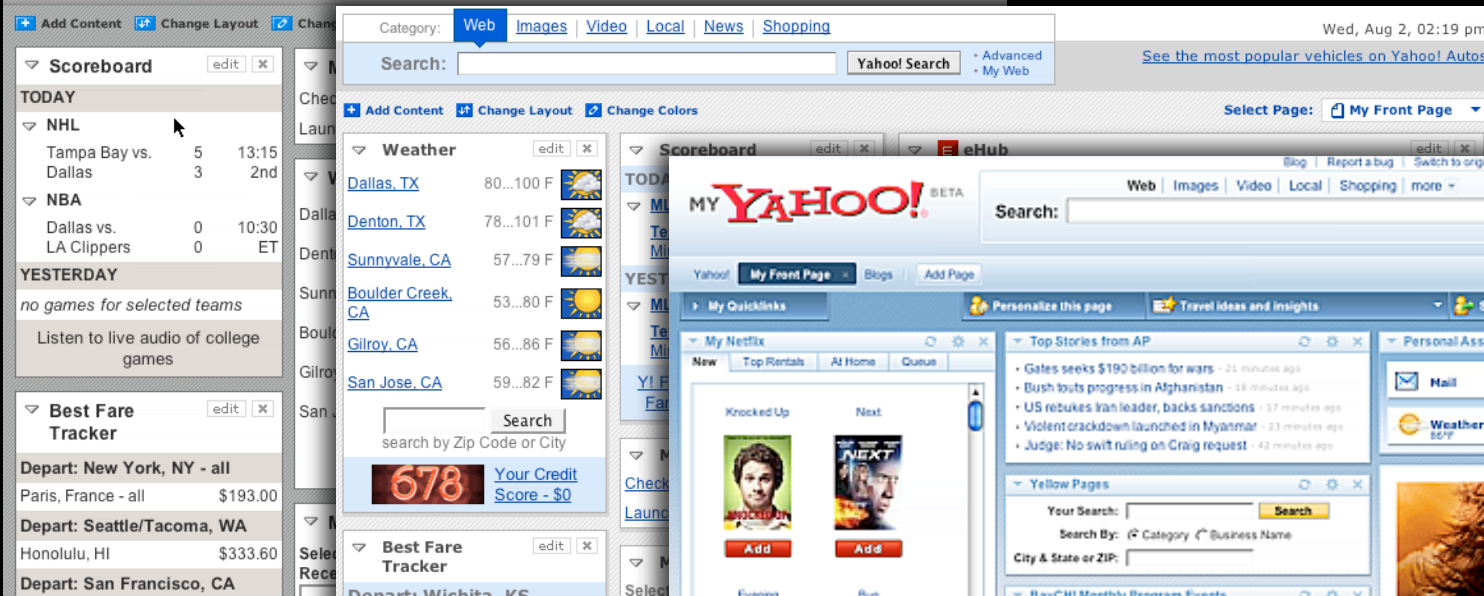
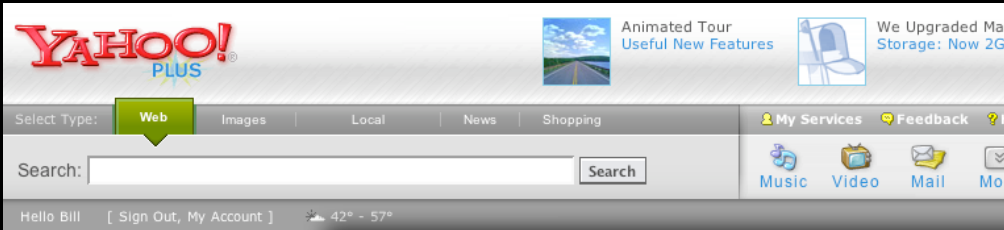
Timing Concerns



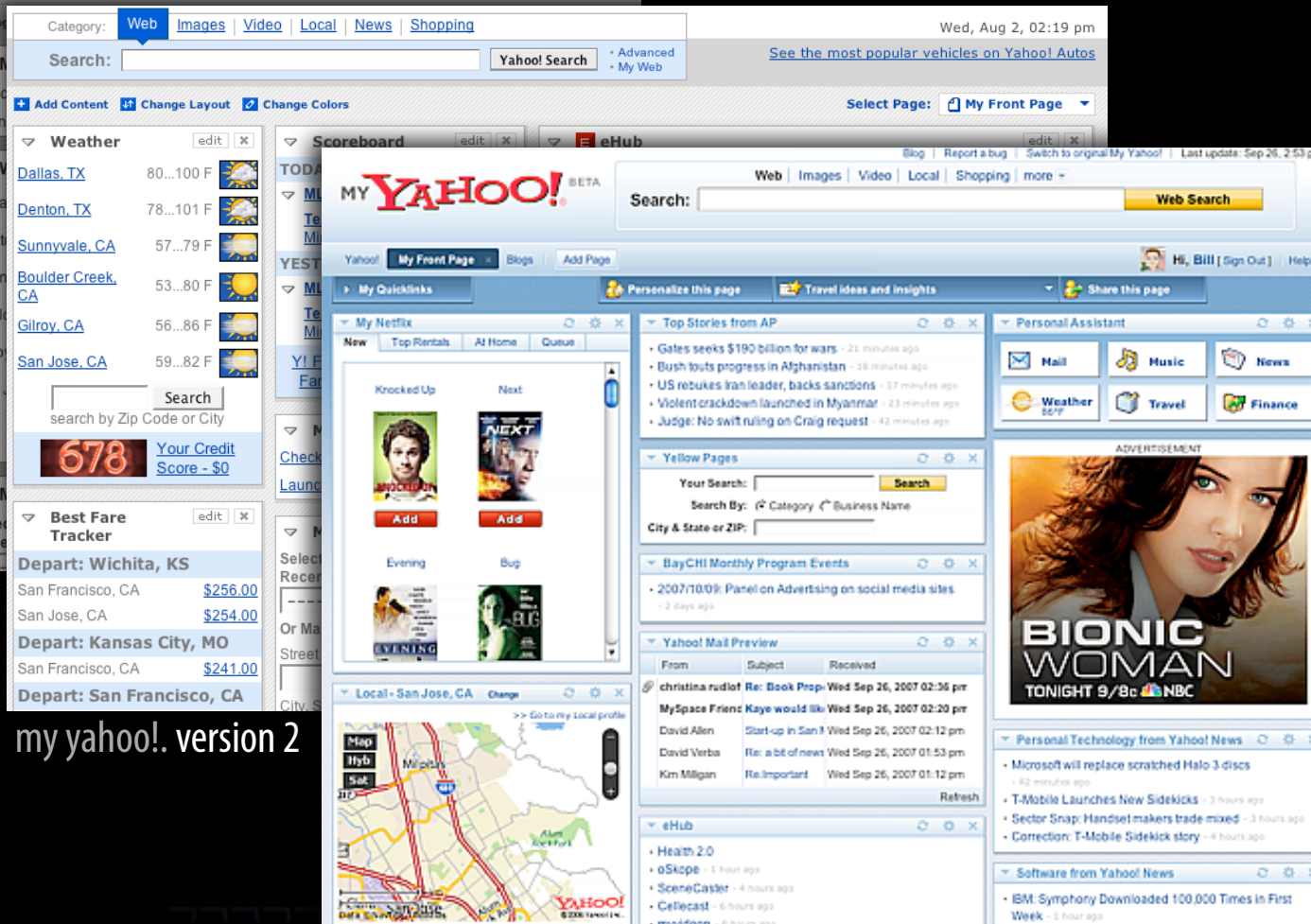
my yahoo!. version 1

my yahoo!. version 2

Timing Concerns



my yahoo!. version 1



my yahoo!. version 2

my yahoo!. version 3

prototyping with DHTML

Prototyping with DHTML

Benefits

Start simple & add complexity

Higher fidelity

Closer to final solution

Living example

Disadvantages

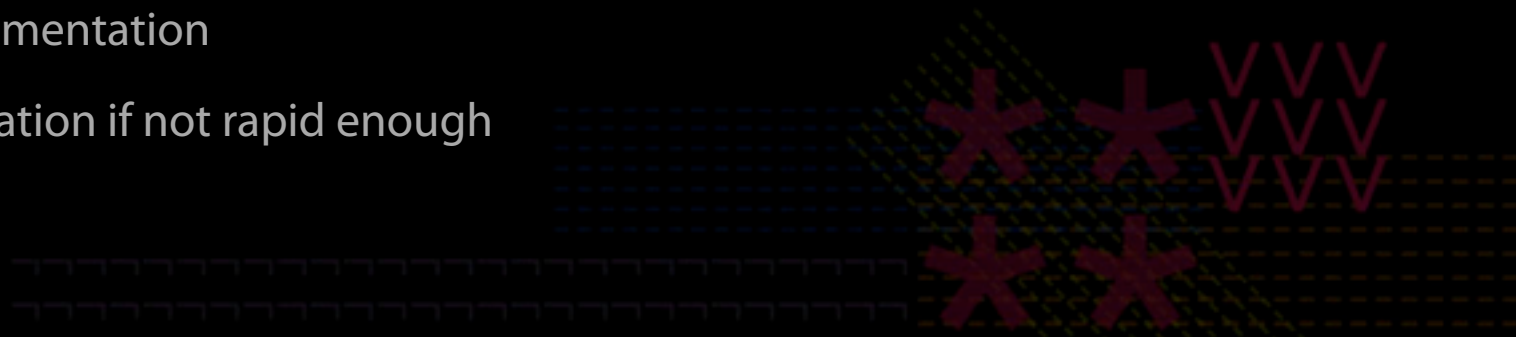
Requires technical savvy

Bugs can suck down time

Too much time spent 'messaging with code'

Hard to extract into documentation

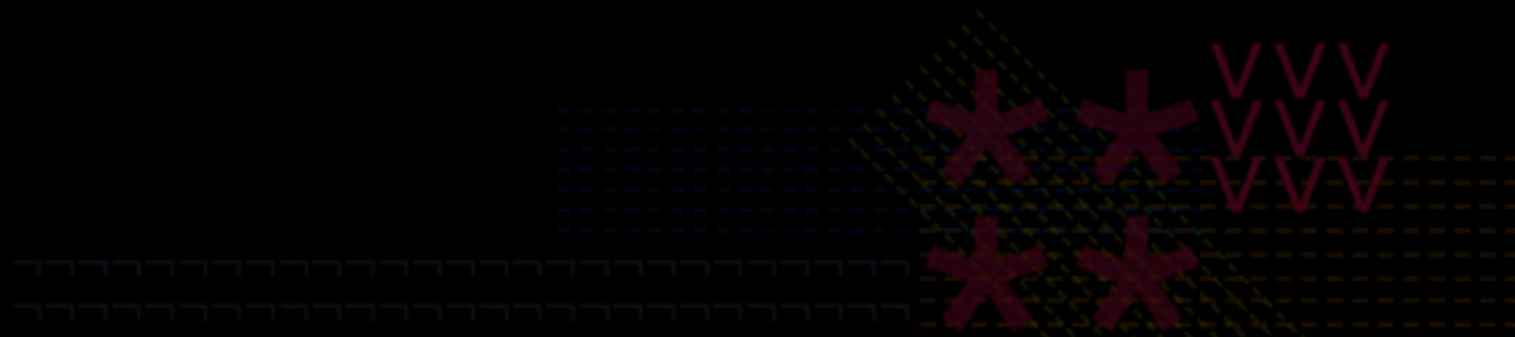
Can get in the way of ideation if not rapid enough



100+ variations prototyped over 1 week

Winnowed down between PMs, Design & Eng.

Put before users the next week & again 2 weeks later



Button Prototypes

NOTE: Prototypes have only been vetted in Firefox 3. Hard refresh pages to make sure you have the latest version

Evaluate for Qual

- Side-by-Side Buttons
 - Member Home
 - Watch Instantly Home
- Play Boxshot Overlay
 - Side-by-Side Add Buttons
 - Member Home
 - Watch Instantly Home
 - Instant Options on Play Click
 - Member Home
 - Watch Instantly Home
 - TOOO: On Click Instant Options Flyout
 - Queue Options on Add Click
 - Member Home
 - Watch Instantly Home
 - TOOO: On Click Queue Options Flyout
- Eye Boxshot Overlay
 - Member Home
 - Watch Instantly Home
 - TOOO: This should be the prototype that Adds to Instant Queue and offers big Play promo on Quad

Alternate Explorations of above

- Bottom Buttons
 - Alternate Flyout Test

Old Designs: Evaluate for Qual

- Left Buttons
 - Member Home
 - Watch Instantly Home
 - Instant Not Interacted Hidden
 - Show instant options on click
 - Hover in boxshot area of that button activates button hover
- Side-by-Side Buttons
 - Member Home
 - Watch Instantly Home
 - Instant Not Interacted Hidden
 - Click-only movie button full-width
 - No flyout on click-only full-width button
- Play Overlay
 - Instant Actions on Play Click
 - Member Home
 - Watch Instantly Home
 - Queue Actions on Add Click
 - Member Home
 - Watch Instantly Home
 - Split Add
 - Member Home
 - Watch Instantly Home

Additional Explorations of above

- Left Buttons
 - Remove Boxshot as MSP Link
 - Only box is hover target
 - Show Instant Options on Mouseover - w/ adjustable delays
 - Light Overlay when inactive
 - Light Overlay with Text when inactive
- 3 Buttons: Watch Instantly, Instant Add, DVD Add
 - Short Text w/ Verbose Tooltips
 - Member Home
 - Watch Instantly Home
 - Instant Not Interacted Hidden
 - Tooltips could be offered until someone has used the button enough.
 - Text could vary by customer state (i.e. activated device, day one experience, etc.)
 - Add to Playlist
 - Based on current site catalog, 3 buttons left common
- Bottom Buttons
 - Flyout on click-only full-width button
- Play Overlay
 - Queue Actions on Add Click
 - Show All Icons

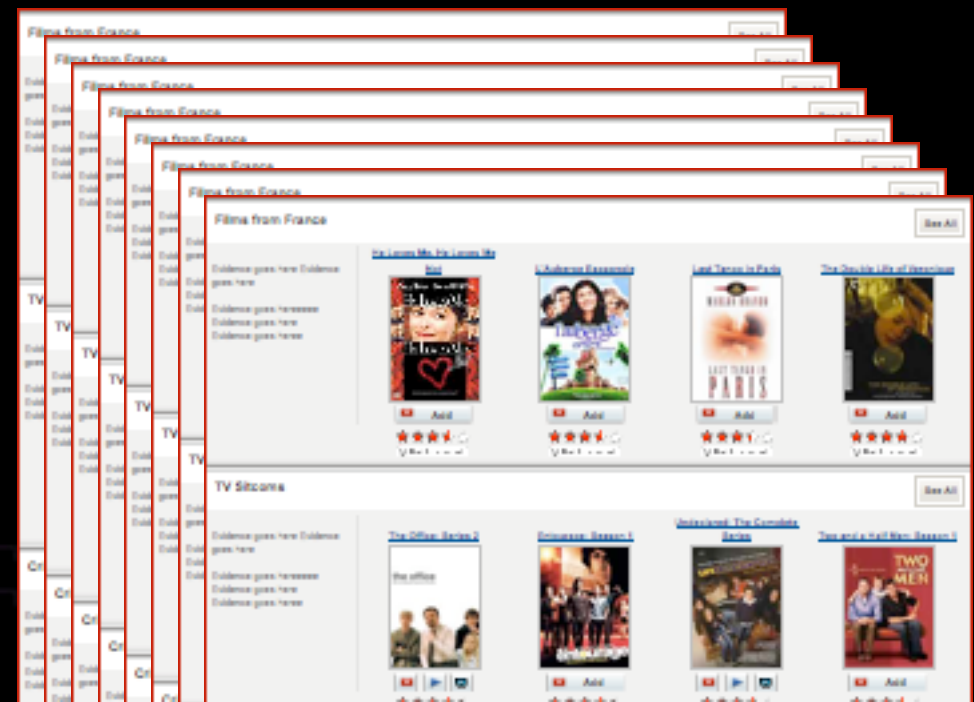
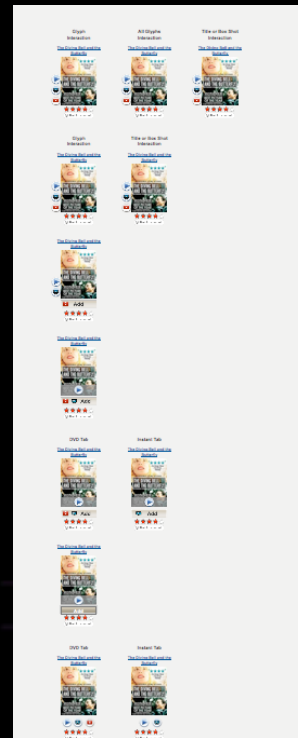
Initial Quick Explorations

- Lots of Quick Prototypes
- Expanding Movie Layout 1
- Expanding Movie Layout 2 (mini 500-645)
- Interactive QOO
- Interactive QOO - Smaller Footprint
- Interactive QOO - Smaller 500 and Truncated Synopses
- Interactive QOO - Wide

100+ variations prototyped over 1 week

Winnowed down between PMs, Design & Eng.

Put before users the next week & again 2 weeks later

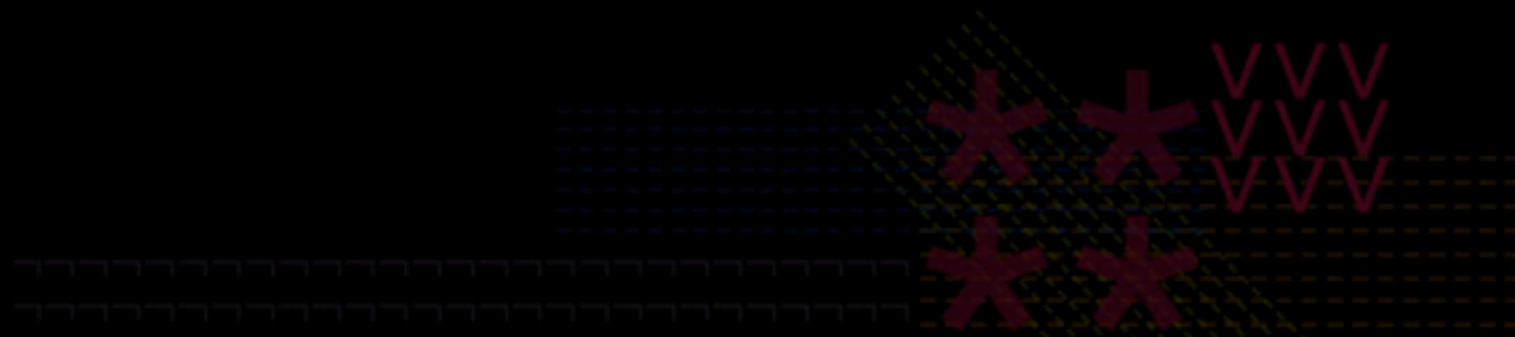


Separation of Concerns

Content/Structure should be free of style & behavior logic

Style should be layered in externally

Logic should be handled in separate code

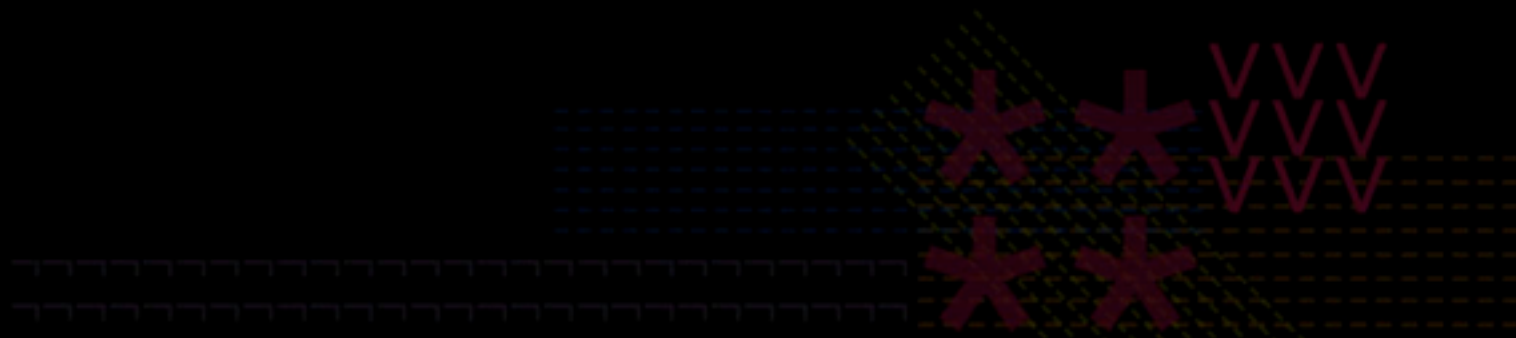
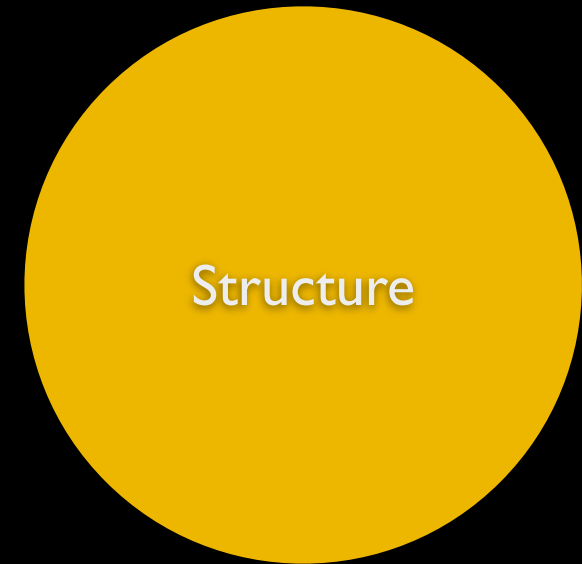


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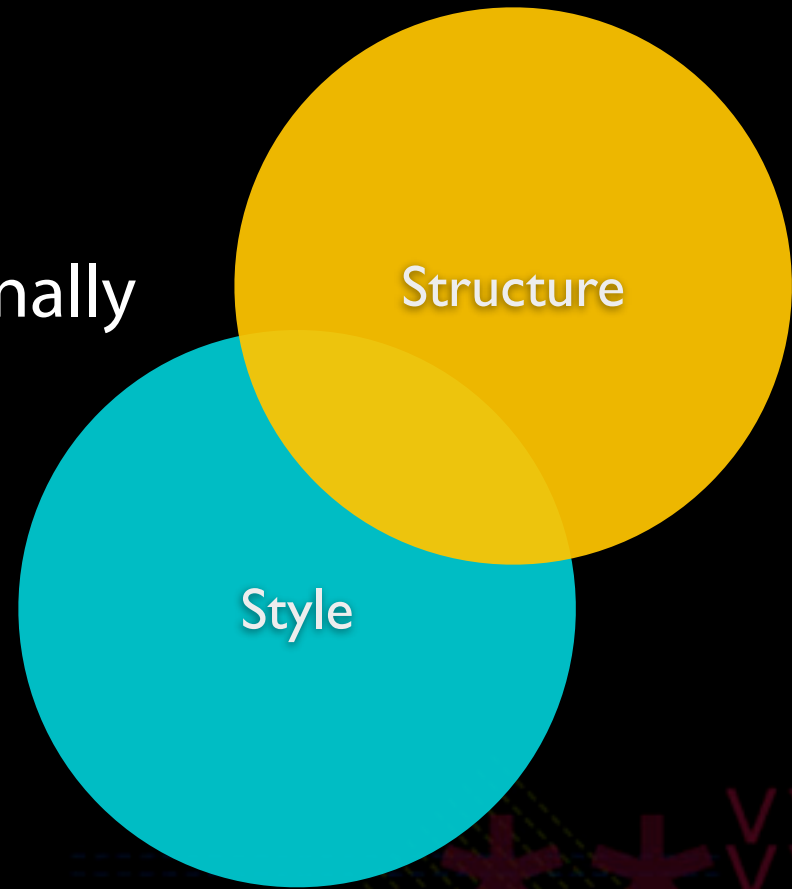


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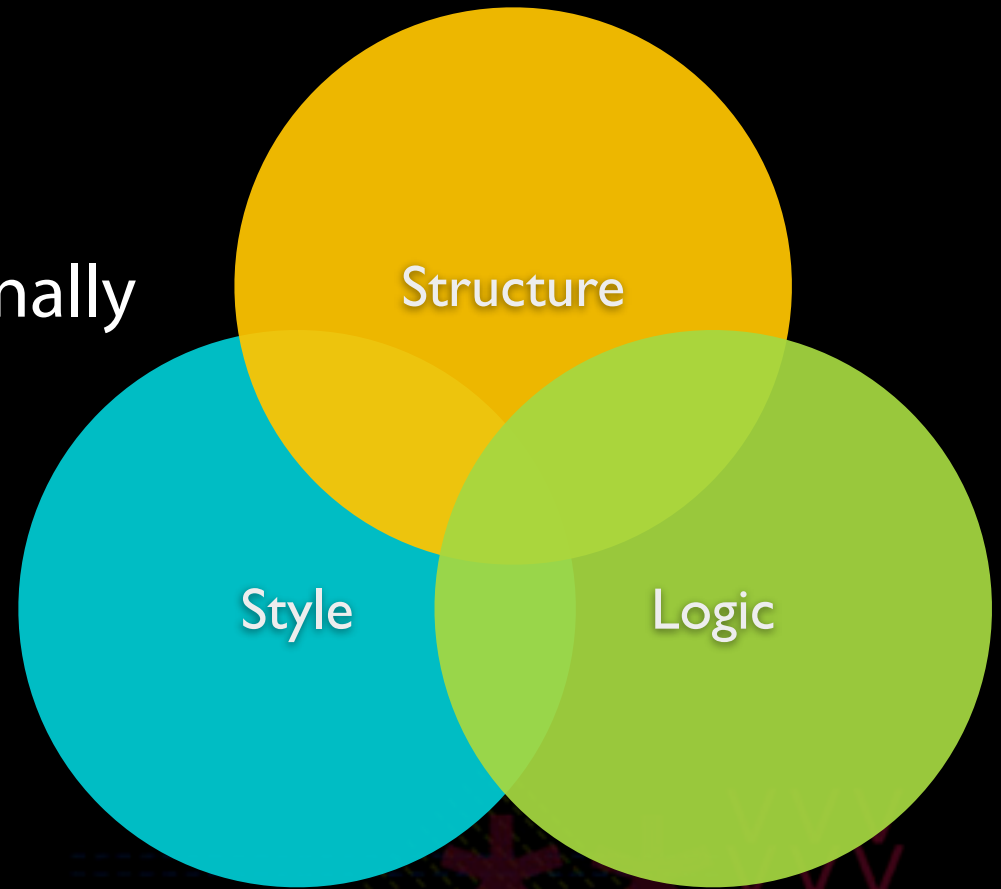


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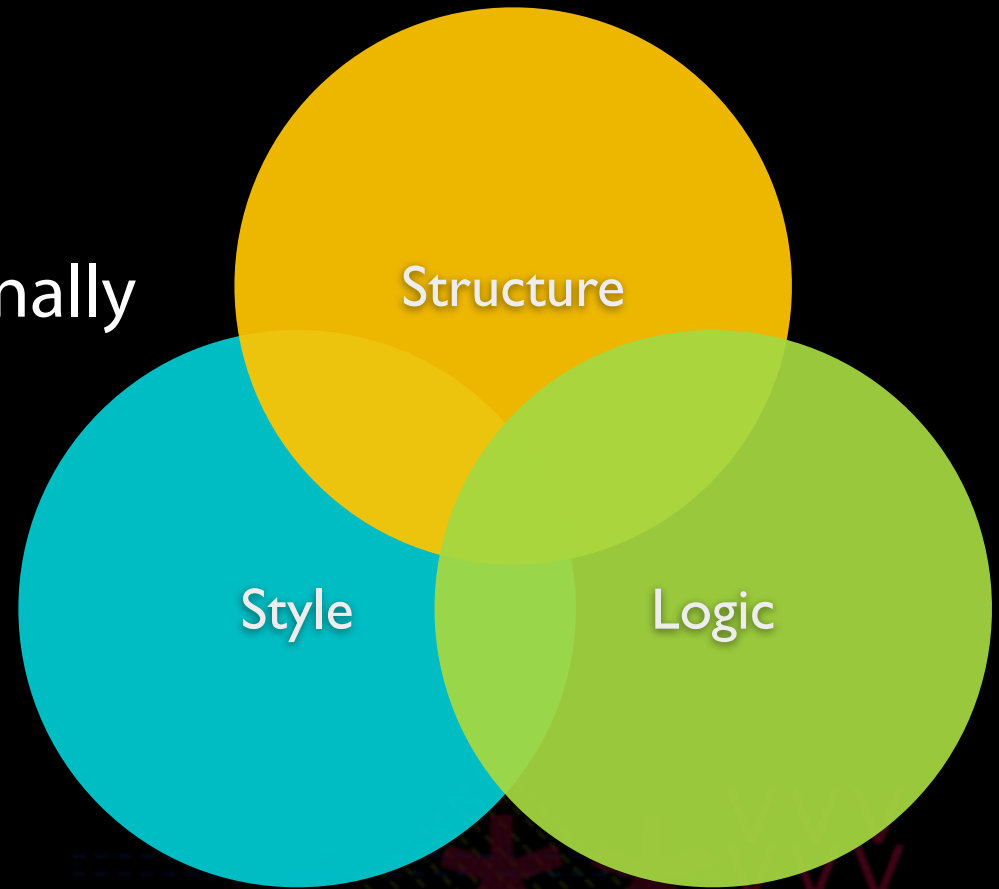


Separation of Concerns

Content/Structure should be free of style & behavior logic

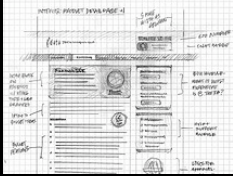
Style should be layered in externally

Logic should be handled in separate code



“Keep structure, style and logic separate”

Prototyping Challenges



Layout

Getting the page laid out correctly (enough) & quickly



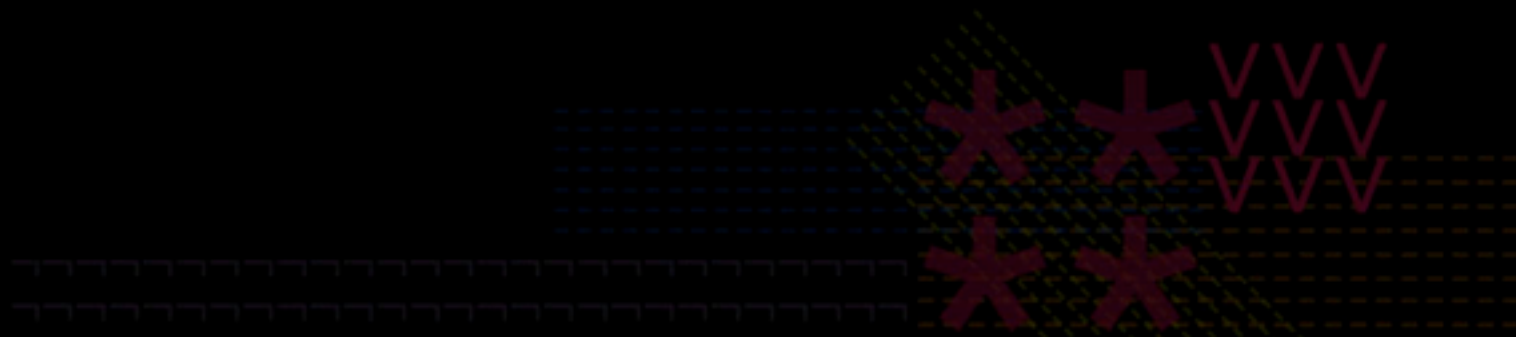
Behavior

Adding interactivity to the page



Data

Populating the prototype with fake or semi-realistic data

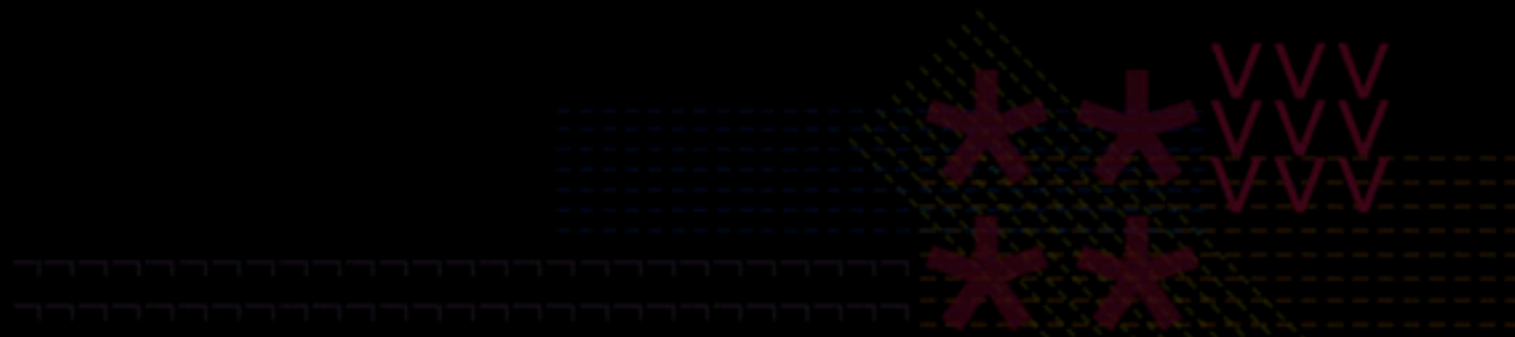




Layout

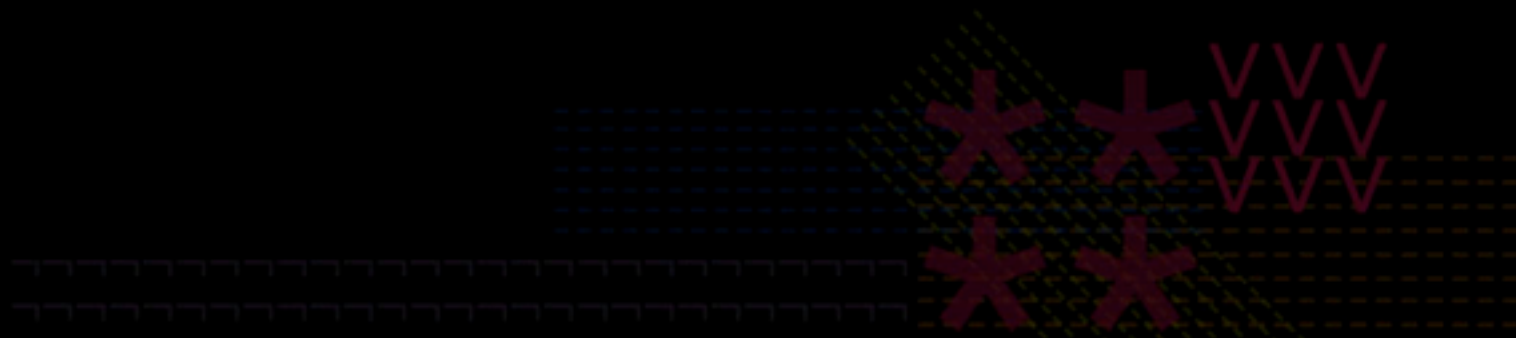
Putting everything where it should be as quickly as possible*

**with minimal hacking*



It's Not That Easy

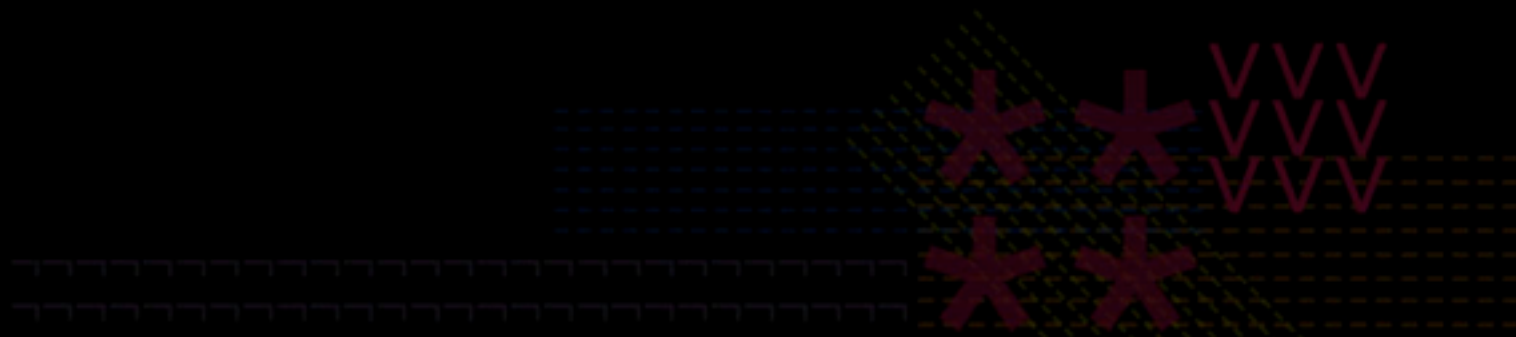
14 IE 6 layout
bugs



It's Not That Easy

14 IE 6 layout
bugs

9 ways to layout
columns

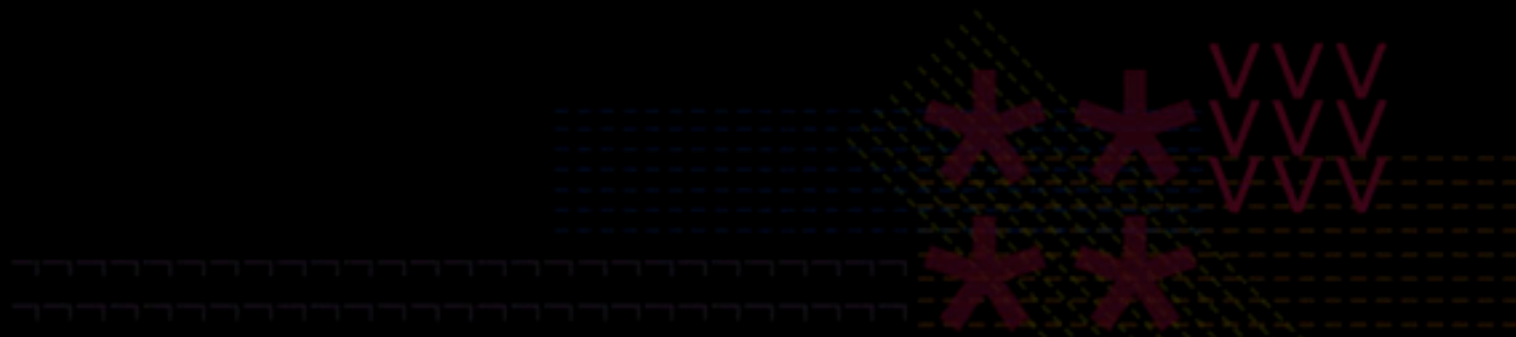


It's Not That Easy

14 IE 6 layout bugs

9 ways to layout columns

3 rendering engines



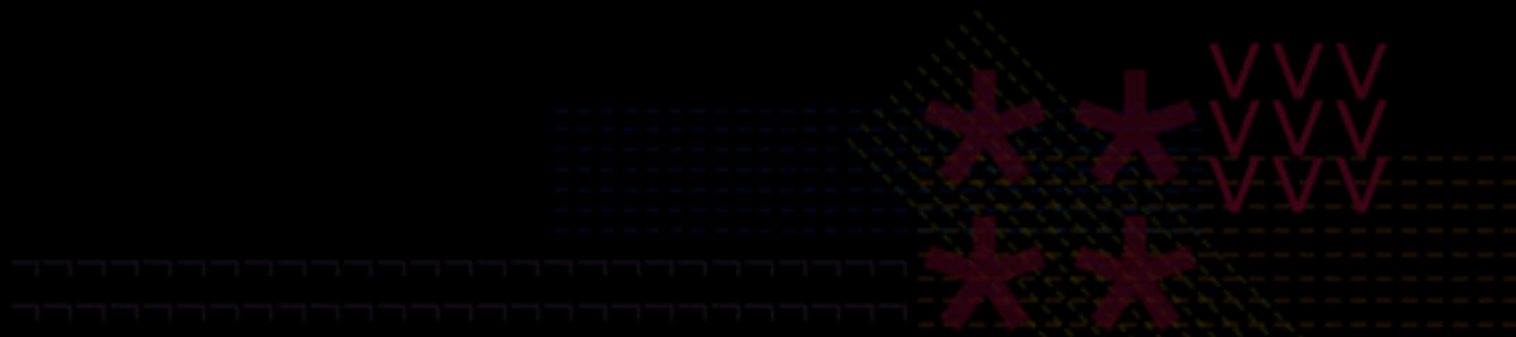
It's Not That Easy

14 IE 6 layout bugs

9 ways to layout columns

3 rendering engines

8 major browsers



It's Not That Easy

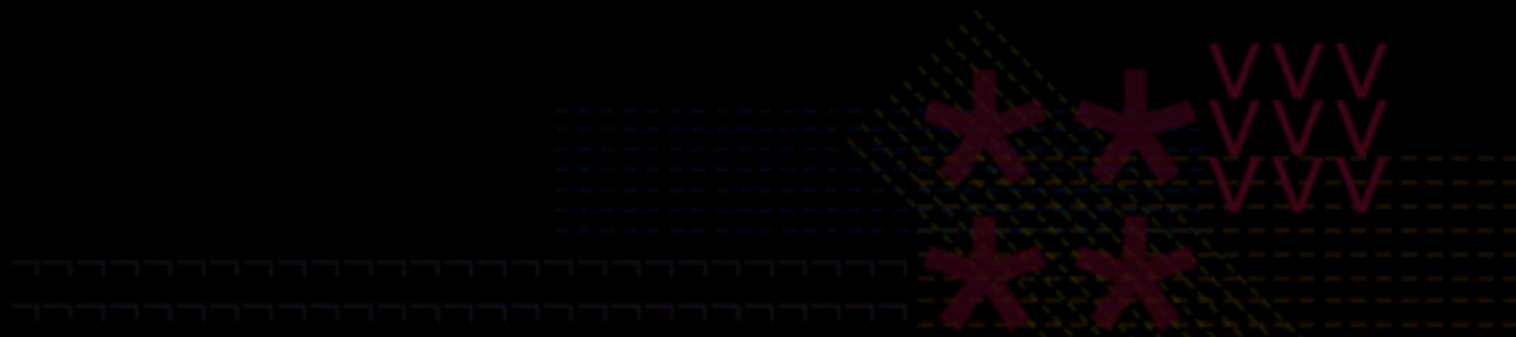
14 IE 6 layout bugs

9 ways to layout columns

3 rendering engines

8 major browsers

5 ways to layout elements



It's Not That Easy

14 IE 6 layout bugs

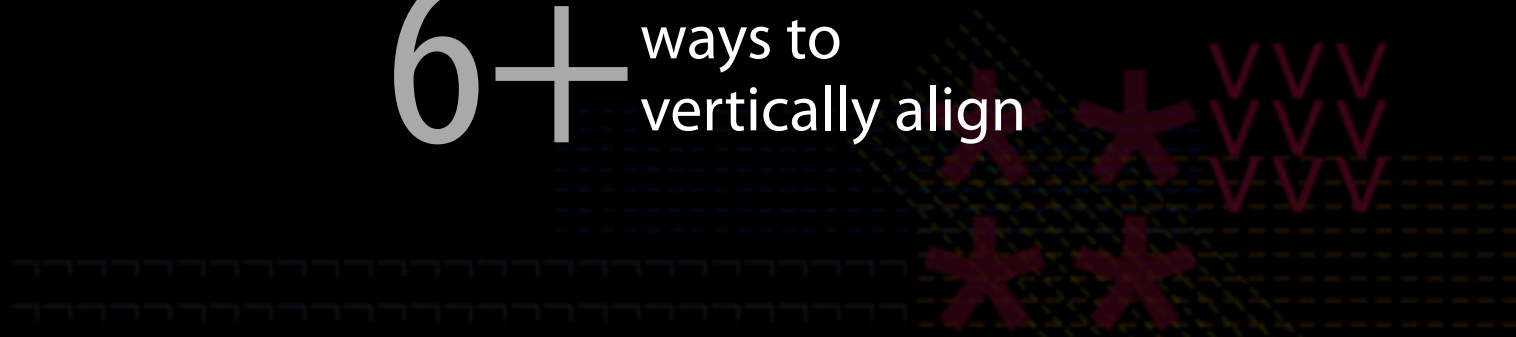
9 ways to layout columns

3 rendering engines

8 major browsers

5 ways to layout elements

6+ ways to vertically align



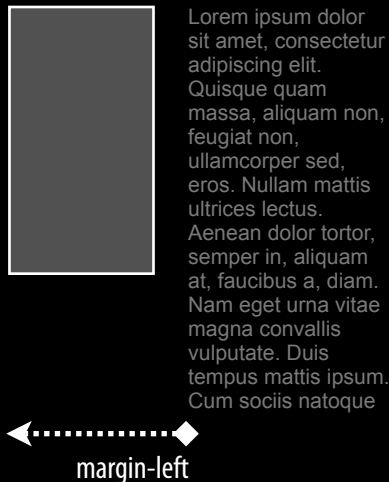
This Should Not Be Hard... But It Is

Confronted with many techniques

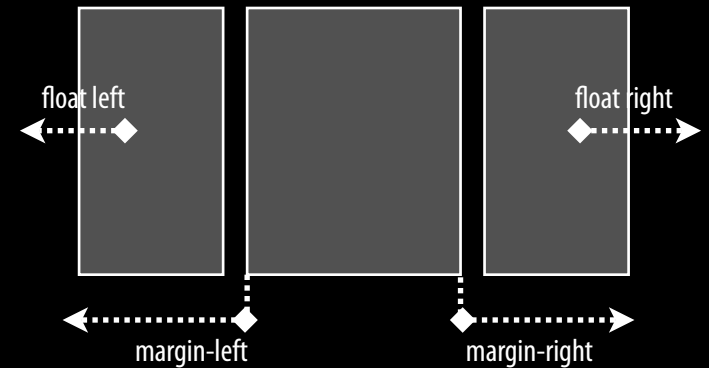
Slows prototyping

Problem: Laying out against the flow

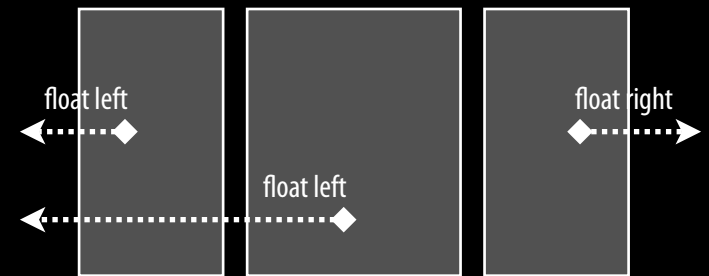
Simple Margin



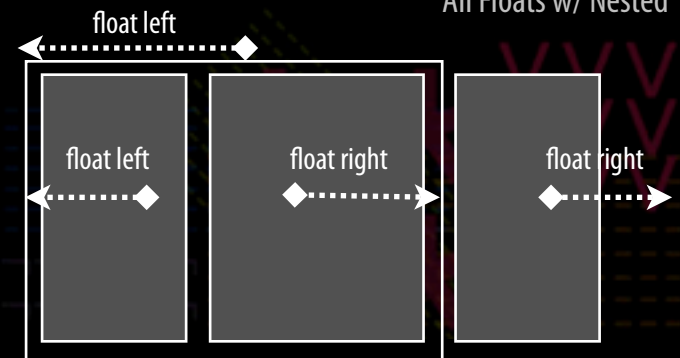
Floats + Margins



All Floats



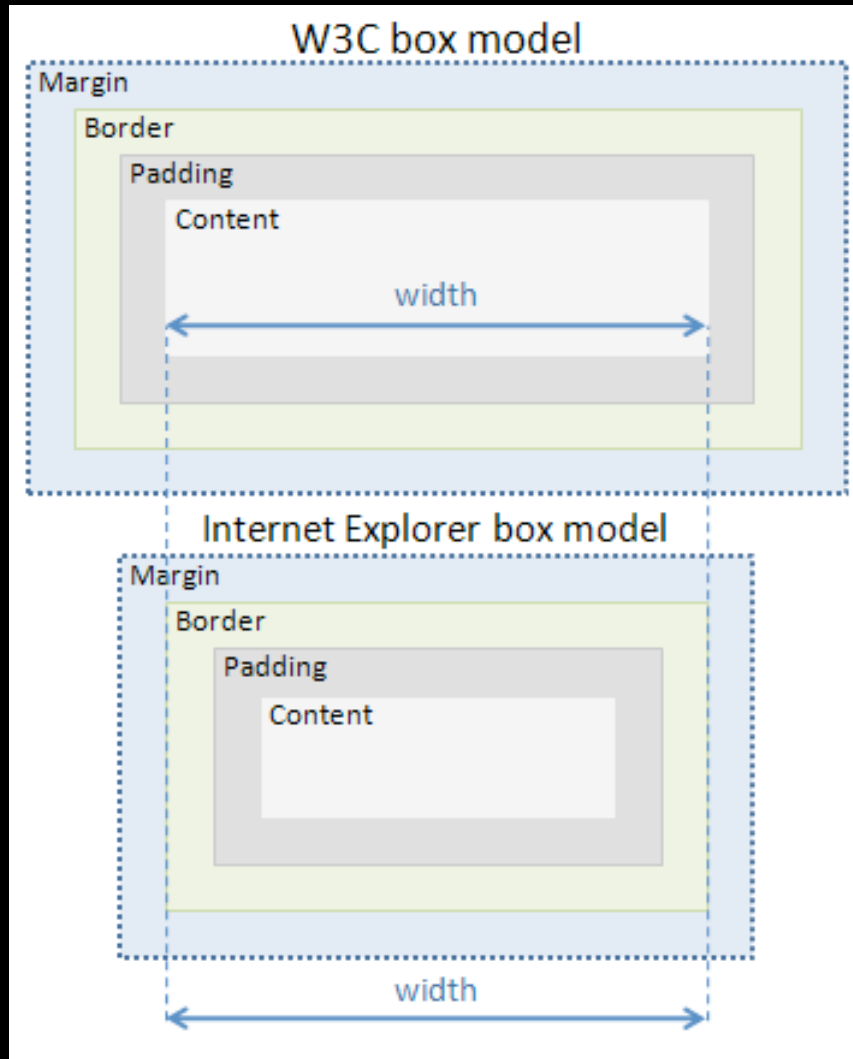
All Floats w/ Nested



Box Model

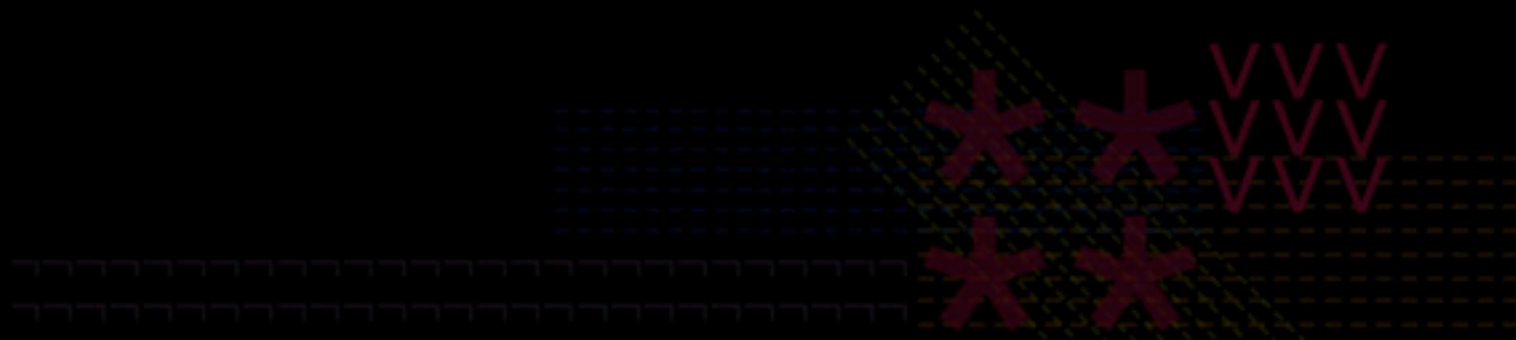
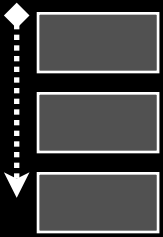
IE6 Quirks mode (and earlier IE) have different handling

Use strict mode to eliminate this concern



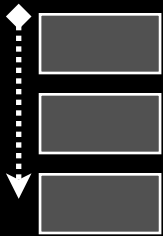
Understanding Floats

Flow of block elements

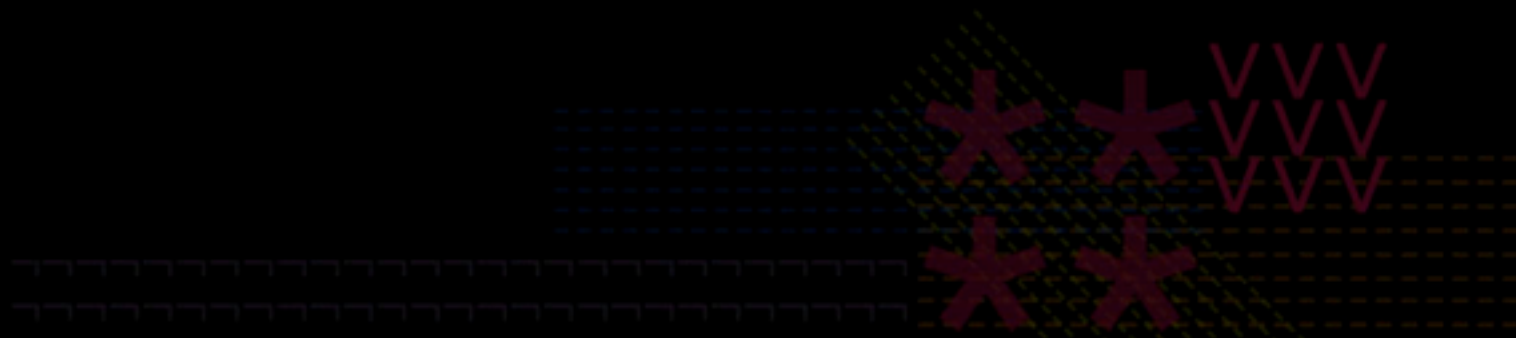
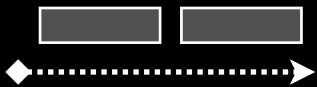


Understanding Floats

Flow of block elements

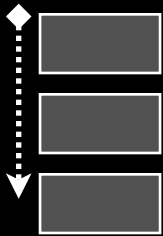


Flow of inline elements

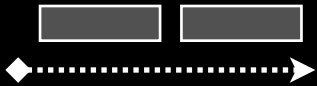


Understanding Floats

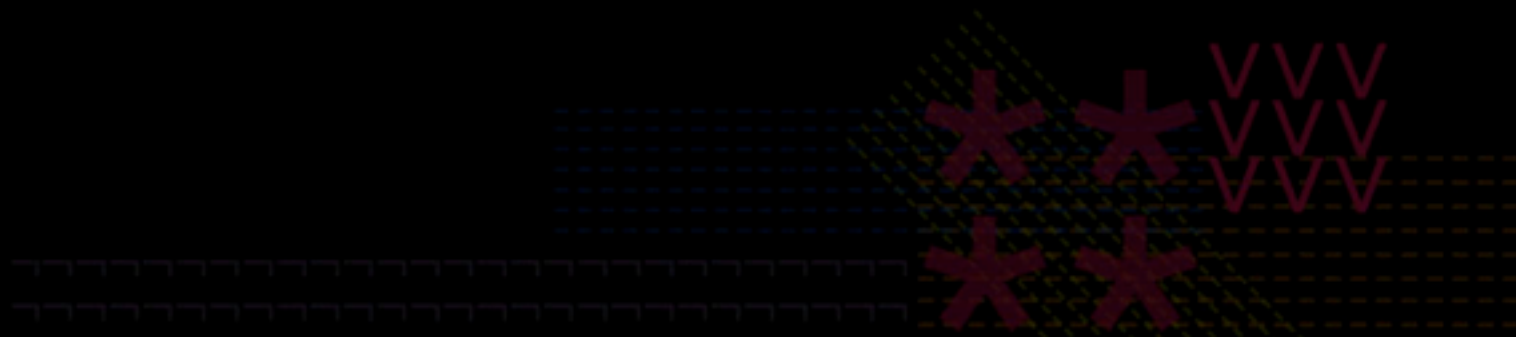
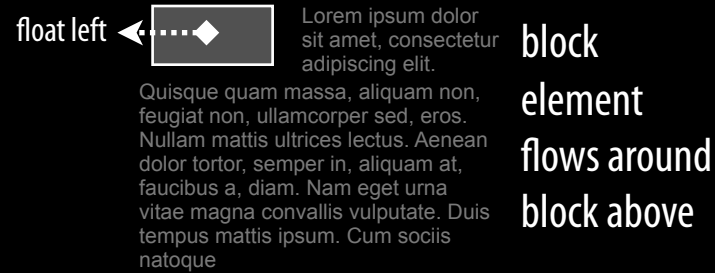
Flow of block elements



Flow of inline elements

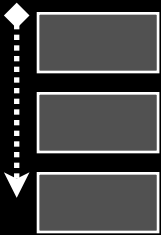


Flow of block elements

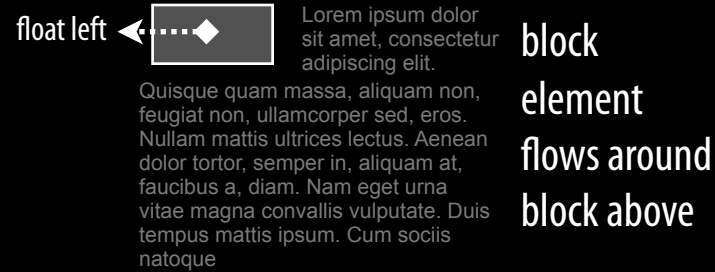


Understanding Floats

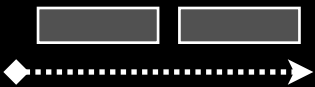
Flow of block elements



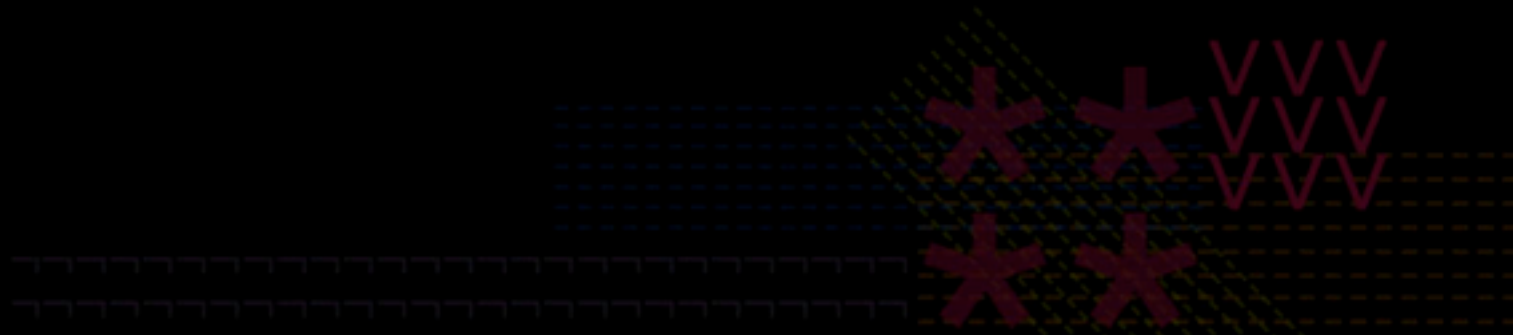
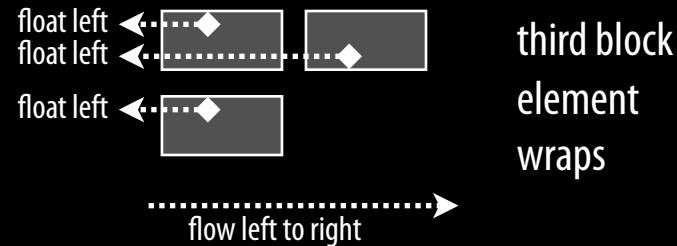
Flow of block elements



Flow of inline elements

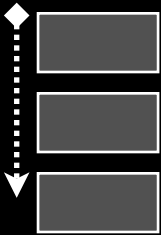


Floating block elements

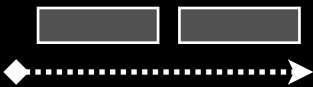


Understanding Floats

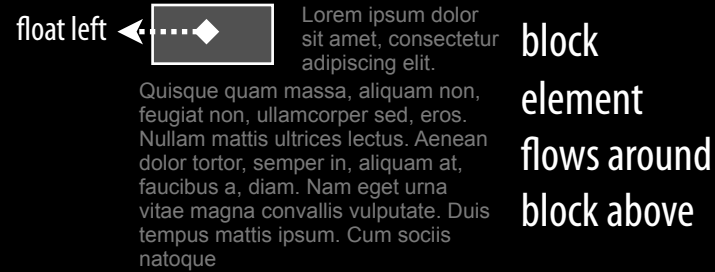
Flow of block elements



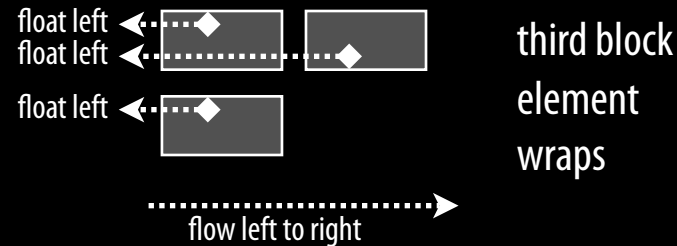
Flow of inline elements



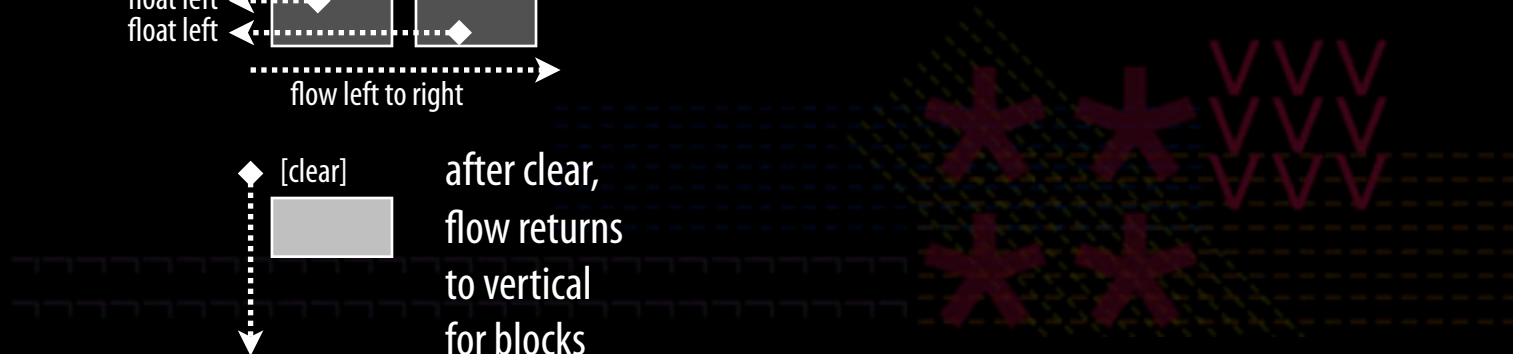
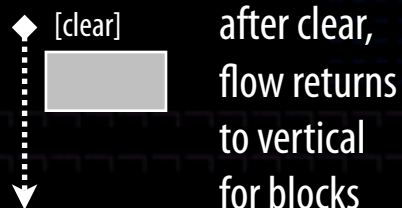
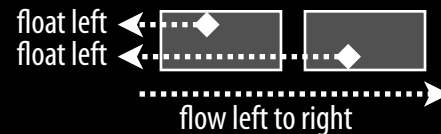
Flow of block elements



Floating block elements

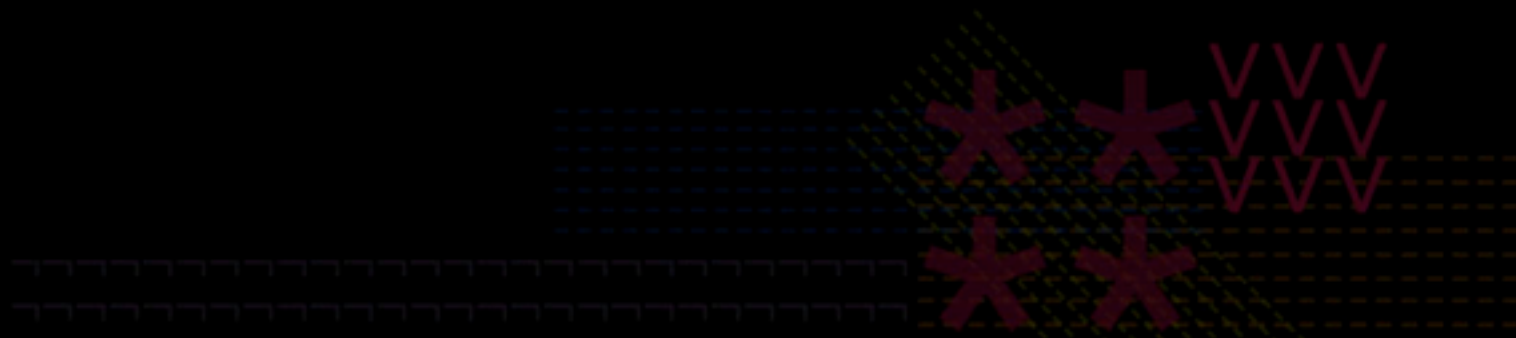
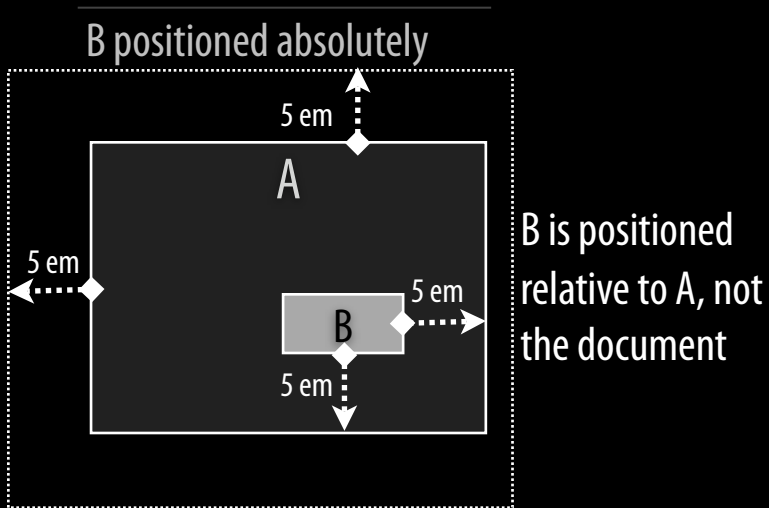


Clearing floats



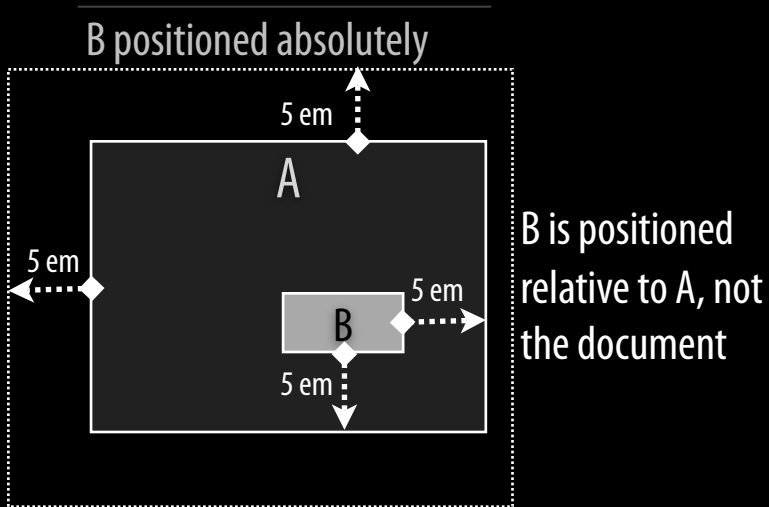
Absolute Positioning

It is actually *relative* to its closest positioned ancestor



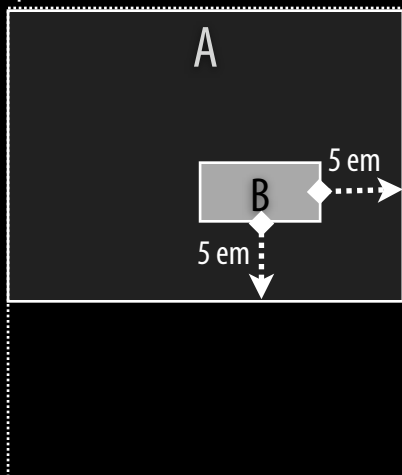
Absolute Positioning

It is actually *relative* to its closest positioned ancestor

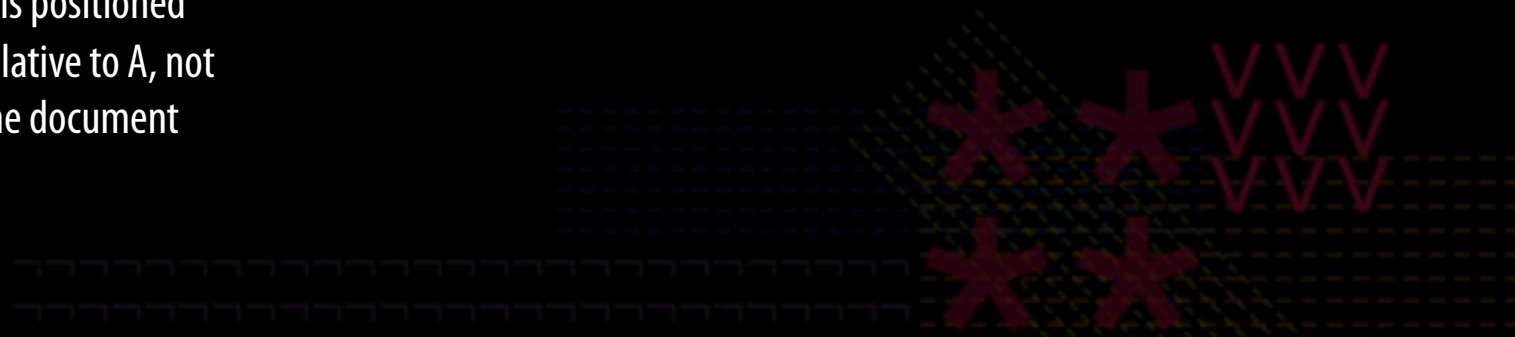


B positioned absolutely

position: relative

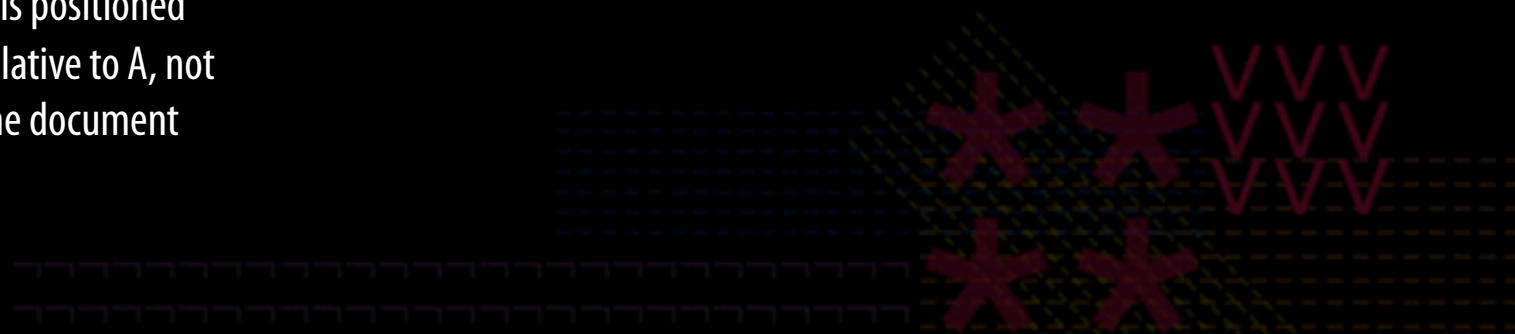
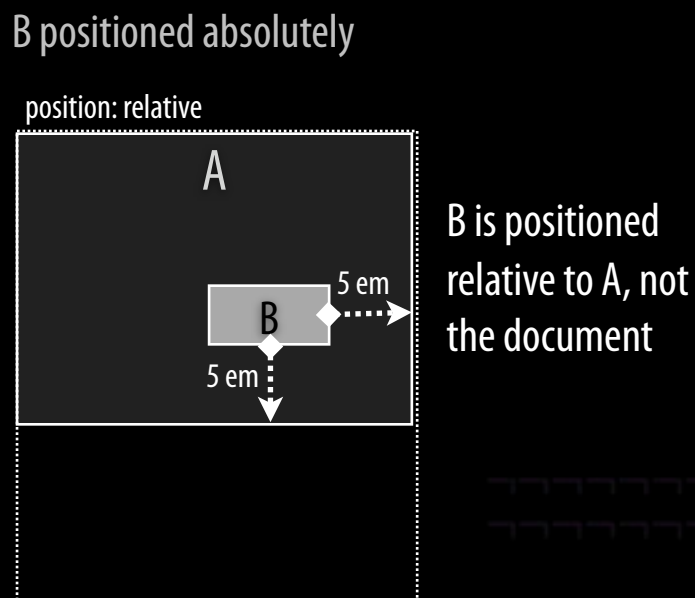
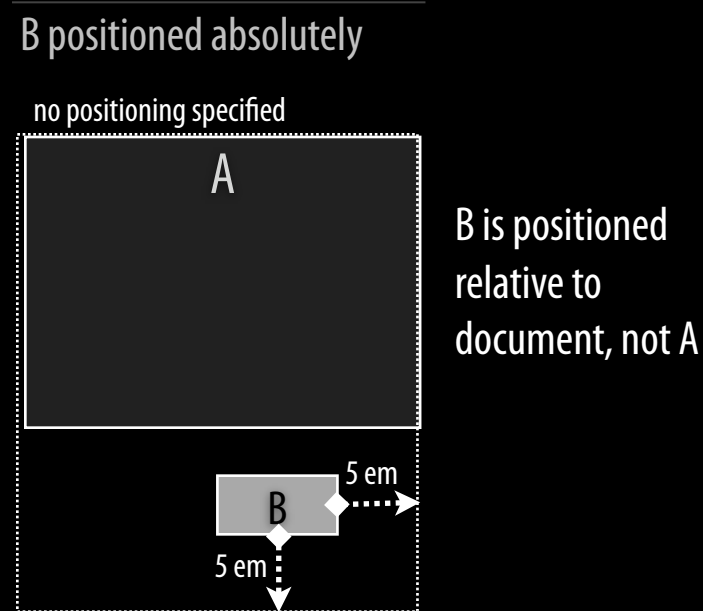
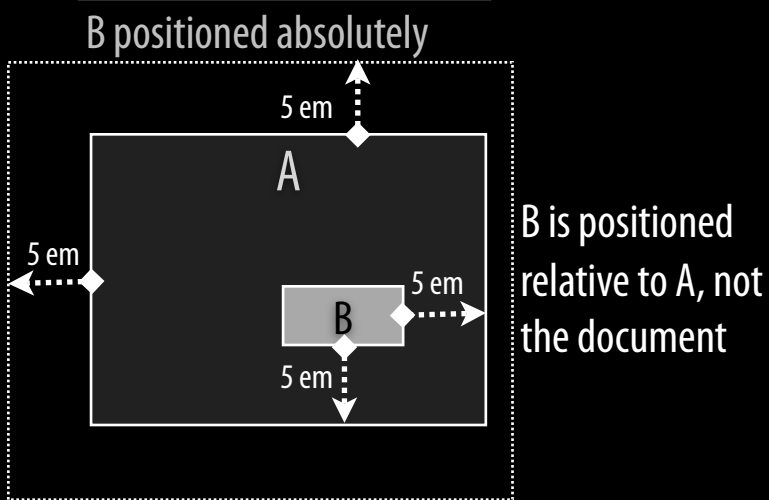


B is positioned relative to A, not the document

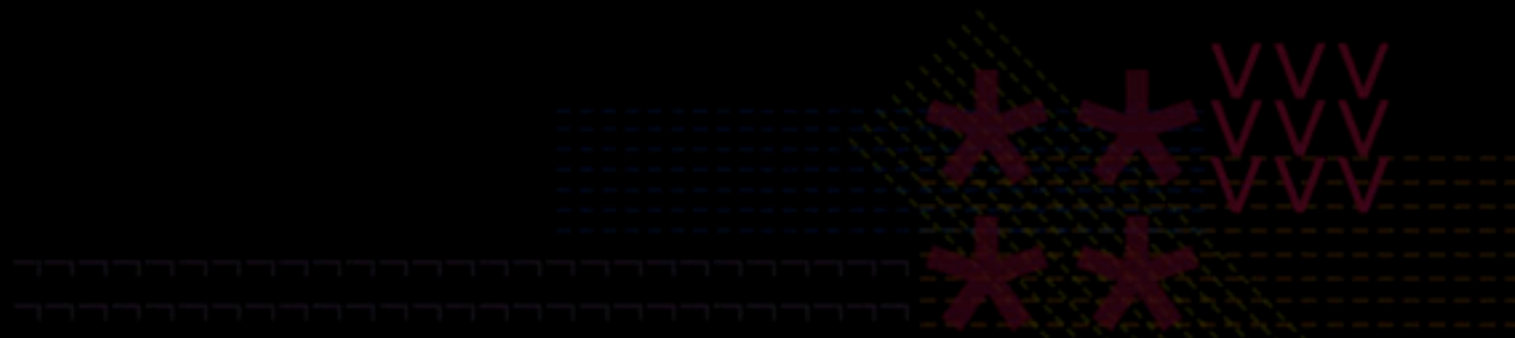


Absolute Positioning

It is actually *relative* to its closest positioned ancestor

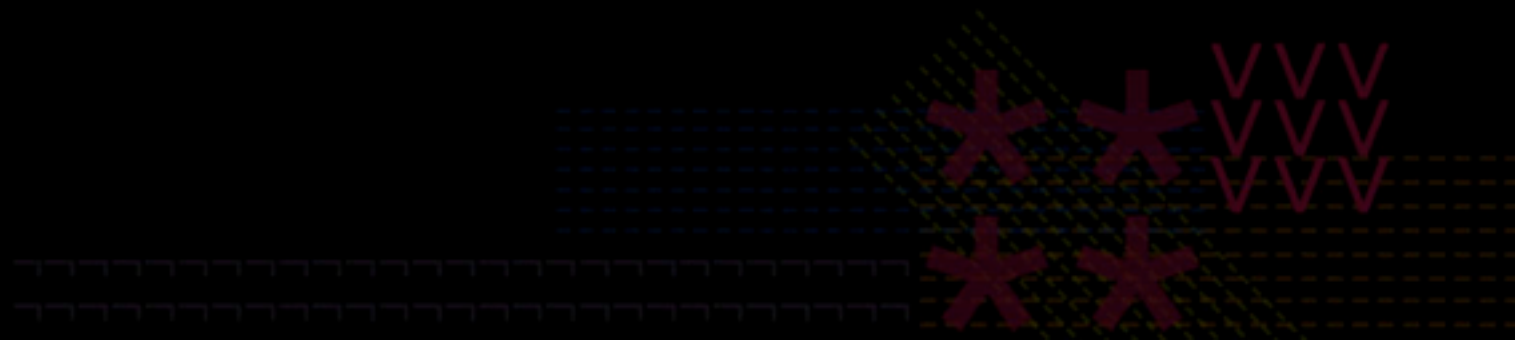


Layout Techniques



Layout Techniques

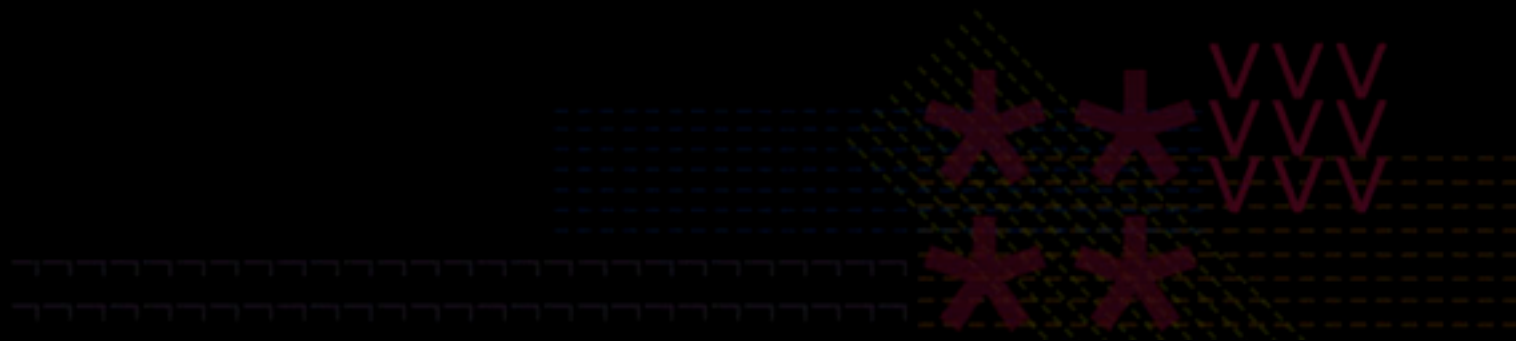
Choose positioning over floats



Layout Techniques

Choose positioning over floats

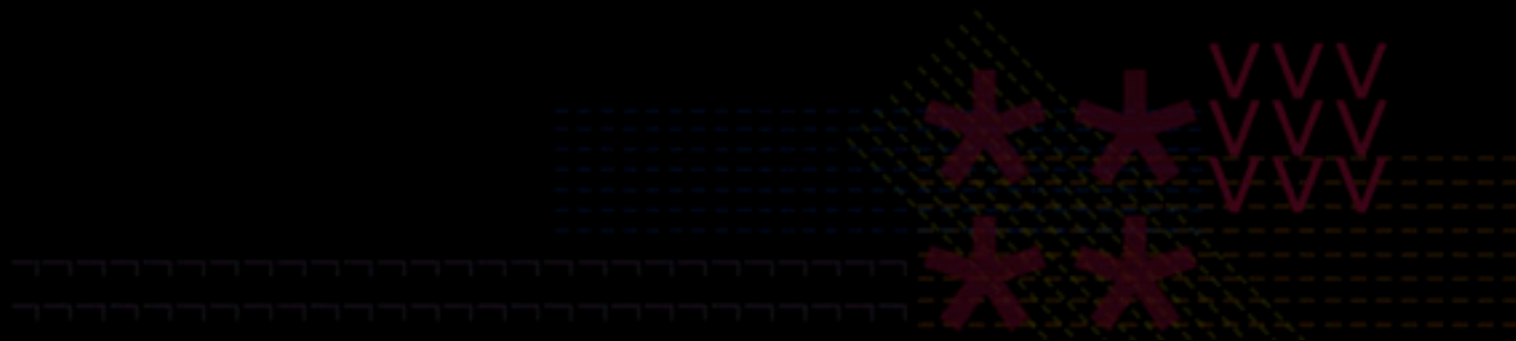
Use a grid layout system



Layout Techniques

Choose positioning over floats

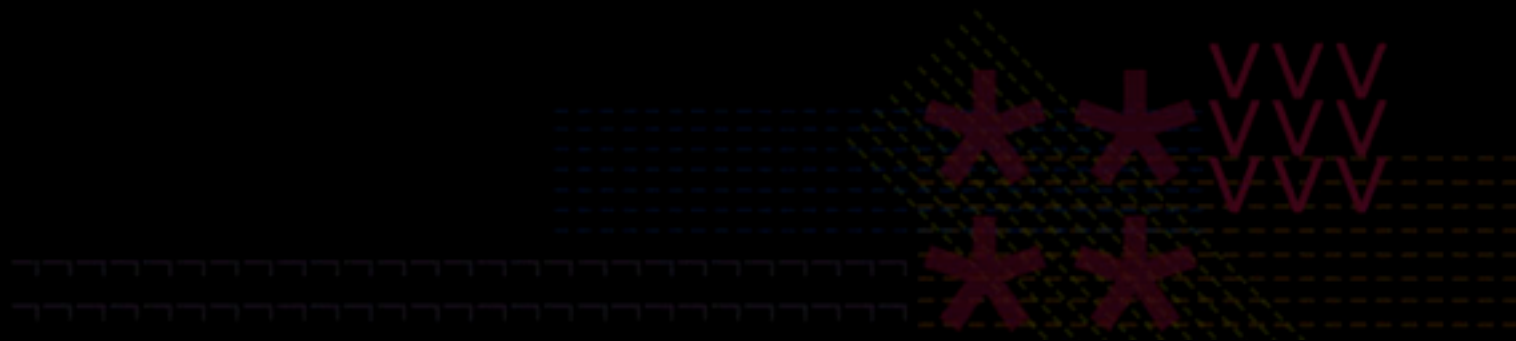
Use a grid layout system



Layout Techniques

Choose positioning over floats

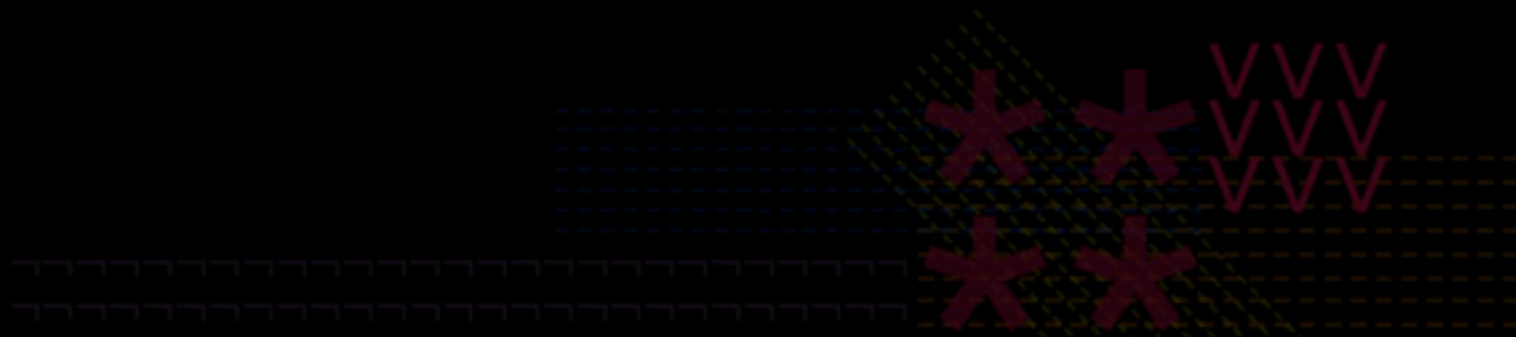
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Layout Techniques

Choose positioning over floats

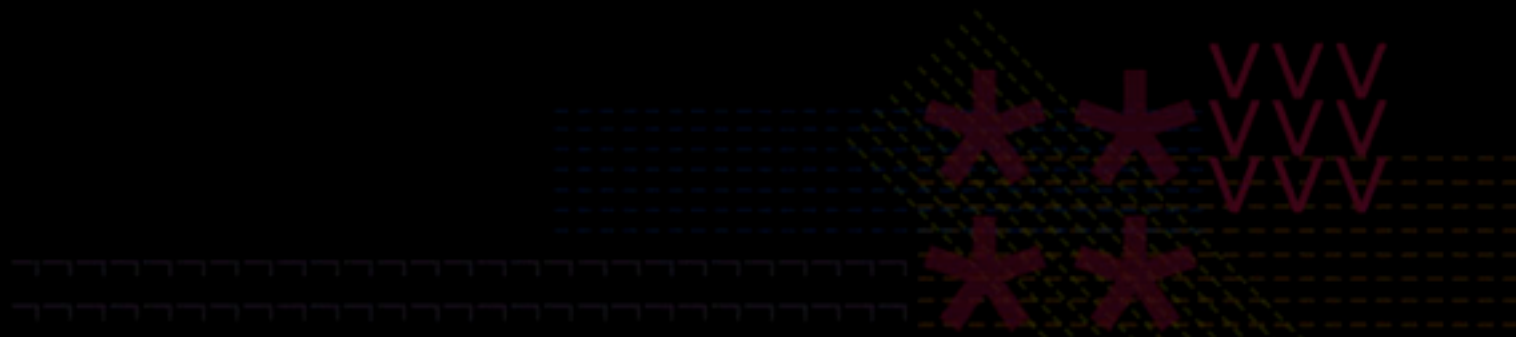
Use a grid layout system



Layout Techniques

Choose positioning over floats

Use a grid layout system

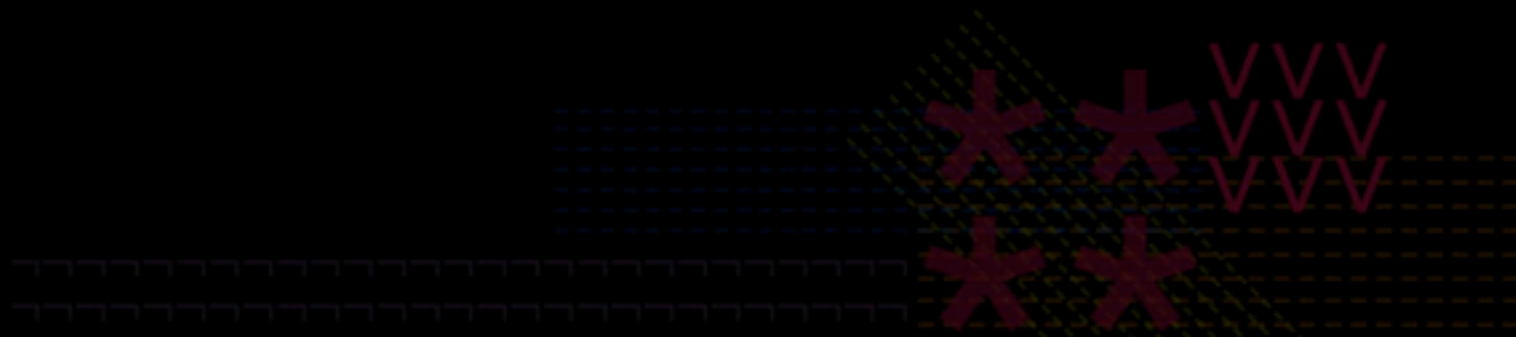


Layout Techniques

Choose positioning over floats

Use a grid layout system

Use a CSS framework to simplify life



CSS Frameworks

Building on the work of others

Hide complexity

Simplify the layout process

Express layout

Define templates and/or grids

Normalize browsers

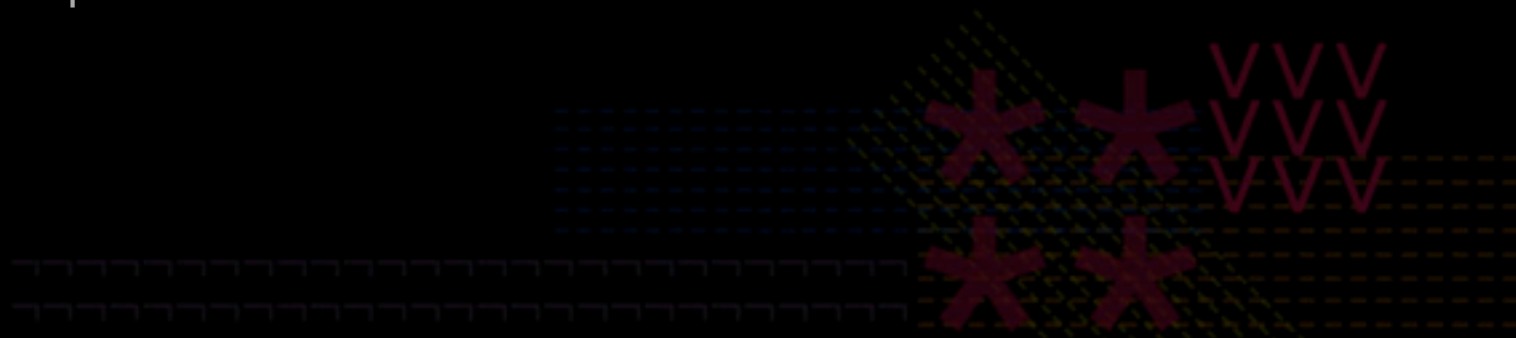
CSS Reset

Handle IE

Objections?

Takes away the craftsmanship

Non-semantic



CSS Frameworks

Elements CSS Frameworks

WYMstyle: a CSS framework

YAML CSS Framework

YUI Grids CSS

Boilerplate CSS Framework

Blueprint CSS

960 Grid

Schema Web Design Framework

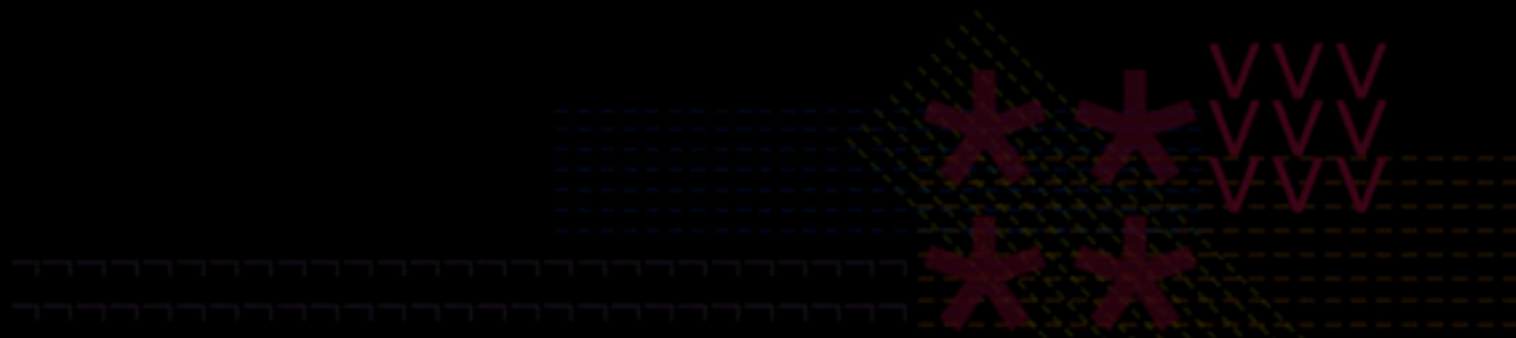
CleverCSS

Tripoli Beta CSS Framework

ESWAT Web Project Framework

CwS CSS Framework

My (not really mine) CSS
Framework



CSS Frameworks

Elements CSS Frameworks

WYMstyle: a CSS framework

YAML CSS Framework

YUI Grids CSS

Boilerplate CSS Framework

Blueprint CSS

960 Grid

Schema Web Design Framework

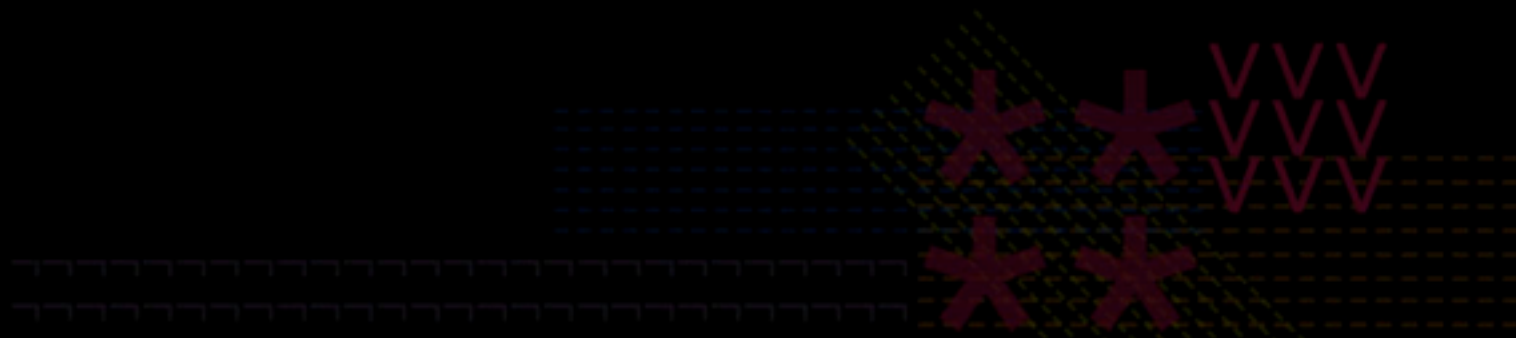
CleverCSS

Tripoli Beta CSS Framework

ESWAT Web Project Framework

CwS CSS Framework

My (not really mine) CSS Framework



Blueprint CSS Framework

A simple sample page

This sample page demonstrates a tiny fraction of what you get with Blueprint.

Here's a box

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip.

And another box

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat laboris nisi ut aliquip.

This box is aligned with the sidebar

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip.



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A Simple Sidebar

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Blueprint CSS Framework

A simple sample page

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Blueprint CSS Framework

A simple sample page

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Inspect Edit div.span-7 < div.container < body < html

Console HTML CSS Script DOM Net Cookies Hammerhead Jiffy Pixel Perfect YSlow Options

```
<hr />
<h2 class="alt">This sample page demonstrates a tiny fraction of what you get with Blueprint. </h2>
<hr />
<div class="span-7 colborder">
  <h3>Here's a box</h3>
  <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip. </p>
</div>
<div class="span-8 colborder">
```

div.colborder { screen.css (line 176)
border-right: 1px solid #EEEEEE;
margin-right: 25px;
padding-right: 24px;
}
.column, div.span-1, div.span-2, div.span-3, div.span-4, div.span-5, div.span-6, div.span-7, div.span-8, div.span-9, div.span-10, div.span-11, div.span-12 { screen.css (line 79)

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Nullam mattis, odio ut tempus facilisis, metus nunc mauris. Vestibulum odio erat, fermentum at, commodo sagittis condimentum, sem nulla aliquam velit, sed in Aenean aliquet magna eget orci. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Vivamus euismod. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Suspendisse vel nibh ut turpis dictum sagittis. Sed neque lacinia pretium. Quisque nunc erat, venenatis Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Morbi dignissim sollicitudin libero. Nulla lorem.

Integer cursus ornare mauris. Praesent nisi arcu, sagittis erat sed velit tempus imperdiet. Ut tristique quis rutrum mauris lorem quis sem. Vestibulum ligula suscipit placerat odio. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Pellentesque tortor libero, venenatis

Maecenas vel metus quis magna pharetra fermentum. Integer sit amet tortor. Maecenas porttitor, pede sed gravida auctor, nulla augue aliquet elit, at pretium urna orci ut metus. Aliquam in dolor. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Sed aliquam, tellus id ornare posuere, quam nunc accumsan turpis, at convallis tellus orci et nisi. Phasellus congue neque a lorem.

This is a nested column

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

This is another nested column

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

This sample page demonstrates a tiny fraction of what you get with Blueprint.

Here's a box
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip.

Layout is specified by using style classes that denote layout.

“span-7” means span 7 grid columns.

“colborder” means provide one grid column to the right as a border.

```
Inspect Edit div.span-7 < div.container
Console HTML CSS Script DOM Net
<hr/>
<h2 class="alt">This sample page demonstrates a tiny fraction of what you get with Blueprint.</h2>
<hr/>
<div class="span-7 colborder">
  <h3>Here's a box</h3>
  <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip.</p>
</div>
<div class="span-8 colborder">
```

This box is aligned with the sidebar

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip.

```
Style Layout DOM Options
div.colborder { screen.css (line 176)
  border-right: 1px solid #EEEEEE;
  margin-right: 25px;
  padding-right: 24px;
}
.column, div.span-1, screen.css (line 79)
div.span-2, div.span-3,
div.span-4, div.span-5,
div.span-6, div.span-7,
div.span-8, div.span-9,
```

You may pick and choose amongst these and many more features, so be bold.

SPAN CLASSES	
Use these classes to set the width of a column	
span-1	span-13
span-2	span-14
span-3	span-15
span-4	span-16
span-5	span-17
span-6	span-18
span-7	span-19
span-8	span-20
span-9	span-21
span-10	span-22
span-11	span-23
span-12	span-24

APPEND CLASSES	
Add these to a column to append empty columns.	
append-1	append-13
append-2	append-14
append-3	append-15
append-4	append-16
append-5	append-17
append-6	append-18
append-7	append-19
append-8	append-20
append-9	append-21
append-10	append-22
append-11	append-23
append-12	

PREPEND CLASSES	
Add these to a column to prepend empty columns.	
prepend-1	prepend-13
prepend-2	prepend-14
prepend-3	prepend-15
prepend-4	prepend-16
prepend-5	prepend-17
prepend-6	prepend-18
prepend-7	prepend-19
prepend-8	prepend-20
prepend-9	prepend-21
prepend-10	prepend-22
prepend-11	prepend-23
prepend-12	



Blueprint

v.0.7.1

Blueprint CSS version 0.7.1 (<http://code.google.com/p/blueprintcss/>)
 Copyright © 2007-2008 Olav Bjorkoy (<http://bjorkoy.com>)
 Cheat sheet v.1.1 by Gareth J M Saunders, based on Help Sheet v.0.3 by Alejandro Vasquez

STYLESHEET LINK

Download the latest version from <http://code.google.com/p/blueprintcss/> and add these lines into the <head> of your page. Check that your href path is correct.

```
<link rel="stylesheet" href="blueprint/screen.css" type="text/css"
  media="screen, projection">
<link rel="stylesheet" href="blueprint/print.css" type="text/css"
  media="print">
<!--[if IE]>
<link rel="stylesheet" href="blueprint/ie.css" type="text/css"
  media="screen, projection">
<![endif]-->
```

USAGE

```
<body>
  <div class="container">
    <div class="span-15">
      <p>Column 1</p>
    </div>
    <div class="span-6 last">
      <p>Column 2</p>
    </div>
  </div>
</body>
```

div.span-x now implies a column. Remember to use "last" for the last column of the row to avoid it jumping to the next row. Columns can be nested inside one another.

TYPOGRAPHY

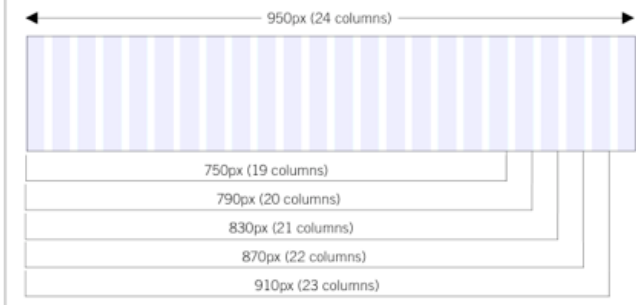
typographic.css sets up some sensible default typography. The font-size percentage is of 16px (0.75 * 16px = 12 px). Line-heights and vertical margins are automatically calculated from this in ems.

The base line-height is 18px (1.5ems). This means that every element, from line-heights to images have a height that is a multiple of 18 (or 1.5 if you use ems).

Color is #222 (dark grey); font-family is "Helvetica Neue", "Helvetica", "Arial", sans-serif; Also defines tables, lists and misc. classes.

GRID

If you need more or fewer columns use this formula to find the new total width:
 total width = (columns * 40) - 10



GRID CLASSES

.container	A container should group all your columns; use on <div>.
.showgrid	Use this on any div.span / container to see the grid.
.border	Shows a border on the right hand side of a column; use on <div>.

html
reset.css
grid.css
typography.css
forms.css
ie.css

RESET

Blueprint CSS resets all browsers' default tags to:

- margin, padding, border: 0
- font-size: 100%
- font-weight: normal
- other font values: inherit
- image borders: 0

Tables still need "cellspacing="0" in the markup though.

TYPOGRAPHY CLASSES

These classes are defined in the typography.css file. Other typographic tags as also redefined in this file.

.small	0.8em; line 1.875
.large	1.2em; line 2.5
.hide	display: none
.quiet	color 666 (grey)
.loud	color 000 (black)
.highlight	bg #ff0 (yellow)
.added	bg 060 (green)
.removed	bg 900 (red)
.first	mL 0; pL 0
.last	mR 0; pR 0
.top	mT 0; pT 0
.bottom	mB 0; pB 0

FORMS

These are defined in the forms.css file.

.error	red framed box
.notice	yellow framed box
.success	green framed box
input.text	w 300px pad 5px
input.title	font-size 1.5em
textarea	w 390px h 250px
select	w 200px
label	bold
fieldset	padding 1.4em
legend	font-size 1.2em

span-1	span-13
span-2	span-14
span-3	span-15
span-4	span-16
span-5	span-17
span-6	span-18
span-7	span-19
span-8	span-20
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prepend-5	prepend-17
prepend-6	prepend-18



Blueprint

v.0.7.1

Blueprint CSS version 0.7.1 (<http://code.google.com/p/blueprintcss/>)

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<!--[if IE]>
<link rel="stylesheet" href="blueprint/ie.css" type="text/css"
  media="screen, projection">
<![endif]-->
```

USAGE

```
<body>
  <div class="container">
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    <div class="span-6 last">
      <p>Column 2</p>
    </div>
  </div>
</body>
```

div.span-x now implies a column. Remember to use "last" for the last column of the row to avoid it jumping to the next row. Columns can be nested inside one another.

TYPOGRAPHY

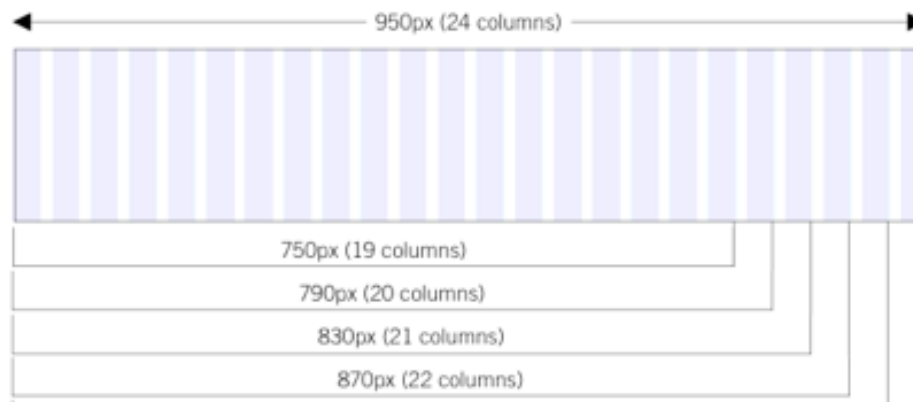
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grid.css

typography.css

forms.css

ie.css

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.hide	display: none
.quiet	color 666 (grey)
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.highlight	bg #ff0 (yellow)
.added	bg 060 (green)
.removed	bg 900 (red)
.first	mL 0; pL 0
.last	mR 0; pR 0
.top	mT 0; pT 0
.bottom	mB 0; pB 0

FORMS

These are defined in the forms.css file.

.error	red framed box
.notice	yellow framed box
.success	green framed box
input.text	w 300px pad 5px

Blueprint Grid CSS Generator

Version: v.0.7.1 (2008-02-25)

INTRODUCTION:

This tool will help you generate more flexible versions of [Blueprint's](#) `grid.css` and `compressed.css` and `grid.png` files. Whether you prefer 8, 10, 16 or 24 columns in your design, this generator now enables you that flexibility with [Blueprint](#).

Updated to version 0.7.1! Please Note! The default Blueprint CSS files are already generated for you to copy below.

USAGE:

1. Enter your desired **number of columns**.
2. Your **column width**.
3. Enter the width of your **margin**.
4. Enter the desired **page width**.
5. Click '**Generate CSS**' button and copy the results from the **Generated Code** section.

Generator Form:

Number of Columns:

24 - +

« Fit

Column Width:

30 px

« Fit

Margin Width:

10 px

« Fit

Total Page Width:

Desired Page Width:

950 px

Generate CSS

Reset

Generated Code:

Click in the text area below to copy all the CSS code and save your versions of `grid.css`, `compressed.css` and `grid.png`. Click tabs below to switch between files.

Grid.css

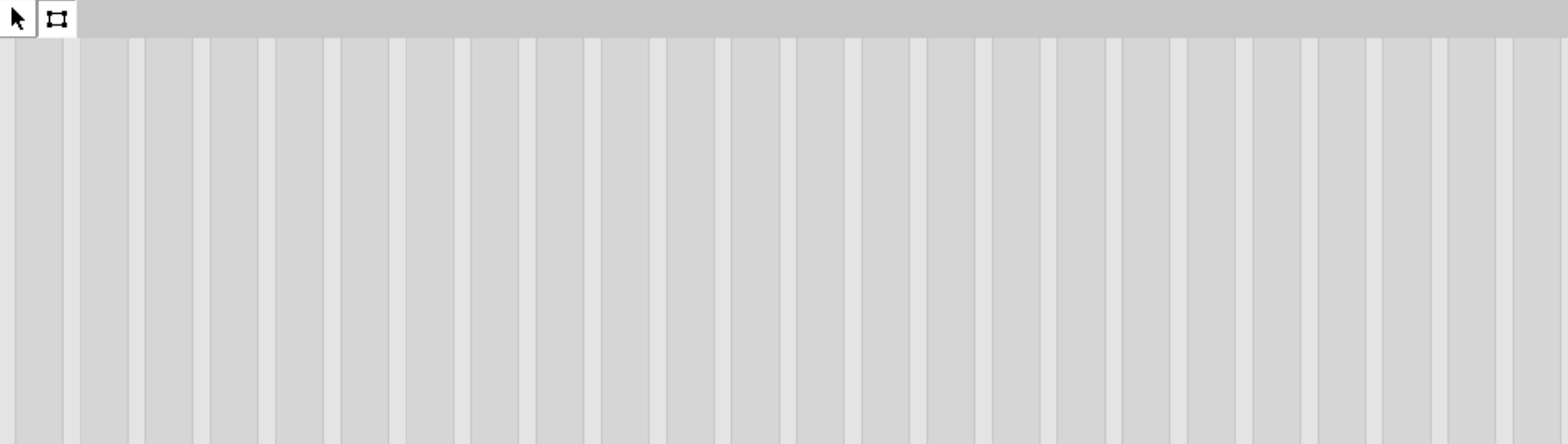
Compressed.css

Grid.png

```
/* -----  
  
BLUEPRINT CSS  
* Filename:      grid.css  
* Version:      0.7.1 (2008-02-25) YYYY-MM-DD  
* Website:      http://code.google.com/p/blueprintcss/  
  
Generated by:  
* Blueprint CSS Grid Generator (2009-02-24) [http://kematzy.com  
/blueprint-generator/]  
  
Based on work by:  
* Olav Bjorkoy [bjorkoy.com]  
* Nathan Borror [playgroundblues.com]  
* Jeff Croft [jeffcroft.com]  
* Christian Metts [mattmoo.com]
```

11)) 11 11 11 11~11~11 11))
11 11__ 11_11 11 11 11 11))

This is **Plumb**, a tool for composing web layouts for use with the [Blueprint CSS framework](#).



Recognize & test

Get HTML

Get debugging info

Plumb was made by [Michael Daines](#). The code is hosted at [GitHub](#).



YUI Grid Builder

YUI CSS Grid Builder

Body Size

750px

Body Columns

No Columns

Split Content

Row:

1 Column (100)

Add Row

Accessibility

☒Use ARIA Landmark Roles

☒Show Reading Order

Set Header Content

Set Footer Content

Show Code

Reset

Return to Docs

role: banner

Header

Order 1

role: main

Order 2

role: contentinfo

Order 3

Footer

Header

role: main

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas sit amet metus. Nunc quam elit, posuere nec, auctor in, rhoncus quis, dui. Aliquam erat volutpat. Ut dignissim, massa sit amet dignissim cursus, quam lacus feugiat.

Footer

YUI Grid Cheat Sheet

Y! YUI Library: CSS Reset, Base, Fonts, and Grids

2009-2-6

v2.7

Recommended Doctype and Render Mode

YUI works in both "Quirks" and "Standards/Strict" browser-rendering modes, but we suggest using Standards mode by specifying this Doctype:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
"http://www.w3.org/TR/html4/strict.dtd">
```

YUI CSS Reset + YUI CSS Base

YUI CSS Reset neutralizes browser CSS styles for HTML elements, creating a normalized platform. YUI CSS Base then rebuilds a consistent style foundation for common HTML elements. YUI CSS Base is also useful as a snippets library, for instance to see how to put bullets back on UL LIs.

YUI CSS Fonts: Setting Font Size and Family

Font-size: While still allowing users to zoom their font sizes, the YUI Fonts package renders all text at 13px by default. To preserve users' ability to zoom their fonts, specify other sizes using percentages only (see top chart in right column).

```
selector {font-size:123.1%;} /*16px*/
```

Font-family: The YUI Fonts package defines Arial as the default font and provides a degradation path through several alternate fonts down to the generic "sans-serif." When specifying other font families, provide your own degradation path as needed.

```
<style>selector {font-family:verdana,sans-
serif;}</style>
```

Base Page Format

We find it useful to build a page in three stacked horizontal regions:

```
<body>
  <div id="doc"><!--overall document wrapper-->
    <div id="hd"><!--header / masthead--></div>
    <div id="bd"><!--body--></div>
    <div id="ft"><!--footer--></div>
  </div>
</body>
```

Inside #bd, if two blocks (.yui-b) exist, designate a main block by wrapping it with <div id="yui-main">:

```
<div id="yui-main">
  <div class="yui-b"><!--primary--></div>
</div>
<div class="yui-b"><!--secondary--></div>
```

YUI CSS Grids: Nomenclature

#doc – #doc4	Define the overall width of the page. doc 750px, doc2 950px, doc3 100%, doc4 974px,
.yui-t1 – .yui-t6	Six preset template for secondary column size & side. (see right column, bottom chart)
.yui-g	Basic grid (.yui-g) tells two units (.yui-u) to share.
.yui-gb – .yui-gf	Special grids (.yui-gbyui-gf) are for three-unit and uneven two-unit space sharing. (see right column, middle chart)
.yui-u	A unit inside a grid; generic; obeys parent grid.
.first	Overload the class attribute with "first" to indicate first of a series of grids or units. (This facilitate floats and margins.)

Customize Page Width

Pixels / 13 = width in ems. For IE, pixels / 13.333. Use star-property filter to target IE. For example, this sets 610px:

```
#custom-doc {
  width:46.923em; /* 610/13 */
  *width:45.750em; /* 610/13.333 */
}
```

The Basic Grid Pattern

```
<div class="yui-g">
  <div class="yui-u first"></div>
  <div class="yui-u"></div>
</div>
```

The Nested Grid Pattern

```
<div class="yui-g">
  <div class="yui-g first">
    <div class="yui-u first"></div>
    <div class="yui-u"></div>
  </div>
  <div class="yui-g">
    <div class="yui-u first"></div>
    <div class="yui-u"></div>
  </div>
</div>
```

Fonts Sizing Chart

For this PX	Use this percentage:
10	77
11	85
12	93
13	100
14	108
15	116
16	123.1
17	131
18	138.5
19	146.5
20	153.9
21	161.6
22	167
23	174
24	182
25	189
26	197

Grids: Nesting Grids (yui-g's)

.yui-g	1/2, 1/2
.yui-gb	1/3, 1/3, 1/3
.yui-gc	2/3, 1/3
.yui-gd	1/3, 2/3
.yui-ge	3/4, 1/4
.yui-gf	1/4, 3/4

Other configurations, such as 1/4, 1/4, 1/4, 1/4 can be rendered by nesting yui-g's inside other "yui-g" grids.

Grids: Templates (yui-t's)

.yui-t1	160 on left
.yui-t2	180 on left
.yui-t3	300 on left
.yui-t4	180 on right
.yui-t5	240 on right
.yui-t6	300 on right

Ddoctype and Render Mode

orks" and "Standards/Strict" browser-ve suggest using Standards mode by pe:

```
UBLIC "-//W3C//DTD HTML 4.01//EN"
.org/TR/html4/strict.dtd">
```

YUI CSS Base

izes browser CSS styles for HTML ormalized platform. YUI CSS Base then style foundation for common HTML elements. usefull as a snippets library, for instance to back on UL LIs.

Setting Font Size and Family

Following users to zoom their font sizes, the renders all text at 13px by default. To preserve their fonts, **specify other sizes using** e top chart in right column).

```
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Fonts package defines Arial as the default gradation path through several alternate ric "sans-serif." When specifying other font own degradation path as needed.

```
font-family:verdana,sans-
```

t

d a page in three stacked horizontal regions:

```
<!--overall document wrapper-->
"><!--header / masthead--></div>
"><!--body--></div>
"><!--footer--></div>
```

YUI CSS Grids: Nomenclature

#doc – #doc4	Define the overall width of the page. doc 750px, doc2 950px, doc3 100%, doc4 974px,
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.yui-g	Basic grid (.yui-g) tells two units (.yui-g) to share.
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        <div class="yui-u"></div>
    </div>
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        <div class="yui-u"></div>
    </div>
```

Fonts Sizing C

For this PX	Use this percenta
10	77
11	85
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16	123.1
17	131
18	138.5
19	146.5
20	153.9
21	161.6
22	167
23	174
24	182
25	189
26	197

Grids: Nesting (yui-g's)

.yui-g	1/2,
.yui-gb	1/3,
.yui-gc	2/3,
.yui-gd	1/3,
.yui-ge	3/4,
.yui-gf	1/4,

Other configurations as 1/4, 1/4, 1/4, 1/4 can be rendered by nesting inside other "yui-g" (

Grids: Template (yui-t's)

.yui-t1	160
.yui-t2	180
.yui-t3	300
.yui-t4	180

960 Grid



960 Grid



960 Grid

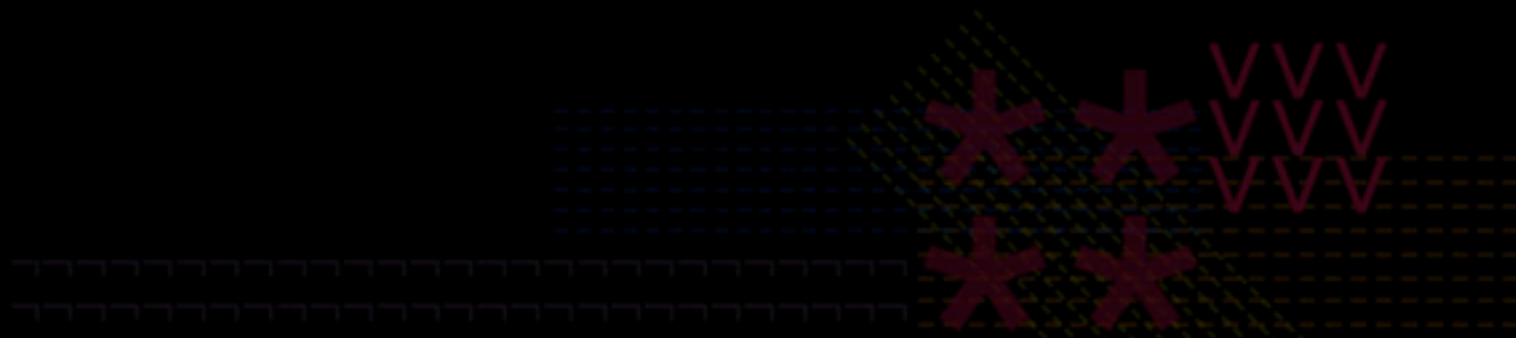


Why 960?

960 is divisible by 2, 3, 4, 5, 6, 8, 10, 12, 15, 16, 20, 24, 30, 32, 40, 48, 60, 64, 80, 96, 120, 160, 192, 240, 320 and 480.

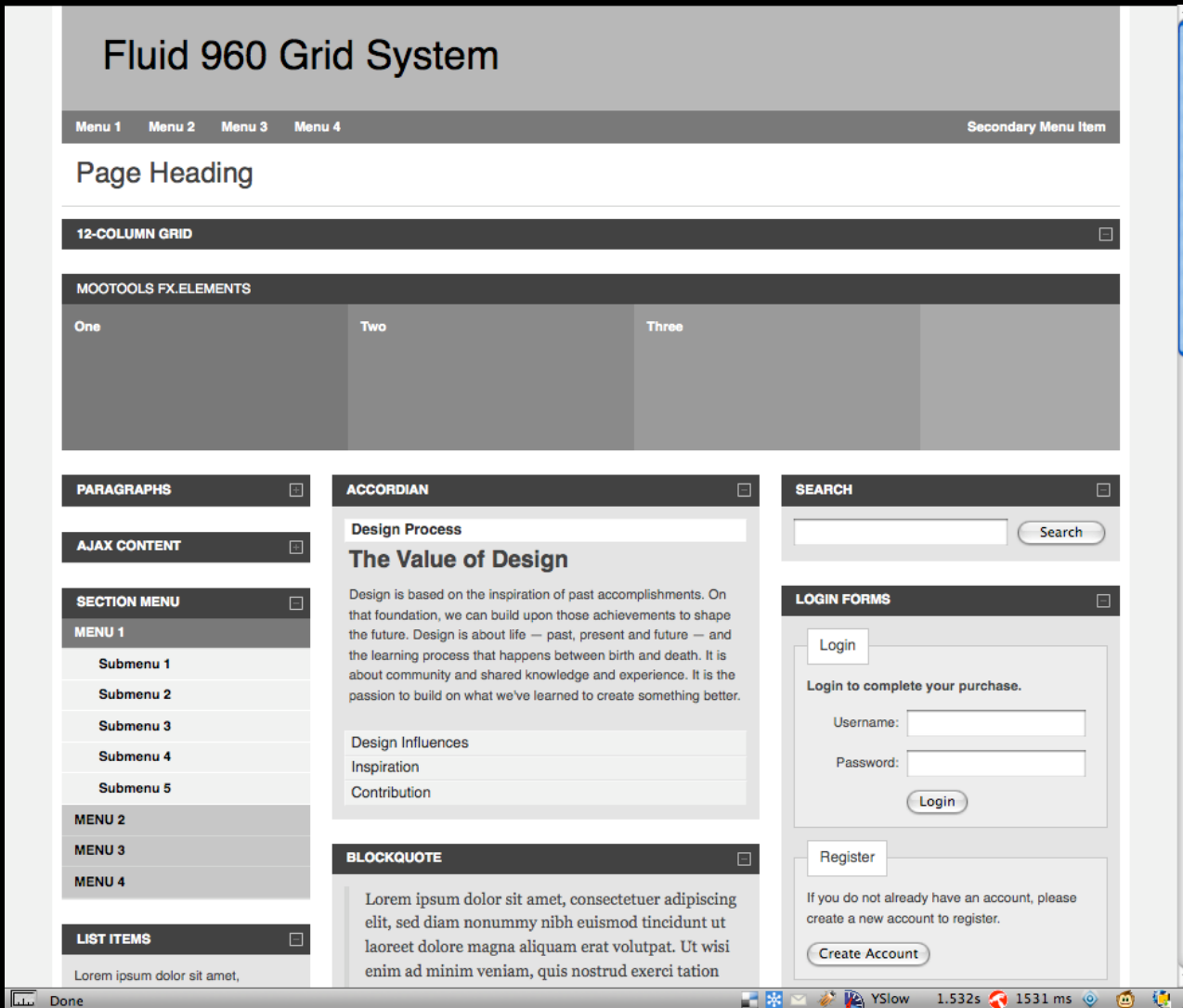
This makes it a highly flexible base number to work with

You can also make Blueprint a 960 grid system as well



960 gs Fluid

A derivative that supports fluid layout



Making it Semantic

Criticism: non-semantic naming

There are tools for making blueprint semantic

Boilerplate

<http://code.google.com/p/css-boilerplate/>

Blueprint's compress.rb

http://jdclayton.com/blueprints_compress_a_walkthrough.html

Semantify

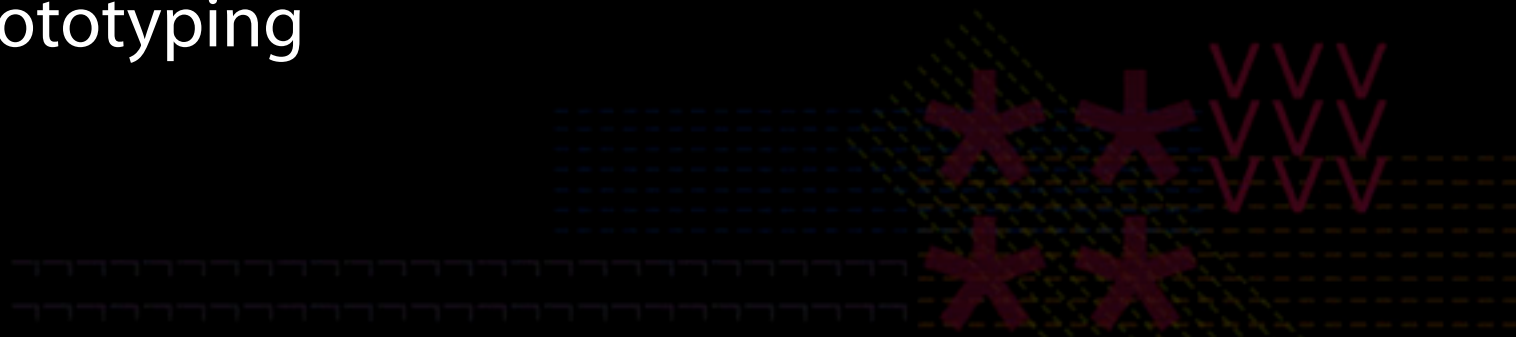
<http://lab.christianmontoya.com/read/>

<http://www.christianmontoya.com/2007/11/10/semantify-and-css-tools-based-on-blueprint/>

CSS Mixin for PHP

<http://habilis.net/cssmixin/>

Non-issue for prototyping



Style Techniques

Use CSS Reset

Keep structure, style and logic separate

Avoid any direct styles or html style tags (font, etc.)

Appropriate Markup

H1 Does Not Mean "Big, Bold, and Ugly"

A Paragraph Is a Paragraph

List Mania

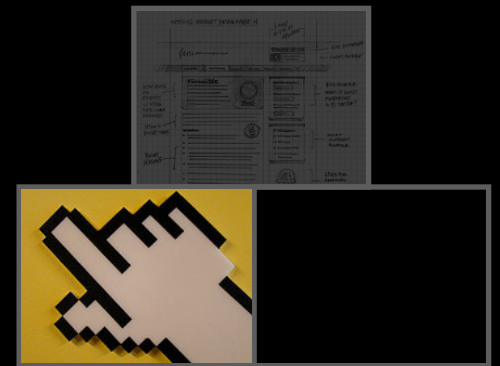
Keep DIV elements to a minimum

Use px for font-sizes (avoids nesting difficulties)

Minimize selectors

Extend objects by applying multiple classes to an element

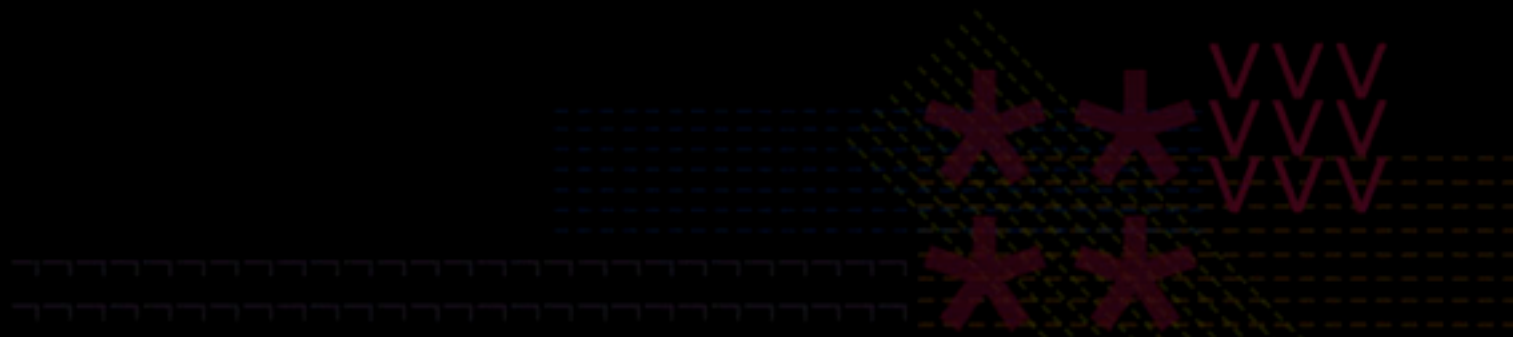




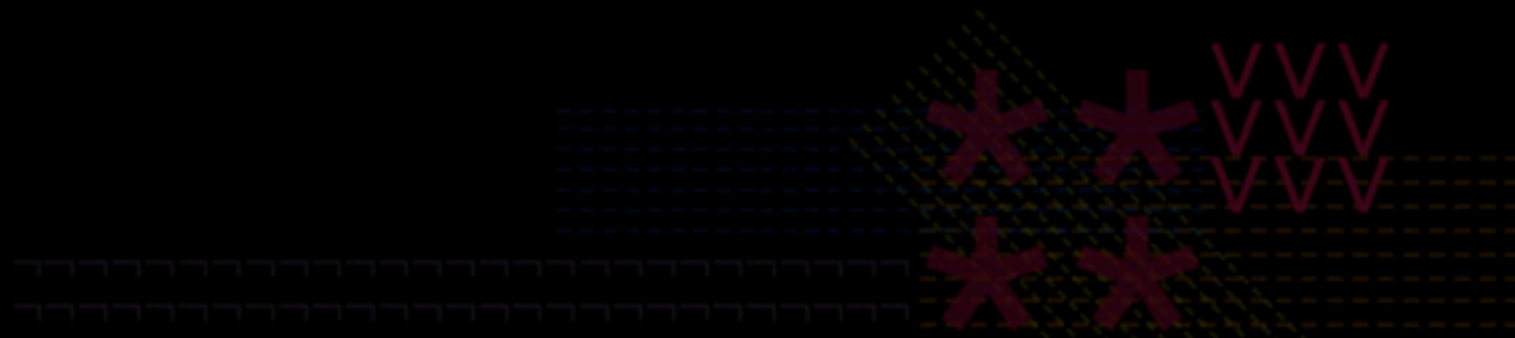
Behavior

Making the page come alive*

**as quickly as possible*



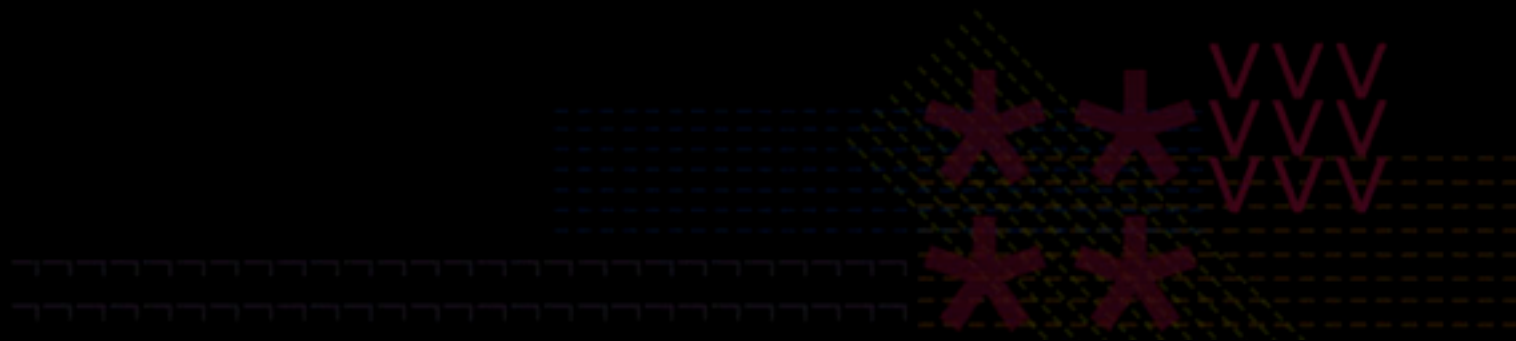
Anatomy of an Interaction



Anatomy of an Interaction

Page Element

Target an element or elements
for attaching events & behaviors.



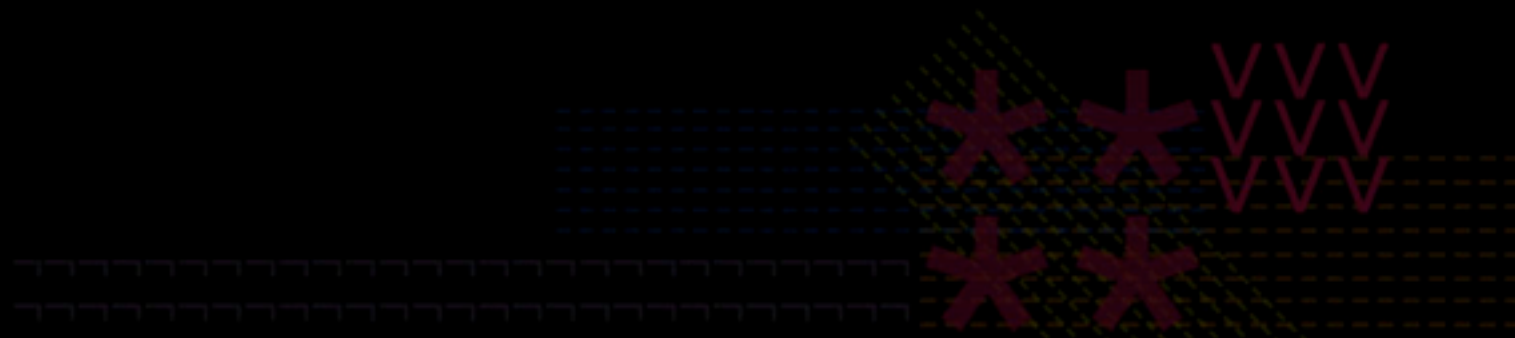
Anatomy of an Interaction

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Target an element or elements for attaching events & behaviors.

Event Handler

Events are the glue between the user and behaviors. They start behaviors.



Anatomy of an Interaction

Page Element

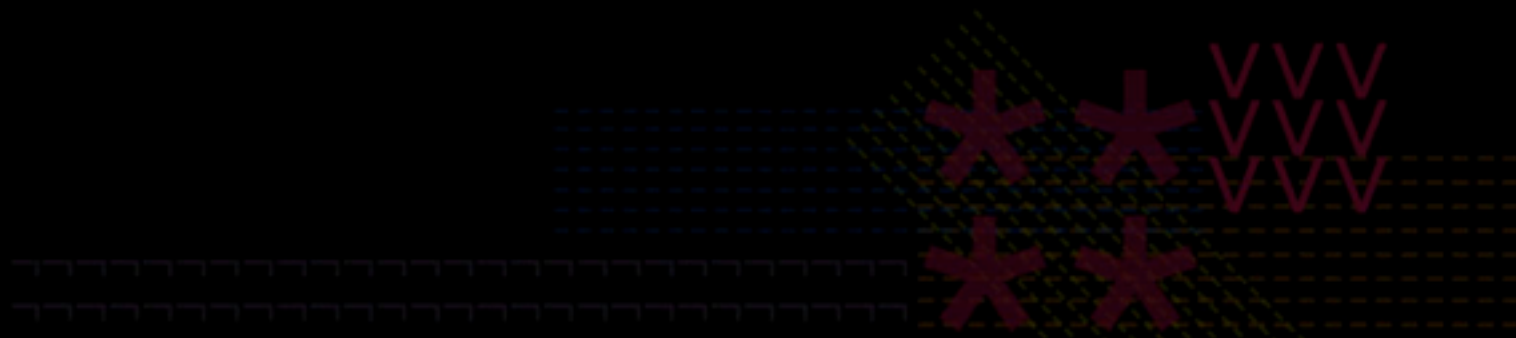
Target an element or elements for attaching events & behaviors.

Event Handler

Events are the glue between the user and behaviors. They start behaviors.

Behavior

Blocks of logic, patterns, actions that operate on elements.



Anatomy of an Interaction

Page Element

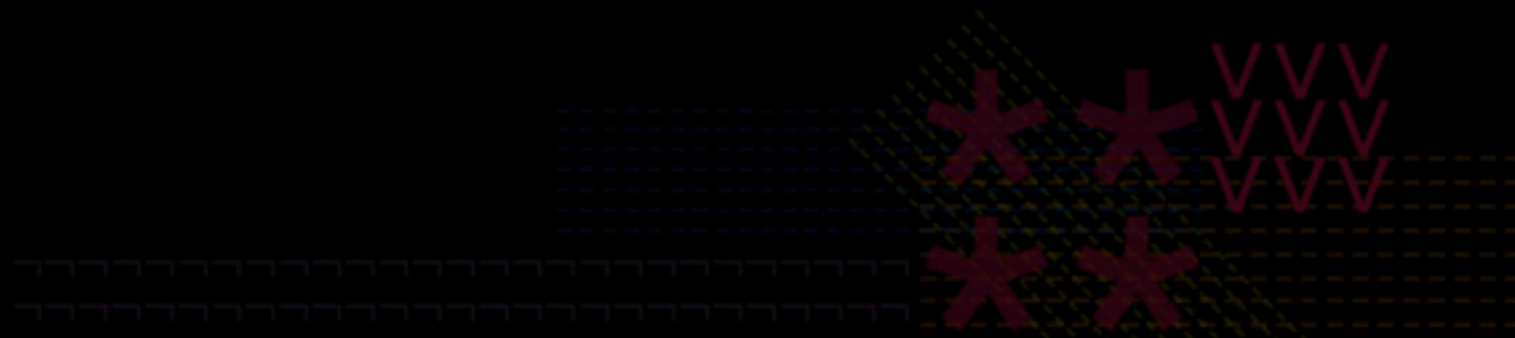
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Anatomy of an Interaction

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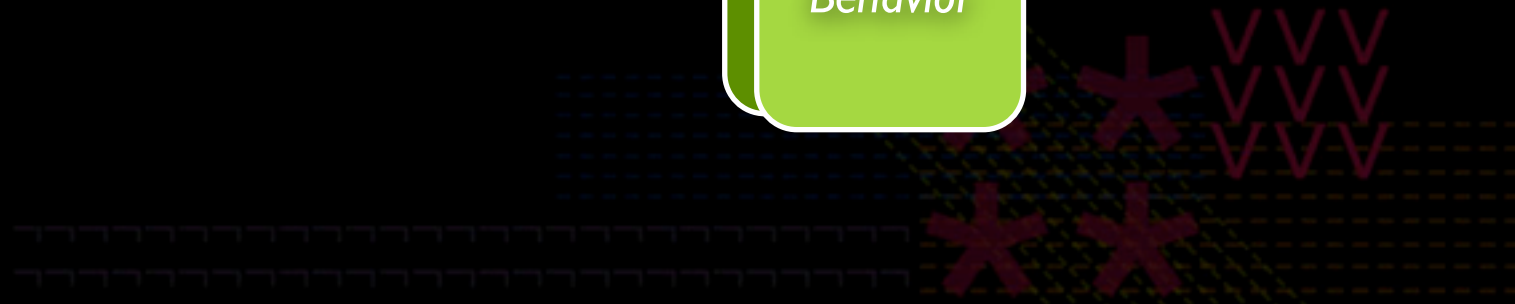
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Anatomy of an Interaction

Page Element

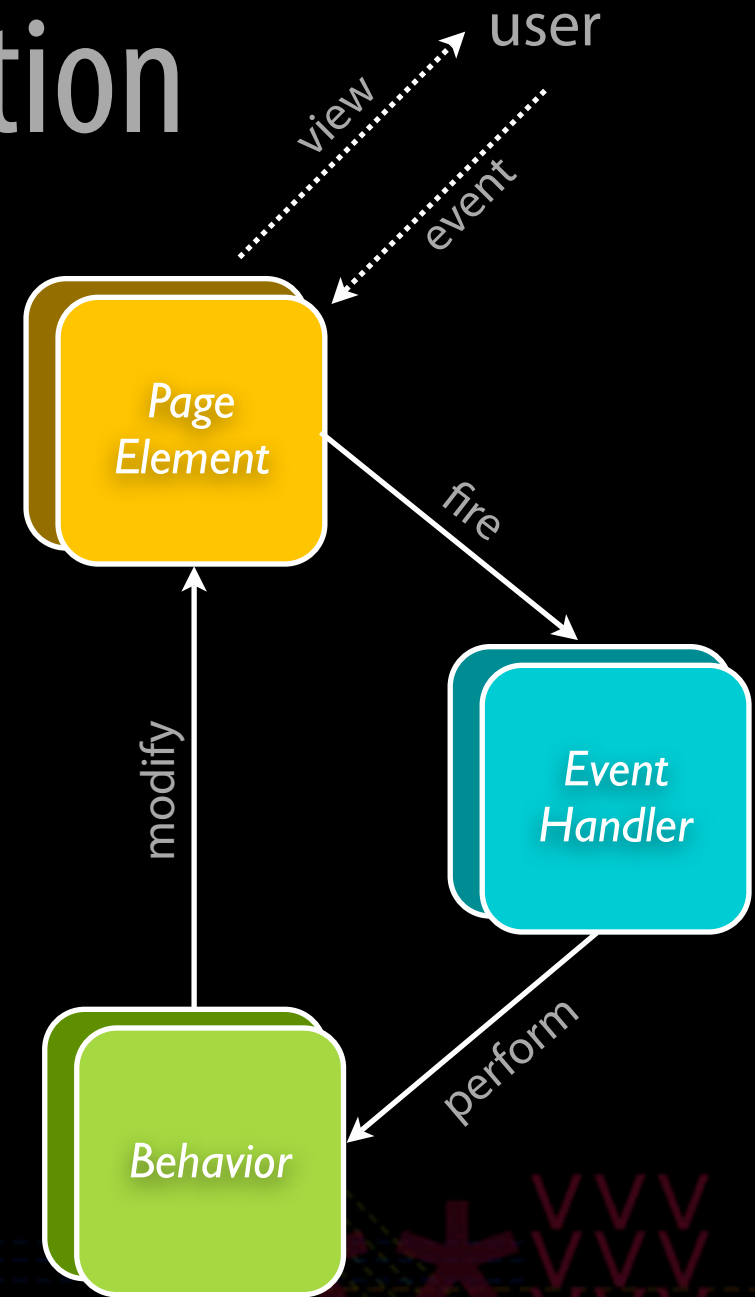
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Anatomy of an Interaction

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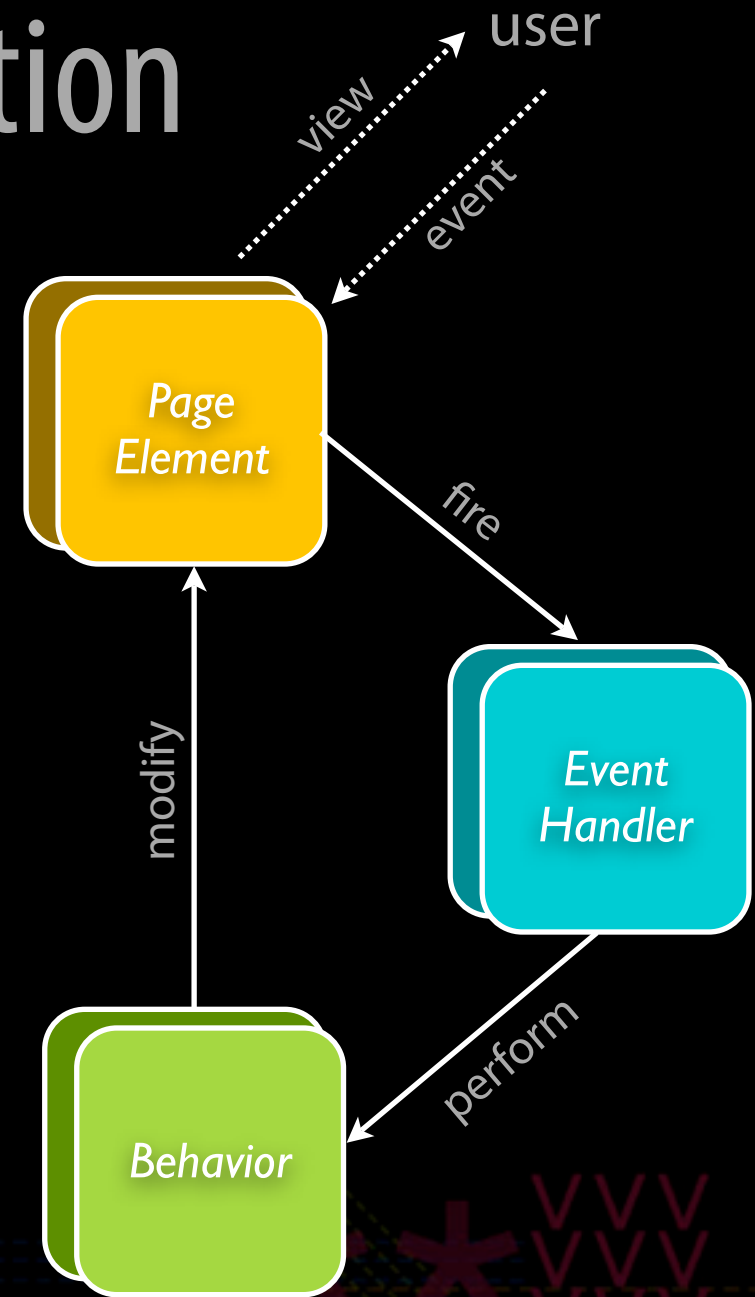
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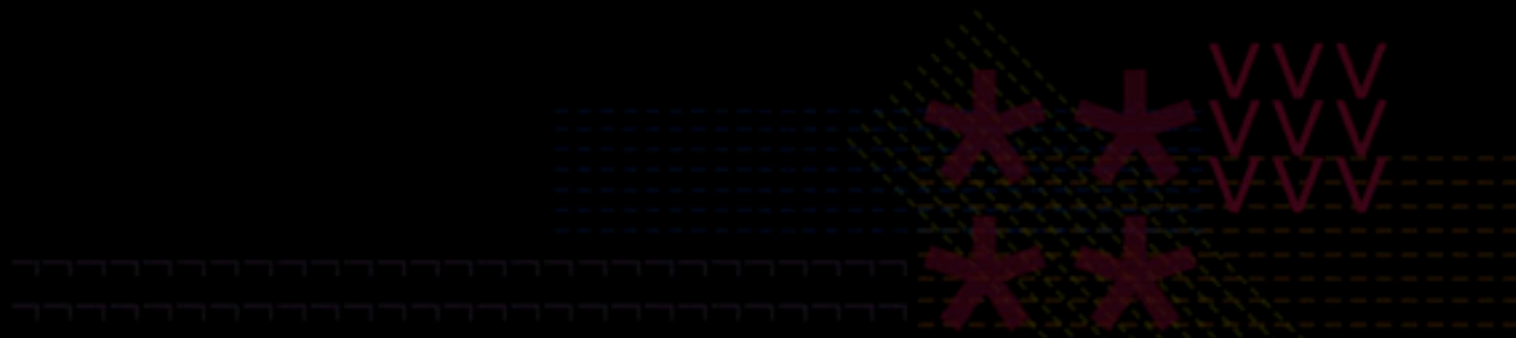
“Keep interaction, objects and behavior separate”

Behavior Injection

Tying behavior to elements in the markup tightly couples behavior (also non-semantic)

Avoid `onclick="someAction()"`

Instead associate actions with matched elements



Behavior Injection

By rendering all panels hidden & showing with JS

```
<form id="login" action="">
  <!-- Without Errors-->
  <div class="noerrors">
    <p><label>Username: </label><input type="text" name="username"/></p>
    <p><label>Password: </label><input type="password" name="password"/></p>
    <input type="submit" value="Submit" />
  </div>

  <!-- With Errors-->
  <div class="errors">
    <p class="error">Password doesn't match.</p>
    <p><label>Username: </label><input type="text" name="username"/></p>
    <p><label>Password: </label><input type="password" name="password"/></p>
    <input type="submit" value="Submit" />
  </div>

  <!-- Forgot Password-->
  <div class="forgotten">
    <p>Provide your email and we'll send you a new password.</p>
    <p><label>Email Address: </label><input type="text" name="email"/></p>
    <input type="submit" value="Send New Password" />
  </div>
</form>
```

Example courtesy Kevin Hale's article on [Ajax Wireframing Approaches](#)

Behavior Injection

.noerrors, .errors, .forgotten:
{display:none;}

By rendering all panels hidden & showing with JS

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</form>
```

`$(".errors").show();`

Example courtesy Kevin Hale's article on [Ajax Wireframing Approaches](#)

Behavior Injection: 960gs Fluid

960 Grid System

Menu 1 Menu 2 Menu 3 Menu 4

Secondary Menu Item

16 Fluid Column Grid JQuery

STANDING ON THE SHOULDERS OF GIANTS

This template is only possible due to the hard work of many people who contributions have made the Internet a usable and beautiful place. I am pleased share my work, to help continue that trend.

KWICKS

One

Two

Three

Four

PARAGRAPHS



AJAX CONTENT



SECTION MENU



MENU 1

Submenu 1

Submenu 2

Submenu 3

Submenu 4

ACCORDIAN



Design Process

The Value of Design

Design is based on the inspiration of past accomplishments. On that foundation, we can build upon those achievements to shape the future. Design is about life — past, present and future — and the learning process that happens between birth and death. It is about community and shared knowledge and experience. It is the passion to build on what we've learned to create something better.

Design Influences

Inspiration

SEARCH



Search

LOGIN FORMS



Login

Login to complete your purchase.

Username:

Behavior Injection: 960gs Fluid

960 Grid System

Menu 1 Menu 2 Menu 3 Menu 4

Secondary Menu Item

```
<ul class="nav main">
  <li><a href="#">Menu 1</a>
    <ul>
      <li><a href="#">Submenu 1</a></li>
      <li><a href="#">Submenu 2</a></li>
      <li><a href="#">Submenu 3</a></li>
      <li><a href="#">Submenu 4</a></li>
      <li><a href="#">Submenu 5</a></li>
    </ul>
  </li>
  <li><a href="#">Menu 2</a>
    <ul>
```

Internet a usable and beautiful place. I am pleased share my

Three

Four

PARAGRAPHS



AJAX CONTENT



SECTION MENU



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menu behavior tied to
.nav & .main

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PARAGRAPHS



AJAX CONTENT



SECTION MENU



MENU 1

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    </ul>
  </li>
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    <ul>
```

toggle open/close tied
to .box

PARAGRAPHS



AJAX CONTENT



SECTION MENU



MENU 1

Submenu 1

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ACCORDIAN



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      <li><a href="#">Submenu 1</a></li>
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      <li><a href="#">Submenu 4</a></li>
      <li><a href="#">Submenu 5</a></li>
    </ul>
  </li>
  <li><a href="#">Menu 2</a>
    <ul>
```

toggle open/close tied
to .box

PARAGRAPHS

ACCORDIAN

SEARCH

AJAX CONTENT

SECTION MENU

MENU 1

Submenu 1

Submenu 2

Submenu 3

Submenu 4

menu behavior tied
to .menu

LOGIN FORMS

Login

Login to complete your purchase.

Username:

Protoscript

Experimental framework for behavior injection

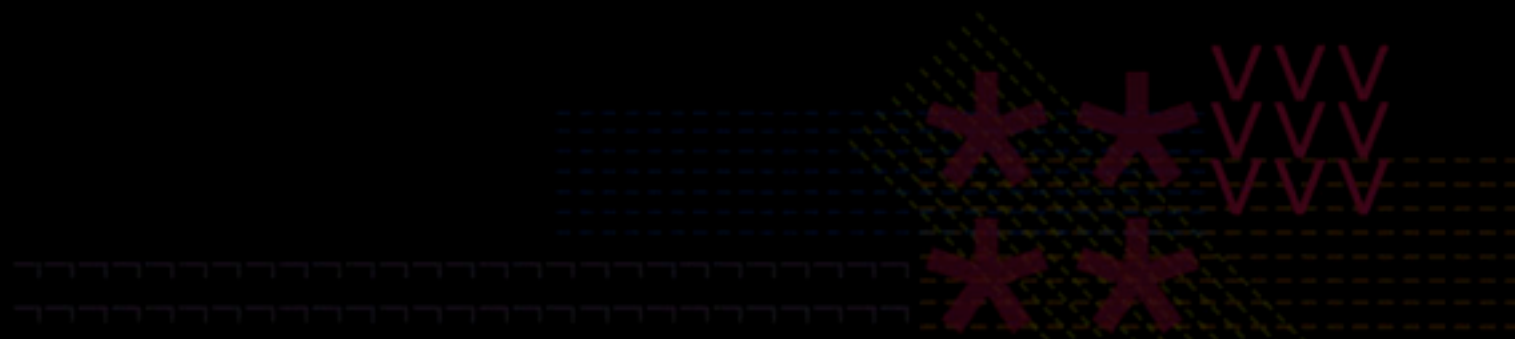
Example

Here's an example that fades & closes the image when the user clicks on it. (It's live, so go ahead and try it!)



```
$proto('img#avatar', {  
  Click: {  
    onClick: {  
      Fade: {  
        opacity: {to: 0},  
        onComplete: {Close : {} }  
      }  
    }  
  }  
});
```

The protoscript above says: *for an image with id **avatar**, fade it out when the user clicks on it and close it when the fade completes.*



Protoscript: Sprinkling in Behaviors



Bill Scott

Total Projects 12

Total Points 24

My Portfolio

Sort by: Recent | Alpha | Points

▼ Project One

[view](#) | [delete](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin tempor, lectus aliquet ornare suscipit, diam turpis suscipit velit, rhoncus feugiat purus metus gravida turpis. Nam nisl. Nulla et est in neque laoreet consequat. Quisque quis pede. Curabitur pretium. Etiam varius. Suspendisse tempus nisl eu lectus. Integer et velit. Quisque quis magna. Nunc pellentesque pharetra ligula. Morbi semper.

▼ Project Two

[view](#) | [delete](#)

Quisque nunc. In ac urna egestas arcu egestas imperdiet. Donec id erat id nulla molestie venenatis. Nam a

Scratchpad



My Portfolio

Sort by: Recent | Alpha | Points

▼ Project One

[view](#) | [delete](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin tempor, lectus aliquet ornare suscipit, diam turpis suscipit velit, rhoncus feugiat purus metus gravida turpis. Nam nisl. Nulla et est in neque laoreet consequat. Quisque quis pede. Curabitur pretium. Etiam varius. Suspendisse tempus nisl eu lectus. Integer et velit. Quisque quis magna. Nunc pellentesque pharetra ligula. Morbi semper.

▼ Project Two

[view](#) | [delete](#)

Quisque nunc. In ac urna egestas arcu egestas imperdiet. Donec id erat id nulla molestie venenatis. Nam a quam. Nulla ornare. Fusce dignissim ultricies turpis. Fusce molestie odio ac eros. Nunc auctor massa in metus. Etiam mollis lorem in eros. Aliquam mi. Nam feugiat ante et felis.

Anatomy of Self-Healing Delete

DOM elements

[X]

[X] oldmove.mov

Events

Click

onClick (callback)

Behaviors

Fade

Close



Anatomy of Self-Healing Delete

DOM elements

[X]

[X] oldmove.mov

Events

Click
onClick (callback)

Behaviors

Fade
Close

Handling Click for Multiple Elements

Files

[X] mystuff.tmp

[X] bigfile.tmp

[X] oldmovie.mov

[X] scrap.txt

Let's say you want to delete files from a list. You would like to embed the delete control with the filename.

You can target two sets of objects: delete controls and list of file names.

We select the '[X]' with 'span:contains([X])' and associate with it the hand cursor and click event.

The Fade & Close target the list of file names with '#multiple li' (all LI items in our multiple example). When you click on an individual delete control it knows the corresponding LI item and operates on it correctly. You can [click here](#) to restart the example.

DOM
Element

Behavior

Anatomy of Self-Healing Delete

DOM elements

[X]

[X] oldmove.mov

Events

Click

onClick (callback)

Behaviors

Fade

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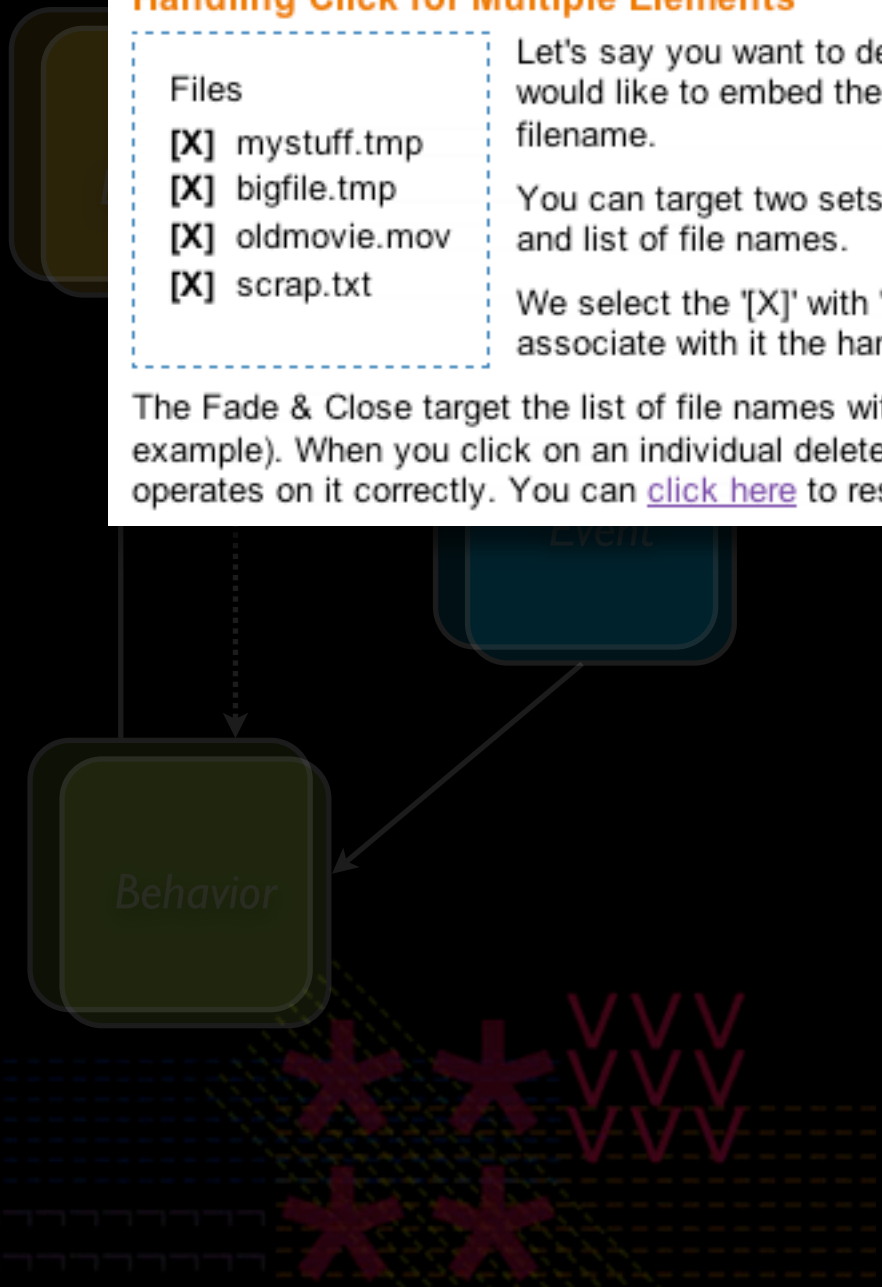
[X] scrap.txt

Let's say you want to delete a file. You would like to embed the filename.

You can target two sets of elements: a list of file names.

We select the '[X]' with 'document.getElementsByTagName('LI')' and associate with it the handler.

The Fade & Close target the list of file names with 'document.getElementsByTagName('LI')' (for example). When you click on an individual delete button, the handler operates on it correctly. You can [click here](#) to reset the demo.



Anatomy of Self-Healing Delete

Files

[X] mystuff.tmp
[X] bigfile.tmp
[X] oldmovie.mov
[X] scrap.txt

Element

Behavior

Event

Anatomy of Self-Healing Delete

```
<div id="multiple" class="example-live">
  <p>Files</p>
  <ul>
    <li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
    <li><span><strong>[X]</strong></span><span>bigfile.tmp</span></li>
    <li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
    <li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
  </ul>
</div>
```

Files

- [X] mystuff.tmp
- [X] bigfile.tmp
- [X] oldmovie.mov
- [X] scrap.txt

Element

Behavior

Event

Anatomy of Self-Healing Delete

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Files

[X] mystuff.tmp
[X] bigfile.tmp
[X] oldmovie.mov
[X] scrap.txt

```
$proto('span:contains([X])', {
  SetStyle: {cursor: 'pointer'},
  Click: {
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        target: '#multiple li',
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        onComplete: {Close : {} }
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    }
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Element

Behavior

Event

Selecting DOM Elements

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    <li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
    <li><span><strong>[X]</strong></span><span>bigfile.tmp</span></li>
    <li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
    <li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
  </ul>
</div>
```

Files

[X] mystuff.tmp
[X] bigfile.tmp
[X] oldmovie.mov
[X] scrap.txt

```
$proto('span:contains([X])', {
  SetStyle: {cursor: 'pointer'},
  Click: {
    onClick: {
      Fade: {
        target: '#multiple li',
        opacity: {to: 0},
        onComplete: {Close : {} }
      }
    }
  },
});
```

Element

Behavior

Event

Selecting DOM Elements

```
<div id="multiple" class="example-live">
  <p>Files</p>
  <ul>
    <li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
    <li><span><strong>[X]</strong></span><span>bigfile.tmp</span></li>
    <li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
    <li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
  </ul>
</div>
```

Files

[X] mystuff.tmp
[X] bigfile.tmp
[X] oldmovie.mov
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$proto('span:contains([X])', {
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});
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Element

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Selecting DOM Elements

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    <li><span><strong>[X]</strong></span><span>bigfile.tmp</span></li>
    <li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
    <li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
  </ul>
</div>
```

Files

- [X] mystuff.tmp
- [X] bigfile.tmp
- [X] oldmovie.mov
- [X] scrap.txt

```
$proto('span:contains([X])', {
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    <li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
    <li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
  </ul>
</div>
```

Files

- [X] mystuff.tmp
- [X] bigfile.tmp
- [X] oldmovie.mov
- [X] scrap.txt

```
$proto('span:contains([X])', {
  SetStyle: {cursor: 'pointer'},
  Click: {
    onClick: {
      Fade: {
        target: '#multiple li',
        opacity: {to: 0},
        onComplete: {close: {} }
      }
    }
  },
});
```

Element

Behavior

Event

Behaviors

Animate. ColorAnimate. Fade.
Move. Spotlight. Close.
DragDrop. Hide. Open.
Popup. ReplaceClass. Script.
SetClass. SetStyle. Show.
ToggleClass. ToggleOpenClose.
ToggleShowHide. FetchHtml.
SetHtml.

Element

Behavior

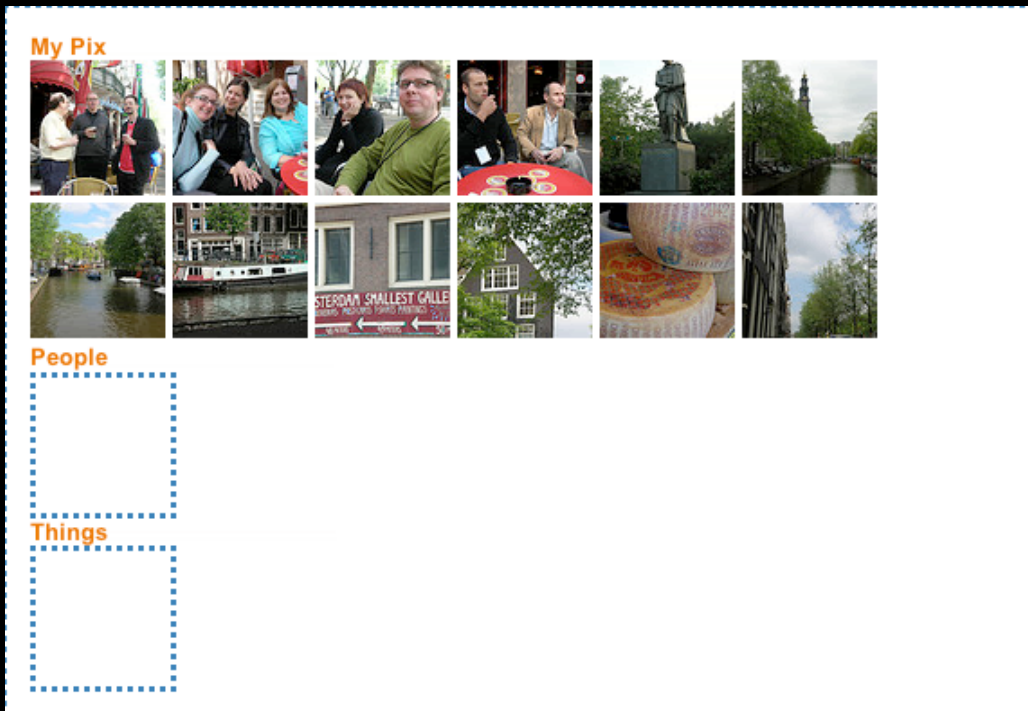
Event

Behavior Demo

Site has a demo page for each behavior

<http://protoscript.com/demos.php>

Site has a wiki with documentation page for each behavior



Element

Behavior

Event

Events

Blur. Click. Dblclick. Focus.
Keypress. Mousedown.
Mousemove. Mouseout.
Mouseover. Mouseup. Timer.

Element

Behavior

Event

Callbacks

onComplete. onTween. onStart. onClose.
onStartDrag. onDrag. onDragEnter. onDragOver.
onDragDrop. onDragOut. onEndDrag. onMouseUp.
onInvalidDrop. onBlur. onClick. onDbClick. onFocus.
onKeypress. onMousedown. onMousemove.
onMouseout. onMouseover. onMouseup. onTimer.
onHide. onOpen. onReplaceClass. onSetClass.
onSetStyle. onShow. onToggleClass.
onToggleOpenClose. onToggleShowHide.
onSuccess. onFailure. onSetHtml.

Element

Behavior

Event

jQuery

Easy to layer in behavior

Easy to keep behavior separate

Simple, quick, terse syntax

```
$("#div").addClass("highlighted");
```

Element

Behavior

```
<div class="module">  
  <h2>Some Header</h2>  
  <div class="bd">  
    <p>Some content</p>  
  </div>  
  <div class="ft">  
    <p>Footer content</p>  
  </div>  
</div>
```

```
$(".ft").click(function () { $(this).addClass("highlighted"); });
```

Element

Events

Behavior

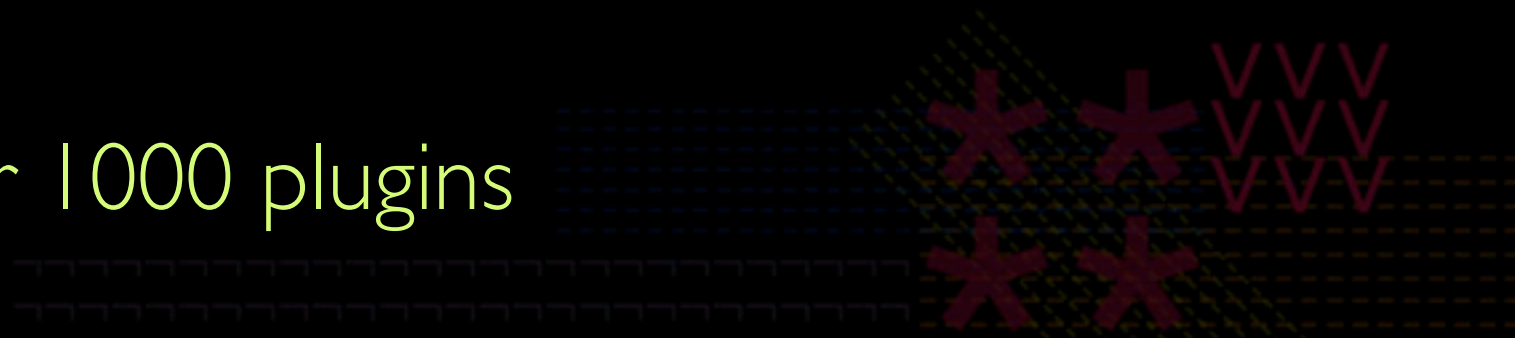


jQuery Behaviors

Behavior

html. append. prepend. before. after.
wrap. show. hide. toggle. slideDown.
slideUp. fadeIn. fadeOut. animate.
css. offset. position. height. width.
addClass. attr. removeClass.
toggleClass. val.

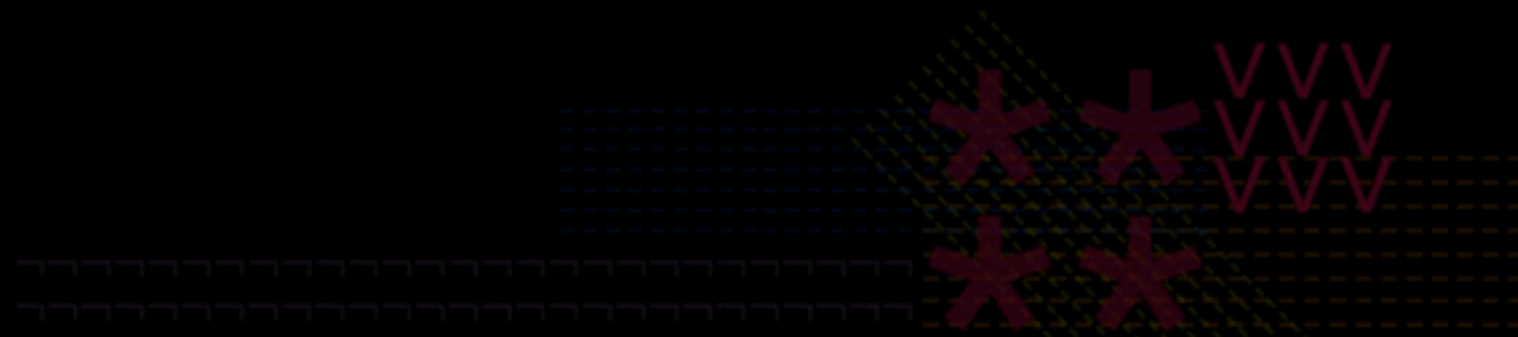
+ over 1000 plugins



jQuery Events

Event

bind. trigger. hover. toggle. blur.
change. click. dblclick. error.
focus. keydown. keypress.
keyup. load. mousedown.
mousemove. mouseout.
mouseover. mouseup. resize.
scroll. select. submit. unload.



Class Behaviors

Adding classes that represent behavior

Javascript code implements behavior for specific classes

```
<a id="option" class="true">
  
  
  Option
  <span class="ifTrue">(On)</span>
  <span class="ifFalse">(Off)</span>
</a>
```

```
.ifTrue, .ifFalse{
  display:none;
}
.true .ifTrue{
  display:inline;
}
.false .ifFalse{
  display:inline;
}

#option{
  font-size:.8em;
  color:#444;
}
#option .ifTrue{
  color:green;
}
#option .ifFalse{
  color:red;
}
```

See Kevin Hale's article on [Ajax Wireframing Approaches: CSS Boolean](#)

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}  
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  display:inline;  
}  
  
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  color:#444;  
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  Option  
  <span class="ifTrue">(On)</span>  
  <span class="ifFalse">(Off)</span>  
</a>
```

```
.ifTrue, .ifFalse{  
  display:none;  
}  
.true .ifTrue{  
  display:inline;  
}  
.false .ifFalse{  
  display:inline;  
}  
  
#option{  
  font-size:.8em;  
  color:#444;  
}  
#option .ifTrue{  
  color:green;  
}  
#option .ifFalse{  
  color:red;  
}
```

See Kevin Hale's article on Ajax Wireframing Approaches: CSS Boolean

ClassBehaviors jQuery Library

<http://www.woollymittens.nl/default.php?id=classbehaviour-examples&cat=classbehaviour&mod=category>

Select Anything*:

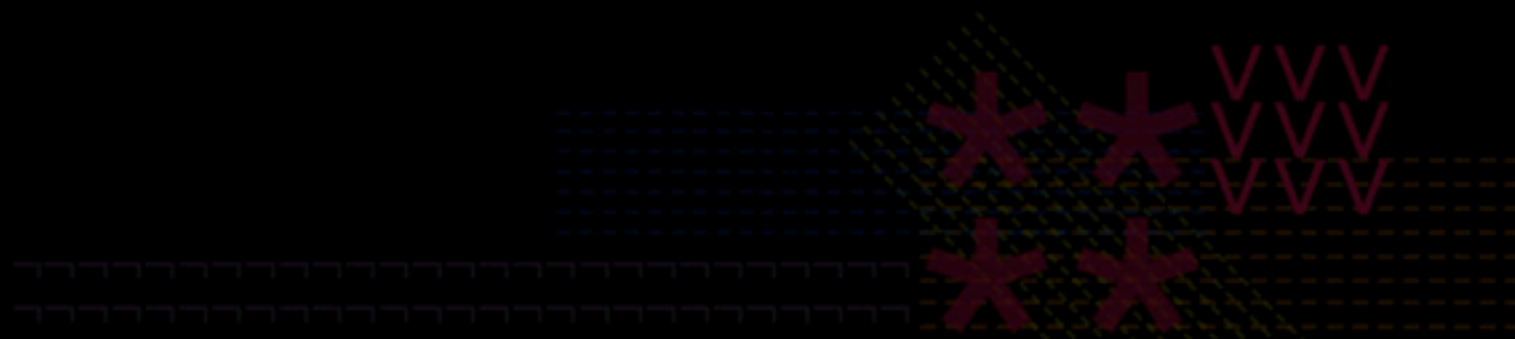
--- pick a type --- ▾

--- pick a type first --- ▾

The second list gets updated, on the fly, using AJAX requests.

How to Implement These Examples

The "linkedSelects"s scripted behaviour is part of the ["Classbehaviours"](#) jQuery Addons Library. This library contains many scripts that assign functionality to html elements through their classnames. For this example, the JQuery plugins "linkedSelects" was used from the ClassBehaviours JQuery plugins on this site.



ClassBehaviors jQuery Library

<http://www.woollymittens.nl/default.php?id=classbehaviour-examples&cat=classbehaviour&mod=category>

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```
<fieldset class="border">
  <label for="myselect">Select Anything<em>*</em>:</label>
  <select id="myselect" name="myselect" class="linkedSelects id_myLinkedSelect">
    <option value="">--- pick a type ---</option>
    <option value="./xml/linkedSelects_fruit.xml">Fruit</option>
    <option value="./xml/linkedSelects_vegetables.xml">Vegetables</option>
    <option value="./xml/linkedSelects_fish.xml">Fish</option>
  </select>
  <select id="myLinkedSelect" name="myLinkedSelect">
    <option value="">--- pick a type first ---</option>
  </select>
</fieldset>
```

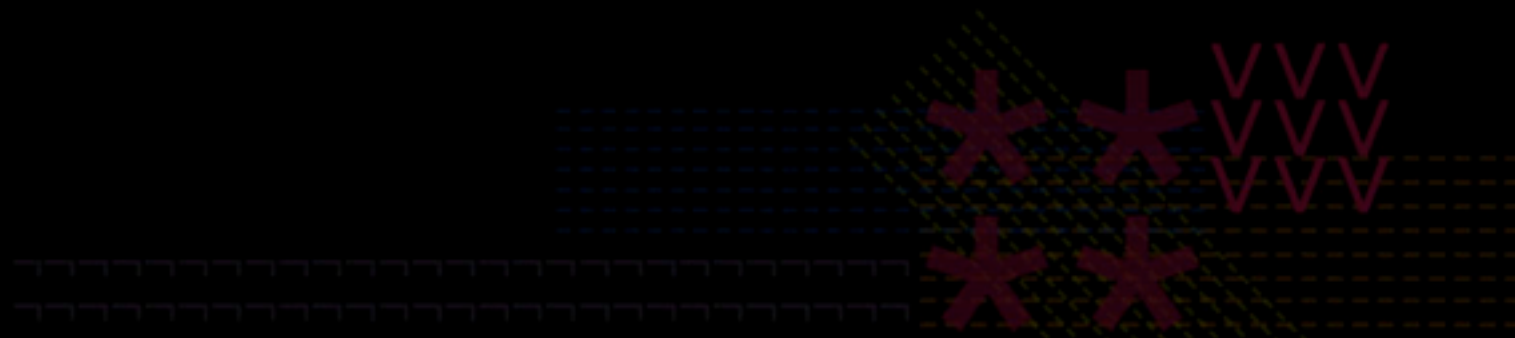
Style Class Switching

Keep style details out of programming logic

Instead bundle style changes under a style class

Use class “mix-in”

Multiple class names for an element



Greasemonkey + jQuery

```
prototyping-experiment.user.js
1 // ==UserScript==
2 // @name      prototyping-experiment
3 // @namespace  http://uie.netflix.com/bscott/gm/
4 // @include   http://localhost/~bscott/protoscript/*
5 // @version   0.0.1
6 // ==/UserScript==
7
8 // ---- function with jQuery enabled Greasemonkey
9 var startPrototype = function() {
10     // Add your behaviors with jQuery here
11 }
12
13 // ---- Add jQuery to Greasemonkey
14 var GMJQ_loadScript = function(url) {
15     var GMJQ_script = document.createElement('script');
16     GMJQ_script.src = url;
17     GMJQ_script.type = 'text/javascript';
18     document.getElementsByTagName('body')[0].appendChild(GMJQ_script);
19 }
20 function GMJQ_wait() {
21     if(typeof unsafeWindow.jQuery == 'undefined') { window.setTimeout(GMJQ_wait,1); }
22     else { $ = unsafeWindow.jQuery; startPrototype(); }
23 }
24
25 // Check to see if jQuery is already loaded
26 if(typeof unsafeWindow.jQuery != 'undefined') {
27     startPrototype();
28 } else {
29     GMJQ_loadScript('http://ajax.googleapis.com/ajax/libs/jquery/1.2.6/jquery.min.js');
30     GMJQ_wait();
31 }
```

Line: 31 Column: 2 JavaScript Tab Size: 4 GMJQ_wait

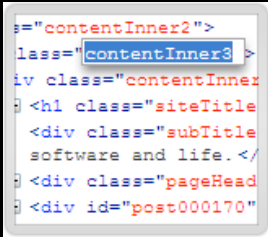


Greasemonkey + jQuery

jquery code can
be loaded for any web
page allowing behaviors to
be added

```
1 // ==UserScript==
2 // @name      prototyping-experiment
3 // @namespace  http://uie.netflix.com/bscot
4 // @include   http://localhost/~bscott/
5 // @version   0.0.1
6 // ==/UserScript==
7
8 // ---- function with jQuery enabled Greasemonkey
9 var startPrototype = function() {
10     // Add your behaviors with jQuery here
11 }
12
13 // ---- Add jQuery to Greasemonkey
14 var GMJQ_loadScript = function(url) {
15     var GMJQ_script = document.createElement('script');
16     GMJQ_script.src = url;
17     GMJQ_script.type = 'text/javascript';
18     document.getElementsByTagName('body')[0].appendChild(GMJQ_script);
19 }
20 function GMJQ_wait() {
21     if(typeof unsafeWindow.jQuery == 'undefined') { window.setTimeout(GMJQ_wait,1); }
22     else { $ = unsafeWindow.jQuery; startPrototype(); }
23 }
24
25 // Check to see if jQuery is already loaded
26 if(typeof unsafeWindow.jQuery != 'undefined') {
27     startPrototype();
28 } else {
29     GMJQ_loadScript('http://ajax.googleapis.com/ajax/libs/jquery/1.2.6/jquery.min.js');
30     GMJQ_wait();
31 }
```

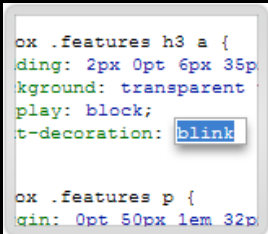
Firebug



```
s="contentInner2">
class="contentInner3">
iv class="contentInner
<h1 class="siteTitle
<div class="subTitle
software and life.</
<div class="pageHead
<div id="post000170"
```

Edit HTML

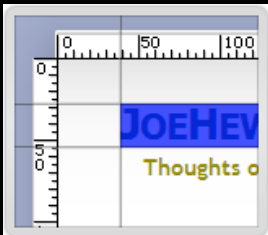
For quick adding of html or modifying html during a prototype review



```
ox .features h3 a {
ding: 2px 0pt 6px 35p
kground: transparent
play: block;
t-decoration: blink
ox .features p {
qin: 0pt 50px 1em 32p
```

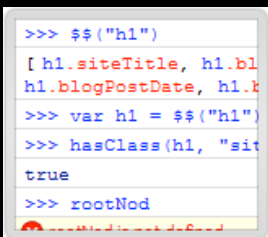
Edit CSS

Change behaviors, layout or style on the fly



Layout issues

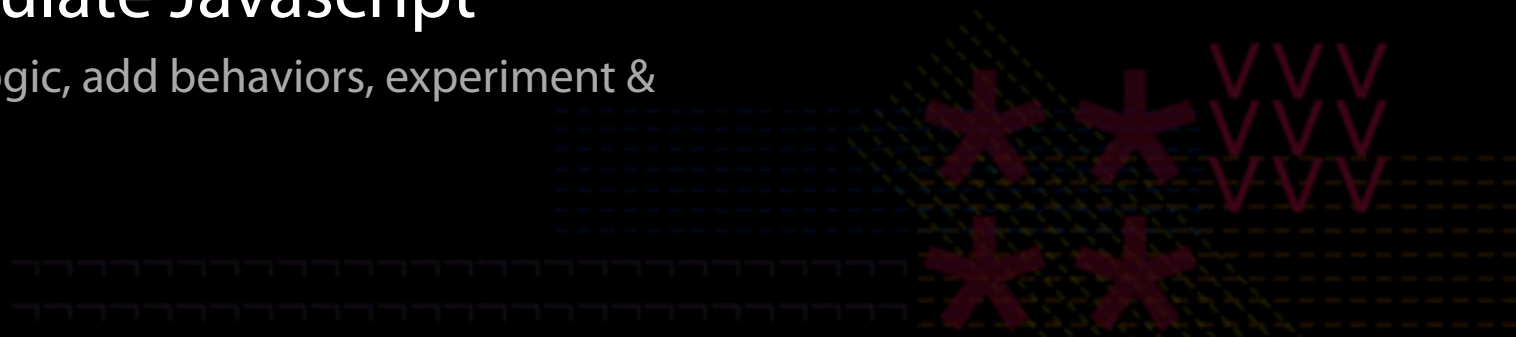
Visualize the box model & page layout



```
>>> $$("h1")
[ h1.siteTitle, h1.bl
h1.blogPostDate, h1.k
>>> var h1 = $$("h1")
>>> hasClass(h1, "sit
true
>>> rootNod
```

Manipulate Javascript

Change logic, add behaviors, experiment & tweak



Behavior Techniques

Use CSS to simulate mouse hover actions

Use CSS selector syntax to inject behavior

ExtJS, jQuery, Dojo, Mootools, Prototype, cssQuery(), YUI 3.0

Understand CSS Specificity

Understand Class vs. ID

Use style class switching for visual changes

Use innerHTML for content changes

Anchors as basic navigation/action hooks

Keep structure, style and logic separate

Avoid adding onclick handlers in the HTML (unobtrusive)

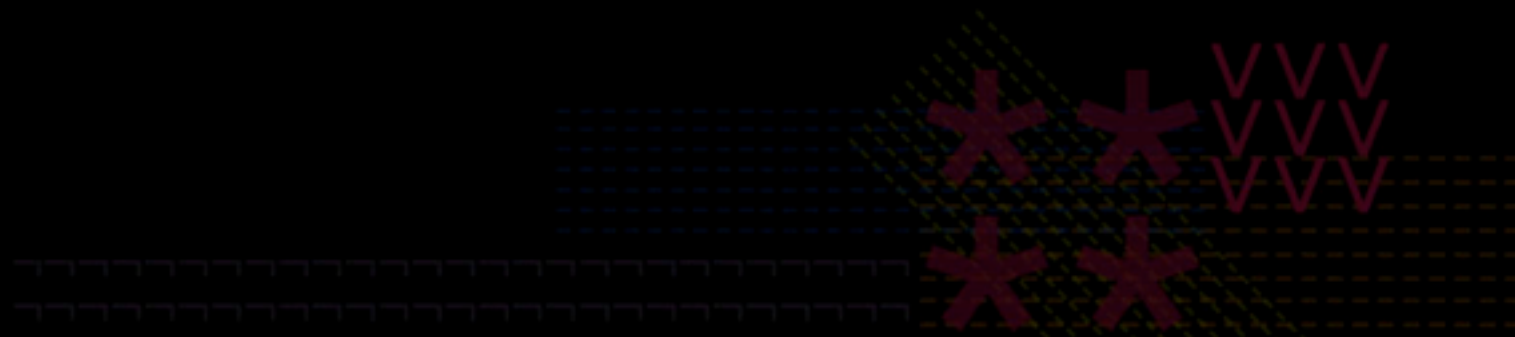
Use Firebug





Data/Content

Approximating reality

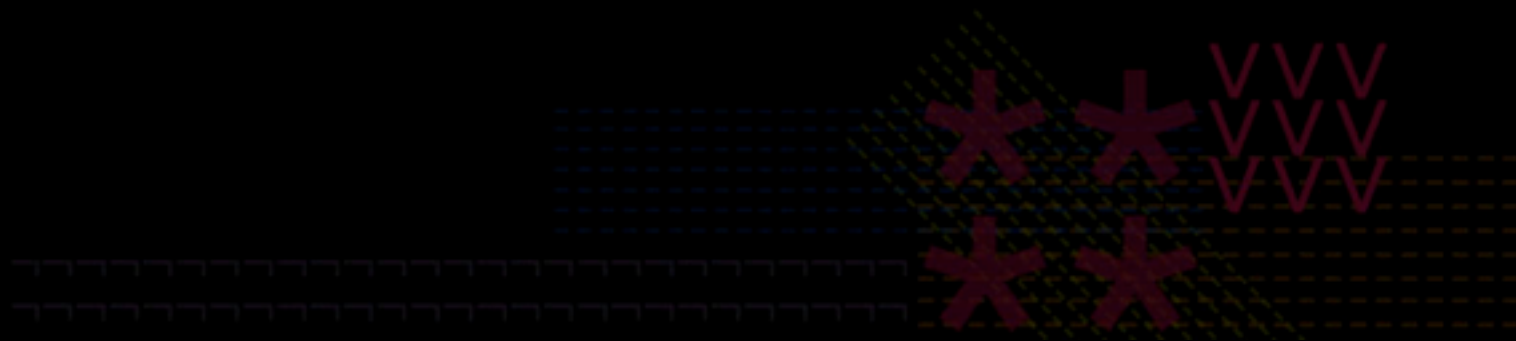


jQuery Data Binding

jQuery.ajax(options)

```
$.ajax({  
  url: "test.html",  
  cache: false,  
  success: function(html){  
    $("#results").append(html);  
  }  
});
```

Very quick way to bring in dynamic interface elements



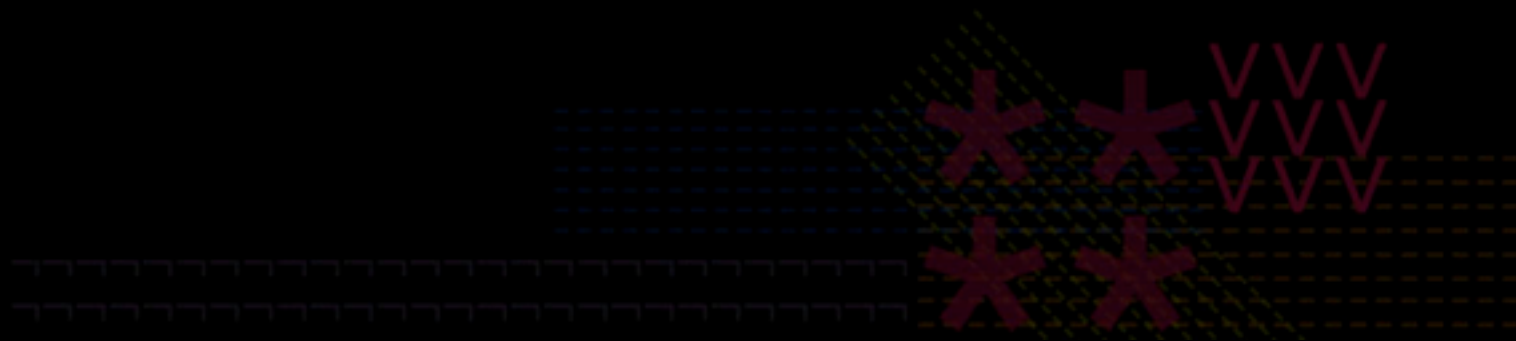
Use Public APIs

Yahoo! Search

Google Search

Flickr images

Google Maps



JSON

```
{"name": "Jack B. Nimble", "at large": true, "grade": "A",  
"level": 3}
```

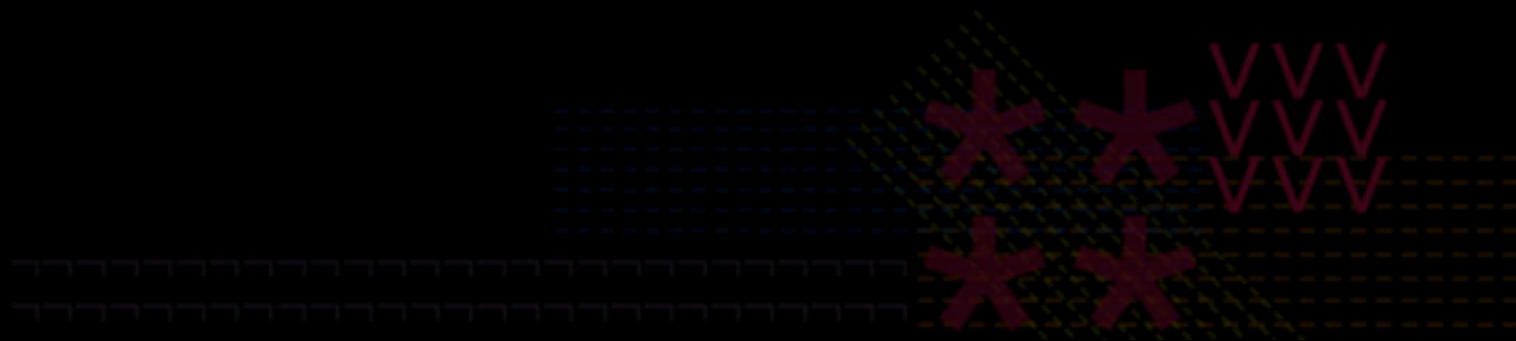
name	Jack B. Nimble
at large	true
grade	A
level	3

JSON: Arrays

```
["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday",  
"Friday", "Saturday"]
```

```
[  
[0, -1, 0],  
[1, 0, 0],  
[0, 0, 1]  
]
```

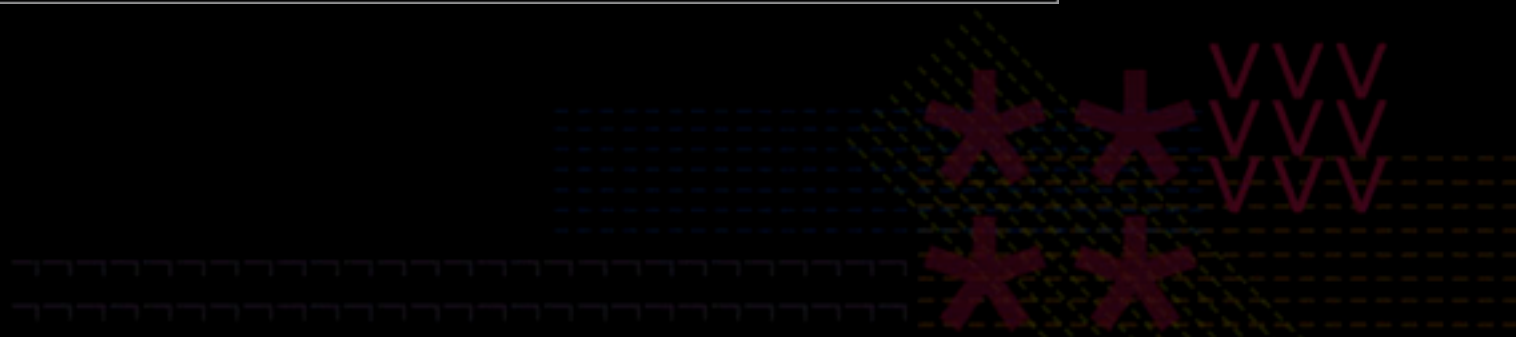
3x3 array



JSON in jQuery

jQuerygetJSON(url, [data], [callback])

```
$.getJSON("http://api.flickr.com/services/feeds/photos_public.gne?  
tags=cat&tagmode=any&format=json&jsoncallback=?",  
function(data){  
    $.each(data.items, function(i,item){  
        $("<img/>").attr("src", item.media.m).appendTo("#images");  
        if ( i == 3 ) return false;  
    });  
});  
);
```

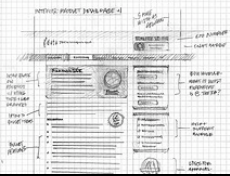


JSON Example

```
$.getJSON("http://api.flickr.com/services/feeds/photos_public.gne?
tags=cat&tagmode=any&format=json&jsoncallback=?",
function(data){
    $.each(data.items, function(i,item){
        $("").attr("src", item.media.m).appendTo("#images");
        if ( i == 3 ) return false; // only get 4 images
    });
});
);
```

```
{
  "title": "Recent Uploads tagged cat",
  "link": "http://www.flickr.com/photos/tags/cat/",
  "description": "",
  "modified": "2009-03-09T02:00:41Z",
  "generator": "http://www.flickr.com/",
  "items": [
    {
      "title": "birthday 89",
      "link": "http://www.flickr.com/photos/gulshan/3340193322/",
      "media": {"m": "http://farm4.static.flickr.com/3405/3340193322_065facd48d_m.jpg"},
      "date_taken": "2009-03-08T03:11:50-08:00",
      "description": "<p><a href=\"http://www.flickr.com/people/gulshan/\">gulshan</a>
posted a photo:</p> <p><a href=\"http://www.flickr.com/photos/gulshan/3340193322/\" title=
\"birthday 89\"><img src=\"http://farm4.static.flickr.com/3405/3340193322_065facd48d_m.jpg\"
width=\"240\" height=\"160\" alt=\"birthday 89\" /></a></p> ",
      "published": "2009-03-09T02:00:41Z",
      "author": "nobody@flickr.com (gulshan)",
      "author_id": "88283245@N00",
      "tags": "birthday party me brooklyn cat photobooth marcus 2009"
    },
  ],
}
```

Prototyping with DHTML



Layout

Getting the page laid out correctly & quickly



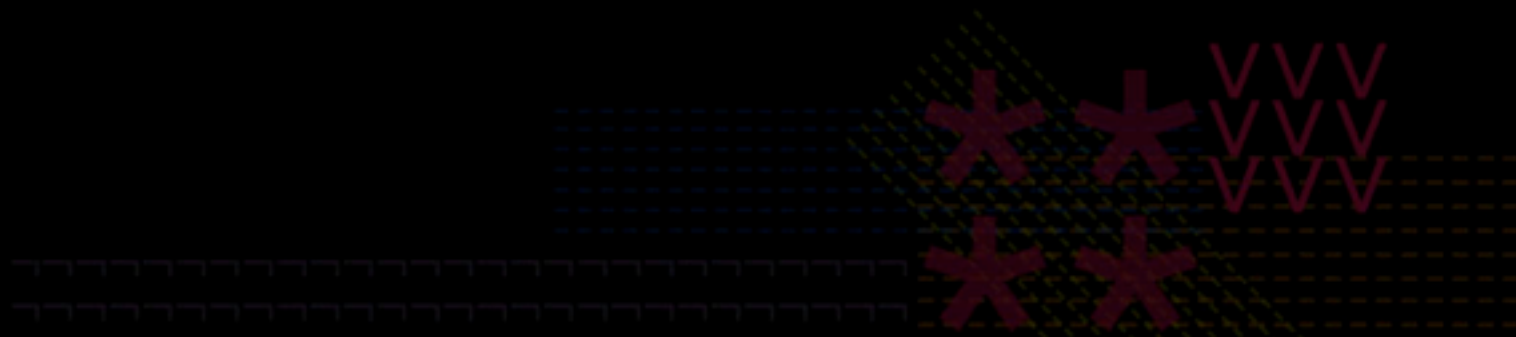
Behavior

Adding interactivity to the page



Data

Populating the prototype with fake or semi-realistic data



Resources

Book: CSS:The Missing Manual

<http://css.maxdesign.com.au/floatutorial/>

<http://speckyboy.com/2008/03/28/top-12-css-frameworks-and-how-to-understand-them/>

<http://www.blueprintcss.org/>

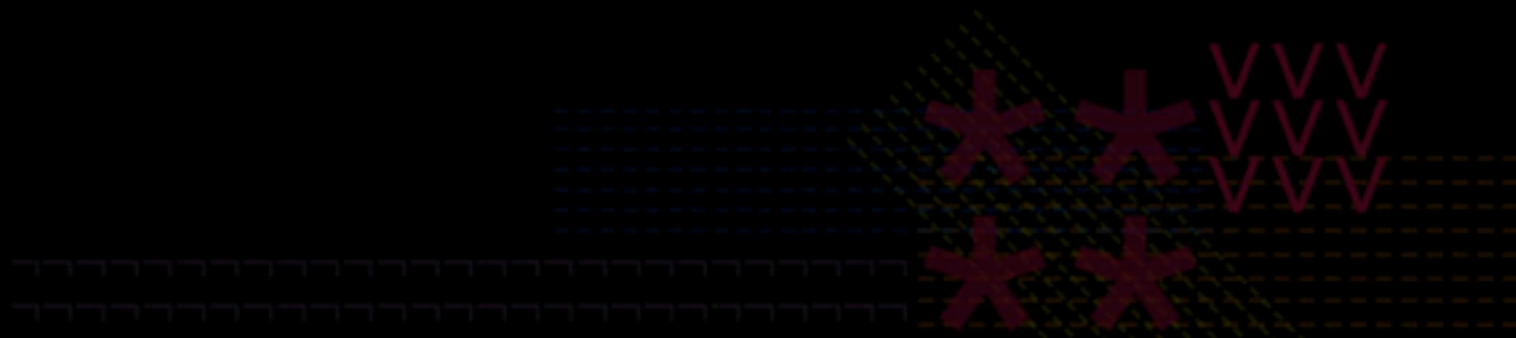
<http://www.scribd.com/doc/3592303/Blueprint-CSS-framework-version-071-cheat-sheet>

<http://kematzy.com/blueprint-generator/>

<http://mdaines.com/plumb/>

<http://developer.yahoo.com/yui/grids/>

<http://developer.yahoo.com/yui/grids/builder/>



Resources

<http://yuiblog.com/assets/pdf/cheatsheets/css.pdf>

<http://www.designbygrid.com/>

<http://www.divitodesign.com/2008/12/960-css-framework-learn-basics/>

<http://www.divitodesign.com/2009/01/tricks-to-solve-960-css-framework-problems/>

<http://www.mostinspired.com/blog/2009/01/28/rapid-interactive-prototyping/> (with jquery)

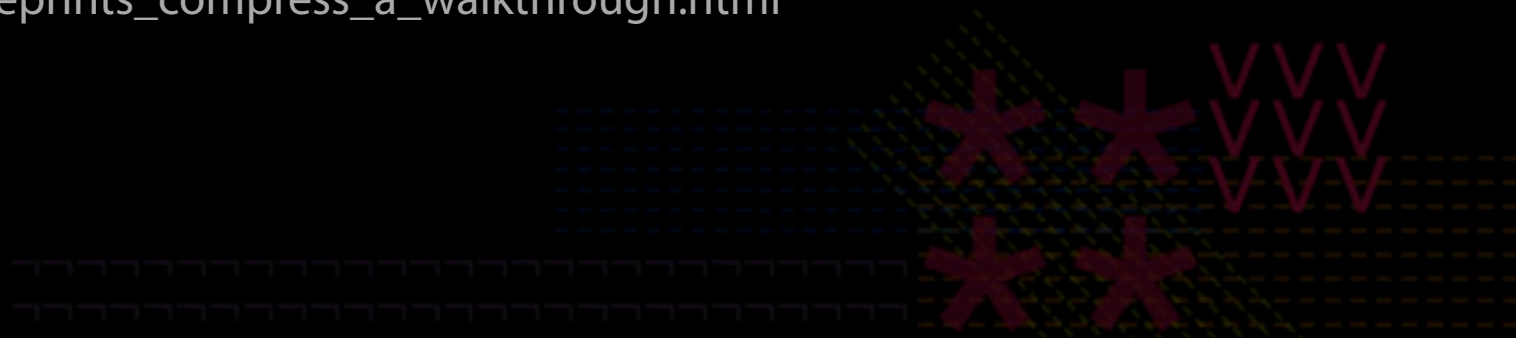
<http://www.domain7.com/WhoWeAre/StephenBau.html> (built the moo tools version of fluid)

http://www.mostinspired.com/blog/wp-content/uploads/2009/rip/16_fluid_jquery/

<http://honeyl.public.iastate.edu/blueprint/>

<http://code.google.com/p/css-boilerplate/>

http://jdclayton.com/blueprints_compress_a_walkthrough.html



Resources

<http://lab.christianmontoya.com/read/>

<http://www.christianmontoya.com/2007/11/10/semantify-and-css-tools-based-on-blueprint/>

<http://habilis.net/cssmixin/>

<http://particletree.com/features/ajax-wireframing-approaches/>

<http://designinfluences.com/fluid960gs/>

<http://www.protoscript.com>

<http://www.woollymittens.nl/default.php?id=classbehaviour-examples&cat=classbehaviour&mod=category>

<http://joanpiedra.com/jquery/greasemonkey/>

<http://www.getfirebug.com/>

<http://particletree.com/features/a-designers-guide-to-prototyping-ajax/>

<http://json.org>

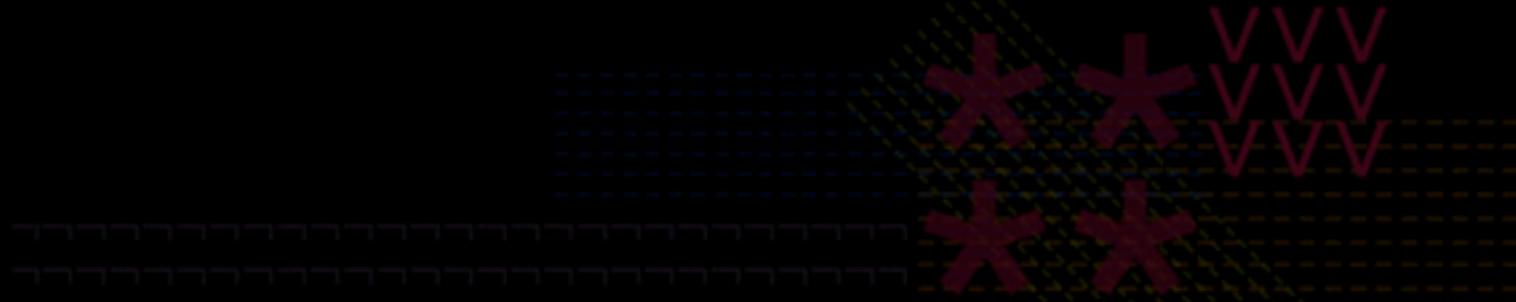


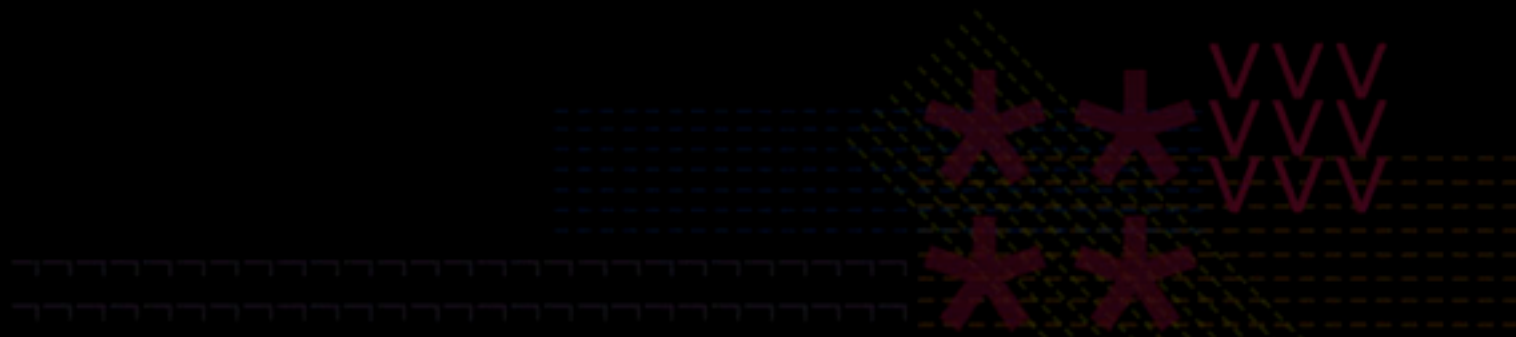
Photo Credits

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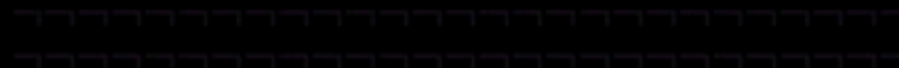
<http://www.flickr.com/photos/rohdesign/2610114400/>

[http://en.wikipedia.org/wiki/
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We are hiring

Both UX Designer & UI Engineer positions open



Questions?