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Lecture 29

Principles of Design and Practical Implications: Part 2

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Course logo spider web photograph from [Morguefile](#) openstock photograph by Gabor Karpati, Hungary.

Good Design

Achieving Organization & Structure

Grouping

Hierarchy

Relationship

Balance

Grouping

- Apply Gestalt principles to create groups of similar or related items
 - Proximity, continuity, similarity...
- Use Gestalt principles rather than applying explicit visible structure “telling” user what the groups should be (e.g., using bounding boxes)

Hierarchy

- Create a visual hierarchy to guide viewer, to allow scanning of information
- Create hierarchy according to intended reading/viewing sequence
- Hierarchy created by adjusting properties such as size, position, spacing, **white space** ...

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What Other Customers Are Looking At Right Now



Kindle Paperwhite, 6" High Resolution...
Amazon Digital Services Inc.
★★★★☆ (9,580)
\$119.00



Mahjong Nagomi
Zoo Corpation
★★★★☆ (15)
\$0.00



Jurassic Park Ultimate Trilogy
Gift Set
Alessandro Nivola, Ariana Richards, ...
Blu-ray
★★★★☆ (562)
~~\$119.98~~ **\$47.99**



Amazon Gift Card - E-mail - All...
amazon.com
\$100.00
★★★★☆ (16,716)
\$50.00



Kindle, 6" E Ink Display, Wi-Fi...
Amazon Digital Services Inc.
★★★★☆ (3,581)
\$69.00

The Nike+ SportWatch GPS
Put it on, go outside, and get running.
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amazon.com rewards
= **\$30 Off Instantly**
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Relationship

- Establish relationships between elements by using
 - Position
 - Size
 - Value (color, shape, etc.)
- Alignment is very effective tool at creating relationships
- Similarity of form also effective

Balance

- Create visually stable compositions
 - Similar to physical balance
- Stability achieved by manipulating properties such as
 - Position, Size, Hue and Form
- Symmetric layouts achieve balance naturally

Common Errors

- Haphazard Cluttered layout
- Proximity not taken into account when laying out components in interface
- Unclear hierarchy
- Bounding boxes creating visual clutter, competing for attention
- Use negative space (white space) instead

More Psychology - Attention

The image shows a browser window with the Apple website at the top and a weather forecast for Fort Collins, CO on Weather Underground below. A yellow Apple Watch is partially visible on the right side of the browser window.

Apple Website:
www.apple.com
Navigation: Education Store Home | Exit
Menu: Mac, iPad, iPhone, Watch, TV, Music, Support

Weather Underground:
www.wunderground.com/cgi-bin/findweather/getForecast?c
Fort Collins, CO (80526) Forecast | Weather Underground
Search Locations

Fort Collins, CO [80526]
Forecast: 44.8 °F Partly Cloudy
Frisco, CO: 31.3 °F Overcast
Denver, CO: 42.9 °F Partly Cloudy

Fort Collins, CO [80526]
Forecast | History | Calendar | Rain / Snow | Health

Elev 5121 ft 40.54 °N, 105.11 °W | Updated 1 min ago

44.0 °F
Feels Like 44 °F
Wind Variable Gusts 3.3 mph

Mostly Cloudy

Today is forecast to be **MUCH WARMER** than yesterday.

Today	Yesterday
High 59 Low 36 °F	High 50.7 Low 32.7 °F
50% Chance of Precip.	Precip. 0 in

Thunderstorms possible at 10:30am.

More Conditions

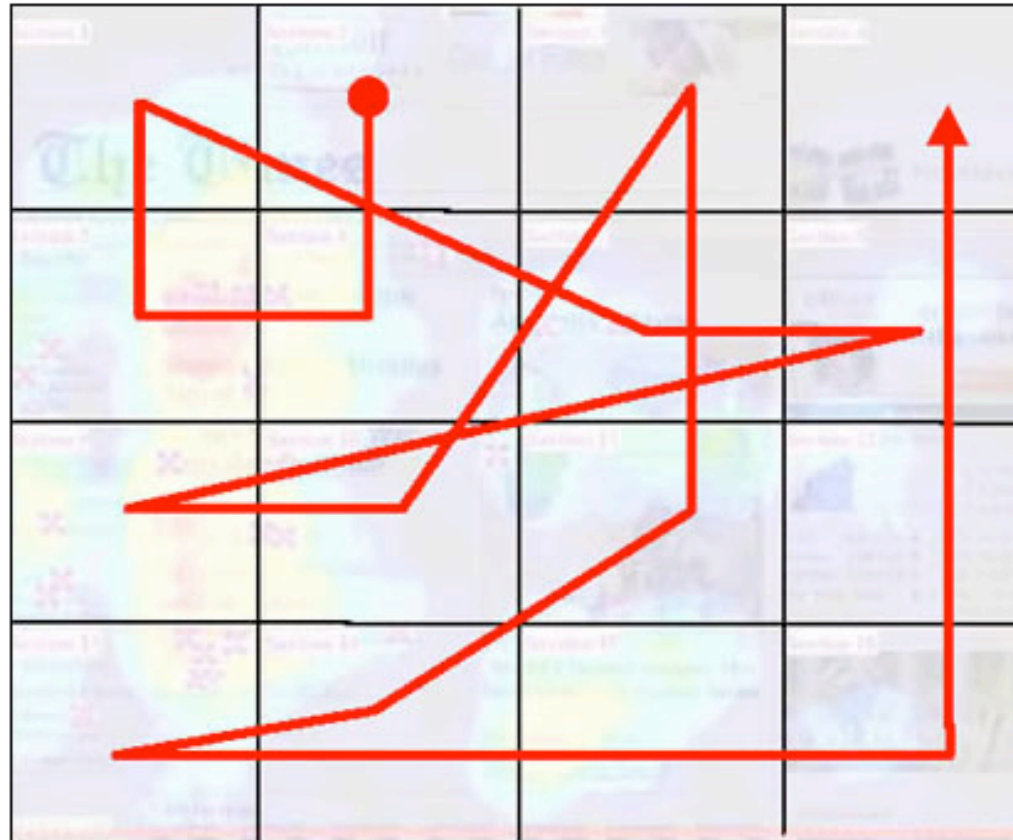
Radar | **Satellite** | WunderMap | Nexrad | Regional

Mapbox © OpenStreetMap | Improve this map

Show Webcams

[with homepages, it's polite to stare](#)
•**Jeff Glick:**
[When to tell stories with multimedia, text](#)
•**Kinsey Wilson:**
[Online ads: Why placement & size matter](#)

homepage designs, Eyetrack III researchers noticed a common pattern: **The eyes most often fixated first in the upper left of the page, then hovered in that area before going left to right. Only after perusing the top portion of the page for some time did their eyes explore further down the page.**

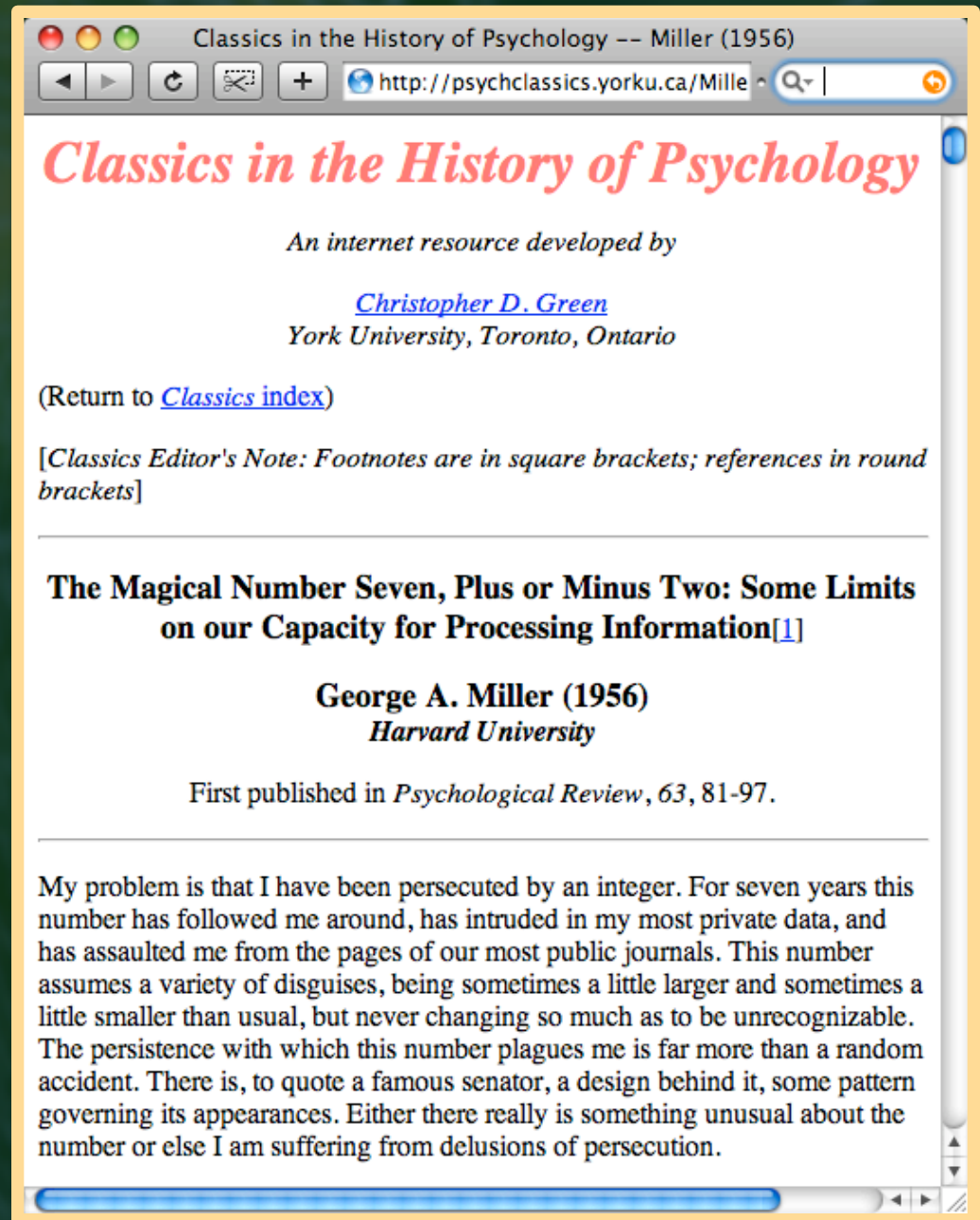


Tips for Using Space Wisely

- Most important information at the top.
- Poynter Institute Eye tracking study.
 - Most valuable page real estate.
 - Upper left and then center top.
- Avoid horizontal scrolling.
- Open space is very powerful.
 - Beware excess.

Seven +/- 2

- Short term memory.
- Related to Chunking.
- Controversial in detail, ...
- ... but widely accepted in general.



Classics in the History of Psychology -- Miller (1956)

<http://psychclassics.yorku.ca/Mille>

Classics in the History of Psychology

An internet resource developed by

[Christopher D. Green](#)
York University, Toronto, Ontario

(Return to [Classics index](#))

[Classics Editor's Note: Footnotes are in square brackets; references in round brackets]

The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information[1]

George A. Miller (1956)
Harvard University

First published in *Psychological Review*, 63, 81-97.

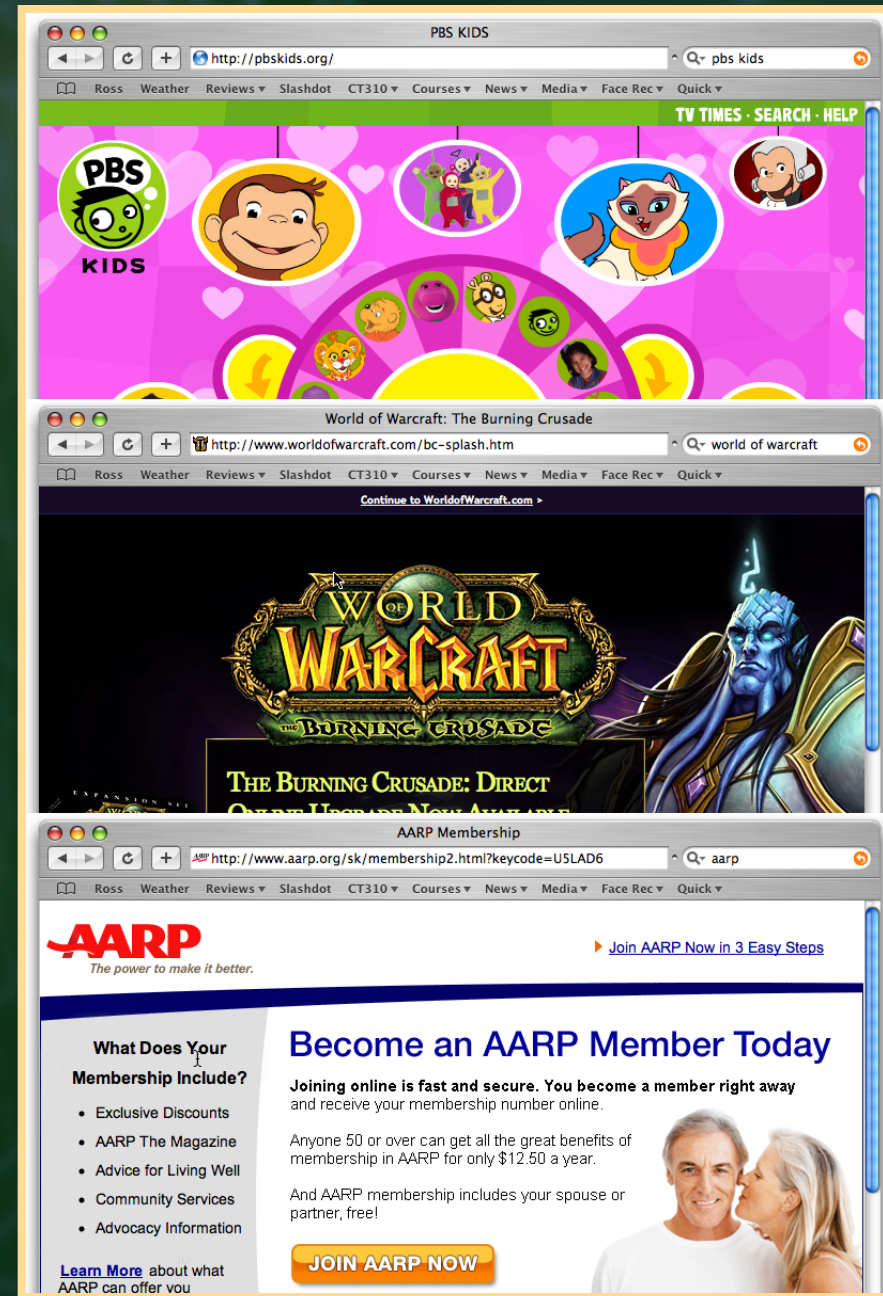
My problem is that I have been persecuted by an integer. For seven years this number has followed me around, has intruded in my most private data, and has assaulted me from the pages of our most public journals. This number assumes a variety of disguises, being sometimes a little larger and sometimes a little smaller than usual, but never changing so much as to be unrecognizable. The persistence with which this number plagues me is far more than a random accident. There is, to quote a famous senator, a design behind it, some pattern governing its appearances. Either there really is something unusual about the number or else I am suffering from delusions of persecution.

Navigation

- Visual Continuity – where am I?
- Where can I go – choices.
- Visual interest.
- Ease of use, avoiding overload.
- Rule of three
 - All points reachable in 3 clicks.
- Chunking: 7 ± 2 (next slide)

Color & Audience

- Sweeping Generalities:
 - Kids - bright colors
 - Teen & 20s - dark
 - 40s & up - light, big
- Black on White
 - Most of the web.
 - Mostly harmless.




Color Blindness

- Common in about 5 to 10 out of 100 men.
- Typically weak red-green discrimination.
- Good entry in Wikipedia.
- Visual illustration.
 - <http://jfly.iam.u-tokyo.ac.jp/color/>
- Deuternaopia Test.
 - http://www.biyee.net/v/color_vision_test/deuteraanopia_test.htm
- Check a website at Visicheck.


CT 310 Homepage

http://171.64.204.83/uploads/12396919928848/ Google



CT 310: Web Development

Department of Computer Science
Spring 2009
CT 310 Homepage



Home Syllabus Progress Assignments Resources Colvin

CT 310 is a one semester introduction to web development. Emphasis is placed on the essentials needed to create fully functional web sites including rich graphical content and dynamic content. The course will cover HTML, XHTML, Cascading Style Sheets and graphical content. Dynamic web pages will be developed using PHP. MySQL will be introduced as a means of managing website data. Students will develop their own dynamic web site able to manage transactions and show updates accordingly.

While each year is different, feel free to peruse the [Spring 2008 CT 310 website](#).

Most communication for this course are managed through this public website. A few functions, including grading and assignment submissions, are handled through students only [RamCT facility](#).


News:

- Lecture notes for yesterday (Thursday) have been posted (4/10/09 9:40AM)
- CT 310 Project 3 teams emailed out (04/09/09 4:35PM)
- [Project 3](#) is posted!
- ...

Course logo spider web photograph from [Morguefile](#) openstock photograph by Gabor Karpati, Hungary.

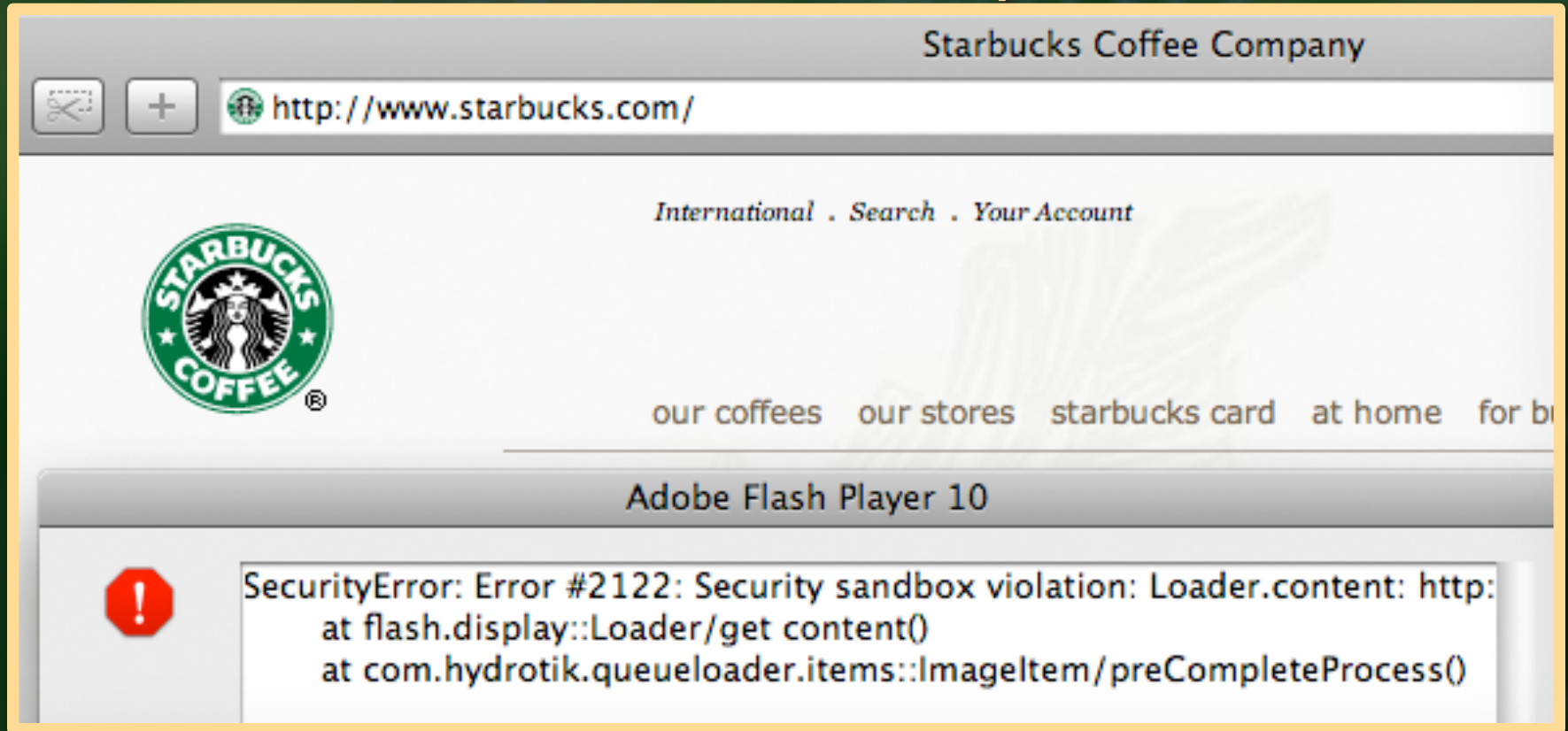
Session Time 0 Secs.
Originating IP 171.64.204.83
User: Guest

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A bit of History

➤ Starbucks 2009 Example



**Flash Player Security Violation on
4/14/09 Safari Version 3.2.1, Mac 10.5**

Layout – Again A Problem!

Screen Size 2009



Screen Size 2016

The image displays three overlapping screenshots of the CT 310 Web Development syllabus page from Colorado State University, illustrating how the page layout adapts to different screen sizes. The top screenshot is a desktop view, the middle is a tablet view, and the bottom is a mobile view. Each view shows the page's navigation menu, description, prerequisites, and instructor information, with the content reflowing and resizing to fit the available space.

Desktop View: The page features a wide header with the Colorado State University logo on the right and navigation links (Home, Syllabus, Progress, Assignments, Resources, Canvas) in the center. The main content area is split into two columns: a left column for the course description and prerequisites, and a right column for instructor details. The text is large and clearly legible.

Tablet View: The layout is more compact. The navigation menu is centered, and the instructor information is moved to the top right of the main content area. The text size is slightly smaller than in the desktop view.

Mobile View: The page is highly condensed. The navigation menu is centered and uses a hamburger menu icon. The instructor information is placed at the top right. The text is the smallest of the three views, and the overall design is optimized for vertical scrolling.


Starbucks 2004, 2007

Starbucks Homepage - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.starbucks.com/Default.asp?cookie%5Ftest=1>

your account | customer s



STARBUCKS.COM

north america


- our coffees
- our stores
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- in grocery
- for business
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our friends...

- Mobile HotSpot

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Experience coffee passion
See what's new in stores this fall.


Genius Loves Company
Ray Charles gets a little help from his friends.

Starbucks now on XM Radio
Find out about our new "Hear Music" channel

search

(keyword or catalog number)

 **Store Locator** Find your nearest Starbucks.

 **Nutrition Information** Check out Starbucks beverages and food details.


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Starbucks Homepage - Windows Internet Explorer

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

Starbucks Homepage

site map . find a store . nutrition . international . customer service . search . your account



our coffees our stores starbucks card at home for business about us

A wonderful wintertime treat returns
CINNAMON DOLCE LATTE
The beverage of beautiful, buttery bliss is back.

★ Find a store near you

Quick Links

- ★ Buy Coffee
- ★ Refund Your Starbucks Card
- ★ Recall: 8-cup Coffee Brewer
- ★ Hear Music

Happy Valentine's Day

Say "I love you" with cupcakes. Visit a participating store to pre-order your cupcake 2-packs while supplies last.

★ Find a Store Near You

Starbucks Card

Give someone you love something they'll love.

★ Buy One Now

"My Starbucks" T-shirt

Wear your drink on a T-shirt created by fashion designer Michael Knight.

★ See Details

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<http://www.starbucks.com/ourcoffees/>

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Store Locator

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Starbucks Announces the Opening Of its First Store in Poland

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- [Starbucks V2V \(STARBUCKS\)RED](#)
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New Pairings



New Seasonal Coffees



(STARBUCKS)RED Card



Starbucks VIA™

Starbucks 2009

Starbucks 2016

www.starbucks.com

Starbucks – The Best Coffee and Espresso Drinks

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History: Layouts - 2009

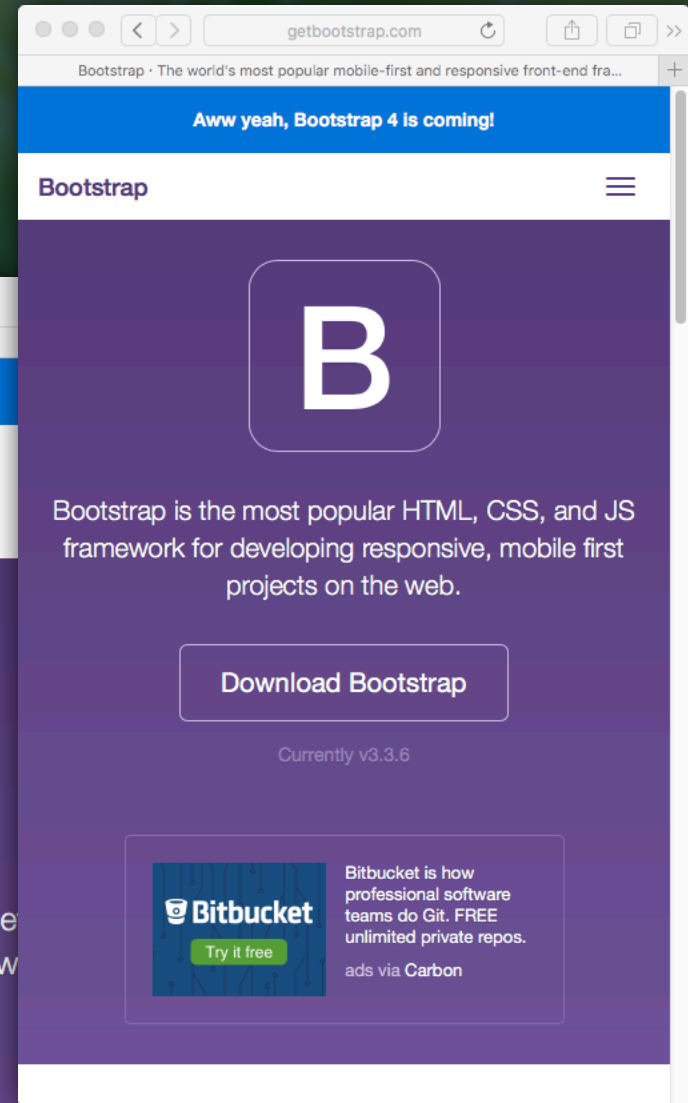
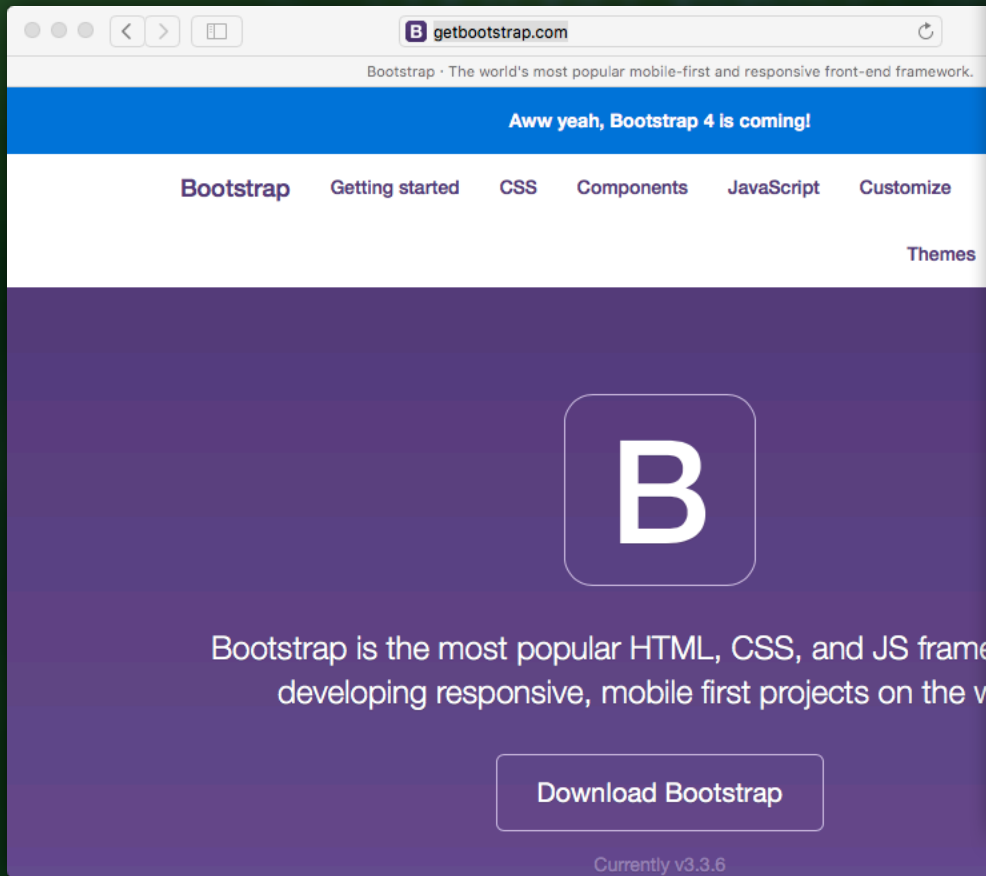
Ice	Fixed size and anchored to the upper left. Example: Poudre Schools
Jello	Centered on the page, often filling some fraction of the page width. Colorado State University
Liquid	Fill the entire page. Example: Slashdot

History: Layouts - 2011

Ice	Fixed size and anchored to the upper left. Example: Colorado State Parks
Jello	Centered on the page, often filling some fraction of the page width. Poudre Schools
Liquid	Fill the entire page. Example: Slashdot

Layouts 2016

➤ Explosion of possibilities.



Examples - Think About

- Intended audience.
- Attention – real estate & placement.
- Cognitive load, the 7+/-2 rule.
- Navigation – how clear.
- Visual excitement.
- Proximity & Alignment.
- Branding (where are you?)

Upgrade your Internet experience

United States Change

Microsoft



Your potential. Our passion.®

Windows Office All Products Buy Now Downloads & Trials Partner & Customer Solutions Security & Updates Training & Events Support About Microsoft



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Highlights ▶

April 2009



Visit Microsoft Update

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- Microsoft Virtualization is here

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April 2016

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Small talk.



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April 2009



iPad 2

Thinner. Lighter. Faster.
FaceTime. Smart Covers. 10-hour battery.



April 2011



[Watch the iPad 2 video](#)



[See the iPad Smart Cover in action](#)



April 2016

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0:54 AM

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The New York Times

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Dining
Fashion
Home & Garden
Weddings/
Celebrations

Allied Militants Threaten Pakistan's Populous Heart

By SABRINA TAVERNISE, RICHARD A. OPPEL Jr. and ERIC SCHMITT

The Taliban is teaming up with local militant groups in Punjab, reinvigorating an alliance that poses a serious risk to the stability of Pakistan.

Slide Show

U.S. May Drop Key Condition for Talks With Iran

By DAVID E. SANGER
New proposals would allow



G. Paul Burnett/The New York Times

Glamour Dims as Hecklers Hit Auto Shows

By DAVID SEGAL

After receiving government bailout money, G.M. and Chrysler are finding somewhat hostile crowds at their exhibits. Above, Christina Alt Parry, a G.M. presenter.

Small-Car Buyers Sacrifice Safety

By L. W. WALD 12:11 AM ET

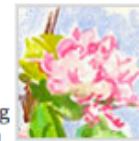
A study performed by an insurance group showed that crash dummies in minicars fared comparatively poorly in collisions with midsize



OPINION »

'Welcome Back'

The artist Jeff Scher looks forward to the arrival of spring in an animated film.



- Herbert: The American Way | Comments
- Editorial: Immigration Reform
- Op-Ed: Armchair Astronauts
- Cavett: More Magic

SCIENCE TIMES »

Last Voyage for the Keeper of the Hubble

For 18 years, one astronaut has tended to the space telescope.



Audio Slide Show

Taxing to Save a Species

Is there an animal equivalent to paying taxes?

HEALTH »

An Awkward Sex Talk

A perception that boys need special lessons in manners.

Post a Comment



MARKETS » At 2:39 AM ET

JAPAN		CHINA	
Nikkei	HangSeng	Shanghai	
8,842.68	15,363.00	2,528.40	
-81.75	+461.59	+14.70	
-0.92%	+3.10%	+0.58%	

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April 2009

WHAT YOUNG AMERICANS NEED TO KNOW ABOUT RETIREMENT. Watch the webcast >

The New York Times

Thursday, April 14, 2011 Last Update: 10:26 PM ET



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HEALTH
OPINION
ARTS
Books
Movies
Music
Television
Theater
STYLE
Dining & Wine
Fashion & Style
Home & Garden

Congress Passes Budget Bill, but Some in G.O.P. Balk

By JENNIFER STEINHAUER 2 minutes ago

The House and Senate passed the compromise legislation to finance the federal government, with 59 House Republicans breaking ranks to vote against the deal.

- [House Vote](#) | [Senate Vote](#)
- For Boehner, a Silver Cloud With a Dark Lining

[Read Comments \(166\)](#)

Libyan Port City Is Filled With Migrants Desperate to Exit

By C. J. CHIVERS 29 minutes ago

Since February, Misurata has been besieged.



Jim Wilson/The New York Times

< 1 2 3 4 5 >

A pop-up restaurant set up for one evening in San Francisco.

They Gather Secretly and Then They Eat

By PATRICIA LEIGH BROWN 8 minutes ago

At a quasi-clandestine monthly event in San Francisco, young chefs and their followers are remaking the traditional farmer's market as an indie food rave.

Statue of Liberty Is a Las Vegas Teenager

By SEVERSON and MATTHEW HEALEY 7 minutes ago

The Postal Service's new Statue of Liberty is accidentally based on the replica at the New York-New York casino in Las Vegas.



OPINION > Op-Ed: Cairo's Roundabout Revolution

It seems an accident of history that Tahrir Square has become a locus of protest.

- [Collins: Abortion Wars](#) | [Comments \(316\)](#)
- [Kristof: Raise Taxes](#)
- [Editorial: Budget Speech](#)
- [Obama, Cameron, Sarkozy: Libya's Peace](#)
- [Townies: The Timid Need Not Apply](#)



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WHAT'S POPULAR NOW [Facebook]

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- [For Many Bachelors in China, No Deed Means No Dates](#)



April 2011

The New York Times

Wednesday, April 20, 2016 | Today's Paper | Video | 43°F | S. & P. 500 -0.06% ↓



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ELECTION 2016

New York Wins Prosel Trump and Clinton

April 2016

New York City
Good Voted



The Opinion Pages

EDITORIAL

Sanders and Kasich Should Ignore Any Pressure to Quit
New York's primary results will bring new calls for both parties'



CONTRIBUTING OP-ED WRITER
Legislation by Steal Republican Style
By THOMAS B. EDSALL
In Congress, new provisions favored by

If you like history ...

The Internet Archive, the Wayback Machine

The screenshot shows a web browser window with the title "Welcome to Poudre Schools!". The address bar displays the URL: <http://replay.waybackmachine.org/20060702105322/http://www.psdschools.org>. The browser's search bar contains the text "http://www.psdschools.org/". The Wayback Machine interface shows "150 captures" between "10 Oct 03" and "17 Nov 06". The calendar highlights the date "2" in "JUL 2006".

The website content includes a navigation menu with links for Curriculum, Learning Tools, Intranet, Programs, Services, Jobs, Schools, PSD Info, Students, and Contact PSD. The main header features the Poudre School District logo and a scenic image of a river. A "Site Search" box is present. A featured article titled "4th Grade Rendezvous" describes an event at McGraw Elementary. A news sidebar lists several items, including "Ortega Named Exec Dir Secondary Ed" and "Dr. Wilson Shares Annual Report". Navigation buttons for "School Registration" and "PSD Accountability Report" are visible. The footer contains a comprehensive list of site links: Home, Learning Tools, Jobs, Schools, PSD Info, Students, Contact PSD, Services, Programs, Intranet, and Curriculum.

In Closing

- From 2011 Lecture
 - Note how little change in 2 years.
 - Greatest change in Microsoft Site.
 - No complex side bars?
 - Audience and intended purpose profoundly change the appearance.
- Update 2016 Lecture
 - Explosion of adaptive layouts
 - Much strong advertising presence