

Grids and Mocks

MICHAEL BERNSTEIN

CS 247

THANKS TO SCOTT KLEMMER AND MANEESH AGRAWALA

Web programming
diagnostic

Five questions

Not graded, but if you get less than 4/5, we recommend that you attend our workshop.

Which tags show important text in a semantic way? (think for web accessibility)

- 1. <i>,
 - 2. <h1>, <h2>, <h3>, etc
 - 3. ,
-
- a. 1, 2
 - b. 2, 3
 - c. 1, 3
 - d. all of the above

Which tags show important text in a semantic way? (think for web accessibility)

- 1. <i>,
 - 2. <h1>, <h2>, <h3>, etc
 - 3. ,
-
- a. 1, 2
 - b. 2, 3
 - c. 1, 3
 - d. all of the above

What is the maximum number of elements that can be selected by the following selectors in a valid HTML document?

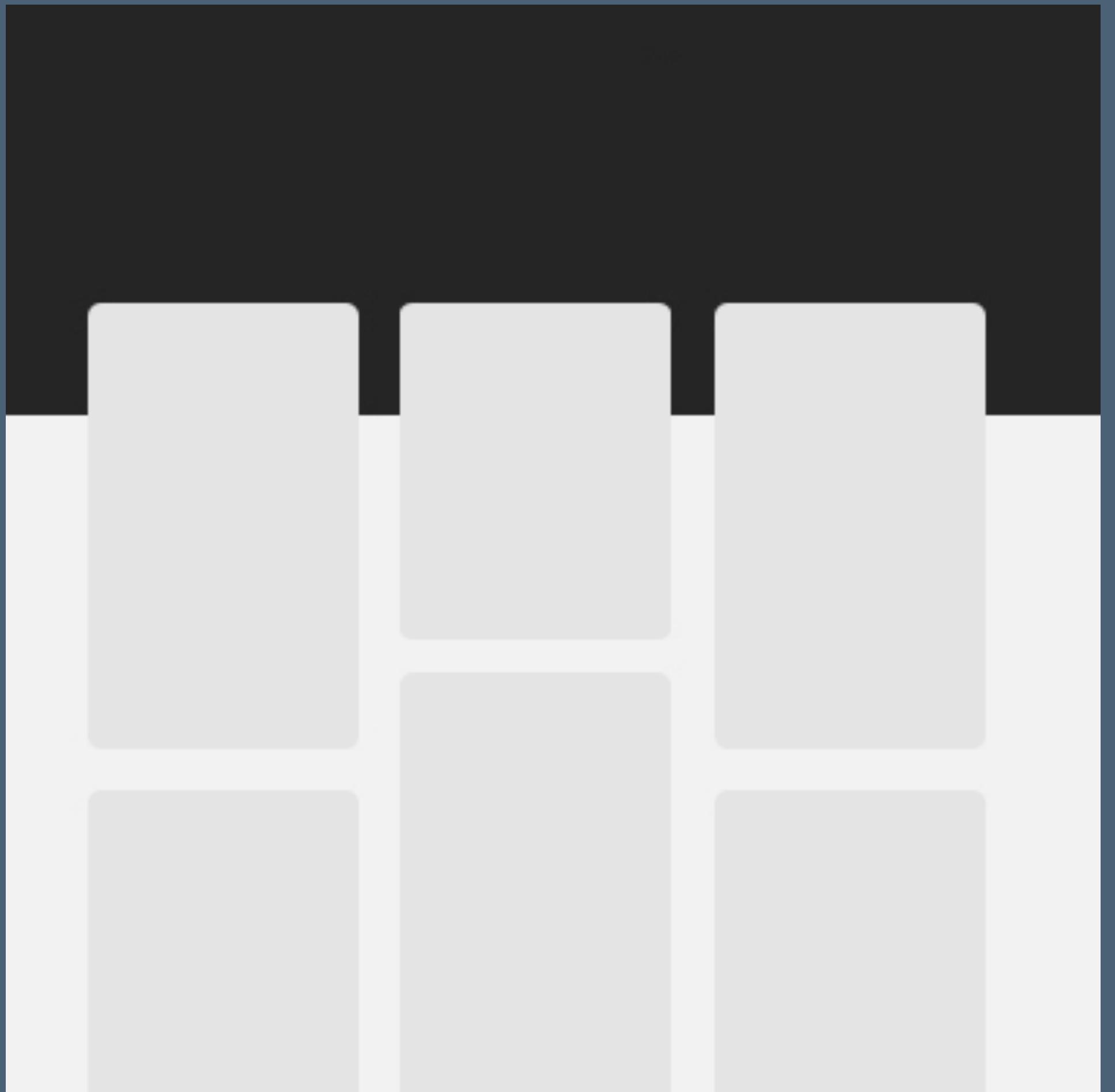
1. `#intro-slide .title`
 2. `.tab #selection`
-
- a. (1) only one, (2) more than one
 - b. (1) more than one, (2) only one
 - c. (1) more than one, (2) more than one

What is the maximum number of elements that can be selected by the following selectors in a valid HTML document?

1. `#intro-slide .title`
 2. `.tab #selection`
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- a. (1) only one, (2) more than one
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 - c. (1) more than one, (2) more than one

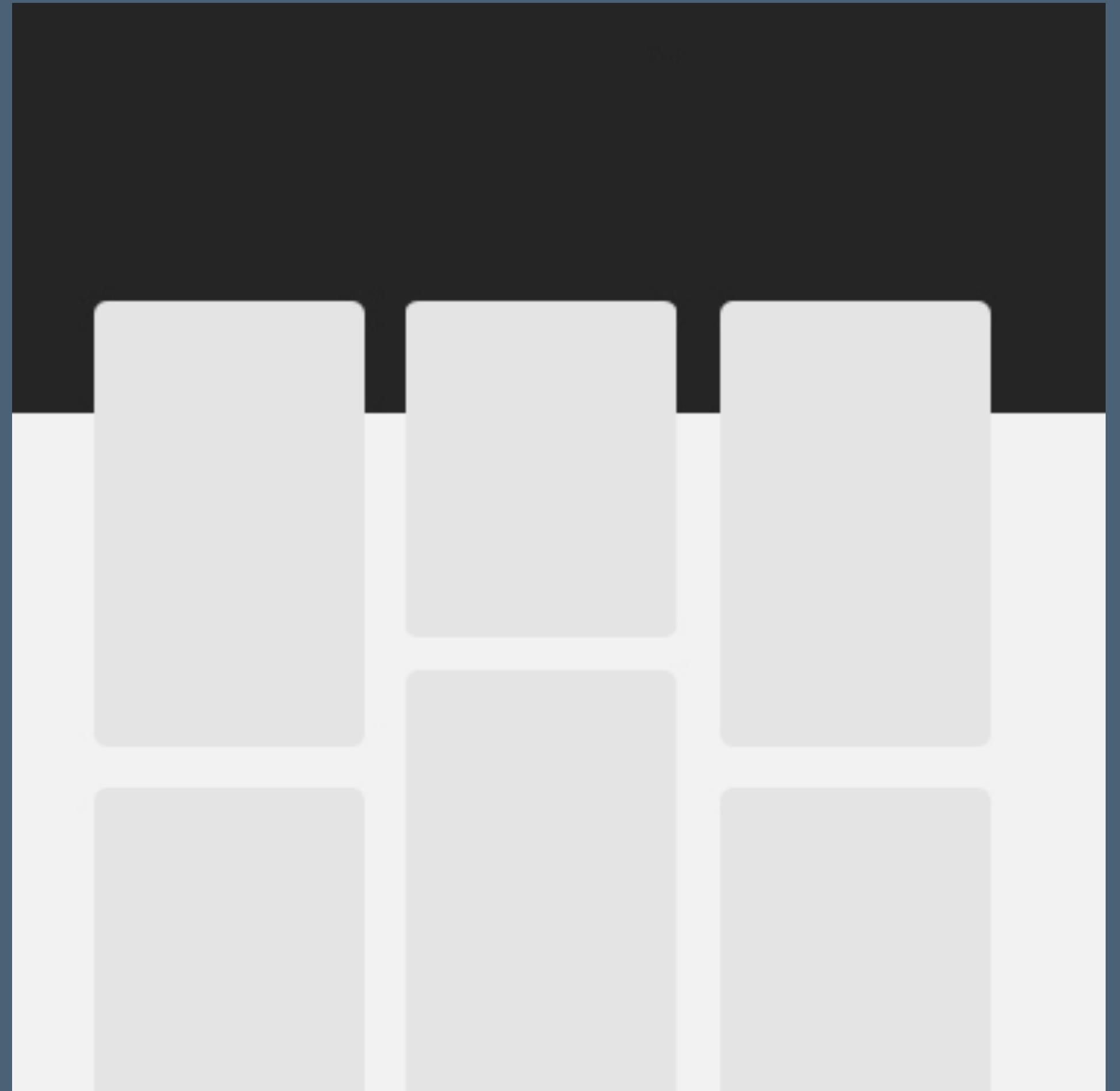
How would you style an element (the rounded grey box) such that it overlaps another element (the black background)?

1. negative padding-top on the box
 2. negative margin-top on the box
 3. absolute position the boxes,
relative position background
-
- a. 1, 3
 - b. 2, 3
 - c. 1, 2, 3
 - d. none



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 - d. none



Where is the correct place to insert JavaScript?

- 1. in the <head> section
 - 2. in the <body> section
 - 3. in a separate file
-
- a. 1, 3
 - b. 2, 3
 - c. 1, 2, 3
 - d. none

Where is the correct place to insert JavaScript?

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-
- a. 1, 3
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 - d. none

What does this piece of jQuery / js code do?

```
<script>
  $(".trigger-btn").fadeIn(500);
  $(".trigger-btn").attr("color", "red");
  $(".trigger-btn").fadeOut(3);
</script>
```

- a. It will fade the element in, then change the color to red
- b. No element will appear
- c. A red element will appear, then fade away
- d. Indeterminate; depends on what's in the browser's timer queues

What does this piece of jQuery / js code do?

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Web technologies workshop

TA-led crash course

Next Wednesday, March 1st, 6:30pm–8:30pm, Gates 415

Grids

The niddy griddy



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Court Dissolves Parliament in Egypt in Blow to Islamists

By DAVID D. KIRKPATRICK 5 minutes ago

Egypt's high court, which also blessed the presidential bid of Hosni Mubarak's last prime minister Thursday, appeared to be engaged in a frontal legal assault on the Muslim Brotherhood.

[Post a Comment](#) | [Read \(109\)](#)

[The Lede: Reaction in Egypt](#) 5:07 PM ET

With Justices Set to Rule on Health Law, 2 Parties Strategize

By JONATHAN WEISMAN and MICHAEL D. SHEAR 5:07 PM ET

If the measure is not thrown out, House Republicans plan to force a repeal vote, while top officials at the White House are projecting confidence that the justices will rule in their favor.

[Interactive: How the Supreme Court Could Rule](#)

U.N. Monitors Find Vast Devastation in Syrian Village

By RICK GLADSTONE 3:18 PM ET

Stores were looted and homes abandoned in Al Heffa, besieged for days by Syrian forces, and the smell of death hung in the air, said United Nations monitors.

[Syrian Liberators, Bearing Toy Guns](#) 5:46 PM ET

Merkel Stresses Limits to Germany's Strength

By NICHOLAS KULISH and PAUL GRETZINGER 4:06 minutes ago

Chancellor Angela Merkel told German lawmakers the country cannot prop up the faltering euro zone.

[Switzerland and Britain Gird Against the Storm](#) 8:06 PM ET

At U.S. Airports, a Building Boom Takes Hold

By JAD MCUAWAD 4:06 PM ET

The nation's biggest airports are in the midst of major renovations or expansions that, taken together, amount to some of the largest infrastructure projects in America.

Stanford Gets 110 Years in \$7 Billion Ponzi Case

By CLIFFORD KRAUSS 7:36 PM ET

A federal jury had convicted R. Allen Stanford of 13 out of 14 counts of fraud in connection with a global scheme.

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- [On Par: Live Blog on the U.S. Open](#)
- [Hits: Apps I Want to Go Away](#)

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Armstrong Seems to Ready for Battle

By JULIET MACUR 1 minute ago

Lance Armstrong, the seven-time Tour de France winner, said he was "exploring all my options" in dealing with the doping charges against him.

House Hunting in ... Italy

It's a buyers' market in Italy, where house prices have steadily declined since 2010.

[Side Show](#)

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Expansive Pre-War Condo Living from \$1,995 M

16



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5 minutes ago

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Interactive: How the Supreme Court Could Rule

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By RICK GLADSTONE 3:16 PM ET

Stores were looted and homes abandoned in Al Heffa,

besieged for days by Syrian forces, and the smell of death hung in the air, said United Nations monitors.

Syrian Liberators, Bearing Toy Guns 6:45 PM ET

MORE NEWS

• Jury Sides With Costner in BP Spill Lawsuit

18 minutes ago

• Mets Sweep the Rays

6:42 PM ET

ON THE BLOGS

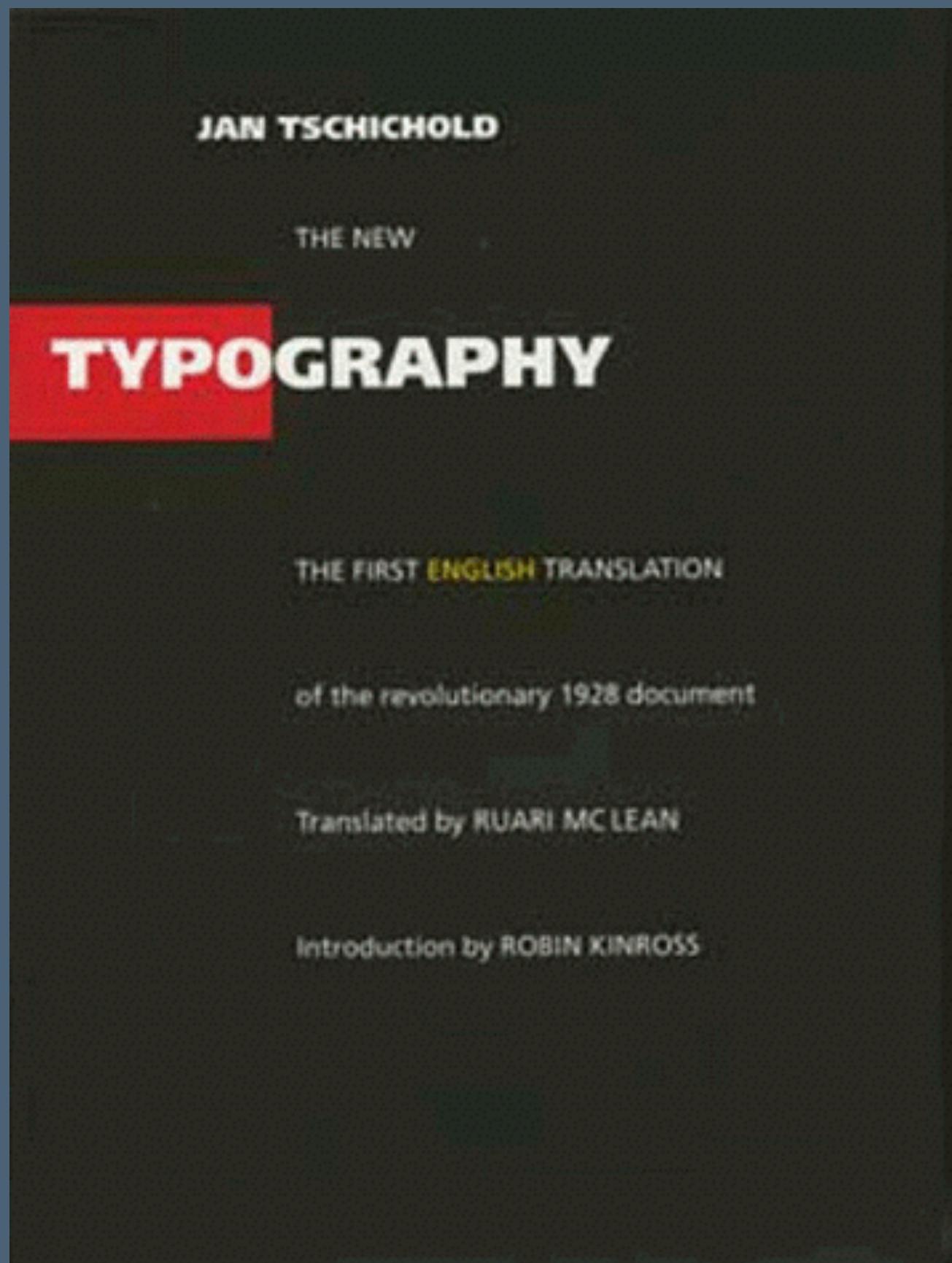
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Jan Tschichold's Bauhaus Revolution

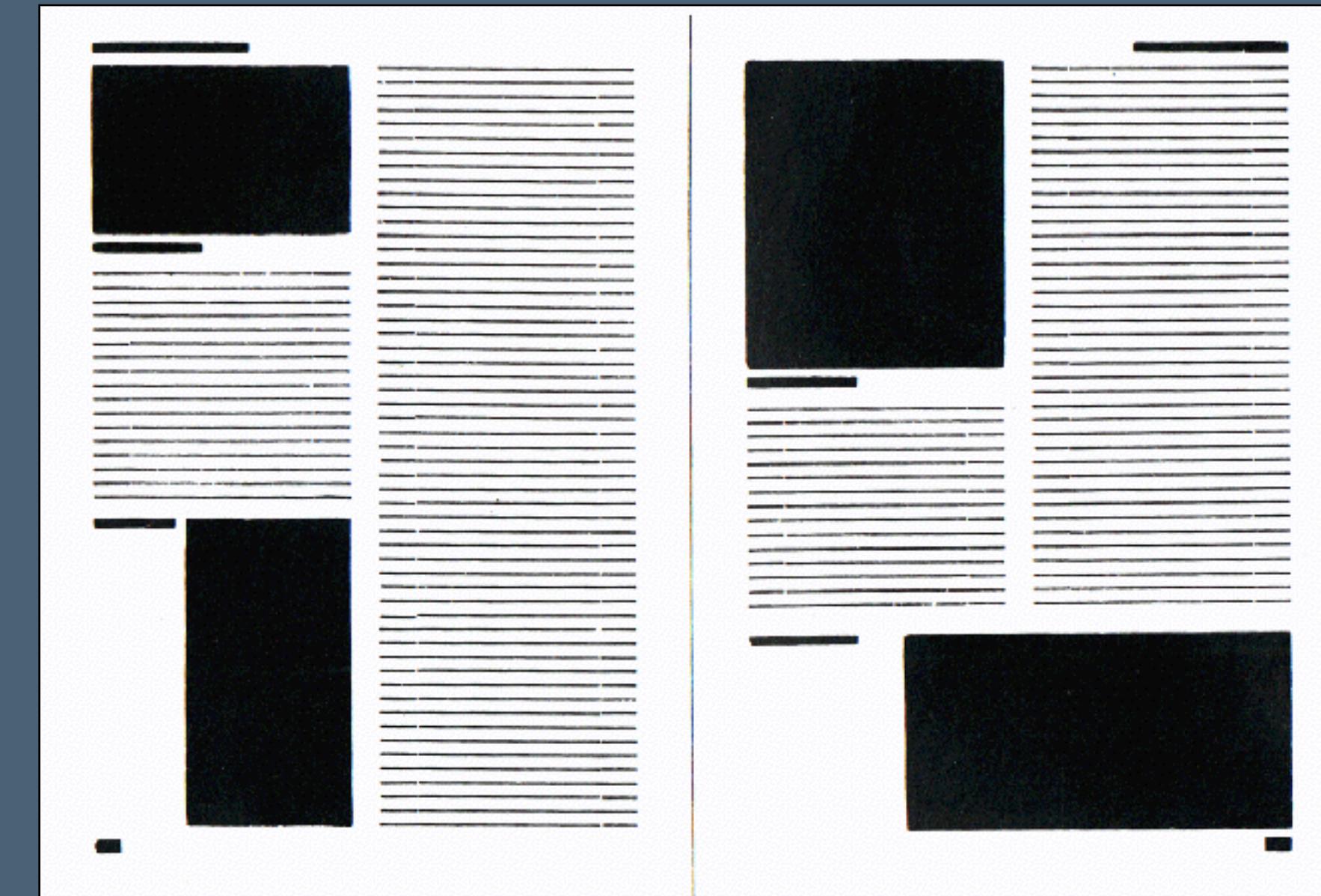
- Champion of Modernist Typography



Asymmetric Typography



How blocks used to be arranged in magazines. Schematic, thoughtless centering of blocks (= ugly).



The same blocks, correctly arranged in the same type-area. Constructive, meaningful, and economical (= beautiful).

Lorem ipsum dolor sit amet, consectetur adipisicing 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. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

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Lorem ipsum dolor sit amet

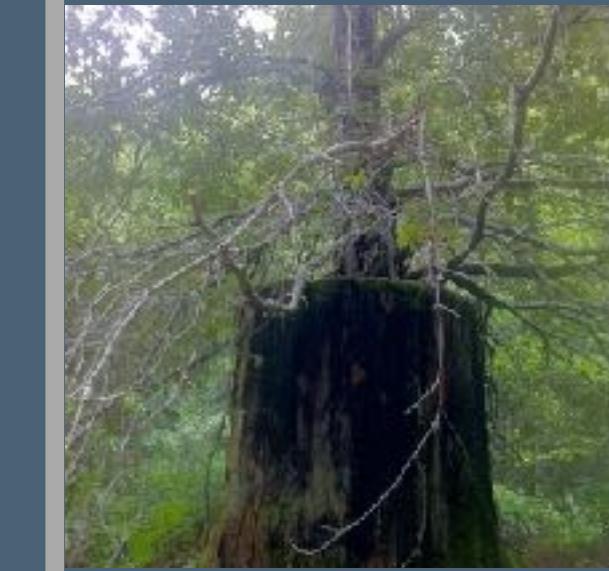
Consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.



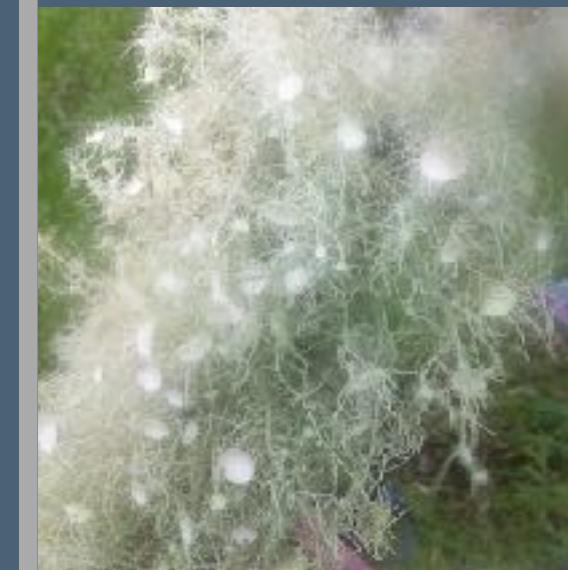
LOREM



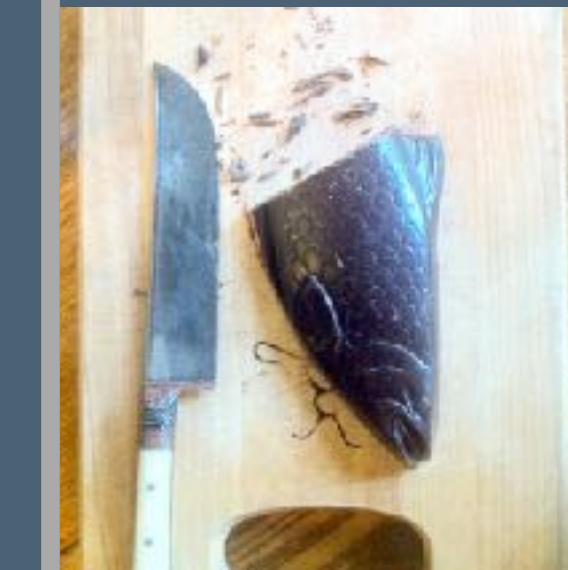
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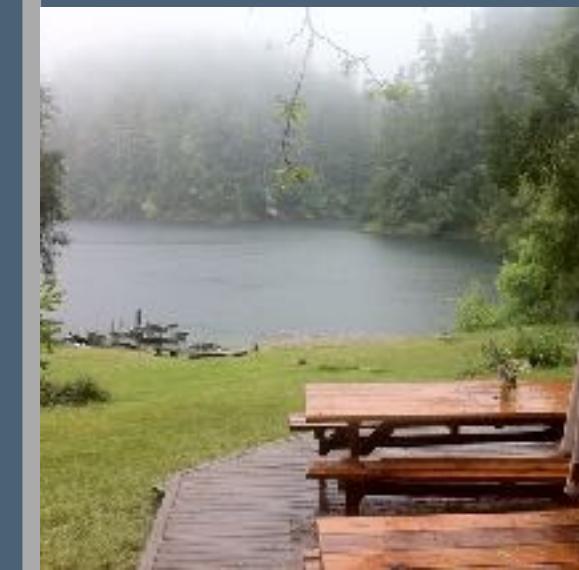
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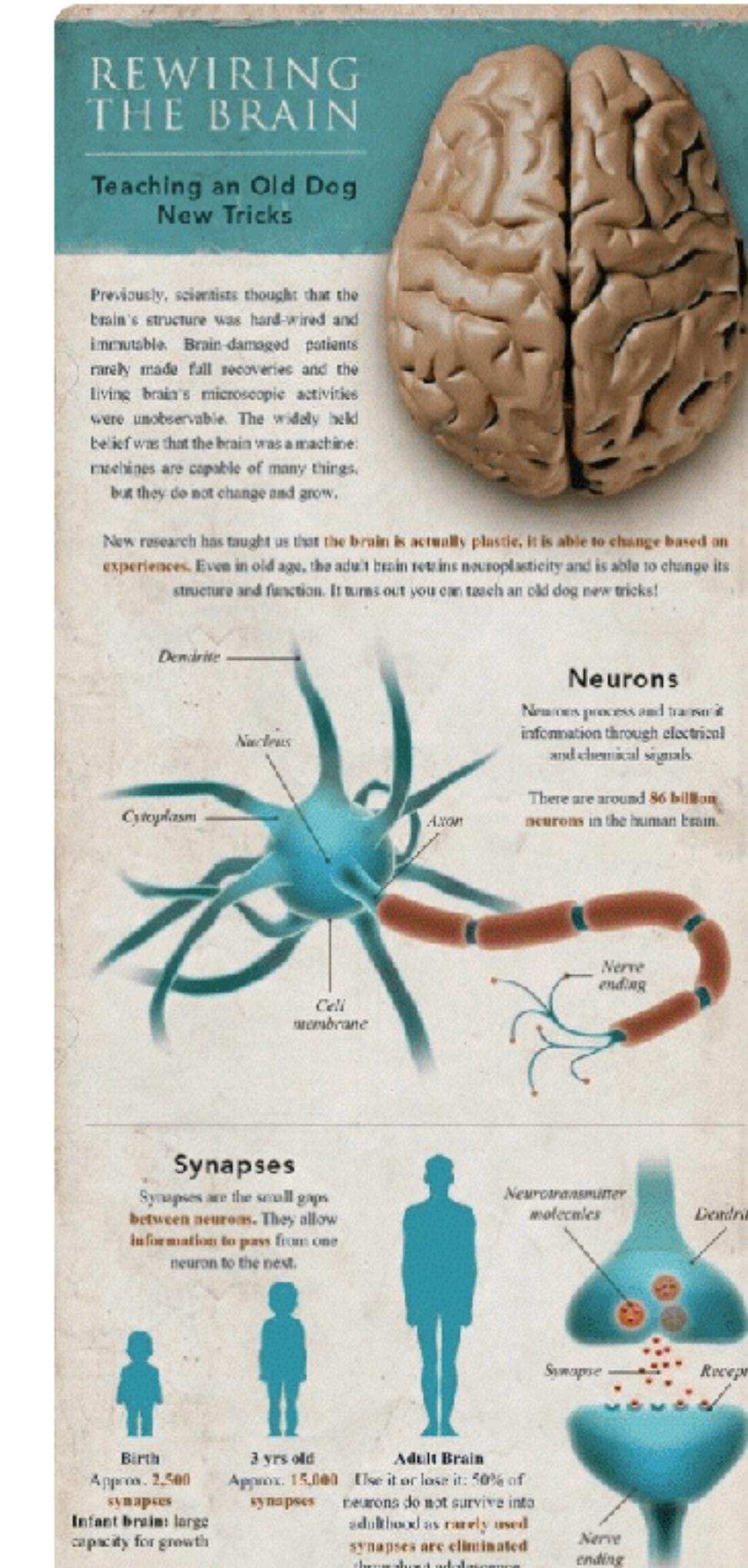
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22 tricks you must master to become a keyboard ninja



opening & closing Microsoft Office docs

Ctrl + N	create a new document
Ctrl + O	open a new document
Ctrl + S	save a document
F12	save as

moving text around

Ctrl + A	select all
Ctrl + X	cut
Ctrl + C	copy
Ctrl + V	paste
Ctrl + A + C + N + V	copy all & paste into a new doc

jumping through text



My best recommendations to spark lively book club...

1.1k

From Books



Gineanne Muller
book club books

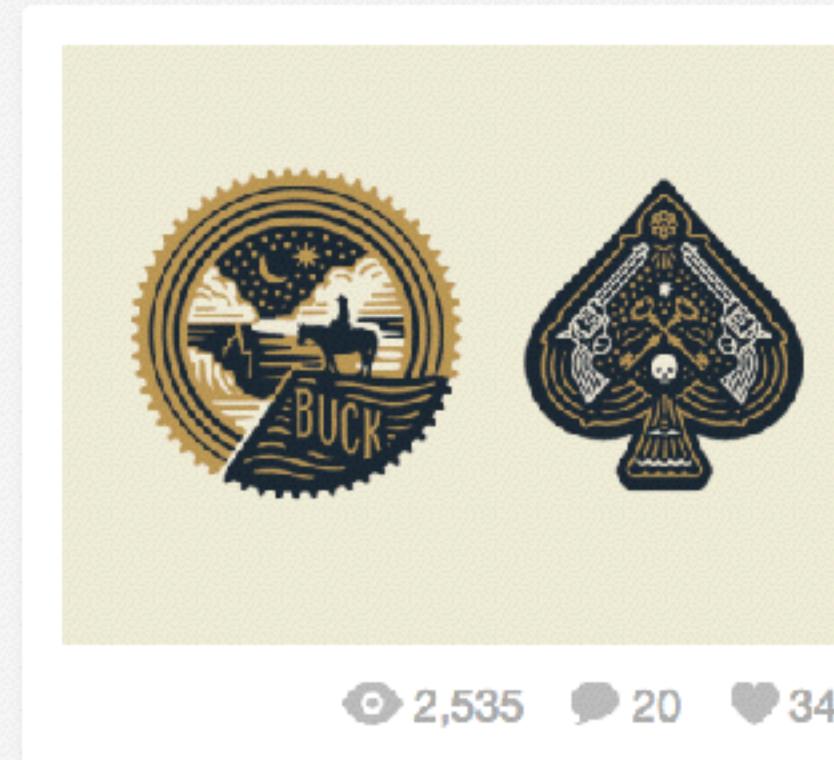


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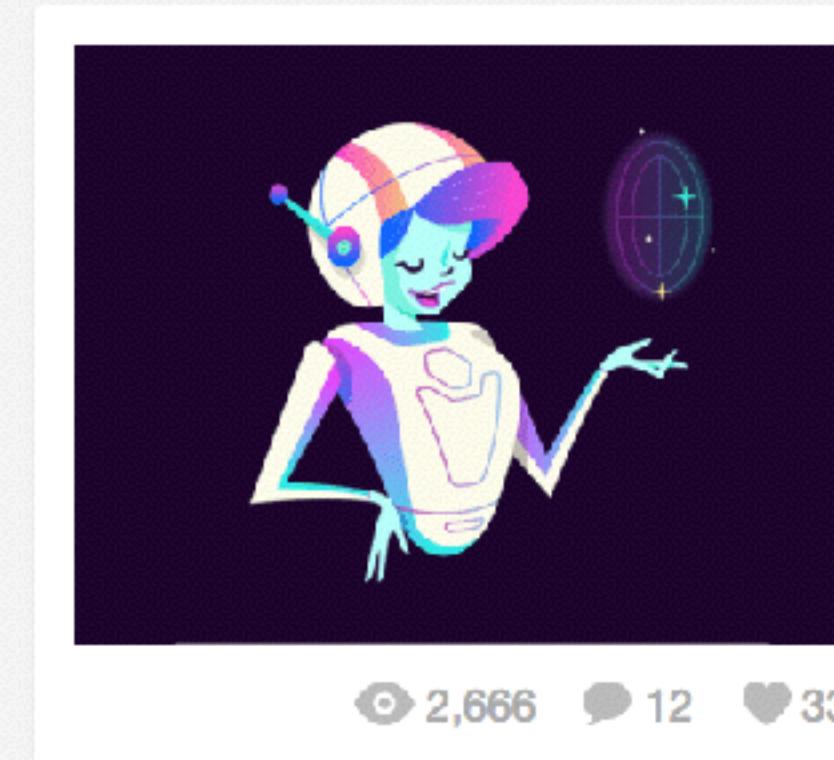
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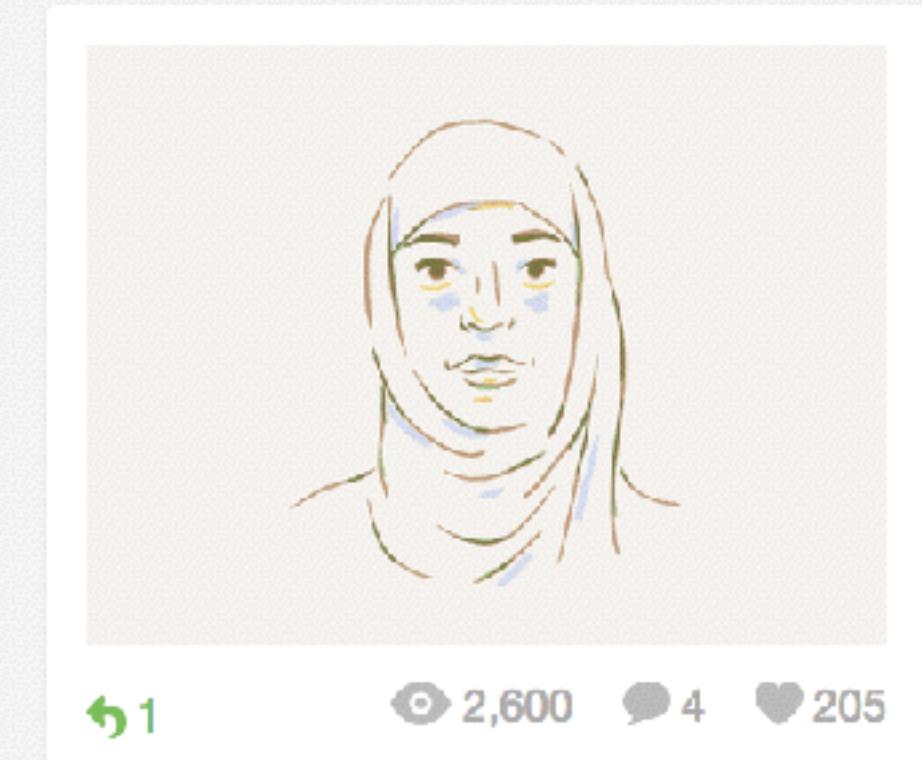
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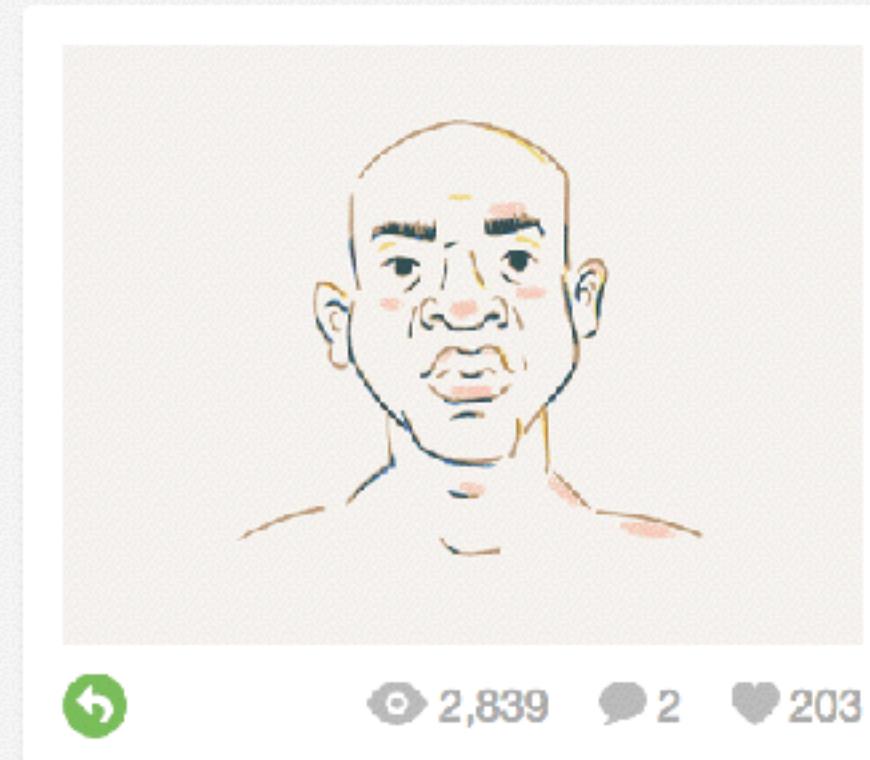
Curtis Jinkins



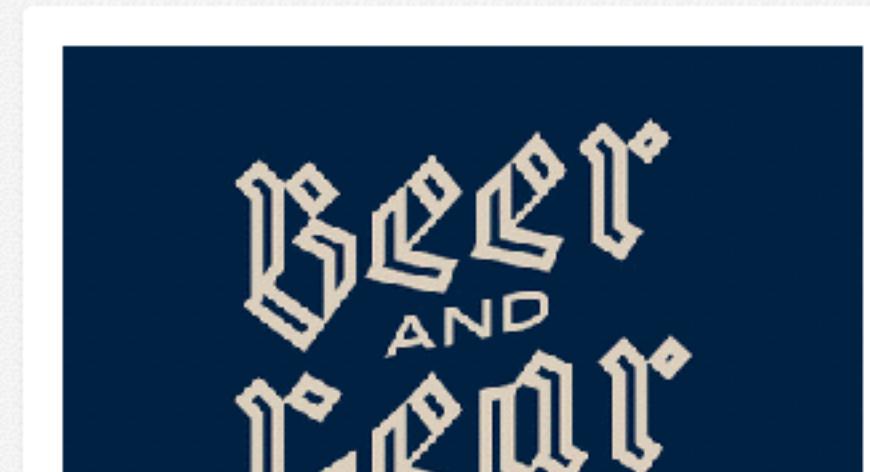
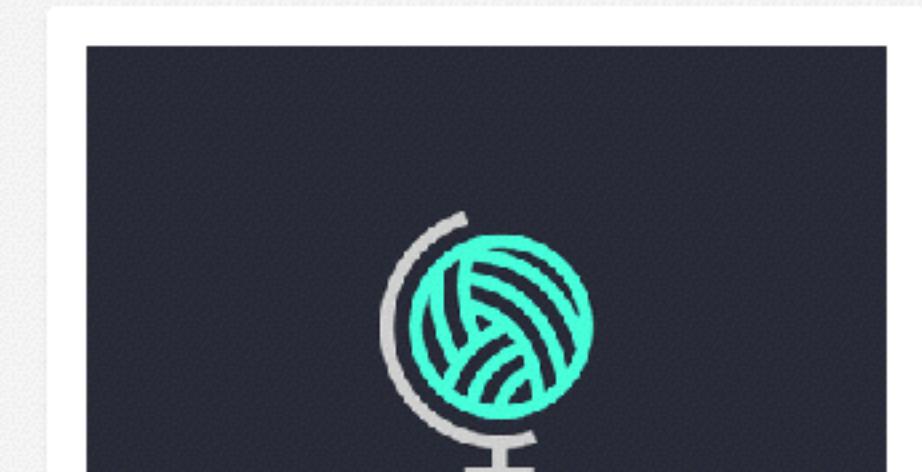
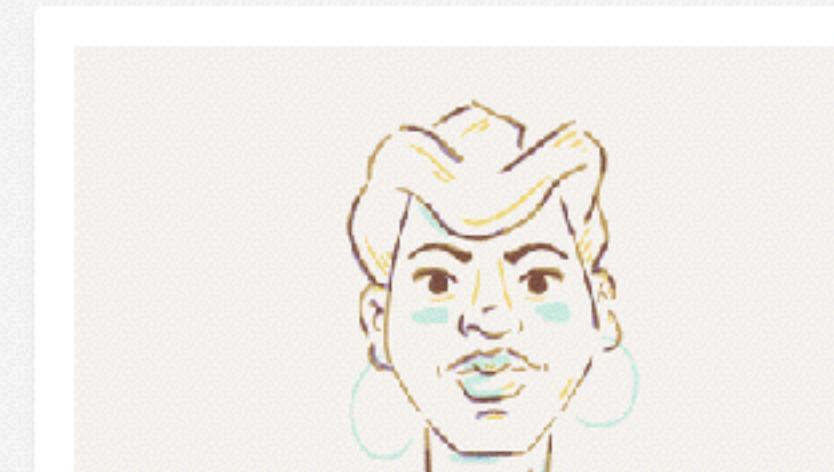
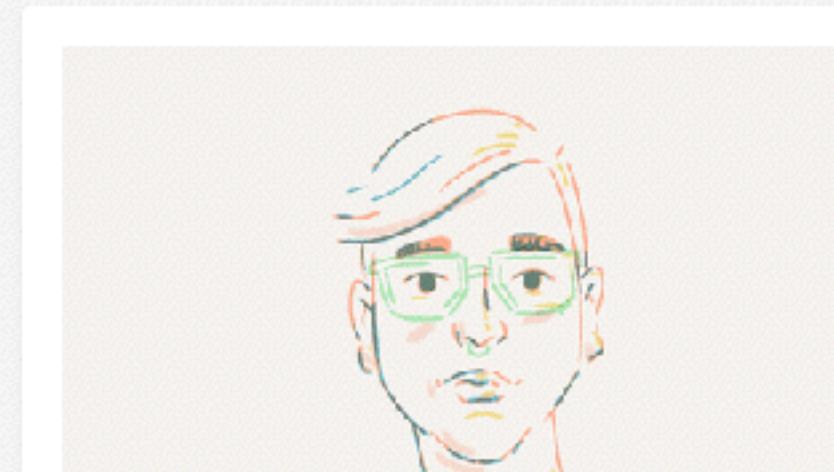
Rogie 🎉



Ryan Putnam

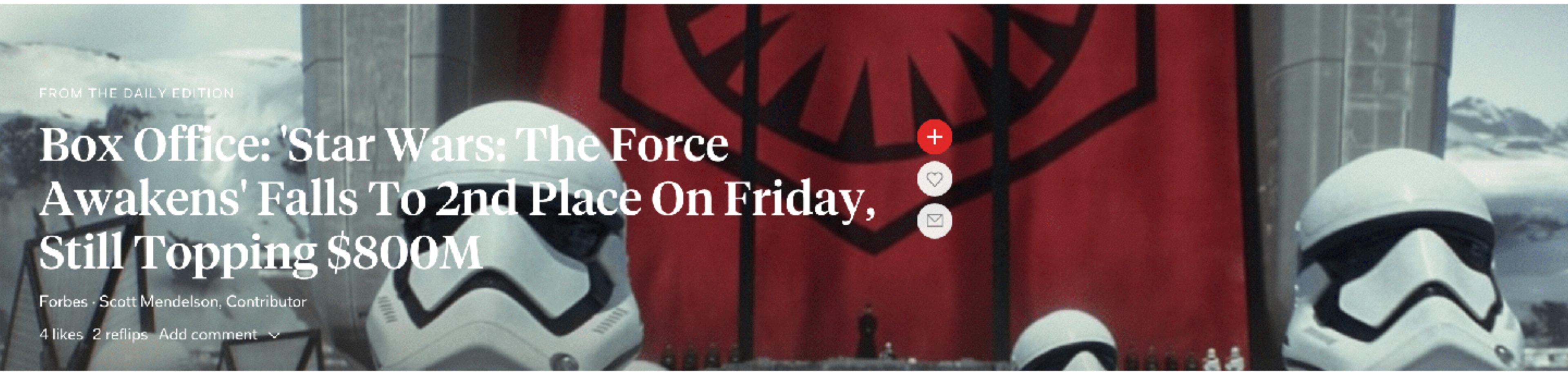


Ryan Putnam



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Highlights from everything you follow



FROM THE DAILY EDITION

Box Office: 'Star Wars: The Force Awakens' Falls To 2nd Place On Friday, Still Topping \$800M

Forbes · Scott Mendelson, Contributor

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Lakers have explored trades, but no 'blockbuster' on horizon, GM says

CBS Sports · By Matt Moore | NBA writer

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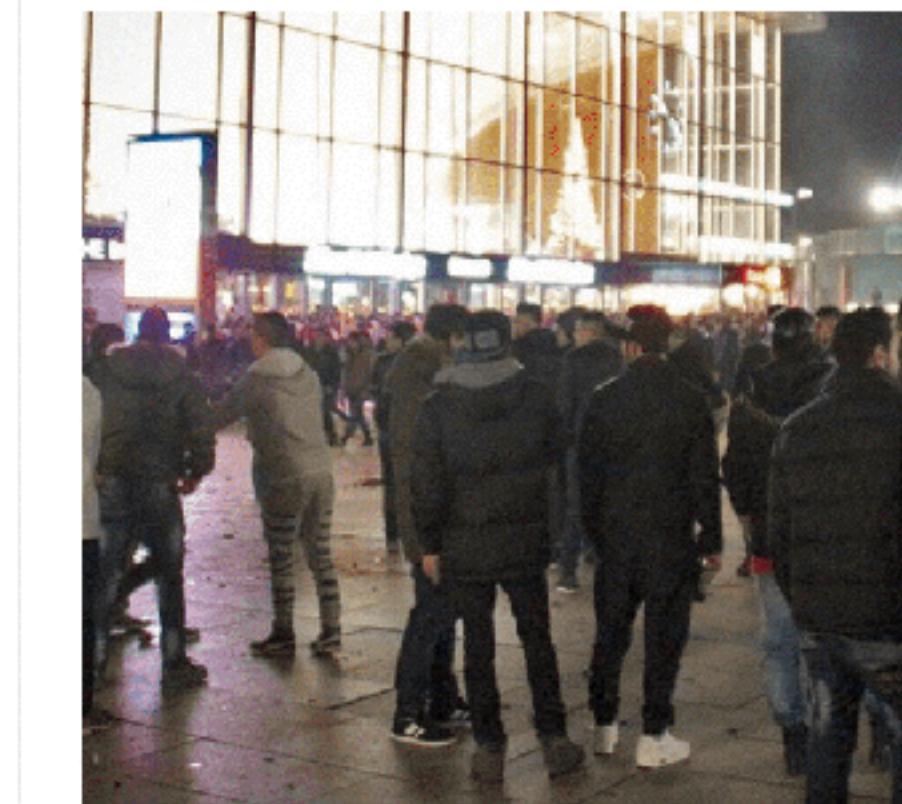


Facebook.car joins Apple.car, but neither means a car is coming

Mashable · Adario Strange

Nearly everyone seems to want an Apple

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Cologne New Year assault reports more than double in number

DW English

Cologne police have said the number of

FROM THE DAILY EDITION



Boeing Meets Its 2015 Order Target at the 11th Hour

Fox Business · By Adam Levine-Weinberg

Boeing spent much of the past year trying



Predicting future climates

Understanding the effects of climate change

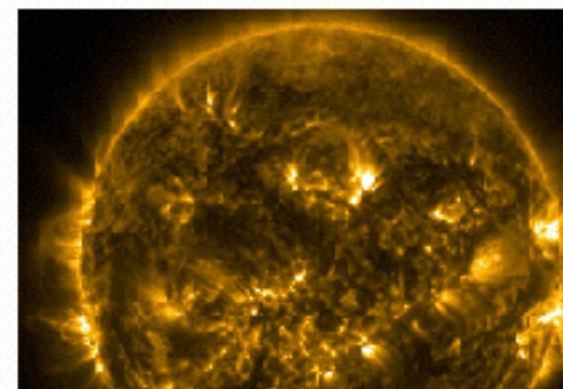


Top Stories



Marine extinctions

Industrial revolution of the oceans will imperil wildlife, says Stanford scientist.



Solar flares

Artificial intelligence helps Stanford physicists predict communication-disrupting explosions.



Taking flight

Stanford scientist invents device that measures forces generated by a bird's wings.

MORE HEADLINES

- › Stanford to host White House Summit on Cybersecurity and Consumer Protection
- › Screening for diseases doesn't necessarily save lives
- › Researchers isolate stem cell that gives rise to bones, cartilage

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2 DAYS
AGO

How well your immune system works depends more on your environment than on your genes, a @StanfordMed study suggests: stanford.io/1ud2GHA

 [@Stanford](#)



At Stanford



D.SCHOOL The Hasso Plattner Institute of Design is Stanford's hub for innovation and design thinking.

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Events

- JAN 19 Concert: Live Electronics 7:30 p.m.
- JAN 20 An Evening With David Talbot 7:30 p.m.
- JAN 21 Reading: Louise Glück 8:00 p.m.

 [EVENT CALENDAR](#)

Athletics



Men's tennis
What to watch for as the Cardinal opens its dual match season this week.

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Architecture of a grid

- Grid columns

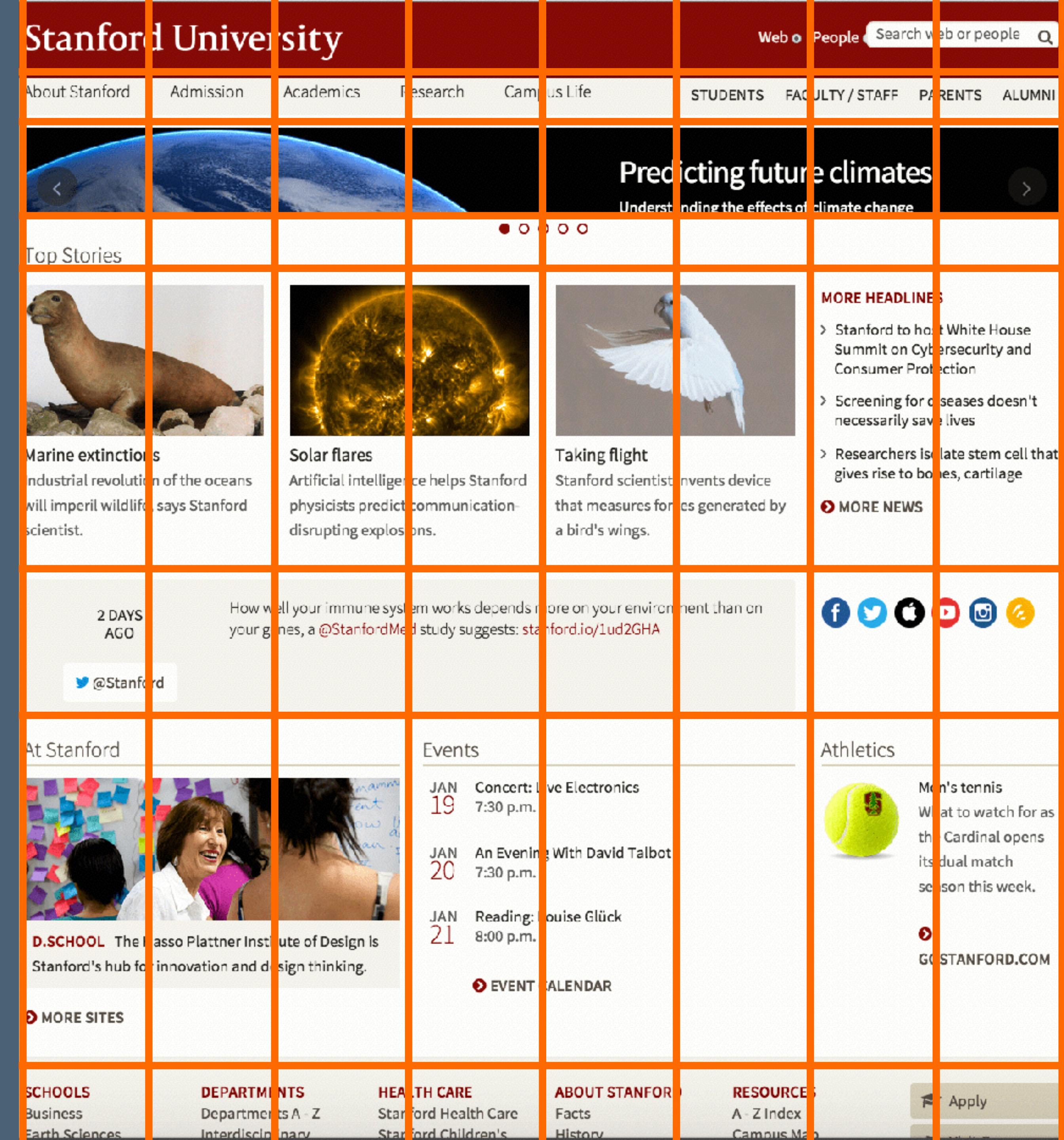
The Stanford University website homepage is displayed, illustrating a grid-based layout structure. The page is divided into several columns by thick red vertical lines. At the top, there's a dark red header bar with the university's name and navigation links. Below the header, a large banner features a blue globe and the text "Predicting future climates". The main content area is organized into columns:

- Top Stories:** Contains three articles with images and titles. The first article is about marine extinctions, the second about solar flares, and the third about birds.
- At Stanford:** Features a photo of people and text about the D.SCHOOL.
- Events:** Lists three upcoming events: a concert, an evening with David Talbot, and a reading by Louise Glück.
- Athletics:** Shows a tennis ball and information about men's tennis.
- Bottom Navigation:** Includes links for Schools, Departments, Health Care, About Stanford, and Resources.

On the right side, there's a sidebar with more news headlines and social media sharing icons.

Architecture of a grid

- Grid columns
- Rows indicate where items get vertically aligned

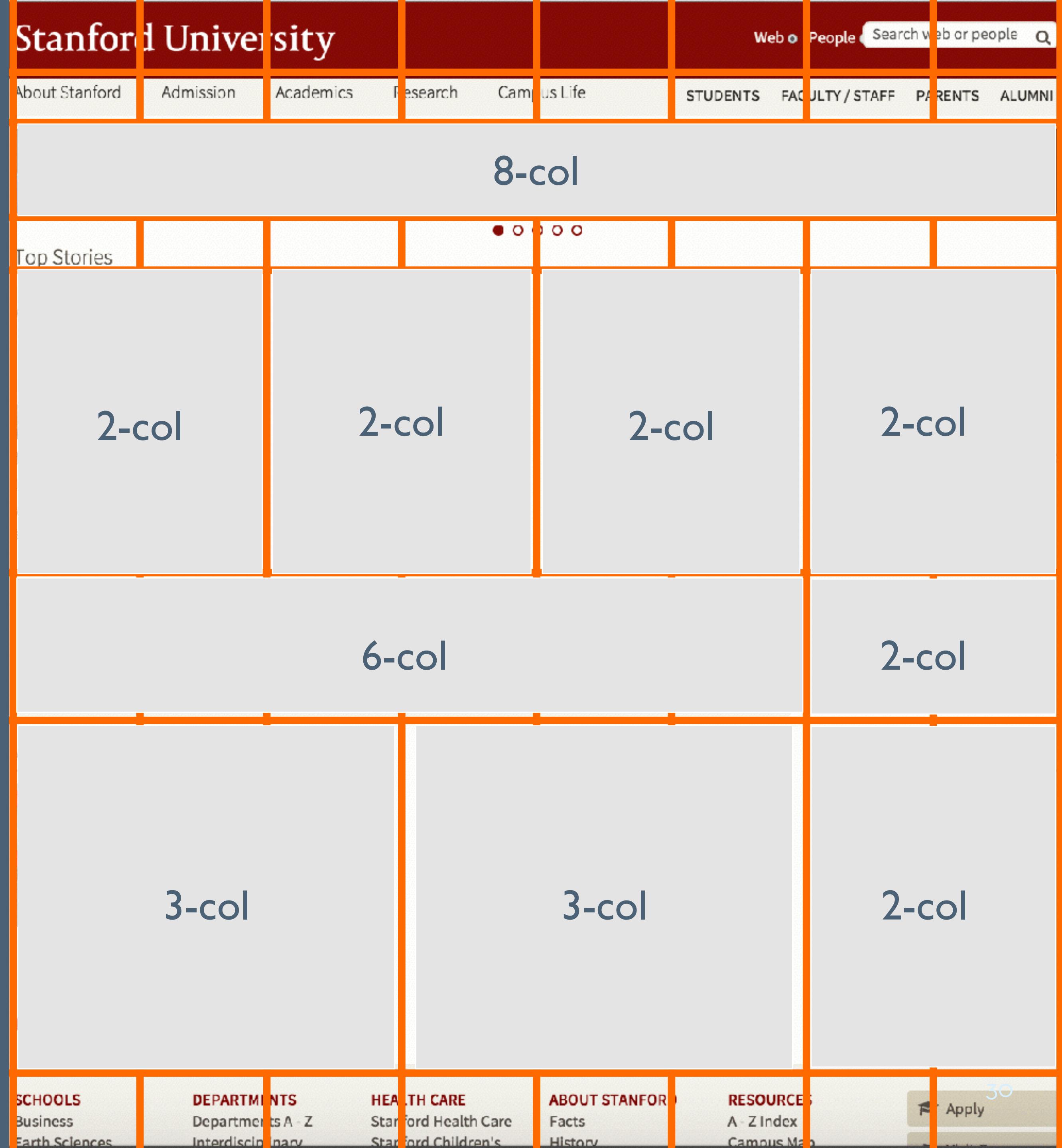


The Stanford University website is a prime example of a grid-based layout. The page is organized into a grid with 6 columns and 10 rows.

- Row 1:** A red header bar with the Stanford University logo and navigation links for About Stanford, Admission, Academics, Research, Campus Life, STUDENTS, FACULTY / STAFF, PARENTS, and ALUMNI.
- Row 2:** A large image of Earth from space.
- Row 3:** A black banner with the text "Predicting future climates" and "Understanding the effects of climate change".
- Row 4:** A white header section with "Top Stories" and a navigation menu.
- Row 5:** Three news cards with images and titles:
 - Marine extinctions:** Industrial revolution of the oceans will imperil wildlife, says Stanford scientist.
 - Solar flares:** Artificial intelligence helps Stanford physicists predict communication-disrupting explosions.
 - Taking flight:** Stanford scientist invents device that measures forces generated by a bird's wings.
- Row 6:** A news card with a timestamp "2 DAYS AGO" and a link to a StanfordMed study.
- Row 7:** A "At Stanford" section featuring a photo of people at a D.SCHOOL event.
- Row 8:** An "Events" section listing three upcoming events.
- Row 9:** An "Athletics" section featuring a tennis ball icon and a link to the Stanford Tennis website.
- Row 10:** A footer navigation bar with links for Schools, Departments, Health Care, About Stanford, Resources, and a search bar.

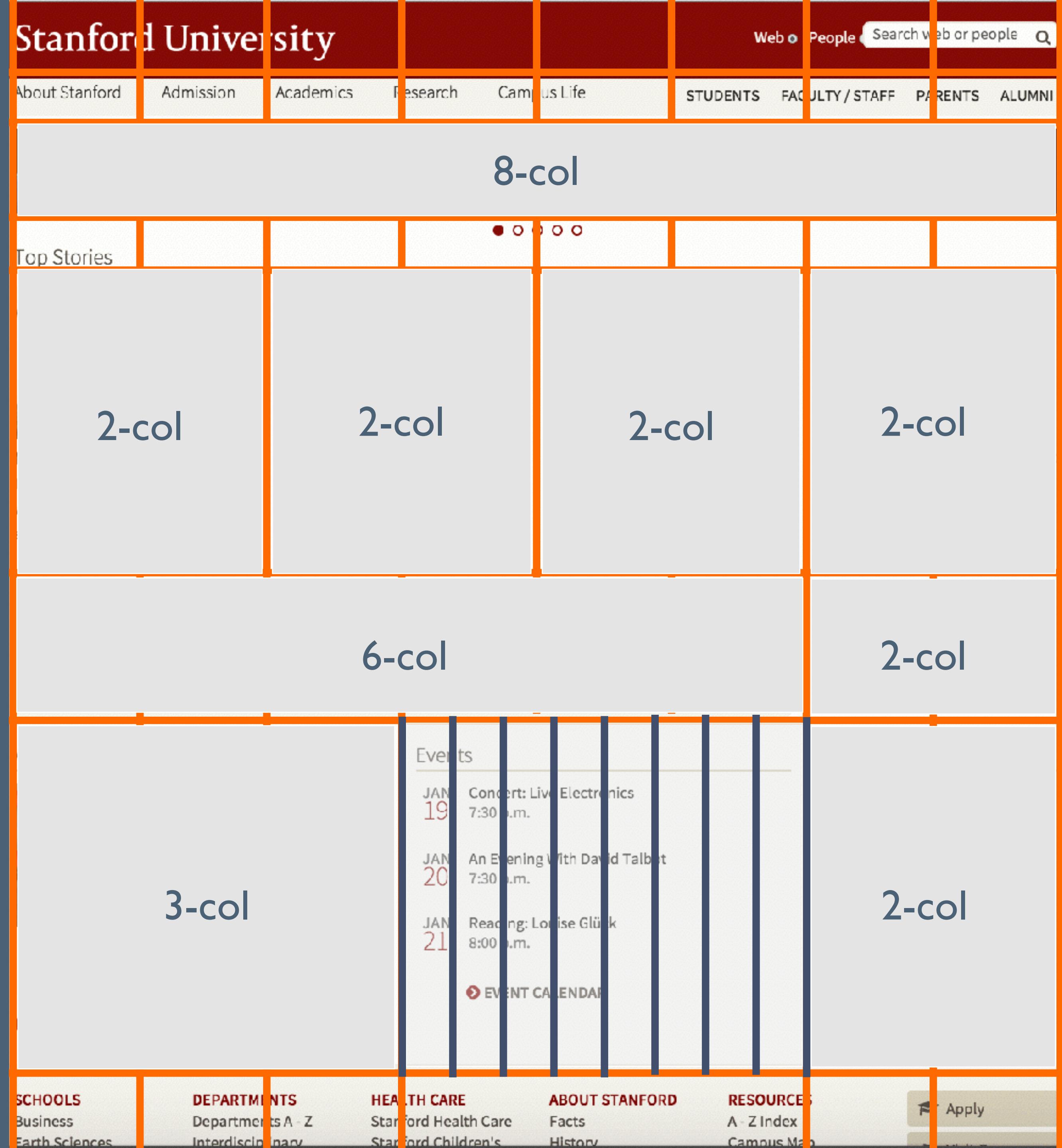
Architecture of a grid

- Grid columns
- Rows indicate where items get vertically aligned
- Inside rows, the divs span multiple columns



Architecture of a grid

- Nest grids inside of grids in order to set up layouts within a div



Implementing grids: Bootstrap

- Twitter's front-end web development framework
- Makes sane layout and styles easy to write
- Comes with predefined styles that you apply using their classes

Add Bootstrap to your HTML

I. CSS in <head>, before your own CSS

```
<head>
  <title>HCI Project Portfolio</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <!-- Bootstrap -->
  <link href="css/bootstrap.min.css" rel="stylesheet">
  <link href="css/bootstrap-theme.min.css" rel="stylesheet">
  <link href="css/introHCI.css" rel="stylesheet">
```

2. JS just above </body> at the end of the document

```
<h5 class="project-title">Design tools<</h5>
</div>

<!-- jQuery (necessary for Bootstrap's JavaScript plugins) -->
<script src="https://code.jquery.com/jquery.js"></script>
<!-- Include all compiled plugins (below), or include individual files as needed -->
<script src="js/bootstrap.min.js"></script>

</body>
</html>
```

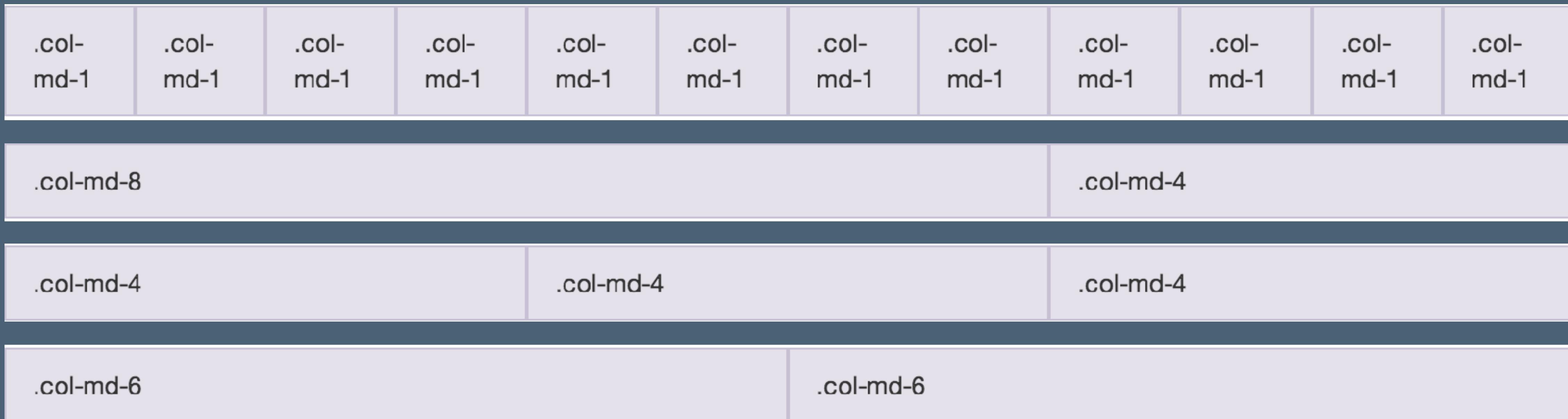
Add Bootstrap styles

- Put the entire body inside a `<div class="container">`
- Containers add margins

```
index.html      ✘ introHCl.css      ✘
20     <script src="https://oss.maxcdn.com/libs/respond.js/1.3.0/respond.min.js">
21         /script>
21     <![endif]-->
22 </head>
23
24 <body>
25     <div>
26         
27         <!-- p means paragraph --&gt;
28         &lt;div&gt;
29             &lt;h1&gt;Michael Bernstein&lt;/h1&gt;
30             &lt;p&gt;human-computer interaction &amp;middot; social computing &amp;middot;
31                 crowdsourcing&lt;/p&gt;
32         &lt;/div&gt;</pre>
```

Bootstrap Grid

- Bootstrap gives you 12 columns



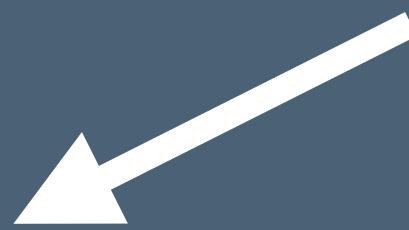
Bootstrap Grid

- Rows go in the `container`, and each div is tagged with `col-md-X` where X is the # columns to span out of 12

Example

```
<div class="container">
  <div class="row">
    <div class="col-md-3">
      
    </div>
    <div class="col-md-3">
      
    </div>
    <div class="col-md-3">
      
    </div>
    <div class="col-md-3">
      
    </div>
  </div>
</div>
```

Four images to a row,
spaced evenly



HCI

col-md-3

HCI

col-md-3

HCI

col-md-3

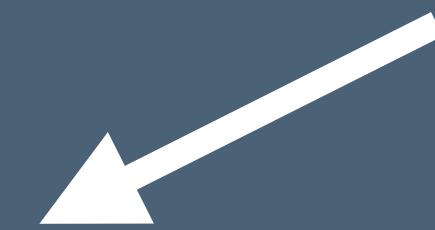
HCI

col-md-3

Example 2

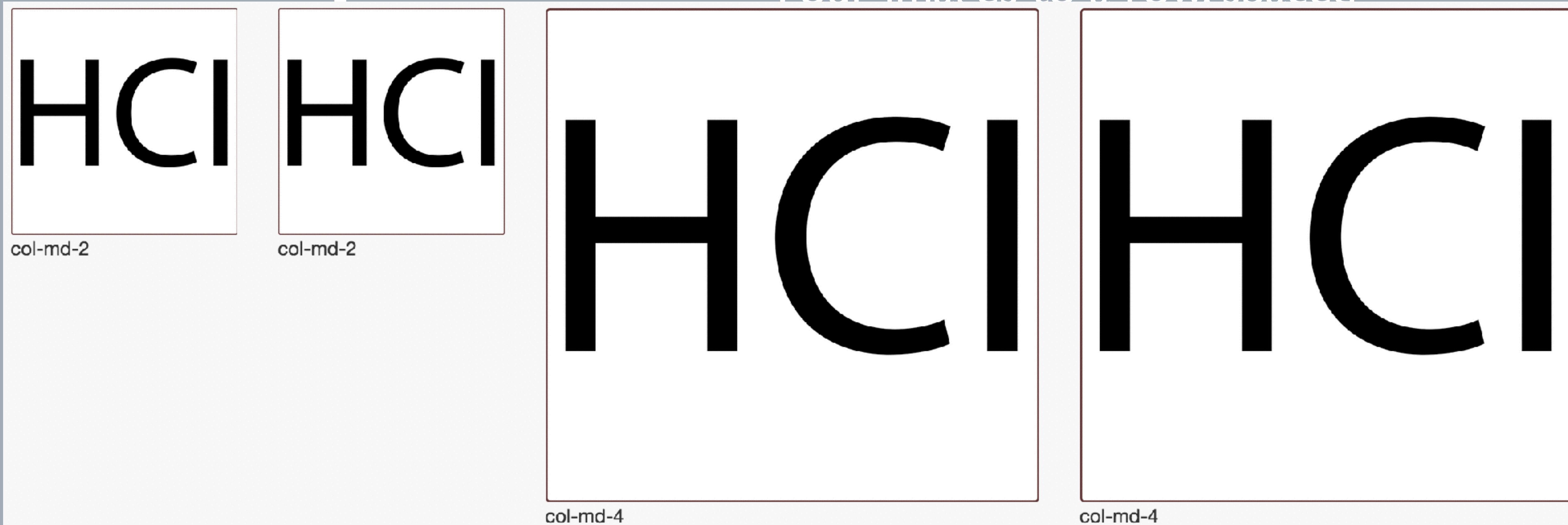
```
<div class="container">
  <div class="row">
    <div class="col-md-2">
      
    </div>
    <div class="col-md-2">
      
    </div>
    <div class="col-md-4">
      
    </div>
    <div class="col-md-4">
      
    </div>
  </div>
</div>
```

Four images to a row, spaced
at 2col-2col-4col-4col



Example 2

Four images to a row, spaced



```

</div>
</div>
</div>
```

Nesting grids

- Nest by creating a new `<div class="row">` inside of a `div`
- You now have a new set of 12 columns within that `div`

```
<div class="container">
  <div class="row">
    <div class="col-md-6"><p>Hello, world!</p></div>
    <div class="col-md-3">
      <div class="row">
        <div class="col-md-8"><p>Internal grid</p></div>
        <div class="col-md-4"><p>Internal grid 2</p></div>
      </div>
    </div>
    <div class="col-md-3"><p>Goodbye, world!</p></div>
  </div>
</div>
```

Enter the grid

Get the files at <http://hci.st/247grid>

Add this final row to the page

col-md-2	col-md-2	col-md-2	col-md-2	col-md-2	col-md-2	
HCI	HCI	HCI	HCI	HCI	HCI	
col-md-1	col-md-1	col-md-1	col-md-1	col-md-1	col-md-1	
H C I	Hamlet	Tomorrow and tomorrow and tomorrow creeps in this petty pace from day to day. To the last syllable of recorded time.	Hamlet	Tomorrow and tomorrow and tomorrow creeps in this petty pace from day to day. To the last syllable of recorded time.	Hamlet	Tomorrow and tomorrow and tomorrow creeps in this petty pace from day to day. To the last syllable of recorded time.
	Hamlet	Tomorrow and tomorrow and tomorrow creeps in this petty pace from day to day. To the last syllable of recorded time.				

```
<div class="row">
  <div class="col-md-4">
    
  </div>
  <div class="col-md-4">
    <div class="row">
      <div class="col-md-3">
        <p>Hamlet</p>
      </div>
      <div class="col-md-9">
        <p>Tomorrow and tomorrow...</p>
      </div>
    </div>
    <div class="row">
      <div class="col-md-3">
        <p>Hamlet</p>
      </div>
    </div>
    ...
  </div>
```

Responsive design

Totally responsive to your needs, just like Stanford Dining.

Beautiful Individual
Gold, Silver & Coloured
Gem Bangles

[View My Collection](#)



Faceted quartz and
cinnamon swirl necklace



Silver Nutmeg and a
Golden Pear



Lapis Lazuli and Cinnamon
Gilt Necklace



Citrine and Peppercorn
Statement Necklace



Cinnamon Swirl Gilt
Bracelet

One HTML page, multiple views

- How should my page look on...
 - A laptop with a wide window?
 - A laptop?
 - A tablet?
 - A phone?

Intuition: use the grid

- In responsive design, we reflow the grid at different viewport widths

The image displays three side-by-side screenshots of the Stanford University website, illustrating how the layout adapts to different viewport widths.

- Left Screenshot (Desktop View):** Shows a wide header with "Stanford University" and navigation links for "About Stanford", "Admission", "Academics", "Research", "Campus Life", "STUDENTS", "FACULTY/STAFF", "PARENTS", and "ALUMNI". Below the header is a large image of a man in a black polo shirt interacting with a group of men in camouflage uniforms. A white callout box over the image contains the text "A road to peace" and "Project to understand conflict in the world's political hotspots may hold the key to finding stability, Stanford scholar says".
- Middle Screenshot (Tablet View):** The header is simplified with a "MENU" button. The main image and callout box remain the same. Below the main content, there is a "Top Stories" section featuring images of a seal and a solar flare, and a "MORE HEADLINES" section with a link to "Stanford to host White House Summit on Cybersecurity and".
- Right Screenshot (Mobile View):** The header is simplified with a "MENU" button. The main image and callout box remain the same. Below the main content, there is a "Top Stories" section featuring images of a seal and a solar flare, and a "MORE HEADLINES" section with a link to "Stanford to host White House Summit on Cybersecurity and".

CSS media queries

- CSS rules that ask how wide the browser viewport is

```
/* Extra small devices (phones, less than 768px) */  
@media (max-width: 768px) { #logo { color: yellow; } }
```

```
/* Small devices (tablets, 768px and up) */  
@media (min-width: 768px) { #logo { color: red; } }
```

```
/* Medium devices (desktops, 992px and up) */  
@media (min-width: 992px) { #logo { color: blue; } }
```

```
/* Large devices (large desktops, 1200px and up) */  
@media (min-width: 1200px) { #logo { color: green; } }
```

Responsiveness in Bootstrap

- Bootstrap has wrapped all these media queries into CSS classes for grid layouts
- We've been using the default, `md`
- Examples: `col-md-4`, `col-lg-6`, `col-sm-3`, `col-xs-2`
 - `xs` extra small (mobile)
 - `sm` small (tablet)
 - `md` medium (desktops)
 - `lg` large (wide desktops)

Responsiveness in Bootstrap

- Bootstrap automatically applies the appropriate grid class when the viewport size changes.
- By default, all `md` items are 12 columns (full width) at `xs` and `sm` sizes
- To create different behavior, we apply multiple classes to a div element:

```
<div class="col-md-3 col-xs-6">
```

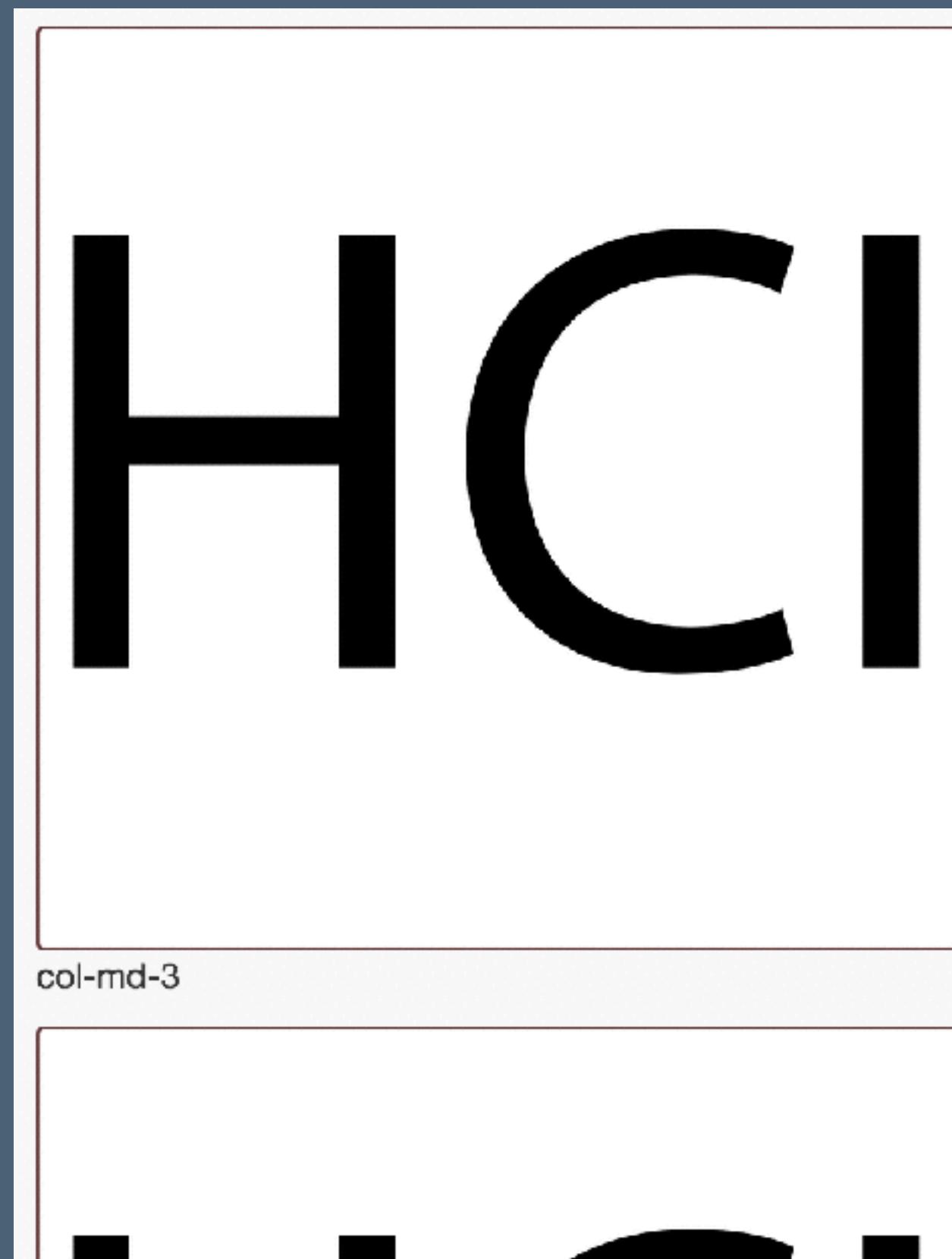
Example

```
<div class="row">
  <div class="col-md-3 col-xs-6">
    
  </div>
  <div class="col-md-3 col-xs-6">
    
  </div>
  <div class="col-md-3 col-xs-6">
    
  </div>
  <div class="col-md-3 col-xs-6">
    
  </div>
</div>
```

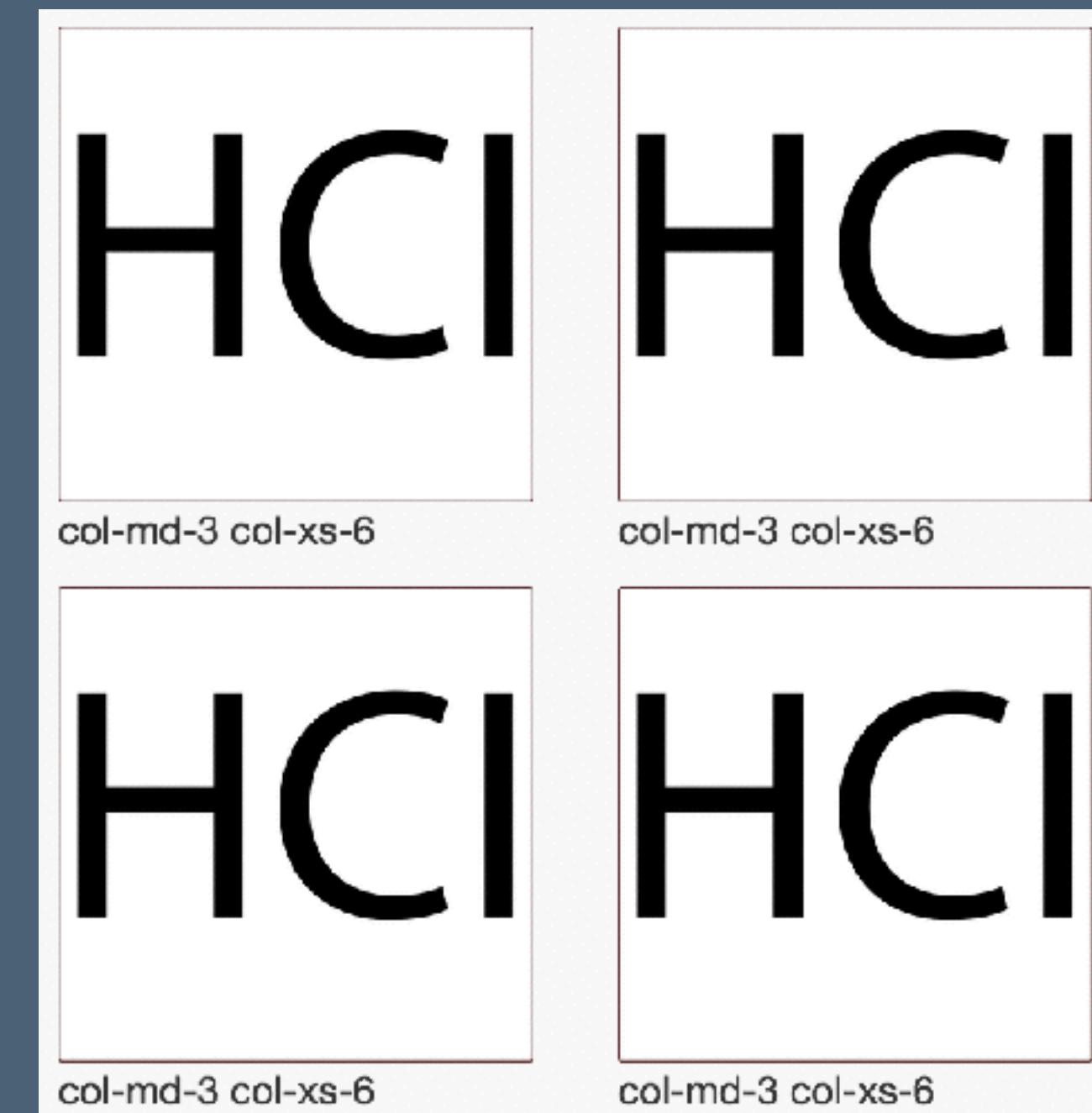
Four to a row at desktop
(md) width, and two to a
row at mobile (xs) width

Example at xs screen width

class="col-md-3"



class="col-md-3 col-xs-6"

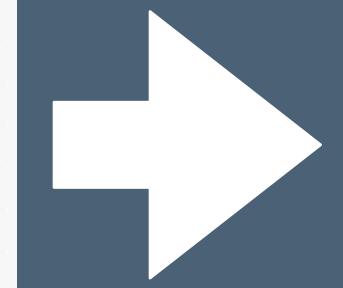


Try it

```
col-md-4 col-md-4 col-md-4 col-md-4 col-  
md-4 col-md-4 col-md-4 col-md-4 col-md-4  
col-md-4 col-md-4 col-md-4 col-md-4 col-  
md-4 col-md-4 col-md-4 col-md-4 col-md-4  
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```

```
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```



```
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```

```
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md-4 col-md-4 col-md-4 col-md-4 col-md-4  
col-md-4 col-md-4 col-md-4 col-md-4 col-  
md-4 col-md-4 col-md-4 col-md-4 col-md-4
```

Edit your previous page so that the three columns of text near the top lay out with one two-column row and one full-width row when you're on a mobile phone.

To test, drag your browser window and make it thin.

All that said...

- Responsive design is fun and part of the content in this class

...but it is not required for P4.