Layout and Grids

No screens



Prof. Lydia Chilton

COMS 4170

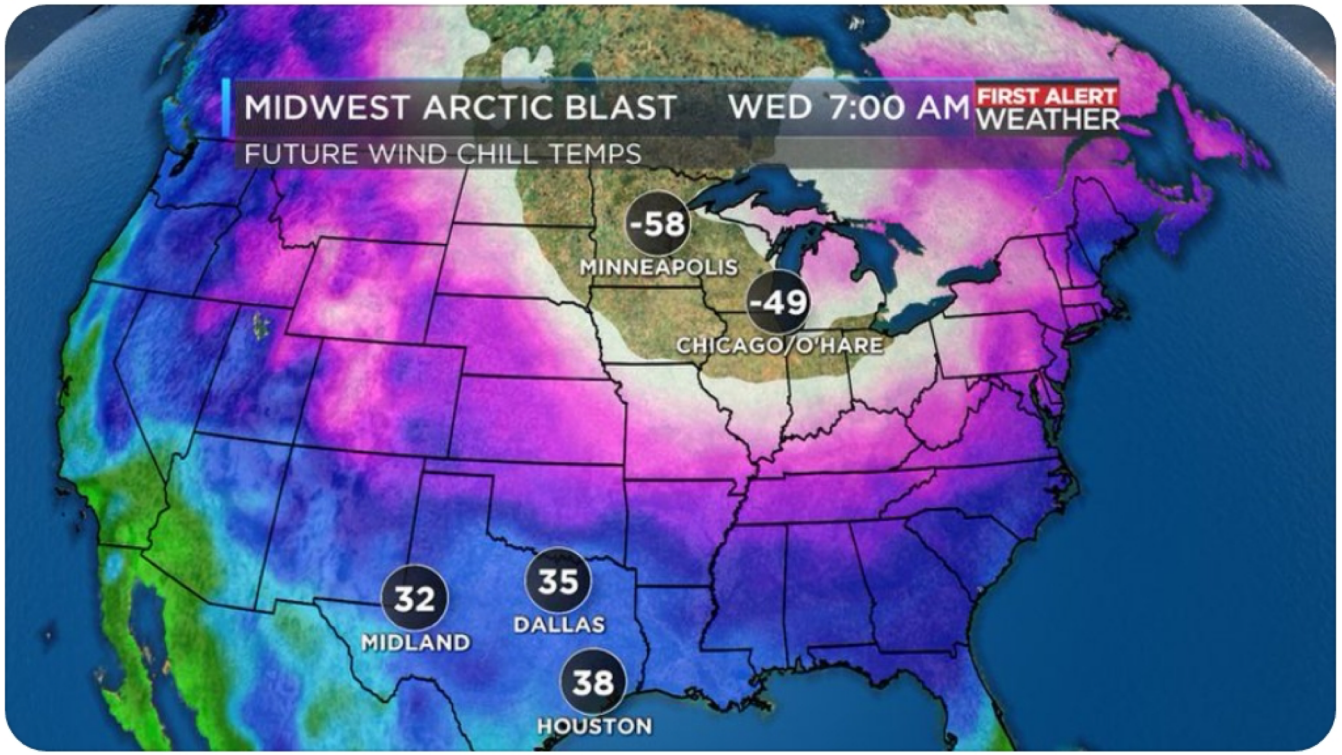
30 January 2019





Patrick Fenelon 🌹
@Patrick_Fenelon

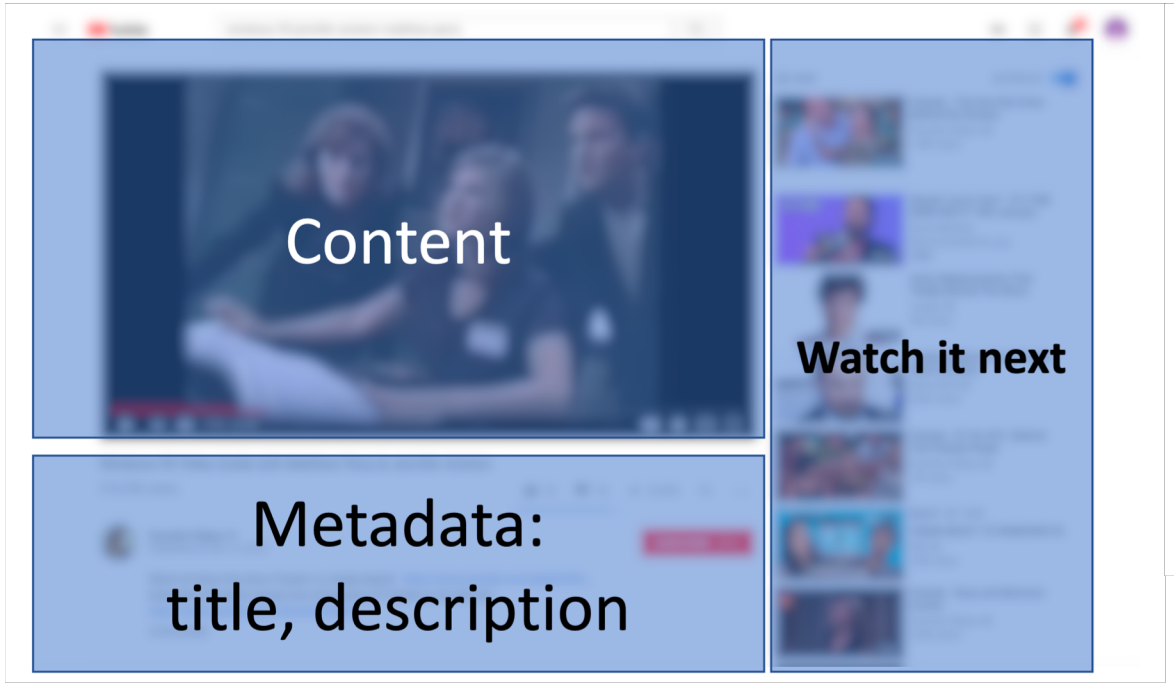
THEY DON’T EVEN HAVE A COLOR TO DESCRIBE HOW COLD IT’S GOING TO BE

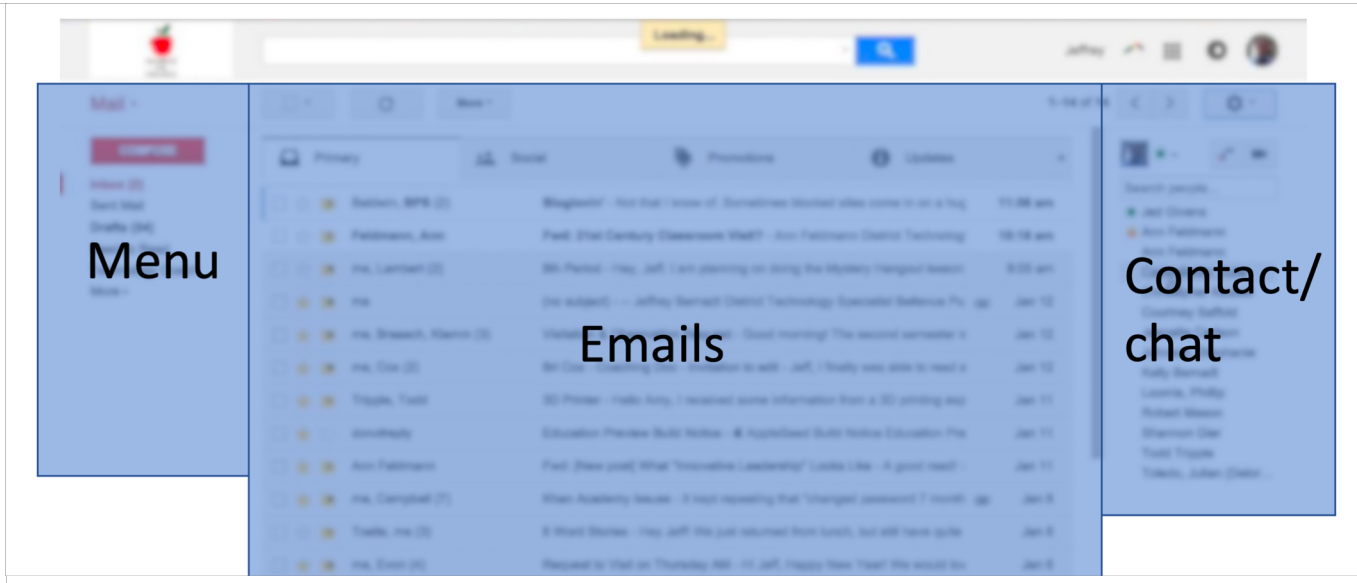


Build websites that suit the needs and abilities of users

The main goal of many websites is to
display information users need.

How to guide users' attention





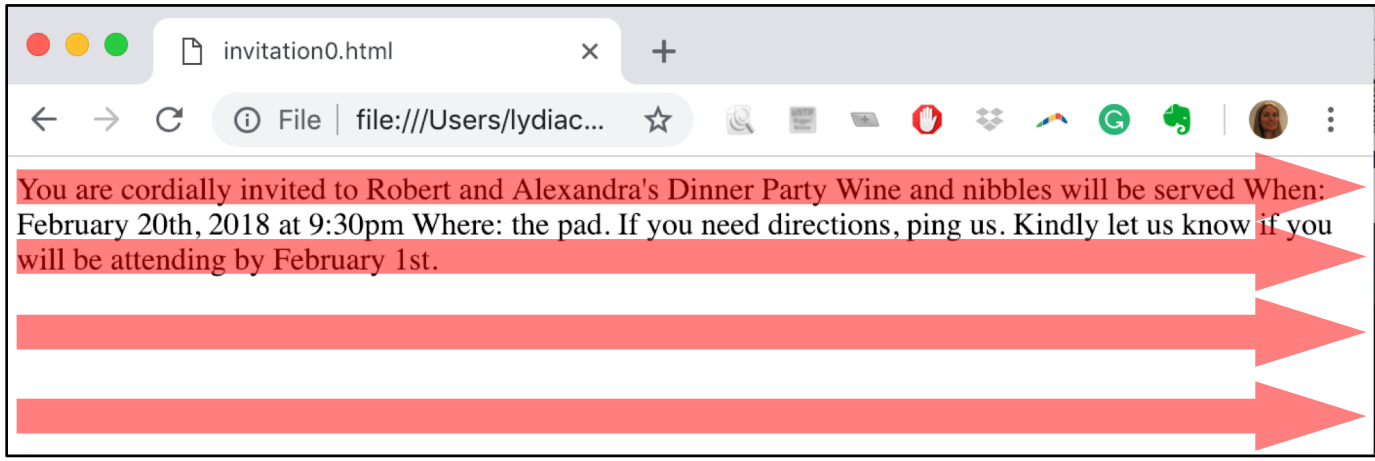
Layout in HTML

How to construct the layout of information in HTML and CSS

Web Browsers are in charge of rendering HTML

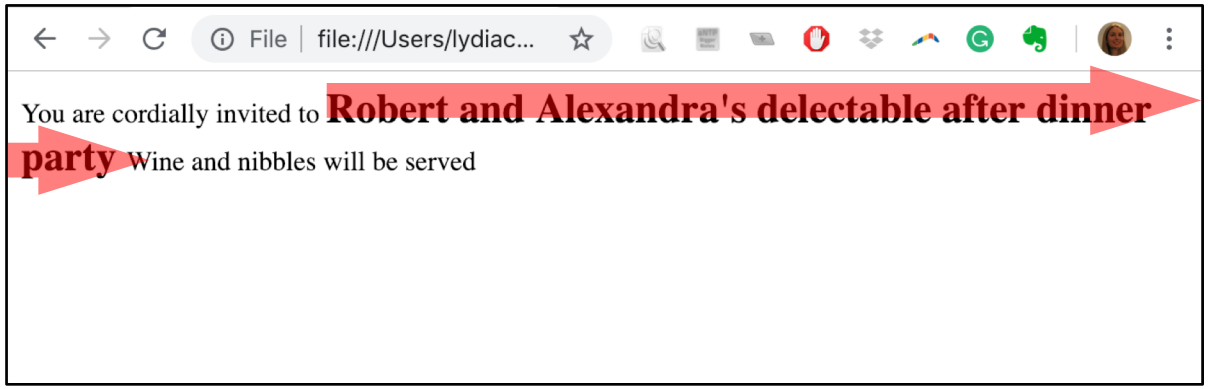
invitation0.html

```
1  <html>
2      <body>
3
4          You are cordially invited to
5          Robert and Alexandra's Dinner Party
6          Wine and nibbles will be served
7
8          When: February 20th, 2019 at 9:30pm
9          Where: the pad. If you need directions, ping us.
10
11         Kindly let us know if you will be attending by February 1st.
12
13
14     </body>
15 </html>
```



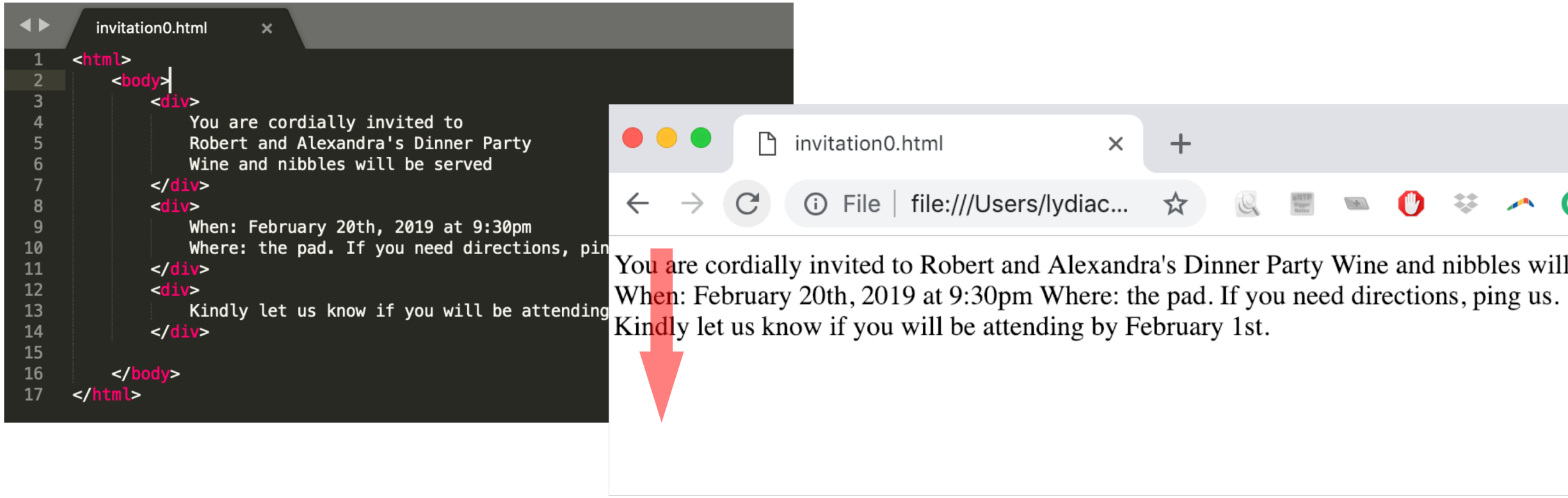
When you add elements,
They either obey the line-wrap layout or break it.

```
19          <div>
20              You are cordially invited to
21              <span class="dark big">
22                  Robert and Alexandra's
23                  delectable after dinner party
24              </span>
25              Wine and nibbles will be served
26          </div>
```



 elements **obey** line-wrap layout

Do elements obey or break line-wrap layout?



 elements **break** line-wrap layout

When you use a new element, ask: does it obey or break line-wrap layout?

Anchor (hyperlink)

```
<a href="slides.pdf">Slides are here</a>
```

Slides are here

Image

```
<img src="columbia.jpg">
```



Form

```
<form action="/action_page.php">
  First name:<br>
  <input type="text" name="firstname" value="Mickey">
  <br>
  Last name:<br>
  <input type="text" name="lastname" value="Mouse">
  <br><br>
  <input type="submit" value="Submit">
</form>
```

First name:
Mickey
Last name:
Mouse
Submit

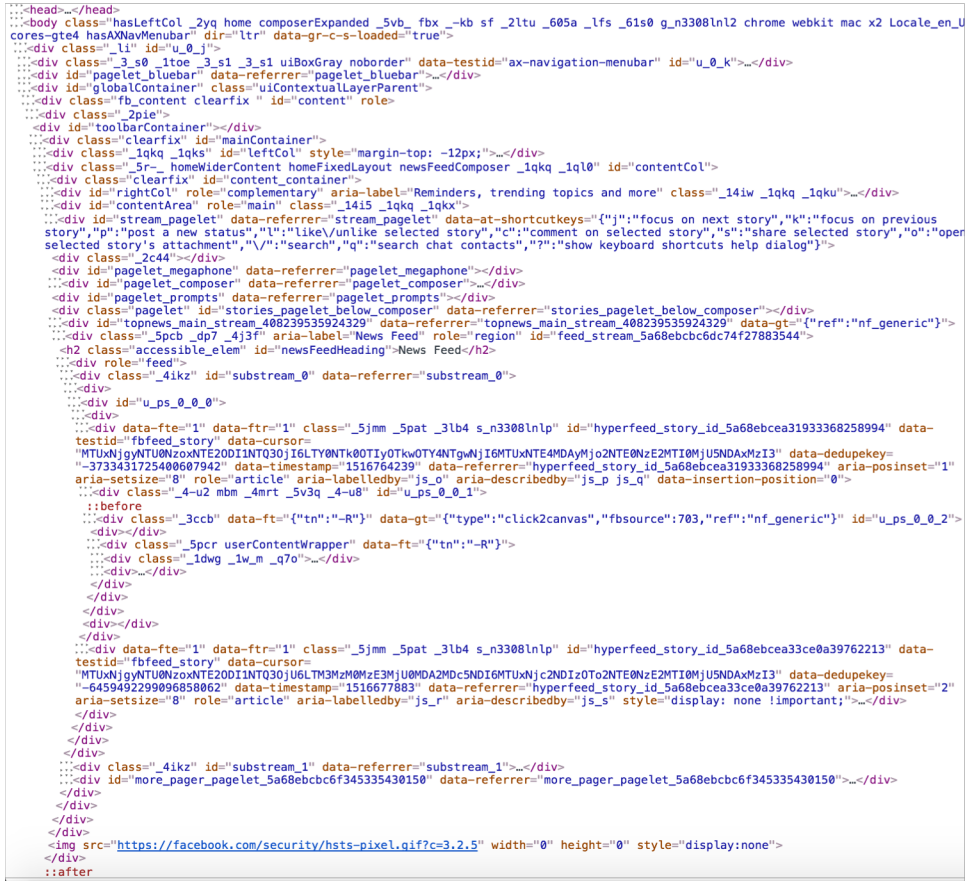
The best way to know what a layout will look like is to run it.

Today's goal:

Remake this **information layout** in HTML and CSS



“I finished coding up my website…”





“It just doesn’t work yet!”

Iterative Style of Programming

What is the **smallest** unit of progress I can make?

Iteration

Goal

```
<html>
  <body>
    Hello world!
  </body>
</html>
```

Hello World!



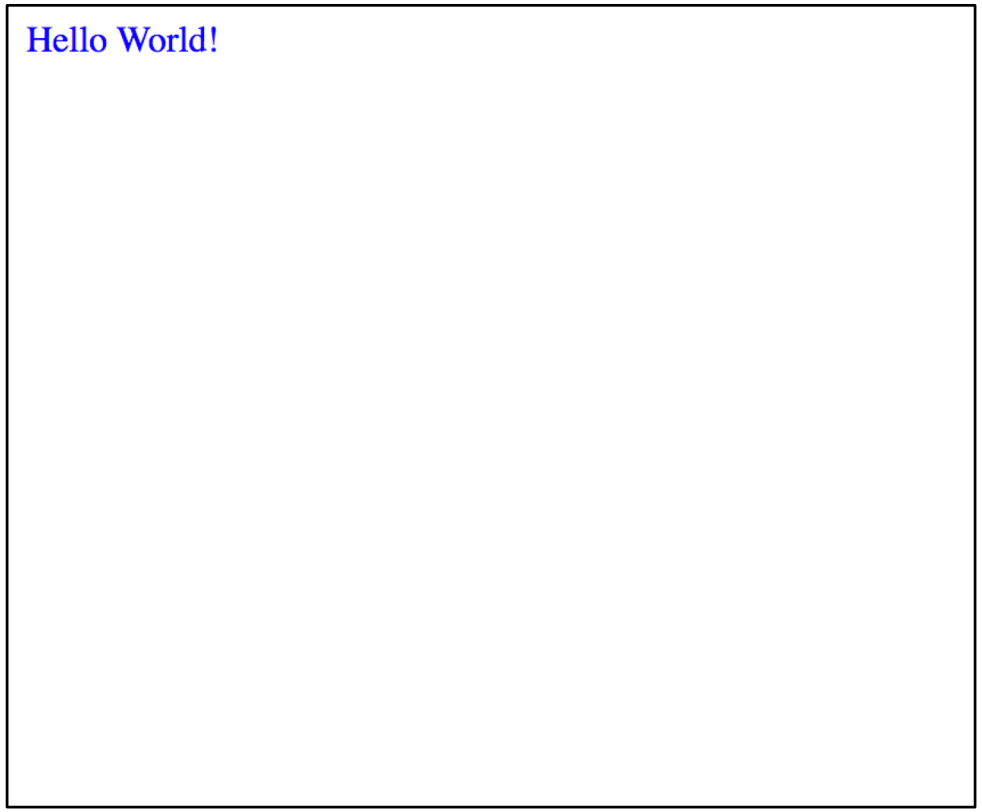
Does it look ok?

Step 0. Make a html page, connect some CSS

```
<!DOCTYPE html>
<html>
<head>
<style>
  #test{
      color: blue;
  }
</style>
</head>

<body>
  <div id="test">Hello World!</div>
</body>

</html>
```



What should we do first?



Make a container

Step 1. Make a container div

```html
<div id="container">

</div>
```

```css
#container{
  width: 50px;
  height: 50px;
  background-color: grey;
}

```



Iterative Style of Programming

What's the most **basic** thing I can do to make **necessary** progress towards my goal?

Iteration

Goal

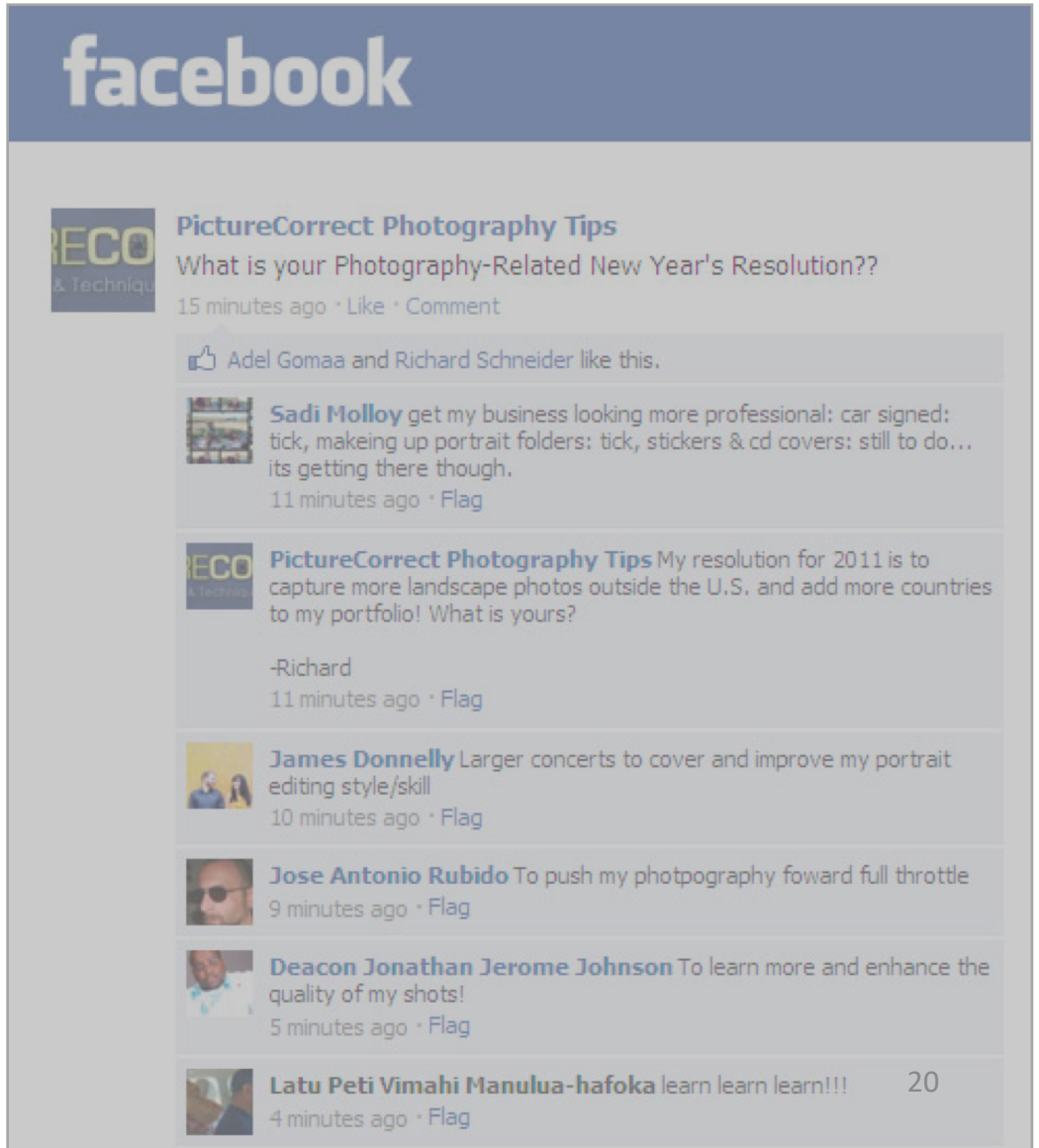
```
<html>
  <body>
    Hello world!
  </body>
</html>
```

Hello World!



Does it look ok?

Does it look ok? What's next?



Container div has realistic width.

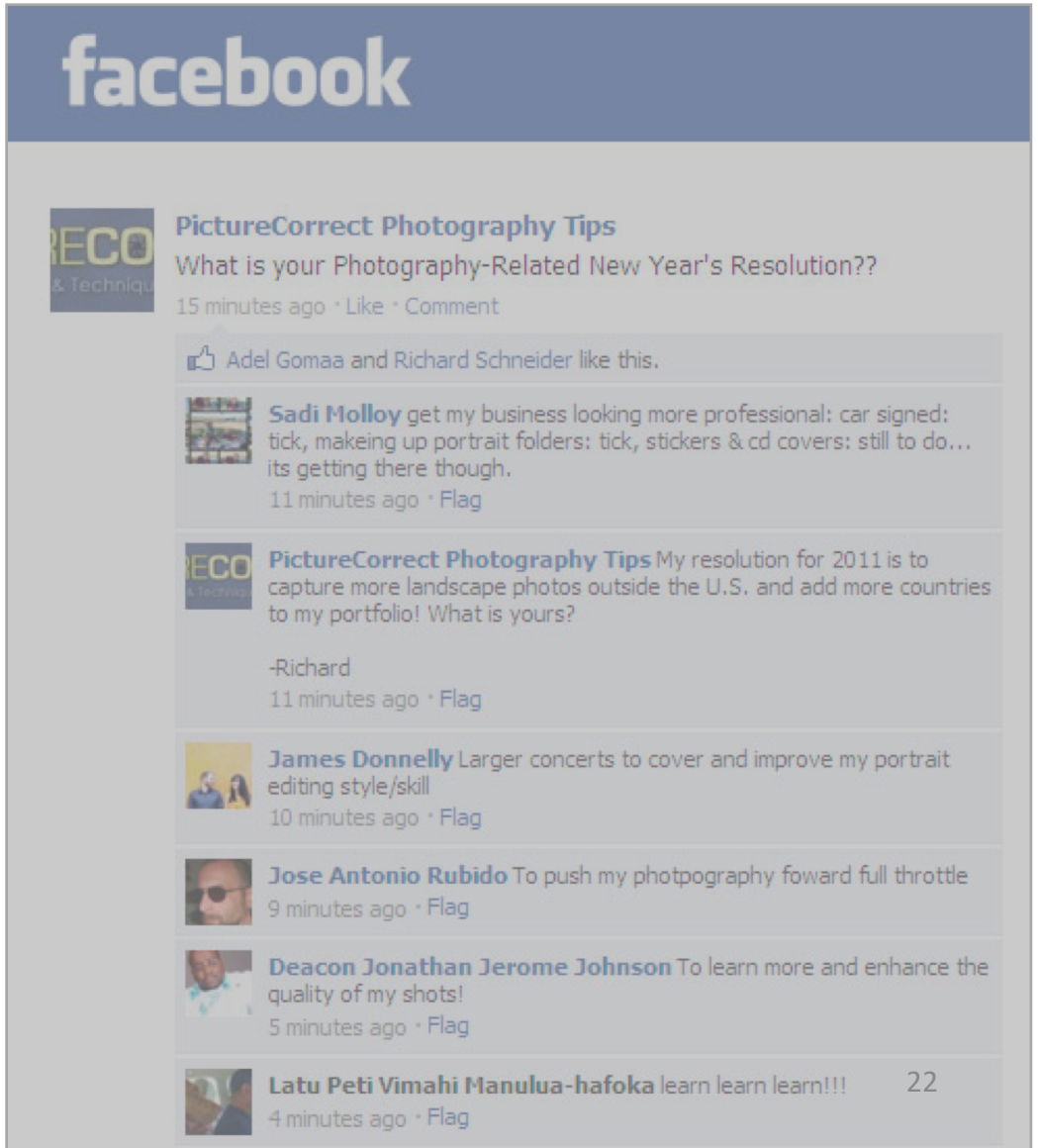
```html
<div id="container">

</div>
```

```css
#container{
  width: 350px;
  height: 50px;
  margin: 50px;
  background-color: grey;
}
```



What's next?

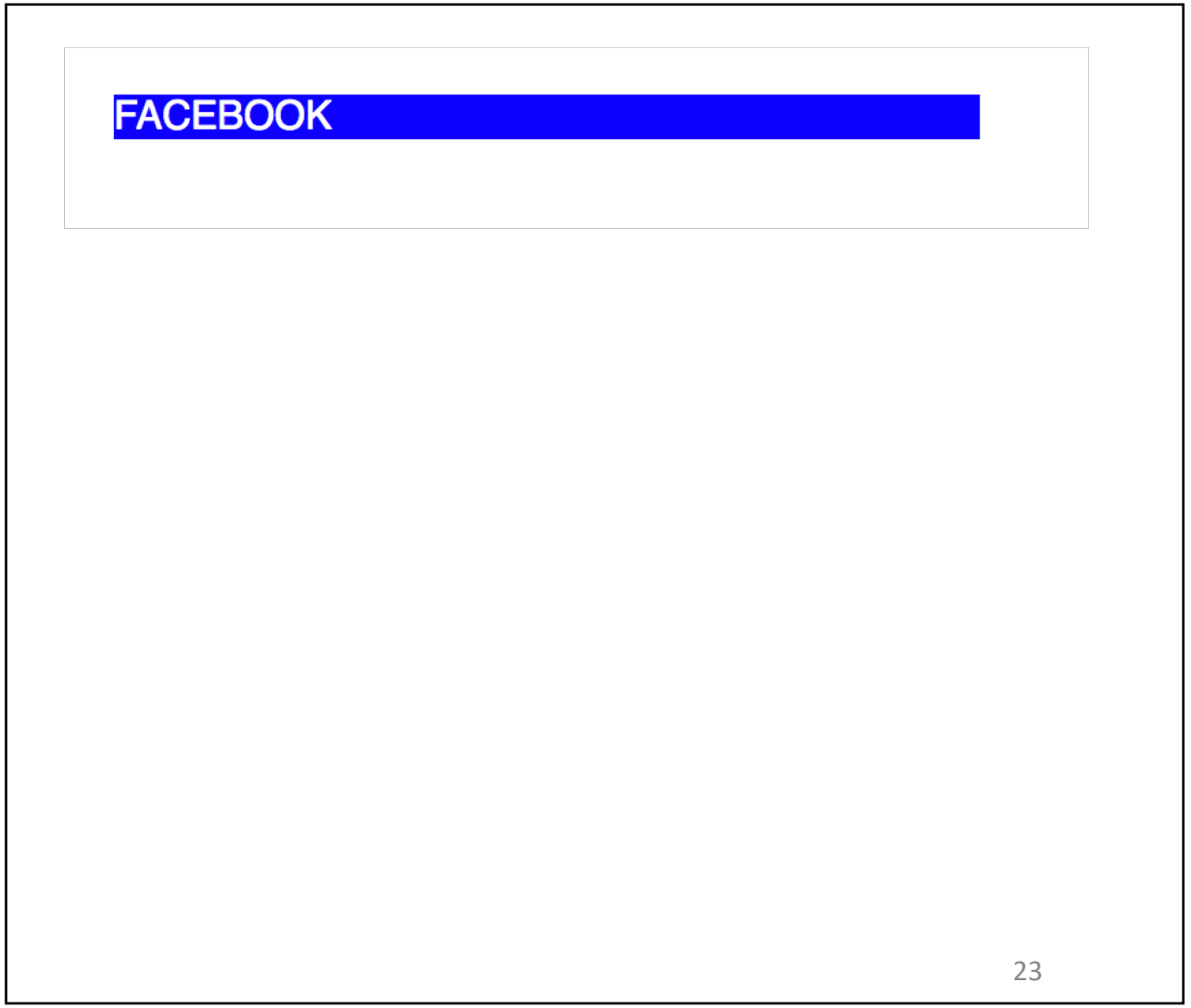

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Blue facebook header

```html
<div id="container">
  <div id="fb_brand">
    FACEBOOK
  </div>
</div>
```

```css
#container{
  width: 350px;
  margin: 50px;
}

#fb_brand{
  background-color: blue;
  color: white;
}
```



What next?

FACEBOOK

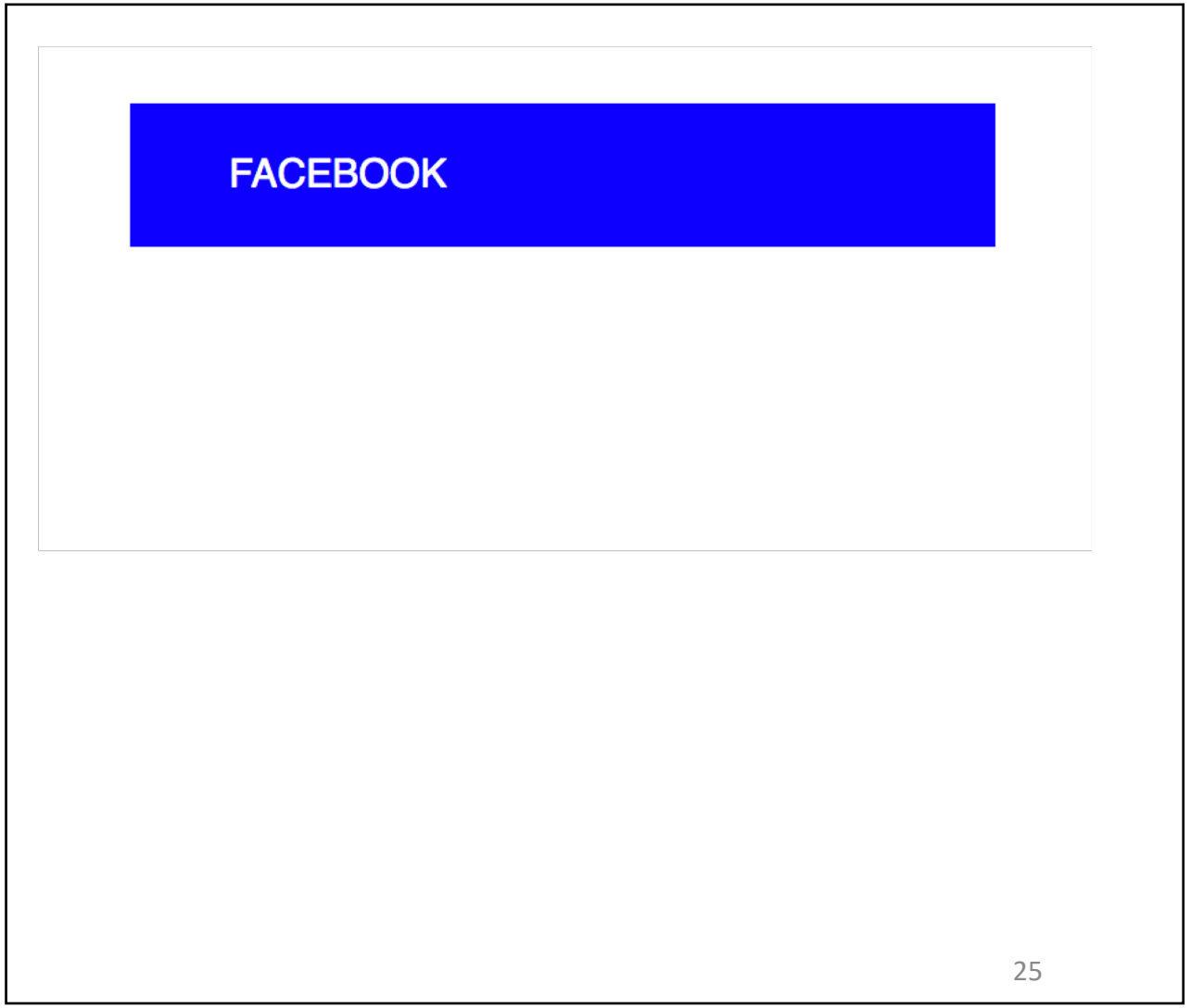


Blue facebook header

```html
<div id="container">
  <div id="fb_brand">
    FACEBOOK
  </div>
</div>
```

```css
#container{
  width: 350px;
  margin: 50px;
}

#fb_brand{
  background-color: blue;
  color: white;
  padding-left: 40px;
  padding-top: 20px;
  padding-bottom: 20px;
}
```



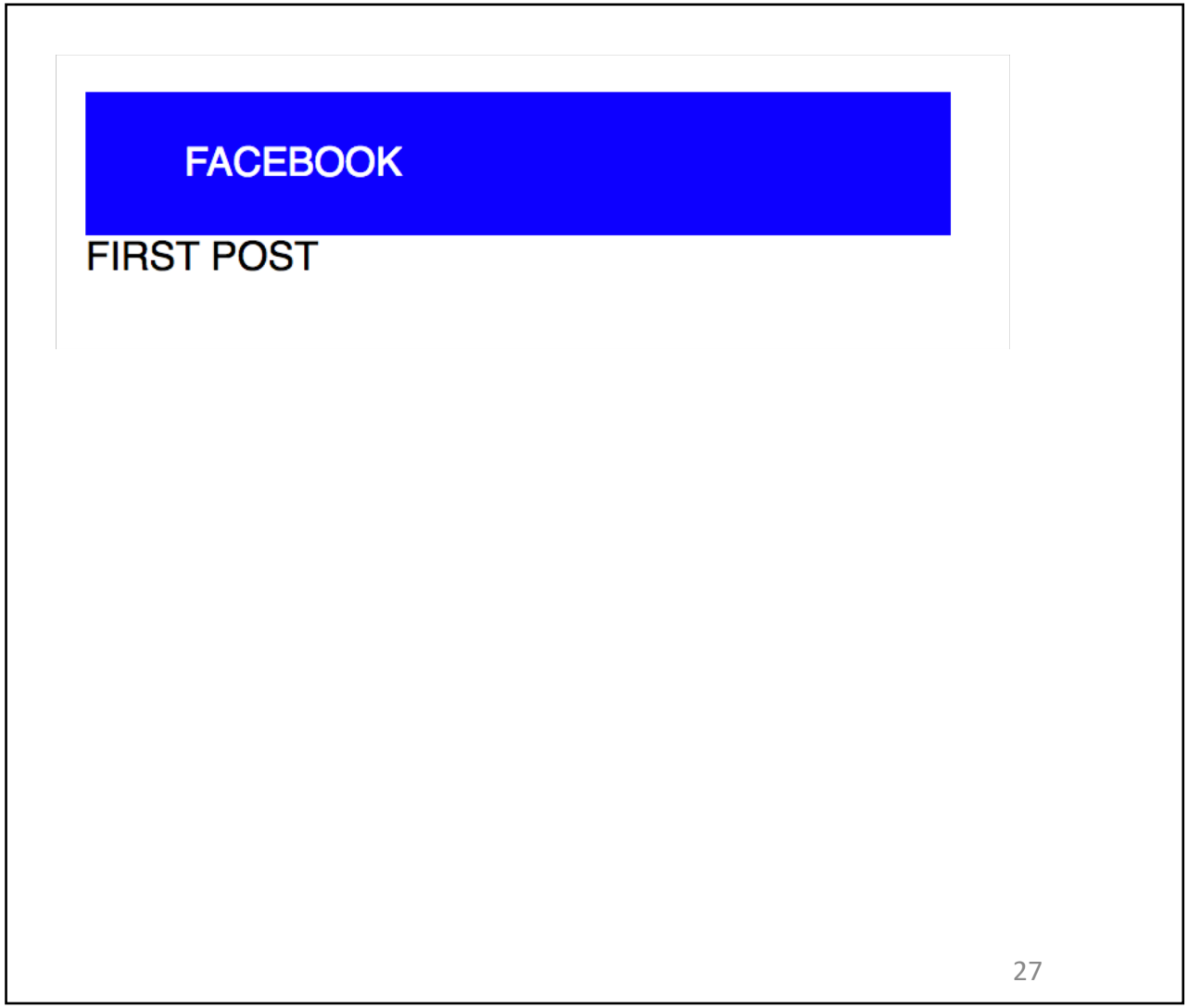
What next?

FACEBOOK



Add the first post

```
<div id="container">
  <div id="fb_brand">
    FACEBOOK
  </div>
  <div id="top_post">
    FIRST POST
  </div>
</div>
```



What next?

FACEBOOK

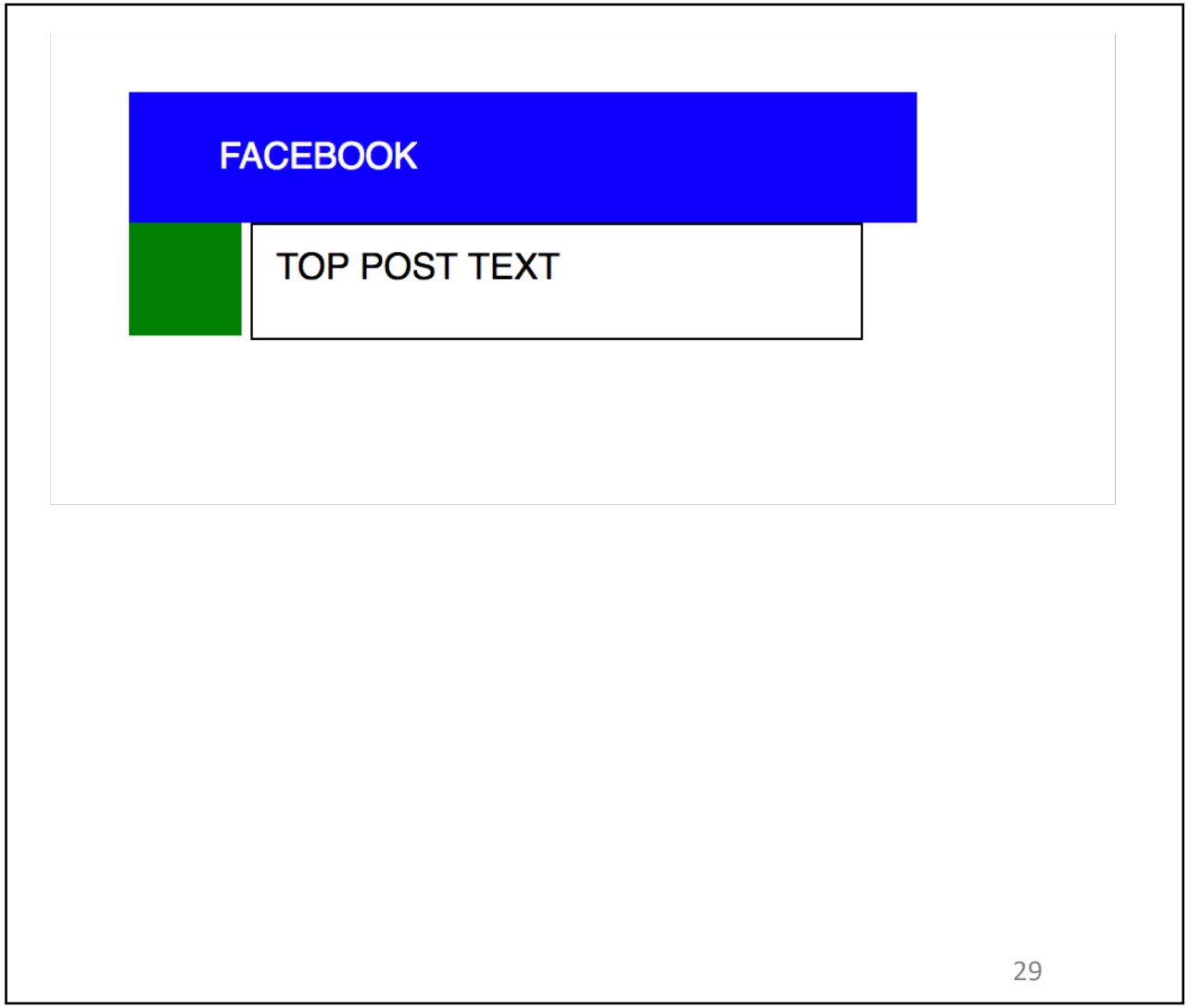
FIRST POST



Add internal structure to the first post

```
6    <div id="top_post">
7      <div id="top_post_image">
8      </div>
9      <div id="top_post_text">
10       TOP POST TEXT
11     </div>
12   </div>
```

```
14 #top_post_image{
15   height: 50px;
16   width: 50px;
17   background-color: green;
18   display: inline-block;
19 }
20
21 #top_post_text{
22   height: 30px;
23   width: 250px;
24   padding: 10px;
25   border: 1px solid black;
26   display: inline-block;
27   vertical-align: top;
28
29 }
```

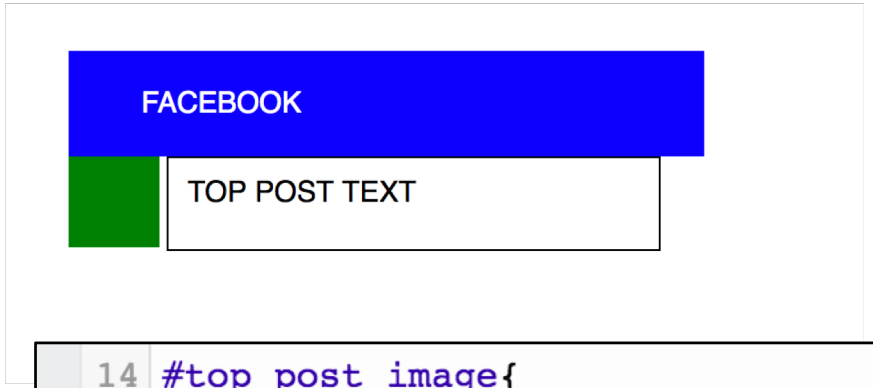


By default, DIV elements will flow down the page. `display: block`
To get them to flow across the page, you must set `display: inline-block`




```
#top_post_image{
  height: 50px;
  width: 50px;
  background-color: green;
  /*display: inline-block;*/
}

#top_post_text{
  height: 30px;
  width: 250px;
  padding: 10px;
  border: 1px solid black;
  /*display: inline-block;*/
  vertical-align: top;
}
```




```
#top_post_image{
  height: 50px;
  width: 50px;
  background-color: green;
  display: inline-block;
}

#top_post_text{
  height: 30px;
  width: 250px;
  padding: 10px;
  border: 1px solid black;
  display: inline-block;
  vertical-align: top;

}
```

What next?

FACEBOOK

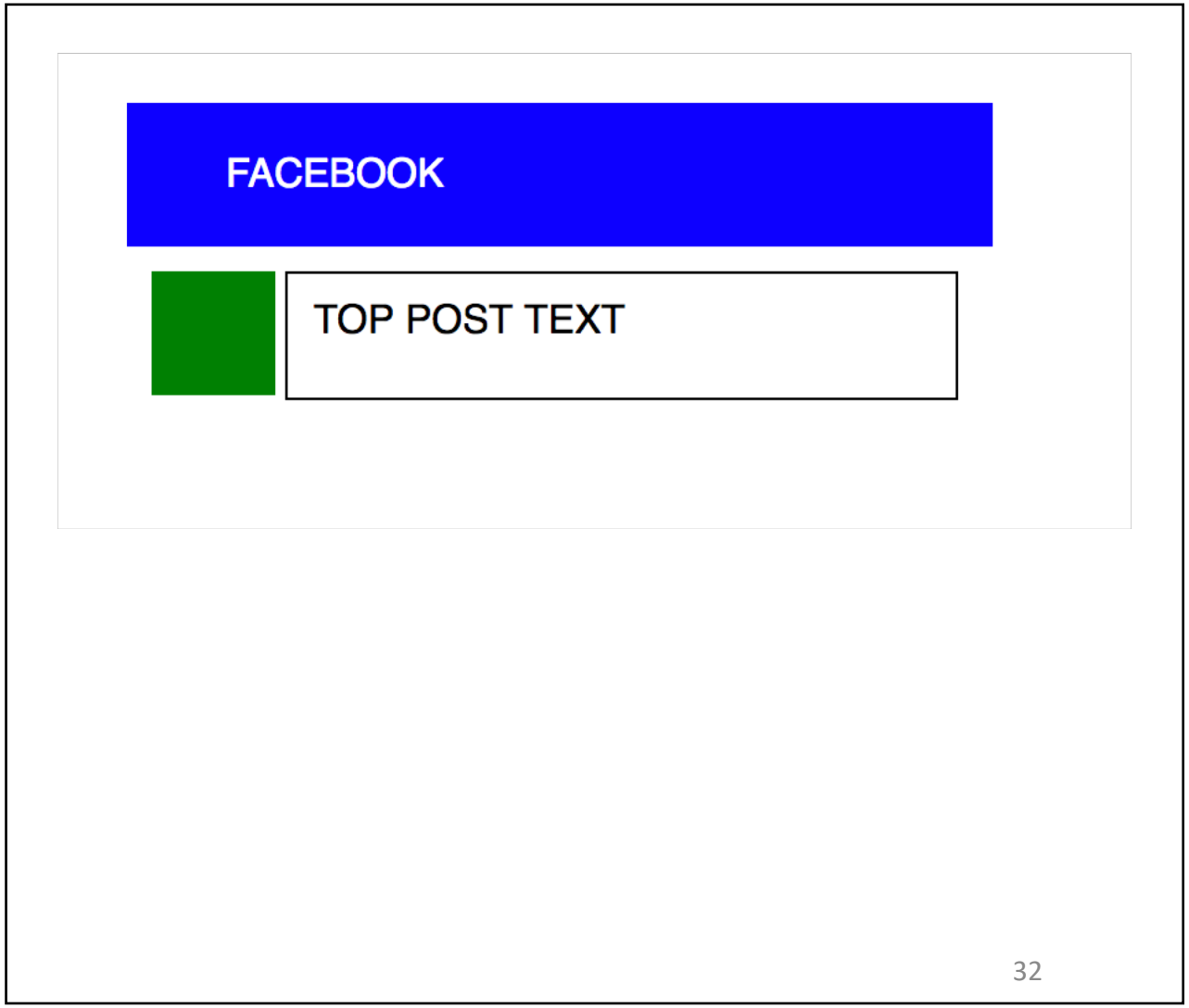
TOP POST TEXT



Add padding on the top post

```
6   <div id="top_post">
7     <div id="top_post_image">
8     </div>
9     <div id="top_post_text">
10      TOP POST TEXT
11    </div>
12  </div>
```

```
14 #top_post{
15   padding: 10px;
16 }
17
```



What next?

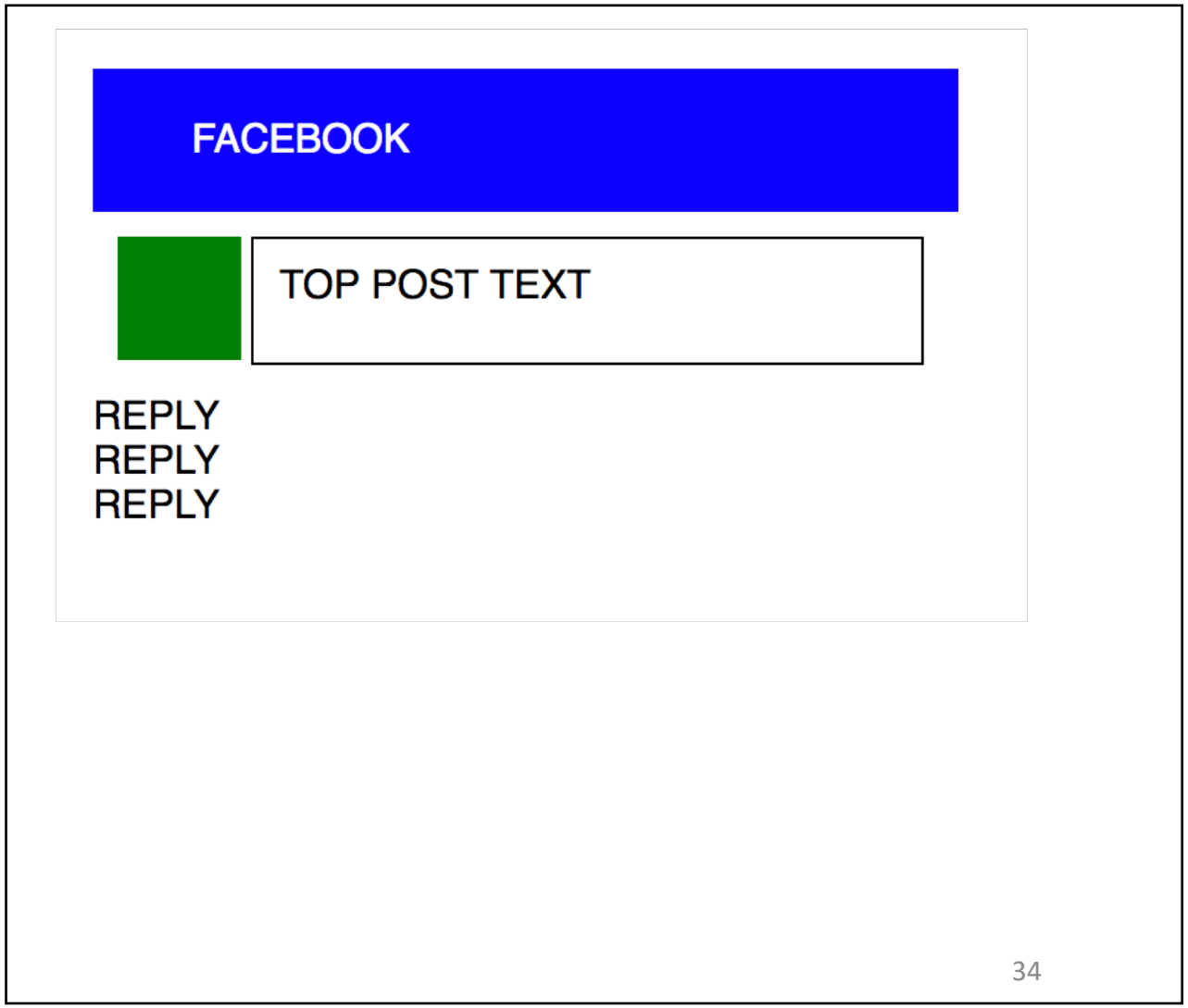
FACEBOOK

TOP POST TEXT

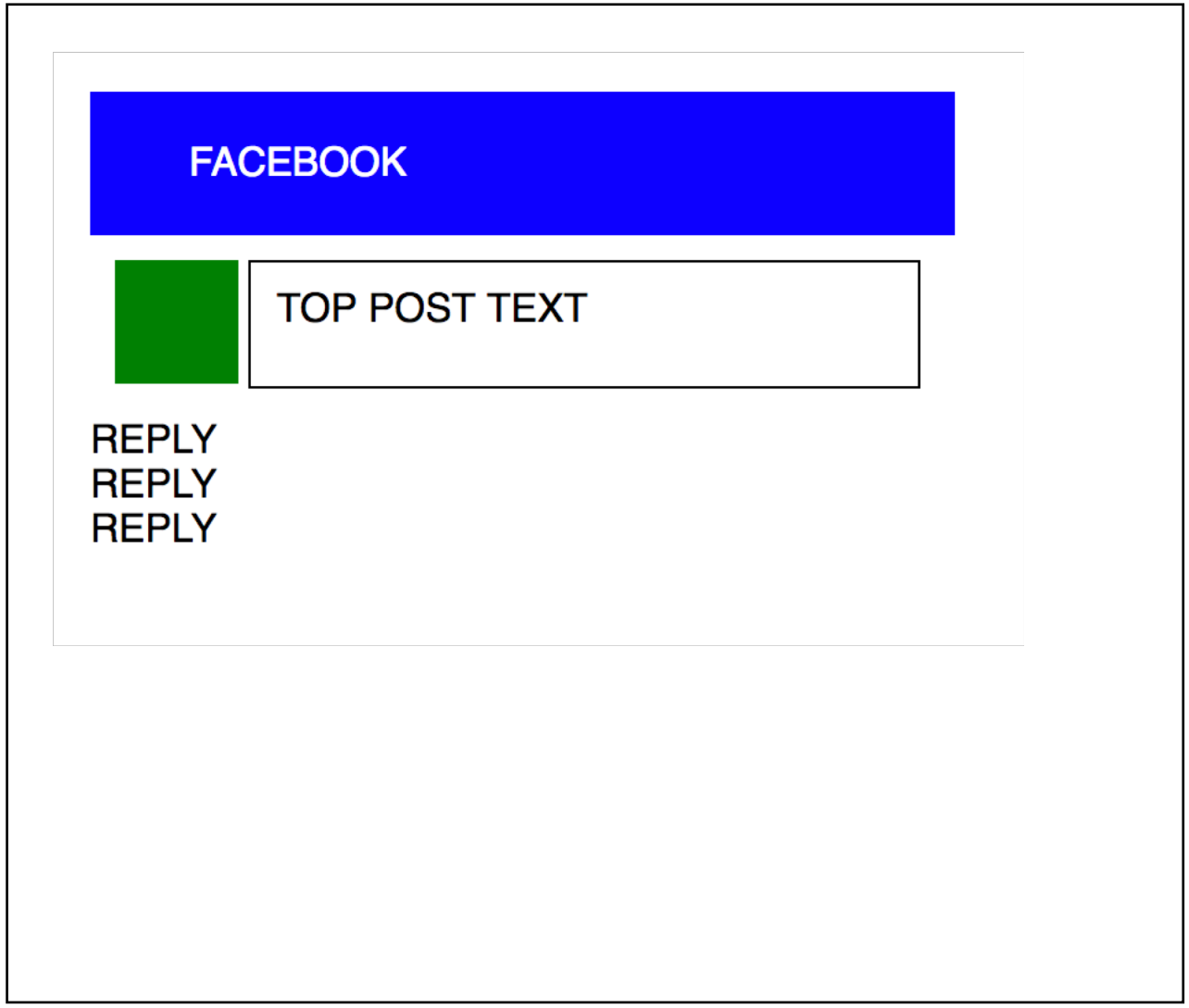


Replies

```
13  <div id="reply_container">
14    <div class="reply">
15      REPLY
16    </div>
17    <div class="reply">
18      REPLY
19    </div>
20    <div class="reply">
21      REPLY
22    </div>
23  </div>
```



What next?

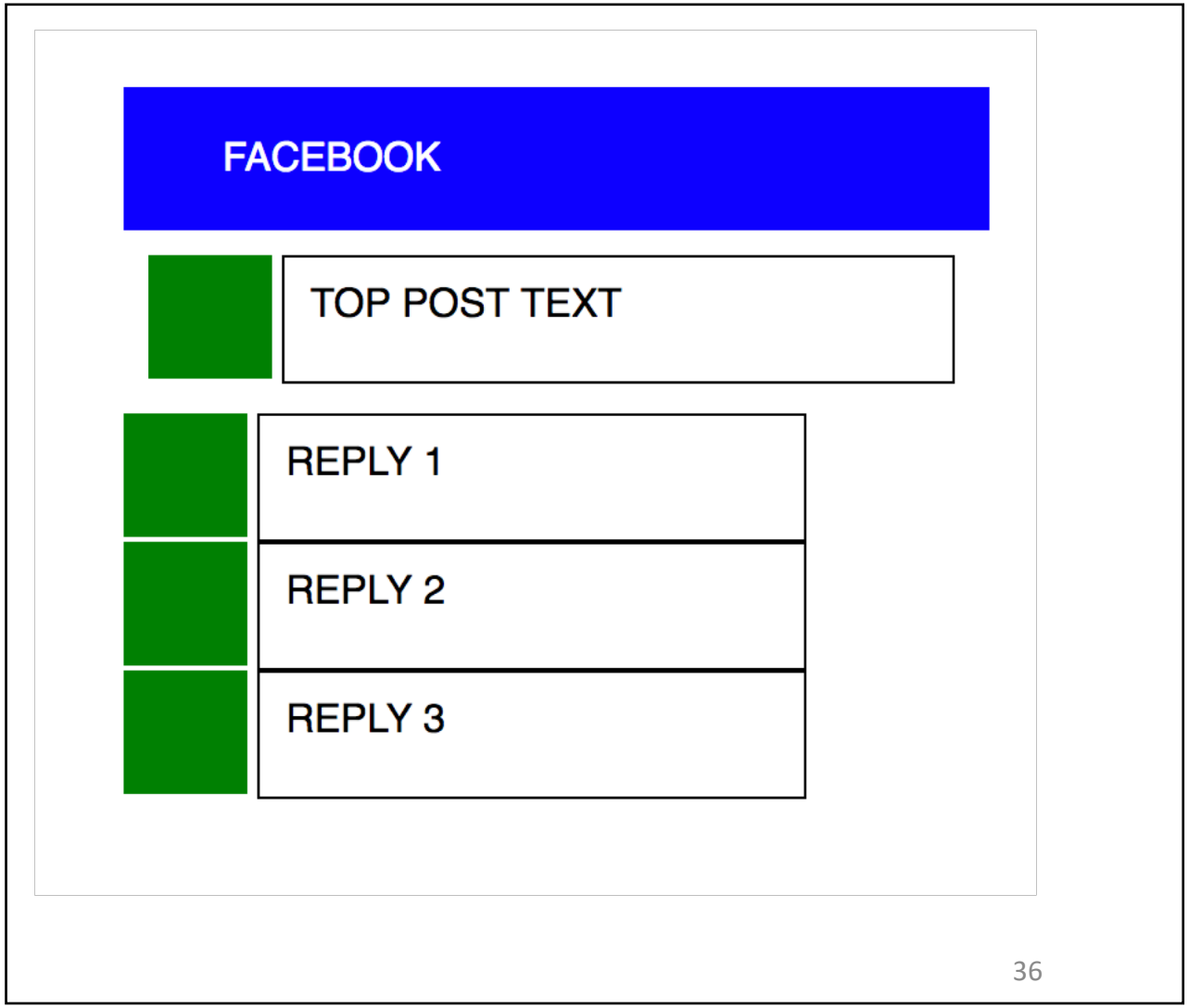

FACEBOOK
TOP POST TEXT
REPLY
REPLY
REPLY


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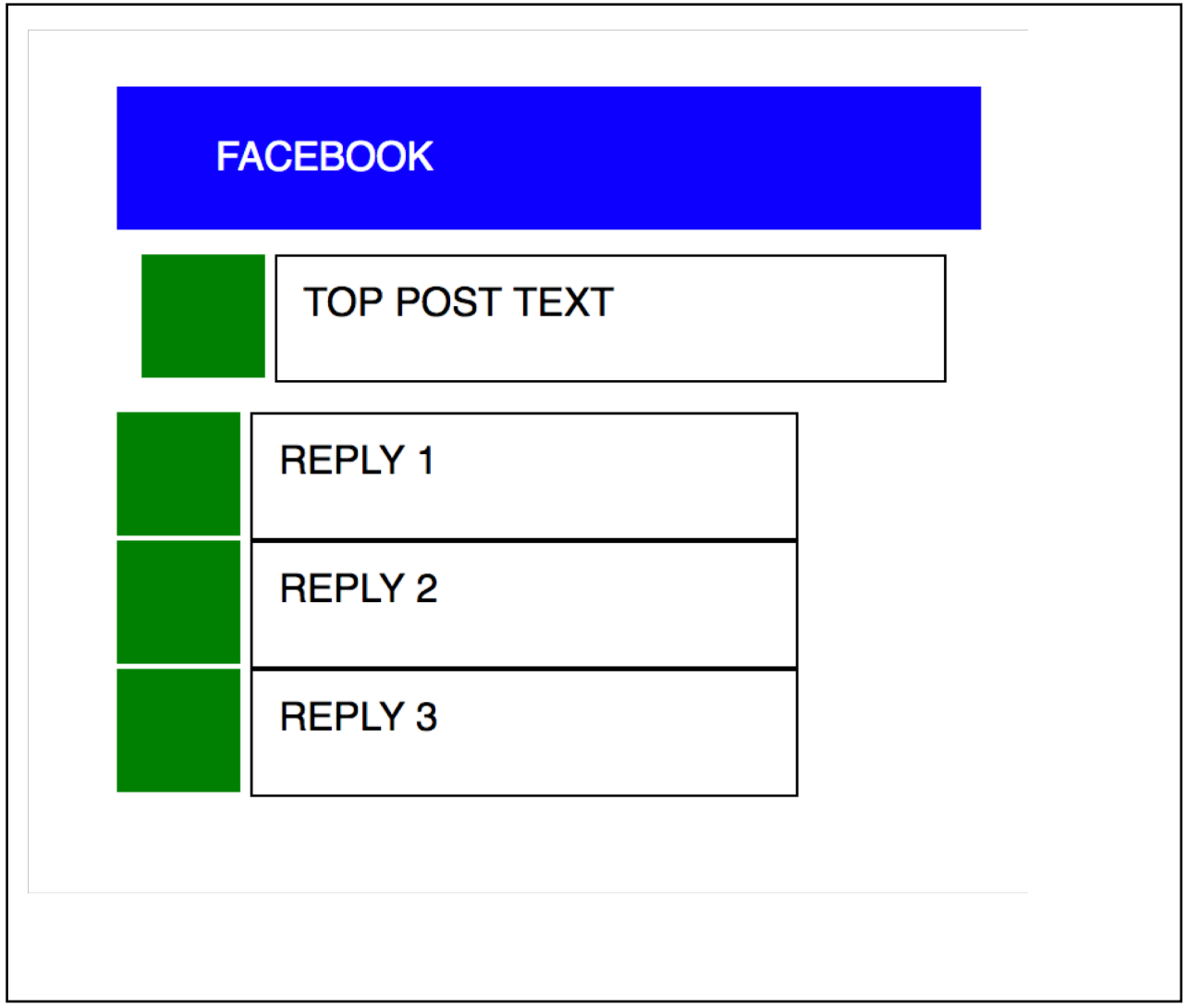
Reply substructure: image and text

```
14      <div class="reply">
15        <div class="reply_image">
16        </div>
17        <div class="reply_text">
18          REPLY 1
19        </div>
20      </div>
```

```
35  .reply_image{
36     height: 50px;
37    width: 50px;
38    background-color: green;
39    display: inline-block;
40    vertical-align: top;
41  }
42
43  .reply_text{
44    height: 30px;
45    width: 200px;
46    padding: 10px;
47    border: 1px solid black;
48    display: inline-block;
49    vertical-align: top;
50  }
```



What next?



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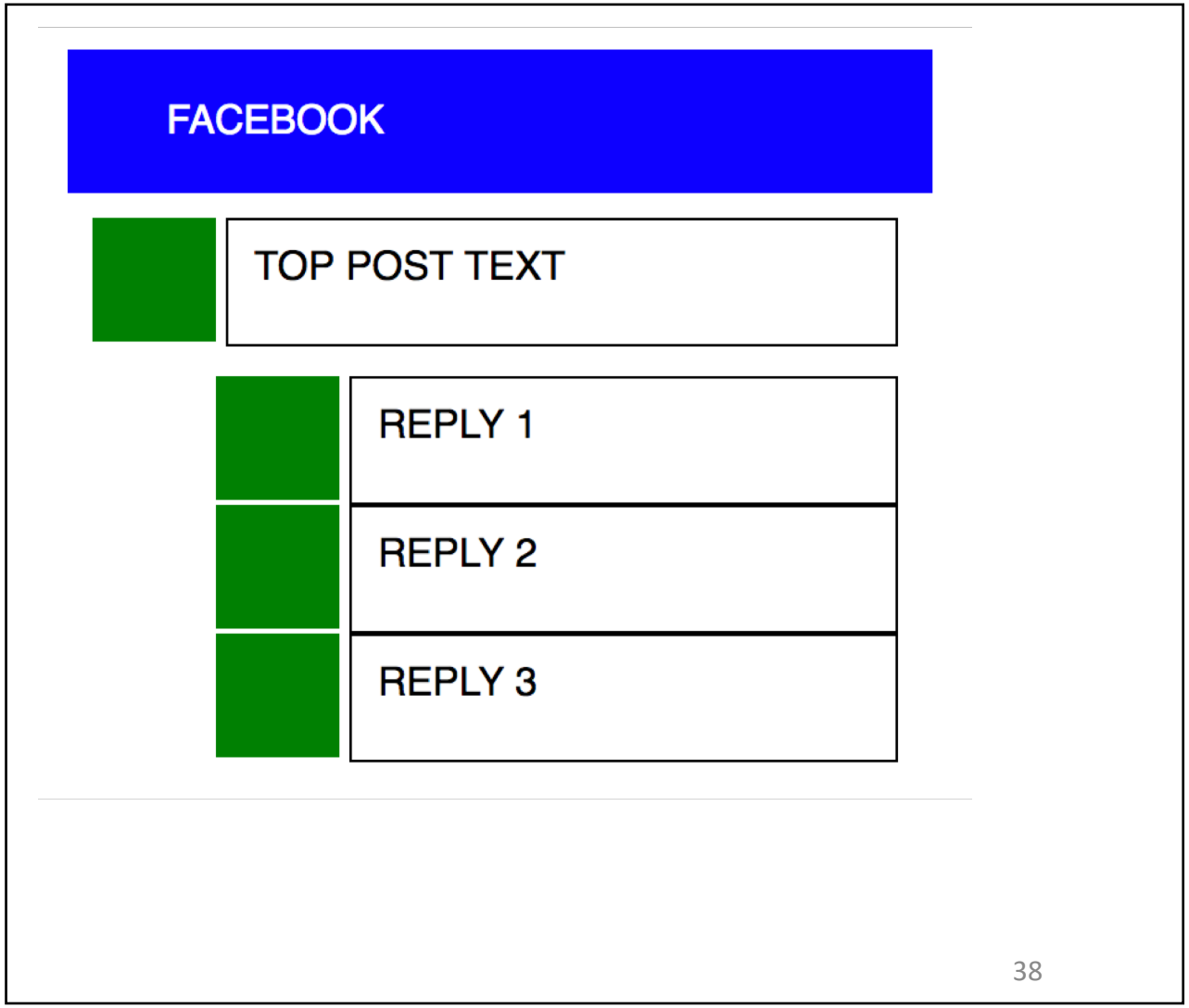
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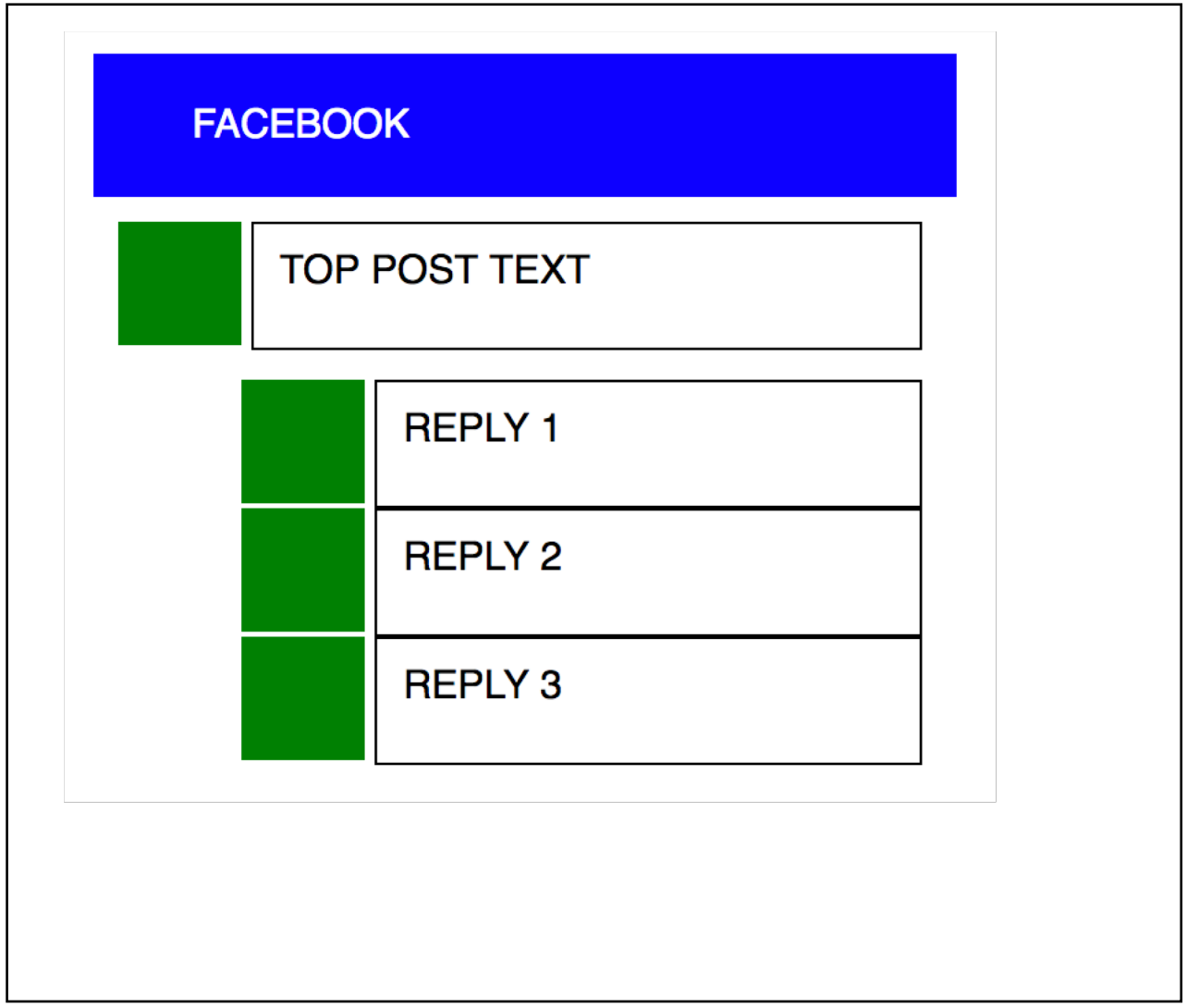
Reply Container positioning

```
13   <div id="reply_container">
14     <div class="reply">
15       <div class="reply_image">
16       </div>
17       <div class="reply_text">
18         REPLY 1
19       </div>
20     </div>
```

```
35 #reply_container{
36   padding-left: 60px;
37 }
38
```



What next?



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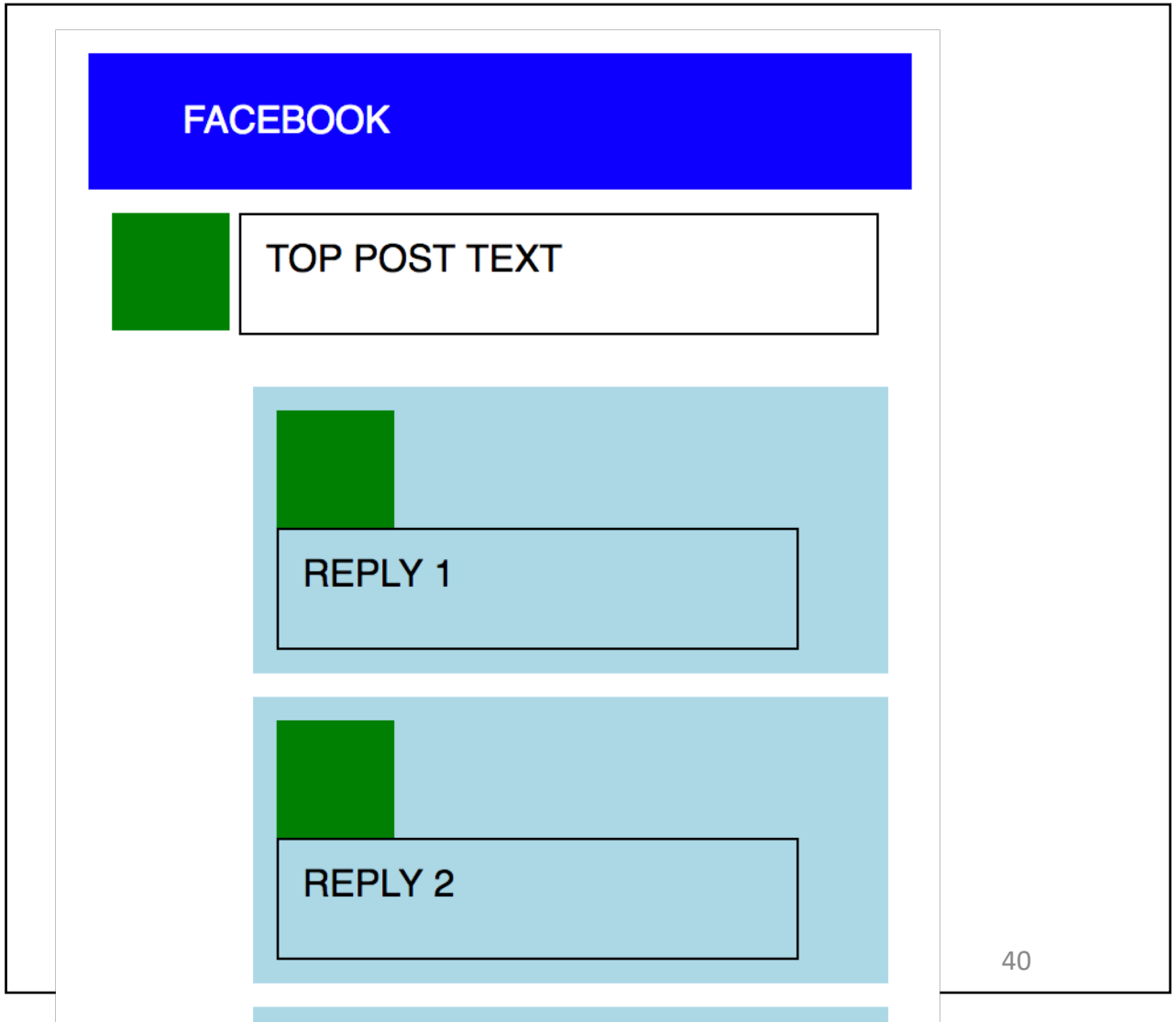
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Reply Class background-color

```
13   <div id="reply_container">
14     <div class="reply">
15       <div class="reply_image">
16       </div>
17       <div class="reply_text">
18         REPLY 1
19       </div>
20     </div>
```

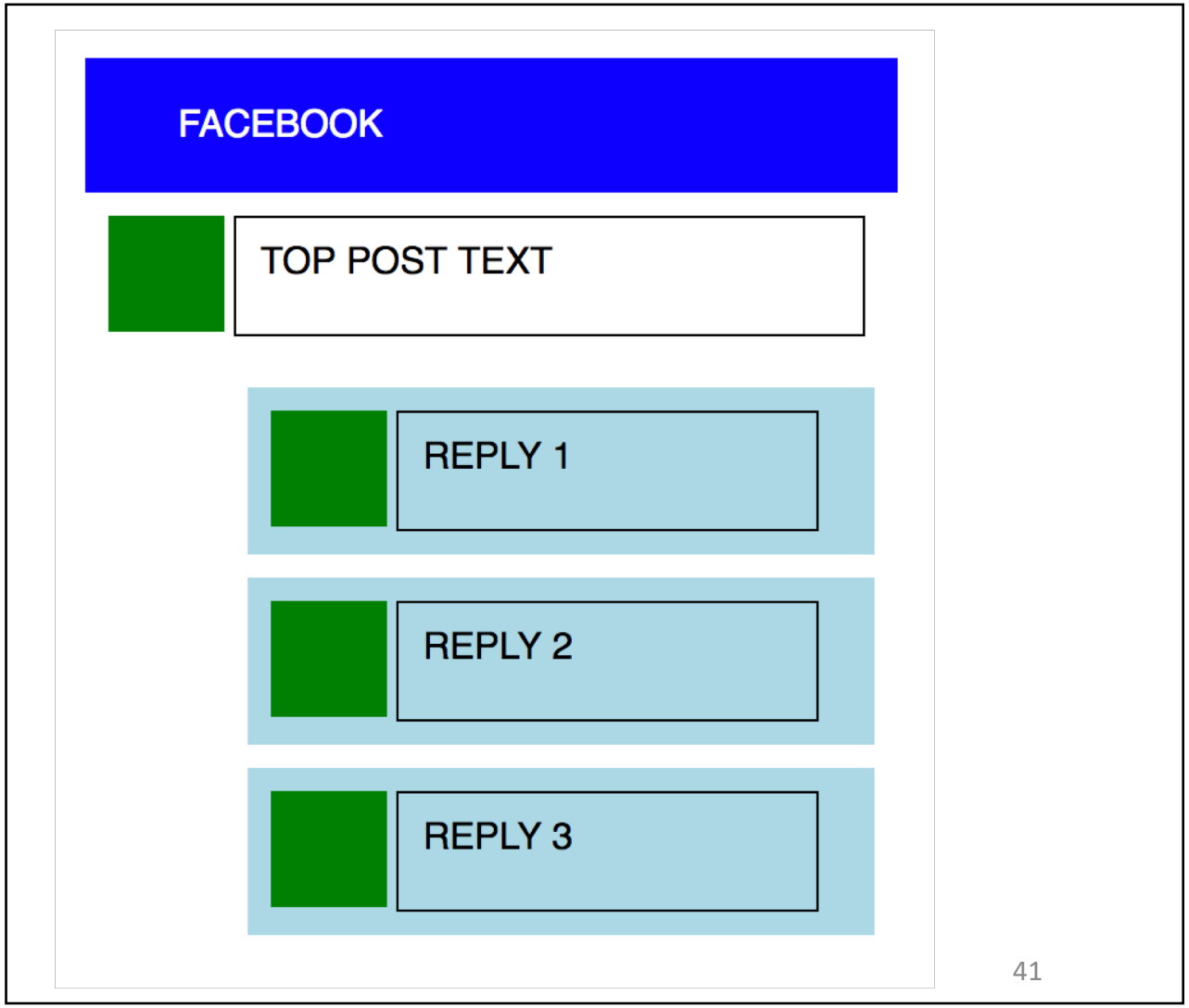
```
39 .reply{
40   background-color: lightblue;
41   padding: 10px;
42   margin: 10px;
43 }
```



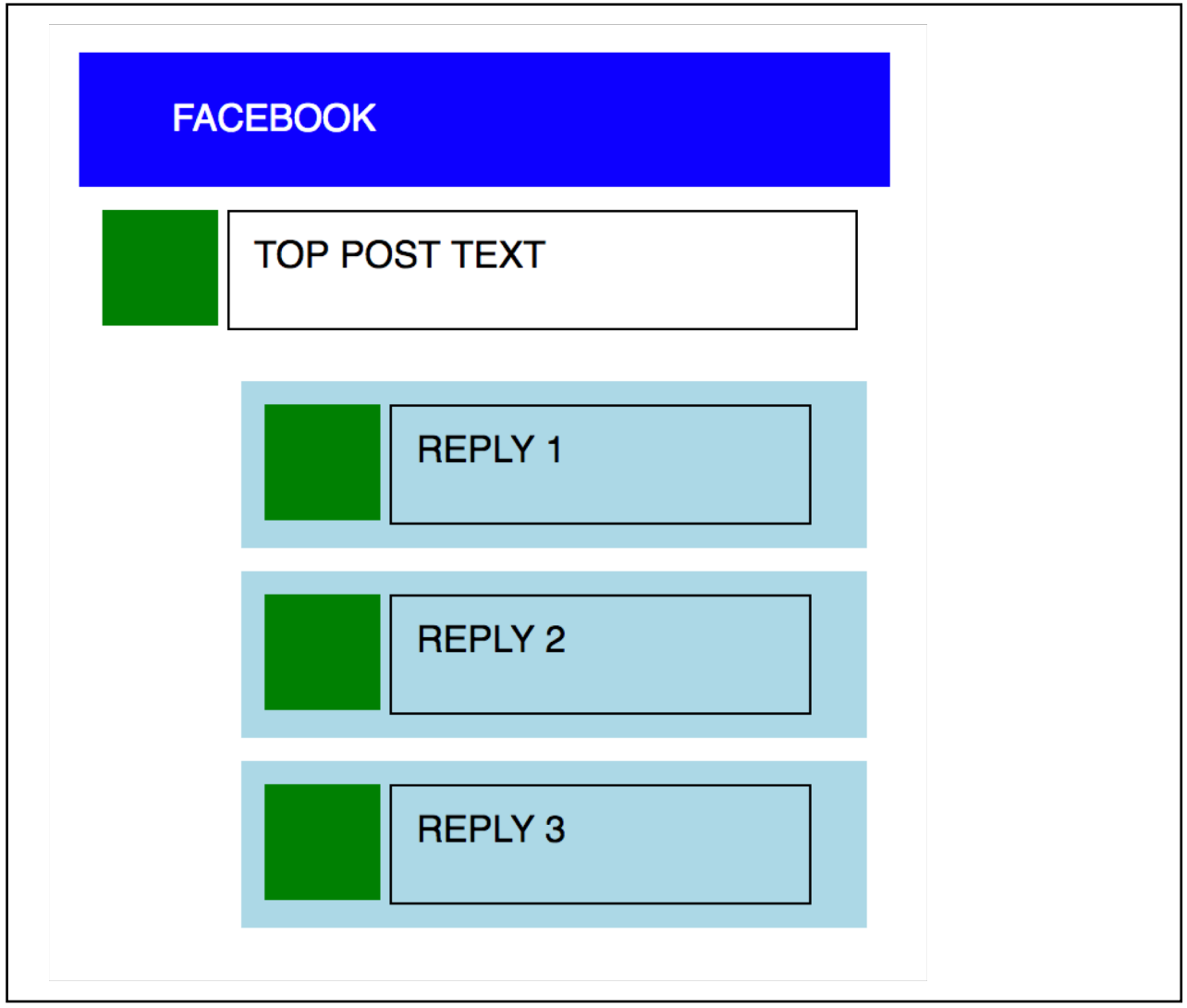
Reduce Reply Text Width

```
13   <div id="reply_container">
14     <div class="reply">
15       <div class="reply_image">
16       </div>
17       <div class="reply_text">
18         REPLY 1
19       </div>
20     </div>
```

```
53 .reply_text{
54   height: 30px;
55   width: 160px;
56   padding: 10px;
57   border: 1px solid black;
58   display: inline-block;
59   vertical-align: top;
60 }
```



What next? Am I done?



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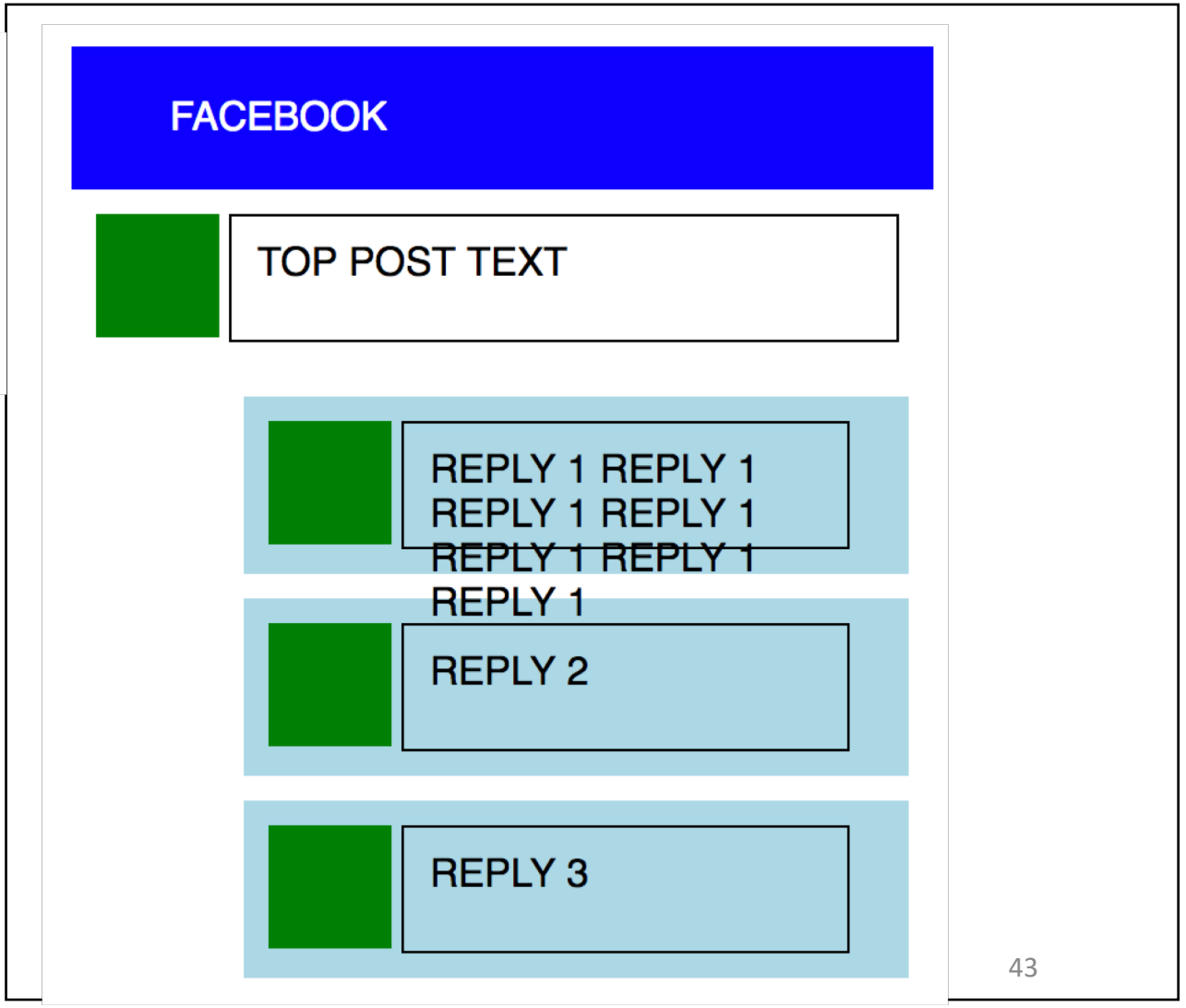
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Reply Text is longer

```
14      <div class="reply">
15        <div class="reply_image">
16        </div>
17        <div class="reply_text">
18          REPLY 1 REPLY 1 REPLY 1 REPLY 1 REPLY 1
19          REPLY 1  REPLY 1
20        </div>
21      </div>
```

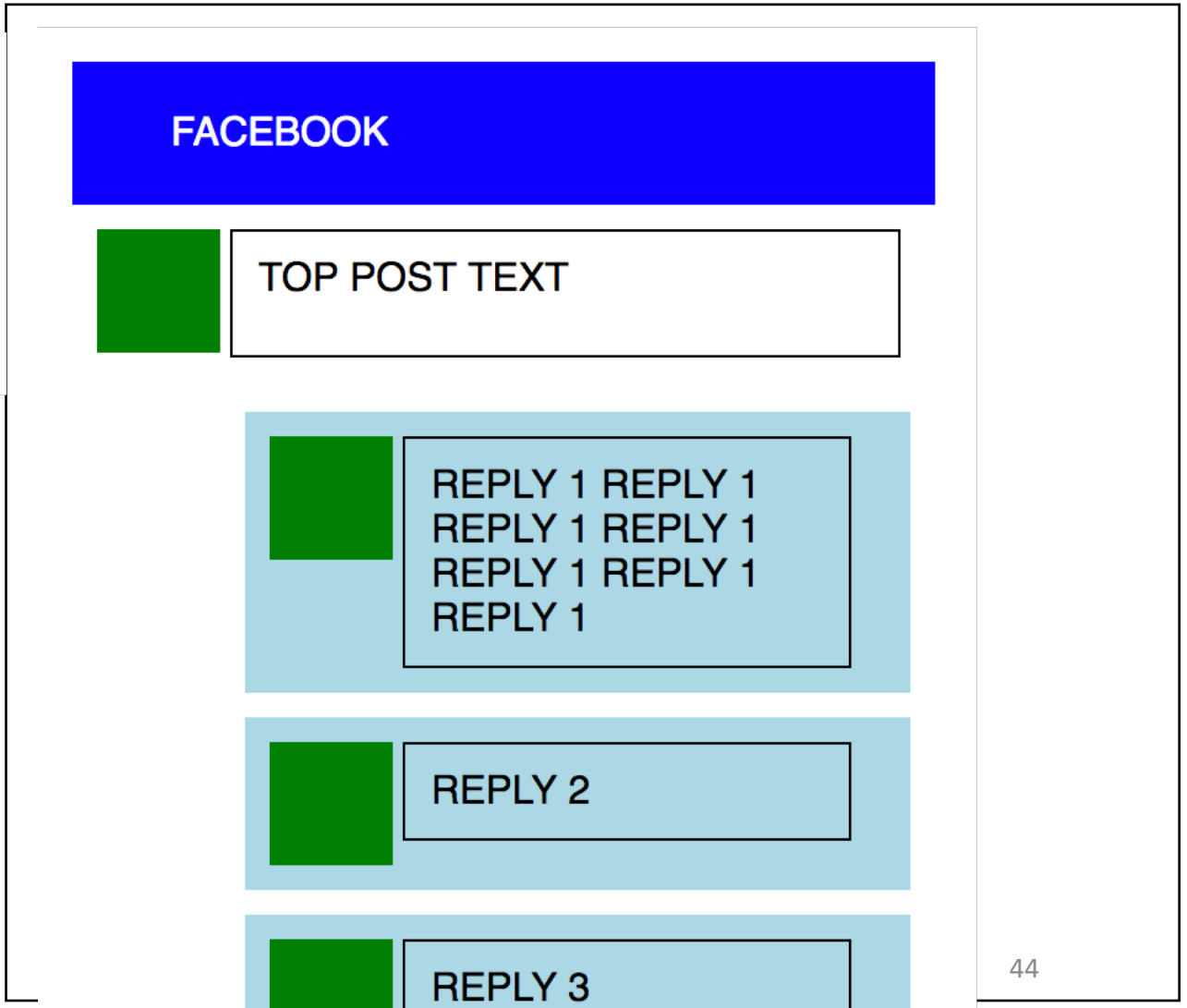
```
53  .reply_text{
54    height: 30px;
55    width: 160px;
56    padding: 10px;
57    border: 1px solid black;
58    display: inline-block;
59    vertical-align: top;
60  }
```



Reply Text height fixed

```
14      <div class="reply">
15        <div class="reply_image">
16        </div>
17        <div class="reply_text">
18          REPLY 1 REPLY 1 REPLY 1 REPLY 1 REPLY 1
19          REPLY 1  REPLY 1
20        </div>
21      </div>
```

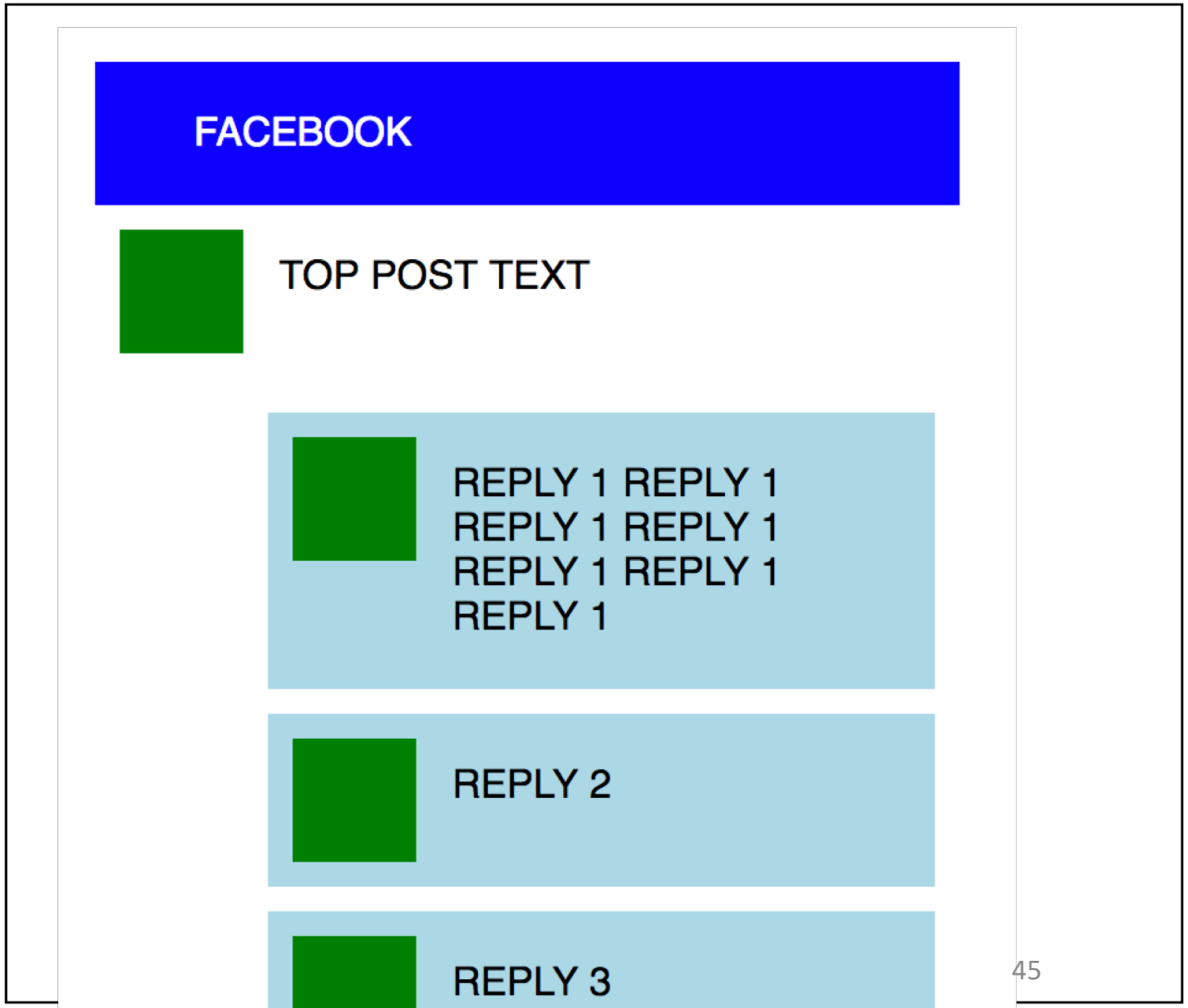
```
53  .reply_text{
54    /*height: 30px;*/
55    width: 160px;
56    padding: 10px;
57    border: 1px solid black;
58    display: inline-block;
59    vertical-align: top;
60  }
```



Remove borders

```
25 #top_post_text{
26   height: 30px;
27   width: 250px;
28   padding: 10px;
29   /*border: 1px solid black;*/
30   display: inline-block;
31   vertical-align: top;
32
33 }
```

```
53 .reply_text{
54   width: 160px;
55   padding: 10px;
56   /*border: 1px solid black;*/
57   display: inline-block;
58   vertical-align: top;
59 }
```



FACEBOOK

TOP POST TEXT

REPLY 1 REPLY 1
REPLY 1 REPLY 1
REPLY 1 REPLY 1
REPLY 1

REPLY 2

REPLY 3



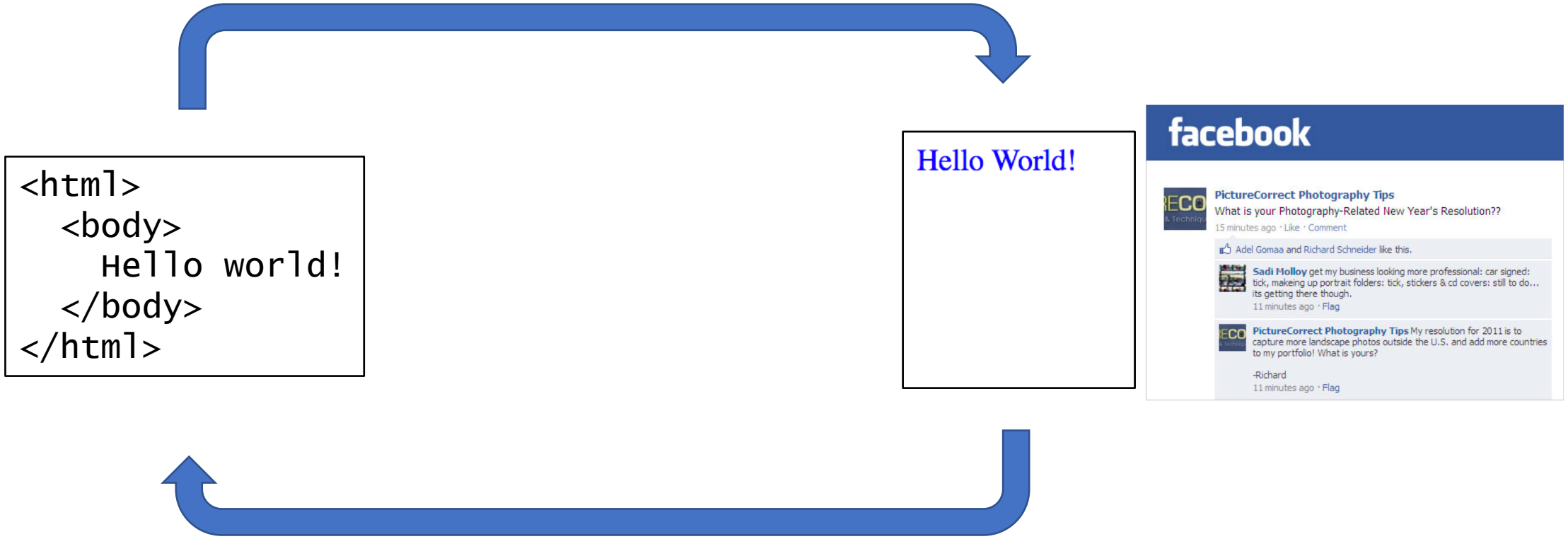
After layout… what next?



Iterative Style of Programming

helps you build a mental model of your code.

What's the small unit of progress I can make?



Does it look ok?

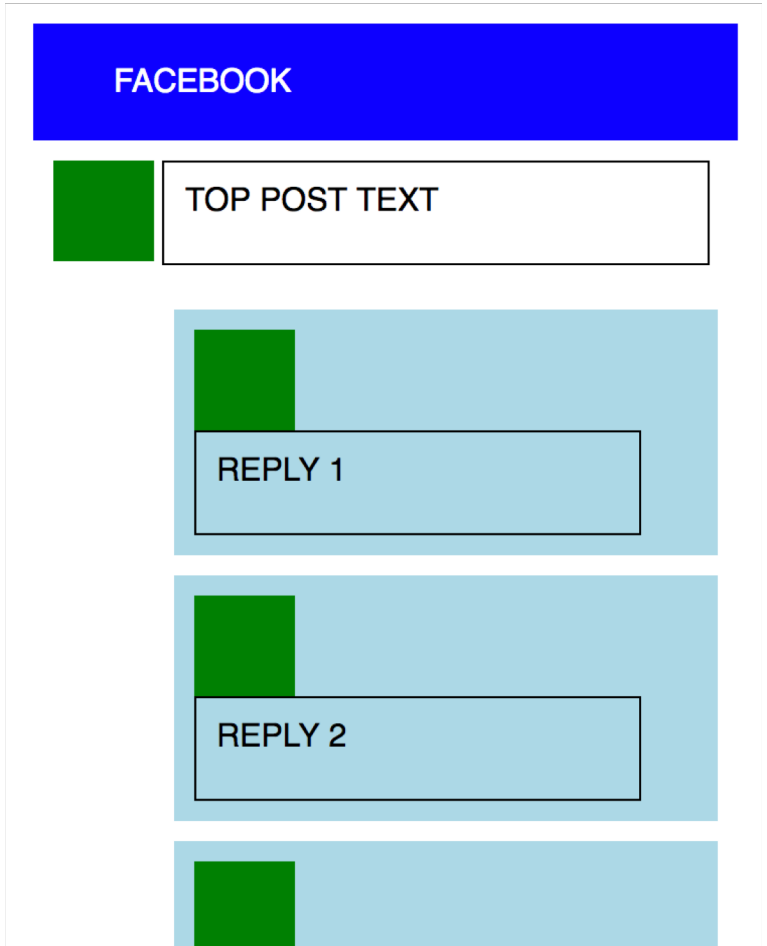
Iterative Style of Programming helped me recover from errors one at a time (as I created them)

Error 1: display inline-block

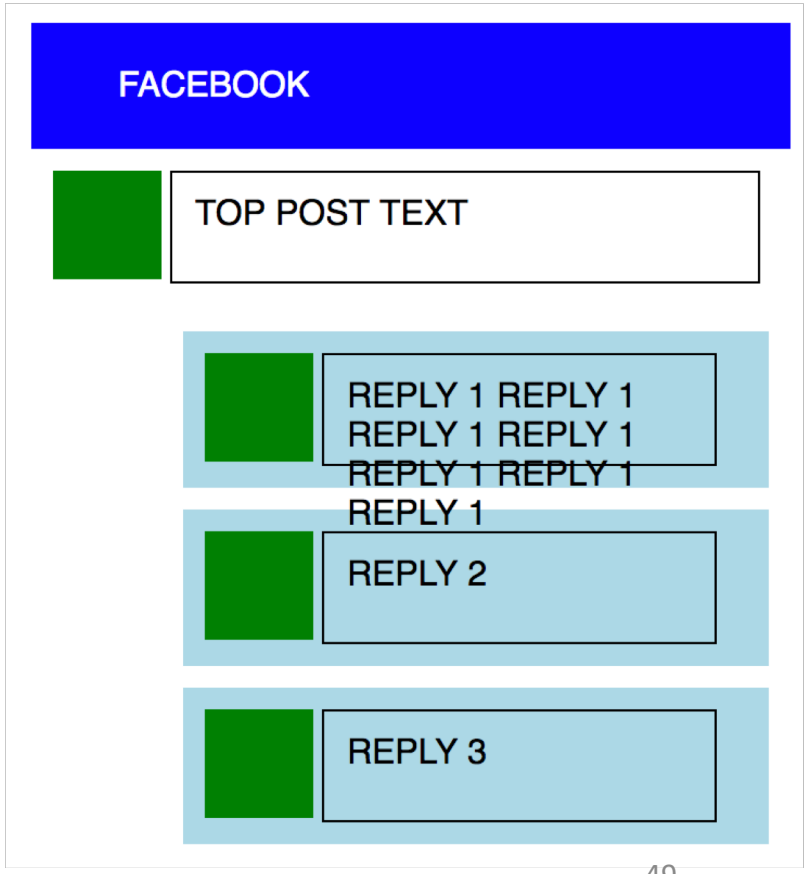




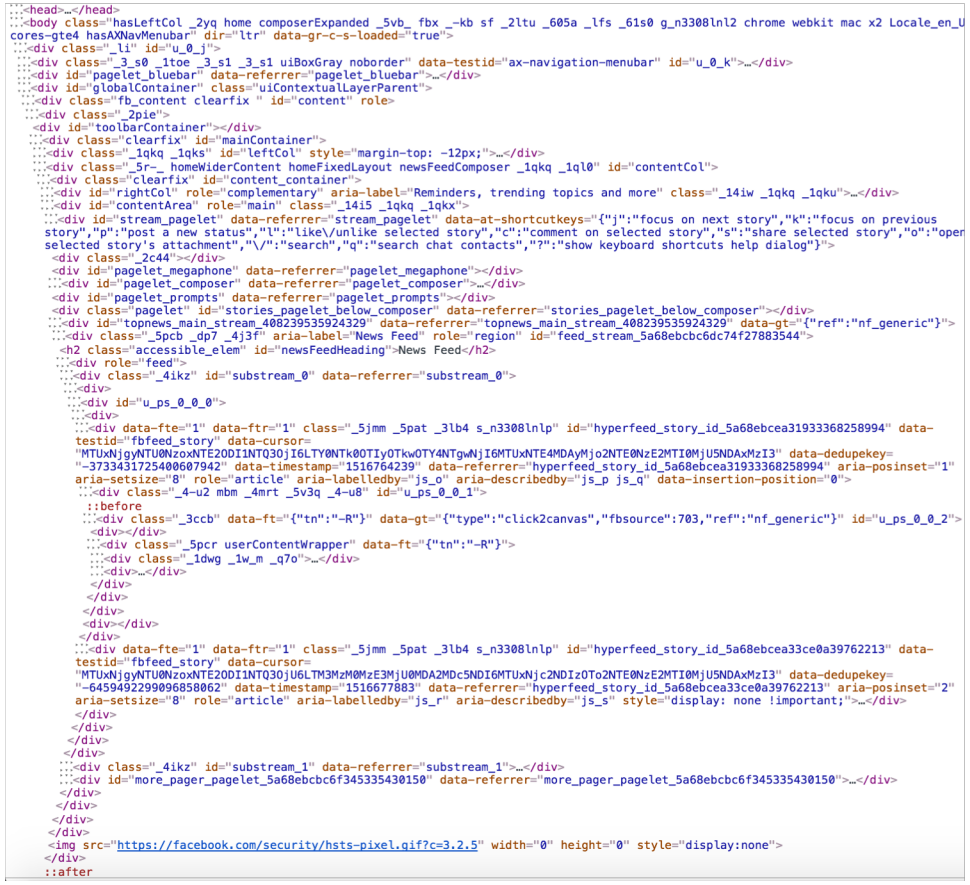
Error 2: reply div padding



Error 3: Reply div height



Once you have too many bugs, you won't fix it.


<head>…</head>
<body class="hasLeftCol _2yq home composerExpanded _5vb_ fbx _-kb sf _2ltu _605a _lfs _61s0 g_n3308lnl2 chrome webkit mac x2 Locale_en_U cores-gte4 hasAXNavMenubar" dir="ltr" data-gr-c-s-loaded="true">
<div class="_li" id="u_0_j">
<div class="_3_s0 _1toe _3_s1 _3_s1 uiBoxGray noborder" data-testid="ax-navigation-menubar" id="u_0_k">…</div>
<div id="pagelet_bluebar" data-referrer="pagelet_bluebar">…</div>
<div id="globalContainer" class="uiContextualLayerParent">
<div class="fb_content clearfix " id="content" role>
<div class="_2pie">
<div id="toolbarContainer"></div>
<div class="clearfix" id="mainContainer">
<div class="_1qkq _1qks" id="leftCol" style="margin-top: -12px;">…</div>
<div class="_5r-_ homeWiderContent homeFixedLayout newsFeedComposer _1qkq _1ql0" id="contentCol">
<div class="clearfix" id="content_container">
<div id="rightCol" role="complementary" aria-label="Reminders, trending topics and more" class="_14iw _1qkq _1qku">…</div>
<div id="contentArea" role="main" class="_14i5 _1qkq _1qkx">
<div id="stream_pagelet" data-referrer="stream_pagelet" data-at-shortcutkeys="{"j":"focus on next story","k":"focus on previous story","p":"post a new status","l":"like\/unlike selected story","c":"comment on selected story","s":"share selected story","o":"oper selected story's attachment","\/":"search","q":"search chat contacts","?":"show keyboard shortcuts help dialog"}">
<div class="_2c44"></div>
<div id="pagelet_megaphone" data-referrer="pagelet_megaphone"></div>
<div id="pagelet_composer" data-referrer="pagelet_composer">…</div>
<div id="pagelet_prompts" data-referrer="pagelet_prompts"></div>
<div class="pagelet" id="stories_pagelet_below_composer" data-referrer="stories_pagelet_below_composer"></div>
<div id="topnews_main_stream_408239535924329" data-referrer="topnews_main_stream_408239535924329" data-gt="{"ref":"nf_generic"}">
<div class="_5pcb _dp7 _4j3f" aria-label="News Feed" role="region" id="feed_stream_5a68ebcbc6dc74f27883544">
<h2 class="accessible_elem" id="newsFeedHeading">News Feed</h2>
<div role="feed">
<div class="_4ikz" id="substream_0" data-referrer="substream_0">
<div>
<div id="u_ps_0_0_0">
<div>
<div data-fte="1" data-ftr="1" class="_5jmm _5pat _3lb4 s_n3308lnlp" id="hyperfeed_story_id_5a68ebcea31933368258994" data-testid="fbfeed_story" data-cursor="MTUxNjgyNTU0NzoxNTE2ODI1NTQ3OjI6LTY0NTk0OTIyOTkwOTY4NTgwNjI6MTUxNTE4MDAyMjo2NTE0NzE2MTI0MjU5NDAxMzI3" data-dedupekey="-3733431725400607942" data-timestamp="1516764239" data-referrer="hyperfeed_story_id_5a68ebcea31933368258994" aria-posinset="1" aria-setsize="8" role="article" aria-labelledby="js_o" aria-describedby="js_p js_q" data-insertion-position="0">
<div class="_4-u2 mbm _4mrt _5v3q _4-u8" id="u_ps_0_0_1">
::before
<div class="_3ccb" data-ft="{"tn":"-R"}" data-gt="{"type":"click2canvas","fbsource":703,"ref":"nf_generic"}" id="u_ps_0_0_2">
<div></div>
<div class="_5pcr userContentWrapper" data-ft="{"tn":"-R"}">
<div class="_1dwg _1w_m _q7o">…</div>
</div>…</div>
</div>
</div>
</div>
<div></div>
</div>
<div data-fte="1" data-ftr="1" class="_5jmm _5pat _3lb4 s_n3308lnlp" id="hyperfeed_story_id_5a68ebcea33ce0a39762213" data-testid="fbfeed_story" data-cursor="MTUxNjgyNTU0NzoxNTE2ODI1NTQ3OjU6LTM3MzM0MzE3MjU0MDA2MDc5NDI6MTUxNjc2NDIzOTo2NTE0NzE2MTI0MjU5NDAxMzI3" data-dedupekey="-6459492299096858062" data-timestamp="1516677883" data-referrer="hyperfeed_story_id_5a68ebcea33ce0a39762213" aria-posinset="2" aria-setsize="8" role="article" aria-labelledby="js_r" aria-describedby="js_s" style="display: none !important;">…</div>
</div>
</div>
</div>
</div>
<div class="_4ikz" id="substream_1" data-referrer="substream_1">…</div>
<div id="more_pager_pagelet_5a68ebcbc6f345335430150" data-referrer="more_pager_pagelet_5a68ebcbc6f345335430150">…</div>
</div>
</div>
</div>
</div>

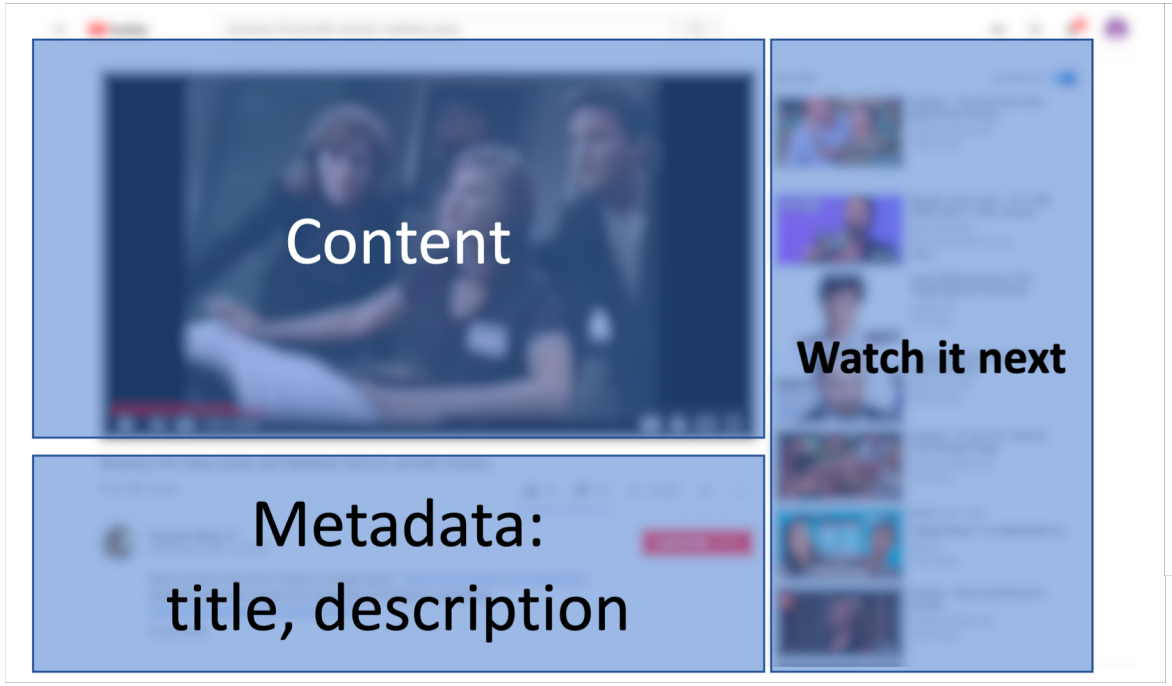
Grids

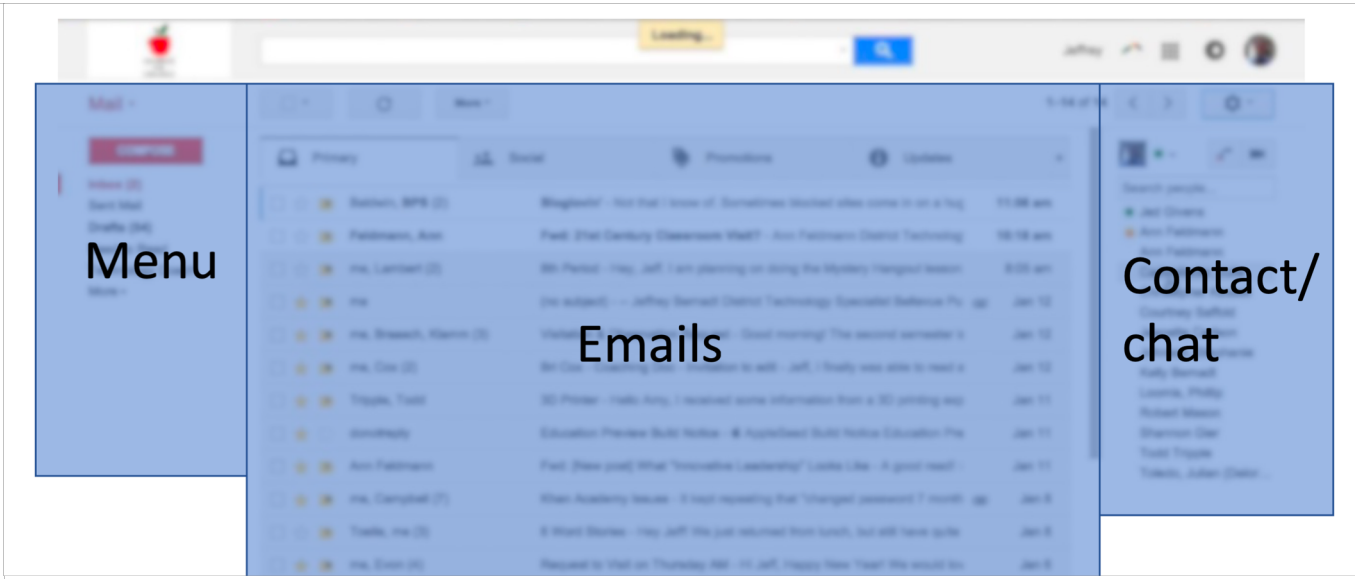
Currently the dominant way to layout information

That worked BUT
it would be must easier if we had a grid.

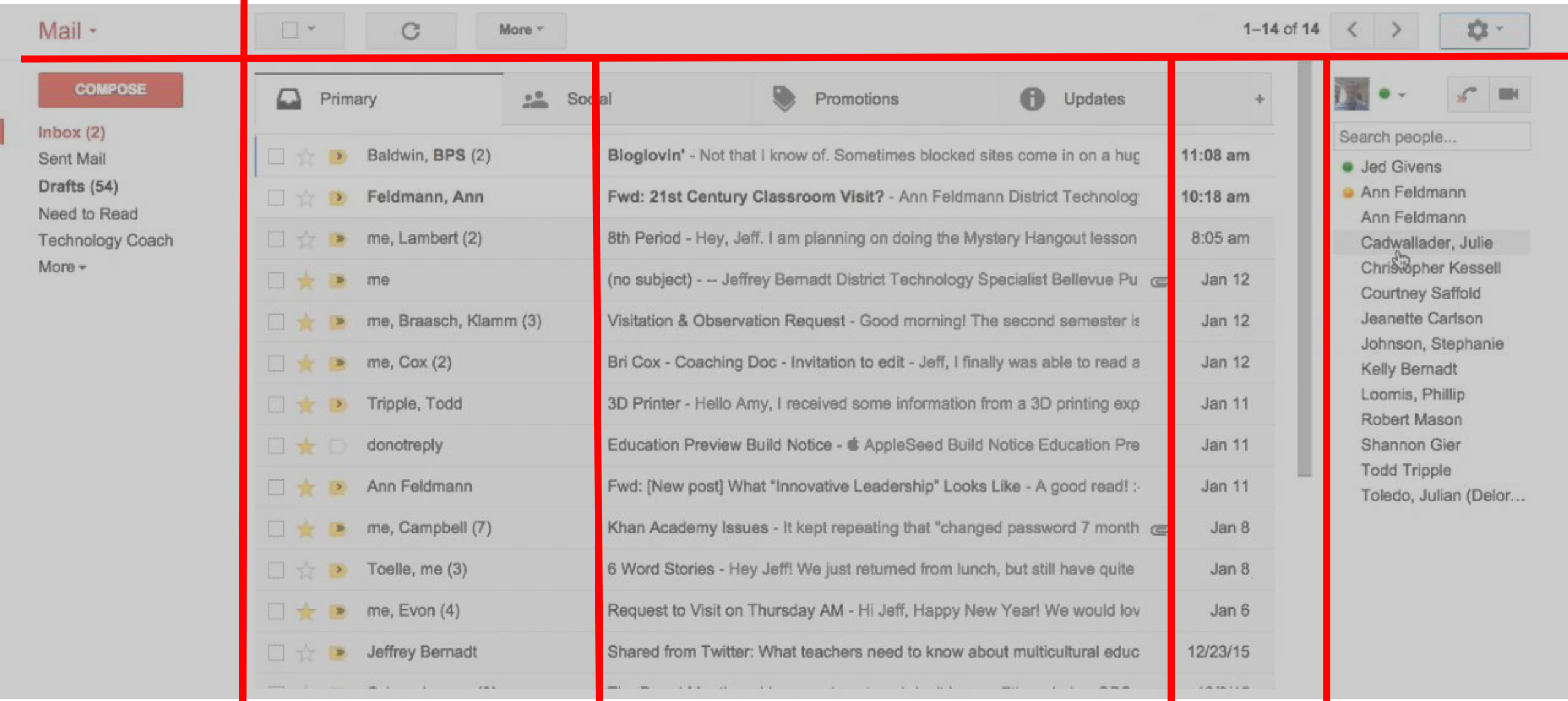


How to guide users attention:





We can implement conceptual groupings in a grid


Mail
More
1–14 of 14
COMPOSE
Inbox (2)
Sent Mail
Drafts (54)
Need to Read
Technology Coach
More
Primary
Social
Promotions
Updates
Baldwin, BPS (2)
Bloglovin' - Not that I know of. Sometimes blocked sites come in on a hug
11:08 am
Feldmann, Ann
Fwd: 21st Century Classroom Visit? - Ann Feldmann District Technolog
10:18 am
me, Lambert (2)
8th Period - Hey, Jeff. I am planning on doing the Mystery Hangout lesson
8:05 am
me
(no subject) - -- Jeffrey Bernadt District Technology Specialist Bellevue Pu
Jan 12
me, Braasch, Klamm (3)
Visitation & Observation Request - Good morning! The second semester is
Jan 12
me, Cox (2)
Bri Cox - Coaching Doc - Invitation to edit - Jeff, I finally was able to read a
Jan 12
Tripple, Todd
3D Printer - Hello Amy, I received some information from a 3D printing exp
Jan 11
donotreply
Education Preview Build Notice - AppleSeed Build Notice Education Pre
Jan 11
Ann Feldmann
Fwd: [New post] What "Innovative Leadership" Looks Like - A good read!
Jan 11
me, Campbell (7)
Khan Academy Issues - It kept repeating that "changed password 7 month
Jan 8
Toelle, me (3)
6 Word Stories - Hey Jeff! We just returned from lunch, but still have quite
Jan 8
me, Evon (4)
Request to Visit on Thursday AM - Hi Jeff, Happy New Year! We would lov
Jan 6
Jeffrey Bernadt
Shared from Twitter: What teachers need to know about multicultural educ
12/23/15
Search people...
Jed Givens
Ann Feldmann
Ann Feldmann
Cadwallader, Julie
Christopher Kessell
Courtney Saffold
Jeanette Carlson
Johnson, Stephanie
Kelly Bernadt
Loomis, Phillip
Robert Mason
Shannon Gier
Todd Tripple
Toledo, Julian (Delor...

windows 95 jennifer aniston matthew perry



Windows 95 Video Guide with Matthew Perry & Jennifer Aniston

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Published on Dec 12, 2016

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Subscribe and watch scenes from all seasons of Friends on my channel -
https://www.youtube.com/channel/UCA8V...

SHOW MORE

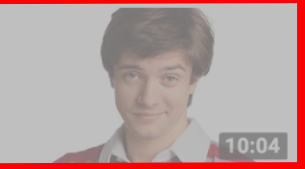
Up next AUTOPLAY



Friends - The One that Goes Behind the Scenes
Favorite Videos
1.8M views



Would I Lie to You? - S11 E08 (NEW WILTY 19th January
David Mitchell
Recommended for you
New



Actor Replacements That Totally Ruined The Show
Looper
3M views



Inside Matthew Perry's Tragic Real Life Story
Nicki Swift
952K views



Friends - ET On VH1: Behind The Friends Finale
Favorite Videos
1M views



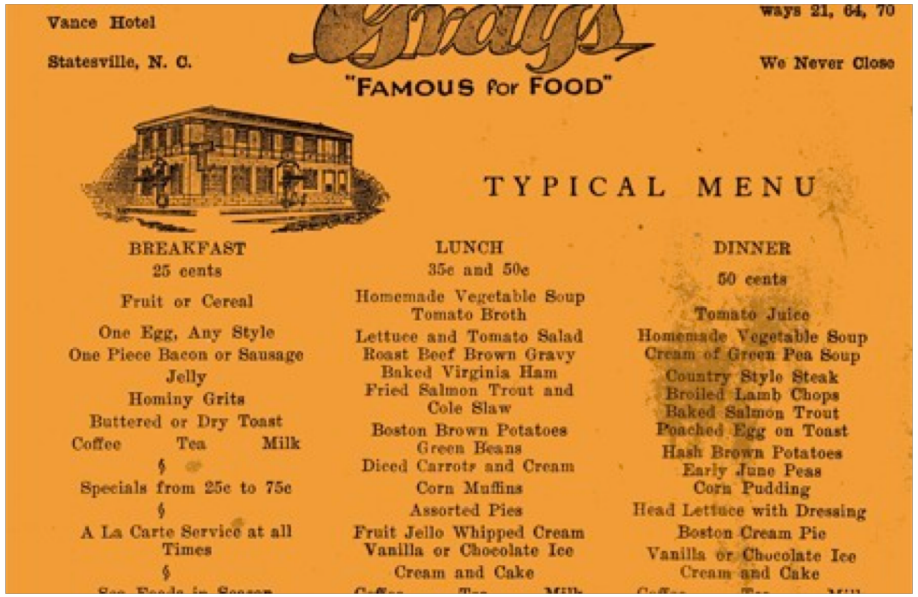
REACT S7 • E19
TEENS REACT TO WINDOWS 95
FBE
12M views

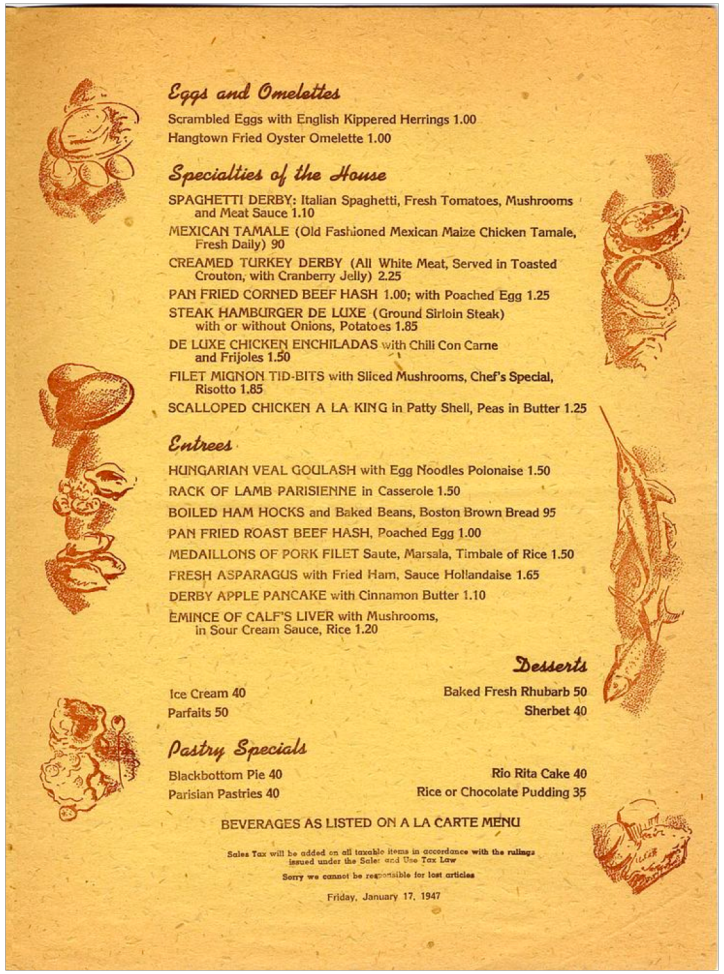


Friends - Ross and Monica's Cousin
Favorite Videos
8.6M views

Old school information layout







Symmetrical

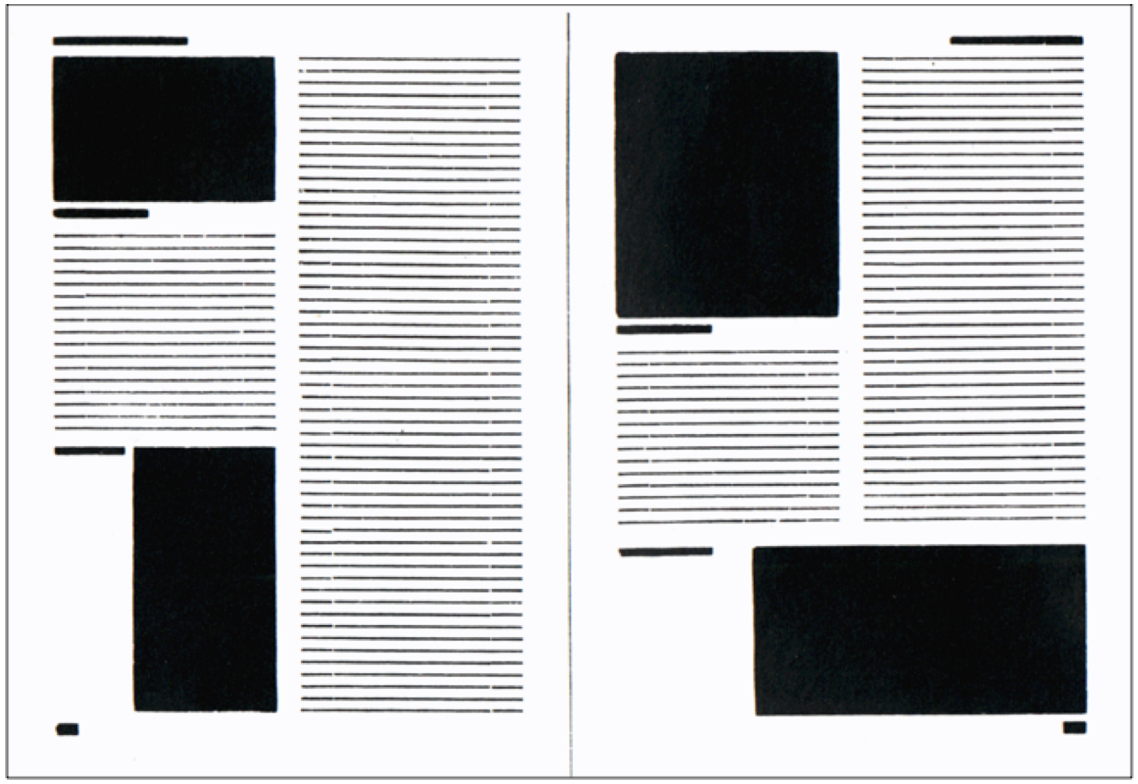
Before:

Symmetric Layout



Now:

Asymmetric Grids Layout

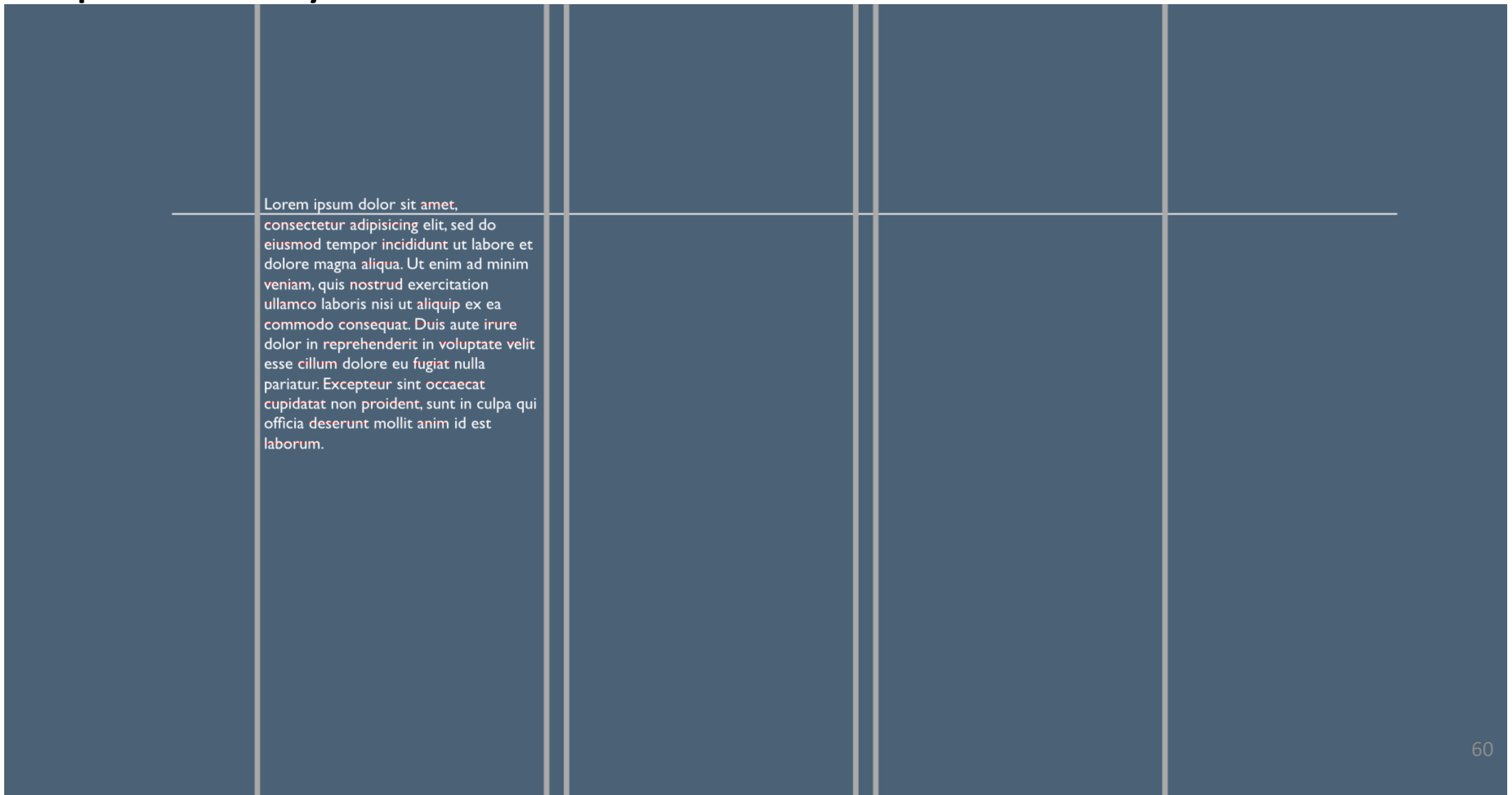


The Bauhaus School of Design





Typographer Jan Tschichold made layouts inspired by Bauhaus



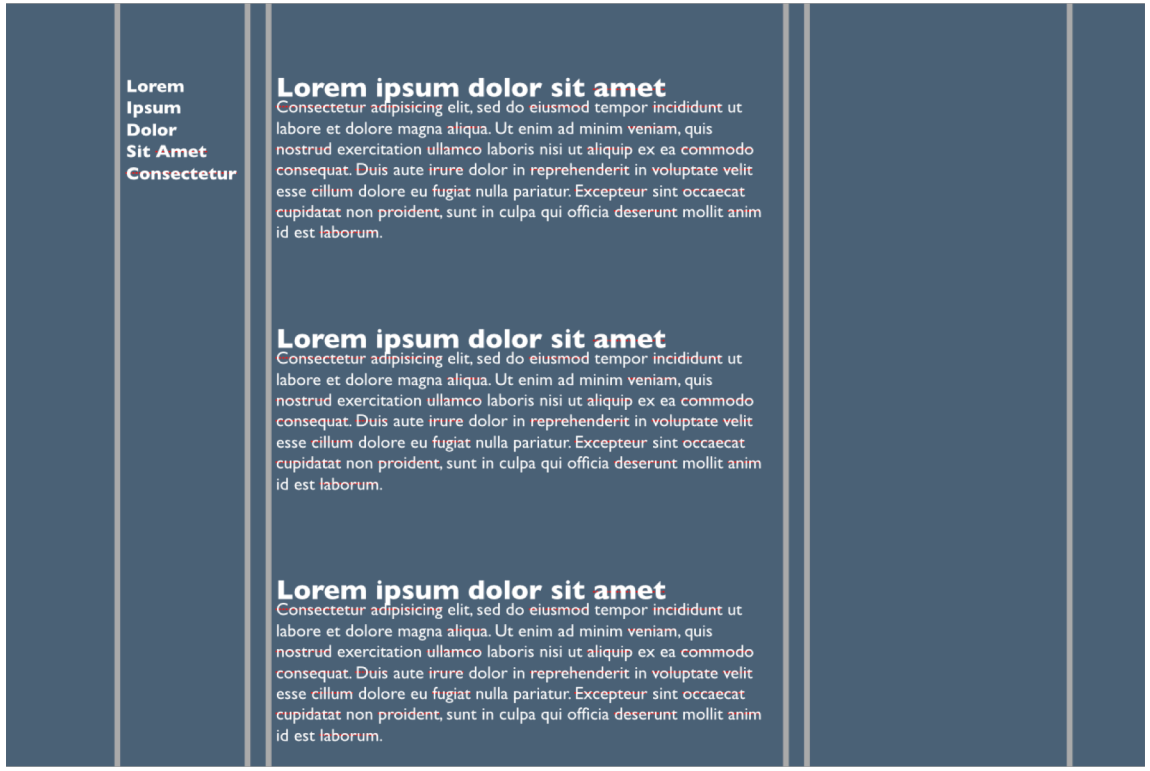
You can convey importance of elements **within the grid**



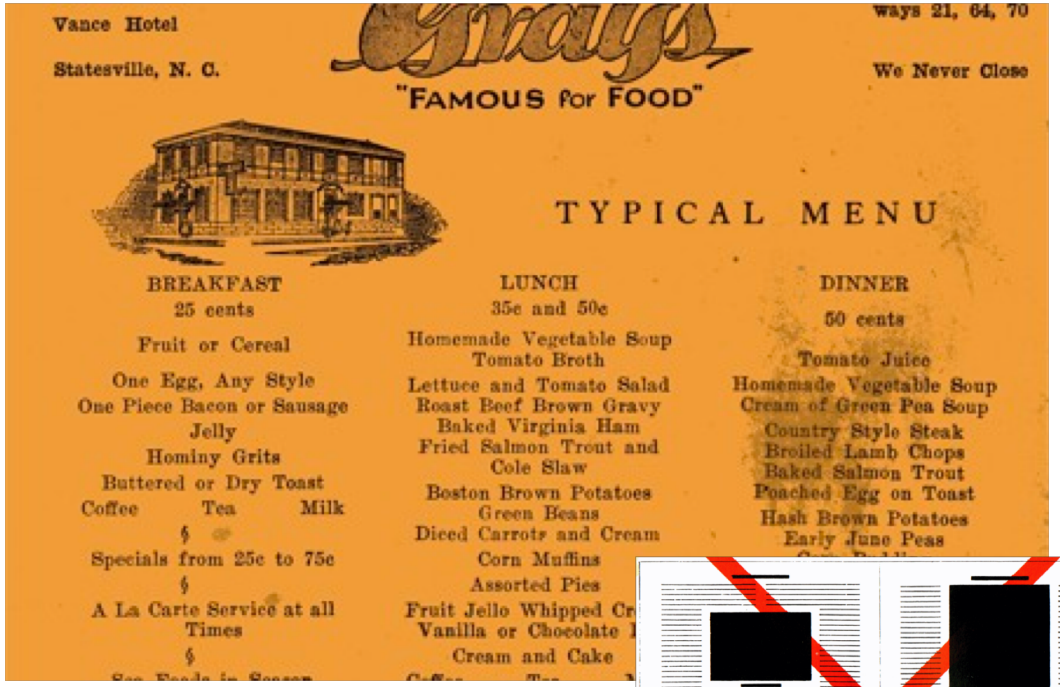


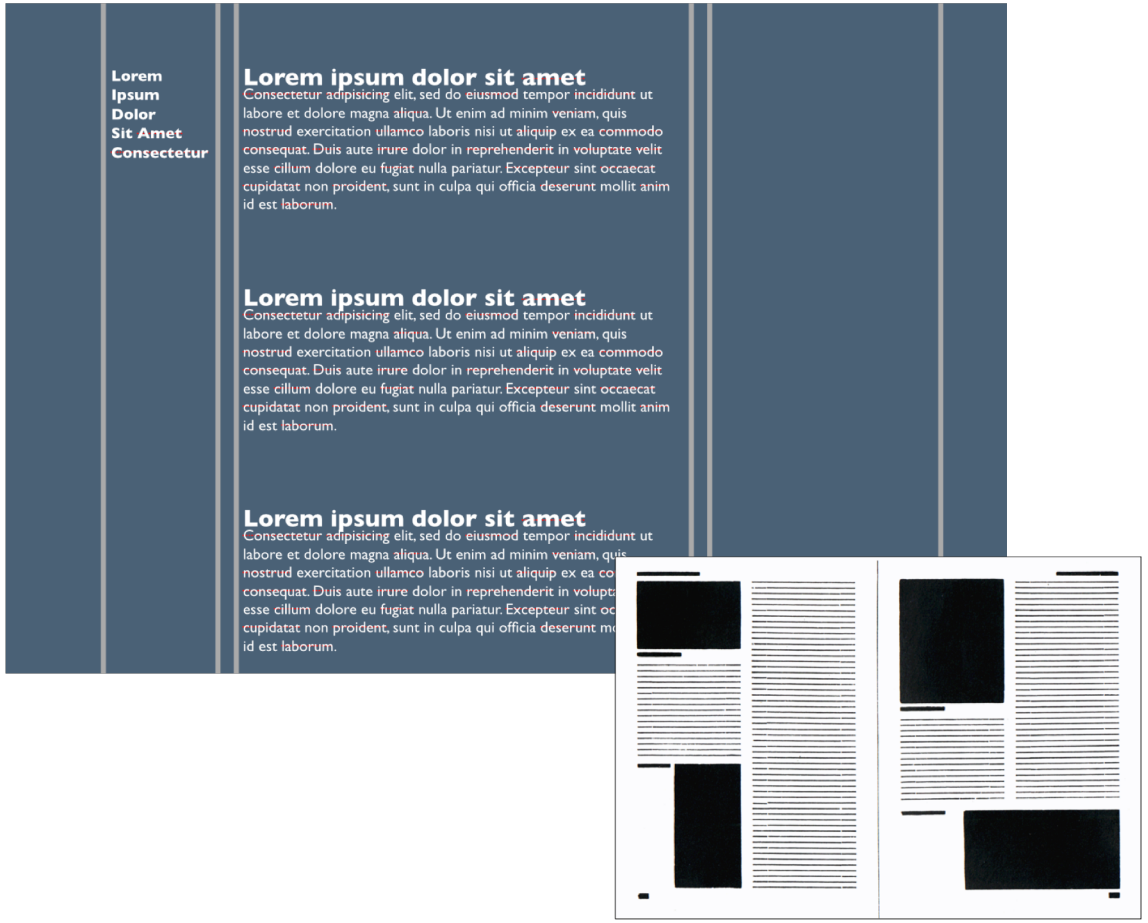
You can also convey importance by **changing the grid.**





Not all the ideas of the Bauhaus school are new.





But there is freedom from the symmetric layout.

Twitter Bootstrap

An implementation of grid layout

How many **columns** do you see?

Columbia University
@Columbia

"The best education is one that prepares you for your own venture into the unknown." - Lee C. Bollinger, Columbia University President

New York, New York

columbia.edu

Joined February 2011

Tweet to Columbia University

4 Followers you know

2,754 Photos and videos

Tweets | Tweets & replies | Media

Columbia University @Columbia · 39m
Groundbreaking. Beautiful. Monumental. Posing Modernity: The Black Model from Manet and Matisse to Today is closing soon. Come now, it's free! @ColumbiaSOA #arts #Harlem ow.ly/Q8rM30nssdJ



Who to follow · Refresh · View all

Princeton University … Follow

Yale University @Yale Follow

Harvard University @H… Follow

Find people you know
Import your contacts from Gmail

Connect other address books

Trends for you · Change

#SDLive
37.9K Tweets

#Sabres
2,607 Tweets

James Ingram
R&B legend James Ingram has died at age 66

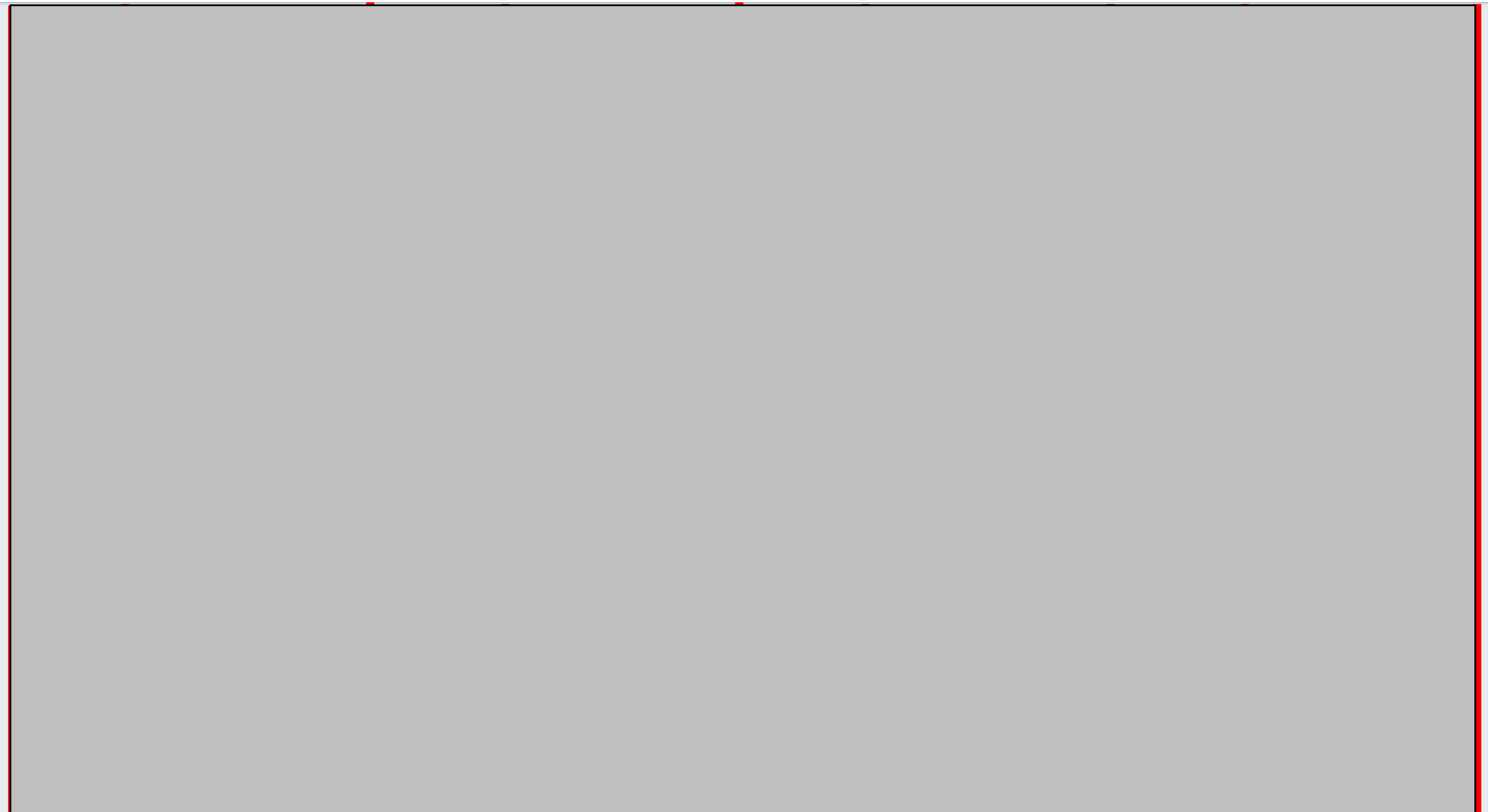
Rusev
3,867 Tweets

#SBGC

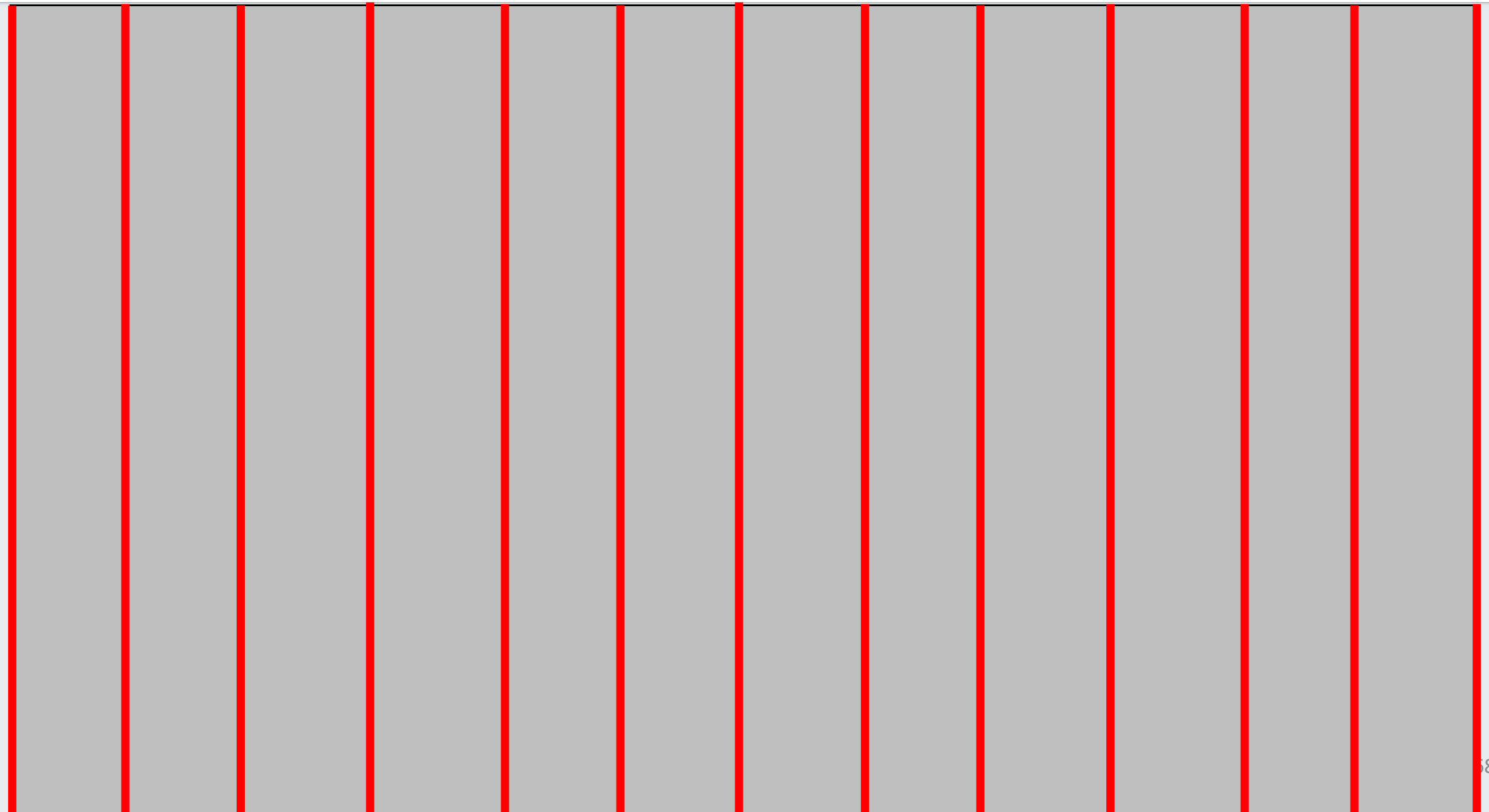
How wide is the middle (compared to the sides)?



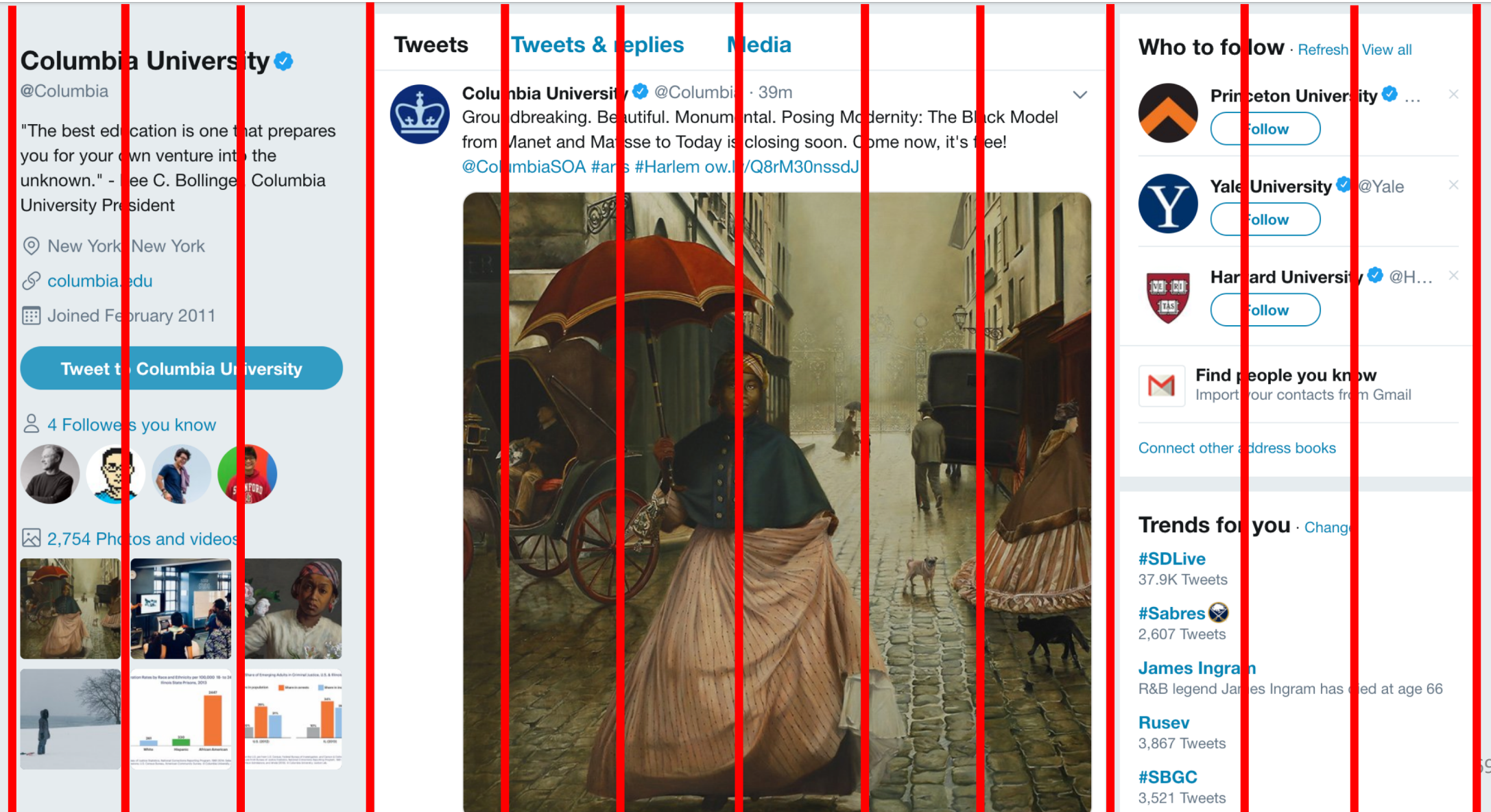
All content goes in the main container



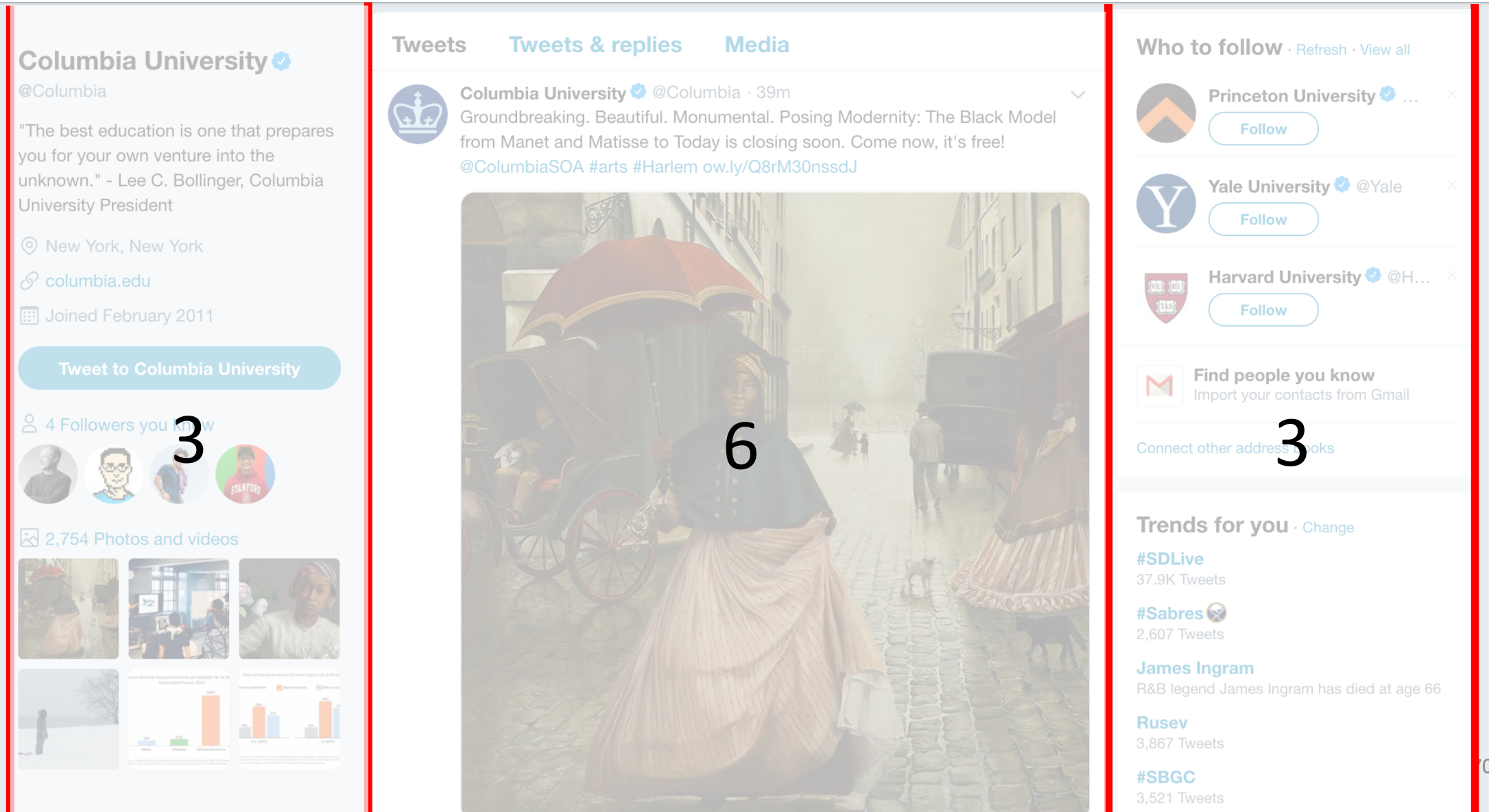
The container is divided into **12 columns**



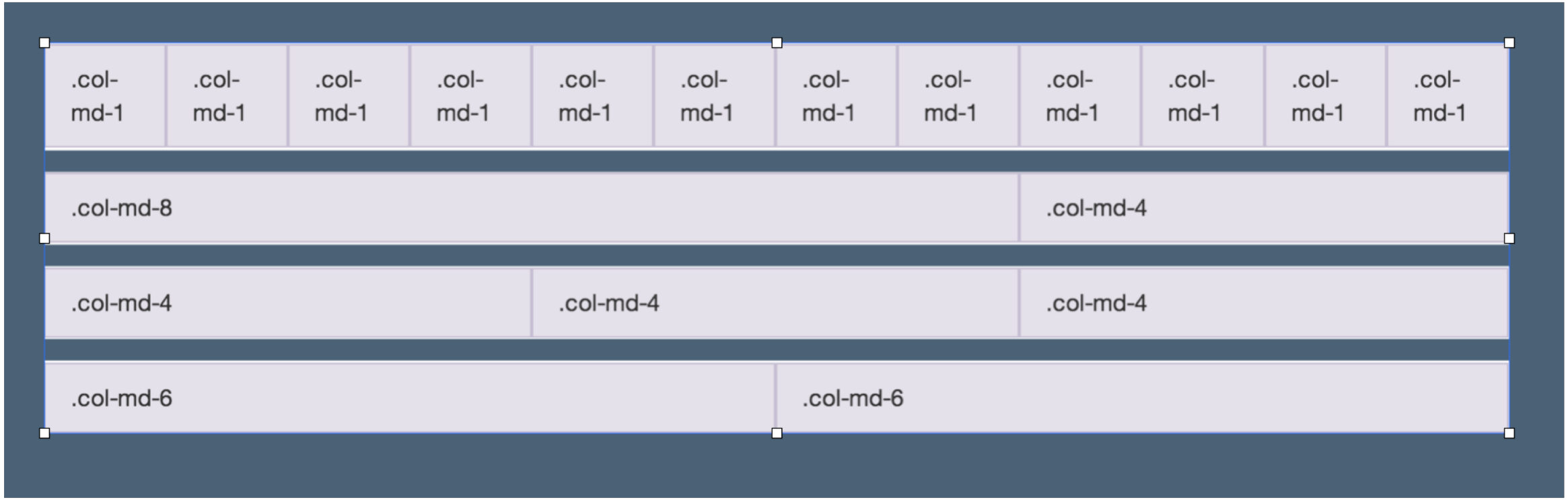
You get to apportion those 12 columns



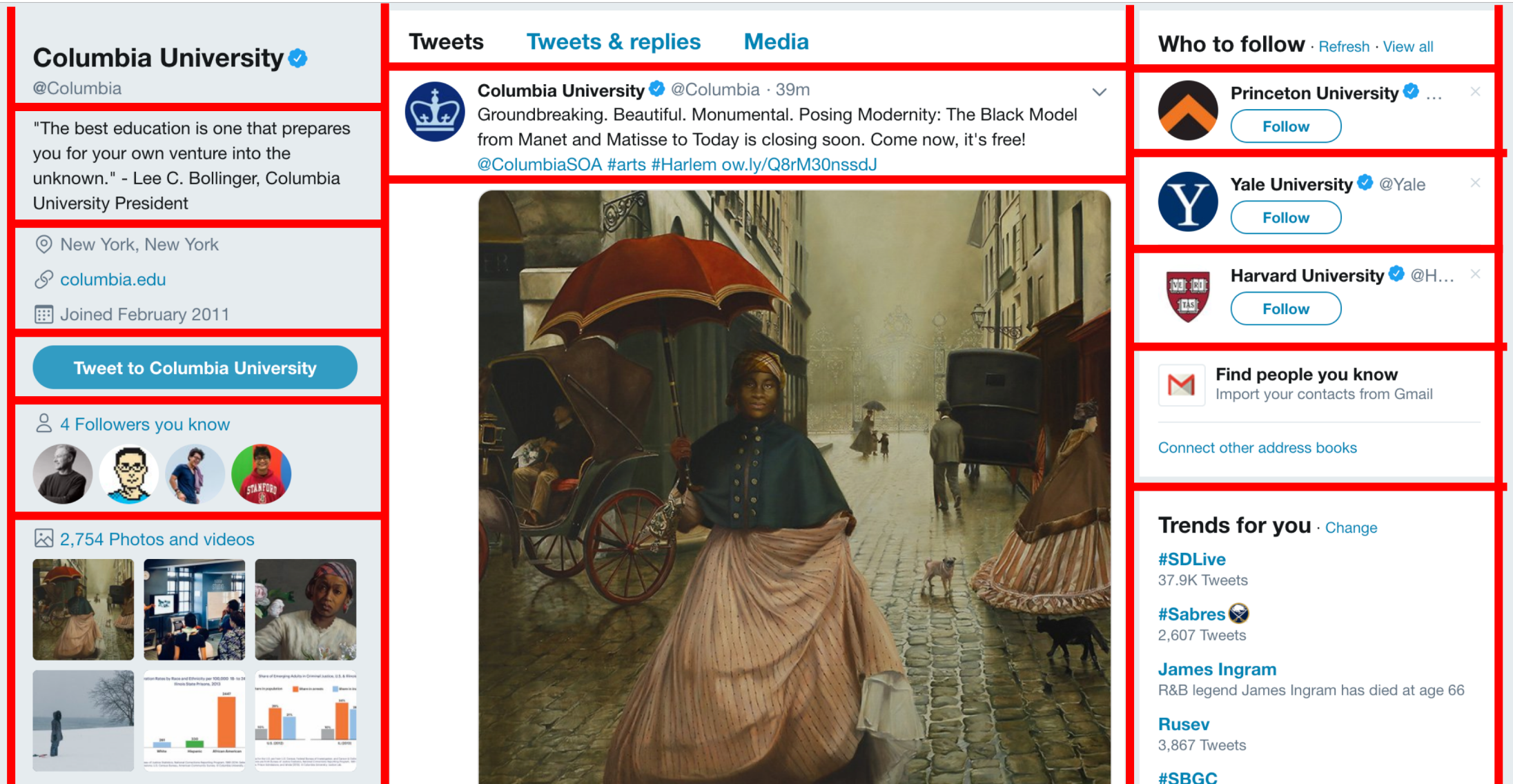
12 columns: split in 3, 6, 3



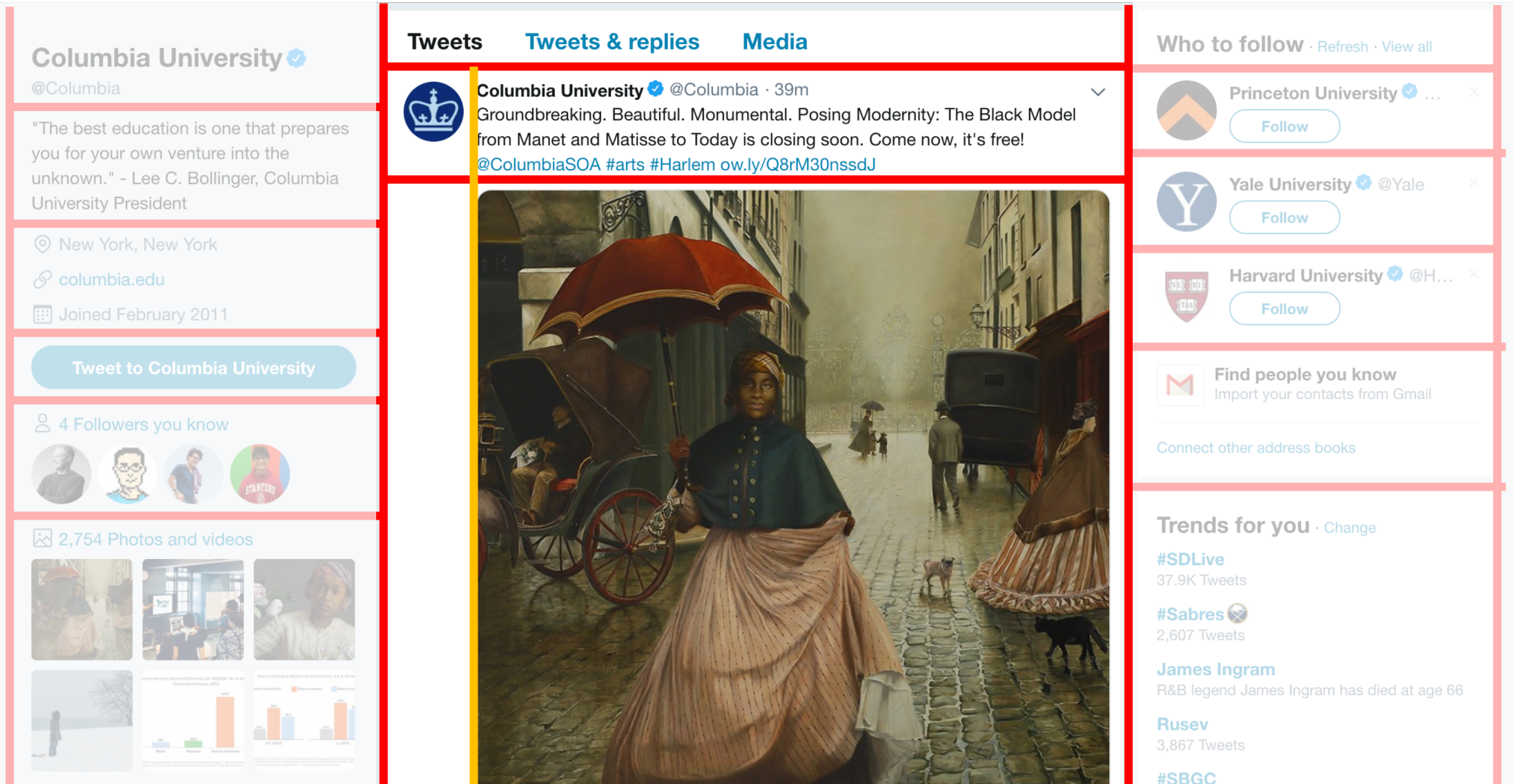
Bootstrap grid. How many columns?



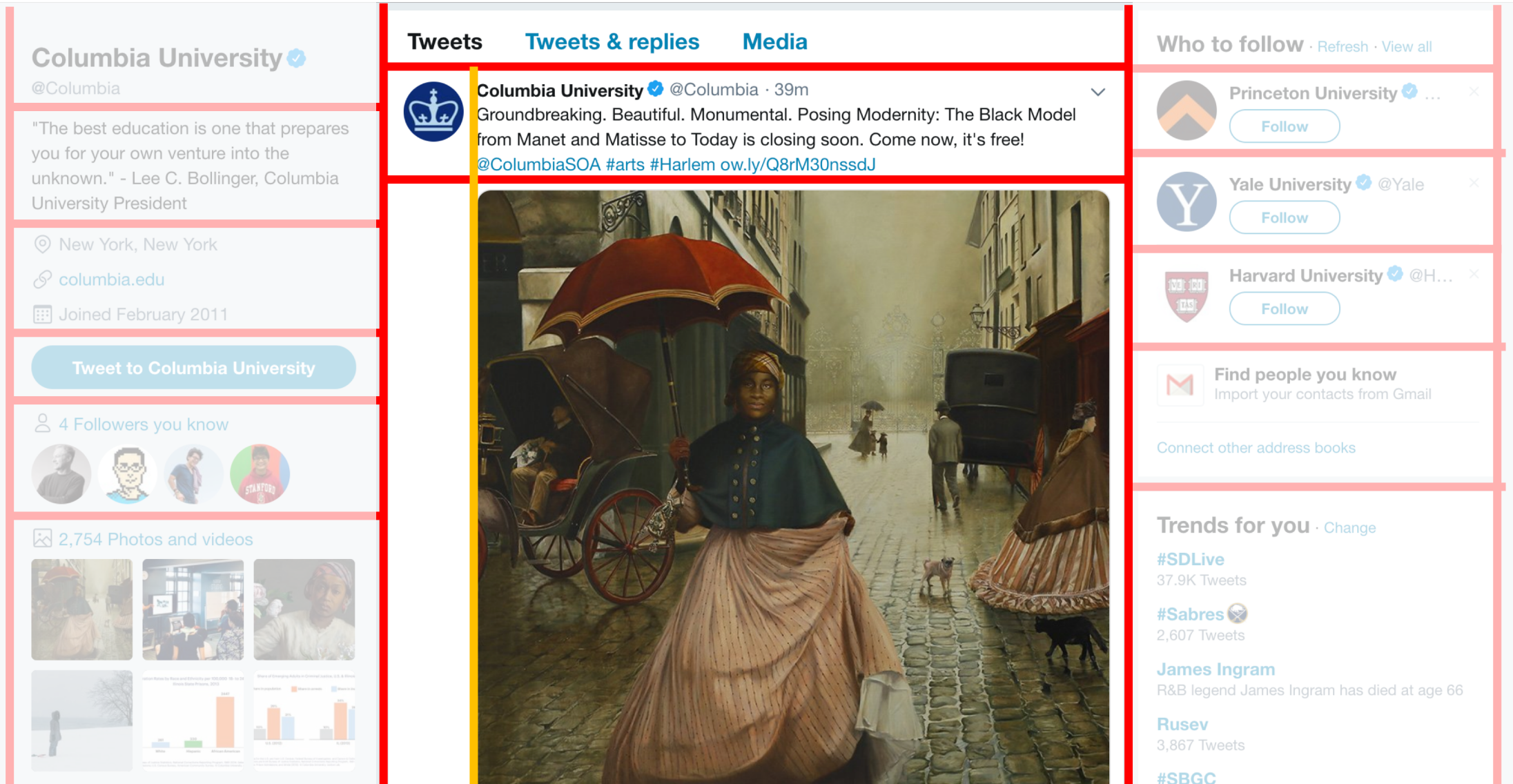
Do the columns have the same rows?



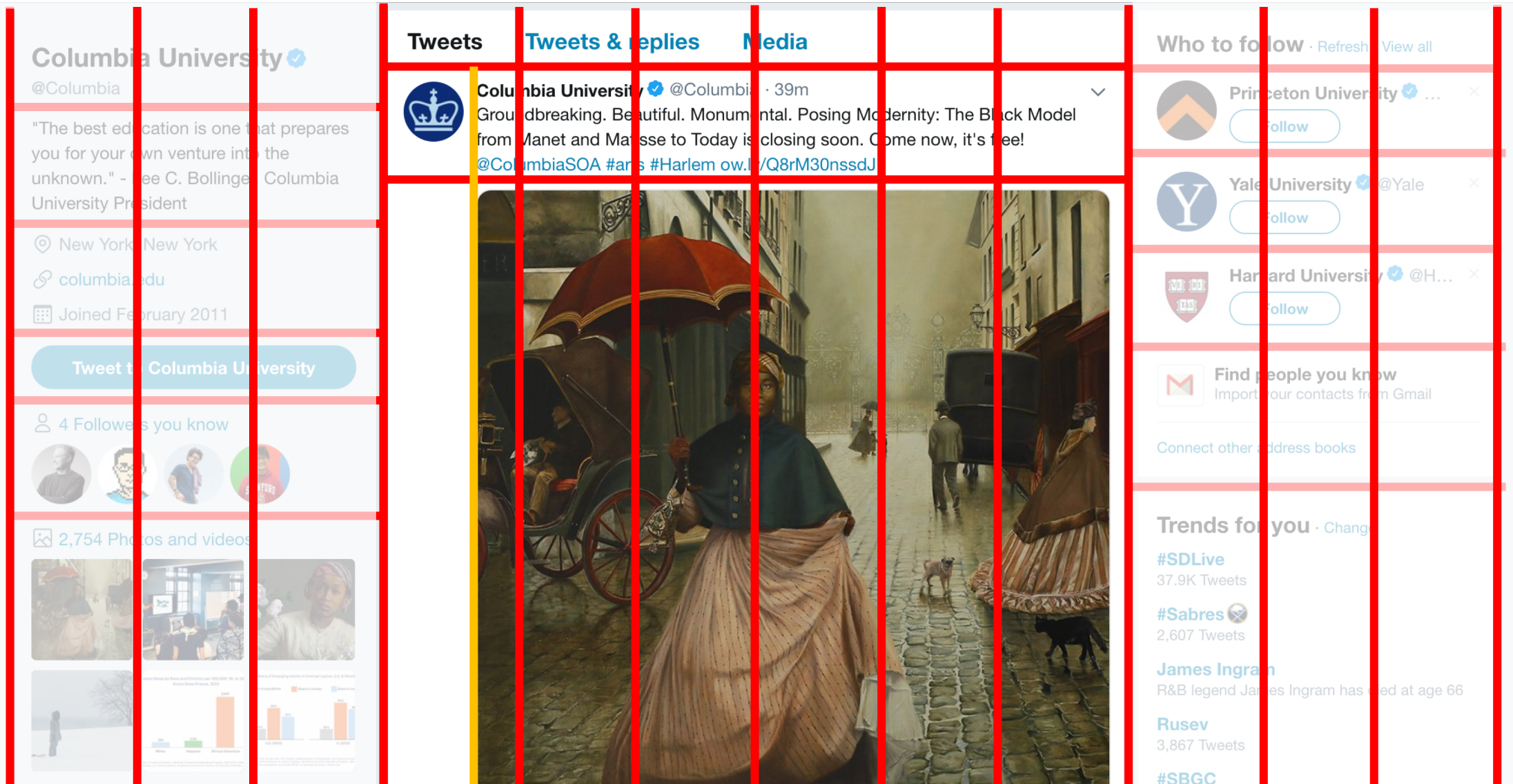
Is there alignment within the column?



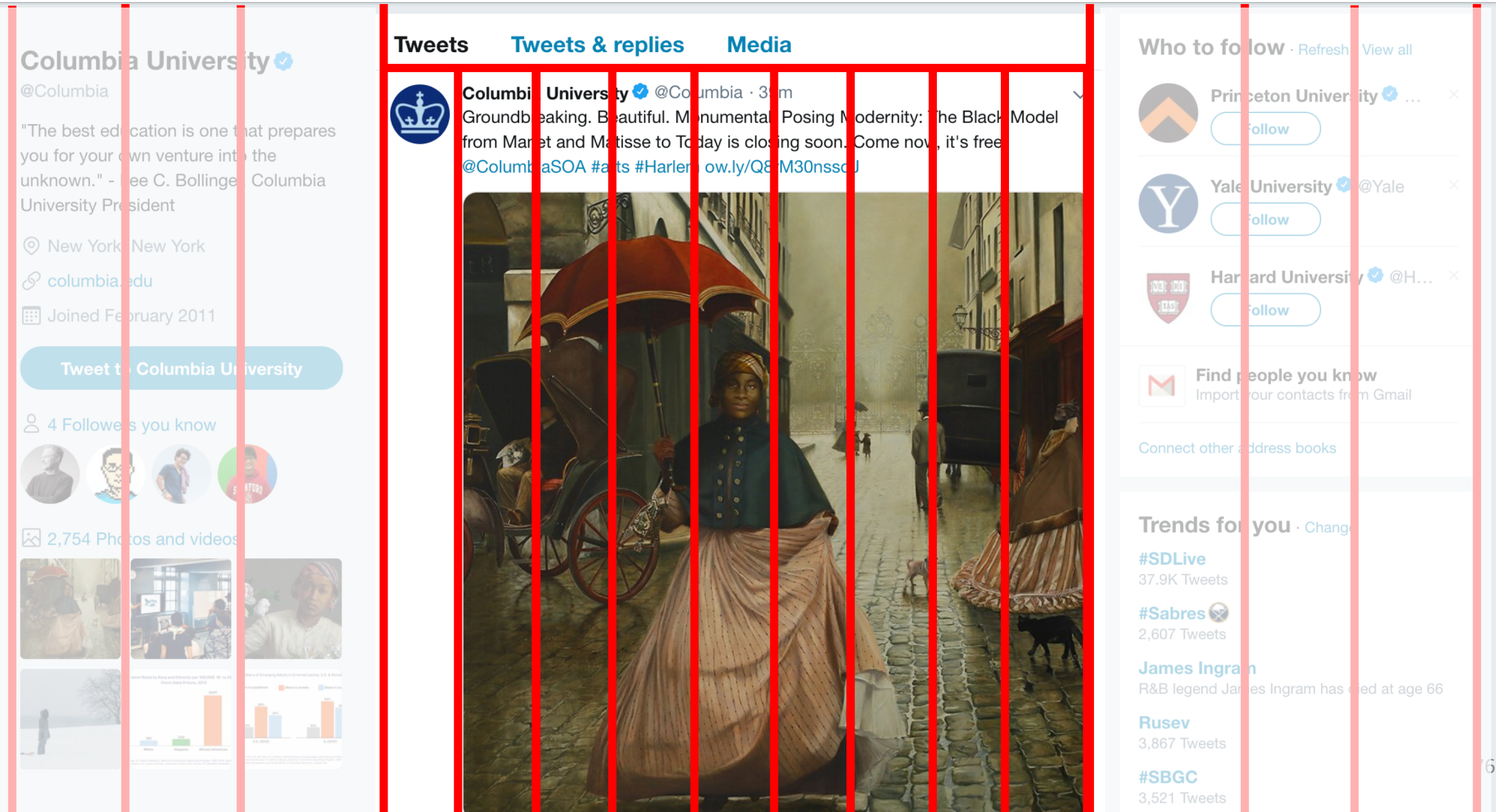
Can you use the original grid?



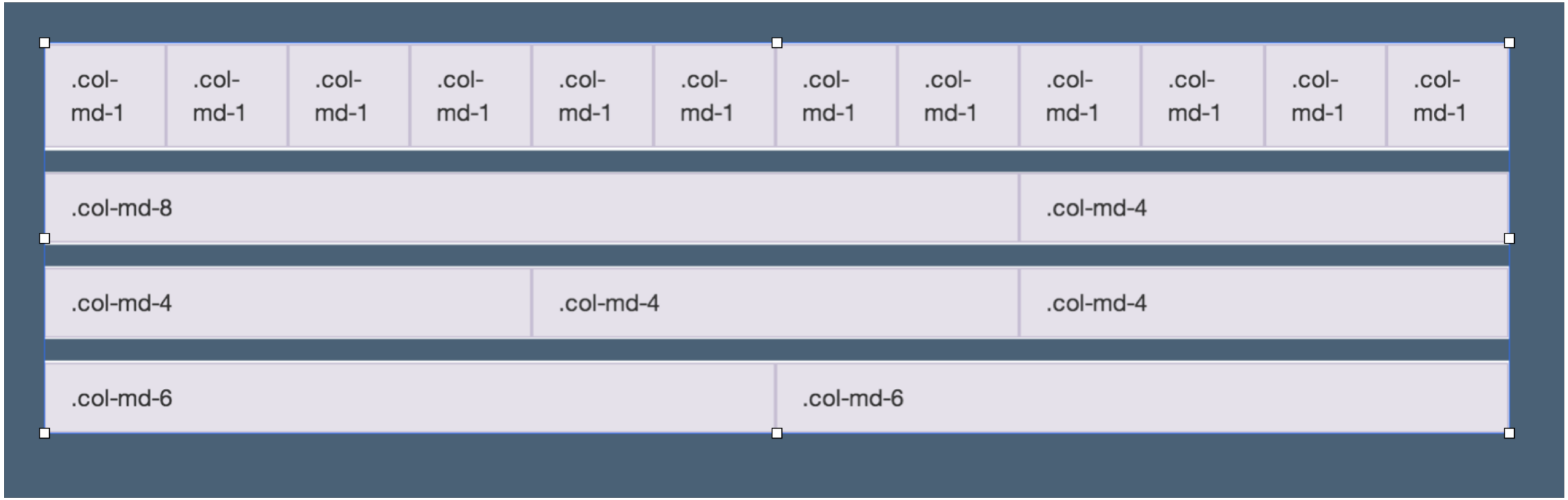
Can you use the original grid? **NO**



Grids within grids!!!



Bootstrap grid. Apportion 12 columns.



What's happening?

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Moments · View all

Isaiah Thomas becomes a meme...
NBA · 2 hours ago



This bot-generated Coachella...
Haha · 3 hours ago



People are going crazy over this...
Business Insider · 5 hours ago



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Sign up now to get your own personalized timeline!

Sign up

Featured Tweets

General News ›



Sports commentary ›



World News ›



Add Bootstrap to your HTML

CSS & JS in <head> tag, before your own CSS

```
<!doctype html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Test</title>

    <!-- Add Boostrap -->
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-alpha.6/css/bootstrap.min.css" integ
    <script src="https://code.jquery.com/jquery-3.1.1.slim.min.js" integrity="sha384-A7FZj7v+d/sdmMqp/nOQwliLvUsJfDHW-
    <script src="https://cdnjs.cloudflare.com/ajax/libs/tether/1.4.0/js/tether.min.js" integrity="sha384-DztdAPBWPRXSA
    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-alpha.6/js/bootstrap.min.js" integrity="sha384-vBWWz

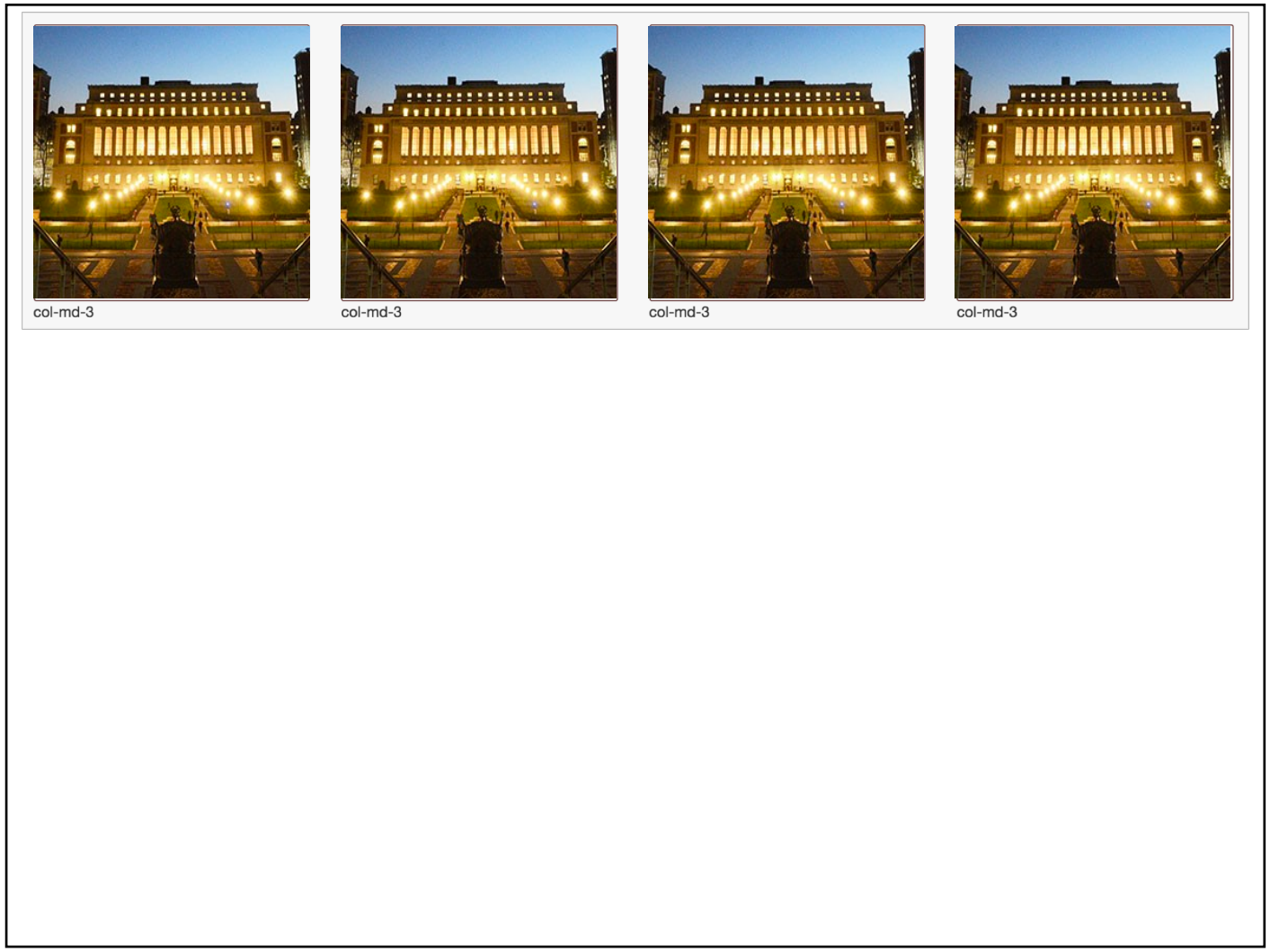
    <!-- Add our own CSS and JS -->

    <link href="components/main.css" rel="stylesheet" type="text/css">

```

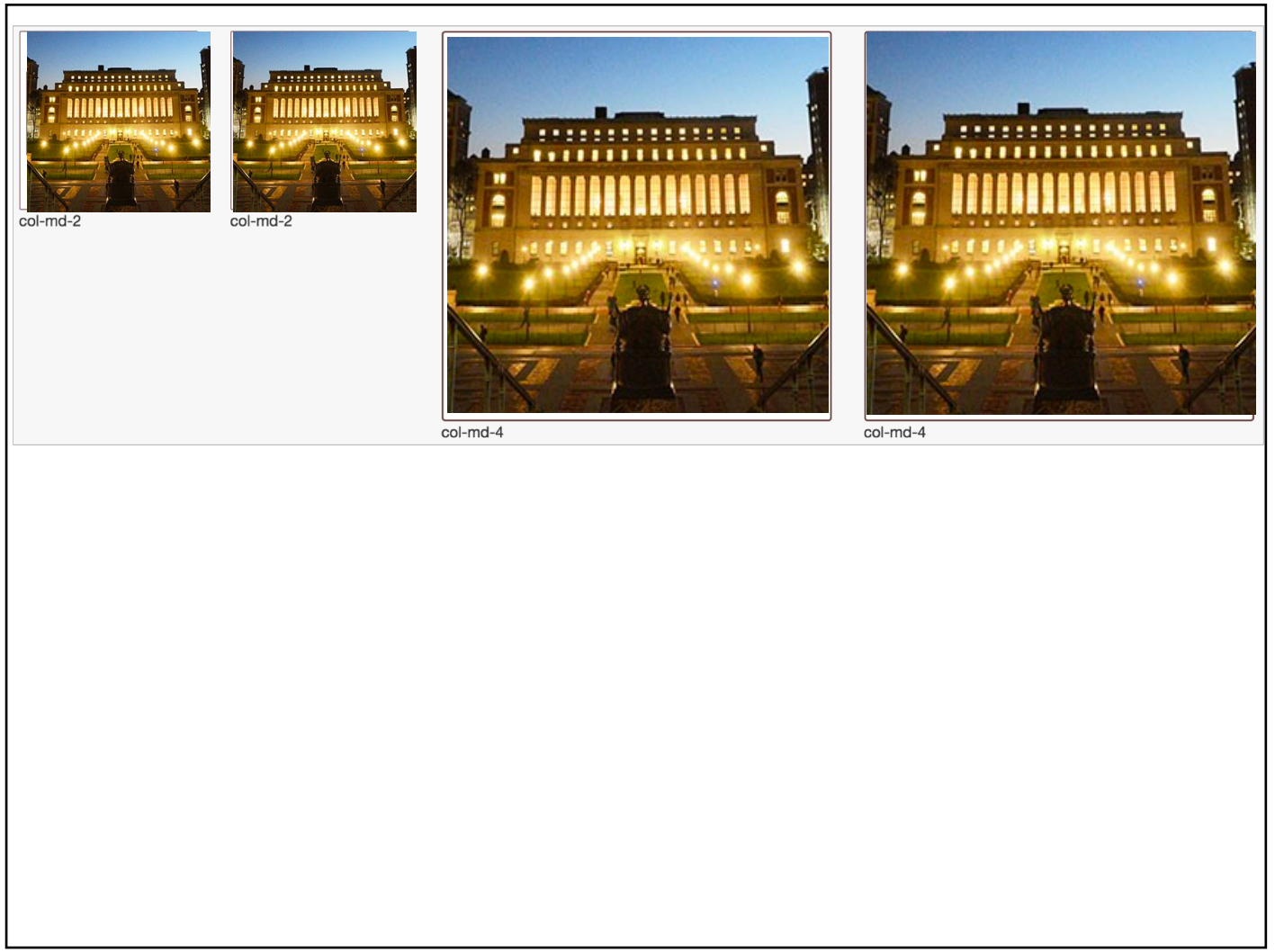
1. What will this produce?

```
<div class=“container">
  <div class="row">
    <div class=“col-md-3”>
      <img src="./columbia.jpg">
    </div>
    <div class=“col-md-3”>
      <img src="./columbia.jpg">
    </div>
    <div class=“col-md-3”>
      <img src="./columbia.jpg">
    </div>
    <div class=“col-md-3”>
      <img src="./columbia.jpg">
    </div>
  </div>
</div>
```



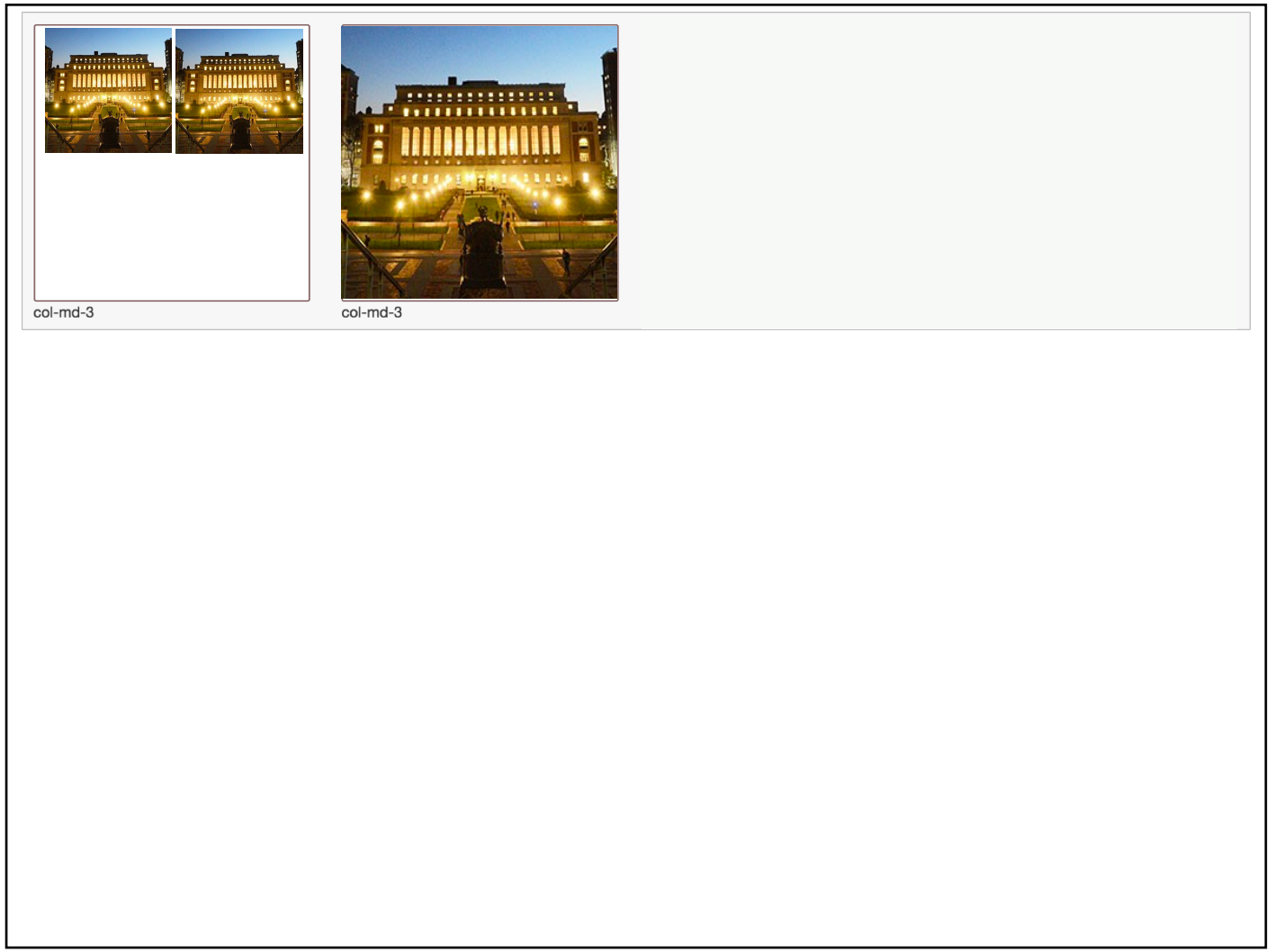
2. What will this produce?

```
<div class=“container">
  <div class="row">
    <div class=“col-md-2”>
      <img src="./columbia.jpg">
    </div>
    <div class=“col-md-2”>
      <img src="./columbia.jpg">
    </div>
    <div class=“col-md-4”>
      <img src="./columbia.jpg">
    </div>
    <div class=“col-md-4”>
      <img src="./columbia.jpg">
    </div>
  </div>
</div>
```

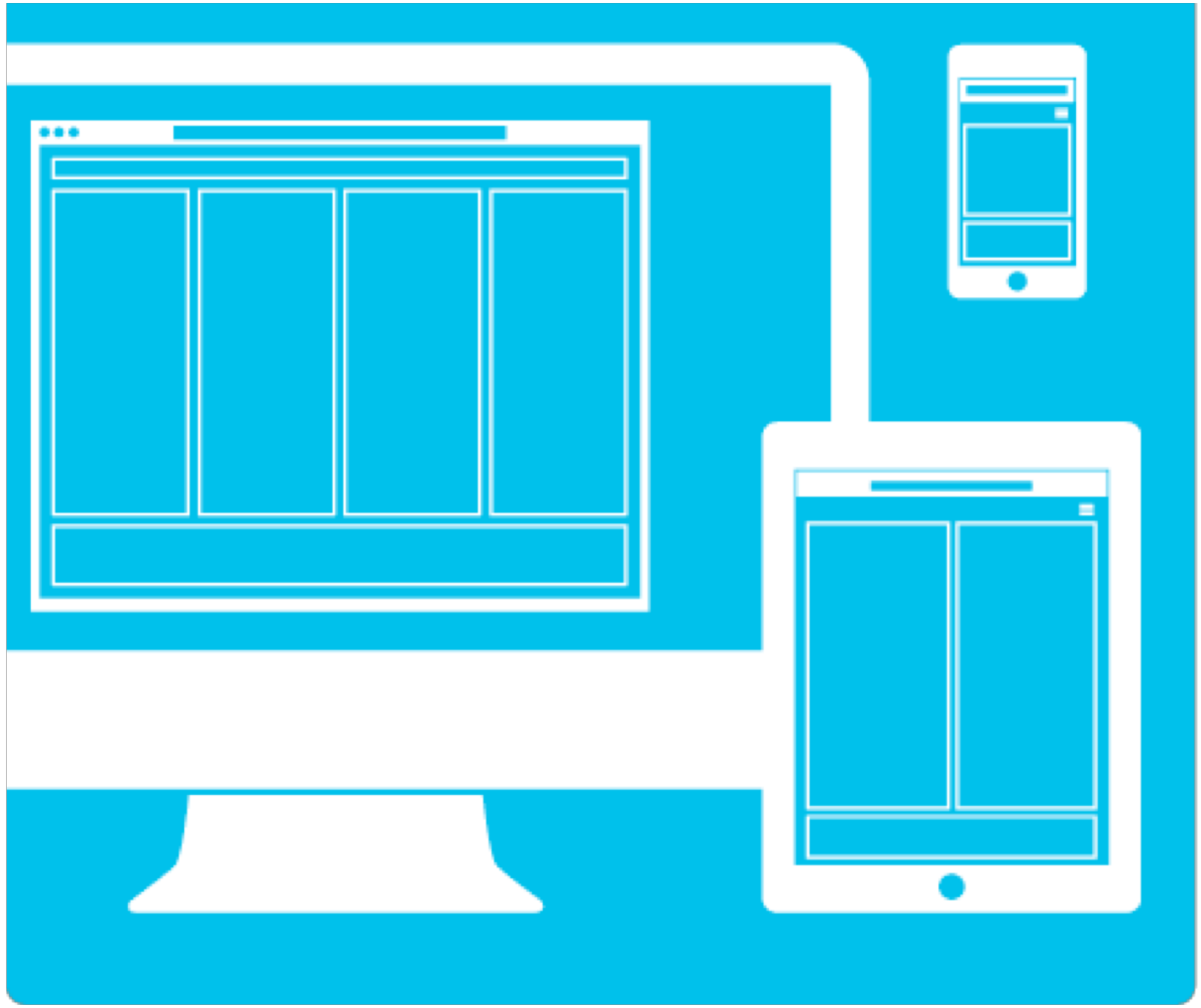


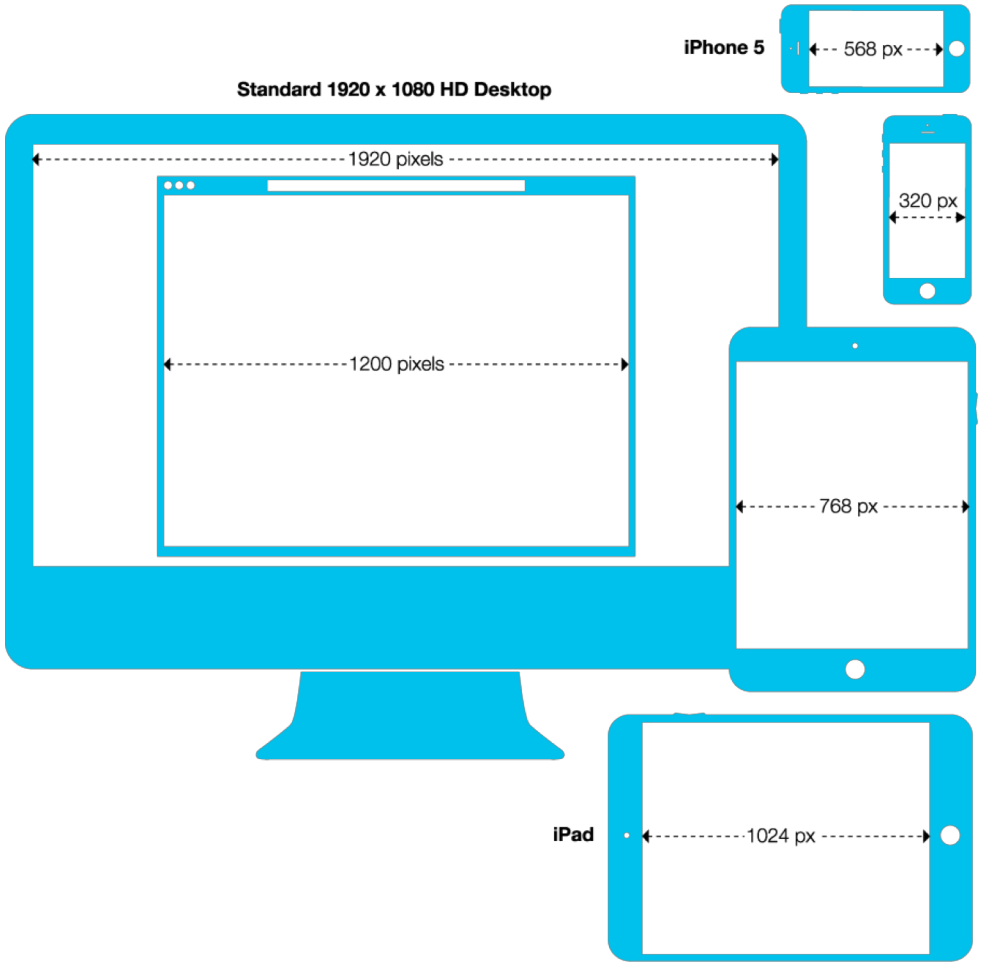
3. What will this produce?

```
<div class=“container">
  <div class="row">
    <div class=“col-md-3”>
      <div class="row">
        <div class="col-md-6">
            <img src="./cu.jpg">
        </div>
        <div class="col-md-6">
            <img src="./cu.jpg">
        </div>
      </div>
    </div>
    <div class=“col-md-3”>
      <img src="./cu.jpg">
    </div>
    <div class=“col-md-6”>
    </div>
  </div>
</div>
```

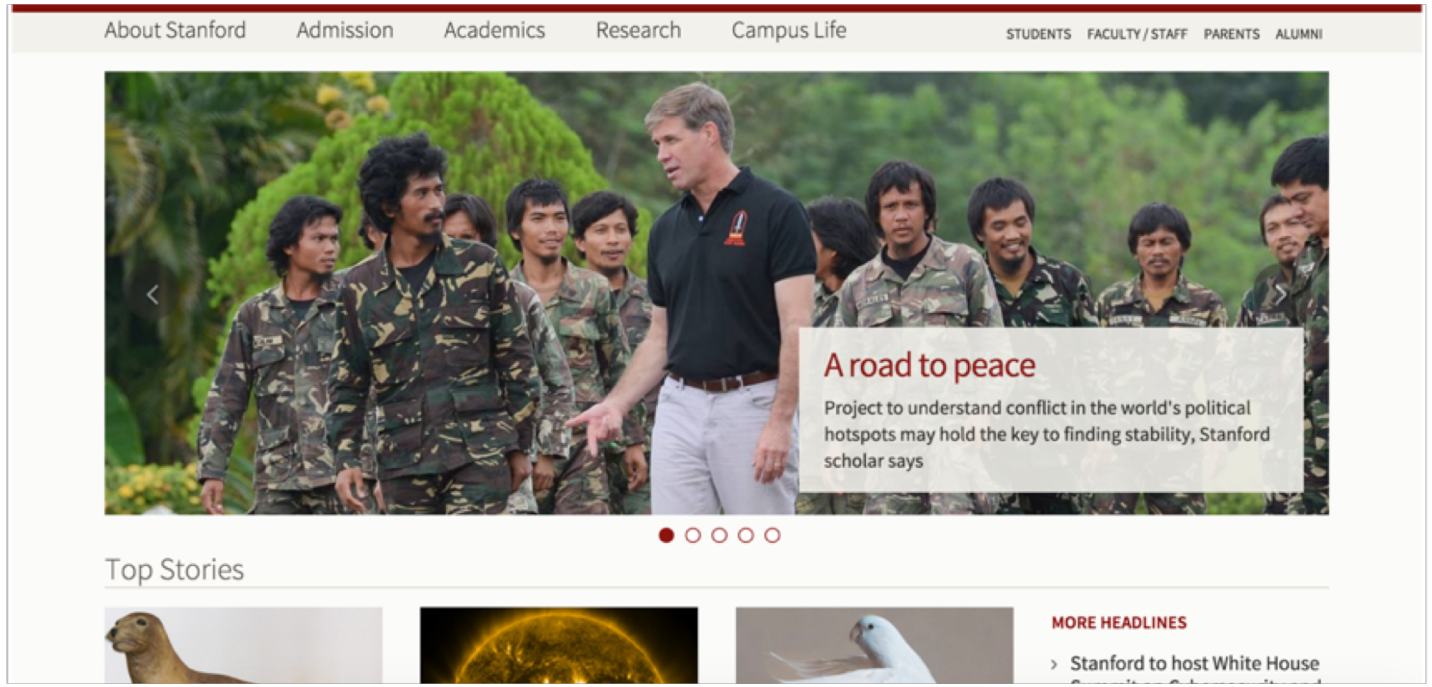


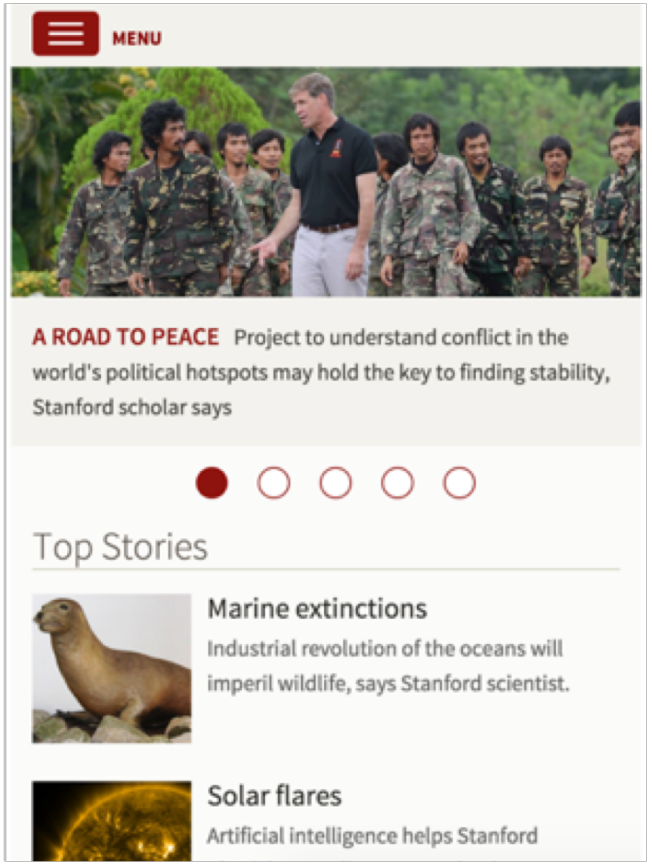
Bootstrap solves another problem





Responsive Design





Four Device sizes



Desktops

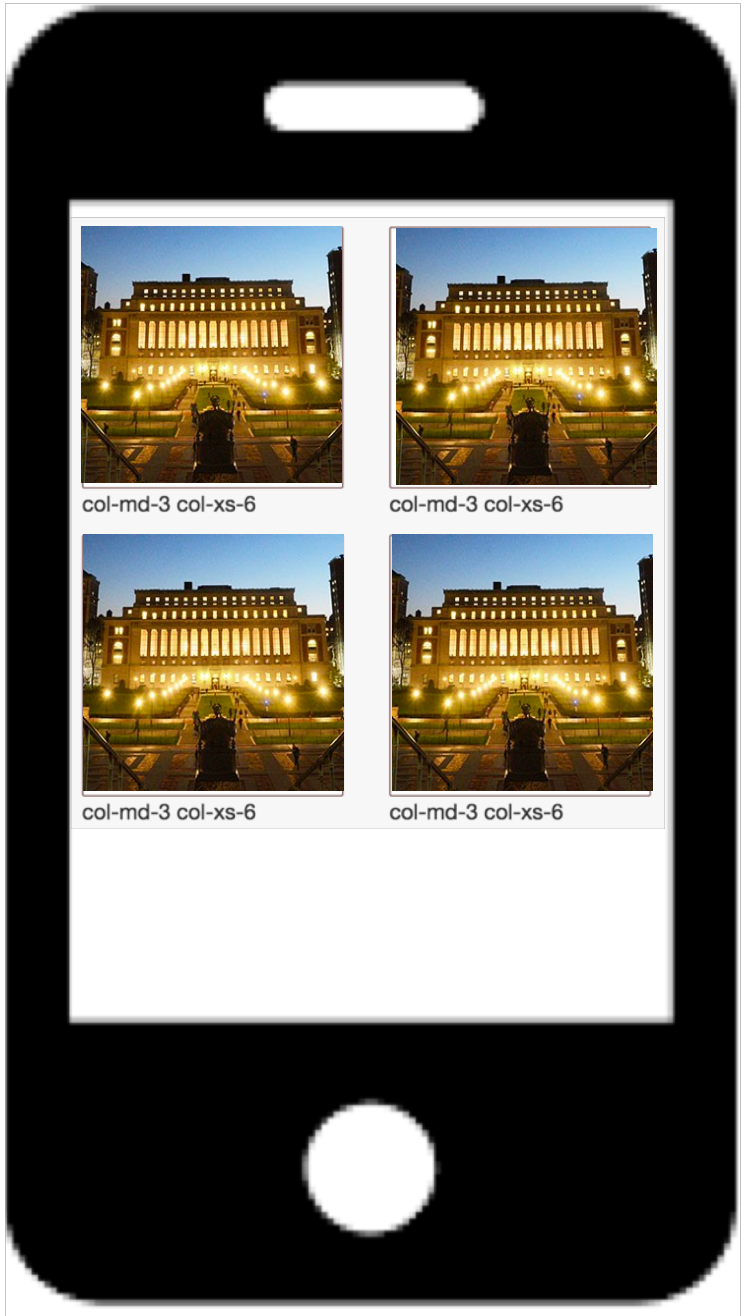
Laptops

Tablets

Phones

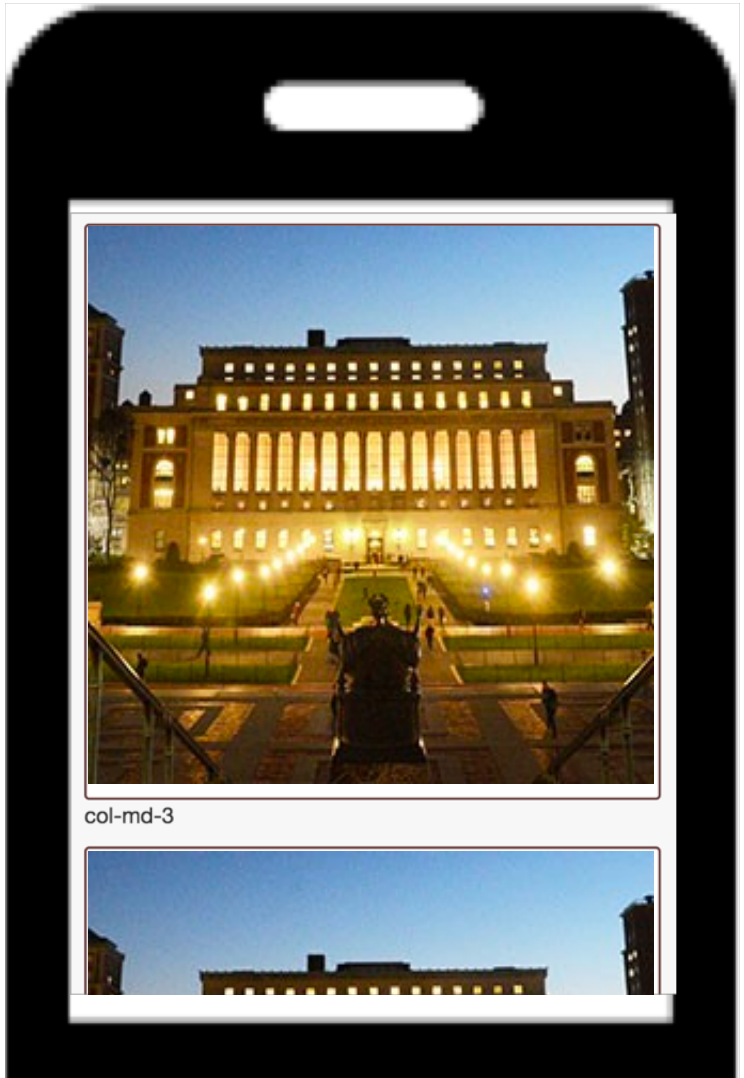
What will this do on a phone?

```
<div class="row">
  <div class="col-md-3 col-xs-6">
    <img src="./columbia.jpg">
  </div>
  <div class="col-md-3 col-xs-6">
    <img src ="./columbia.jpg">
  </div>
  <div class="col-md-3 col-xs-6">
    <img src ="./columbia.jpg">
  </div>
  <div class="col-md-3 col-xs-6">
    <img src ="./columbia.jpg">
  </div>
</div>
```

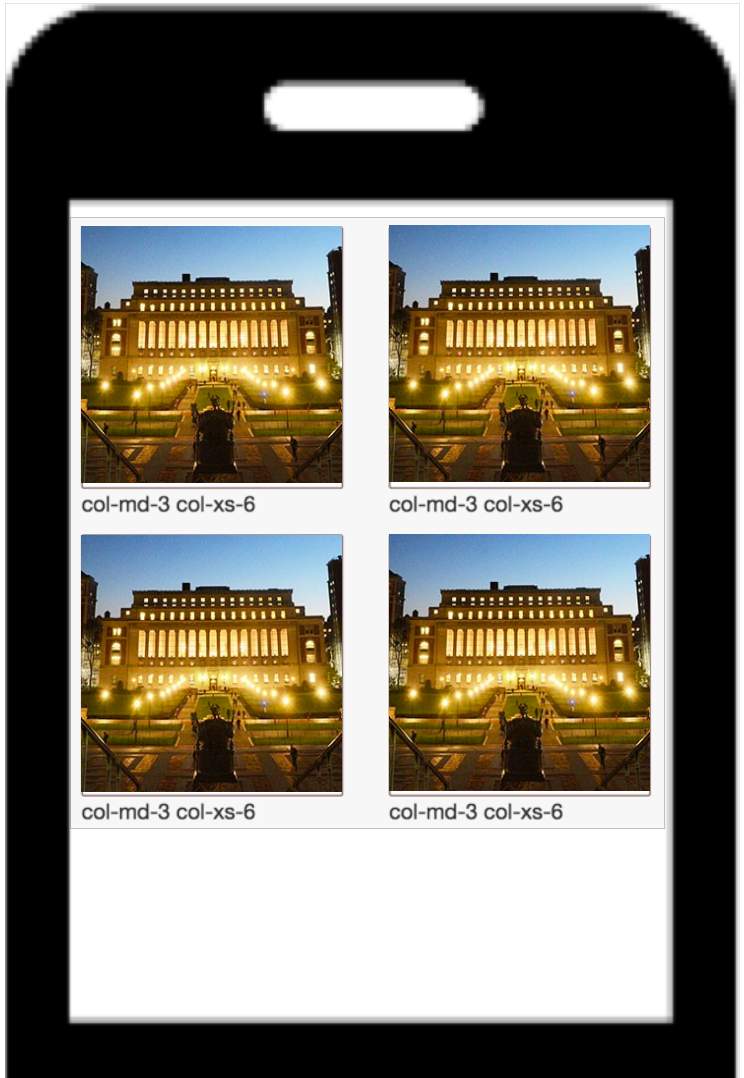


What's the difference in layout?

`class="col-md-3"`



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

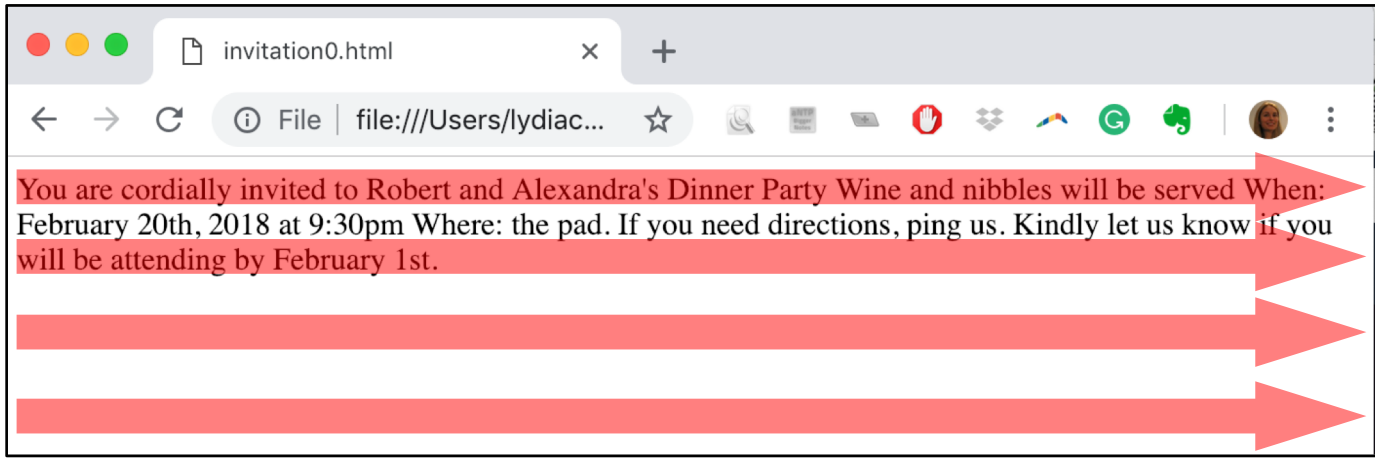


In summary…

Web Browsers are in charge of rendering HTML

invitation0.html

```
1  <html>
2      <body>
3
4          You are cordially invited to
5          Robert and Alexandra's Dinner Party
6          Wine and nibbles will be served
7
8          When: February 20th, 2019 at 9:30pm
9          Where: the pad. If you need directions, ping us.
10
11         Kindly let us know if you will be attending by February 1st.
12
13
14     </body>
15 </html>
```



Their default rendered is to do line-wrapping, with some elements breaking the line.

Iterative Style of Programming

helps you build a mental model of your code.

What's the **smallest** unit of progress I can make?

```
<html>
  <body>
    Hello world!
  </body>
</html>
```

Hello World!

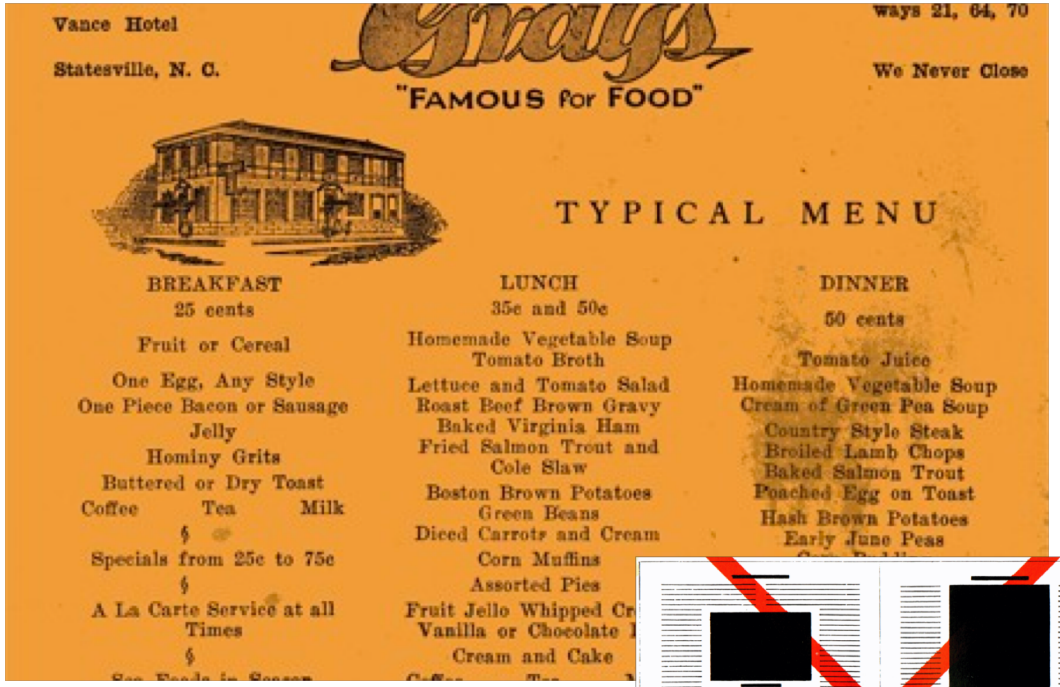


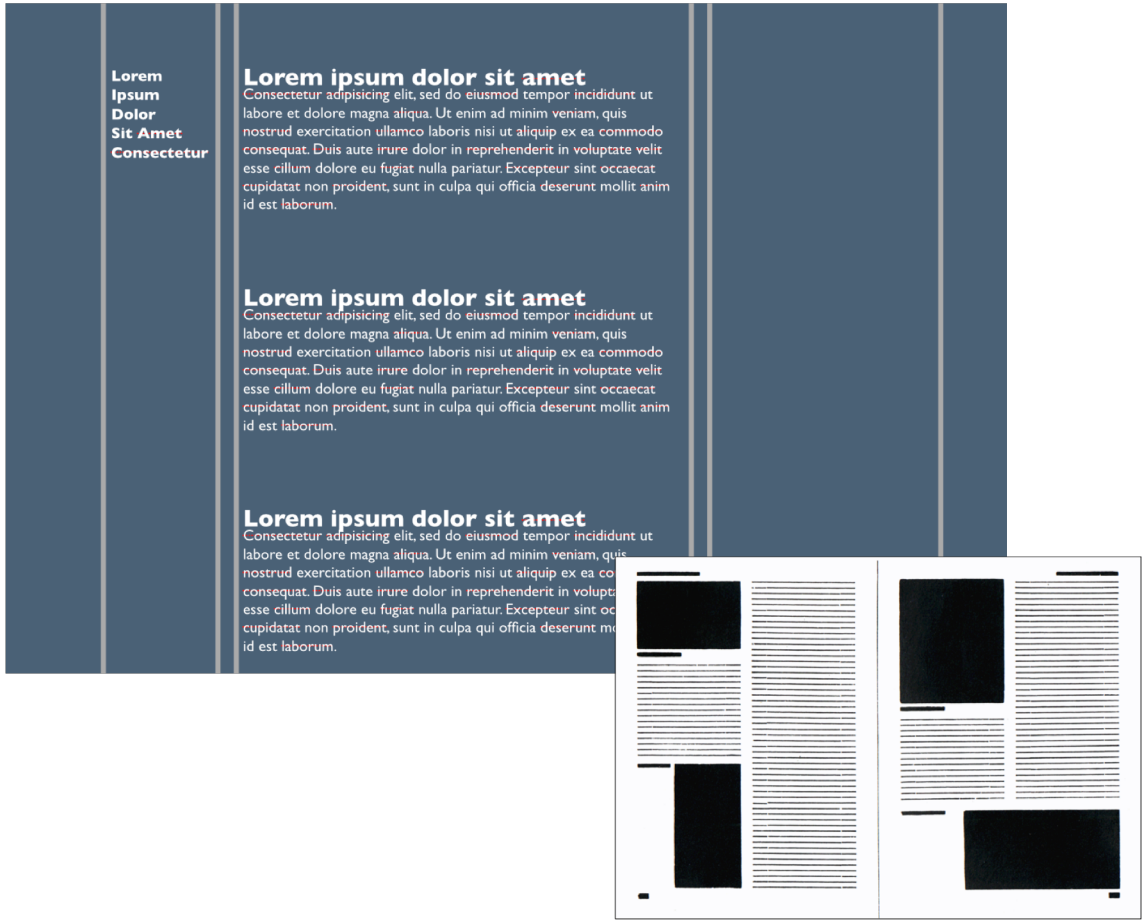
Does it look ok?

Grids are a layout help you convey importance.



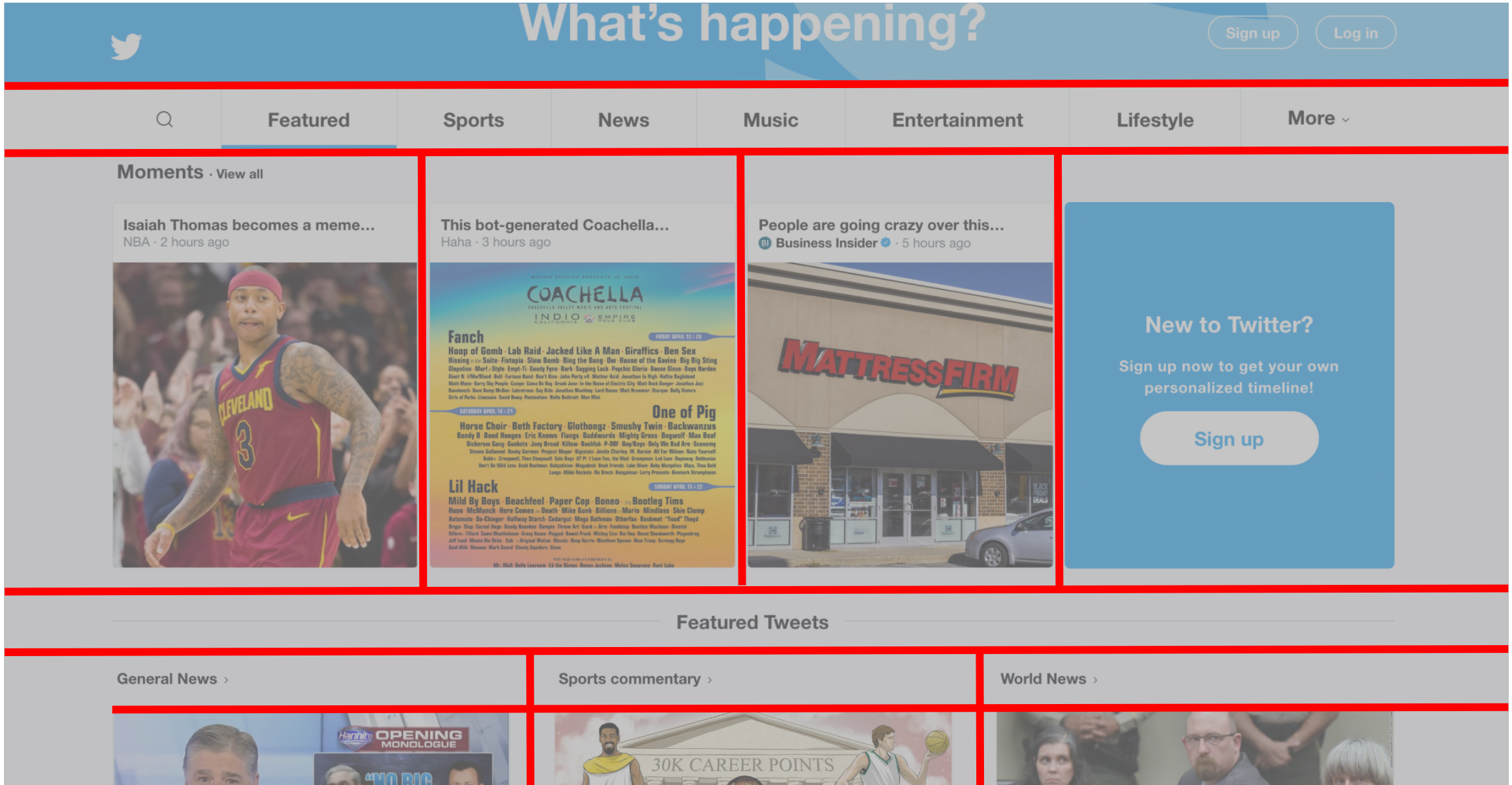
Not all the ideas of the Bauhaus school are new.



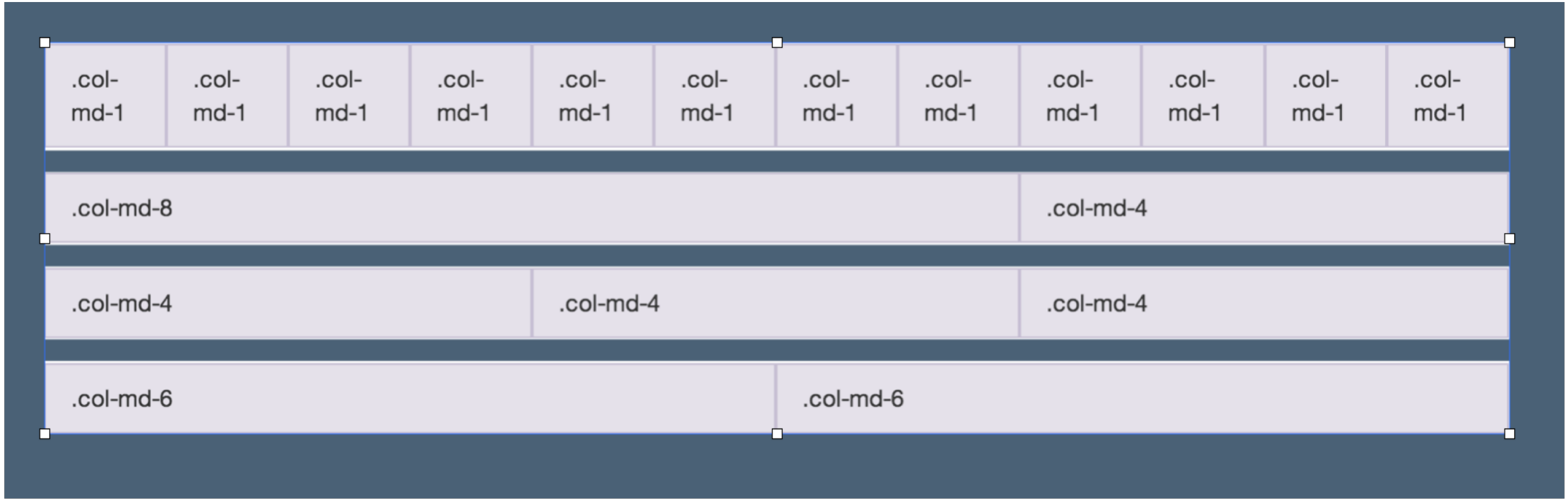


But there is freedom from the symmetric layout.

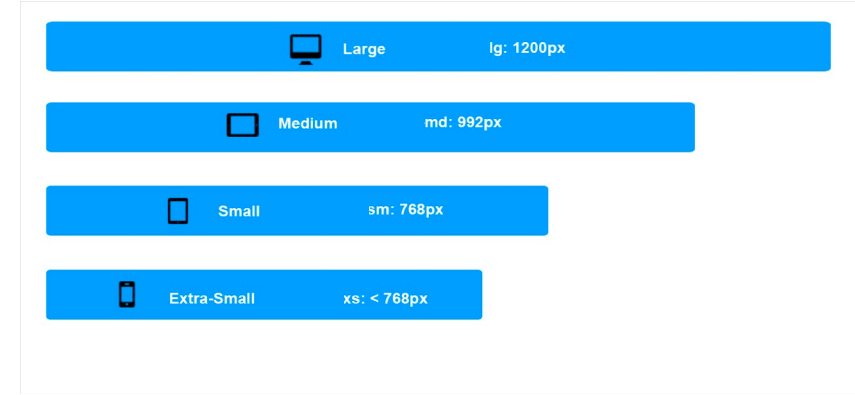
Twitter Bootstrap is a widely used grid system.

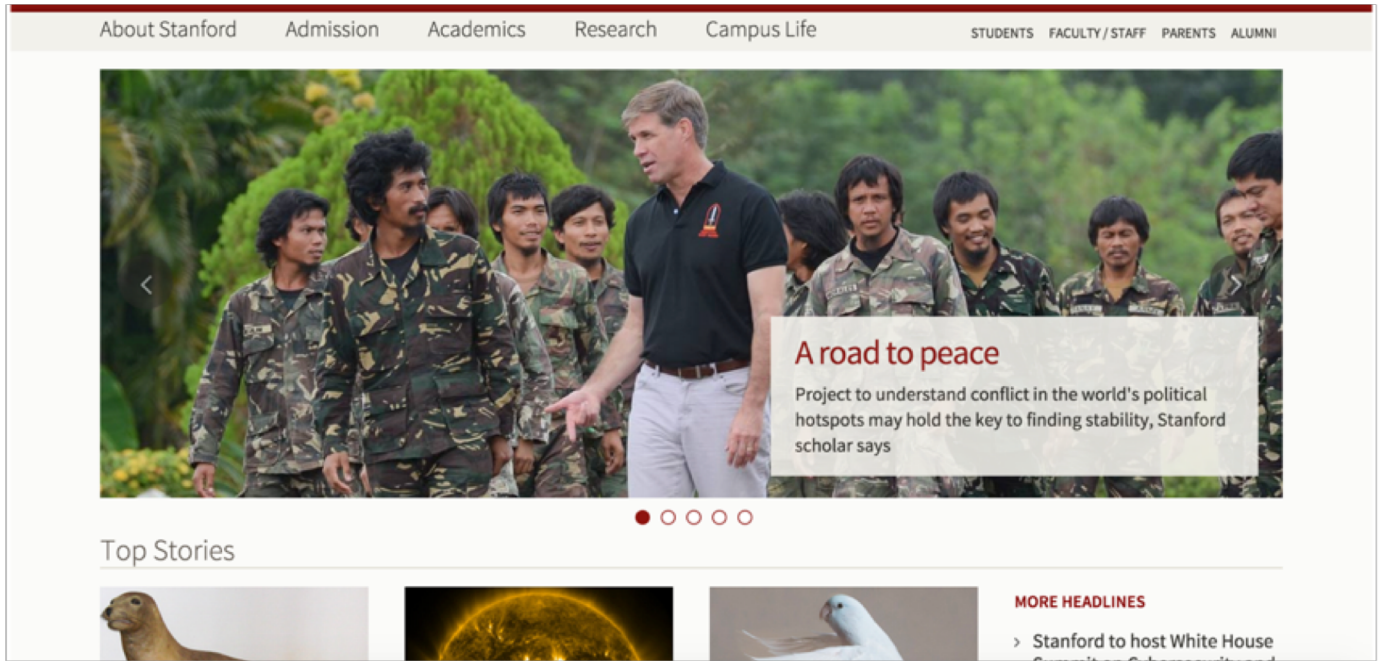


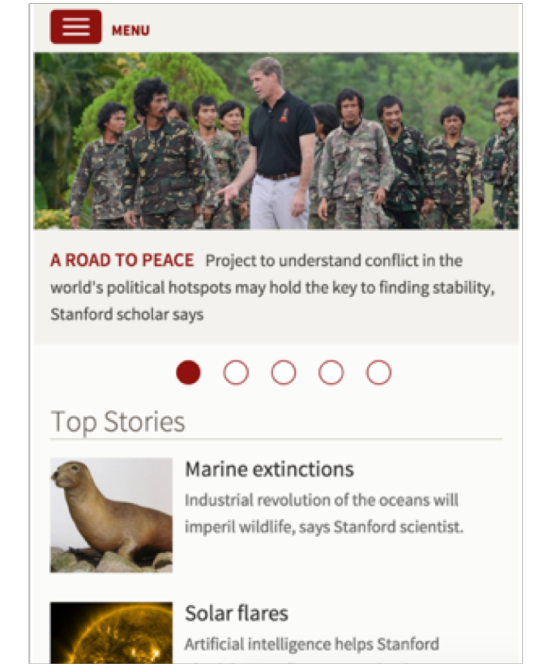
Bootstrap allocates width into **twelve columns**



Responsive design helps you specify the layout for different sized screens







Announcements

- Homework 2 due Friday @4pm on Courseworks
- Record Participation: Piazza -> Google Form