JavaScript, Widgets, & Events

No screens

Prof. Lydia Chilton
COMS 4170
11 February 2019

Say your name

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

HW3 Review

I copied some code from the web.
It doesn’t work ☹ Why?

Mismatched quotes

```
$(“#myBtn").click(function(){
   document.getElementById("demo").innerHTML = "Hello World"
});
```

Matched quotes `$("#myBtn")` `$('#myBtn')`

Why is to useful to have double and single tick quotes?

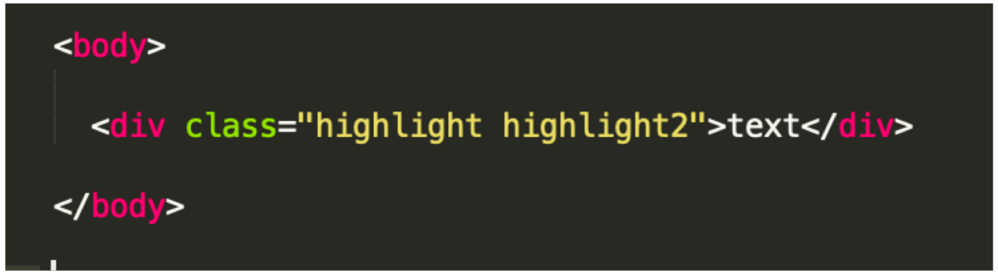
```
$("#myBtn").click(function(){
   $("#demo").innerHTML = "Hello 'World'!"
});
```

Hello 'World'!

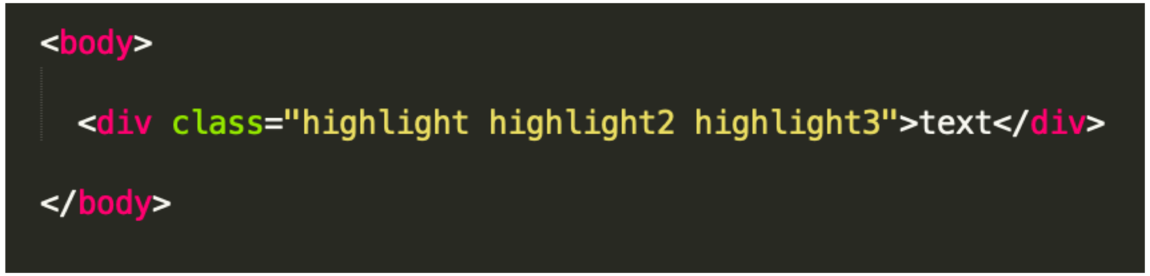
```
$("#myBtn").click(function(){
   $("#demo").innerHTML = 'Hello "World"!'
});
```

Hello "World"!

How many classes are on this element?



```
<body>
    <div class="highlight highlight2">text</div>
</body>
```

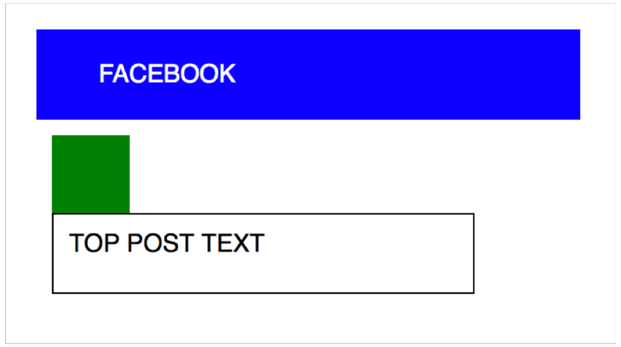


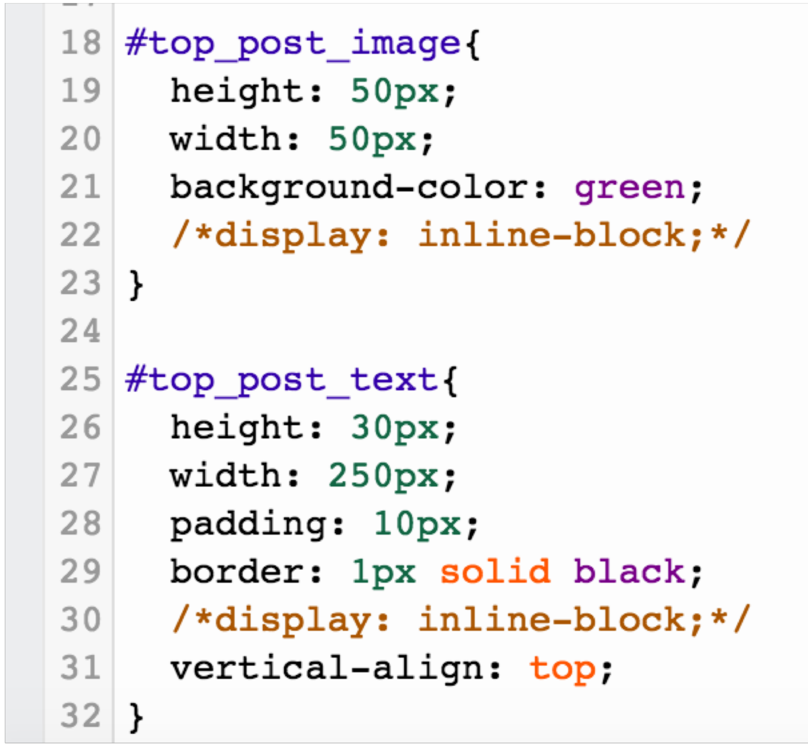
```
<body>
    <div class="highlight highlight2 highlight3">text</div>
</body>
```

Classes are listed with spaces in the class field

By default, DIV elements will flow down the page. `display: block`

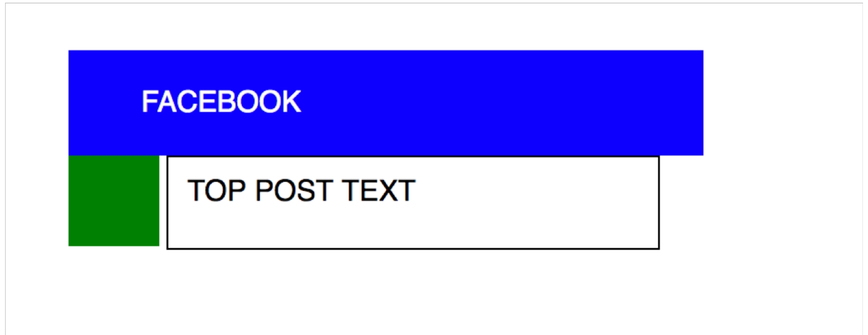
To get them to flow across the page, you must set `display: inline-block`

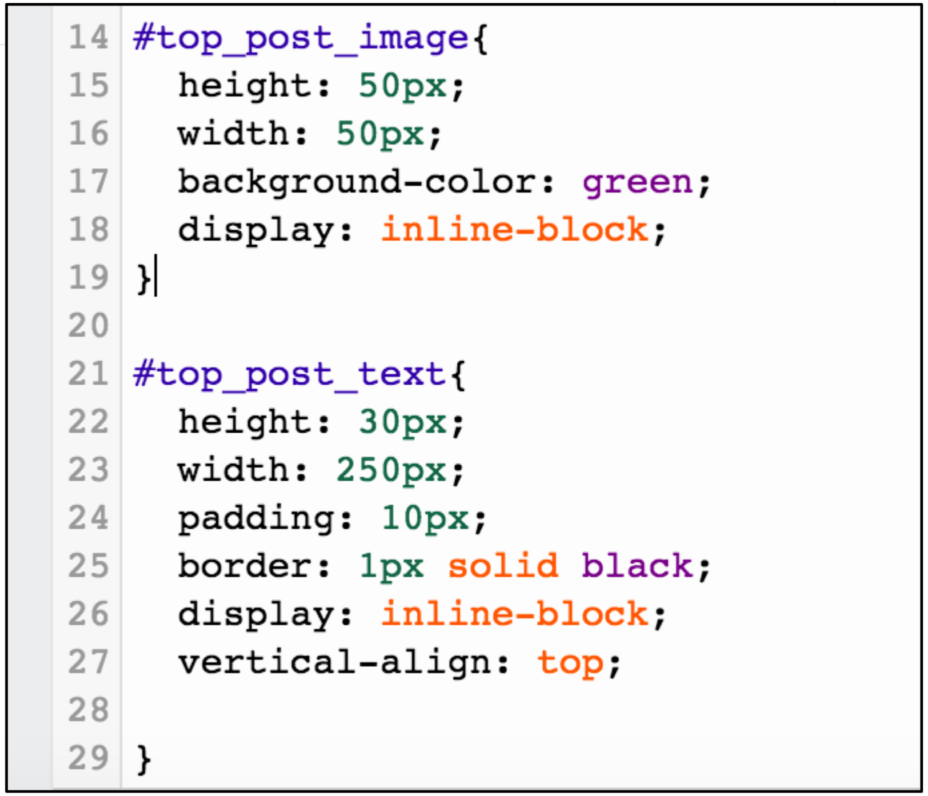




```css
#top_post_image{
  height: 50px;
  width: 50px;
  background-color: green;
  /*display: inline-block;*/
}

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



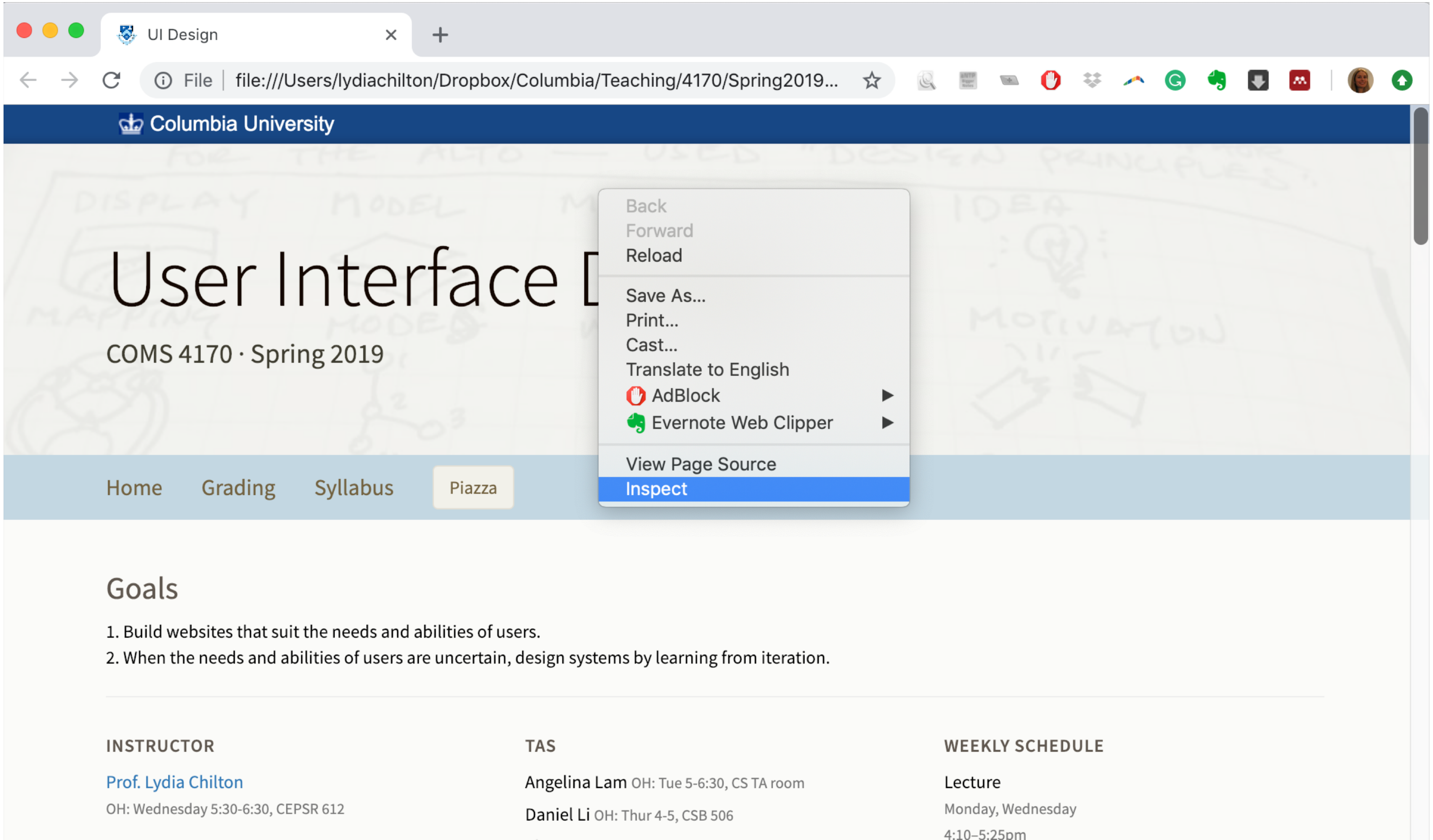


```css
#top_post_image{
  height: 50px;
  width: 50px;
  background-color: green;
  display: inline-block;
}

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

}
```

Developer Tools can identify and change elements



User Interface D

COMS 4170 · Spring 2019

Goals

1. Build websites that suit the needs and abilities of users.
2. When the needs and abilities of users are uncertain, design systems by learning from iteration.

INSTRUCTOR

Prof. Lydia Chilton
OH: Wednesday 5:30-6:30, CEPSR 612

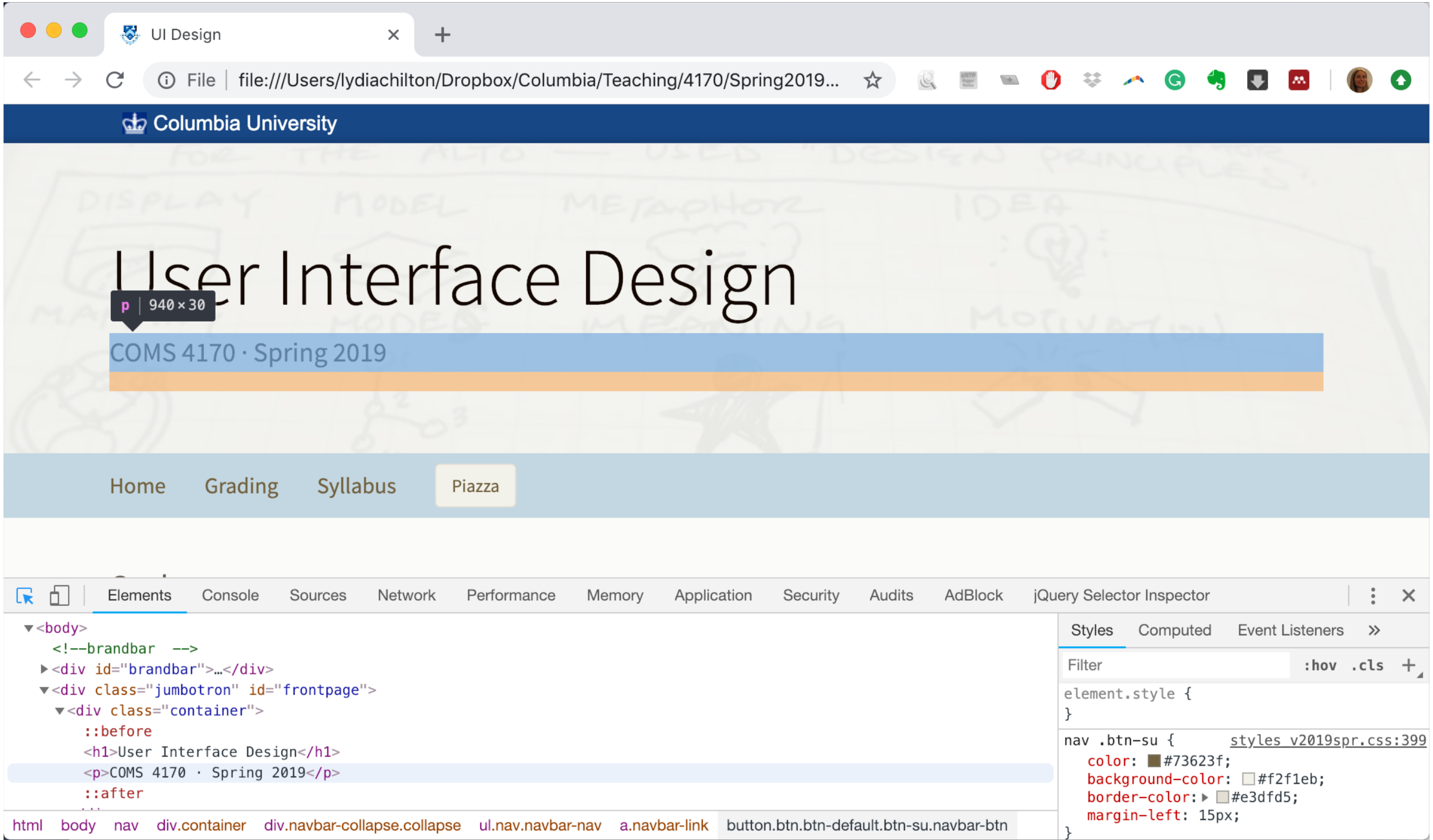
TAS

Angelina Lam OH: Tue 5-6:30, CS TA room
Daniel Li OH: Thur 4-5, CSB 506

WEEKLY SCHEDULE

Lecture
Monday, Wednesday
4:10–5:25pm

Developer Tools can identify and change elements



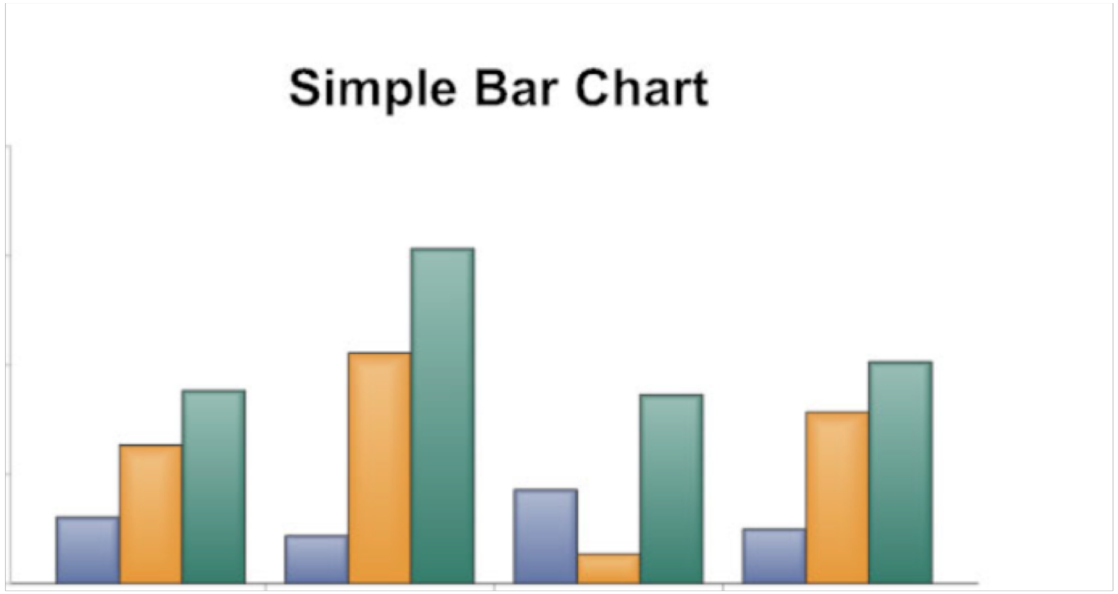
```
▼<body>
   <!--brandbar  -->
  ▶<div id="brandbar">…</div>
  ▼<div class="jumbotron" id="frontpage">
    ▼<div class="container">
        ::before
        <h1>User Interface Design</h1>
        <p>COMS 4170 · Spring 2019</p>
        ::after
```

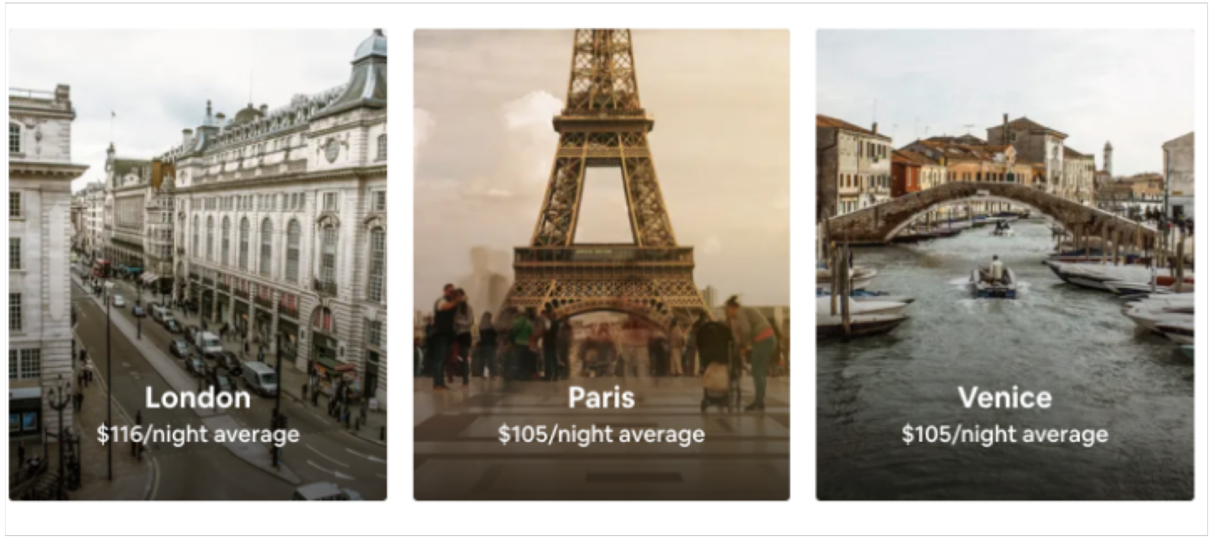
```
element.style {
}
nav .btn-su {          styles_v2019spr.css:399
    color: ■#73623f;
    background-color: □#f2f1eb;
    border-color:▶ □#e3dfd5;
    margin-left: 15px;
}
```

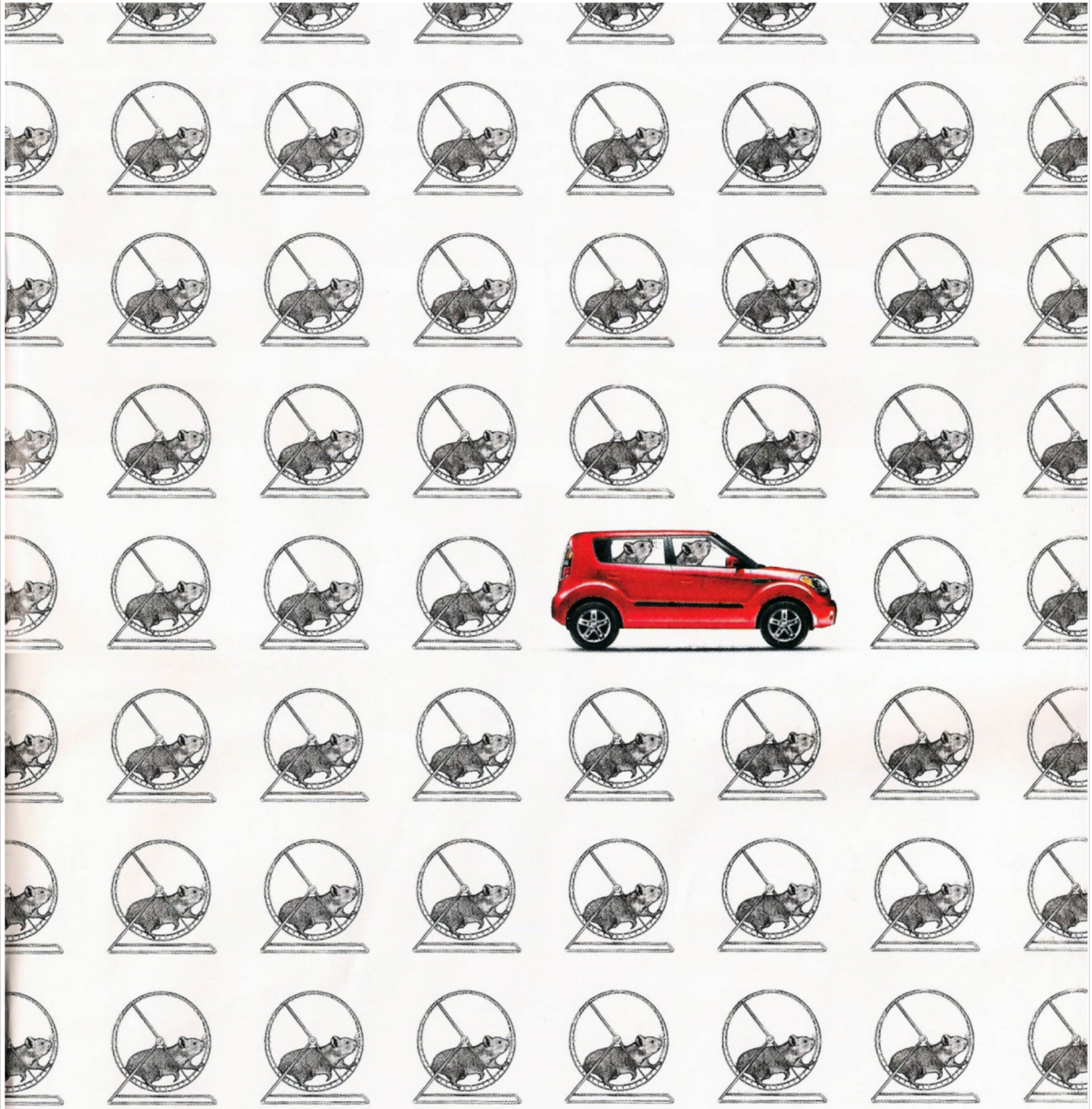
html body nav div.container div.navbar-collapse.collapse ul.nav.navbar-nav a.navbar-link button.btn.btn-default.btn-su.navbar-btn

Gestalt Principle

Similarity

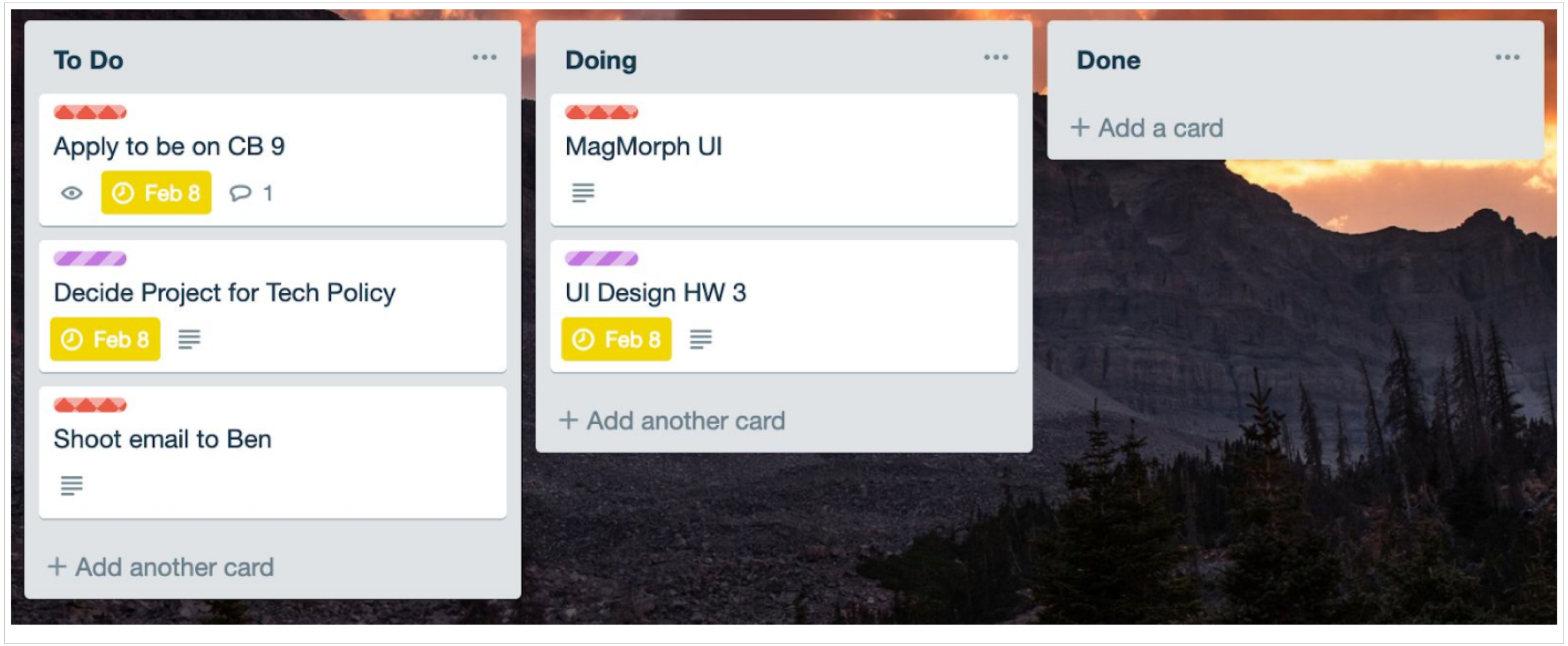






Gestalt Principle

Enclosure



To Do

Apply to be on CB 9

Feb 8 1

Decide Project for Tech Policy

Feb 8

Shoot email to Ben

+ Add another card

Doing

MagMorph UI

UI Design HW 3

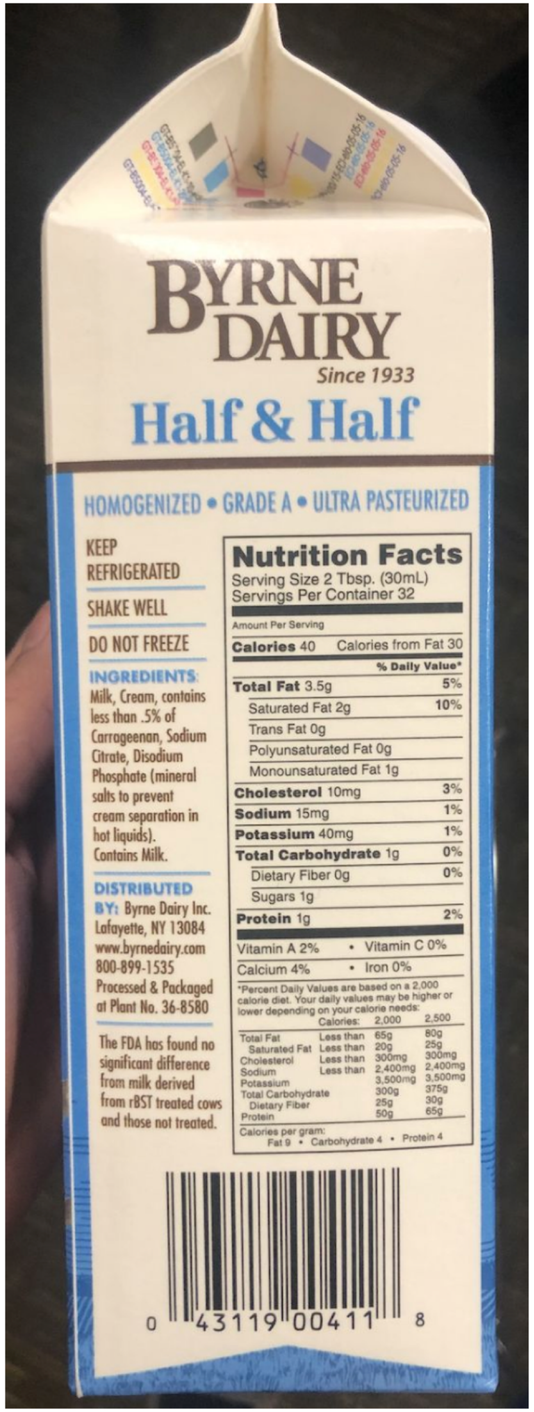
Feb 8

+ Add another card

Done

+ Add a card

Enclosure



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The FDA has found no significant difference from milk derived from rBST treated cows and those not treated.

Nutrition Facts

Serving Size 2 Tbsp. (30mL)
Servings Per Container 32

Amount Per Serving	
Calories 40	Calories from Fat 30
	% Daily Value*
Total Fat 3.5g	5%
Saturated Fat 2g	10%
Trans Fat 0g	
Polyunsaturated Fat 0g	
Monounsaturated Fat 1g	
Cholesterol 10mg	3%
Sodium 15mg	1%
Potassium 40mg	1%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars 1g	
Protein 1g	2%

Vitamin A 2% • Vitamin C 0%
Calcium 4% • Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Protein		50g	65g

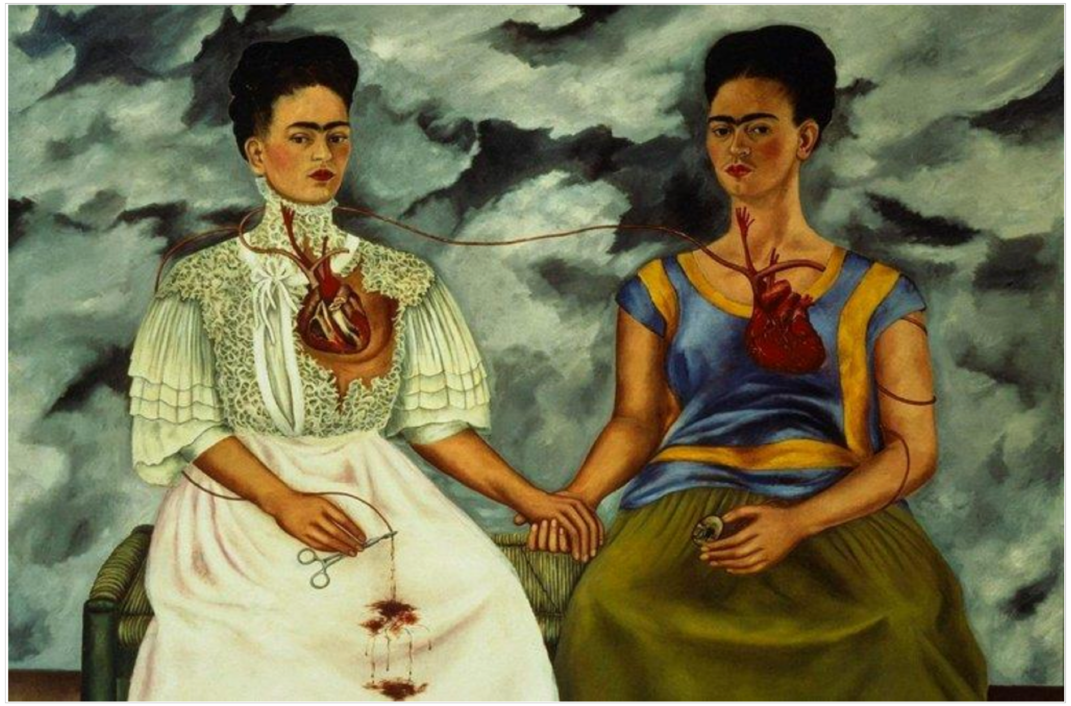
Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

0 43119 00411 8

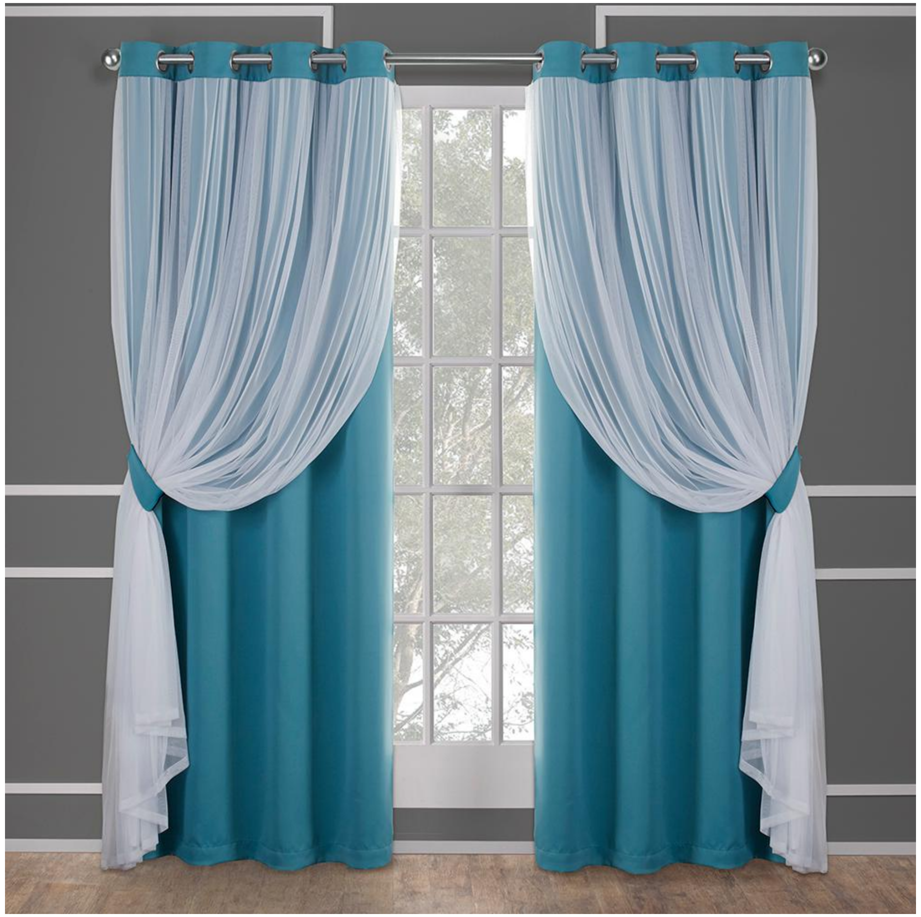
Enclosure

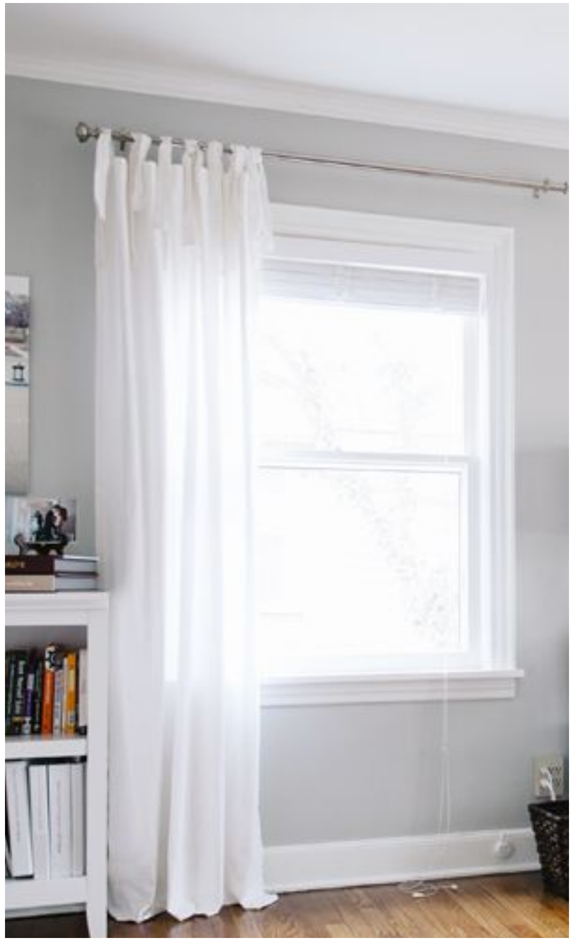
Basse Bretagne
Cornouaille
Vannetais
Haute Bretagne

Symmetry (in Art)



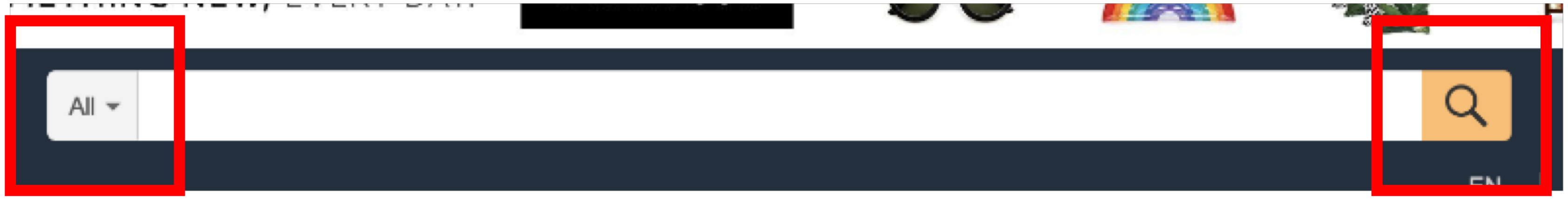
Symmetry in the Physical world

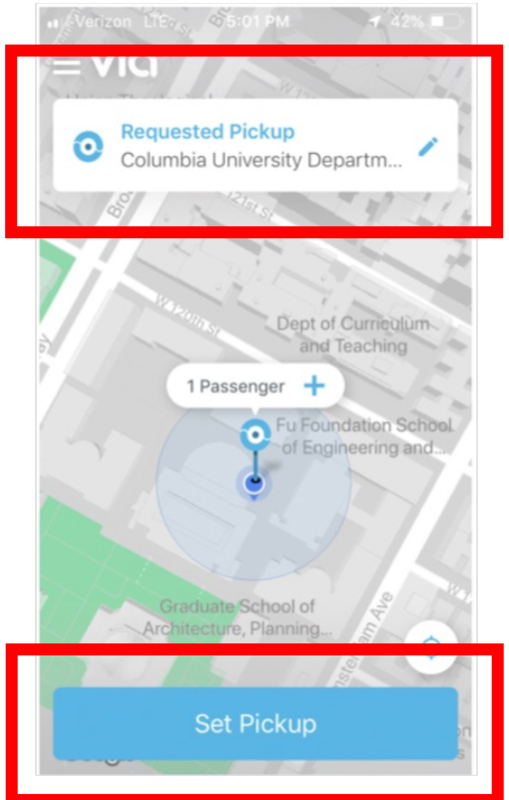




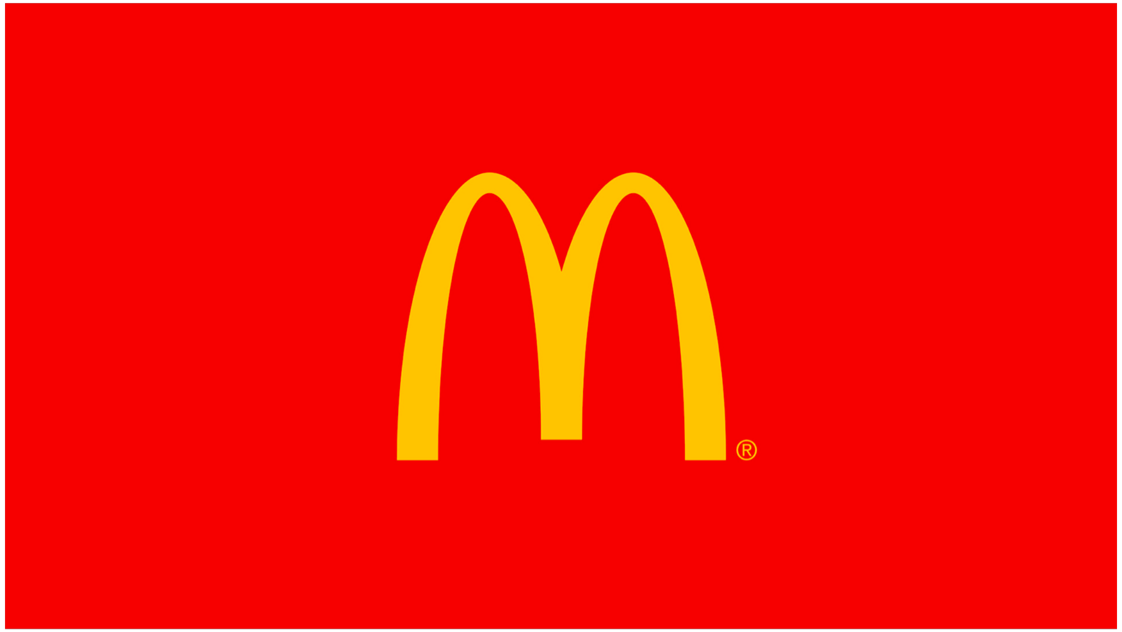
Symmetry is Physical world

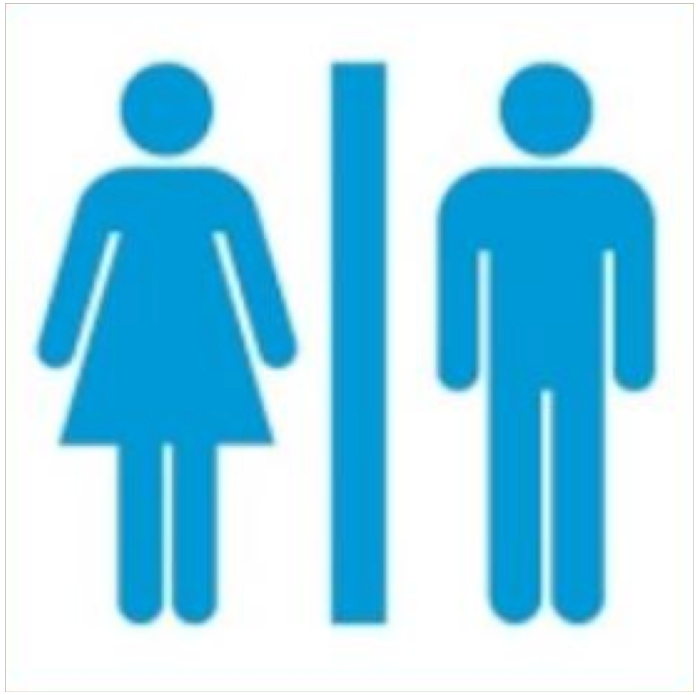
Symmetry in Web Design




Verizon LTE 5:01 PM 42%
via
Requested Pickup
Columbia University Departm...
Dept of Curriculum and Teaching
1 Passenger +
Fu Foundation School of Engineering and...
Graduate School of Architecture, Planning...
Set Pickup

Symmetrical, but no gestalt
(no any larger meaning implied by symmetry)





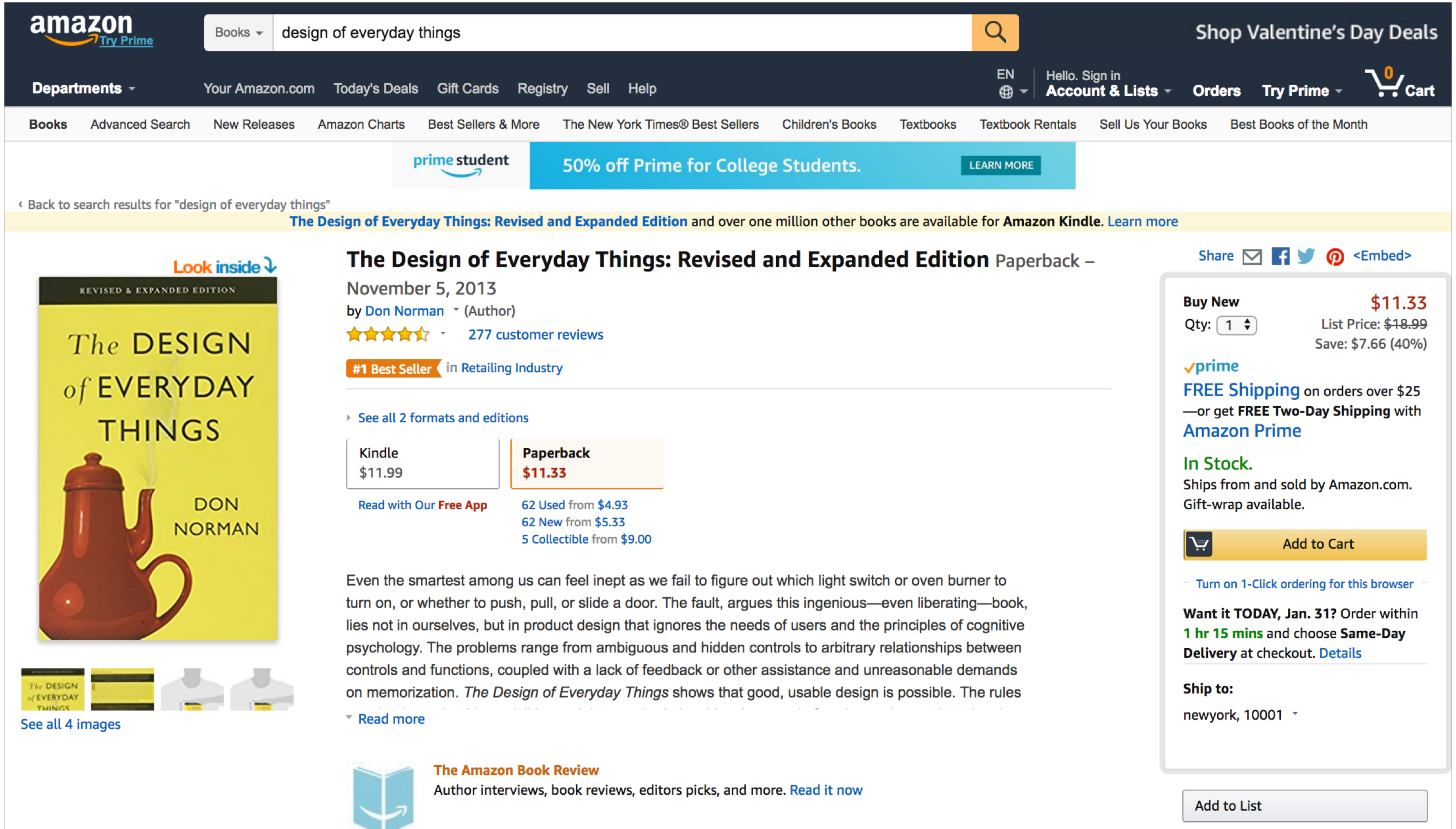
JavaScript, Widgets, & Events

No screens

Prof. Lydia Chilton
COMS 4170
11 February 2019

Say your name

Users interact with the system to accomplish a goal.



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by Don Norman (Author)

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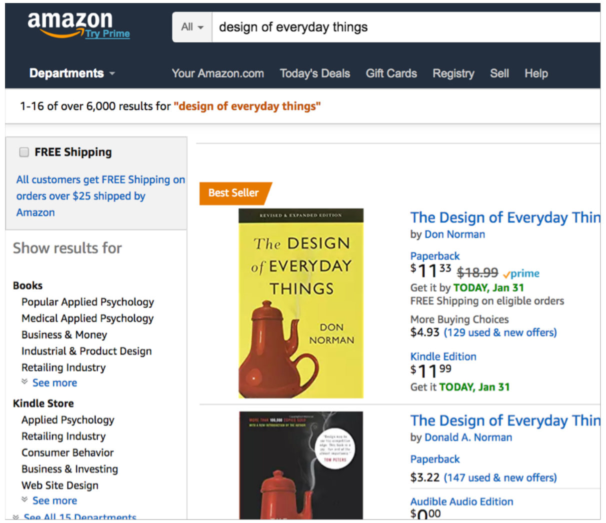
The designer must create the subgoals and interactions to help them accomplish it.

Goal: Buy a book

Subgoal:	Find it	Add to cart	Enter payment info	Place order
Interaction:	Type, click	click	Type, click, point	Click



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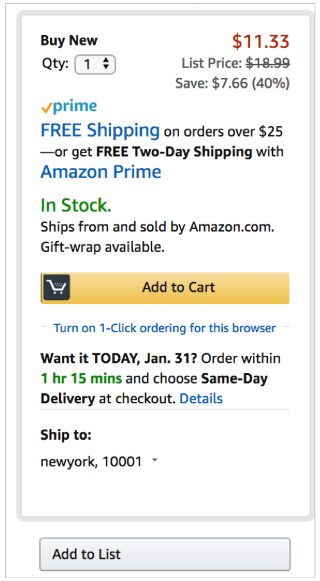
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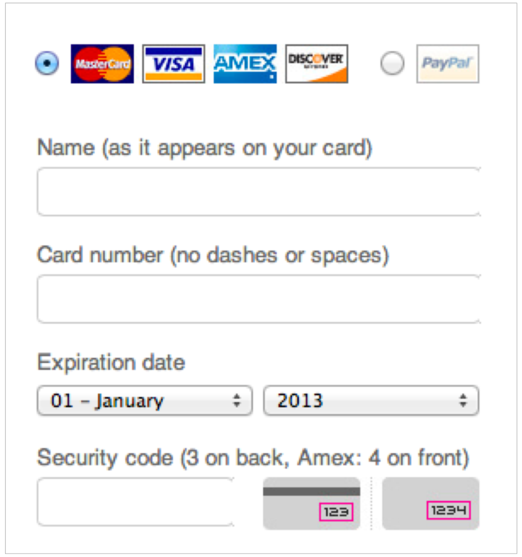


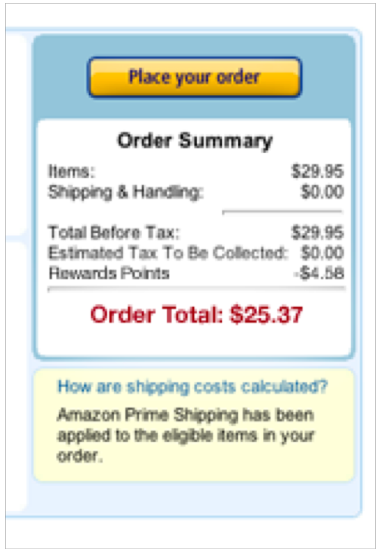
● ○

Name (as it appears on your card)

Card number (no dashes or spaces)

Expiration date
01 – January
2013

Security code (3 on back, Amex: 4 on front)



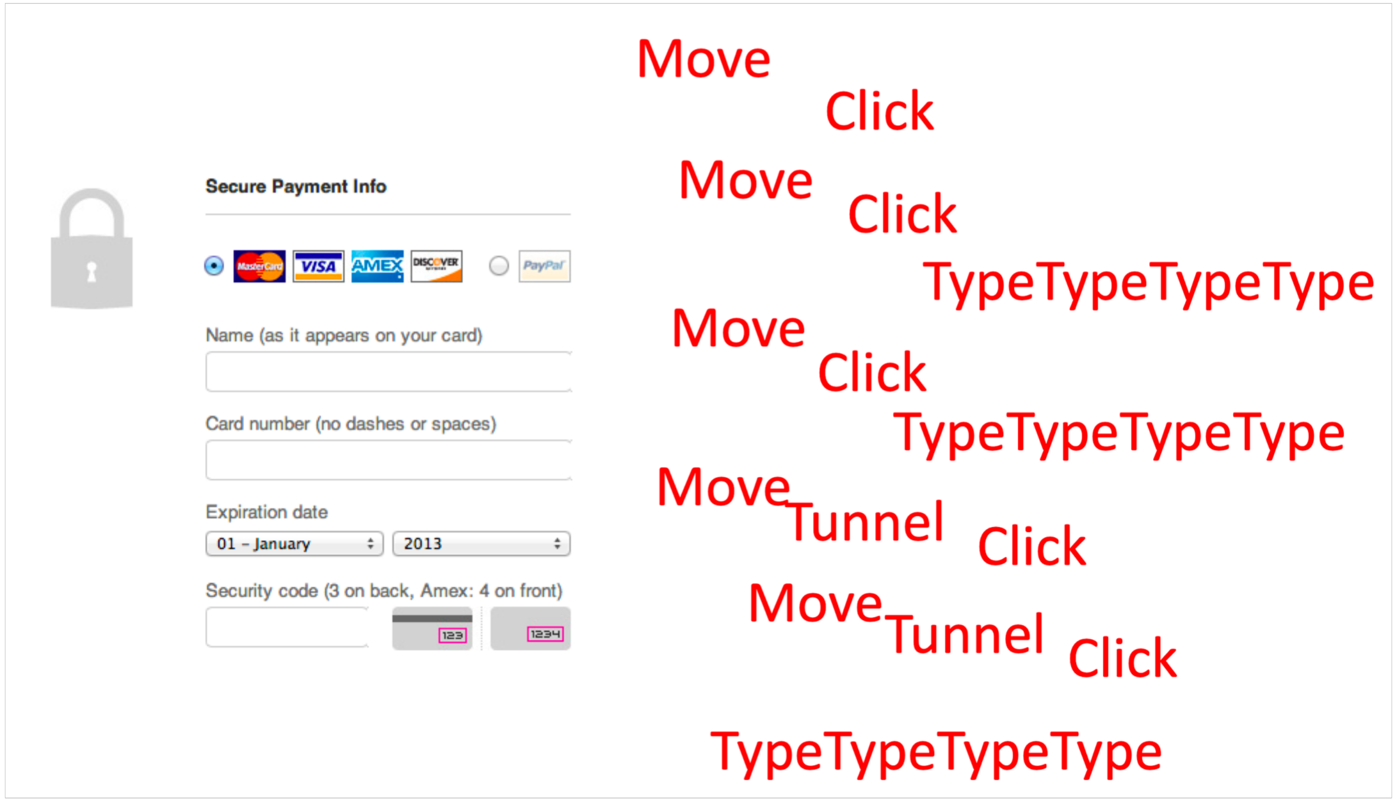
Order Summary

Items:	$29.95
Shipping & Handling:	$0.00
Total Before Tax:	$29.95
Estimated Tax To Be Collected:	$0.00
Rewards Points	-$4.58

Order Total: $25.37

How are shipping costs calculated?
Amazon Prime Shipping has been applied to the eligible items in your order.

Low-level interactions take time and effort. Minimize them because you do them a lot.



Secure Payment Info

● MasterCard VISA AMEX DISCOVER ○ PayPal

Name (as it appears on your card)

Card number (no dashes or spaces)

Expiration date

01 – January | 2013

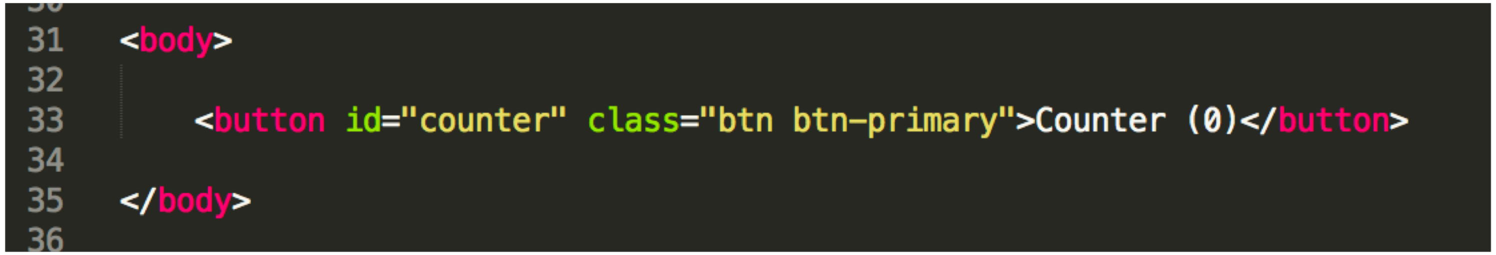
Security code (3 on back, Amex: 4 on front)

Move
Click
Move
Click
TypeTypeTypeType
Move
Click
TypeTypeTypeType
Move Tunnel Click
Move Tunnel Click
TypeTypeTypeType

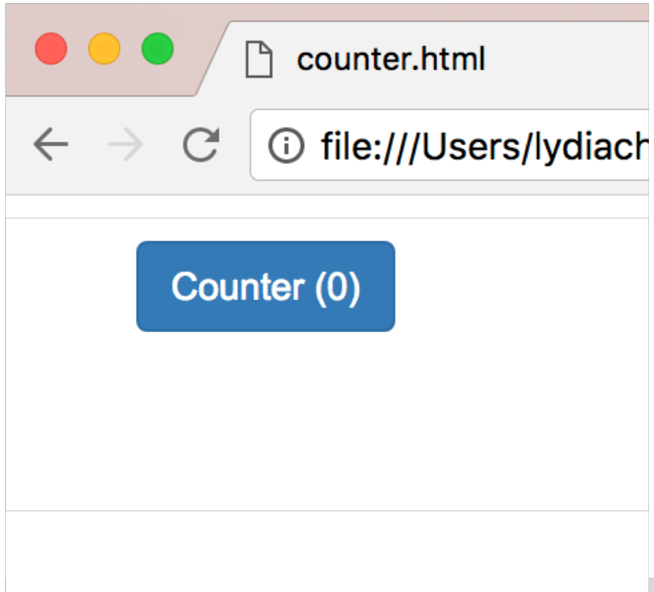
Next time:

Programing interactions in JavaScript

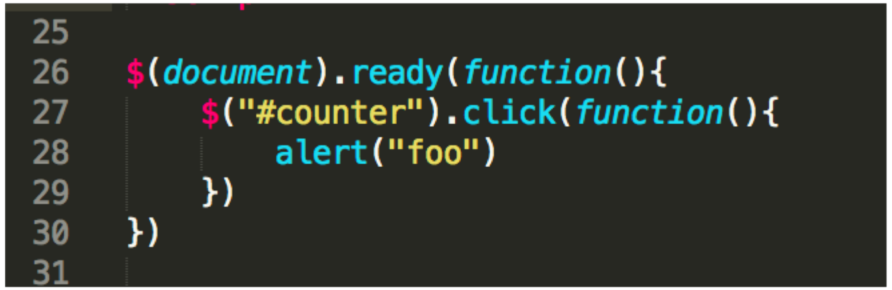
HTML



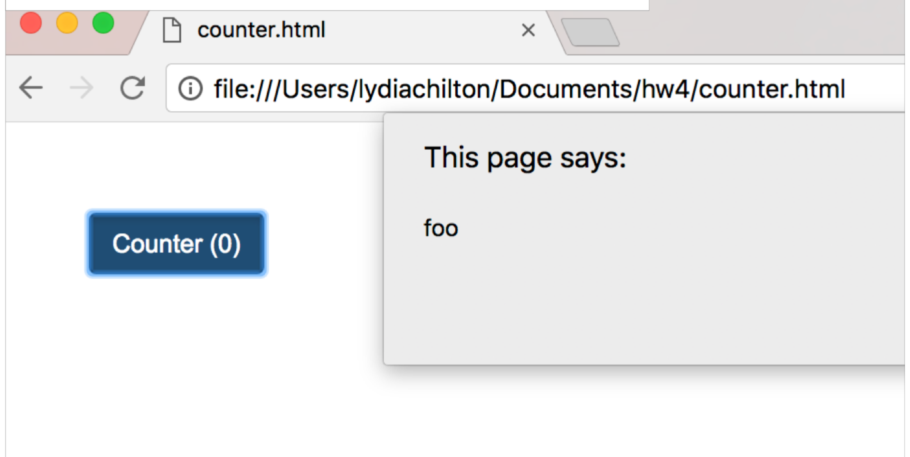
```
<body>

    <button id="counter" class="btn btn-primary">Counter (0)</button>

</body>
```



JavaScript



```

$(document).ready(function(){
    $("#counter").click(function(){
        alert("foo")
    })
})

```



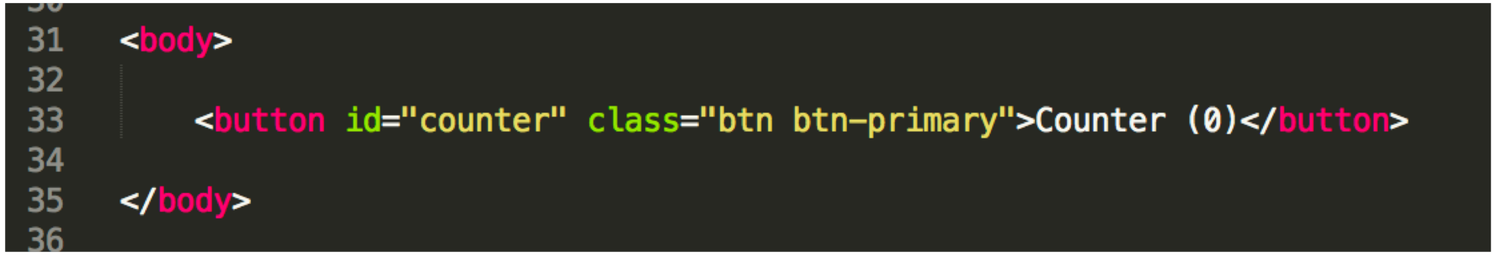
This page says:

foo

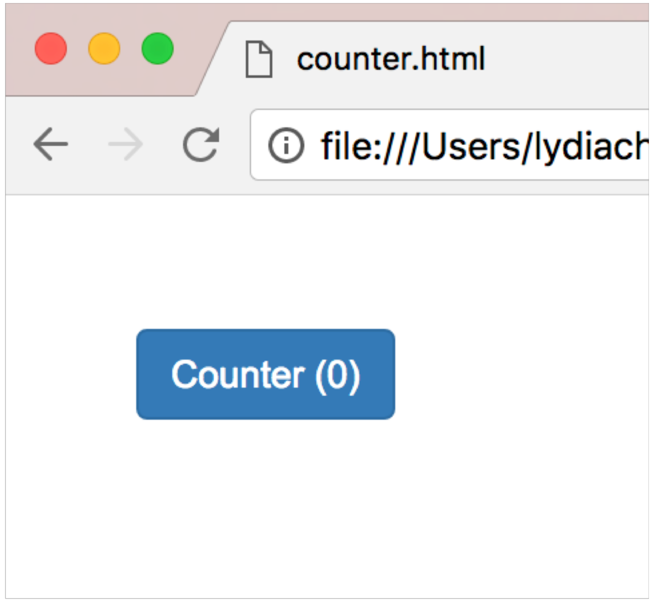
Adding events using JQuery

When you click this button, what will it do?

HTML



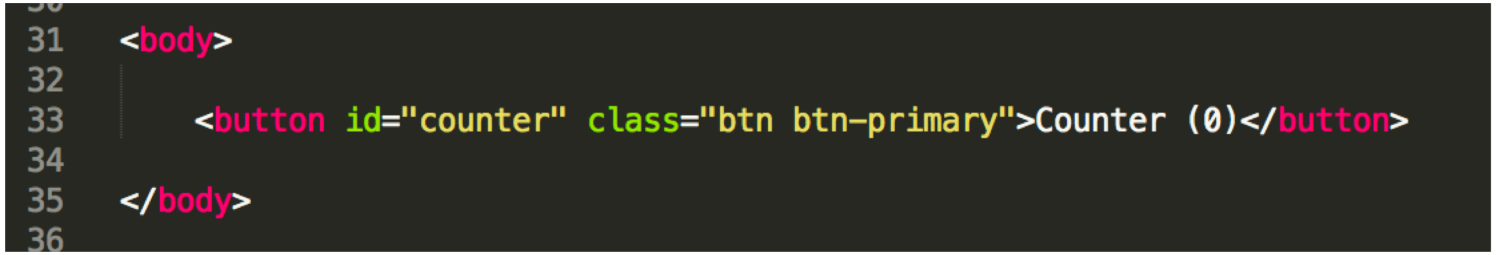
```
<body>

    <button id="counter" class="btn btn-primary">Counter (0)</button>

</body>
```



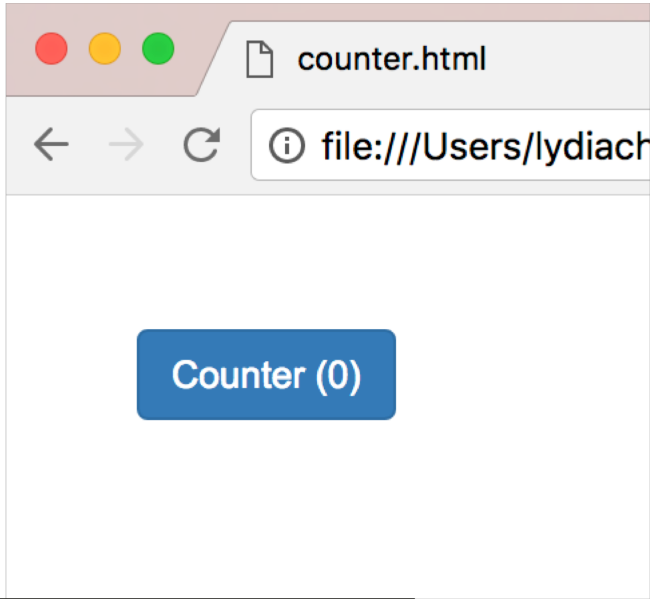
Nothing

Add Click events with JQuery

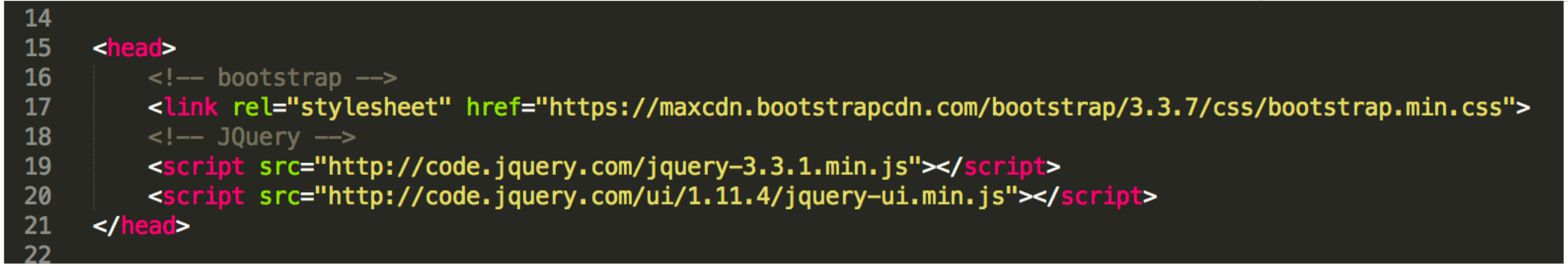
HTML



```
<body>

    <button id="counter" class="btn btn-primary">Counter (0)</button>

</body>
```



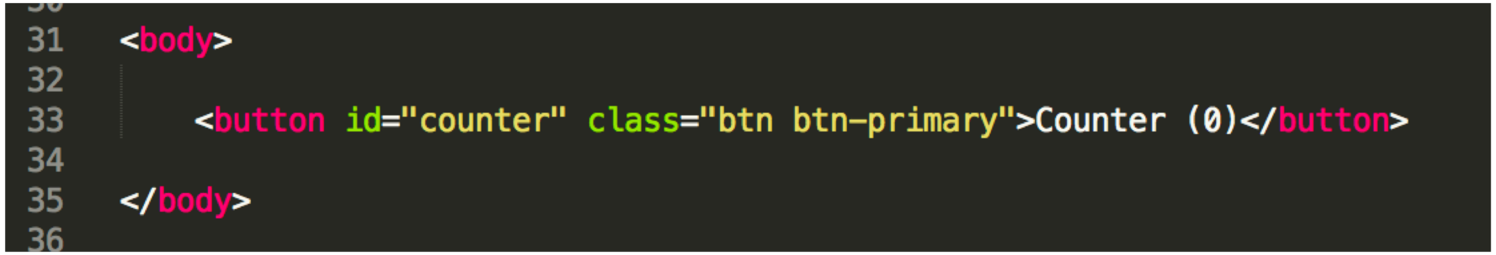
JavaScript



```

<head>
    <!-- bootstrap -->
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
    <!-- JQuery -->
    <script src="http://code.jquery.com/jquery-3.3.1.min.js"></script>
    <script src="http://code.jquery.com/ui/1.11.4/jquery-ui.min.js"></script>
</head>
```

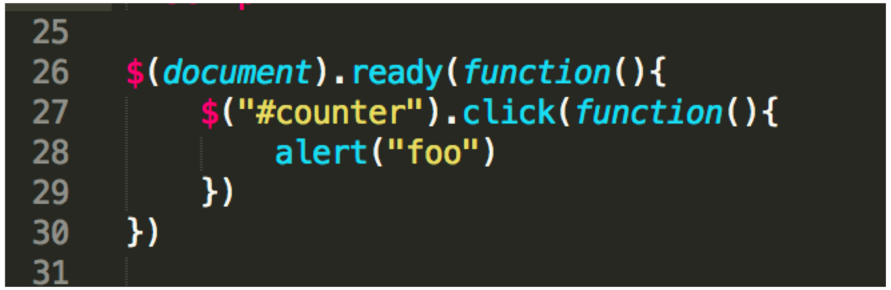
How do we attach an action to the button?

HTML

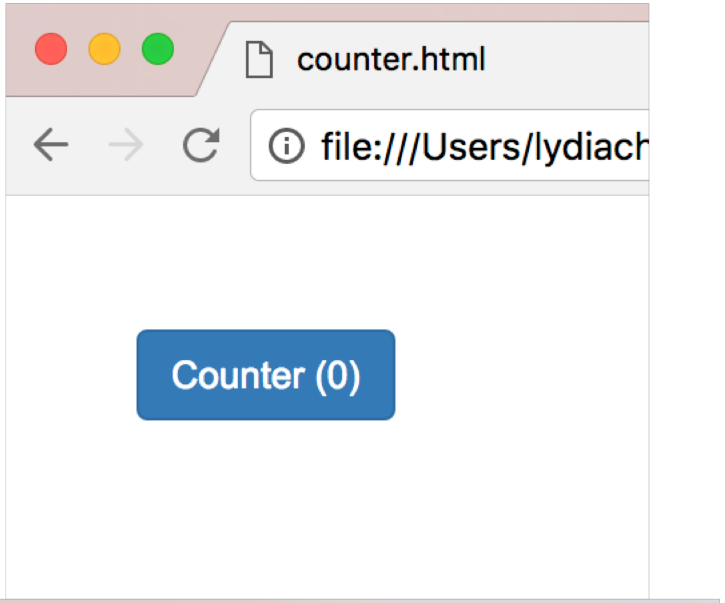


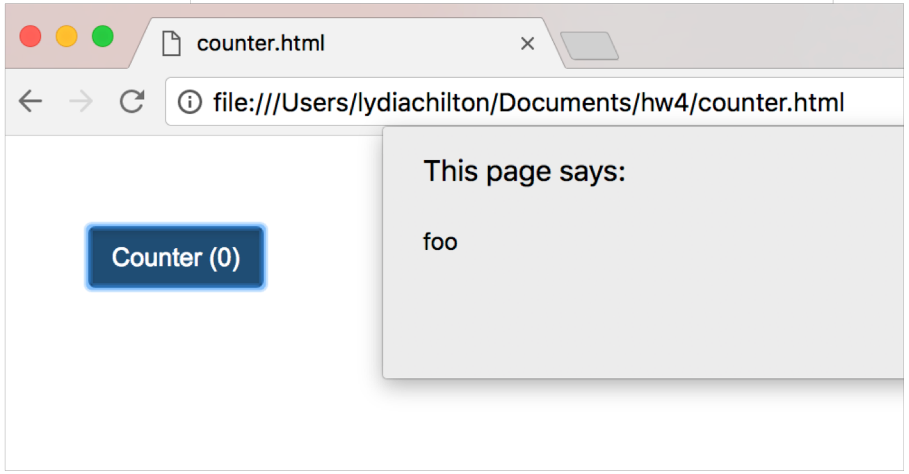
```html
<body>

    <button id="counter" class="btn btn-primary">Counter (0)</button>

</body>
```

JavaScript



```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        alert("foo")
    })
})
```

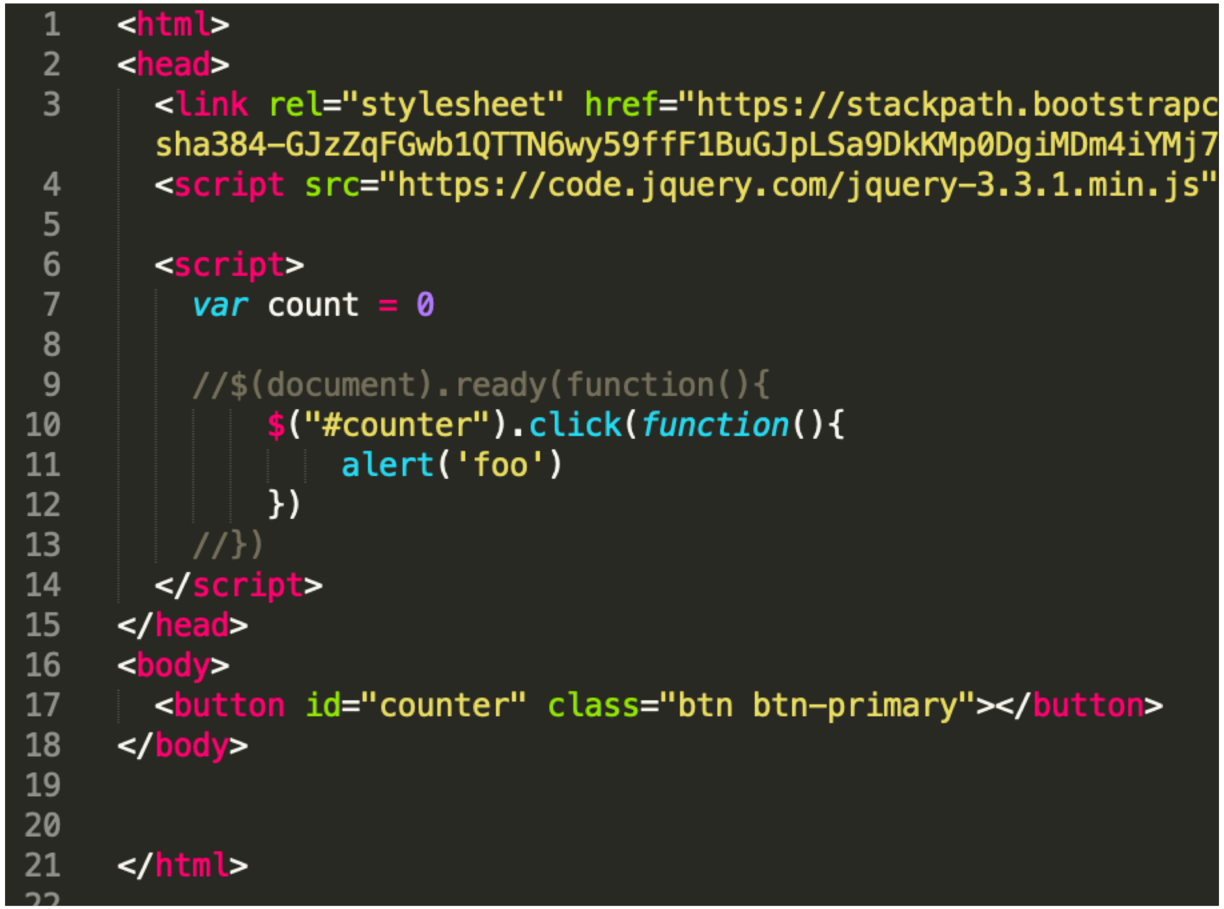




This page says:

foo

What happens when we don’t have this? `$(document).ready(function(){})`



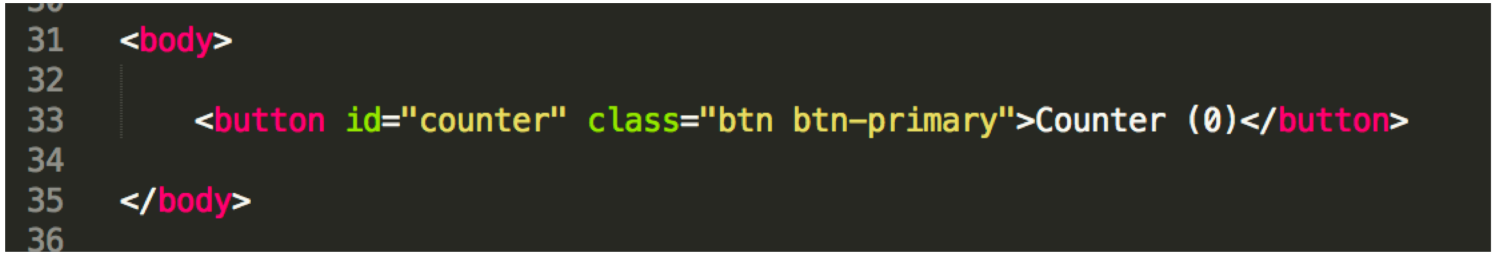
```
1   <html>
2   <head>
3     <link rel="stylesheet" href="https://stackpath.bootstrapc
      sha384-GJzZqFGwb1QTTN6wy59ffF1BuGJpLSa9DkKMp0DgiMDm4iYMj7
4     <script src="https://code.jquery.com/jquery-3.3.1.min.js"
5
6     <script>
7       var count = 0
8
9       //$(document).ready(function(){
10        $("#counter").click(function(){
11          alert('foo')
12        })
13      //})
14    </script>
15  </head>
16  <body>
17    <button id="counter" class="btn btn-primary"></button>
18  </body>
19
20
21  </html>
22
```

Nothing.

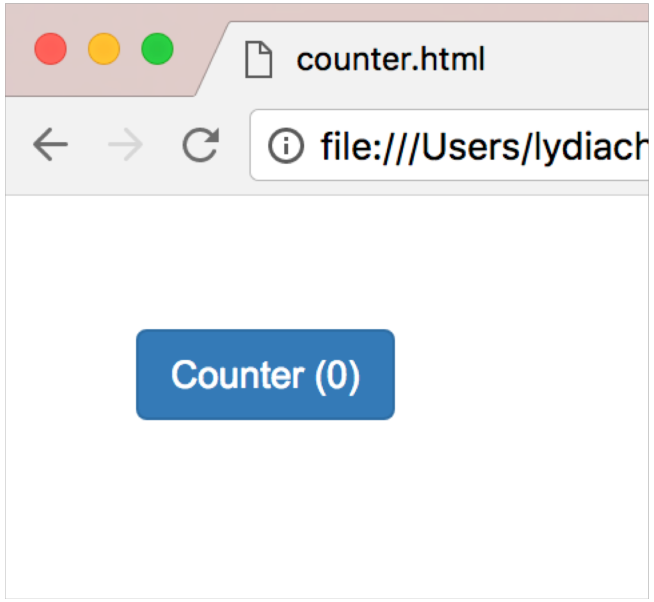
The interpreter is reading code line by line. On line 10, there is no element to attach a function to.

How do we increment the counter?

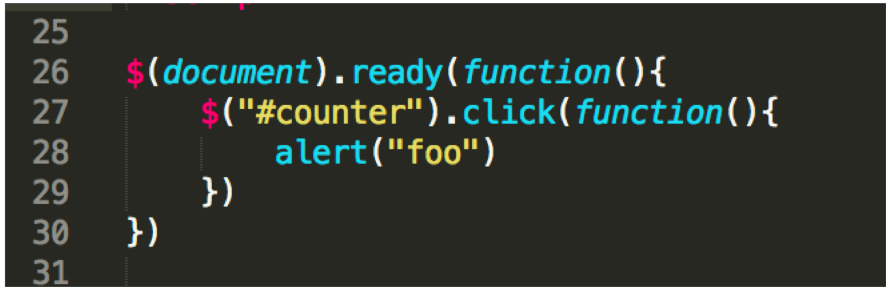
HTML



```html
<body>

    <button id="counter" class="btn btn-primary">Counter (0)</button>

</body>
```



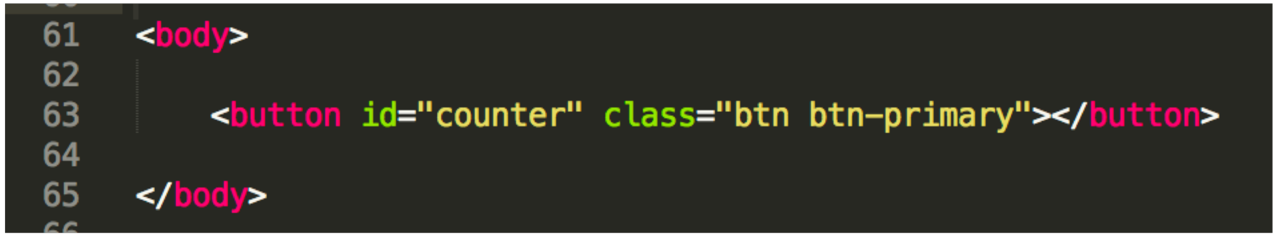
JavaScript



```javascript

$(document).ready(function(){
    $("#counter").click(function(){
        alert("foo")
    })
})
```

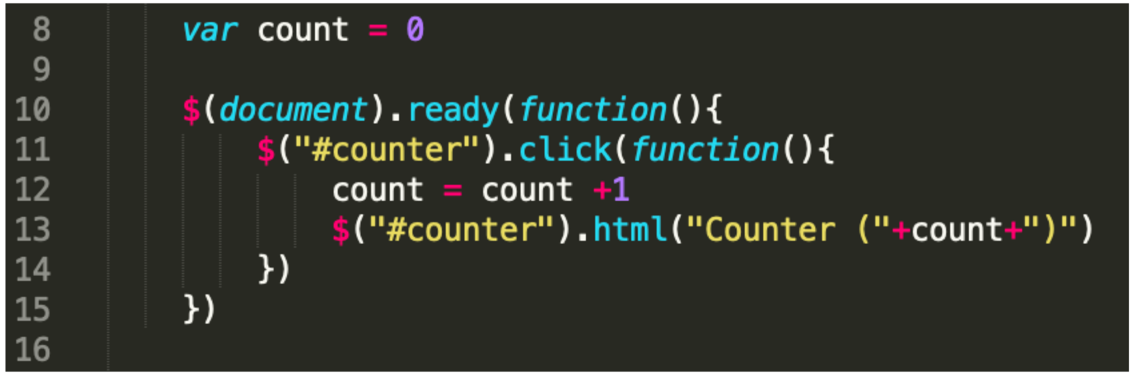
How do we increment the count?

HTML

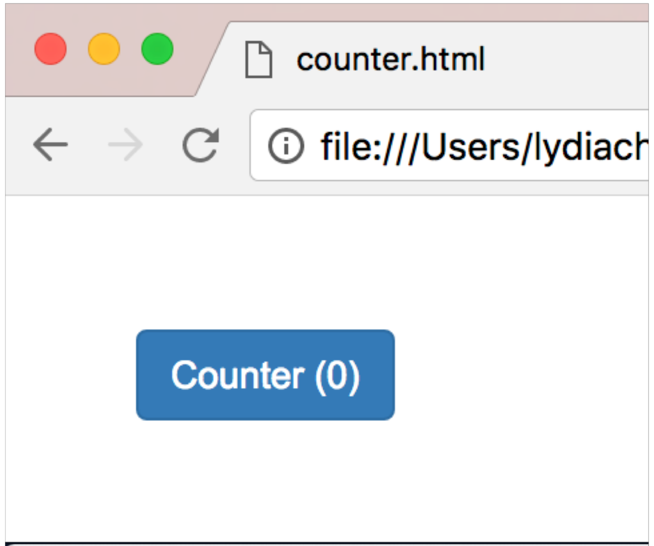


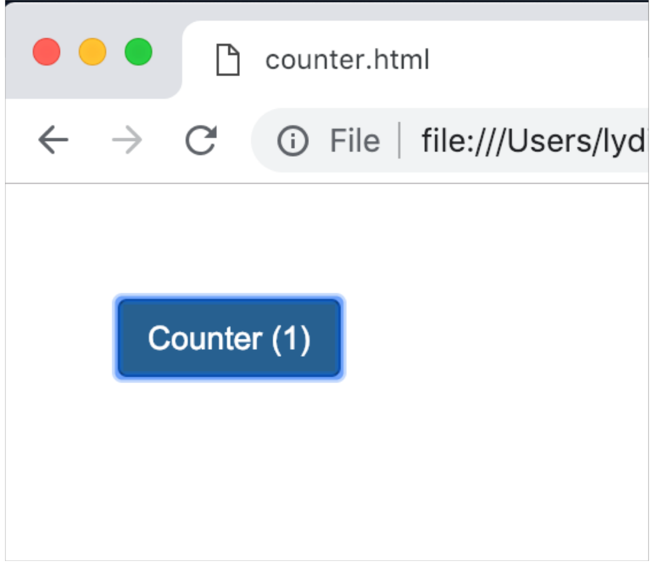
```html
<body>

    <button id="counter" class="btn btn-primary"></button>

</body>
```

JavaScript



```javascript
var count = 0

$(document).ready(function(){
    $("#counter").click(function(){
        count = count +1
        $("#counter").html("Counter ("+count+")")
    })
})

```





JQuery is a JavaScript Library that make JavaScript easier (and standard across browsers)

JavaScript

```
document.getElementById("counter").addEventListener("click", function(){
  document.getElementById("counter").innerHTML = "Counter (0)";
});
```

JQuery

```
$("#counter").click(function(){
  $("#counter").html("Counter (0)");
});
```

JQuery is a JavaScript Library that make JavaScript easier (and standard across browsers)

JavaScript

```
document.getElementById("counter").addEventListener("click", function(){
  document.getElementById("counter").innerHTML = "Counter (0)";
});
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JQuery

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JQuery is a JavaScript Library that make JavaScript easier (and standard across browsers)

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JQuery

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  $("#counter").html("Counter (0)");
});
```

JQuery is a JavaScript Library that make JavaScript easier (and standard across browsers)

JavaScript

```
document.getElementById("counter").addEventListener("click", function(){
  document.getElementById("counter").innerHTML = "Counter (0)";
});
```

JQuery

```
$("#counter").click(function(){
  $("#counter").html("Counter (0)");
});
```

Will this work?

JavaScript JQuery

```
document.getElementById("counter").click(function(){
  document.getElementById("counter").innerHTML = "Counter (0)";
});
```

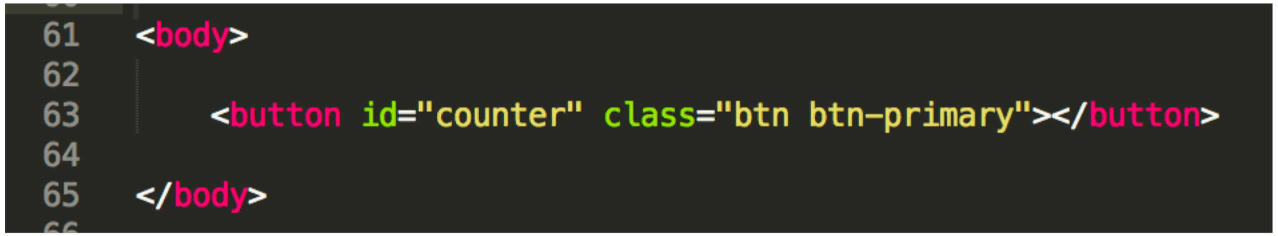
No.

Don’t mix pure JavaScript with JQuery in the same line.

For your own sanity. Only use JQuery

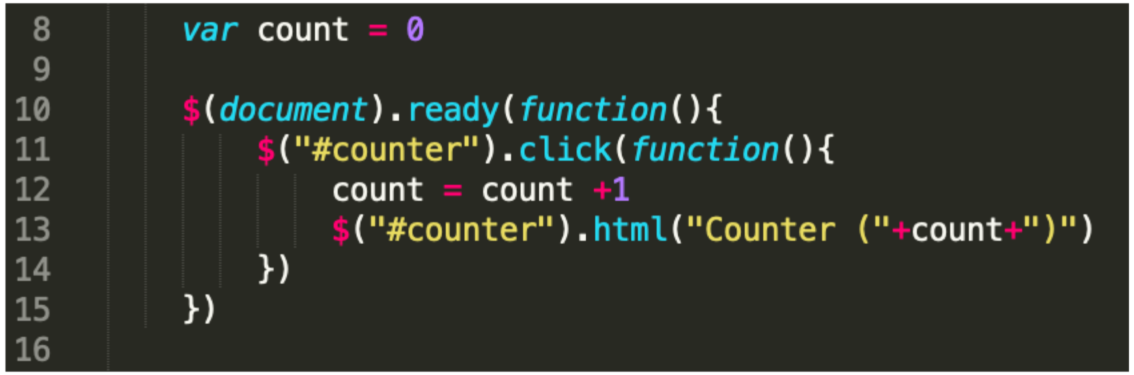
This is how you attach an event in JQuery

HTML

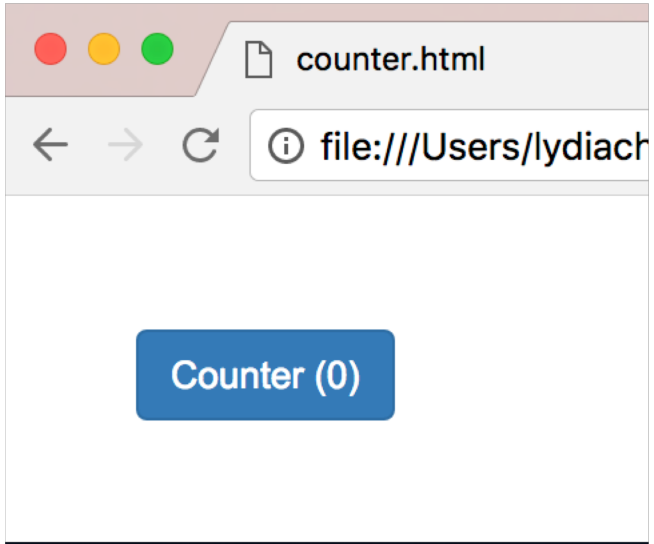


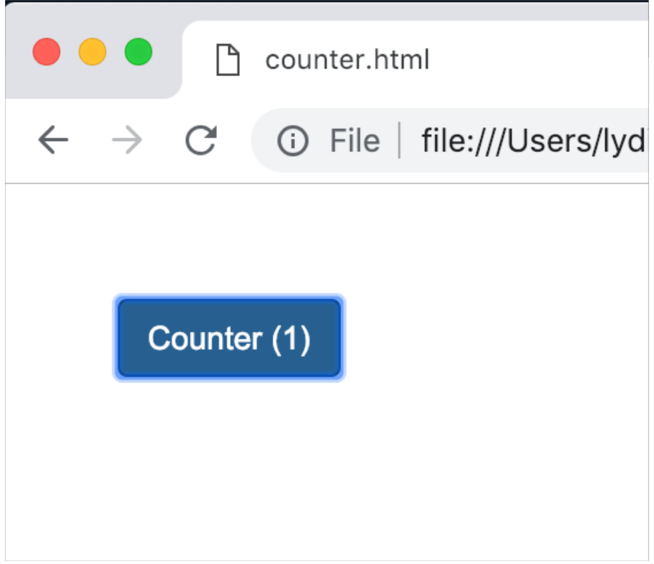
```
<body>

    <button id="counter" class="btn btn-primary"></button>

</body>
```

JavaScript



```
var count = 0

$(document).ready(function(){
    $("#counter").click(function(){
        count = count +1
        $("#counter").html("Counter ("+count+")")
    })
})
```

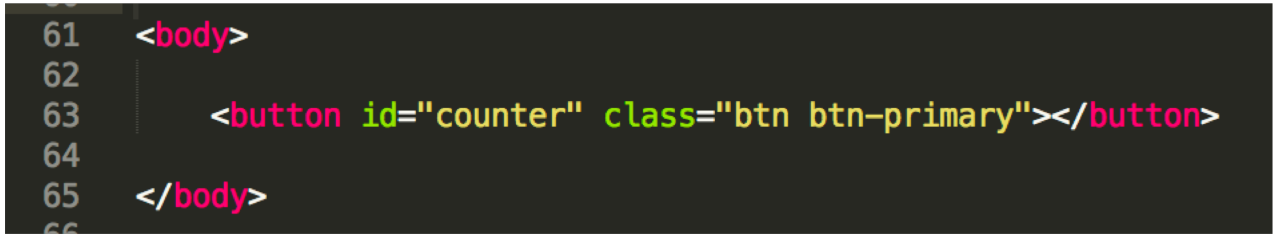




Creating Widgets Dynamically

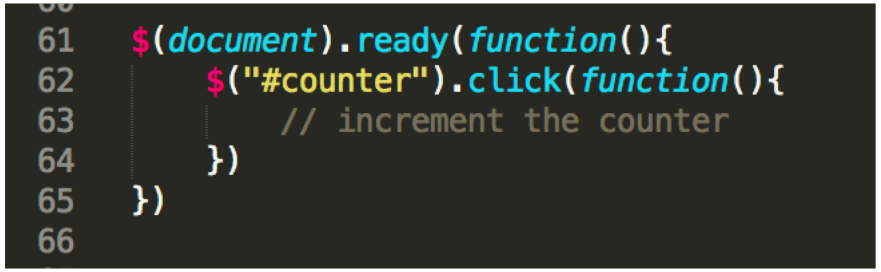
Statically created widget: created on page load.

HTML

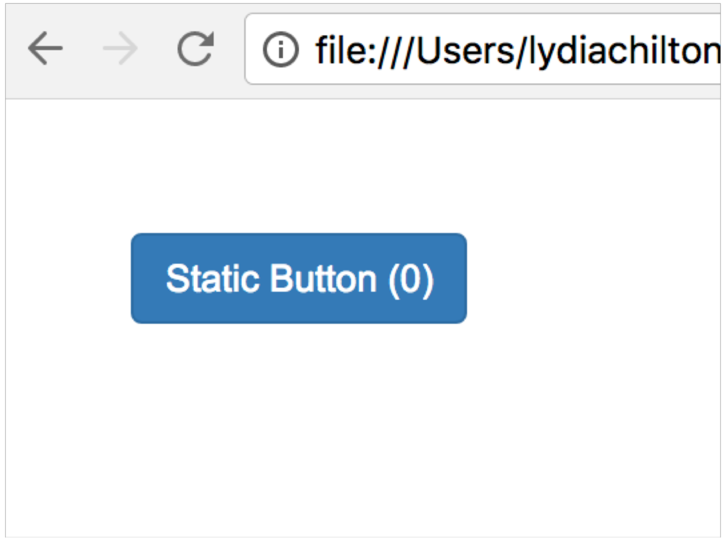


```html
<body>

    <button id="counter" class="btn btn-primary"></button>

</body>
```

JavaScript

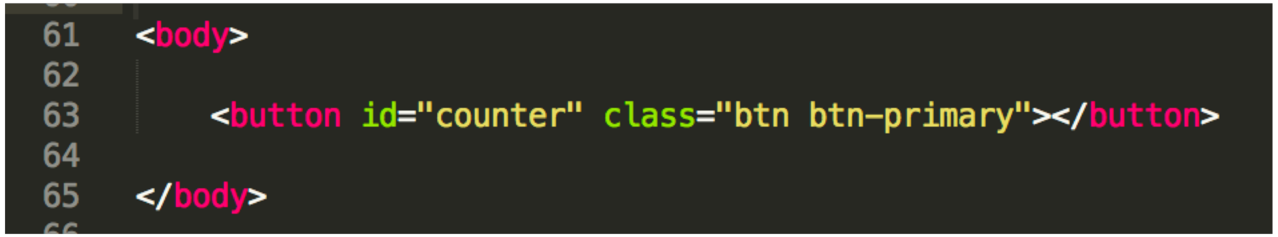


```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
    })
})
```



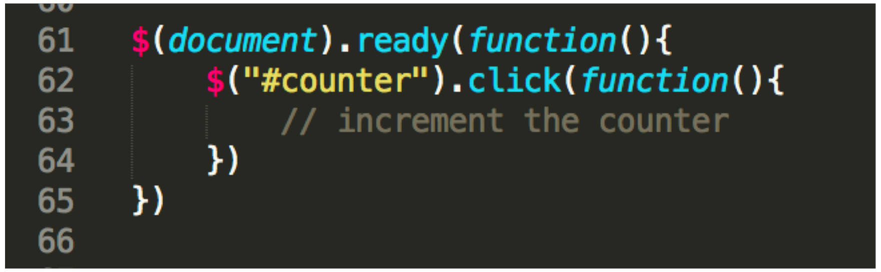
Dynamically created widget: created on demand based on user interaction.

HTML

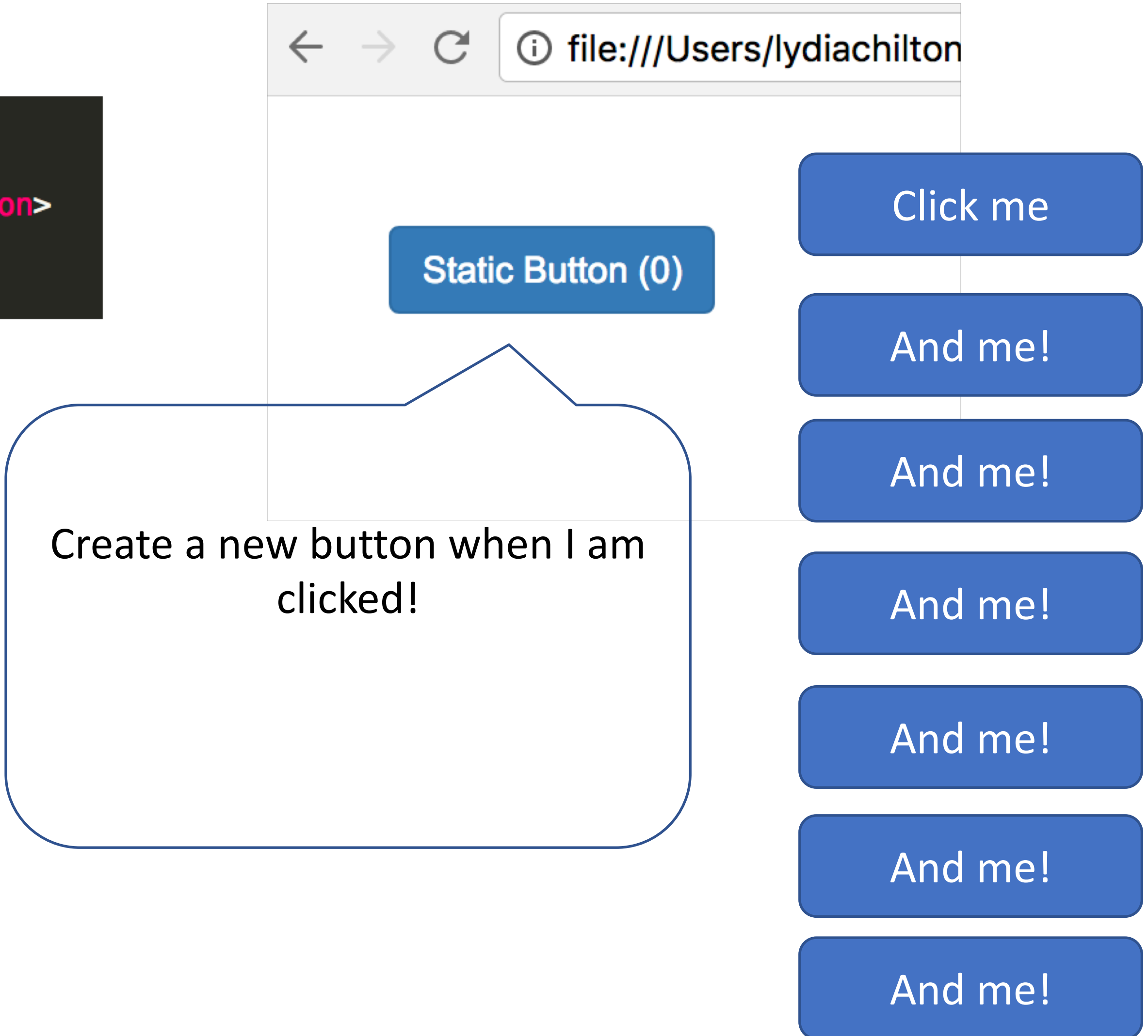


```html
<body>

    <button id="counter" class="btn btn-primary"></button>

</body>
```

JavaScript



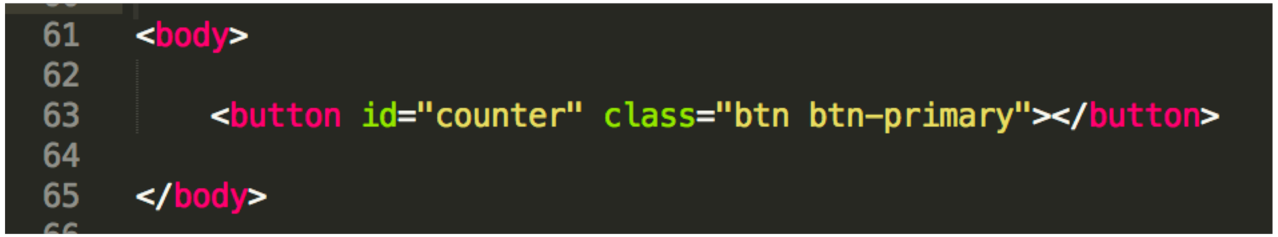
```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
    })
})
```



Create a new button when I am clicked!

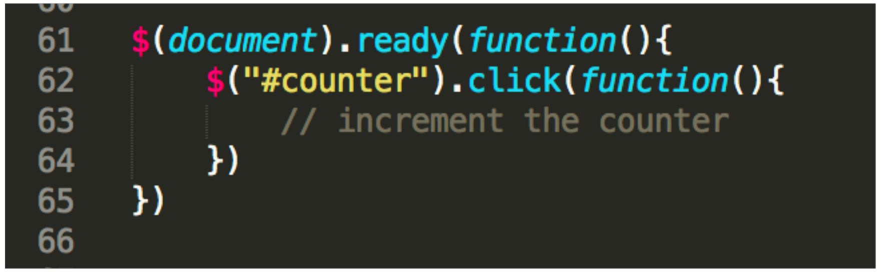
Where in the code should we add the dynamic behavior?

HTML

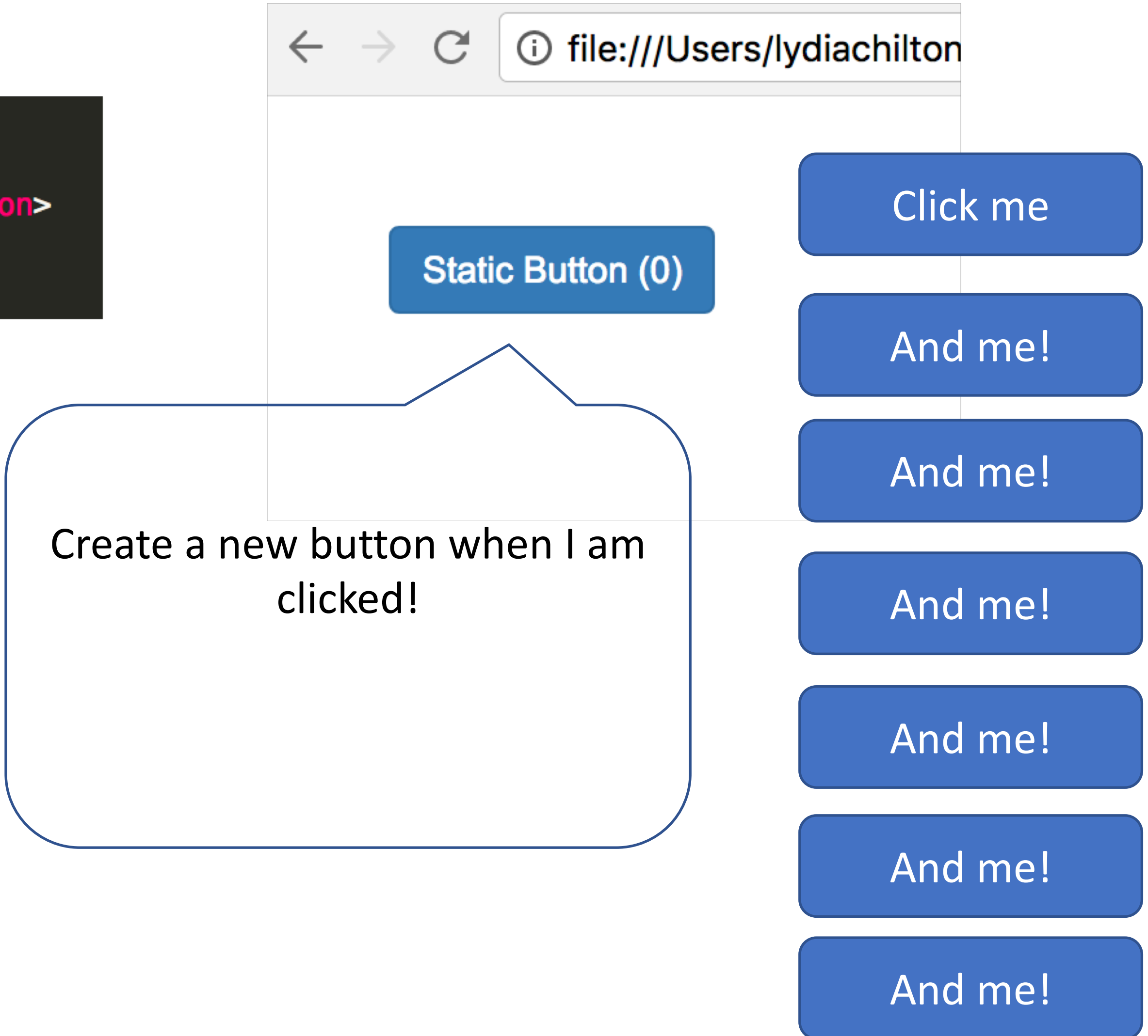


```html
<body>

    <button id="counter" class="btn btn-primary"></button>

</body>
```

JavaScript



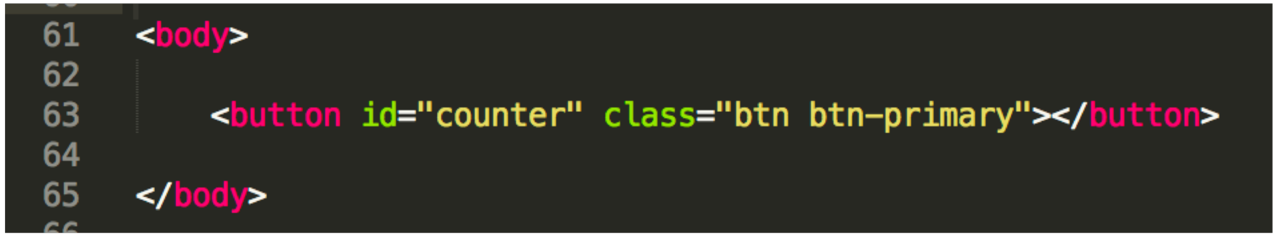
```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
    })
})
```



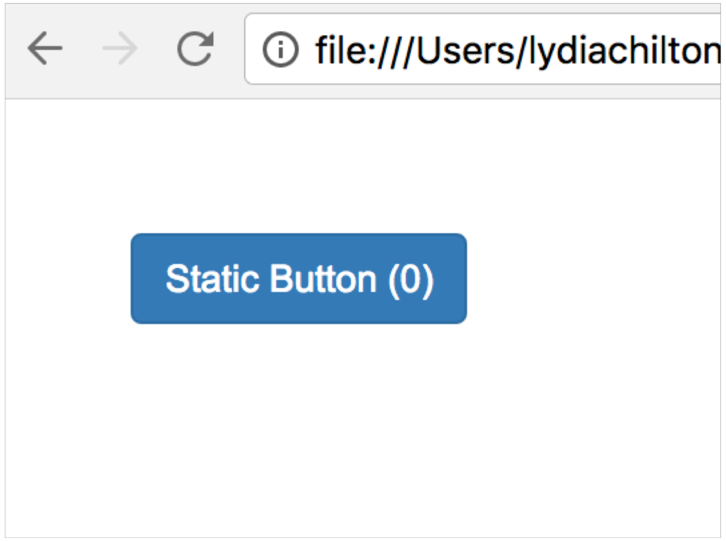
Create a new button when I am clicked!

How did we create the button in JavaScript?

HTML

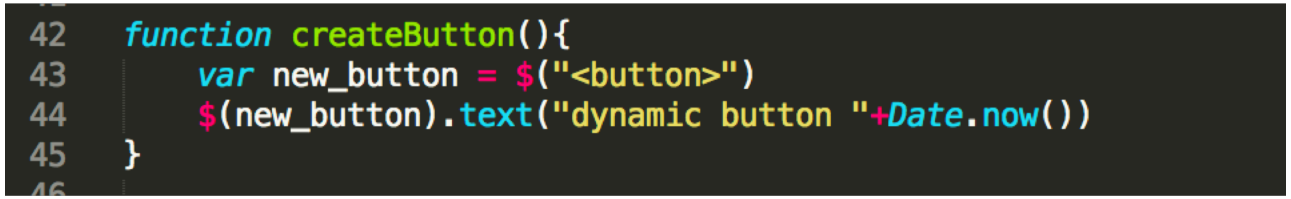


```
<body>

    <button id="counter" class="btn btn-primary"></button>

</body>
```

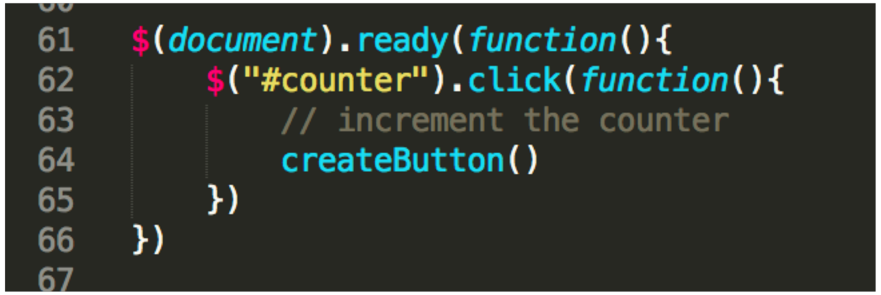


file:///Users/lydiachilton

JavaScript



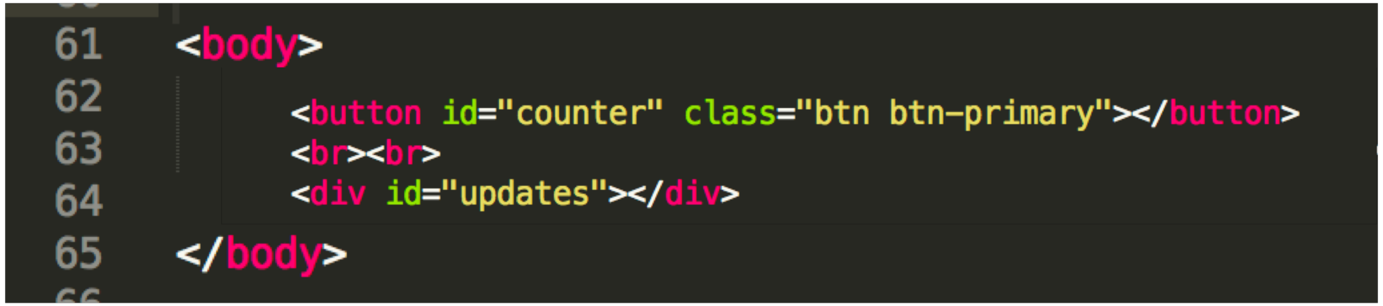
```
function createButton(){
    var new_button = $("<button>")
    $(new_button).text("dynamic button "+Date.now())
}
```



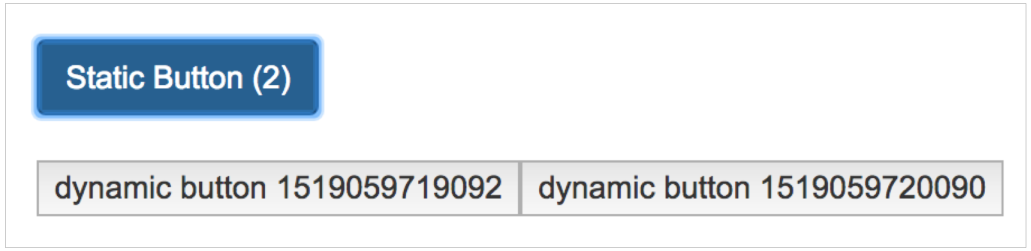
```
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

Add widget to UI dynamically

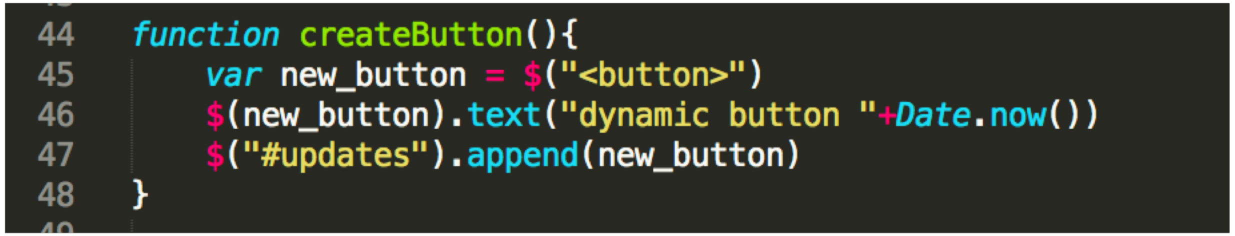
HTML



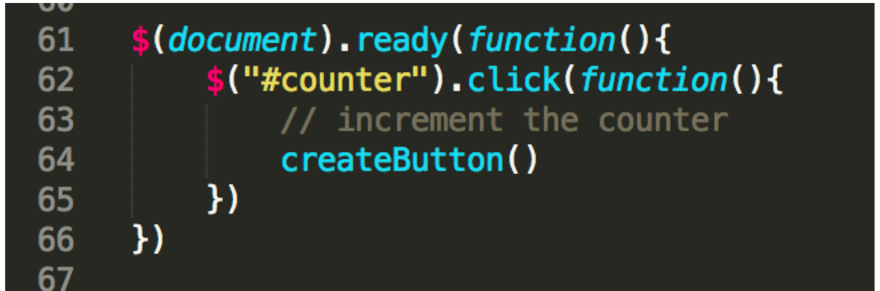
```html
<body>
        <button id="counter" class="btn btn-primary"></button>
        <br><br>
        <div id="updates"></div>
</body>
```



JavaScript



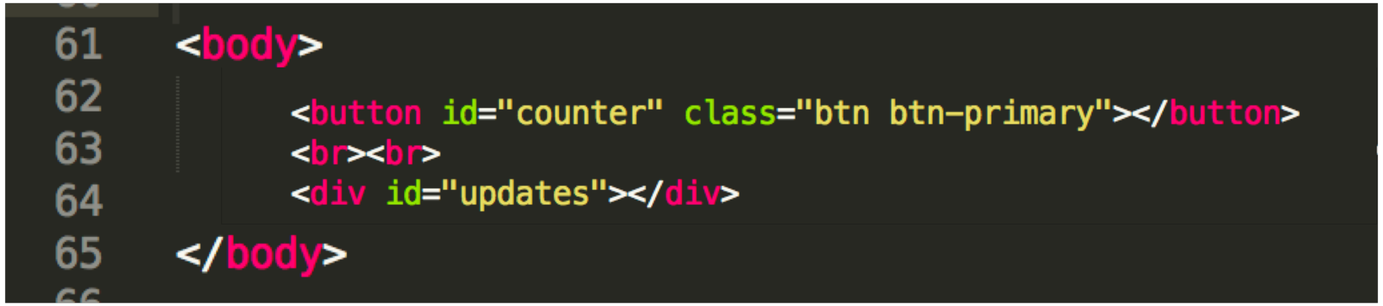
```javascript
function createButton(){
    var new_button = $("<button>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
}
```



```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

Where do we create a **line break** *dynamically*?

HTML



```html
<body>
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        <br><br>
        <div id="updates"></div>
</body>
```
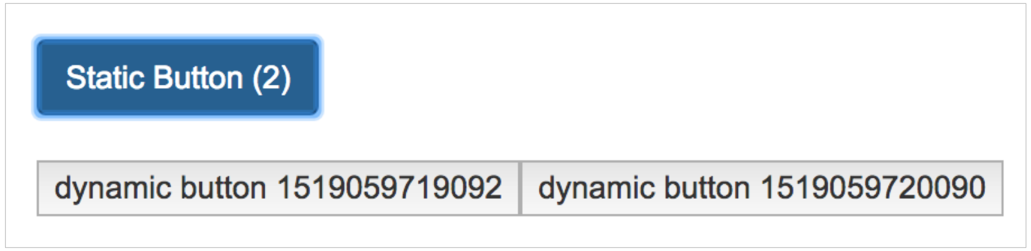
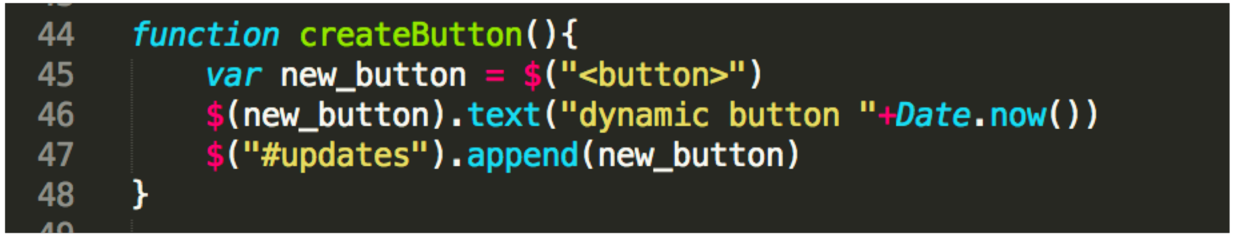



JavaScript



```javascript
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    var new_button = $("<button>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
}
```
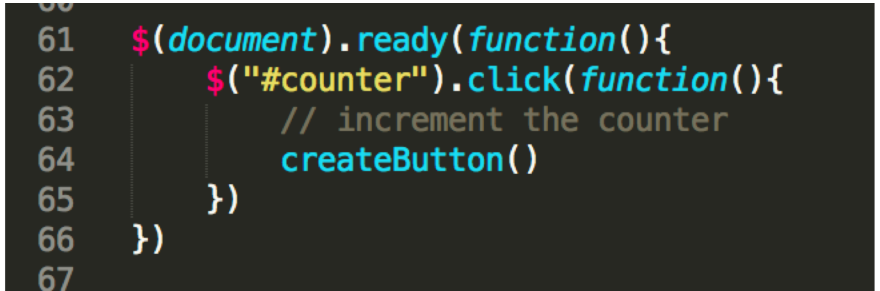
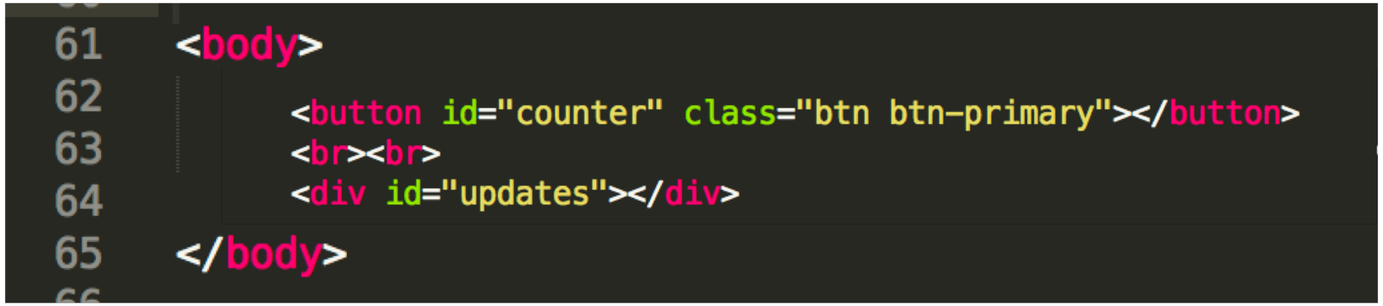



```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

How do we create a **line break** *dynamically*?

HTML



```
<body>
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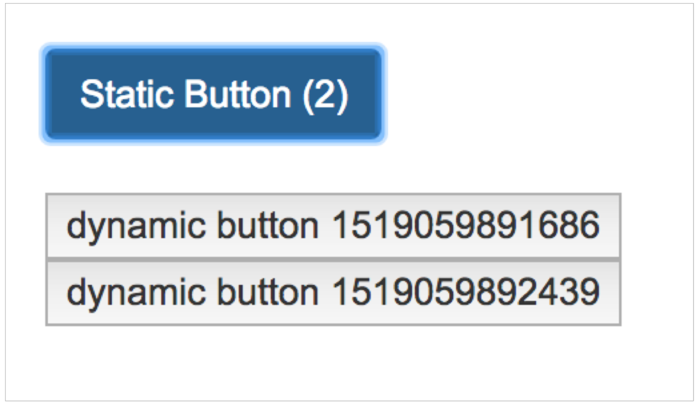
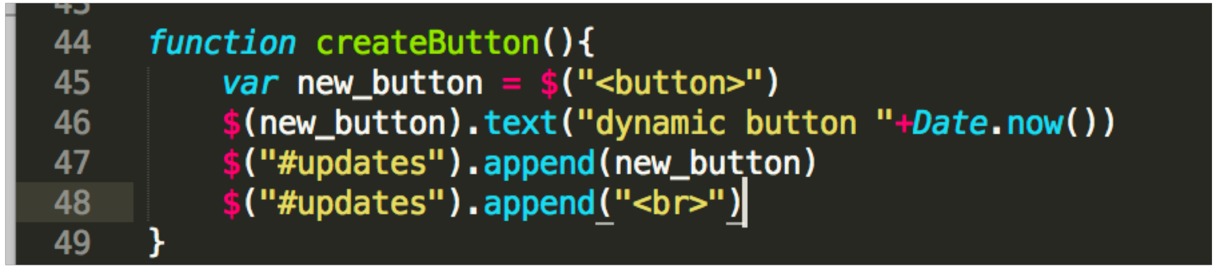
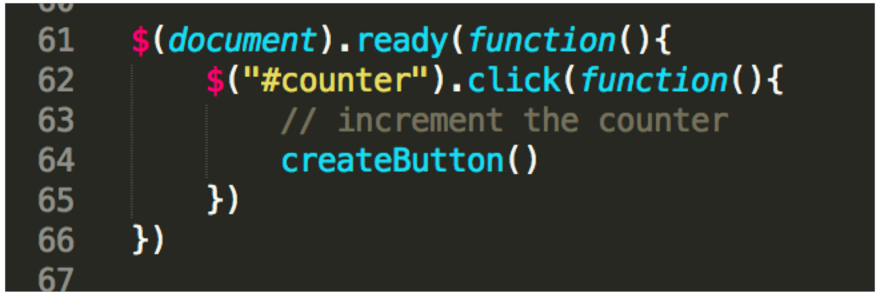


JavaScript



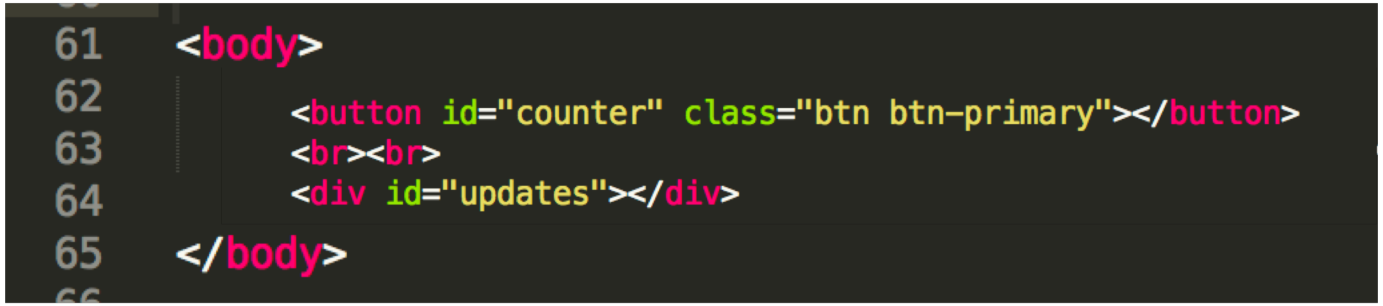
```
function createButton(){
    var new_button = $("<button>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
    $("#updates").append("<br>")
}
```



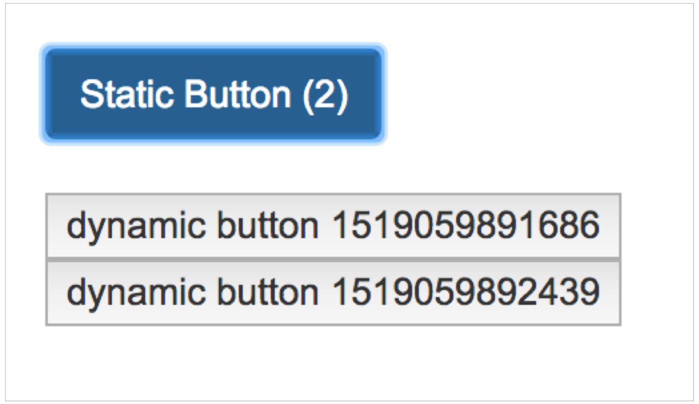
```
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

Where do we create a **bootstrap** button dynamically?

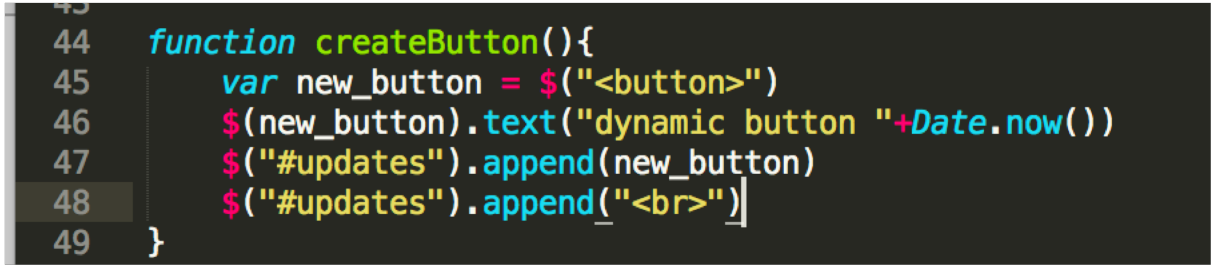
HTML



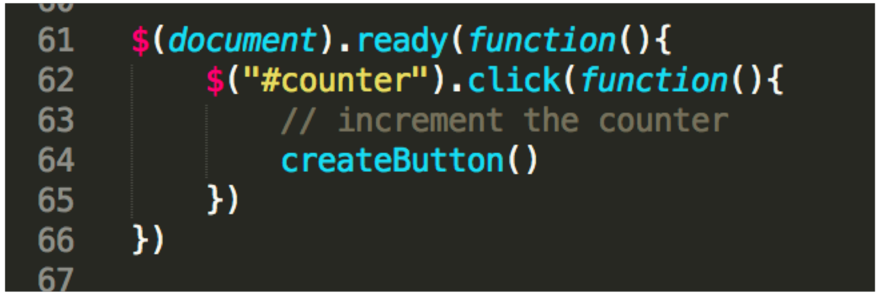
```
<body>
        <button id="counter" class="btn btn-primary"></button>
        <br><br>
        <div id="updates"></div>
</body>
```



JavaScript



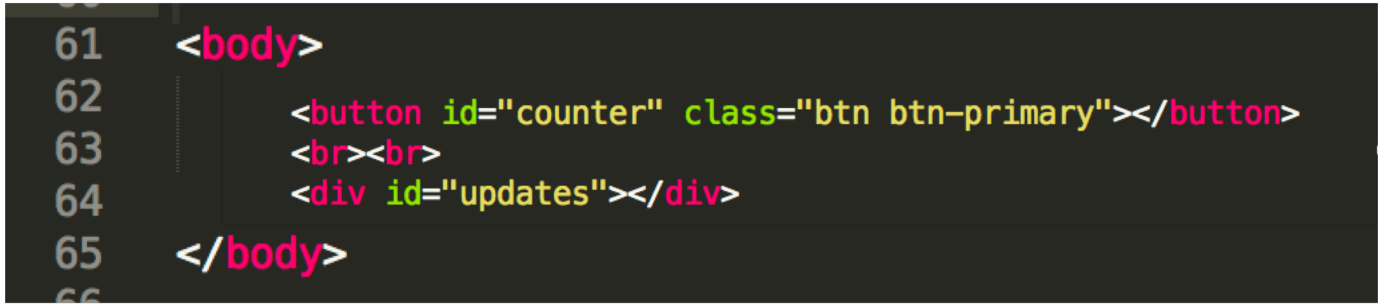
```
function createButton(){
    var new_button = $("<button>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
    $("#updates").append("<br>")
}
```



```
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

How do we create a **bootstrap** button dynamically?

HTML



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        <div id="updates"></div>
</body>
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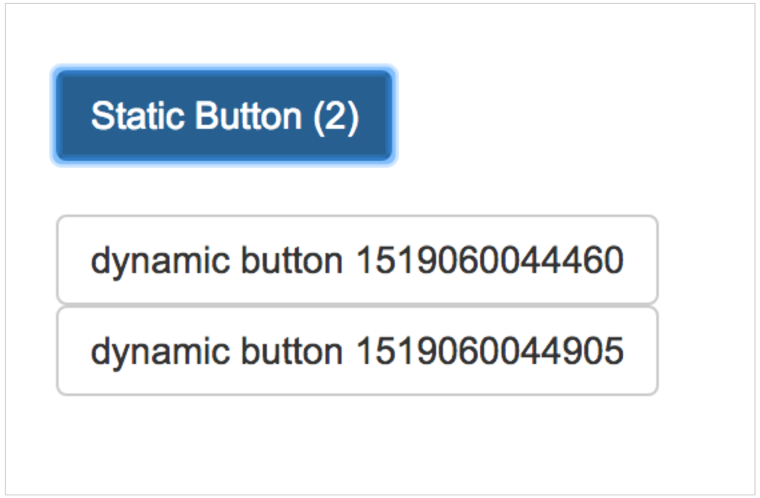
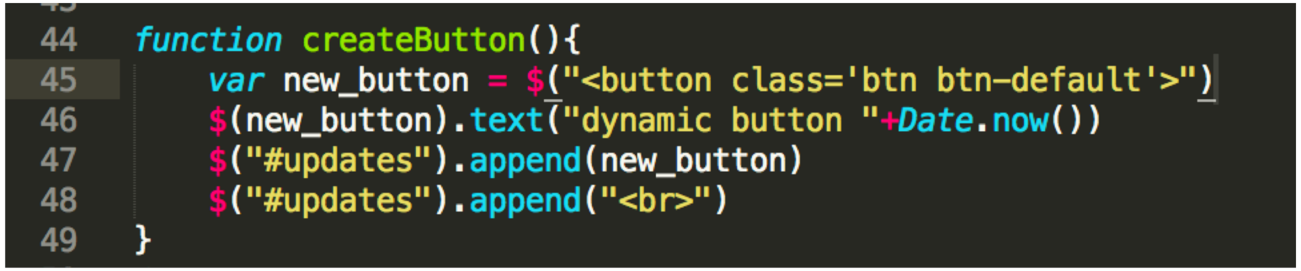
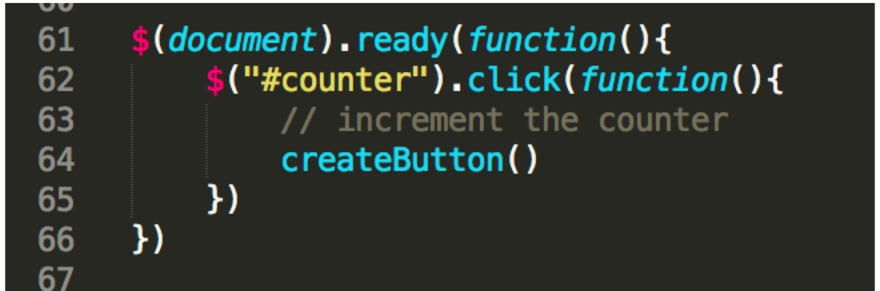


JavaScript



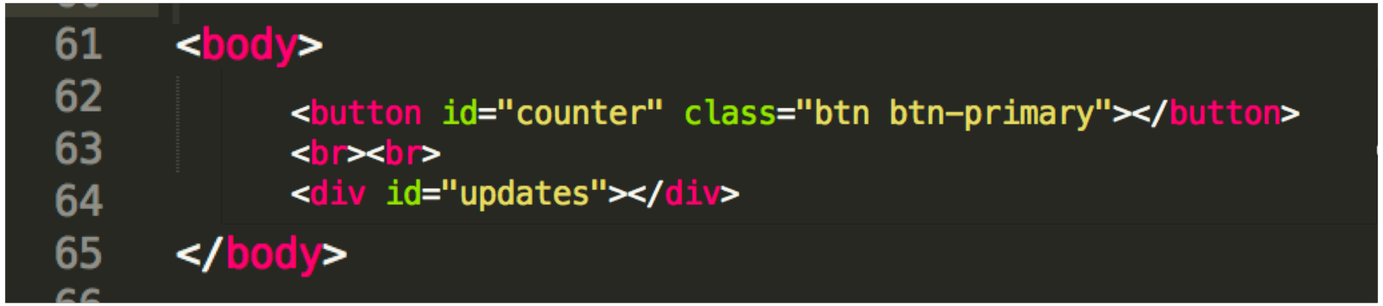
```javascript
function createButton(){
    var new_button = $("<button class='btn btn-default'>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
    $("#updates").append("<br>")
}
```



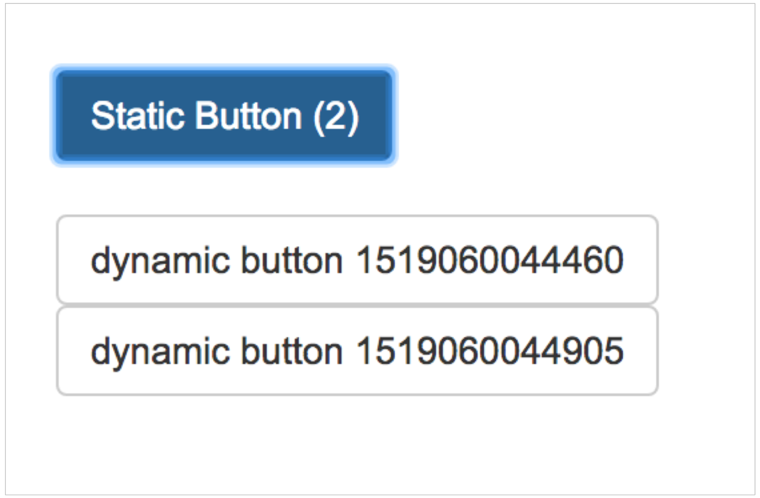
```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

Where do we create a **click event** ***dynamically***?

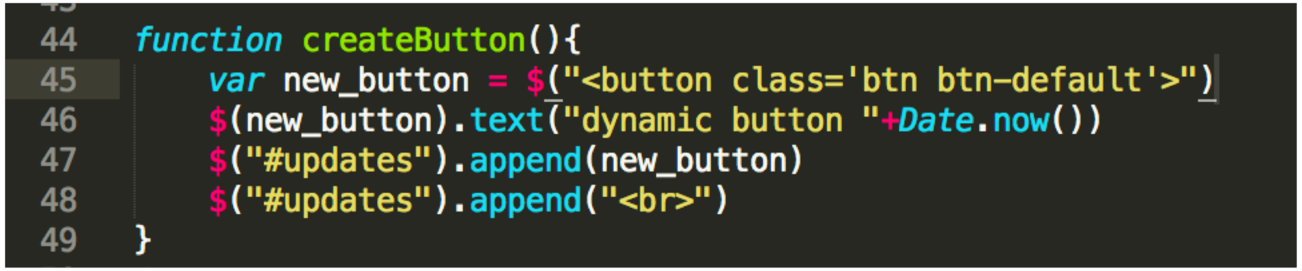
HTML



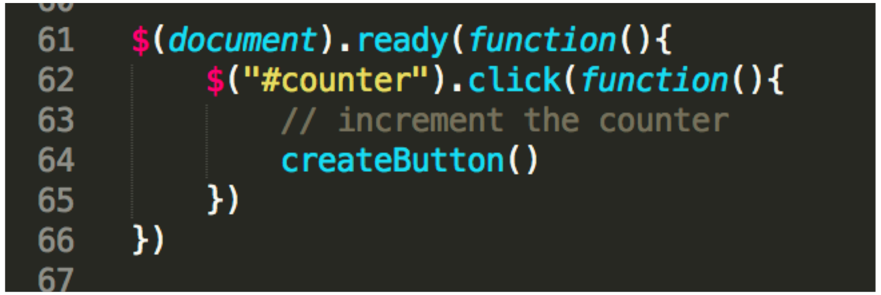
```
<body>
        <button id="counter" class="btn btn-primary"></button>
        <br><br>
        <div id="updates"></div>
</body>
```



JavaScript



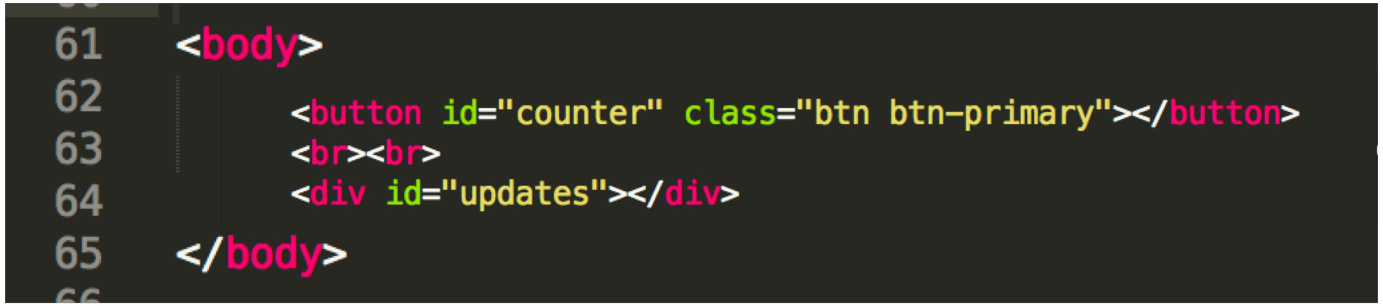
```
function createButton(){
    var new_button = $("<button class='btn btn-default'>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
    $("#updates").append("<br>")
}
```



```
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

How do we create a **click event** *dynamically*?

HTML



```html
<body>
        <button id="counter" class="btn btn-primary"></button>
        <br><br>
        <div id="updates"></div>
</body>
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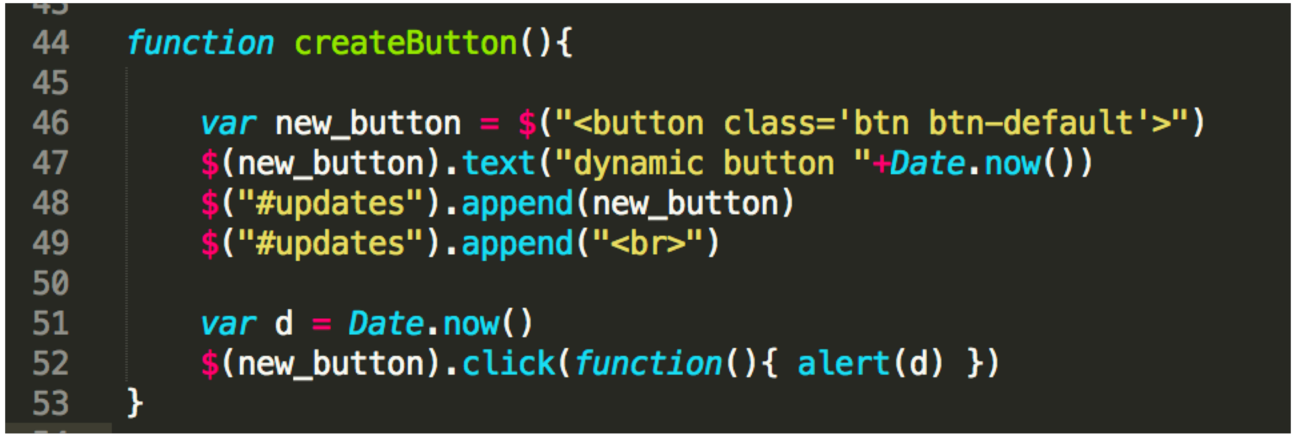
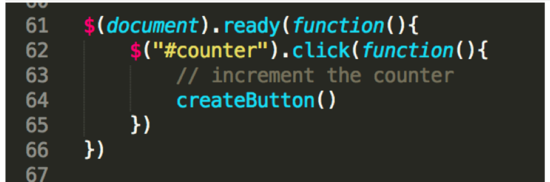
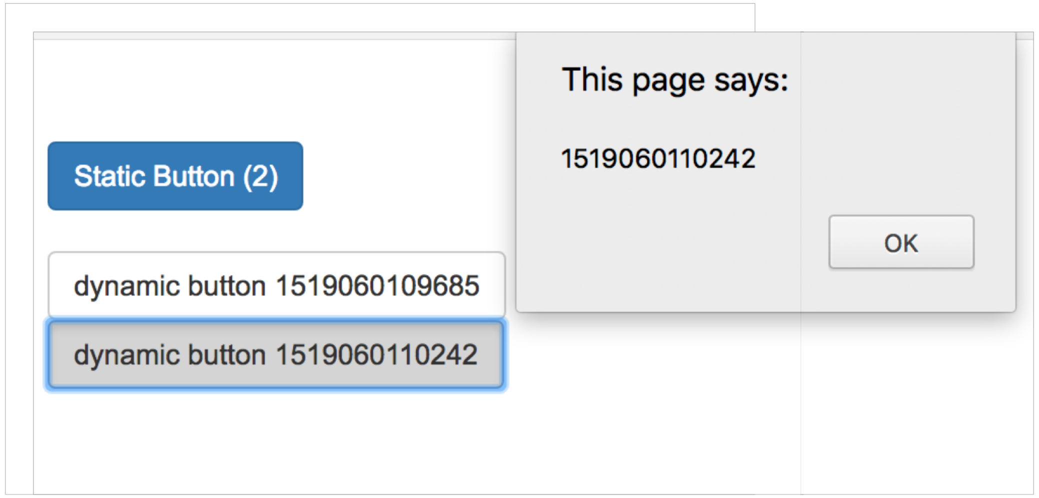
JavaScript



```javascript
function createButton(){

    var new_button = $("<button class='btn btn-default'>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
    $("#updates").append("<br>")

    var d = Date.now()
    $(new_button).click(function(){ alert(d) })
}
```



```javascript
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```

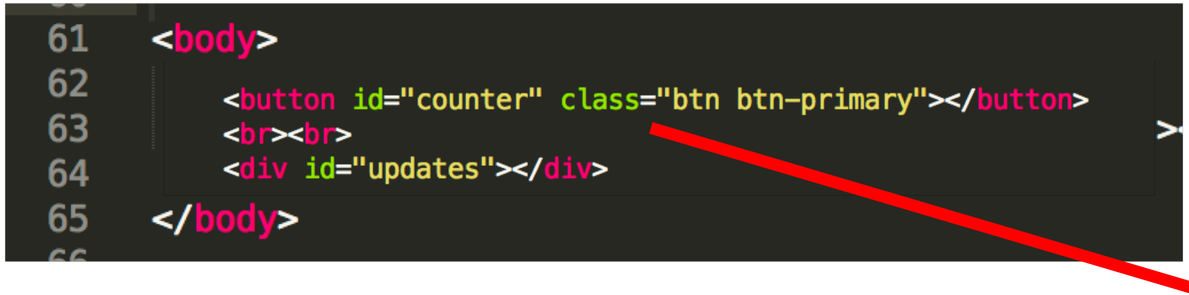


This page says:

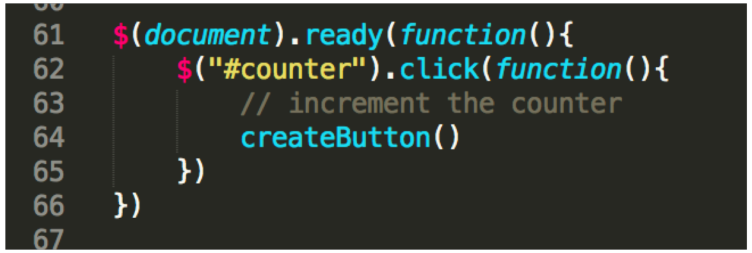
1519060110242

You can create elements **statically** in HTML
Or **dynamically** in JavaScript (JQuery)

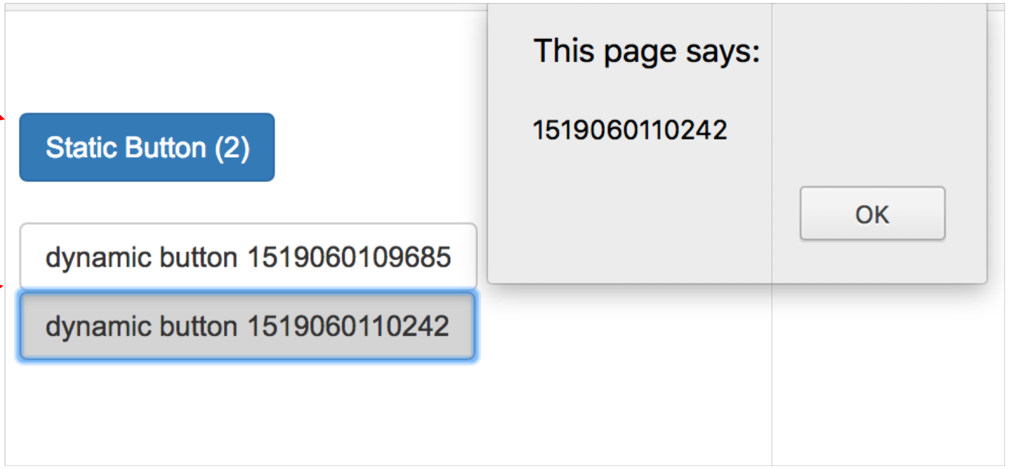
Static: HTML, JavaScript onReady



```
<body>
    <button id="counter" class="btn btn-primary"></button>
    <br><br>
    <div id="updates"></div>
</body>
```



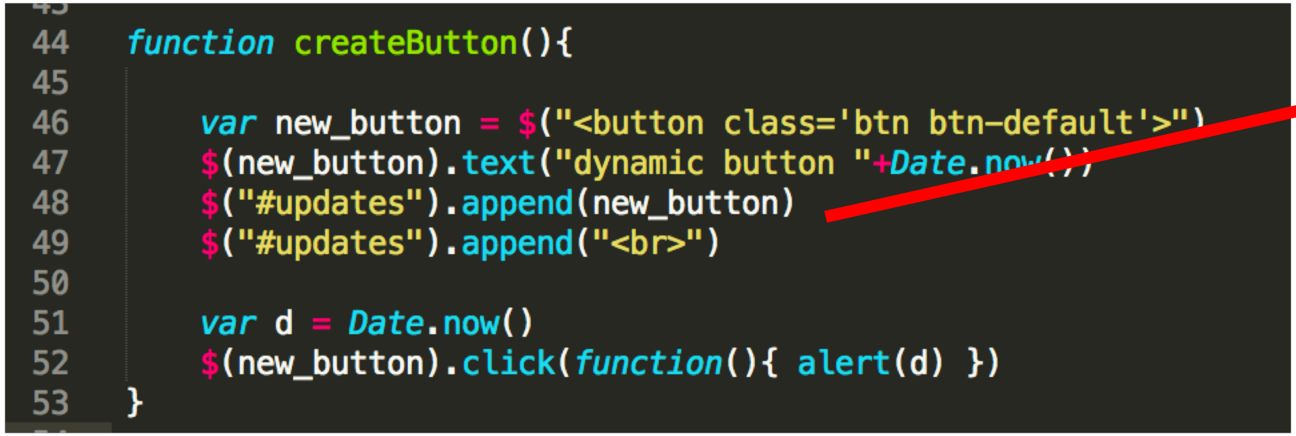
```
$(document).ready(function(){
    $("#counter").click(function(){
        // increment the counter
        createButton()
    })
})
```



This page says:

1519060110242

Dynamic: All JavaScript

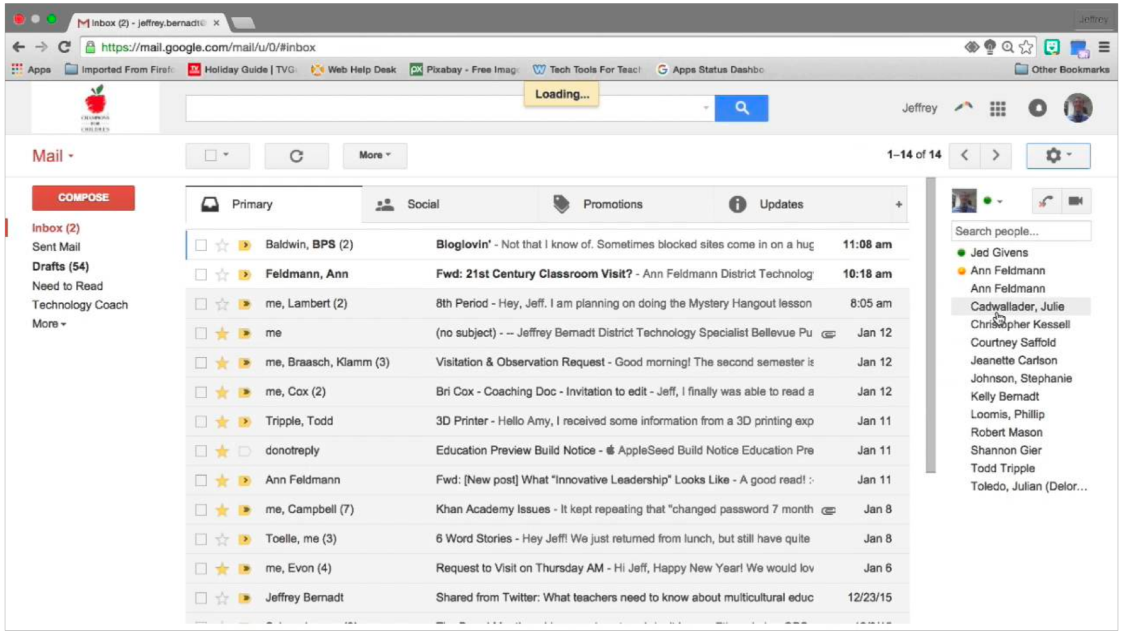


```
function createButton(){

    var new_button = $("<button class='btn btn-default'>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
    $("#updates").append("<br>")

    var d = Date.now()
    $(new_button).click(function(){ alert(d) })
}
```

Widgets and Events

Basic elements for users to interact with your UI

Button Widget interaction: What event fires?



□ ☆	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
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□ ★	donotreply	Education Preview Build Notice - AppleSeed Build Notice Education Pre		Jan 11
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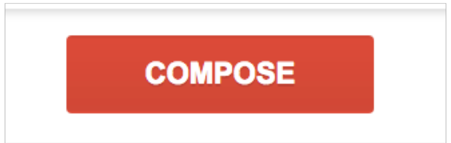
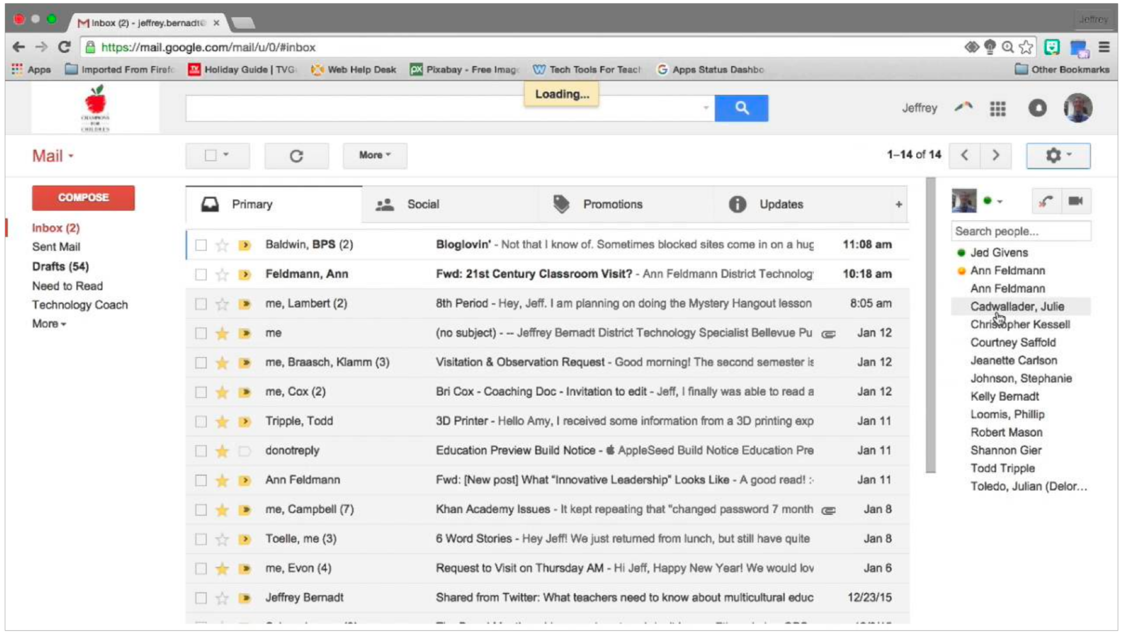


“Click event”

Text Input interaction: What event fires?



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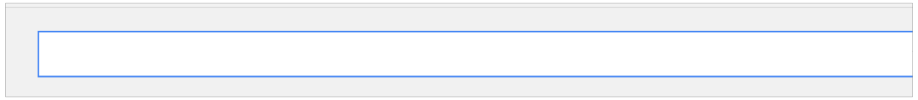
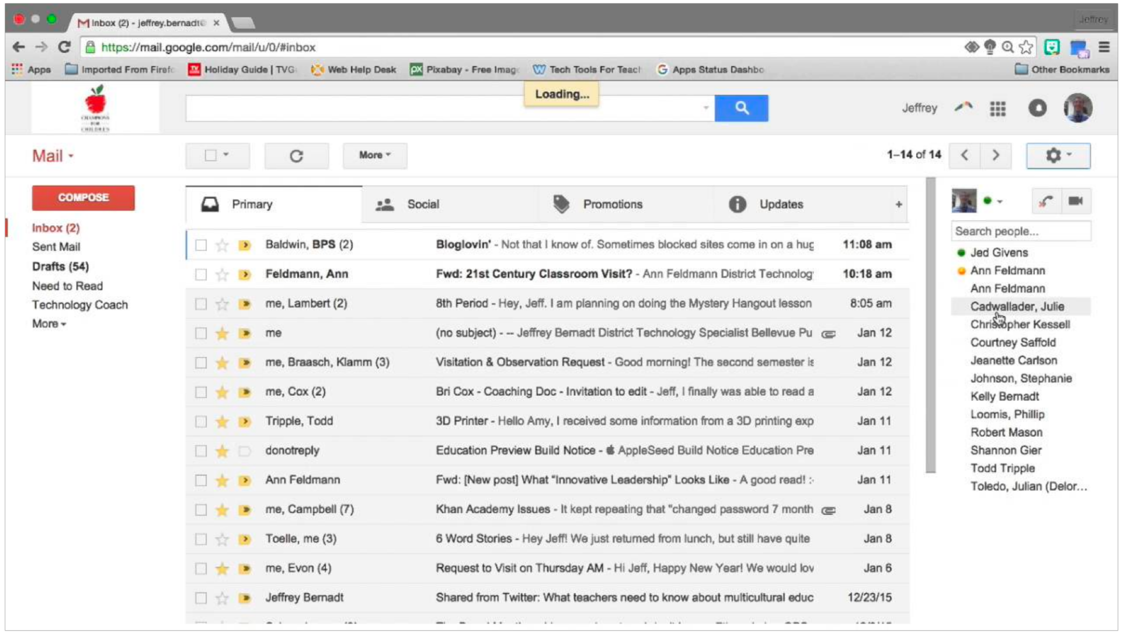
- Loomis, Phillip
- Robert Mason
- Shannon Gier
- Todd Tripple
- Toledo, Julian (Delor...



“Keypress” event

Radio Input interaction: What event fires?



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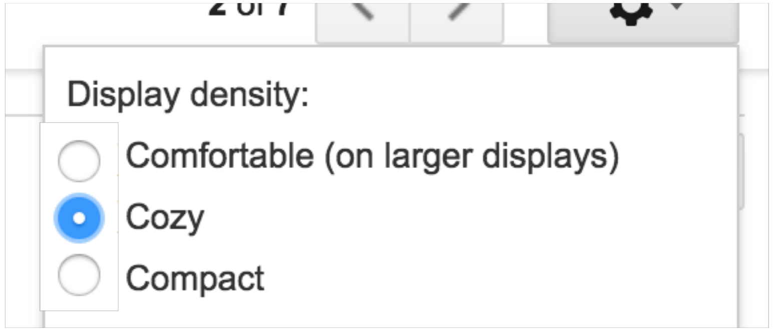


Display density:

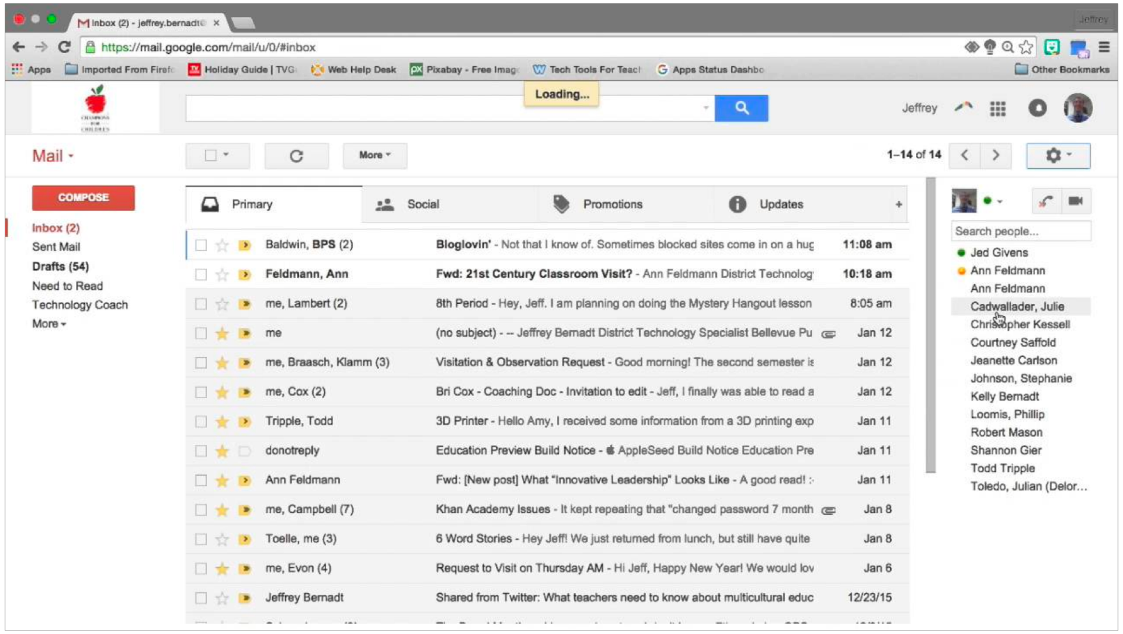
○ Comfortable (on larger displays)

● Cozy

○ Compact

“Change” event

<select> interaction: What event fires?



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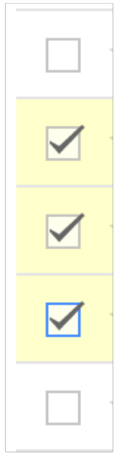
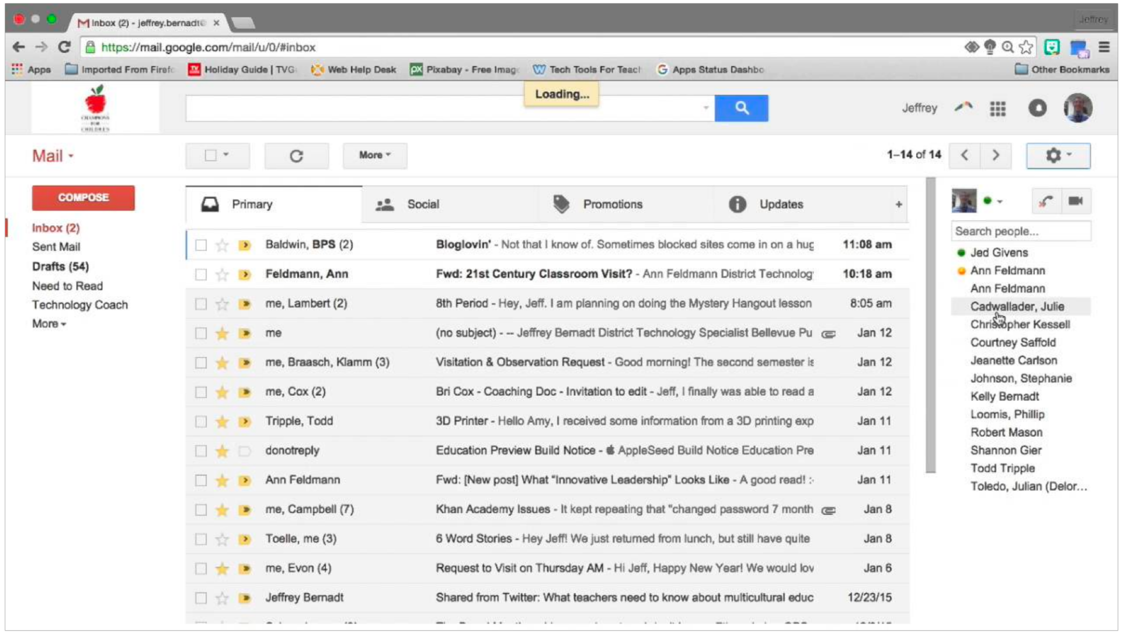


“Change” event

Dropdown interaction: What event fires?



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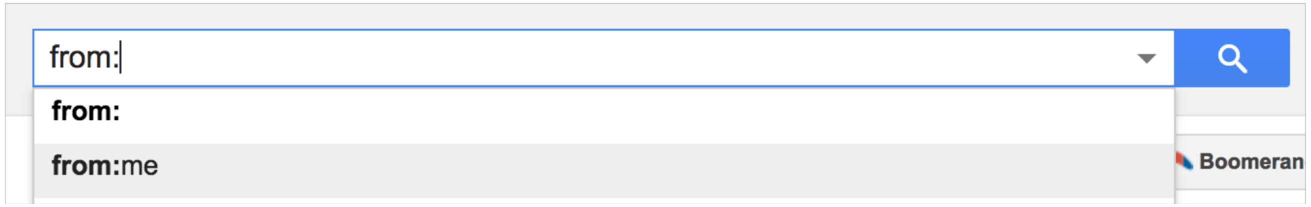
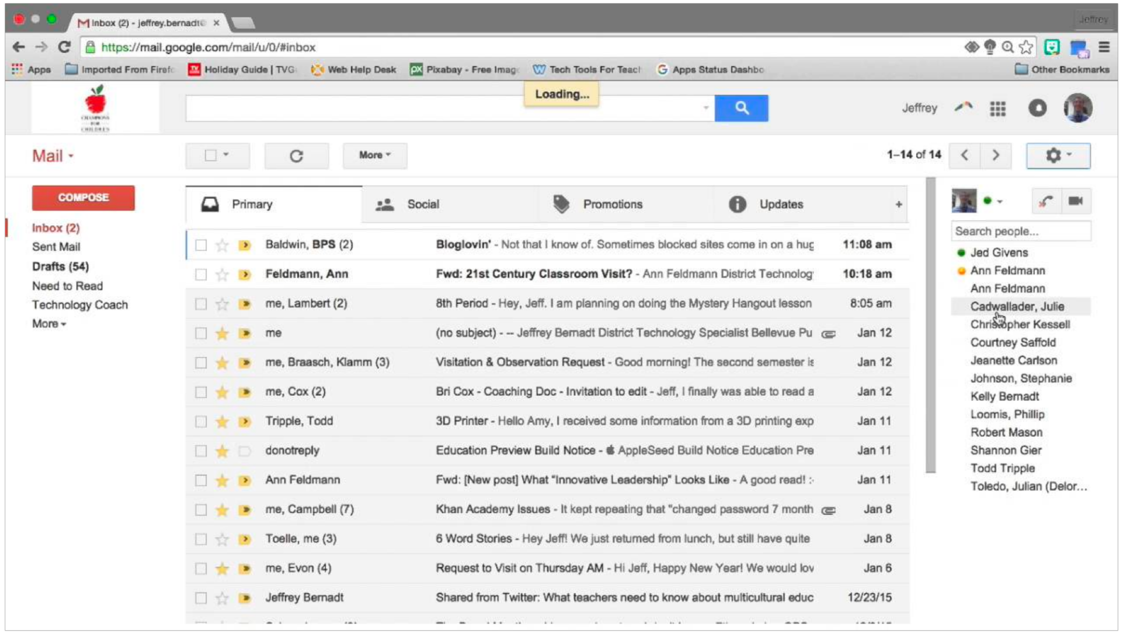


“Select” event

Drag and Drop interaction: What events fire?



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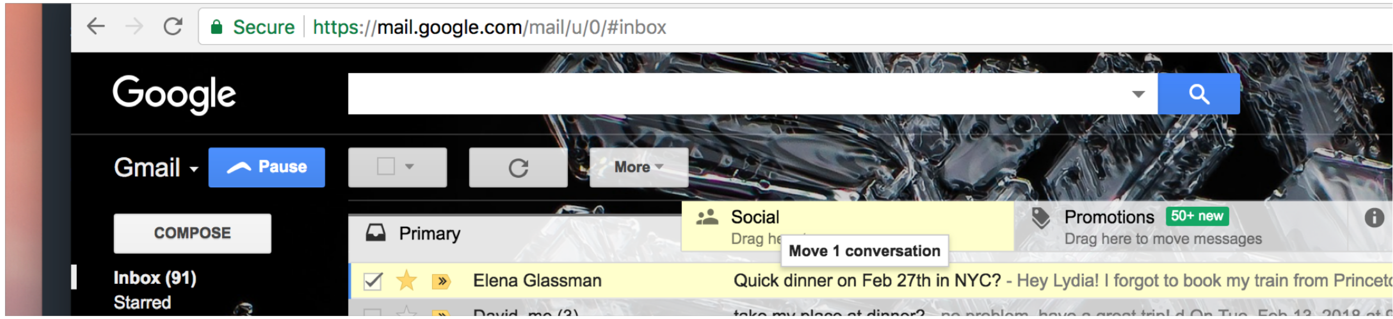


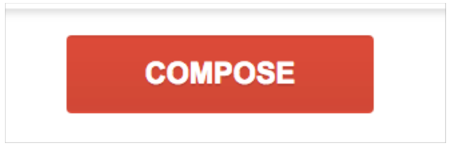
Elena Glassman	Quick dinner on Feb 27th in NYC? - Hey Lydia! I forgot to book my train from Princeto

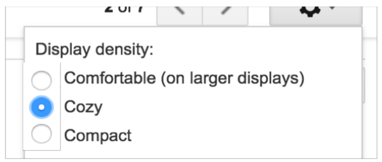
- "Drag" event
- "Drop" event

Widgets are standardized low-level interaction interfaces that trigger events

When you create a widget…

The **appearance** is standardized,



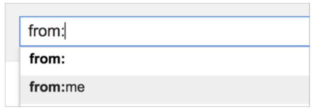


Display density:

○ Comfortable (on larger displays)

● Cozy

○ Compact



from:

from:

from:me

The **types of events** it responds to are standardized

“Click”

“Keypress”

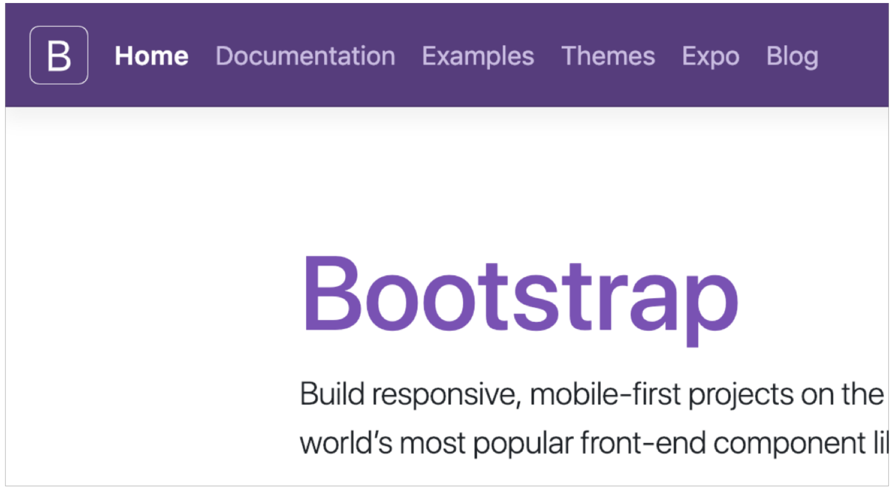
“Change”

“Search”

But the actions taken after an event is fired, are not standardized

Pros and Cons of Standardization

Things that have become standardized

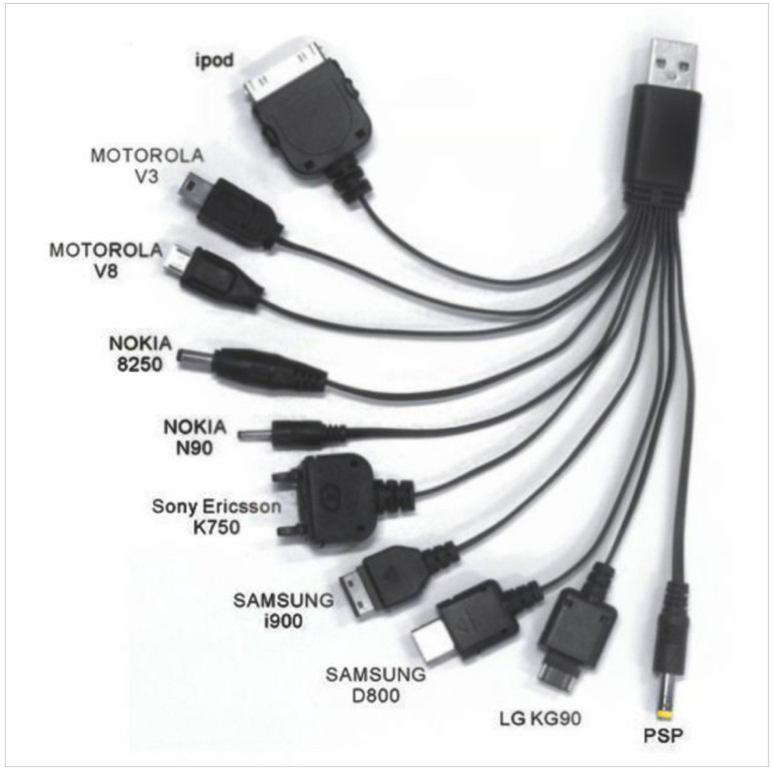


Bootstrap

Build responsive, mobile-first projects on the world's most popular front-end component li

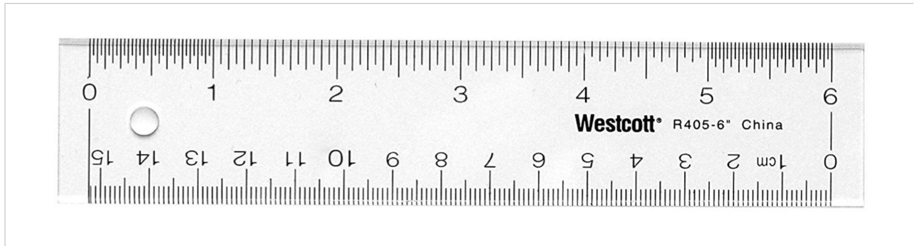
Things that have not become standardized

VS.
iOS
Android



"colour", "honour", "cheque", "connexion"

Old things that got standardized



What’s good about standardization?

Standardized

Non-Standardized

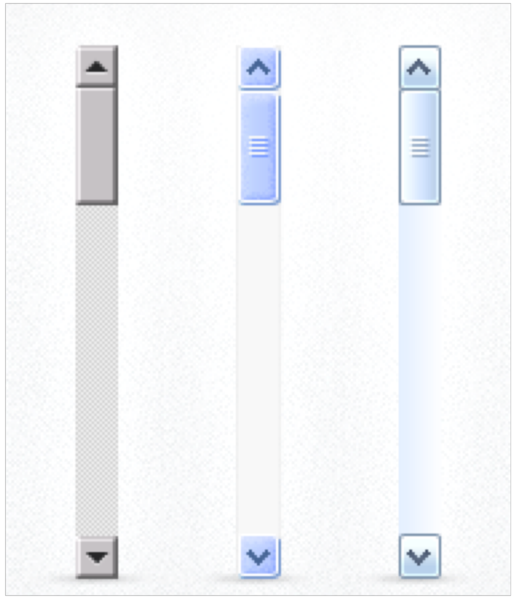
What's bad about standardization?

Standardized

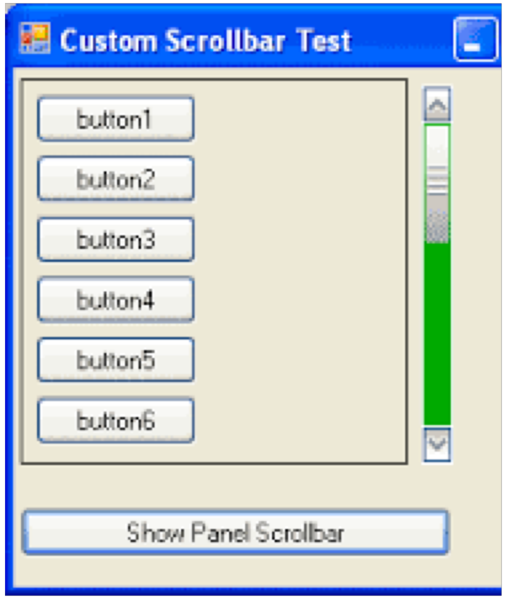
Non-Standardized

Widgets allow customization

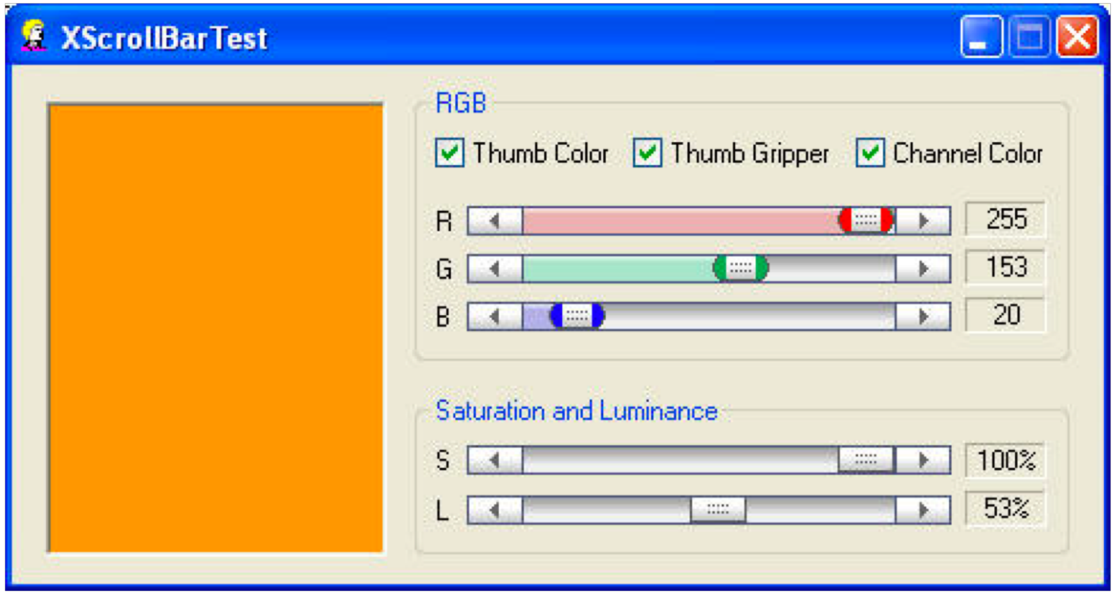
Customizable scroll bars



Bad use of customization.



Good use of customization.



☑ Thumb Color ☑ Thumb Gripper ☑ Channel Color

R 255

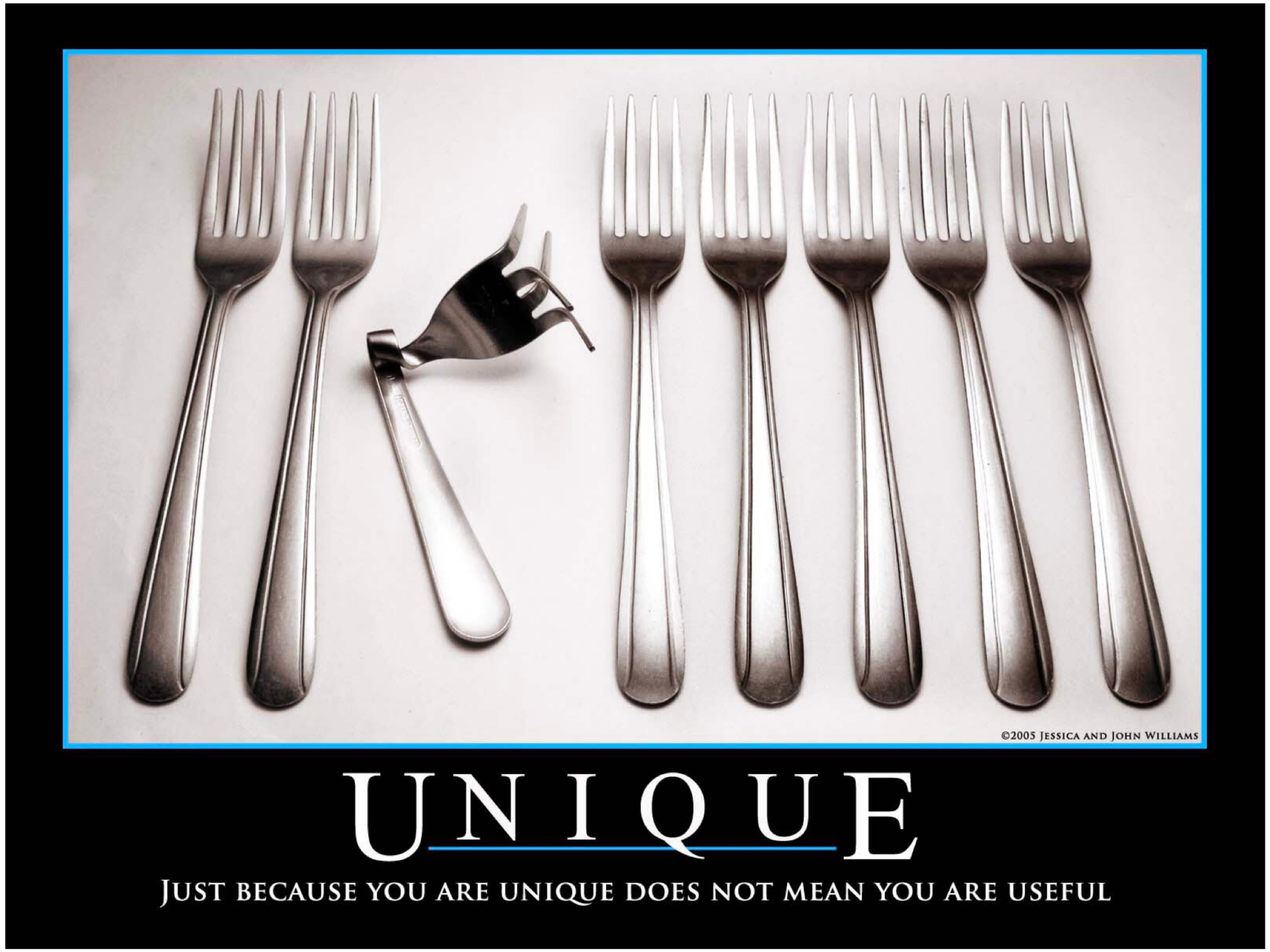
G 153

B 20

S 100%

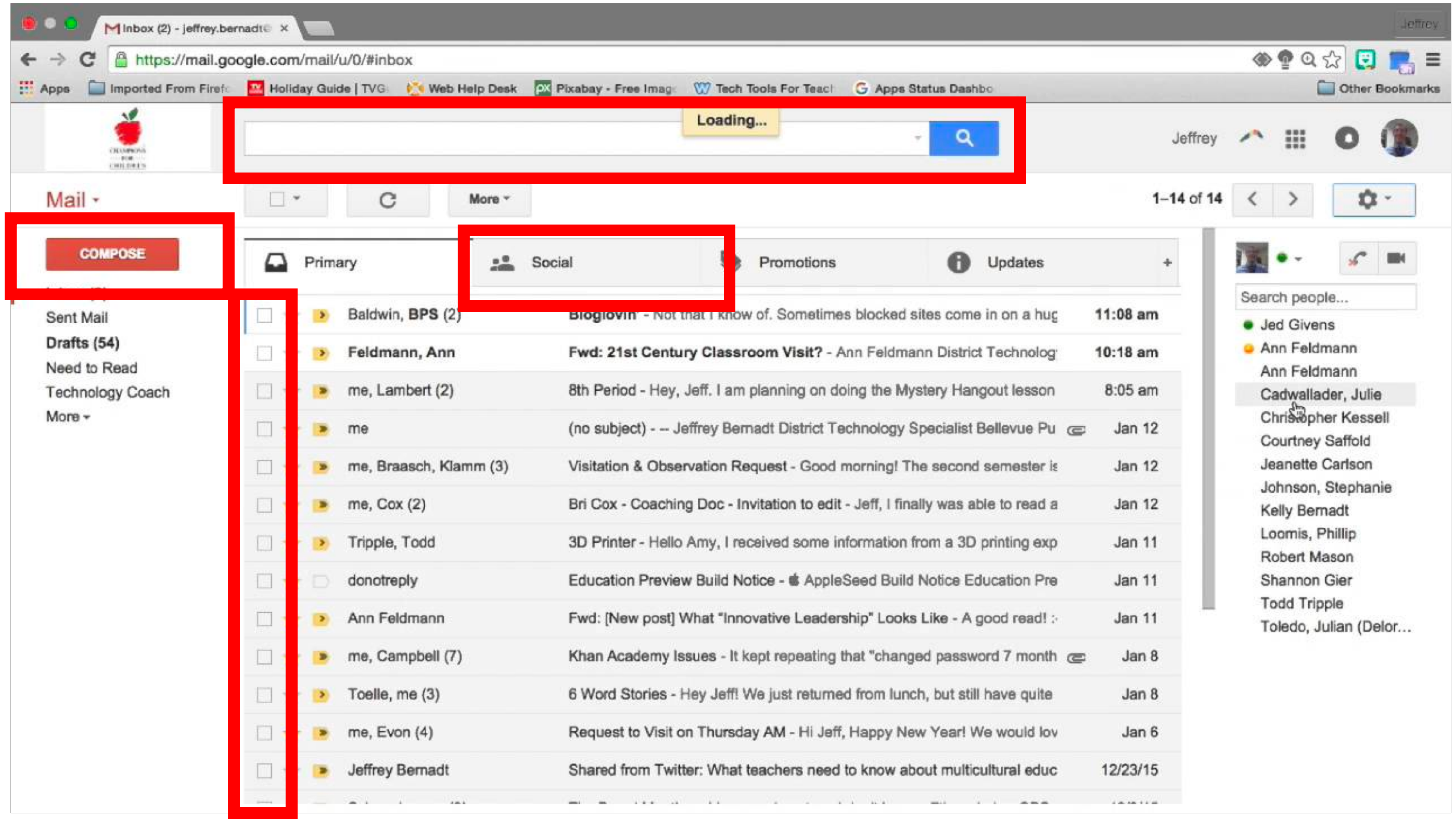
L 53%

Use your powers of customization wisely.


©2005 Jessica and John Williams
UNIQUE
Just because you are unique does not mean you are useful

Summary

We interact with webpages through **widgets**:
Elements with standardized appearance and events



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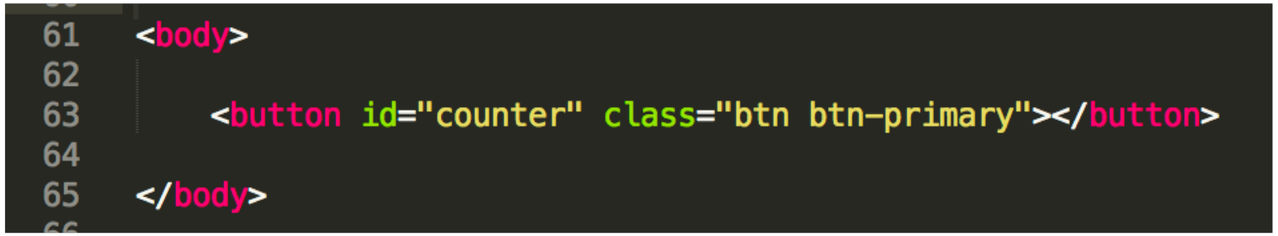
This is how you attach an event in JQuery

HTML

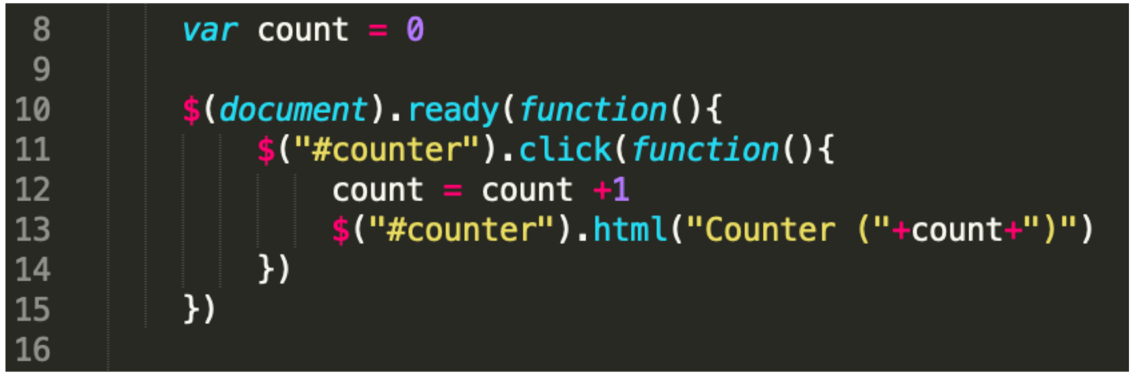


```html
<body>

    <button id="counter" class="btn btn-primary"></button>

</body>
```

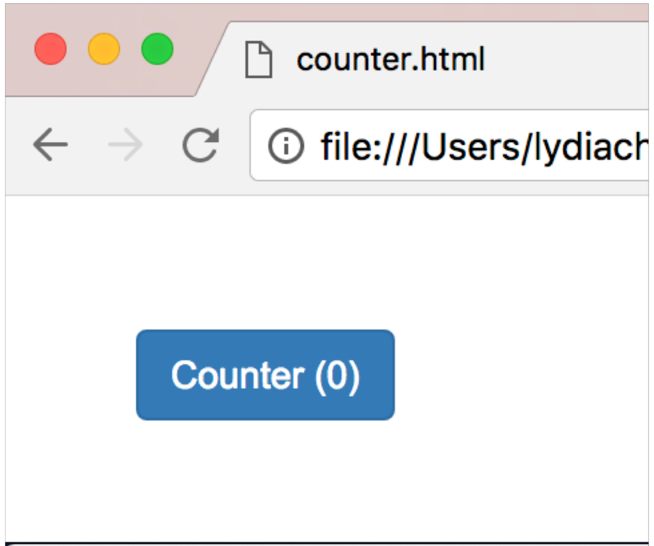
JavaScript

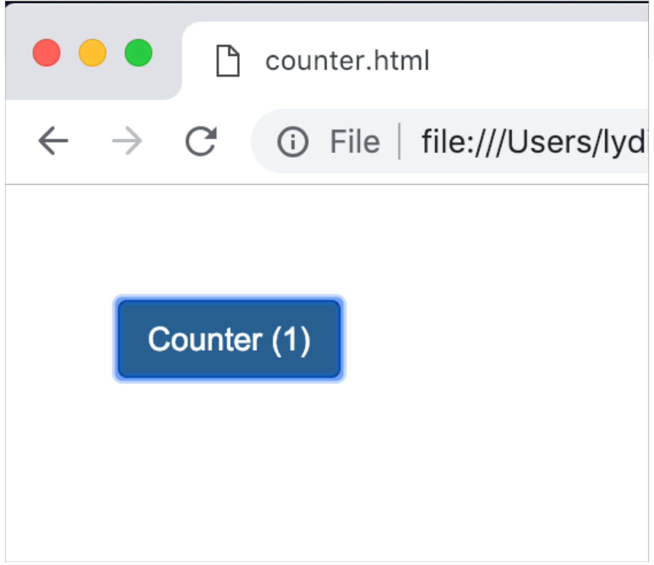


```javascript
    var count = 0

    $(document).ready(function(){
        $("#counter").click(function(){
            count = count +1
            $("#counter").html("Counter ("+count+")")
        })
    })

```





JQuery is a JavaScript Library that make JavaScript easier (and standard across browsers)

JavaScript

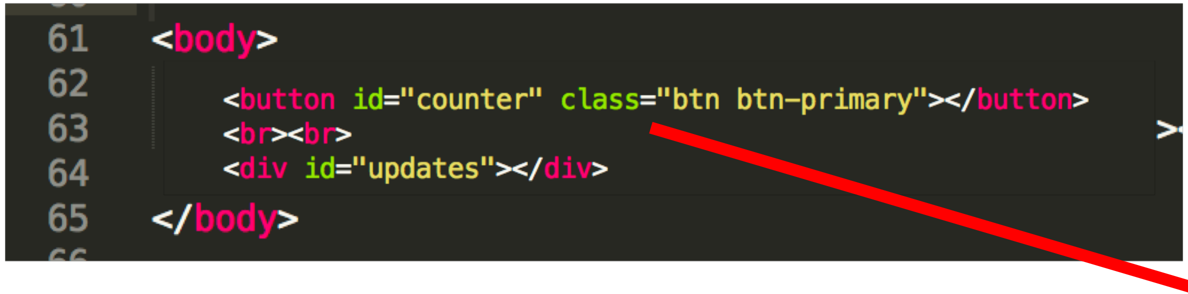
```
document.getElementById("counter").addEventListener("click", function(){
  document.getElementById("counter").innerHTML = "Counter (0)";
});
```

JQuery

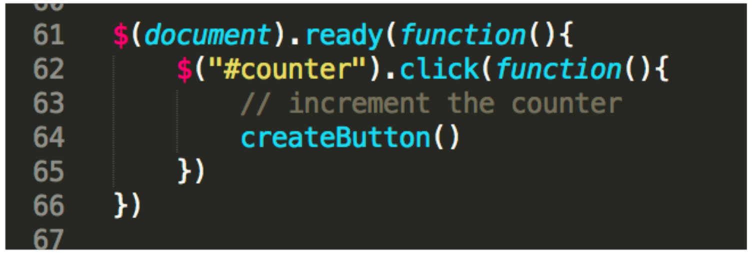
```
$("#counter").click(function(){
  $("#counter").html("Counter (0)");
});
```

You can create elements **statically** in HTML Or **dynamically** in JavaScript (JQuery)

Static: HTML, JavaScript onReady



```
<body>
    <button id="counter" class="btn btn-primary"></button>
    <br><br>
    <div id="updates"></div>
</body>
```



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        createButton()
    })
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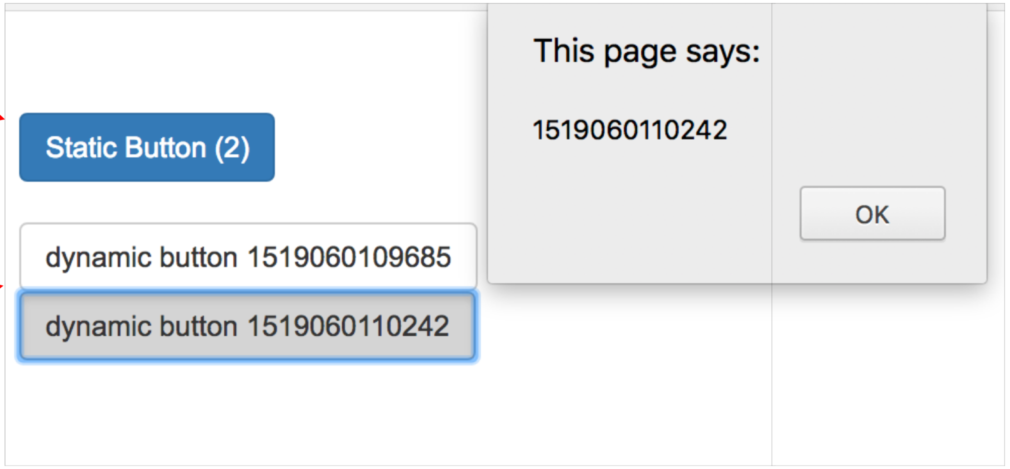
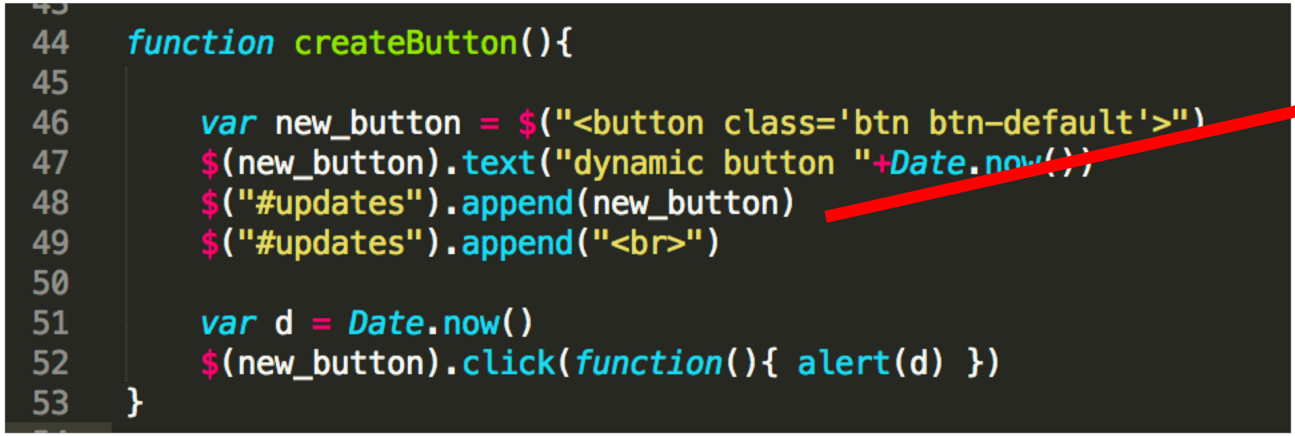
```



This page says:

1519060110242

Dynamic: All JavaScript



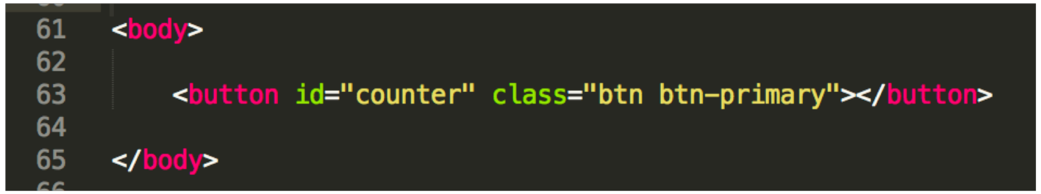
```
function createButton(){

    var new_button = $("<button class='btn btn-default'>")
    $(new_button).text("dynamic button "+Date.now())
    $("#updates").append(new_button)
    $("#updates").append("<br>")

    var d = Date.now()
    $(new_button).click(function(){ alert(d) })
}
```

Widgets are standardized low-level interaction interfaces that trigger events

When you create a widget…

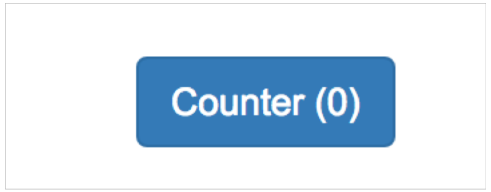


```
<body>

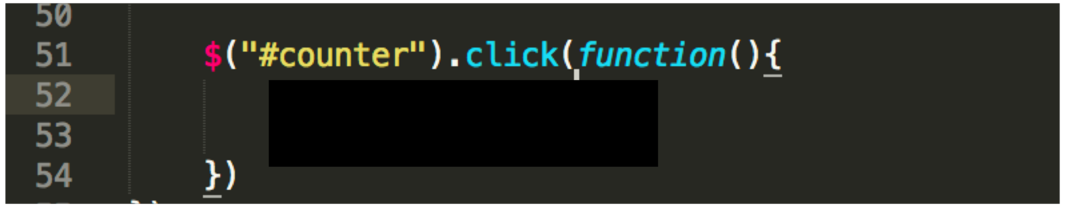
    <button id="counter" class="btn btn-primary"></button>

</body>
```

The **appearance** is standardized,

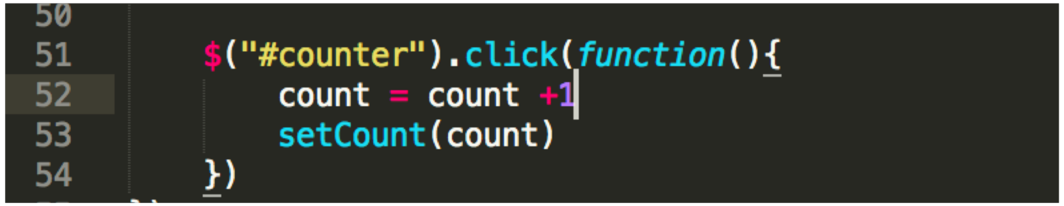


The **types of events** it responds to are standardized



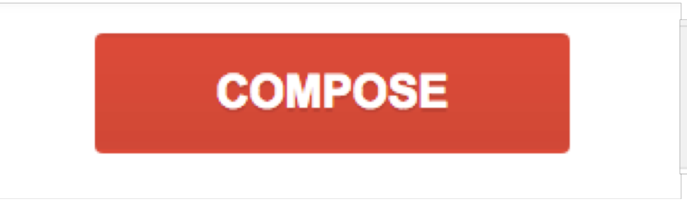
```
    $("#counter").click(function(){
        [redacted]
    })
```

But the actions taken after an event is fired, are not standardized

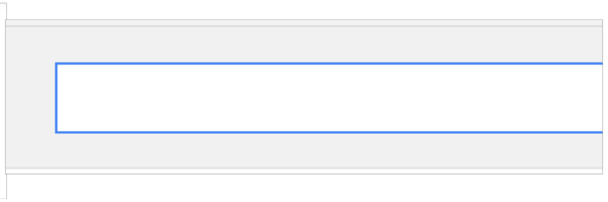


```
    $("#counter").click(function(){
        count = count +1
        setCount(count)
    })
```

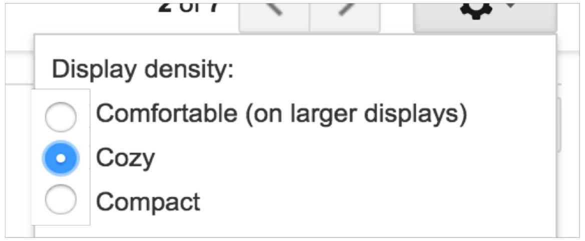
There are many types of widgets and events



Click



Keypress



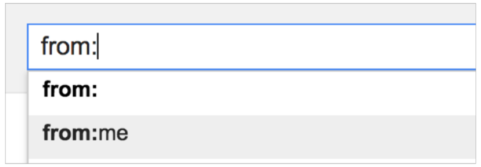
Display density:

○ Comfortable (on larger displays)

● Cozy

○ Compact

Change

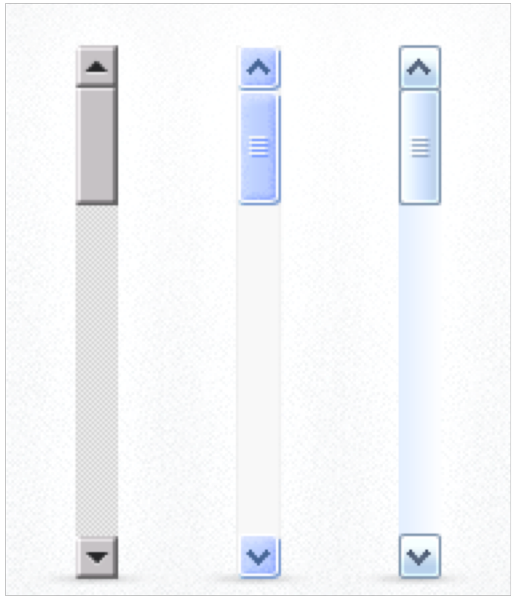


from:

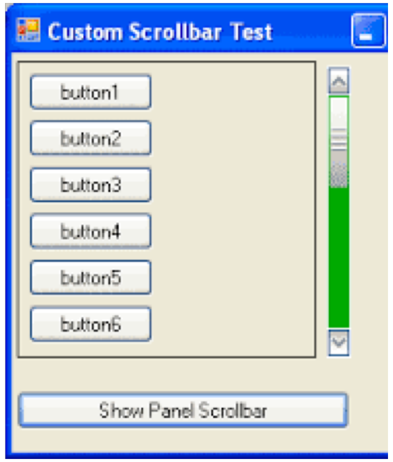
Select

Widgets allow customization.
Use it wisely.

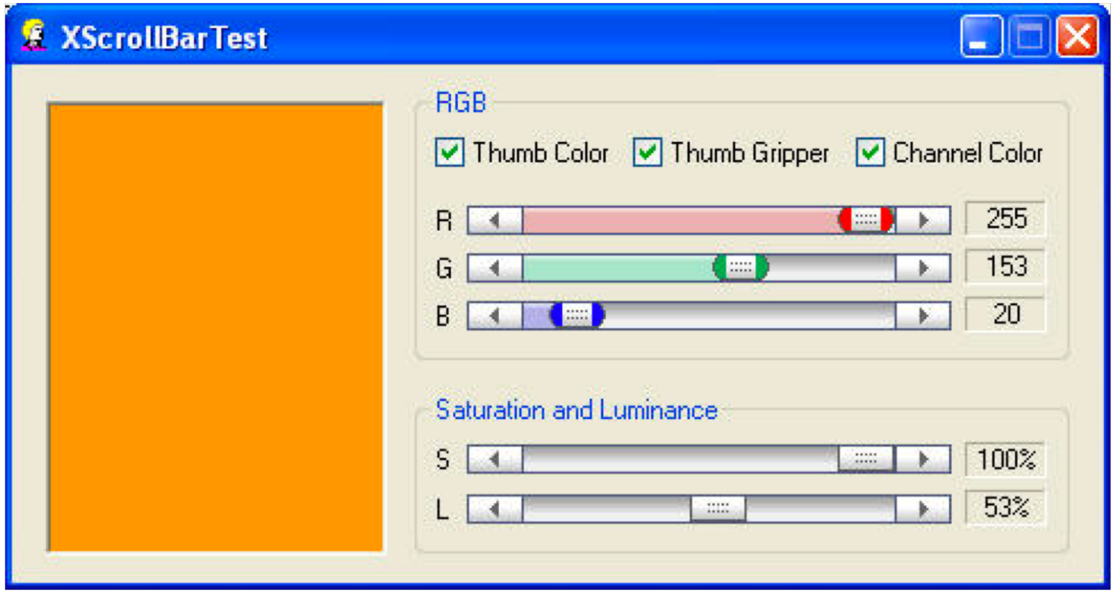
Customizable scroll bars



Bad use of customization.



Good use of customization.



☑ Thumb Color ☑ Thumb Gripper ☑ Channel Color

R 255

G 153

B 20

S 100%

L 53%