



SMaSH

(Software Maven School at Hanyang University ERICA)

Day 3.

HTML, CSS and Bootstrap



Channy Yun

AWSKorea, Tech Evangelist

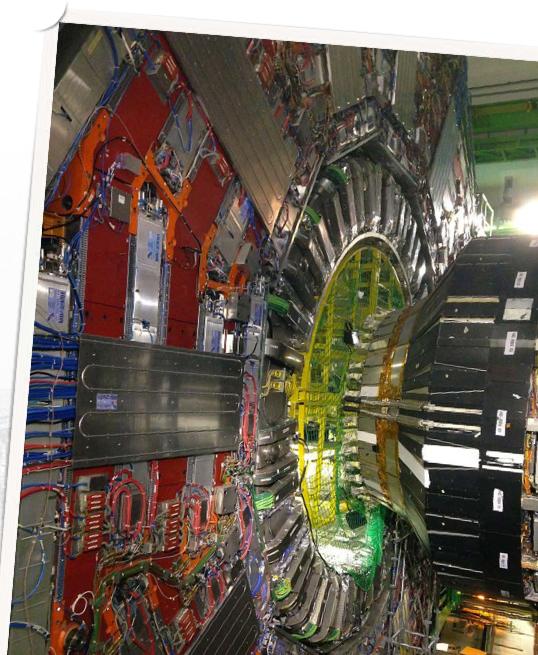
A Quick Story of the Web



Tim Berners-Lee

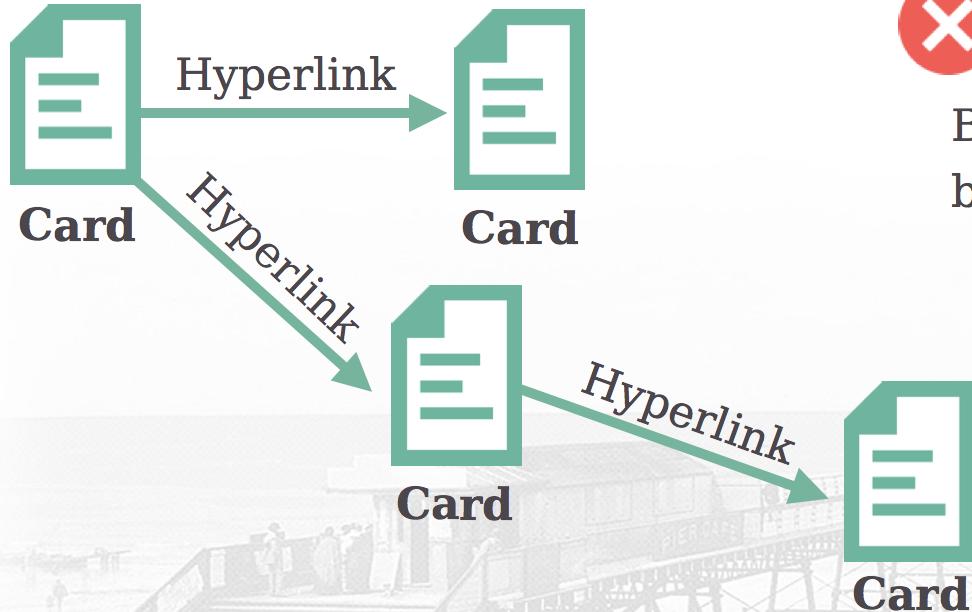
CERN

You know, the same people who run
the Large Hadron particle
accelerator.



ENQUIRE

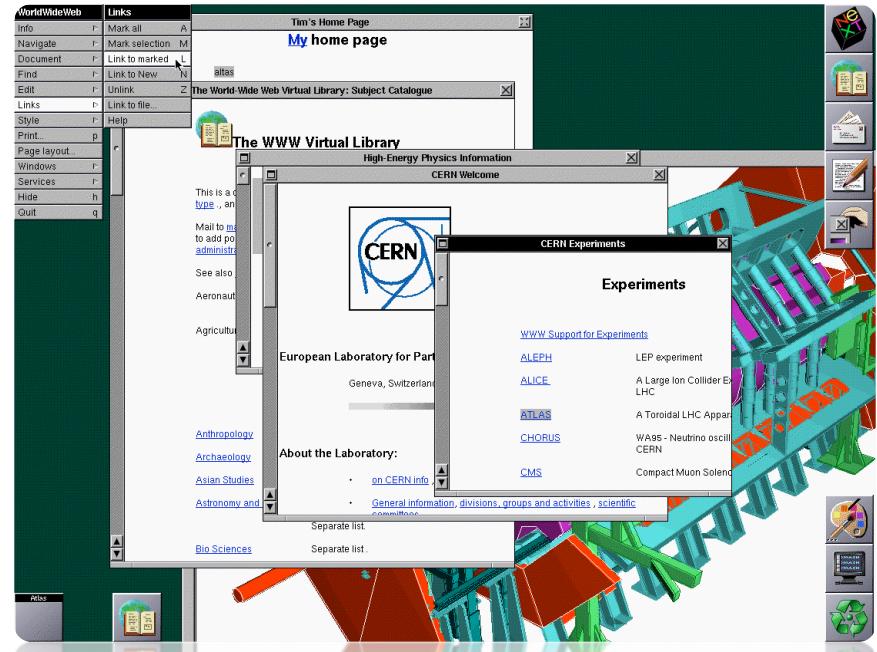
So in 1984, he built something called ENQUIRE for CERN, which was made up of Cards (Documents) and Hyperlinks (which connected the Documents).



But Tim realized he could do better.



The First Web Server and Browser



The Universal Web

A photograph of two young women in a rural, sunlit environment. The woman on the left, wearing a black headwrap and a dark top, holds a blue feature phone and looks intently at its screen. The woman on the right, wearing a purple top, looks on with a focused expression. In the background, there are simple buildings and palm trees under a clear sky.

1. The basic of Web(^Internet) Technology

Terminology

URL(Uniform Resource Locator)

protocol://id:pass@servername:port/resource

- ftp://id:pass@192.168.1.234/a.gif
- mailto:somebody@mail.somehost.com
- http://www.somehost.com/a.gif

Protocol / Server Port

- HTTP (HyperText Transfer Protocol) and 80

IP Address

- Computer Recognizing Address (255.255.255.255)

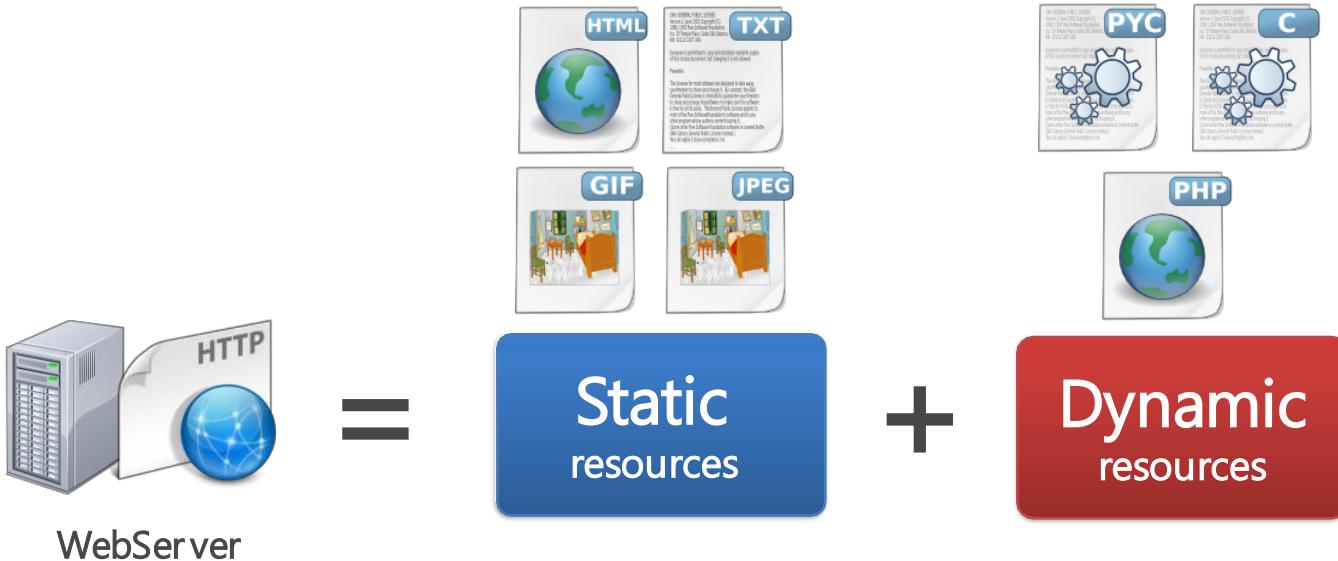
Domain Name / Domain Name Server

- Human Recognizing Address and name server to convert to IP Address

The Web Service Architecture



The role of Web Server



Web Programming Language

C/C++

JAVA

PHP

Ruby

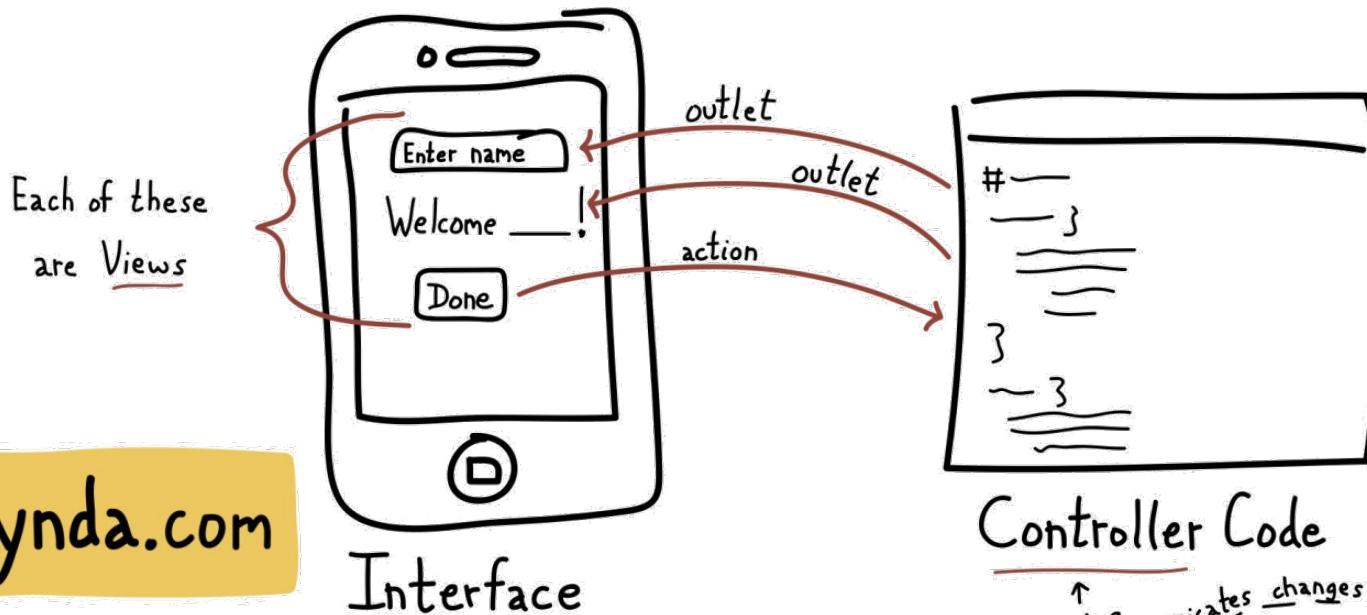
Python



Binary Language

Interpreter Language

Model-View-Controller (MVC)



lynda.com

Interface

Sketchnotes by Doug Neill www.thegraphicrecorder.com

The Model



Web Frameworks

JAVA



Spring

PHP



CakePHP

Ruby

Ruby on Rails

Python

Django

2. The basic of Front-end Web

The Foundation of Front-end Web

HTML

Model (Structure)

CSS

View (Presentation)

JavaScript

Controller (DOM)

```
<html>
<div id="header">
  <ul>
    <li><a href="#">Home</a></li>
    <li><a href="#">About</a></li>
    <li><a href="#">Contact</a></li>
  </ul>
</div>
</html>
```

```
<style type="text/css">
#header li {
  float:left;
  background:url("left.gif")
  no-repeat left top;}
</style>
```

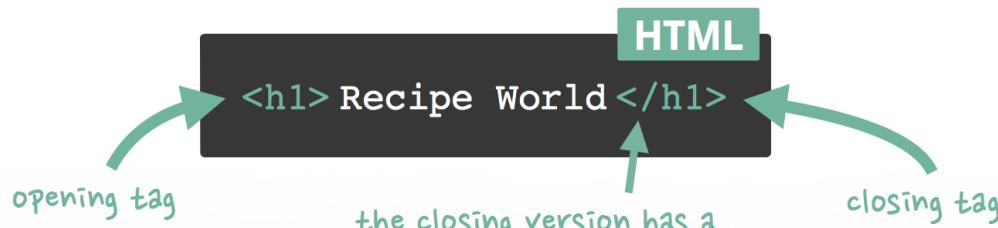
```
<script language="text/javascript">
  var document.getElementbyID("header");
</script>
```



HyperText Markup Language (HTML)

Writing HTML

Most of the time, you'll put your content in between **HTML tags**, which have corresponding opening and closing versions.



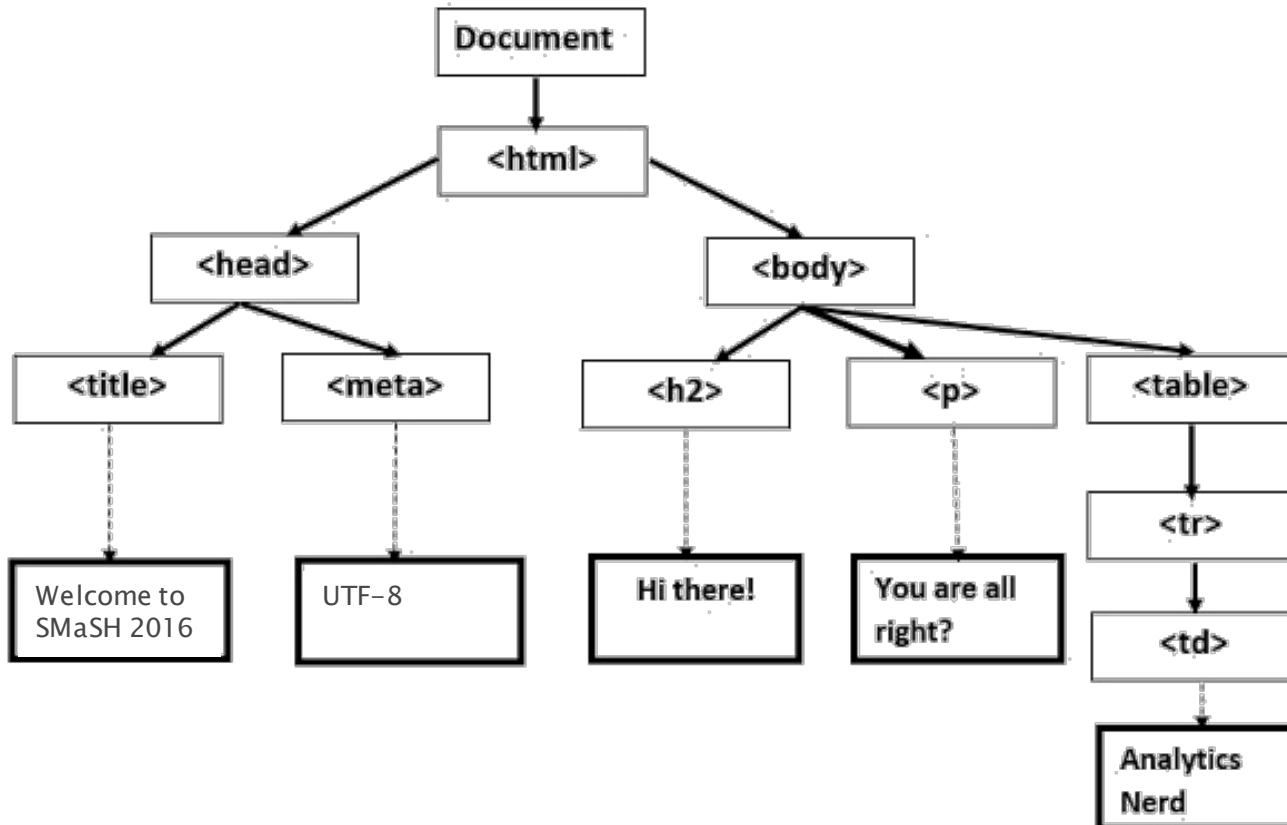
Recipe World



HTML Document

```
<!doctype html>
<head>
  <title>Welcome to SMaSH 2016</title>
  <meta charset="utf-8">
</head>
<body>
  <h2>Hi, there!</h2>
  <p>You are all right?</p>
  <table>
    <tr><td>Analytics Nerd</td></tr>
  </table>
</body>
</html>
```

Document Object Model (DOM)



HTML5

W3C Editor's Draft



HTML 5

A vocabulary and associated APIs for HTML and XHTML

Editor's Draft 23 June 2009

Latest Published Version:

<http://www.w3.org/TR/html5/>

Latest Editor's Draft:

<http://www.w3.org/html/wg/html5/>

Previous Versions:

<http://www.w3.org/TR/2009/WD-html5-20090423/>

<http://www.w3.org/TR/2009/WD-html5-20090212/>

<http://www.w3.org/TR/2008/WD-html5-20080610/>

<http://www.w3.org/TR/2008/WD-html5-20080122/>

Editors:

Ian Hickson, Google, Inc.

David Hyatt, Apple, Inc.

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Developers are making HTML5



Thanks to Aankhen, Aaron Boodman, Aaron Leventhal, Adam Barth, Adam de Boor, Adam Hepton, Adam Roben, Addison Phillips, Adele Peterson, Adrian Bateman, Adrian Sutton, Agustín Fernández, Ajai Tlirimall, Akatsuki Kitamura, Alan Plum, Alastair Campbell, Alex Bishop, Alex Nicolaou, Alex Roussouw, Alexander J. Vincent, Alexey Eskinatdinov, Anupam Dhanawade, Alyosha Prokhorov, André Daude, Alina Clement, Amrit trifaria, Andrei Gaidashev Andrius, Andrei Popescu, Andrei F. Volpert

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Thanks also to everyone who has ever posted about HTML to their blogs, public mailing lists, or forums. Including all the contributors to the [various W3C HTML WG lists](#) and



HTML5 API

- ***Semantics***: allowing you to describe more precisely what your content is.
- ***Connectivity***: allowing you to communicate with the server in new and innovative ways.
- ***Offline and storage***: allowing webpages to store data on the client-side locally and operate offline more efficiently.
- ***Multimedia***: making video and audio first-class citizens in the Open Web.
- ***2D/3D graphics and effects***: allowing a much more diverse range of presentation options.
- ***Performance and integration***: providing greater speed optimization and better usage of computer hardware.
- ***Device access***: allowing for the usage of various input and output devices.

Can I use HTML5? <http://caniuse.com>

About News May 12, 2015 - Feature suggestions now handled by GitHub issues Compare browsers Index

Can I use

Detected your country as "South Korea". Would you like to import usage data for that country?

[Import](#) [No thanks](#)

CSS	HTML5	SVG
<ul style="list-style-type: none">■ ::first-letter CSS pseudo-element selector■ ::placeholder CSS pseudo-element■ ::selection CSS pseudo-element■ @font-face Web fonts■ Blending of HTML/SVG elements■ calc() as CSS unit value■ 2.1 selectors■ all property■ Animation■ Appearance■ background-attachment	<ul style="list-style-type: none">■ accept attribute for file input■ Audio element■ Audio Tracks■ Autofocus attribute■ Canvas (basic support)■ Canvas blend modes■ classList (DOMTokenList)■ Color input type■ contenteditable attribute (basic support)■ Custom Elements■ Custom protocol handling	<ul style="list-style-type: none">■ Inline SVG in HTML5■ SVG (basic support)■ SVG effects for HTML■ SVG favicons■ SVG filters■ SVG fragment identifiers■ SVG in CSS backgrounds■ SVG in HTML img element■ SVG SMIL animation■ SVG fonts■ All SVG features

Cascading Style Sheets (CSS)

CSS is code that changes the **appearance** of HTML.

HTML without CSS

Recipe World



- [Home](#)
- [Recipes](#)
- [Suggest](#)

Magic Cake

Magic Cake is one of the tastiest cakes the world has ever known. Few have tried it and lived to tell about it, and these are their stories.

We also need to stress that whatever happens to you as a result of

HTML with CSS

Recipe World



[Home](#) [Recipes](#) [Suggest](#)

Magic Cake

Magic Cake is one of the tastiest cakes the world has ever known. Few have tried it and lived to tell about it, and these are their stories.

Ingredients

- 2 eggs
- 1 pound sugar



CSS Selectors

Writing your first selector

Tags are selected by creating something called a **selector**.

HTML

```
<p>Magic Cake is one of the tastiest...</p>
```

the simplest selector is the **type selector**, and
is just the tag name without <> brackets.

CSS

```
p {  
    text-decoration: underline;  
}
```

this is one of many properties
that can be applied to selectors

Magic Cake

Magic Cake is one of the tastiest cakes the world has ever known. Few have tried it and lived to tell about it, and these are their stories.



each property can usually be set
to one of a few different values



CSS- Specificity

selector	a	b	c	d	total
HTML Element	0	0	0	1	1
Class	0	0	1	0	10
ID	0	1	0	0	100
inline Style	1	0	0	0	1000

- li : 0.0.0.**1**
- .red : 0.0.**1**.0
- div.red : 0.0.**1**.**1**
- #main: 0.**1**.0.0

```
<li class=red>Red Text</li>
<div id=main></div>
```

CSS- Specificity



a

1 x element selector

Sith: 0, 0, 1



p a

2 x element selectors

Sith: 0, 0, 2



.whatever

1 x class selector

Sith: 0, 1, 0



a.whatever

1 x element selector
1 x class selector

Sith: 0, 1, 1



p.a.whatever

2 x element selectors
1 x class selector

Sith: 0, 1, 2



.whatever.whatever

2 x class selectors

Sith: 0, 2, 0



p.whatever.a.whatever

2 x element selectors
2 x class selectors

Sith: 0, 2, 2

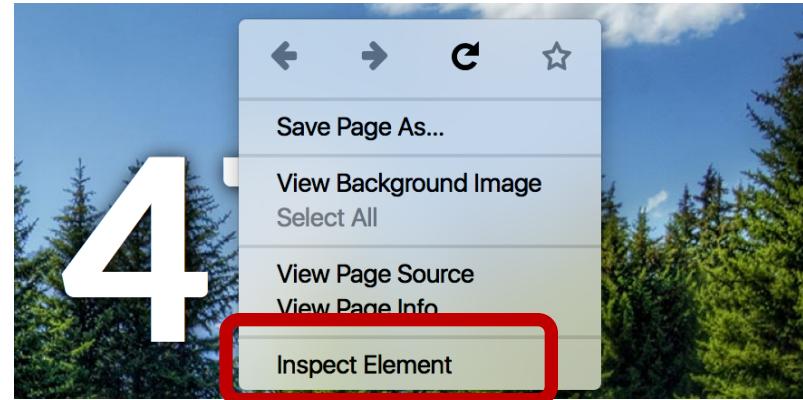
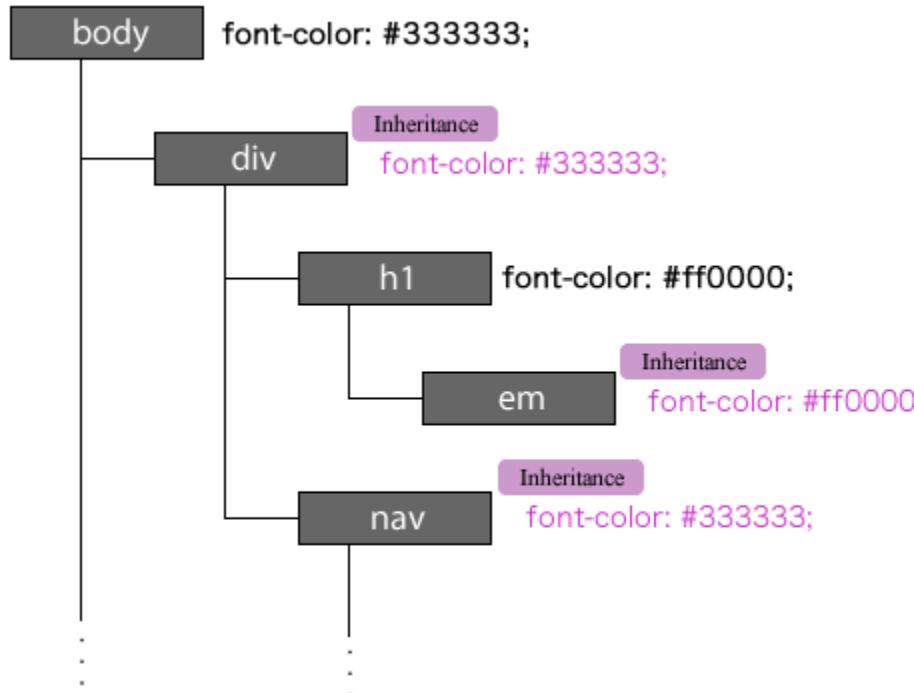


#whatever

1 x id selector

Sith: 1, 0, 0

CSS - Inheritance

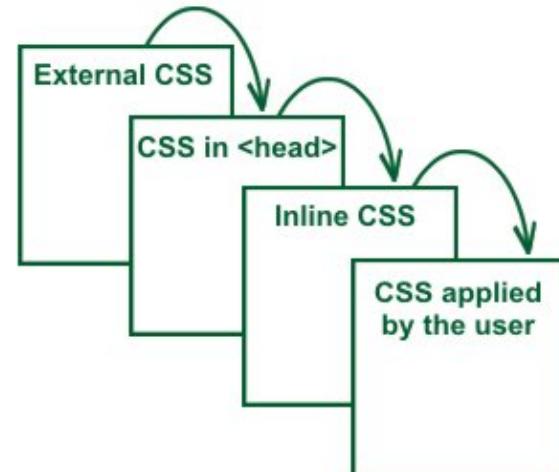
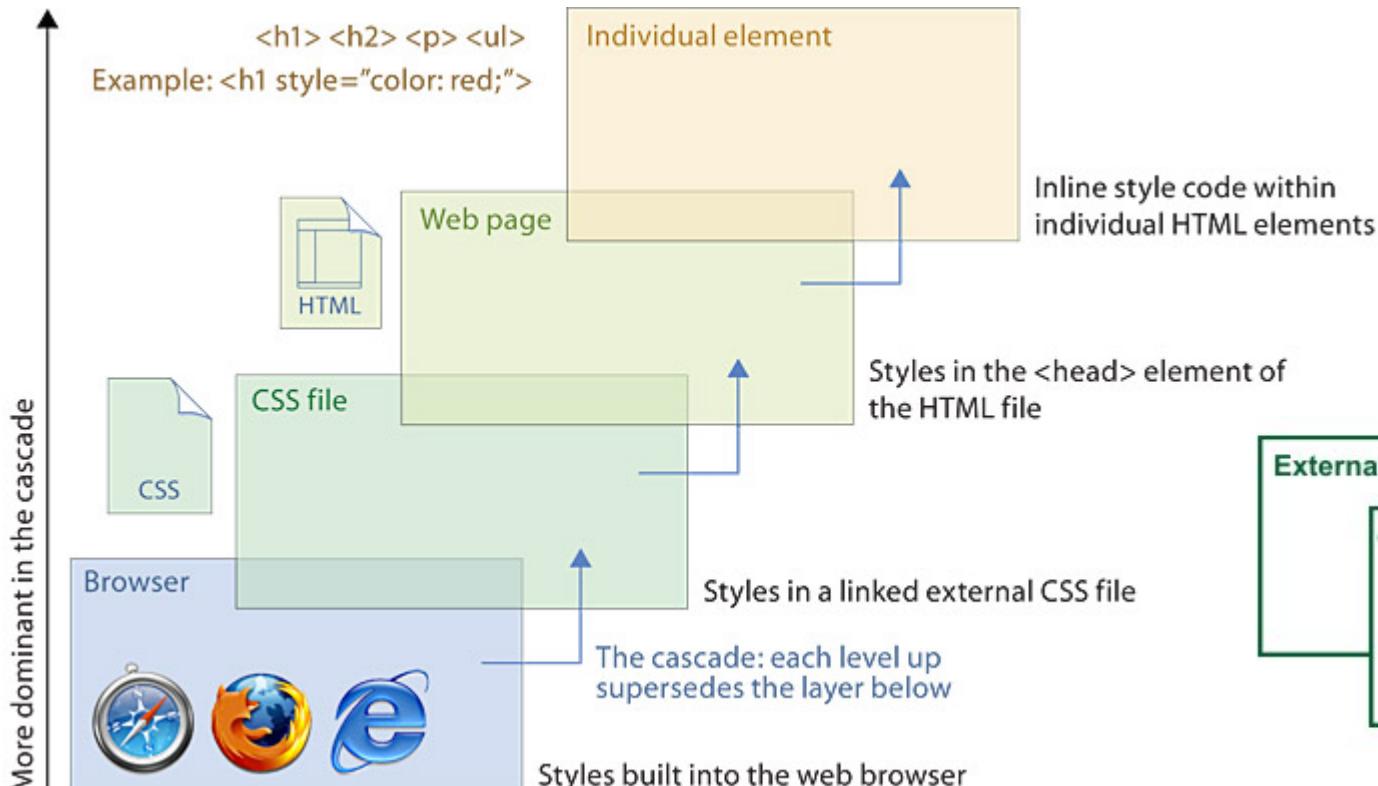


Styles	Computed	Event Listeners	DOM Breakpoints	Properties
element.style { }				+
div#foo { margin-top: 10px; }				(index):19
div { margin: 0; margin-top: 0px; margin-right: 0px; margin-bottom: 0px; margin-left: 0px; }				(index):15
div { display: block; }				user agent stylesheet

overridden (not applied)

inherited, applied

CSS- Cascading



CSS: Inline vs Block

block vs inline vs inline-block

Below are a bunch of `<div style="width: 50px" ...>` with different `display:` settings.

`display:
block`

display:
block
display:
block
display:
block

`display: inline`

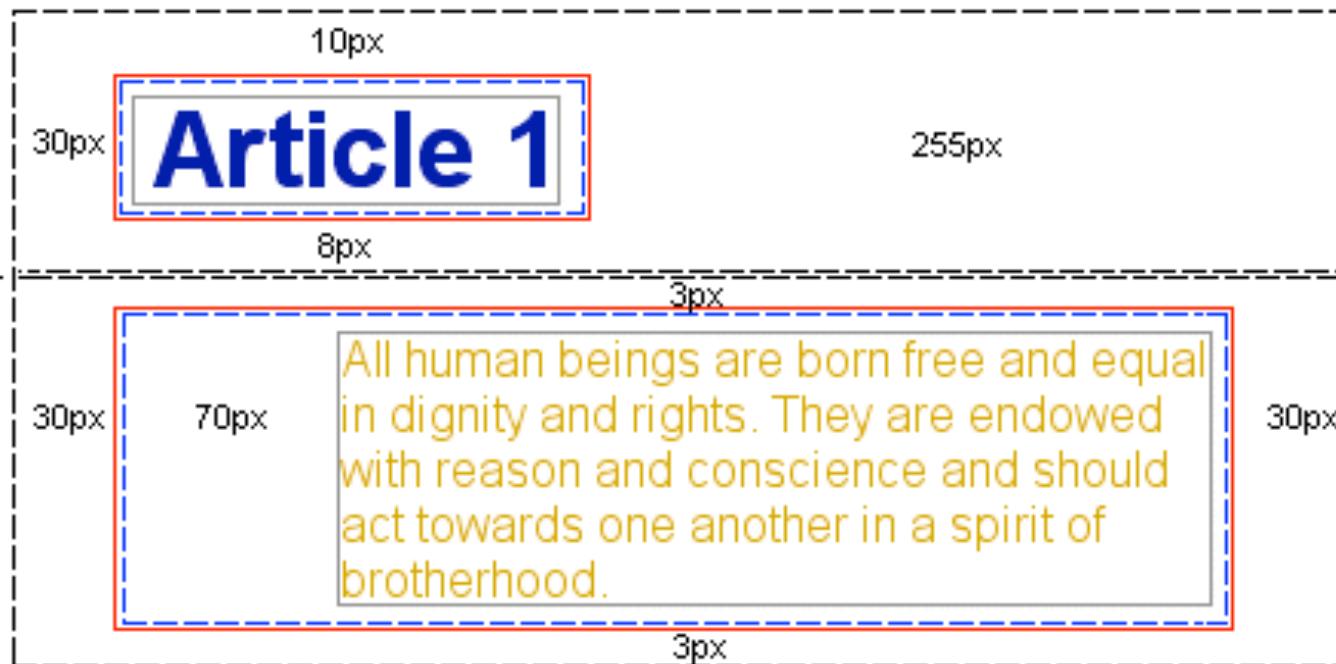
display: inline
display: inline
display: inline

`display: inline-
block`

display:
inline-
block
display:
inline-
block
display:
inline-
block

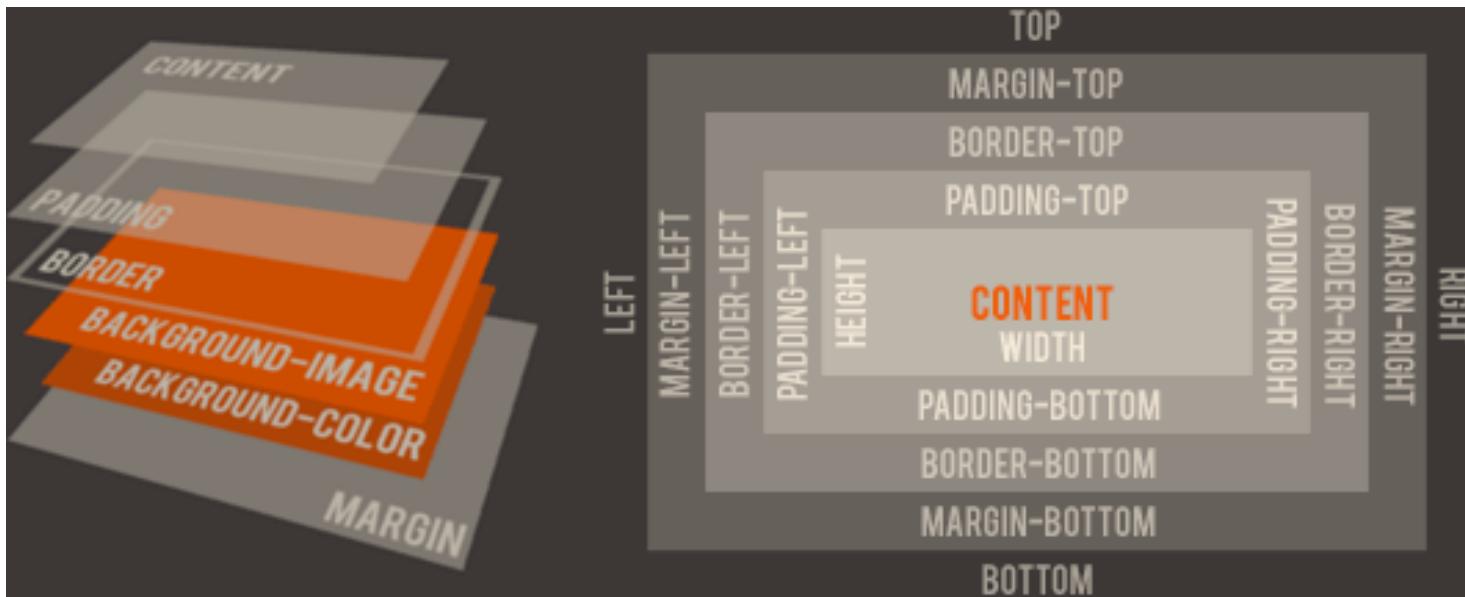
CSS: Box Model

```
h3 p { display: block; }
```



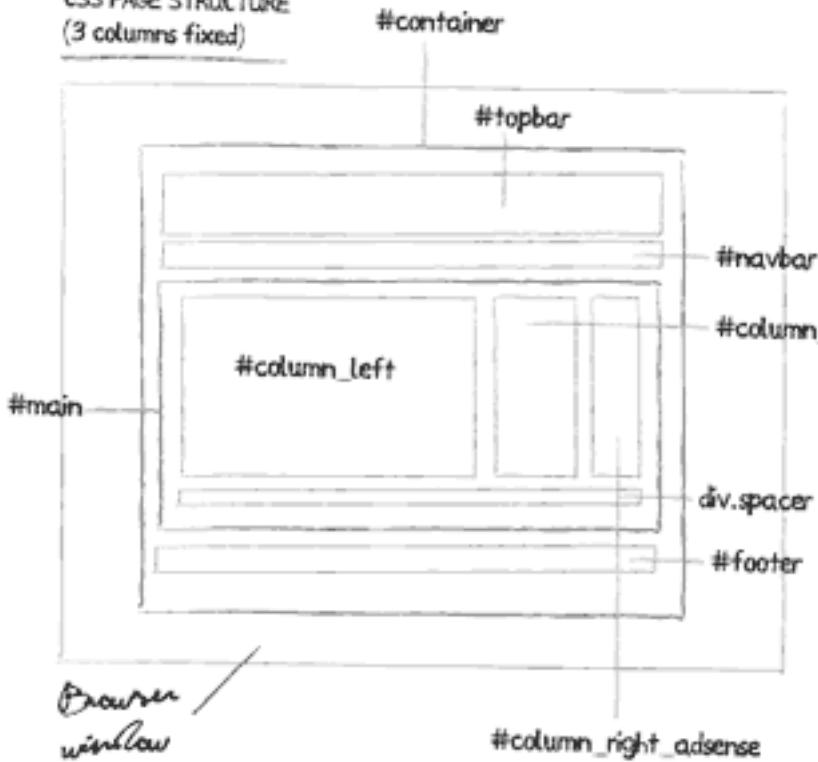
CSS: Box Model

```
Top   Right  Bottom Left  
h3 { margin: 10px 10px 20px 20px }
```



CSS: Layout

CSS PAGE STRUCTURE
(3 columns fixed)



Using Floats to create layouts

HEADER float: left; width: 960px;

LEFT NAV

float: left;
width: 200px;
margin-right: 20px;

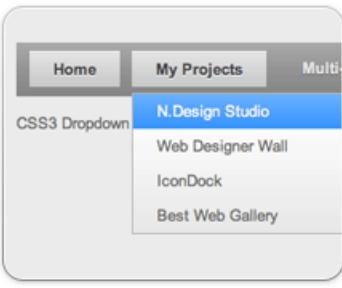
MAIN CONTENT

float: left;
width: 740px;

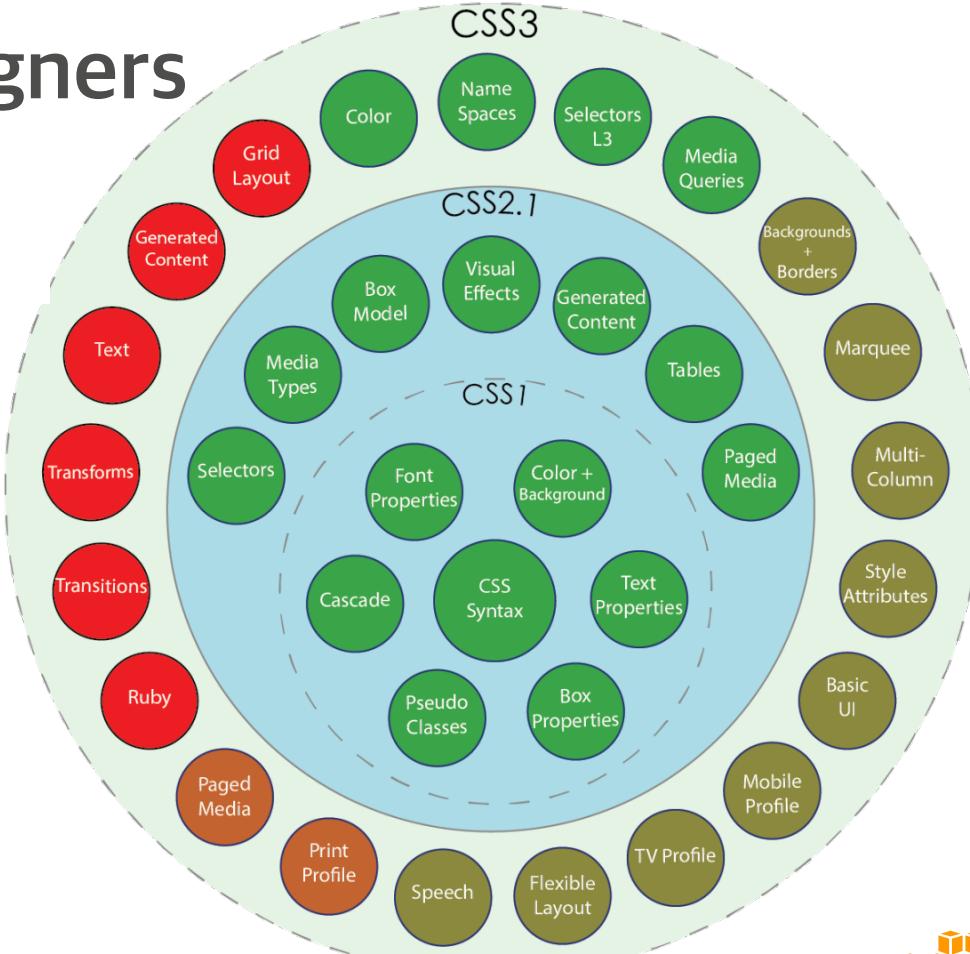
CSS3 for Web Designers



CSS3 Compatible Browsers



Unsupported Browsers

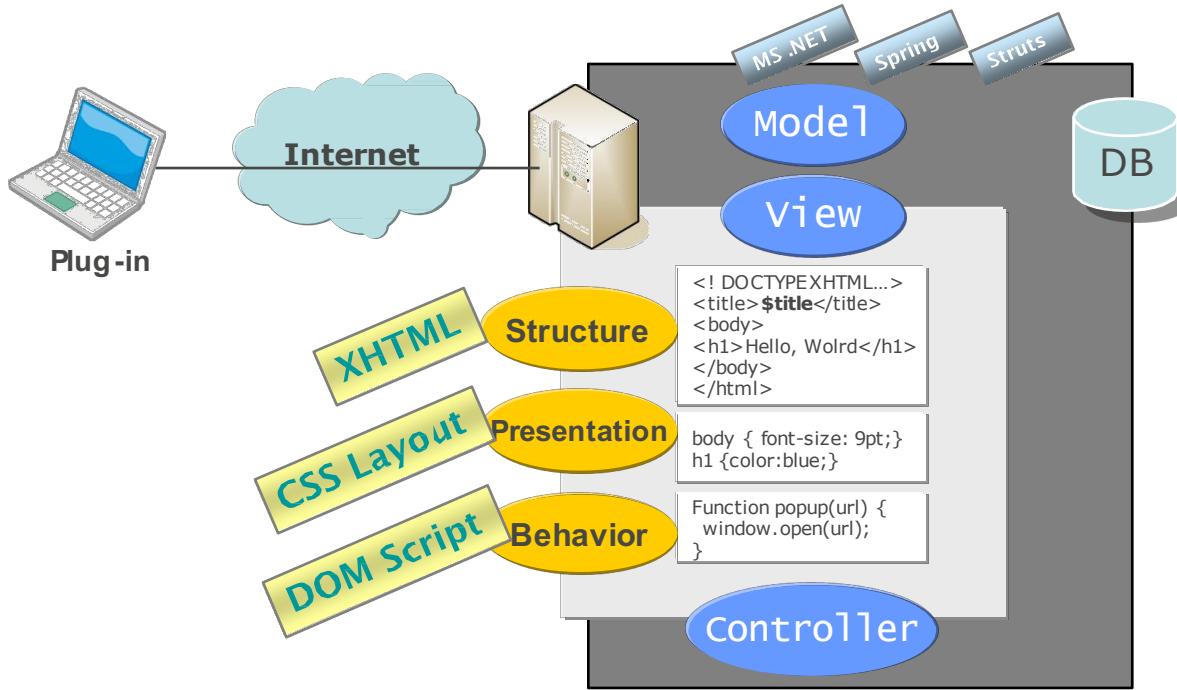


Learning of Front-end Web

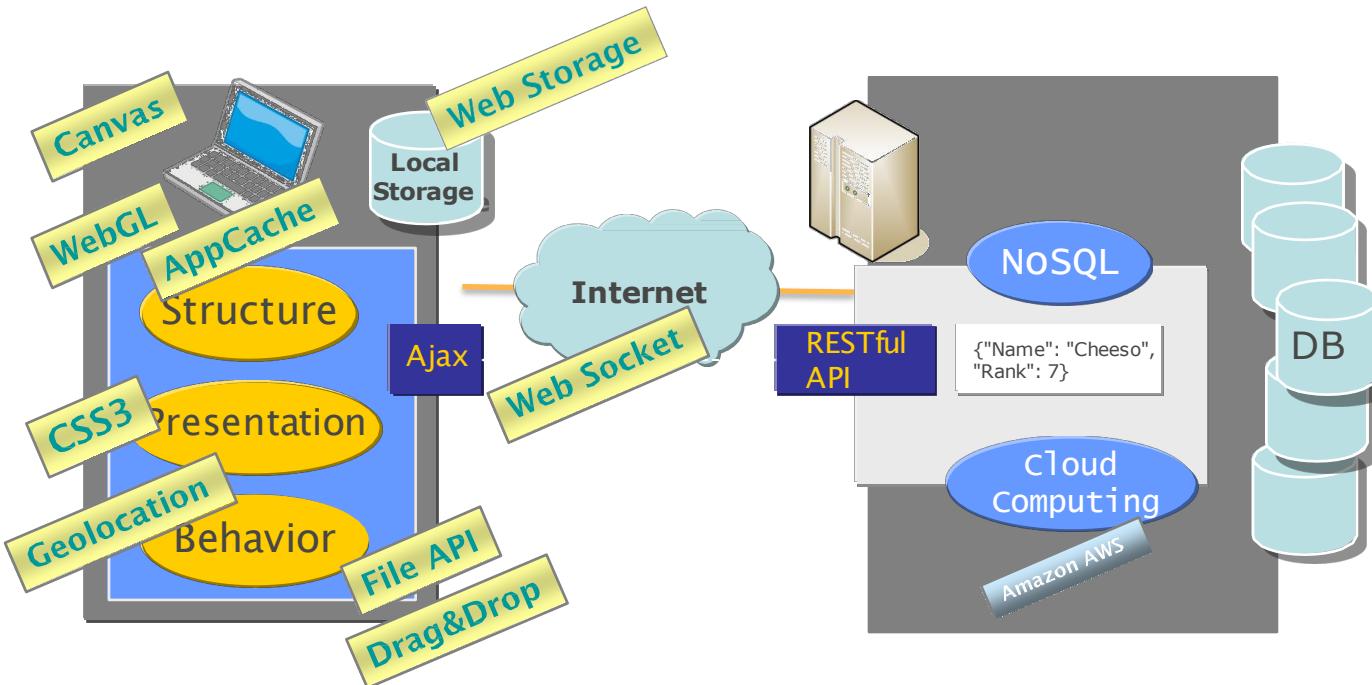


<http://courseware.codeschool.com/front-end-foundations/Front-end-Foundations.pdf>

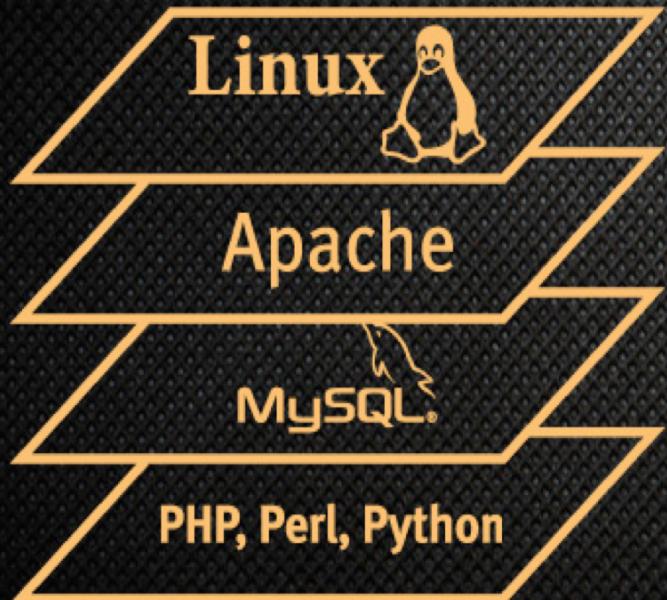
Old Fashion Web Development



Modern Web Development



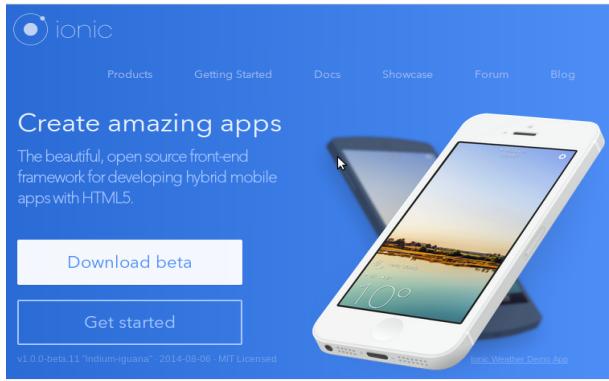
Modern Web Framework



VS



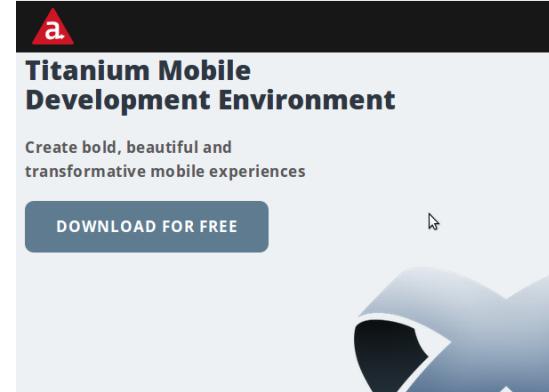
Mobile Web Framework



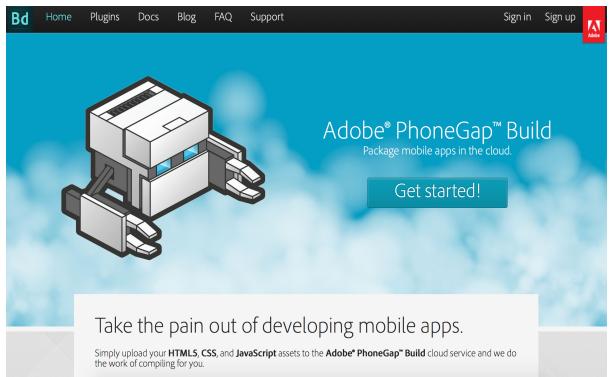
The Ionic homepage features a blue header with the Ionic logo and navigation links: Products, Getting Started, Docs, Showcase, Forum, and Blog. Below the header, a large banner with the text "Create amazing apps" and "The beautiful, open source front-end framework for developing hybrid mobile apps with HTML5." includes two smartphone images. Buttons for "Download beta" and "Get started" are present. A footer note at the bottom left reads "v1.0.0-beta.11 | ionicframework.com | 2014-08-06 | MIT Licensed".



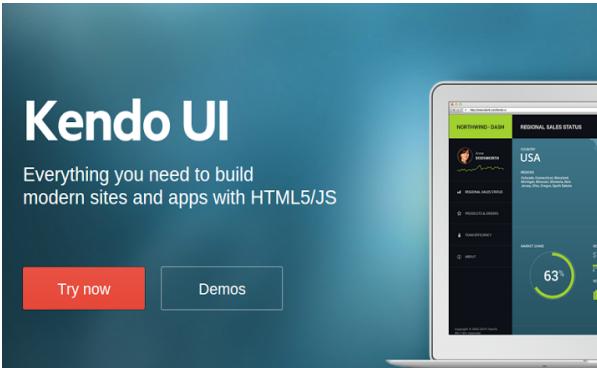
The Mobile Angular UI homepage has a blue header with the logo and navigation links: Demo, Docs, Apps, Blog, Forum, and Sources. The main content area features the text "Build HTML5 Mobile Apps with Bootstrap and Angular JS" next to an image of a white iPhone displaying a weather app. Buttons for "Download" and "Online Demo" are shown. A small note at the bottom left says "v1.0.0-beta.11 | mobileangularui.com | 2014-08-06 | MIT Licensed".



The Titanium Mobile Development Environment homepage features a black header with the logo and navigation links: Products, Services, Support, Training, Partners, Community, and Company. The main section is titled "Create bold, beautiful and transformative mobile experiences" with a "DOWNLOAD FOR FREE" button. A large image of a person's head in profile is on the right.



The Adobe PhoneGap Build homepage has a dark blue header with the logo and navigation links: Home, Plugins, Docs, Blog, FAQ, Support, Sign in, and Sign up. The main content features a 3D model of a smartphone and the text "Adobe® PhoneGap™ Build Package mobile apps in the cloud." A "Get started!" button is prominent. A note at the bottom left says "Take the pain out of developing mobile apps. Simply upload your HTML5, CSS, and JavaScript assets to the Adobe® PhoneGap® Build cloud service and we do the work of compiling for you." A "View the Kitchen Sink" link is at the bottom right.



The Kendo UI homepage has a dark teal header with the logo and navigation links: Try now and Demos. The main content features the text "Kendo UI Everything you need to build modern sites and apps with HTML5/JS" next to an image of a laptop displaying a dashboard. A "Try now" button is at the bottom left.



The Sencha Touch homepage has a black header with the logo and navigation links: Home, Products, Services, Support, Training, Partners, Community, and Company. The main content features the text "Sencha Touch Build Mobile Web Apps with HTML5" next to an image of various mobile devices. A "Download" and "Buy" button are at the top right. A note at the bottom left says "HTML5 Mobile Framework With over 50 built-in components, themes every popular mobile platform, and a built system, Sencha Touch provides everything need to create powerful, universal mobile apps." A "View the Kitchen Sink" link is at the bottom right.

3. Bootstrap

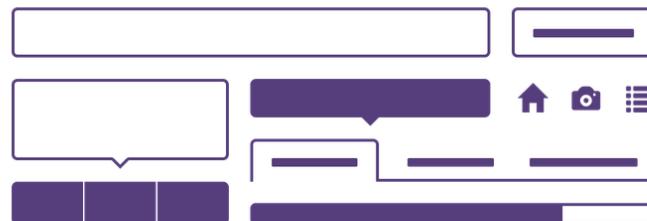
Bootstrap: Designed for everyone, everywhere.

<http://getbootstrap.com/>



One framework, every device.

Bootstrap easily and efficiently scales your websites and applications with a single code base, from phones to tablets to desktops with CSS media queries.



Full of features

With Bootstrap, you get extensive and beautiful documentation for common HTML elements, dozens of custom HTML and CSS components, and awesome jQuery plugins.

Bootstrap Boilerplate

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <!-- The above 3 meta tags *must* come first in the head; any other head content must come
*after* these tags -->
    <title>Bootstrap 101 Template</title>

    <!-- Bootstrap -->
    <link href="css/bootstrap.min.css" rel="stylesheet">

    <!-- HTML5 shim and Respond.js for IE8 support of HTML5 elements and media queries -->
    <!-- WARNING: Respond.js doesn't work if you view the page via file:// -->
    <!--[if lt IE 9]>
        <script src="https://oss.maxcdn.com/html5shiv/3.7.2/html5shiv.min.js"></script>
        <script src="https://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>
    <![endif]-->
  </head>
  <body>
    <h1>Hello, world!</h1>

    <!-- jQuery (necessary for Bootstrap's JavaScript plugins) -->
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/1.11.3/jquery.min.js"></script>
    <!-- Include all compiled plugins (below), or include individual files as needed -->
    <script src="js/bootstrap.min.js"></script>
  </body>
</html>
```

Copy

```
bootstrap/
  |-- css/
  |   |-- bootstrap.css
  |   |-- bootstrap.css.map
  |   |-- bootstrap.min.css
  |   |-- bootstrap.min.css.map
  |   |-- bootstrap-theme.css
  |   |-- bootstrap-theme.css.map
  |   |-- bootstrap-theme.min.css
  |   |-- bootstrap-theme.min.css.map
  |-- js/
  |   |-- bootstrap.js
  |   |-- bootstrap.min.js
  |-- fonts/
      |-- glyphicon-halflings-regular.eot
      |-- glyphicon-halflings-regular.svg
      |-- glyphicon-halflings-regular.ttf
      |-- glyphicon-halflings-regular.woff
      |-- glyphicon-halflings-regular.woff2
```



Bootstrap CDN: Insert into your HTML

```
<!-- Latest compiled and minified CSS -->
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css"
      integrity="sha384-1q8mTJOASx8j1Au+a5WDVnPi2lkFfwwEAa8hDDjZlpLegxhjVME1fgjWPGmkzs7"
      crossorigin="anonymous">

<!-- Optional theme -->
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap-theme.min.css"
      integrity="sha384-fLW2N01lMqjakBkx3l/M9EahuwpSfeNvV63J5ezn3uZzapT0u7EYsXMjQV+0En5r"
      crossorigin="anonymous">

<!-- Latest compiled and minified JavaScript -->
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/js/bootstrap.min.js"
      integrity="sha384-0mSbJDEhialfmuBBQP6A4Qrprq50VfW37PRR3j5ELqxss1yVq0tnepnHVP9aJ7xS"
      crossorigin="anonymous"></script>
```

Copy



Bootstrap Components

<http://getbootstrap.com/components/>

Single button dropdowns

Turn a button into a dropdown toggle with some basic markup changes.

EXAMPLE

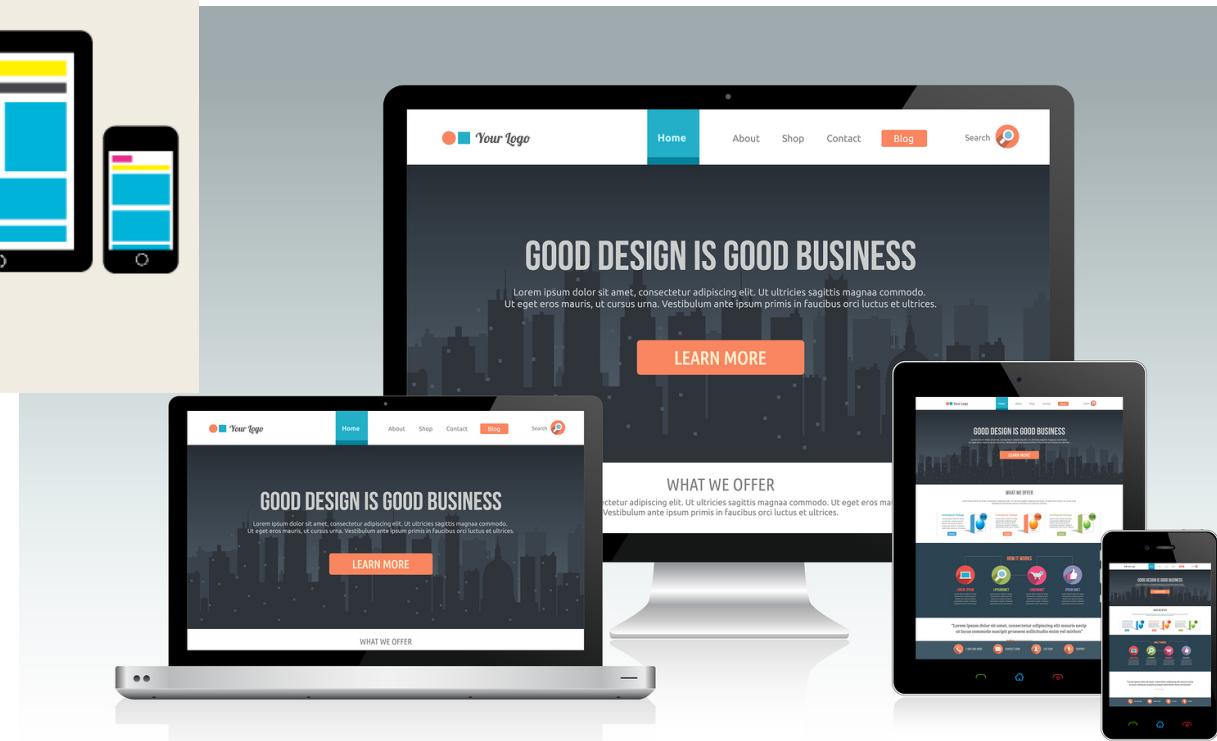
Default ▾ Primary ▾ Success ▾ Info ▾ Warning ▾ Danger ▾

```
<!-- Single button -->
<div class="btn-group">
  <button type="button" class="btn btn-default dropdown-toggle" data-toggle="dropdown" aria-
haspopup="true" aria-expanded="false">
    Action <span class="caret"></span>
  </button>
  <ul class="dropdown-menu">
    <li><a href="#">Action</a></li>
    <li><a href="#">Another action</a></li>
    <li><a href="#">Something else here</a></li>
    <li role="separator" class="divider"></li>
    <li><a href="#">Separated link</a></li>
  </ul>
</div>
```

Copy



Responsive Web Design



CSS Media Query

```
/* Extra small devices (phones, less than 768px) */  
/* No media query since this is the default in Bootstrap */  
  
/* Small devices (tablets, 768px and up) */  
@media (min-width: @screen-sm-min) { ... }  
  
/* Medium devices (desktops, 992px and up) */  
@media (min-width: @screen-md-min) { ... }  
  
/* Large devices (large desktops, 1200px and up) */  
@media (min-width: @screen-lg-min) { ... }
```

Bootstrap Grid Options

	Extra small devices Phones (<768px)	Small devices Tablets (≥768px)	Medium devices Desktops (≥992px)	Large devices Desktops (≥1200px)
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints		
Container width	None (auto)	750px	970px	1170px
Class prefix	.col-xs-	.col-sm-	.col-md-	.col-lg-
# of columns	12			
Column width	Auto	~62px	~81px	~97px
Gutter width	30px (15px on each side of a column)			
Nestable	Yes			
Offsets	Yes			
Column ordering	Yes			

NEXT: Make your first homepage!

Utilize samples and templates

Learning with COPY & PASTE

- <http://tutorialzine.com/2015/06/12-time-saving-bootstrap-examples/>
- <http://startbootstrap.com/template-categories/popular/>