

Chapter 2 (cont)

Introduction to CSS

Lectured by:
Nguyễn Hữu Hiếu

CSS Units

https://www.w3schools.com/cssref/css_units.asp

CSS Units

- CSS has several different units for expressing a length.
- Many CSS properties take "length" values, such as width, margin, padding, font-size, etc.
- Length is a number followed by a length unit, such as 10px, 2em, etc.
- A whitespace cannot appear between the number and the unit. However, if the value is 0, the unit can be omitted.
- For some CSS properties, negative lengths are allowed.
- There are two types of length units: absolute and relative.

Absolute units

- Specify a fixed value
`P {margin: 1.25in;}`
- Cannot be scaled to client display
- Should only be used when exact measurements of destination medium are known



Absolute units

The absolute length units are fixed and a length expressed in any of these will appear as exactly that size.

Unit	Description
cm	centimeters
mm	millimeters
in	inches (1in = 96px = 2.54cm)
px *	pixels (1px = 1/96th of 1in)
pt	points (1pt = 1/72 of 1in)
pc	picas (1pc = 12 pt)

Relative units

- Enables scalable Web pages that adapt to different display types and sizes
- Recommended method for Web page design
- Relative measurement values such as em and px are designed to let you build scalable Web pages that adapt to different display types and sizes
- The W3C recommends that you always use relative values

Relative Lengths

Relative length units specify a length relative to another length property

Unit	Description
em	Relative to the font-size of the element (2em means 2 times the size of the current font)
ex	Relative to the x-height of the current font (rarely used)
ch	Relative to width of the "0" (zero)
rem	Relative to font-size of the root element
vw	Relative to 1% of the width of the viewport*
vh	Relative to 1% of the height of the viewport*
vmin	Relative to 1% of viewport's* smaller dimension
vmax	Relative to 1% of viewport's* larger dimension
%	Relative to the parent element

Using the CSS Text Spacing Properties



CSS Text Spacing Properties

- text-indent
- text-align
- line-height
- vertical-align
- letter-spacing
- word-spacing

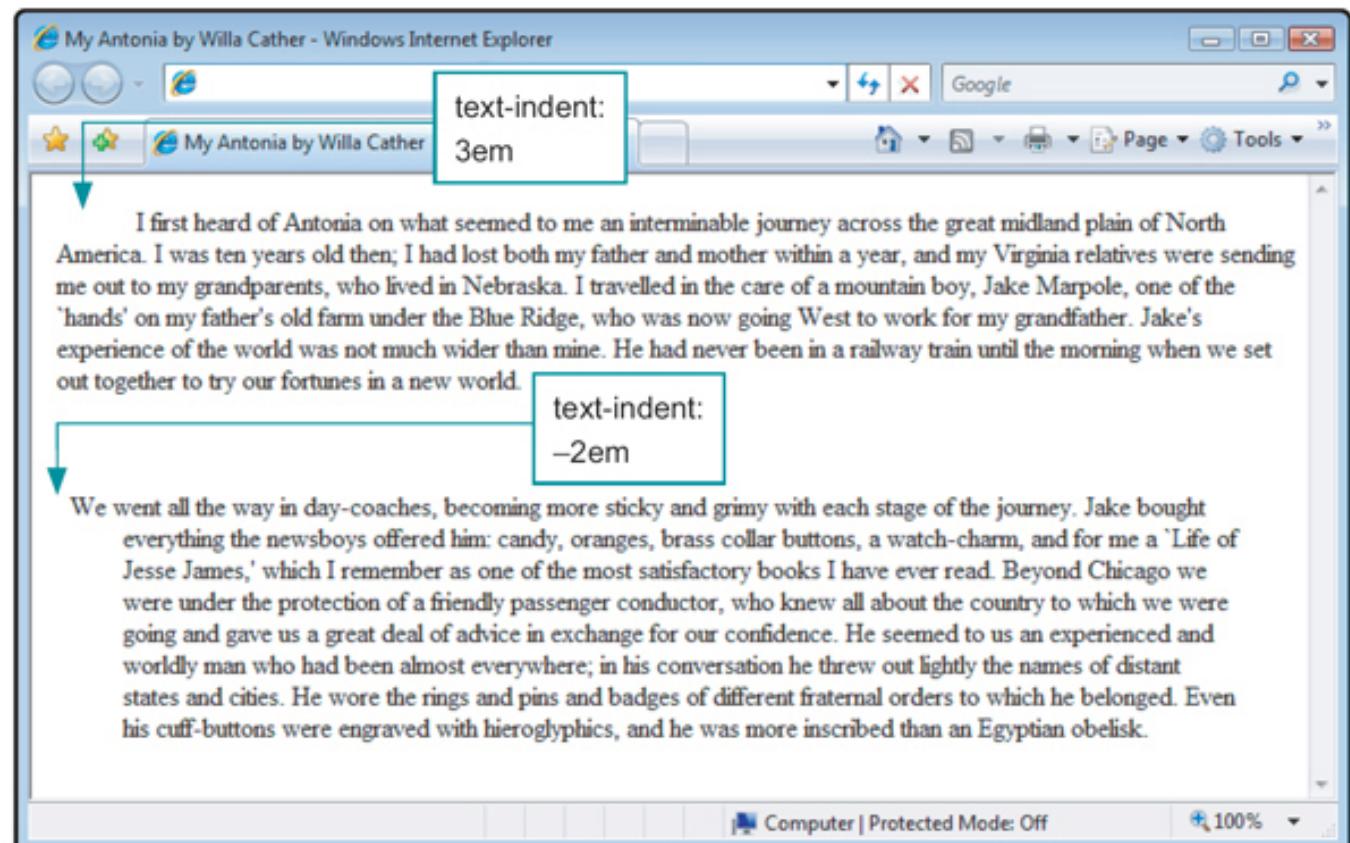


Specifying Text Indents

```
p {text-indent: 24pt;}
```

- Use the text indent property to set the amount of indentation for the first line of text in an element, such as a paragraph
- The following rule sets an indent of 24 points:

Figure 7-8
Text indents



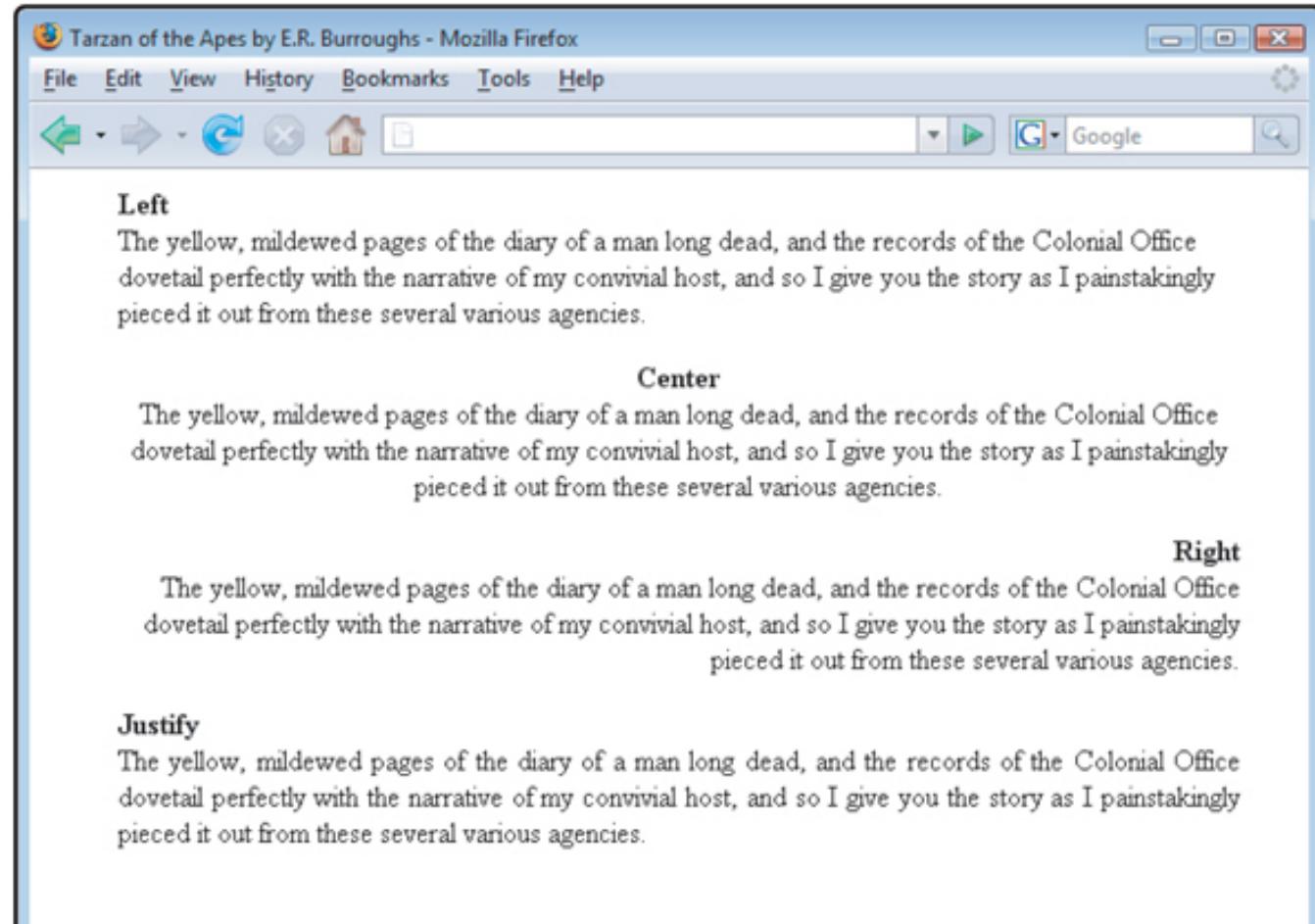
Specifying Text Alignment

```
p {text-align: justify}
```

- Use the text-align property to set horizontal alignment for the lines of text in an element

Figure 7-9

Text alignments



Specifying Line Height

- CSS allows you to specify either a percentage or absolute value for the line height, which is more commonly called leading
- The following rule sets the line height to 2 em:

```
p {line-height: 2em; }
```

Figure 7-11

Line height

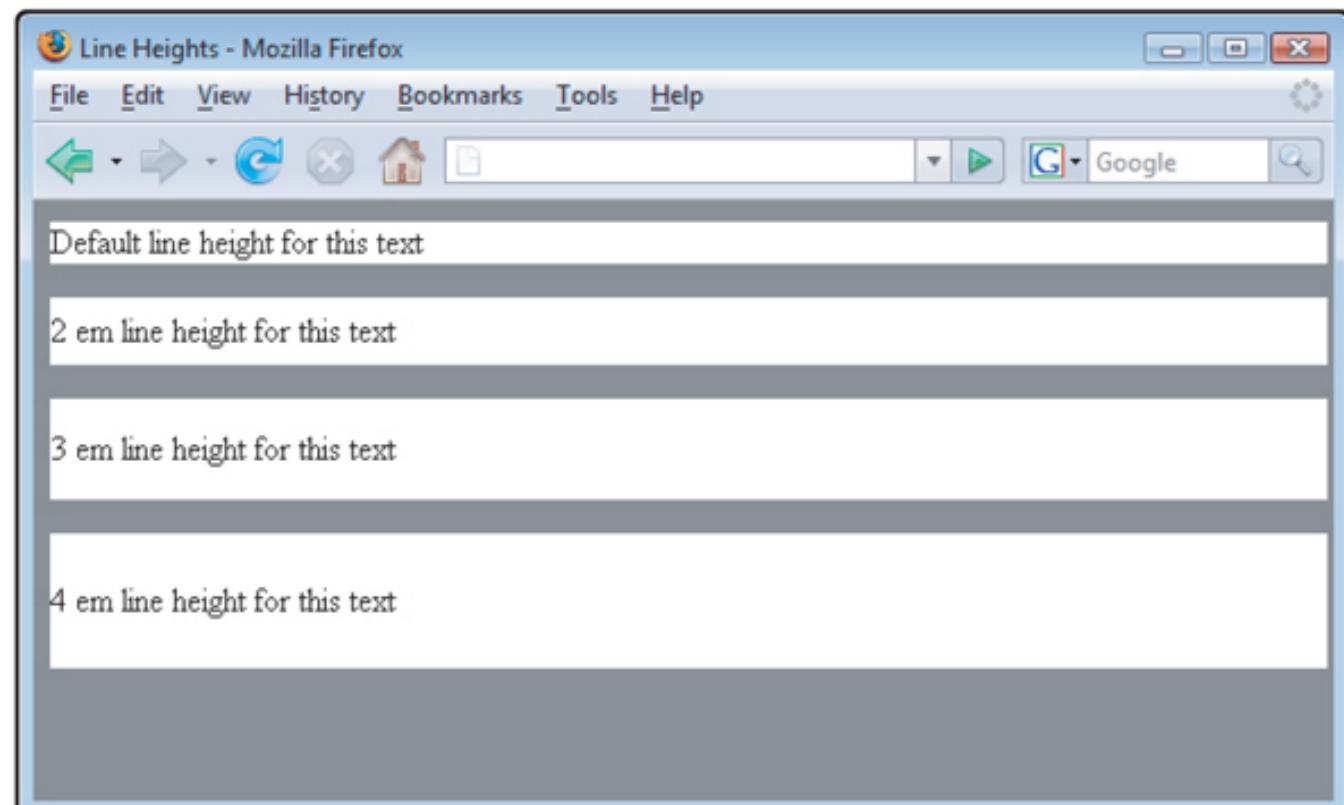
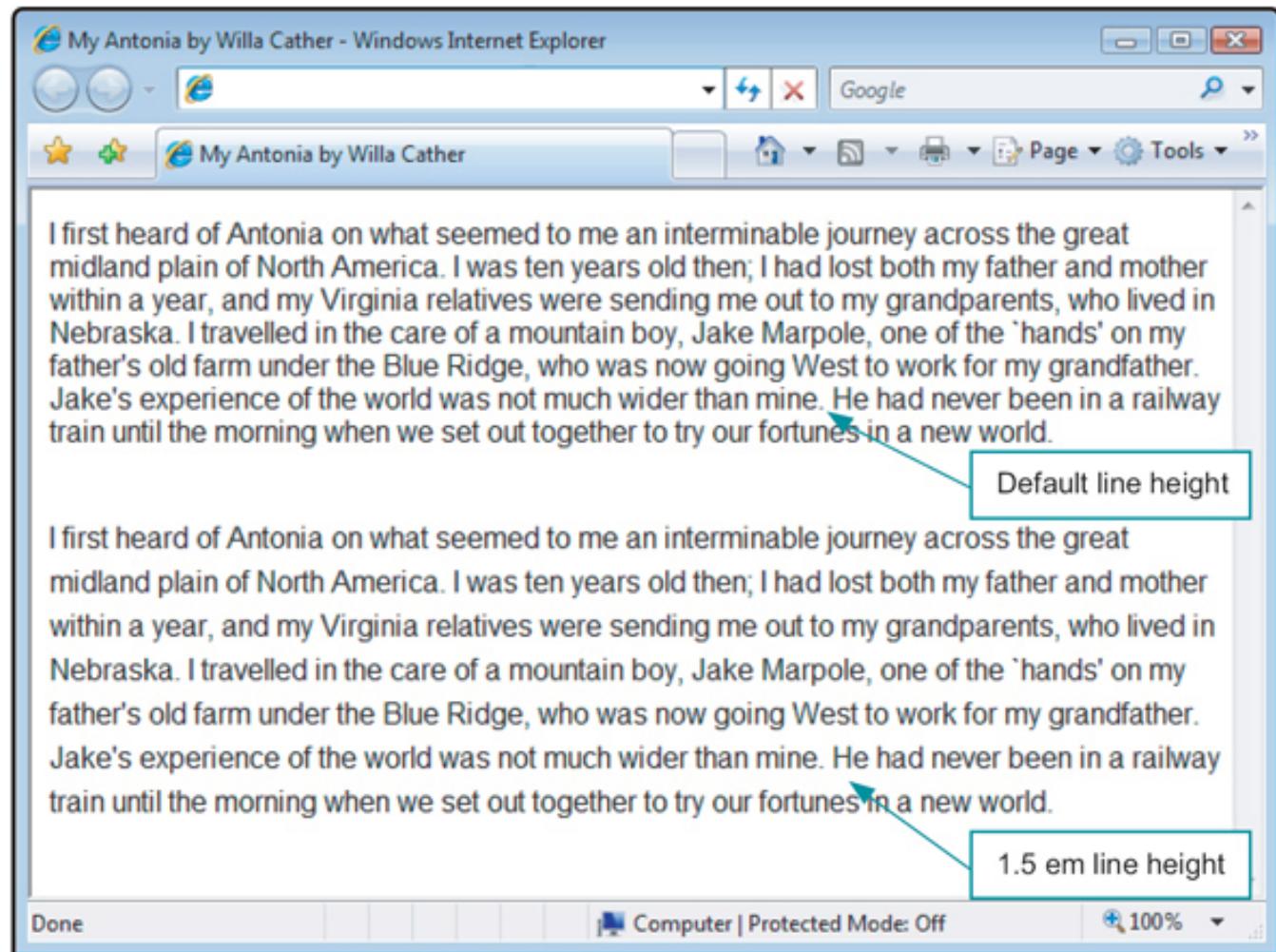


Figure 7-12

Adjusting line height increases legibility



Specifying Vertical Alignment

- The vertical-align property lets you adjust the vertical alignment of text within the line box
- Vertical-align works on inline elements only



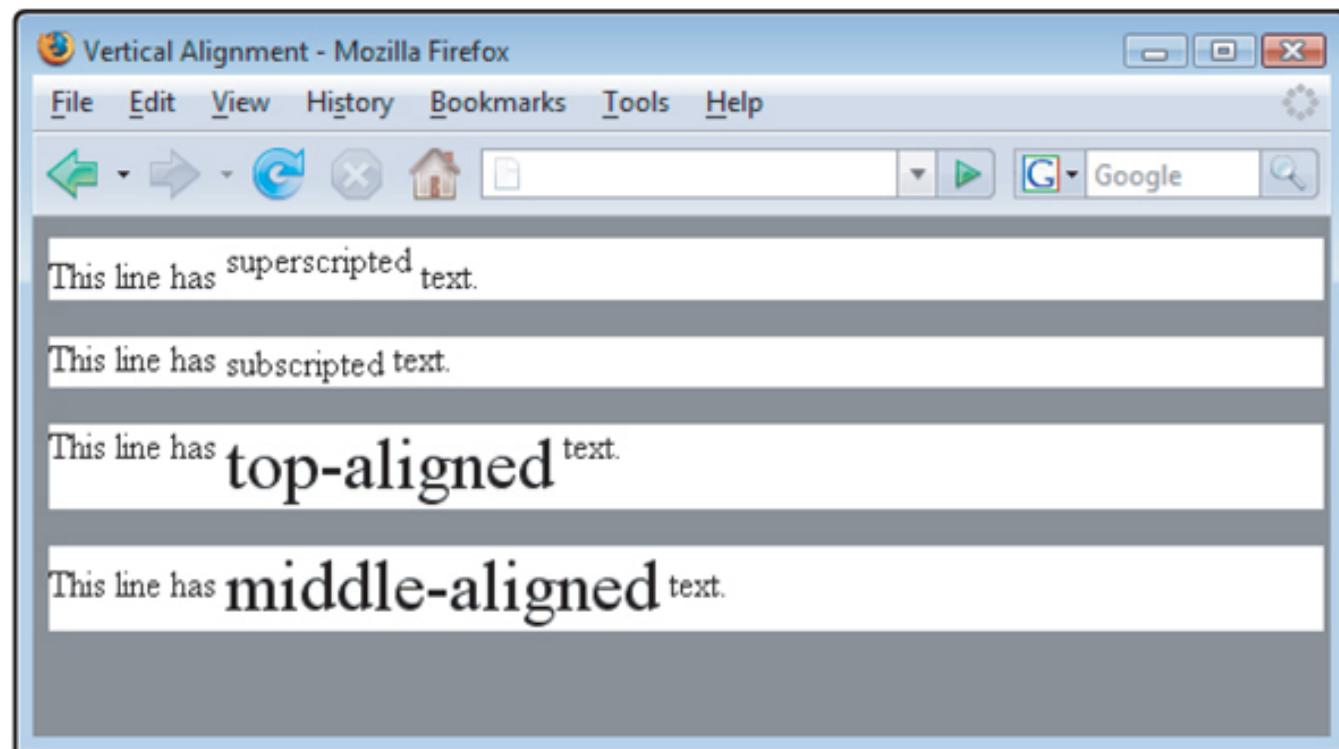
Value	Definition
baseline	Align the baseline of the text with the baseline of the parent element
sub	Lower the baseline of the box to the proper position for subscripts of the parent's box; this value does not automatically create a smaller font size for the subscripted text
middle	The CSS2 specification defines "middle" as "the vertical midpoint of the box with the baseline of the parent box plus half the x-height of the parent"; realistically, this means the middle-aligned text is aligned to half the height of the lowercase letters
super	Raise the baseline of the box to the proper position for superscripts of the parent's box; this value does not automatically create a smaller font size for the superscripted text
text-top	Align the top of the box with the top of the parent element's font
text-bottom	Align the bottom of the box with the bottom of the parent element's font
top	Align the top of the box with the top of the line box
bottom	Align the bottom of the box with the bottom of the line box

Table 7-5 Vertical-align property values



Figure 7-13

Vertical alignments



Specifying Vertical Alignment (continued)

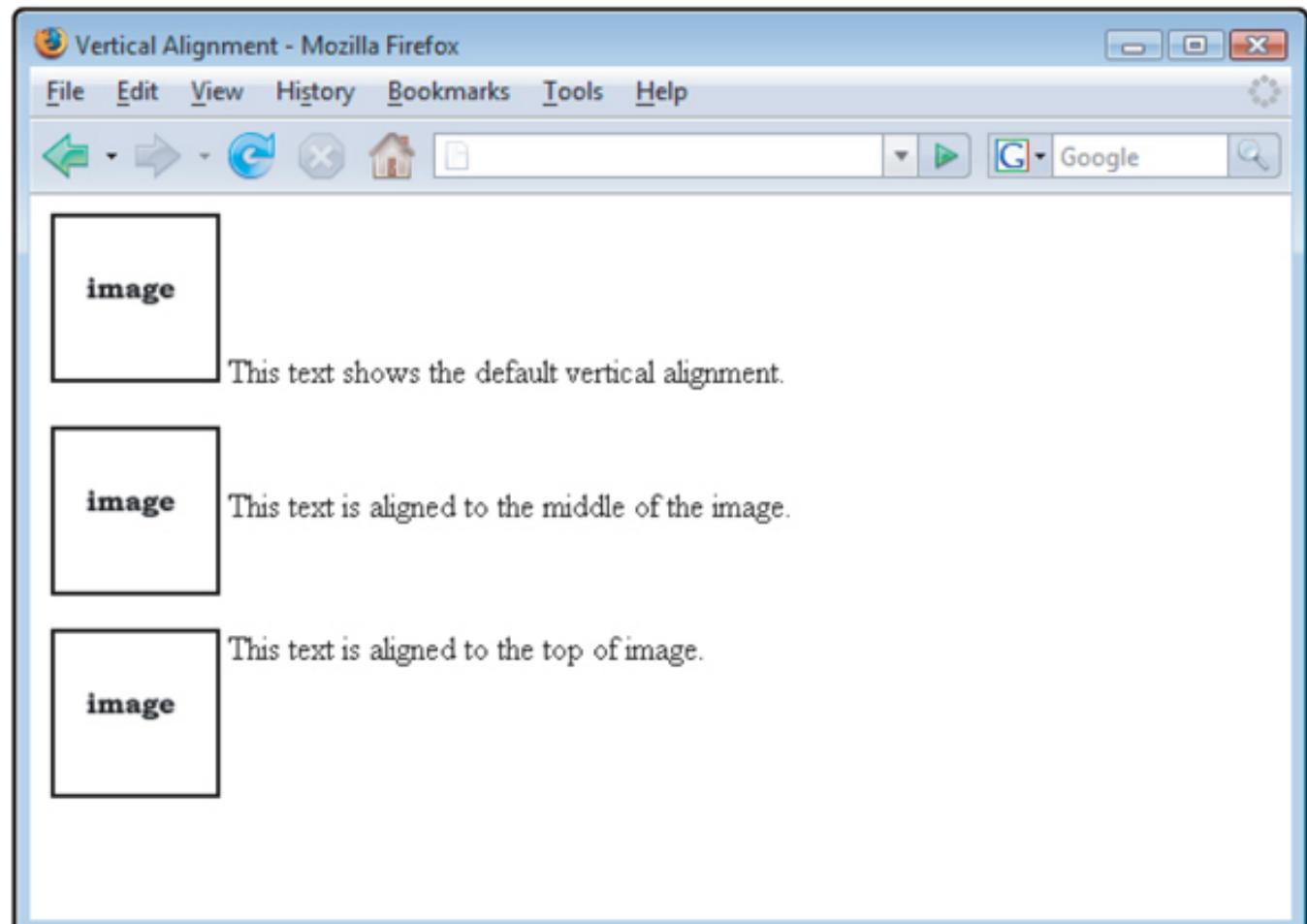
- You can also use vertical alignment to align text with graphics
- The following rule, added to the `` element with the `style` attribute, sets the vertical alignment to top:

```

```

Figure 7-14

Vertically aligning text and graphics



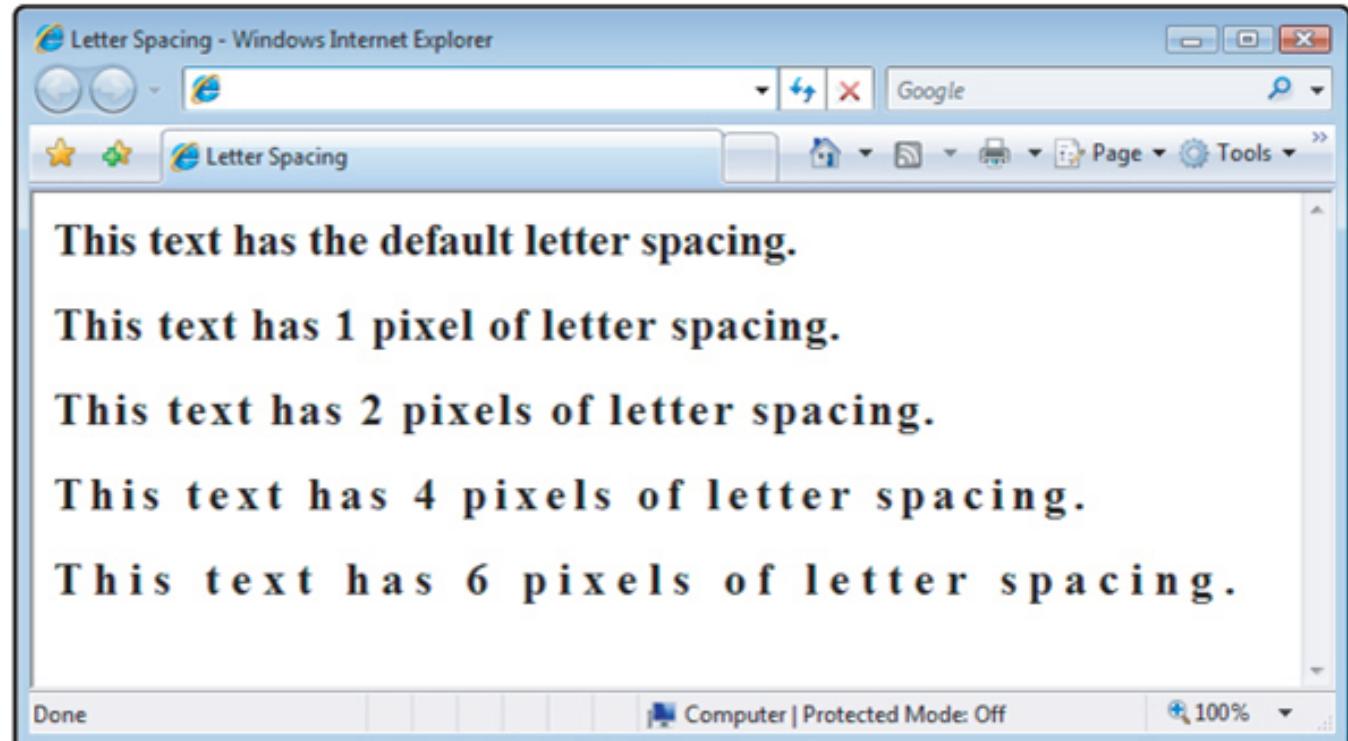
Specifying Letter Spacing

- To adjust kerning, the printer's term for adjusting the white space between letters, use the letter spacing property
- The following rule sets the letter spacing to 4 points

```
h1 {letter-spacing: 4pt; }
```

Figure 7-15

Adjusting letter spacing



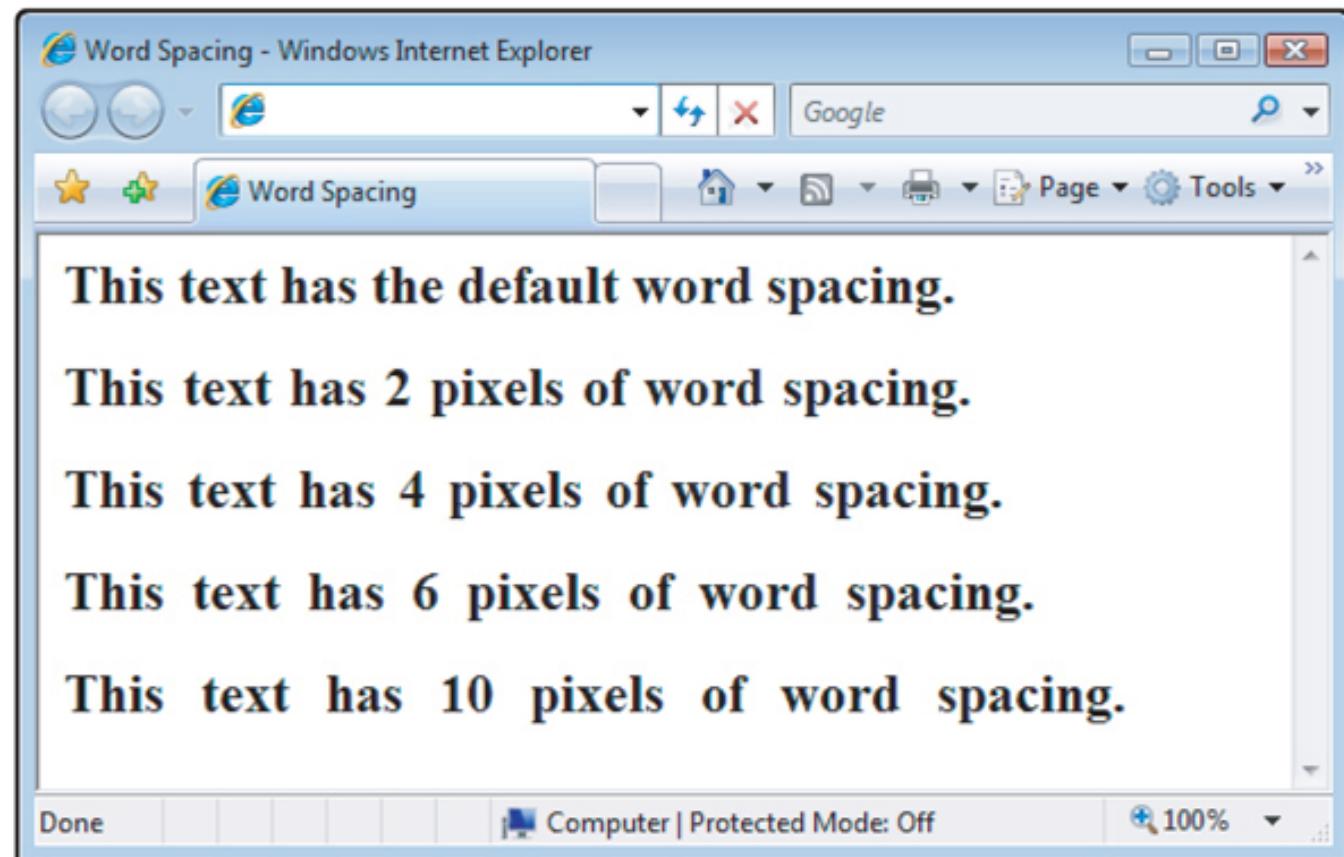
Specifying Word Spacing

```
h1 {word-spacing: 2em; }
```

- The word-spacing property lets you adjust the white space between words in the text
- The following code sets the word spacing to 2 em

Figure 7-16

Adjusting word spacing



CSS Positioning

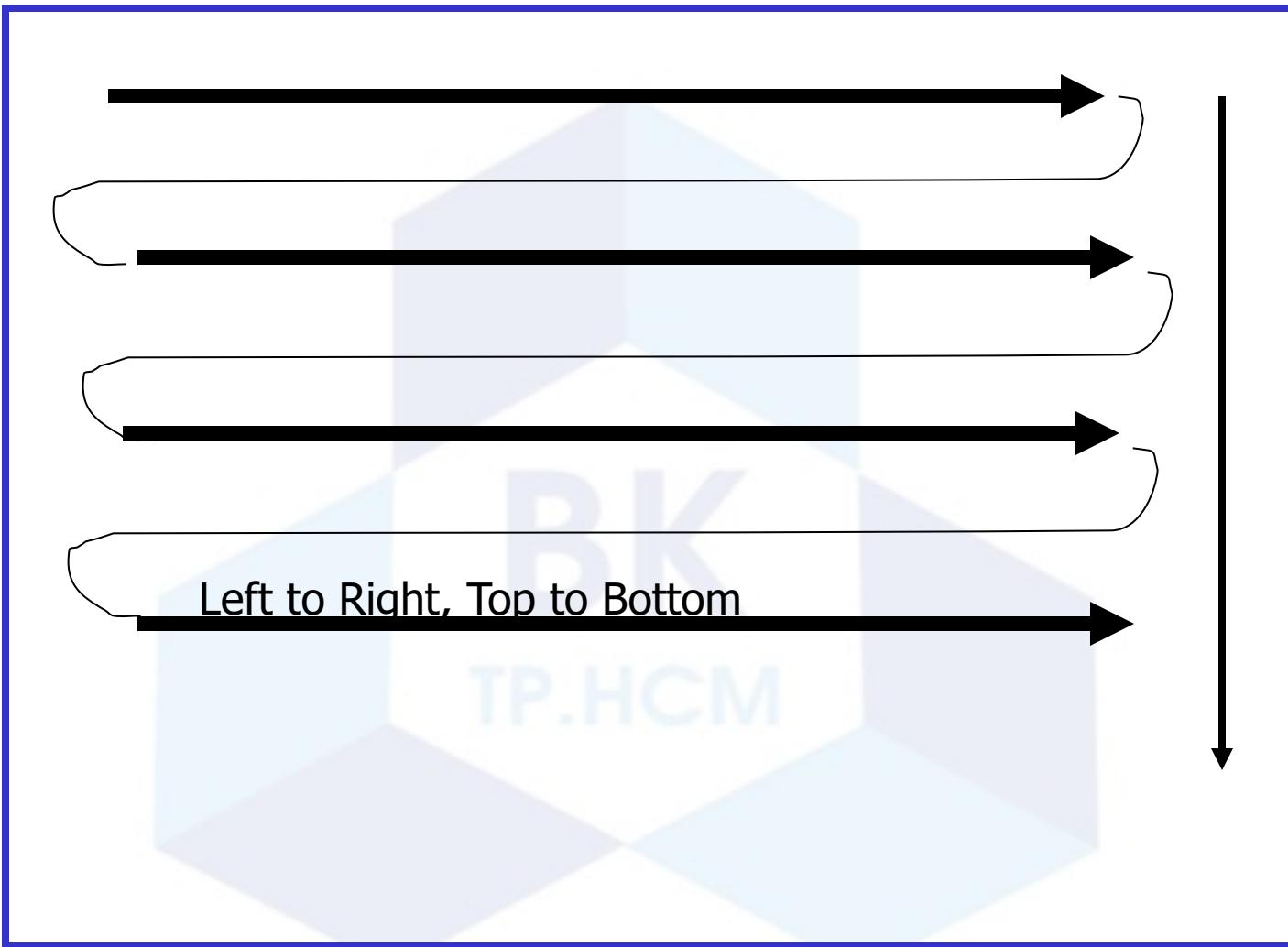


Positioning – what is it?

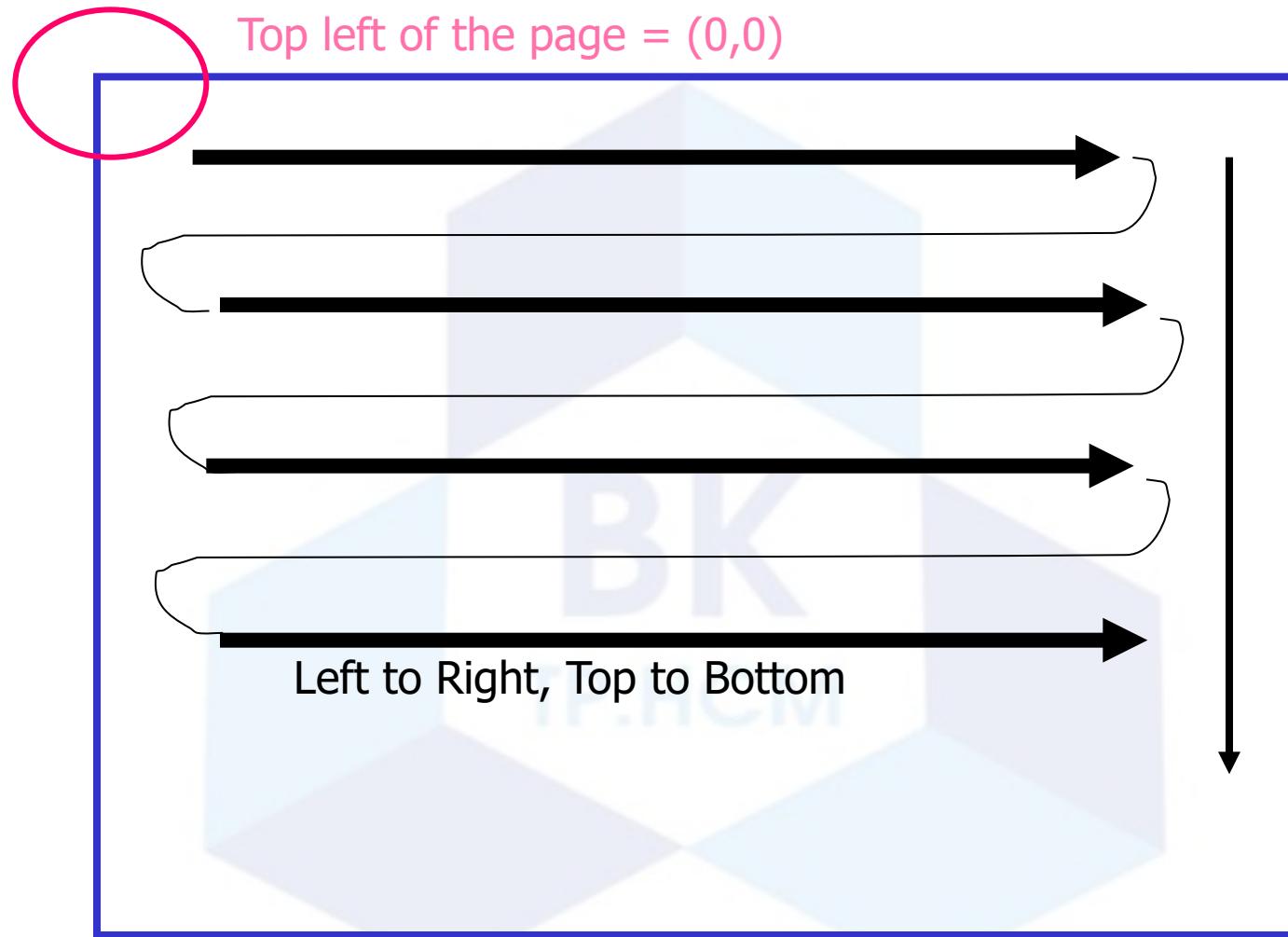
Positioning refers to the layout of the items on your page.

It also refers to the “position” descriptor in CSS rules (more on this later)

Normal Flow – no “positioning”



Normal Flow – no “positioning”



Normal Flow

The yellow box is the container (more on this)

This is a paragraph to which I have set the width.

If the next paragraph fits next to it on the right, it will line up.

Normal Flow

This is a paragraph to which I have set the width.

However, if the second paragraph is too wide to fit the container, it will shift down.

Normal Flow

This is a paragraph to which I have set the width.

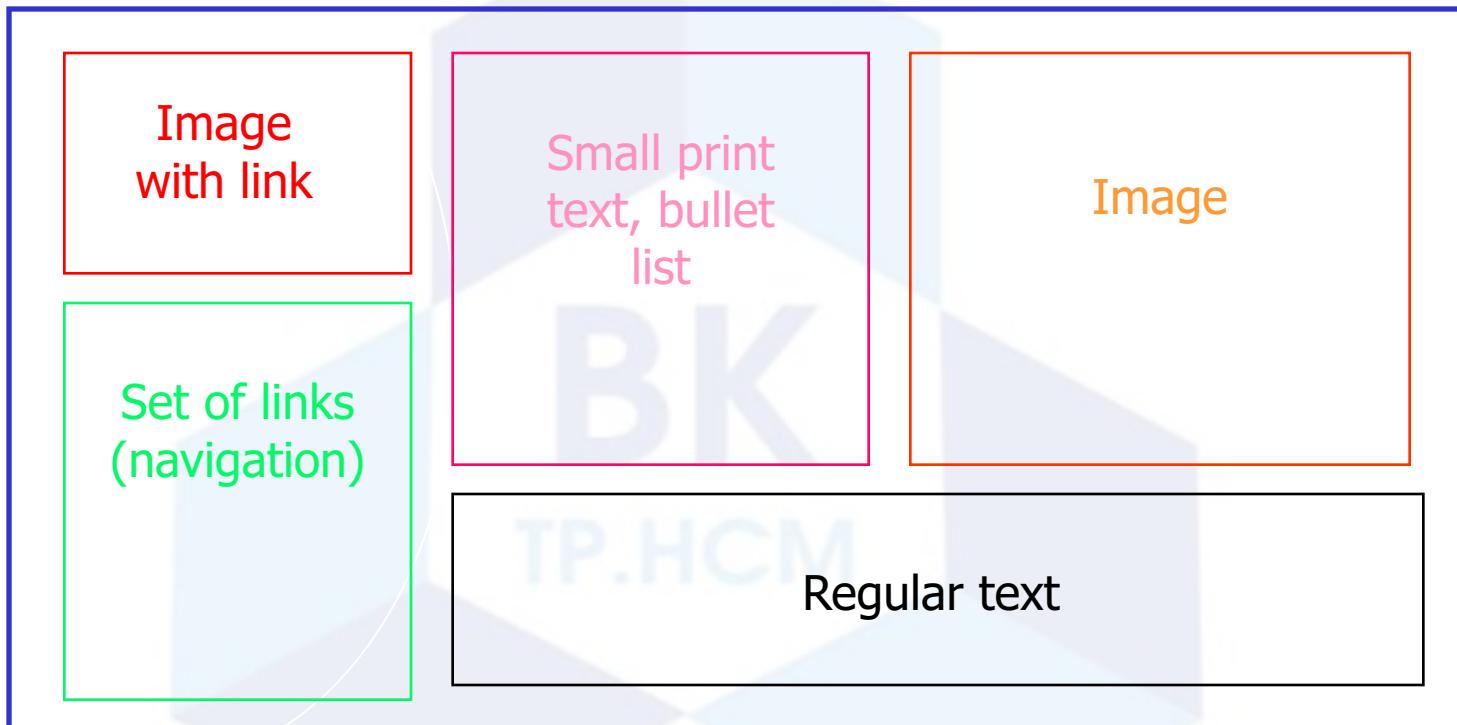
However, if the second paragraph is too wide to fit the container, it will shift down.

This is the basic principle of Normal Flow

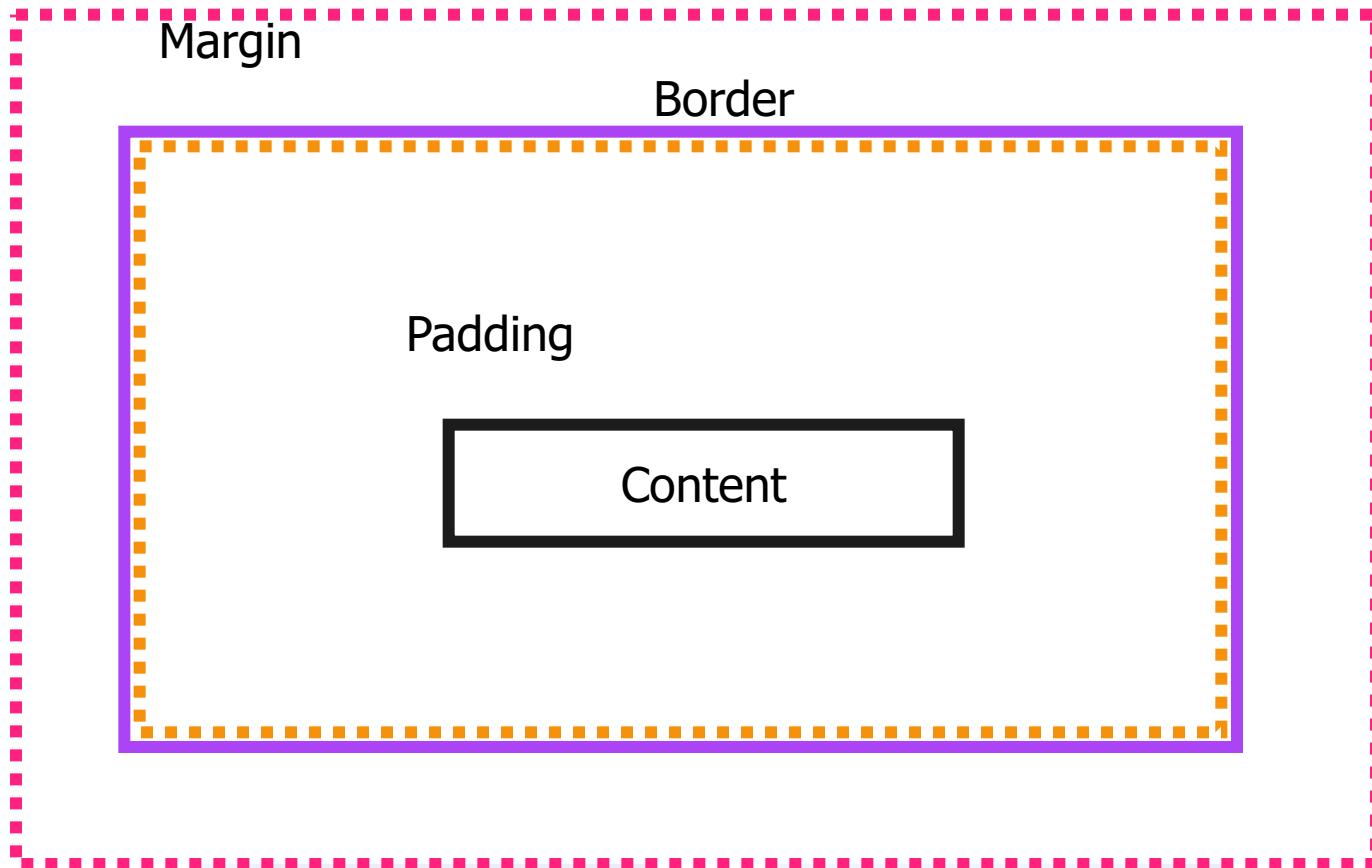


Box Model

All of the items in your webpage generate invisible “boxes” – you have to figure out how all of those boxes will fit into your page, like a puzzle.



Box Model



Margin and Padding

```
styleX {  
margin: 10px 10px 10px 10px;  
padding: 5px 5px 5px 5px; }
```

OR

```
styleX {  
margin: 10px;  
padding: 10px; }
```

OR

```
styleX {  
margin: 10px 15px;  
padding: 5px 10px;  
}
```

TRBL

top – right – bottom - left

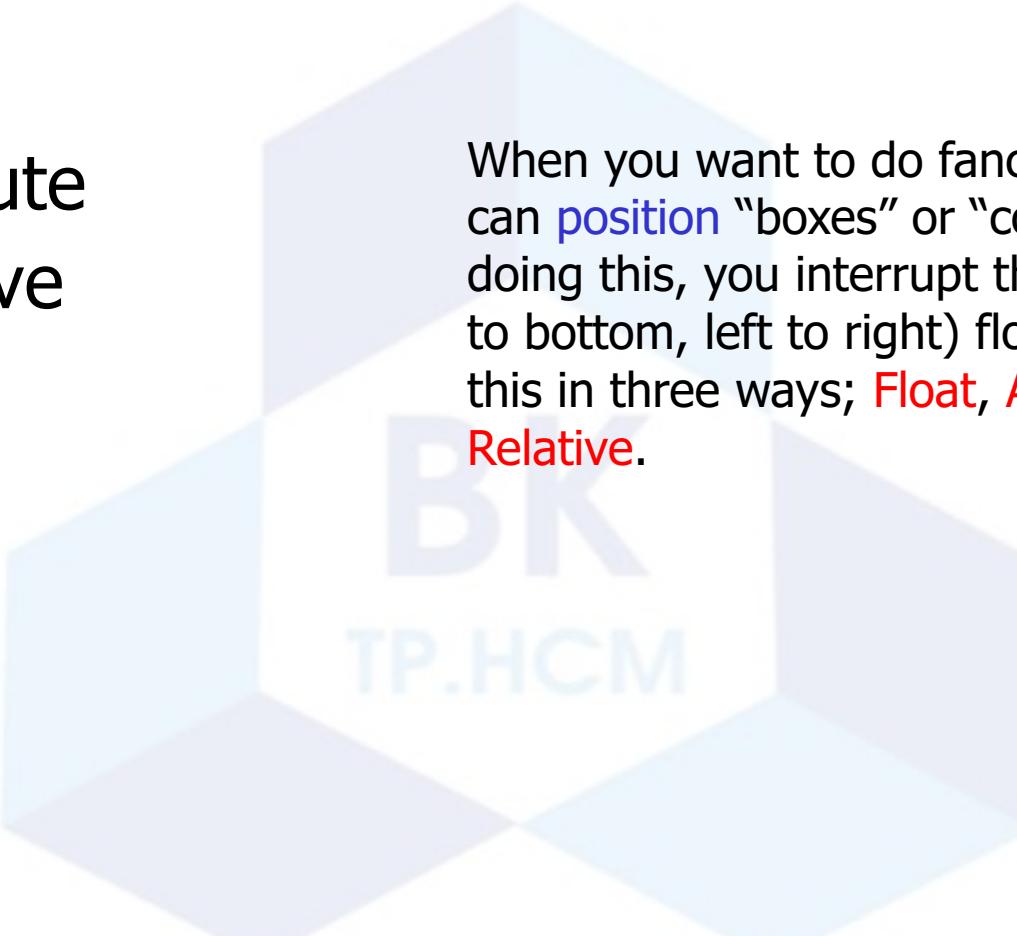
Shorthand:

Just one number = all 4 sides

Two numbers = top/bottom, left/right

Interrupt the Flow

- Absolute
- Relative
- Float



When you want to do fancier layout, you can **position** “boxes” or “containers.” By doing this, you interrupt the normal (top to bottom, left to right) flow. You can do this in three ways; **Float**, **Absolute**, and **Relative**.

Float

HTML

```
<div>  
  
<p> This is the  
normal...</p>  
  
<p class="float">This text  
is floated right.</p>  
  
</div>
```

This is the normal flow of a document; from top to bottom, left to right. When the floated text is added, it moves to the **top right corner** of the containing element, in this case the `<div>`. Normal text flows **around** the floated text.

This text is floated right.

CSS

```
.float {float:right;}
```

Absolute

HTML

```
<div>  
  
<p> This is the normal...  
<span class="abs"> This  
text is absolutely  
positioned.</span>...top to  
bottom... </p>  
  
</div>
```

This is the normal flow of a document; from top to bottom, left to right. When you add the absolutely positioned text, it moves to the coordinates you set based on the **top left corner** of the containing element, in this case the `<div>`. Normal text flows **over** the absolutely positioned text. There is no gap where the text is taken from.

CSS

```
.abs {position: absolute;  
      top: 40px;  
      left: 80;}
```

Relative

HTML

```
<div>  
<p> This is the normal...  
<span class="rel"> This text  
is relatively positioned.  
</span> ... from top to  
bottom...</p>  
</div>
```

CSS

```
.rel {position: relative;  
top: -50px;  
left: 150px;}
```

This is the normal flow of a document; text is relatively positioned from top to bottom, left to right. When you add the relatively positioned text, it moves to the coordinates you set based on the **top left corner** of the containing element, in this case the `<div>`. Normal text flows **as normal**, but a gap is left where the relative text used to be, and the text **overlaps** with the newly positioned relative text if they are in the same area.

Before and After Pseudo-elements

BK
TP.HCM

E:before and *E*:after

- *E*:before or *E*:after can be used to add contents before or after a element *<E>*.
- We will deal come to these when we discuss generated contents properties.
- This will be coming up after the examples for selectors that we will discuss now.

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
h1::before {
  content: url(smiley.gif);
}
</style>
</head>
<body>

<h1>This is a heading</h1>

</body>
</html>
```



This is a heading

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
h1::after {
  content: url(smiley.gif);
}
</style>
</head>
<body>

<h1>This is a heading</h1>

</body>
</html>
```

This is a heading

Responsive Web Design

Responsive Web Design

RWD is the concept of developing a website in a way that **allows the layout to adjust** according to the user's screen resolution (*view port*) using *media queries*



What is RWD?



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Online Games +

Movies & Music +

Support +

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What is RWD?

<http://sony.com>

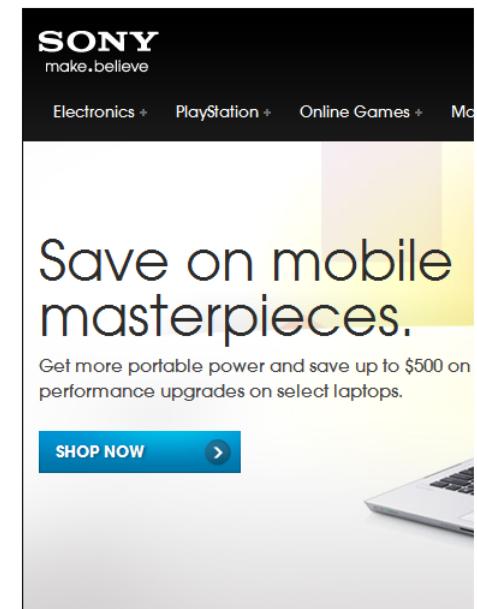
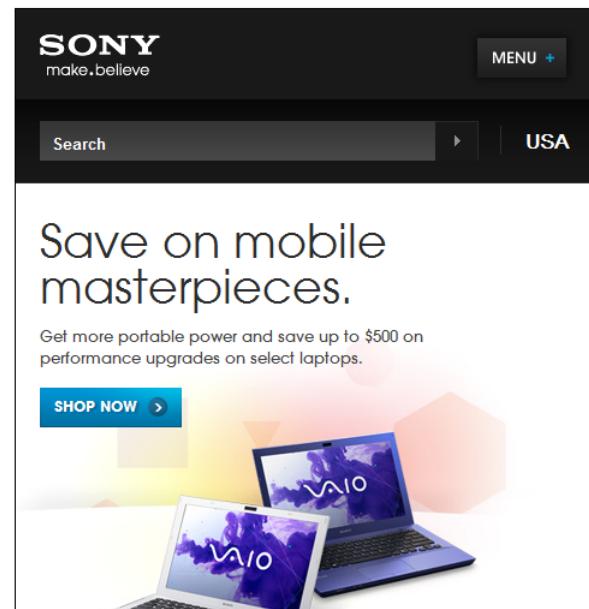
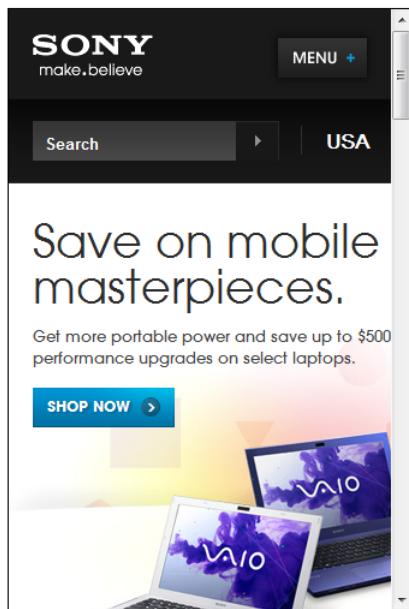
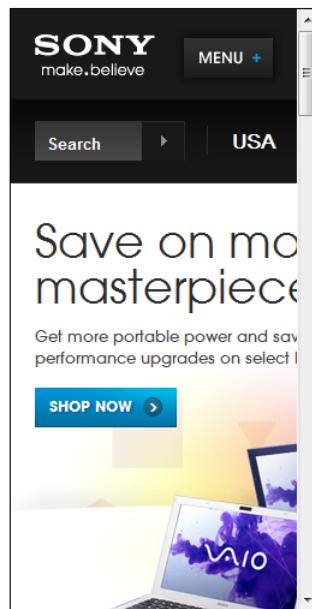
- Width only
- Device sizes

240

320

480

768

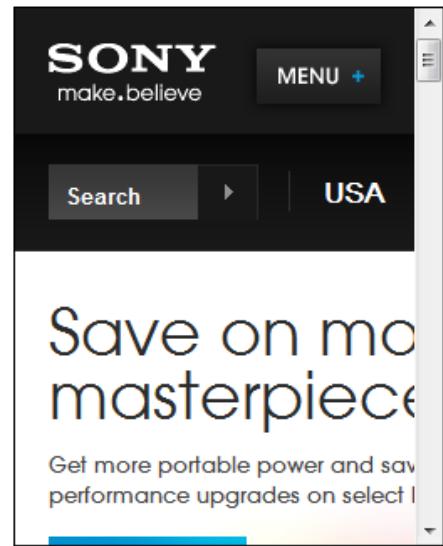


A tool by Matt Kersley - [Fork it on Github](#)

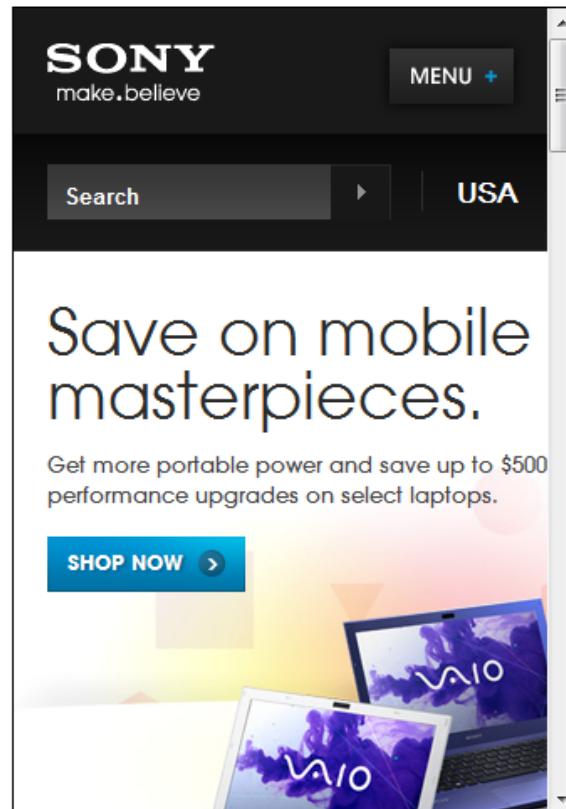
Note: The content width may not be pixel perfect - I have added 15px to the iframes to cater for the scrollbars

What is RWD?

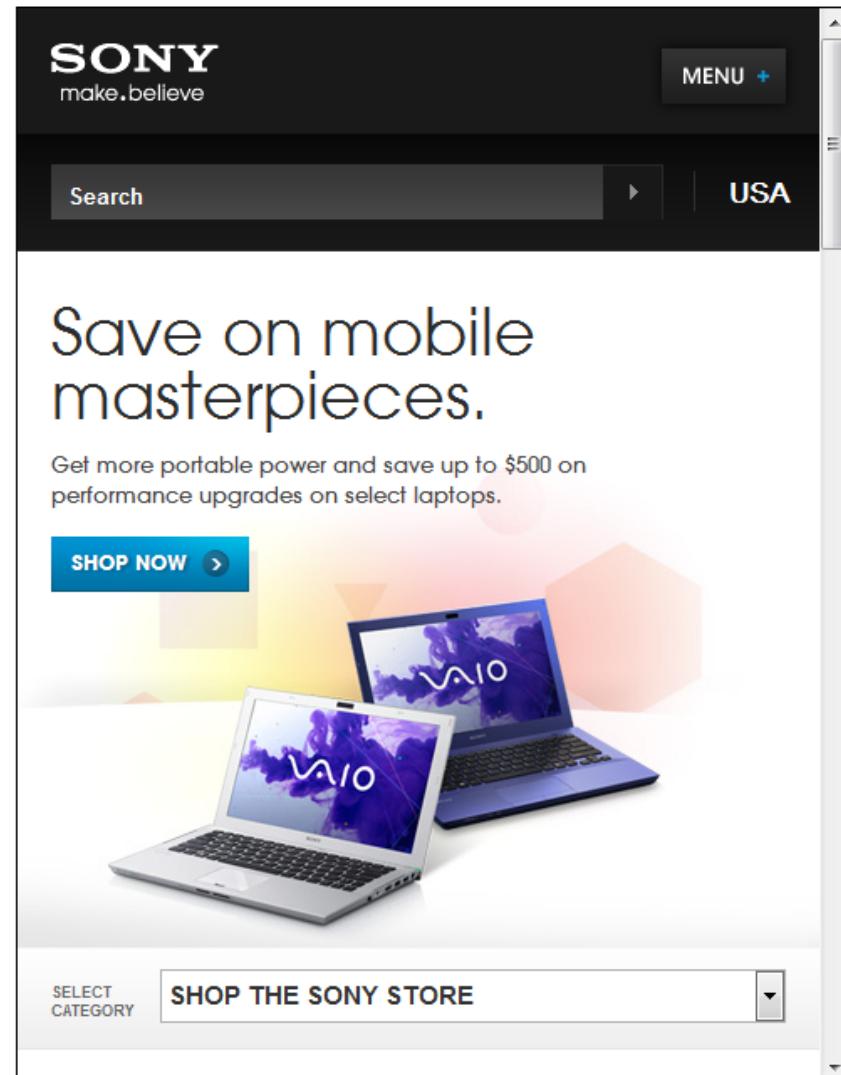
240 x 320 (small phone)



320 x 480 (iPhone)



480 x 640 (small tablet)



What is RWD?

If you have a laptop, and a smart phone and a tablet you can see what I'm talking about, by going here:

<http://achv.in/rwdrob>

http://mattkersley.com/responsive/?{website_url}

Simon Collison

Established Nottingham 2002
THE CELEBRATED NEW MISCELLANY OF
MR. SIMON COLLISON
A.R.H. DRALEY

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His a brilliant dragon, spines, and scales based in Nottingham, England. He studies *the art books*, and loves doing **presentations** and workshops plus occasional **interviews**. [Read More →](#)

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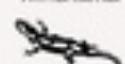
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Drop me a line if you make the community
feel better about all my projects, including

Food Sense



The Food Sense homepage features a large image of a woman in a pink shirt slicing bread on a wooden cutting board. Below the image is a call-to-action button: "Share your Food Sense" and "Submit your favorite recipes, become a contributor, or get interviewed". On the left sidebar, there are links for Contributors, Blog, The A List, Contribute, and About. The main content area includes a "Contributors" section with profiles for Misti Amy, Jeni Sisneros, and Heather. It also has a "Blog" section with posts like "How to Make Going Veg a No Brainer" and "Recipes: Vegan Sushi".

Contributors

Misti Amy: "The world should know, vegans..."
Two years ago, while working for the ACLU, Amy came to see the operations of the meat industry as a civil rights issue. She became vegetarians, and eventually, after...
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Jeni Sisneros: "Grazing for Portland" -
My husband and I visited Portland one weekend in early May, and while we hit all the spots we wanted to see in two days, I truly felt like I could stay for another...
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Heather: "Heather shared her visit to Organic Love cafe with us. Today, I'm excited to share her recipe for homemade sushi with you. Now, I'm still...
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Blog

How to Make Going Veg a No Brainer
Heather Vegan Consultant
Heather thanks for reading my interview with Kelly, and welcome to my blog! As my interview, I advised those considering a vegan lifestyle...
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Recipes: Vegan Sushi
Heather: "Heather shared her visit to Organic Love cafe with us. Today, I'm excited to share her recipe for homemade sushi with you. Now, I'm still...
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The A List

Contribute

About

Food Sense

Submit your favorite recipes, become a contributor, or get interviewed.

Sign up for our newsletter to receive a handpicked selection of the best stories, recipes, and news, delivered weekly to your inbox.

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What's Cooking?

Browse our gallery for insanely delicious recipes.

Contributors **Blog** **The A List** **Contribute**



The "What's Cooking?" page features a large image of a fruit salad with various fruits like grapes, figs, and berries. Below the image is a call-to-action button: "Browse our gallery for insanely delicious recipes". The page layout is identical to the homepage, with sections for Contributors, Blog, The A List, and Contribute.

Contributors

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Two years ago, while working for the ACLU, Amy came to see the operations of the meat industry as a civil rights issue. She became vegetarians, and eventually, after...
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Recipes: Vegan Sushi
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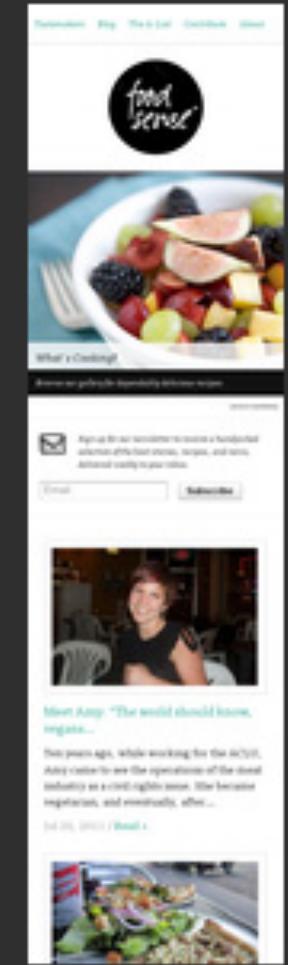
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What's Cooking?

Browse our gallery for insanely delicious recipes.

Contributors **Blog** **The A List** **Contribute**



The mobile view of the Food Sense website shows a smaller version of the homepage. It features a large image of a woman holding a bowl of food, a "What's Cooking?" section with a fruit salad, and a "Contributors" section with profiles for Misti Amy, Jeni Sisneros, and Heather. The layout is designed to be responsive for mobile devices.

Contributors

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Two years ago, while working for the ACLU, Amy came to see the operations of the meat industry as a civil rights issue. She became vegetarians, and eventually, after...
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The A List

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What's Cooking?

Browse our gallery for insanely delicious recipes.

Contributors **Blog** **The A List** **Contribute**

Clean Air Commute Challenge

The mobile version of the landing page features a blue header with the "CLEAN AIR WORKS" logo. Below the header, the title "CLEAN AIR COMMUTE CHALLENGE" is displayed in large, bold, white letters. A paragraph of text explains the challenge's purpose: "According to the American Lung Association, the Charlotte metropolitan area ranks 10th in the nation for poor air quality issues. It has never been more important to learn about the impact of air pollution and what steps we can take to improve it." Below the text are icons for various commute options: Ride Cars, Bike, Carpool, Vanpool, Walk, and Telecommute. A yellow "REGISTER" button is centered below these icons. At the bottom, there is a green landscape illustration with a city skyline silhouette in the background, and a row of colored squares at the bottom.

The tablet version of the landing page has a similar layout to the mobile version. It features a blue header with the "CLEAN AIR WORKS" logo, the title "CLEAN AIR COMMUTE CHALLENGE" in large white letters, and a paragraph about air quality. Below the text are the same six commute option icons. A yellow "REGISTER" button is positioned below the icons. At the bottom, there is a green landscape illustration with a city skyline silhouette, and a row of colored squares labeled "GREEN AREA", "YELLOW", "AIR ALERT", "BETHEALTHY", and "PURPLE".

The desktop version of the landing page includes a vertical navigation bar on the right side with four buttons: "REGISTER", "ENTER DAILY COMMUTE", "COMMUTE OPTIONS", and "RULES". The main content area follows the same structure as the other views, with the "CLEAN AIR WORKS" logo, title, paragraph, commute icons, yellow "REGISTER" button, and the bottom landscape and color-coded area.

FlexSlider

FLEXSLIDER

an awesome, fully responsive jQuery slider plugin.

WHY FLEXSLIDER?

- Simple, semantic markup
- Supported in all major browsers
- Slide and Fade animations
- Multiple slider support, highly customizable options
- Directional, keyboard, and touch swipe navigation
- Very Lightweight (file minified)
- Use any html elements in the slides
- Built for beginners and pros, alike
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Getting started with FlexSlider is quick and easy!

Step 1 - Link Files
Add these items to the `<head>` of your document. This will link jQuery and the FlexSlider core JS/CSS files into your webpage. You can also choose to host jQuery on your own server, but Google is nice enough to take care of that for us!

```
http://ajax.googleapis.com/ajax/libs/jquery/1.8.3/jquery.min.js
http://flesler.github.com/jquery-flexslider/jQuery-FlexSlider.css
http://flesler.github.com/jquery-flexslider/jQuery-FlexSlider.js
```

Step 2 - Add markup
The FlexSlider markup is simple and straightforward. First, start with a single containing element, `<div class="flexslider">` in this example. Then, create a `<ul class="slides">`. It is important to use this class because the slide targets that class specifically (but your images and anything else you don't use `` and you are ready to rock).

DOWNLOAD THE KIT
[Version 1.6 - Base 1.7.9rc](#)


Cupcakes and cupcakes, oh my! Sliding around.

Not clever enough yet?
If you are having trouble getting FlexSlider working for you, check out the [demonstration page](#). The same demo is included in the download kit and should help get you started.

FLEXSLIDER

an awesome, fully responsive jQuery slider plugin.

WHY FLEXSLIDER?

- Simple, semantic markup
- Supported in all major browsers
- Slide and Fade animations
- Multiple slider support, highly customizable options
- Directional, keyboard, and touch swipe navigation
- Very Lightweight (file minified)
- Use any html elements in the slides
- Built for beginners and pros, alike
- Free to use under the MIT license

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Getting started with FlexSlider is quick and easy!

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What is RWD?

More examples:

- <http://foodsense.is>
- <http://earthhour.fr>
- <http://w3conf.org>
- <http://mediaqueri.es>
- <http://fourkitchens.com>

Who needs RWD?

You need RWD if:

- You're starting from scratch.
- You want to keep costs low
- You want it to work even when new devices are released

Media Queries and CSS3

In its essence a media query consists of a media type and an expression to check for certain conditions of a particular media feature. The most commonly used media feature is width.



CSS3 & Media Queries

In your CSS:

```
@media screen and (min-width: 480px) {  
    .content { float: left; }  
    .social_icons { display: none }  
    // and so on...  
}
```



Food Sense



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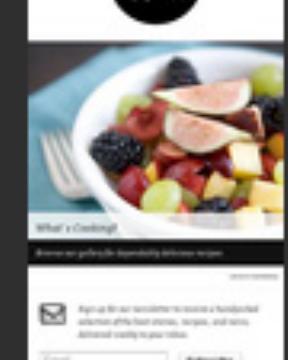
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CSS3 & Media Queries

By restricting CSS rules to a certain width of the device displaying a web page, one can *tailor the page's representation* to devices with varying screen resolution (view port).

<https://whatismyviewport.com>

Meta viewport

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

- A <meta> viewport element gives the browser instructions on how to control the page's dimensions and scaling.
- The width=device-width part sets the width of the page to follow the screen-width of the device (which will vary depending on the device).
- The initial-scale=1.0 part sets the initial zoom level when the page is first loaded by the browser.

Meta viewport



Without the viewport meta tag



With the viewport meta tag

CSS3 & Media Queries

```
/*===== Mobile First Method =====*/
/* Custom, iPhone Retina */
@media only screen and (min-width : 320px) {
    ...
}

/* Extra Small Devices, Phones */
@media only screen and (min-width : 480px) {
    ...
}

/* Small Devices, Tablets */
@media only screen and (min-width : 768px) {
    ...
}

/* Medium Devices, Desktops */
@media only screen and (min-width : 992px) {
    ...
}

/* Large Devices, Wide Screens */
@media only screen and (min-width : 1200px) {
    ...
}
```

CSS3 & Media Queries

```
/*===== Non-Mobile First Method =====*/
/* Large Devices, wide Screens */
@media only screen and (max-width : 1200px) {
    ...
}

/* Medium Devices, Desktops */
@media only screen and (max-width : 992px) {
    ...
}

/* Small Devices, Tablets */
@media only screen and (max-width : 768px) {
    ...
}

/* Extra Small Devices, Phones */
@media only screen and (max-width : 480px) {
    ...
}

/* Custom, iPhone Retina */
@media only screen and (max-width : 320px) {
    ...
}
```

UI design

A history of web design trends



Lectured by:
Nguyễn Hữu Hiếu

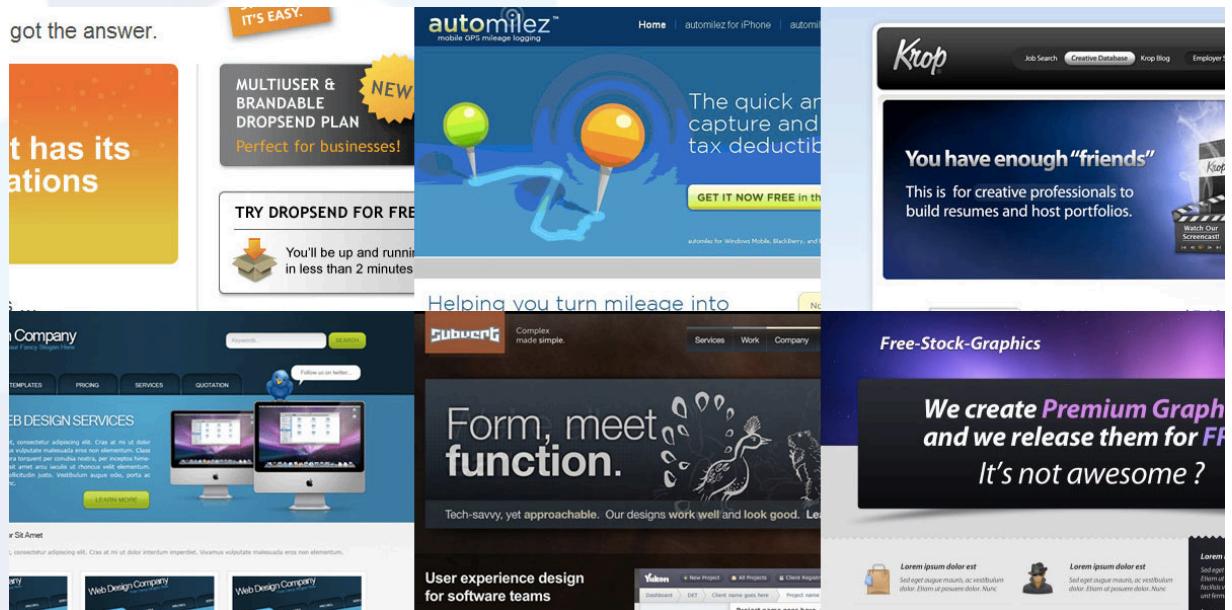
In the beginning (1995 – early 2000's)

- Simple text-based sites built in the first generation of HTML
- Web and software developers dedicated a great deal of time to making menus, buttons and links look overtly 'clickable', in order to coax users to move from page to page.



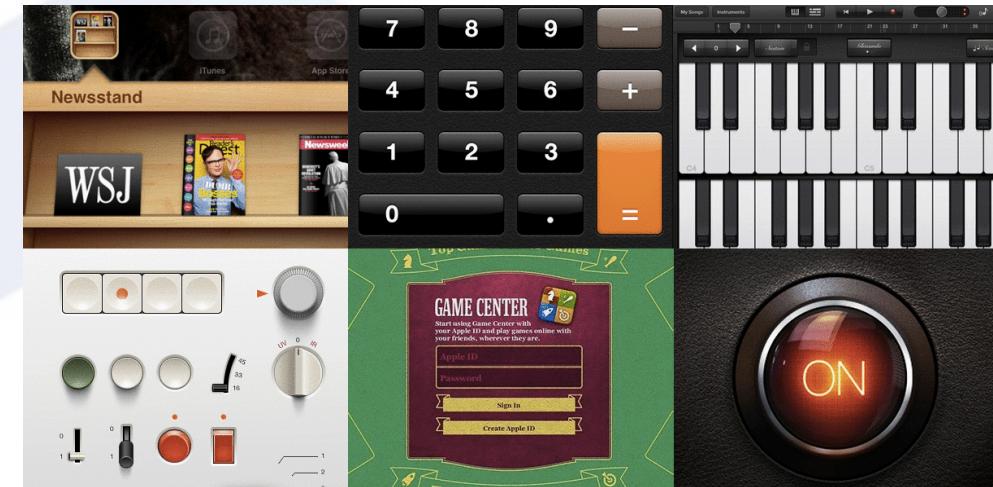
Web 2.0 (2003 – 2010)

- Think lengthy drop shadows, shiny bubbles, oversized buttons and glares
- The oversized graphics trained us to 'click here' and 'learn more' all the while serving up a feast for our eyes as colour, gradients and graphics tantalised our senses.



Skeuomorphic design (2010 – 2012)

- This is the practice of incorporating the visual characteristics of an object into a digital design
- Texture, light and colours unite to create a sense of depth and realism

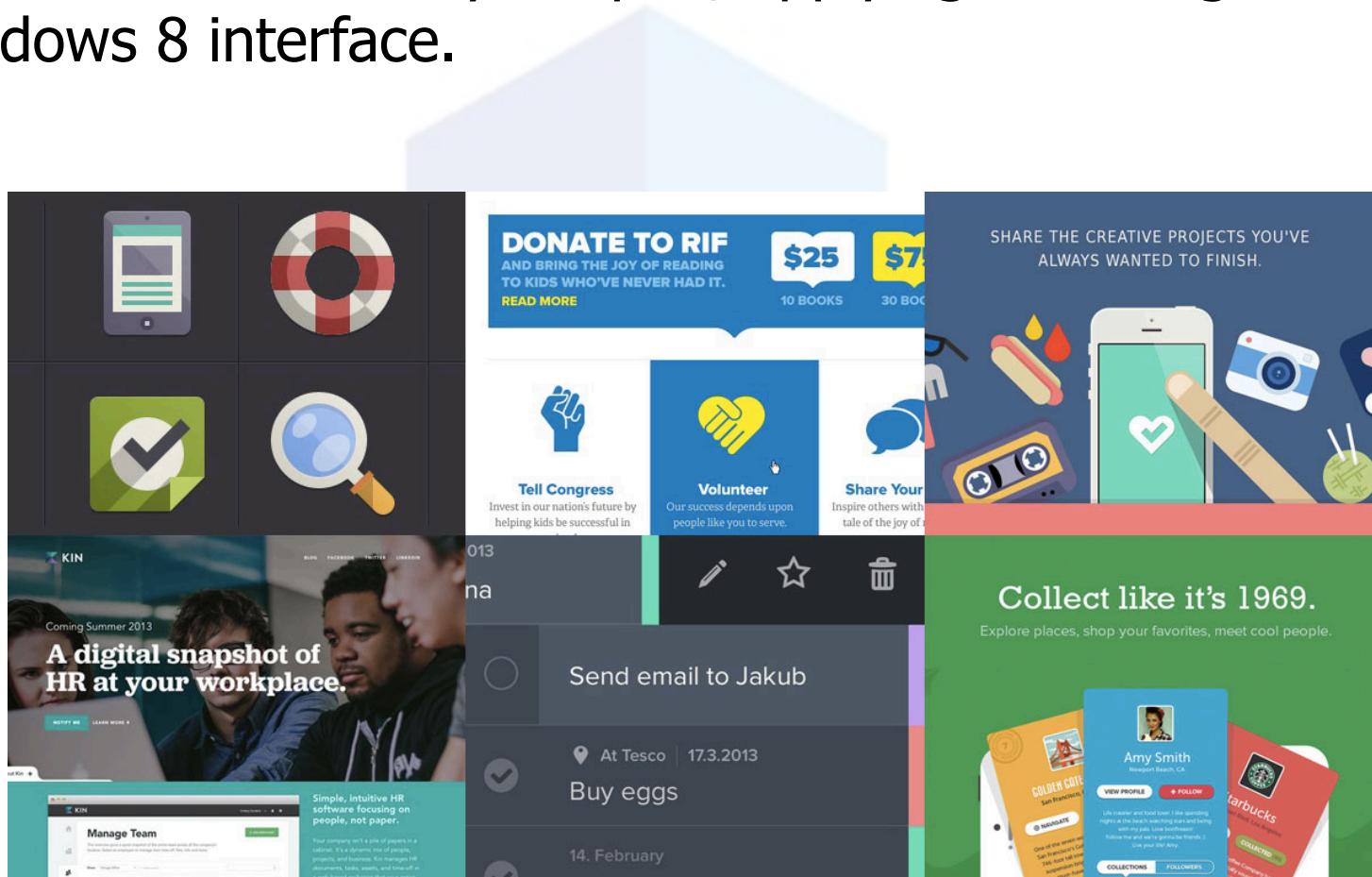


Flat design (2012 – now)

- Flat design is the latest style to hit the digital design world
- Simplicity is key: decorative elements such as gradients, textures and reliefs are avoided
- The style utilises open space, bright colours, sharp edges and two-dimensional illustrations with a strong focus on usability
- Omitting complex graphics means that users have less distraction and can focus on content.
- By discarding unnecessary styling, page load time is significantly reduced and code is cleaner meaning sites adapt effortlessly across multiple platforms.

Flat design (2012 – now)

- Microsoft was an early adopter, applying flat design to their Windows 8 interface.



CSS frameworks



What is CSS frameworks

- A **CSS framework** is a library allowing for easier, more standards-compliant web design using the Cascading Style Sheets language. Most of these frameworks contain at least a grid.
- CSS frameworks are tools used by UI developers to make their job easier.

What is CSS frameworks

	BEST CSS FRAMEWORK	PRICE	GZIPPED SIZE	LAST UPDATED
92	 Bulma	-	-	Apr 5, 2020
87	 Bootstrap	FREE / PAID	-	Mar 20, 2020
83	 mini.css	-	-	Feb 5, 2020
83	 Foundation	-	-	Jan 25, 2020
81	 uikit	FREE	-	Mar 24, 2020
75	 Skeleton	-	-	Jan 27, 2020
74	 Semantic UI	-	-	Dec 23, 2019
73	 Spectre	0	-	Feb 17, 2020
72	 Materialize	-	-	Apr 4, 2020

<https://www.slant.co/topics/150/~best-css-framework>

CSS Framework

- <https://www.mockplus.com/blog/post/css-framework>
- <https://cssdb.co/>
- <https://github.com/uhub/awesome-css>
- <https://github.com/awesome-css-group/awesome-css>
- Libraries:
 - <https://codepen.io/>
 - <https://emilkowalski.github.io/css-effects-snippets/>
 - <https://speckyboy.com/css-libraries-frameworks-tools-2020/>
 - <https://www.webdesignerdepot.com/2019/10/15-best-css-libraries-for-2019/>

Tài Liệu Tham Khảo

- [1] *Unix Network Programming, Vol. 1, Third Edition, The Sockets Networking API*, W. Richard Stevens, Bill Fenner, Andrew M. Rudoff, Addison Wesley, 2003
- <https://www.butterfly.com.au/blog/design/ui-design-a-history-of-web-design-trends>