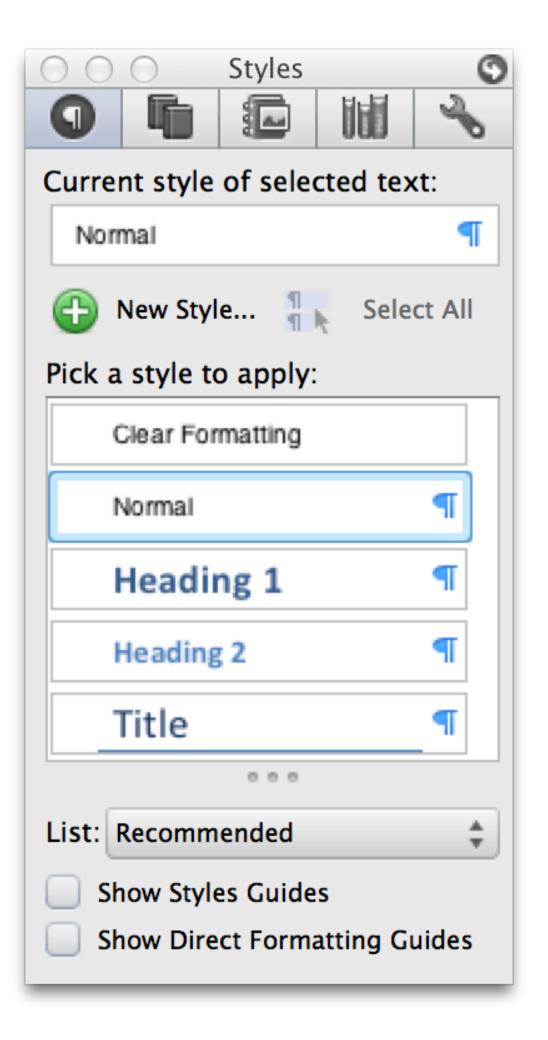
# Web Programming CSS Part I.

## Using styles

- Most important benefit: imposing consistency



#### CSS

- Cascading Style Sheets
- Describe the appearance of HTML documents
- Main advantages
  - Separate content from presentation
  - Consistency
  - Easier website maintenance
- Main disadvantage
  - Browser support cross-browser testing is a must!

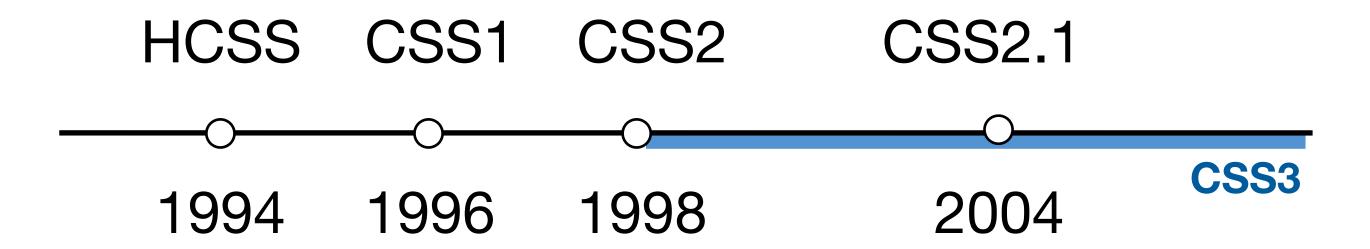
#### Håkon Wium Lie



#### http://people.opera.com/howcome/

#### Håkon Wium Lie (2013-02-28) Coming to an e-book or car near you: The Web (2013-02-13) Opera joins Google/Apple in-crowd with shift to WebKit and Chromium (2013-02-13) Hey Presto, Opera switches to WebKit • (2013-02-13) Opera embraces WebKit in browser brain transplant (2013-02-13) Opera formally adopts WebKit as its Web browsers reach 300 million users • (2012-06-19) Media Queries W3C Recommenda • (2012-03-13) SXSW slides, Opera Reader (2012-01-27) [Interview] Håkon Wium Lie - CTO, Opera and Creator of CSS (2012-01-16) Catching up with Håkon Lie • (2012-01-10) Opera focuses on browsers for TV sets (2011-10-31) MacWorld Opera CTO: Kill the browser scroll bar • (2011-10-15) Wired's Webmonkey: CSS 'Paged Media' Brings Book Smarts to the Web (2011-10-12) The Register: Opera brings fondleslab-style reading to bog-standard web • (2011-10-12) Slashdot: Opera Proposes Switching Browser Scrolling For 'Pages' (2011-10-12) PCpro: Opera ditches browser scrolling for "pages" • (2011-10-12) CNet: Opera proposal brings a book look to the Web • (2011-09-12) Google Native Client: The web of the future - or the past? I'm Norwegian. My haplotype is 11 Ultra-Norse Type 1. In my native country, my name is quite normal and I even have a famous namesake. In English, my first name is unpronounceable, my middle name is shortened to a single letter, and my last name does not build confidence. I therefore go by the name howcome which, although grammatically dubious, is the closest pronounceable approximation. It also makes for great email addresses, e.g., howcome@opera.com, which happens to be the one I use. I work for Opera Software as Chief Technology Officer. The Opera browser is smaller and faster than the one you know, and it has better support for standards. I'm currently working to make sure fonts and video finds their rightful place on the web using open standards. If you would like the Web to remain a place where no single vendor dominates, please consider using Opera. Opera also means multimedia; music, song and some strange plots. Some of us like both kinds of Opera. The selected few even like Wagner! I came to Opera from W3C (my old home page) where I was responsible for style sheets. In 1994 I invented a small language called Cascading Style Sheets (CSS). CSS describes how web pages are presented — on screens, in print, or read out loud. You can read about it in a book I co-authored with my co-inventor Bert Bos. The book written in HTML and CSS. I'm a graduate of the MIT Media Lab where I was part of Walter Bender's Electronic Publishing Group. The Media Lab did not invent the Web. The Media Lab did, however, pioneer many of the applications that later have been built on the web, and the concept of Cascading in CSS is inspired by Media Lab principles. The web was invented at CERN. I heard the big bang and came running to the World Wide Web project where I worked with Tim Berners-Lee and Robert Cailliau. In 2001 I started writing up my PhD thesis with help and inspiration from Ole Hanseth and Gisle Hannemyr. I constantly prioritize my frustrations, and sometimes find battles worth taking on. In the neighborhood, I fight senseless grafitti, tastless advertising, and motorways on the beach. On the city level (Oslo), I fight high-rise buildings in favor of classical elegance. On a national level (Norway) I fight for the right to read digital information and against the destruction of charm. On a European level, I fight against software patents, and for traditional building. On a global level, I fight for open standards and against Microsoft's pollution of the web. My political manifesto can be summed up in Global information, local production! That is: one should freely exchange digital information at a global level, but stuff (including clothes, food, and furniture) should not be transported far and you should know the names of the people who make them for you. Spare parts should be printed locally, and fish should be programmed to swim to their destination. I'm a founding member of the Norwegian Pirate Party. I support CAPSoff. I fish should be programmed to swim to their destination. I'm a founding member of the Norwegian Pirate Party. I support CAPSoff. I oppose daylight saving time. After visiting Easter Island, I support OPT. I like to design and make stuff from wood, especially from ash. I've made a sled, a dining room table, a common table, hymn-book-shelf on wheels, a shelf, and a leaky bathtub. I'm part owner of a woodworking studio in Oslo. I like farms, especially apple farms. I own a small one in the making. I like to paint. I observe two seasonal rituals to overcome fear: in the summer I jump into water from 10 meters, and in the winter I race down mountains on a snowboard. I brag about my personal speed record on snowboard: 94km/h. I sail in the summer and have participated in exactly one regatta. I have sailed on two of Norway's tall ships: Christian Radich and Sørlandet. I listen to classical music and like to go to houses built for music, especially those with a grand chandelier. I like to go to church, especially where choirs sing and organs rejoice. I travel wide and far to see Wagner's Ring: New York, Bayreuth, Seattle, Berlin, London, New York, Copenhagen. I drive an electric car. My long term project is to build a pipe I often find that my affections are paired with corresponding aversions. Here are some of the more articulated combinations: Passions classical music jazz typography typography in public spaces soaring kites high-rise buildings I ECO brielio I ECO erebitoeturo soaring kites high-rise buildings typography typography in public spaces classical music jazz Passions

#### CSS development



- Currently: CSS3
  - Specification is maintained by W3C
  - Most properties have already been implemented in modern browsers

#### CSS levels

- Three levels
  - Inline
  - Document level
  - External
- +1: browser level
- Levels also reflect priorities

#### Inline

- Using the style attribute
  - can be used with almost all tags
    - exceptions: <html>, <head>, <title>, <meta>, <param>, <style>, <script>
  - property:value pairs separated with;
  - overrides any style set globally

```
Large green text
```

Large green text

# **CSS syntax** (document-level and external)

```
selector p {
    font-family: Arial;
    color: blue;
    text-align: right;
}
```

- Selectors indicate which element(s) the rule applies to
- Declarations describe the styling
  - List of property: value pairs separated by a semicolon

#### Document level

- Defined in the <head> of the HTML document

#### External

- In a separate CSS file, linked from the HTML

```
p {
    color: blue;
    text-align: right;
}
/* you can comment, too */
```

# Advantages of having external CSS file(s)

- Separate content and structure from presentation
- Reduce repetition (remember: DRY)
- Enable multiple pages to share the same design
- Maintain site-wide consistency
  - Changes are to made in a single place
- Reduce bandwidth
  - CSS file is accessed only once, size of HTML files is reduced

#### Outline

- Part I Properties
  - To customize the styling of elements
- Part II Selectors
  - To select which elements to apply a style to
- Part III Positioning
  - To set the alignment of elements and layout of a page

#### Today

- We only use document level and inline css
  - So that both HTML and CSS is in a single file
  - Normally, you should always use an external CSS file
- Use a text editor or the w3school try-it editor

## Exercise #1

https://github.com/kbalog/web-programming/tree/master/exercises/css/properties

# Part I Properties

#### Properties

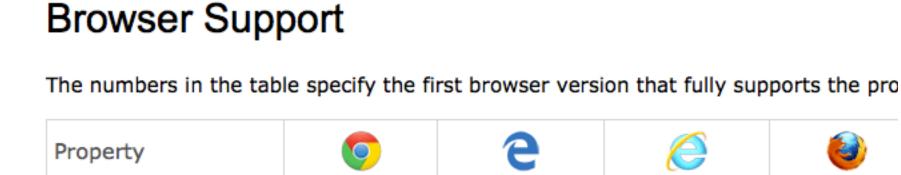
- Among other things...
  - Fonts
  - Lists
  - Text alignment
  - Margins
  - Colors
  - Backgrounds
  - Borders

#### Reference: w3schools

**○oblique** 

 $\bigcirc$ initial

http://www.w3schools.com/css/



12.0

#### **CSS Syntax**

font-style

font-style: normal|italic|oblique|initial|inherit;

1.0

#### **Property Values**



4.0

1.0

## CSS Property: font-style: onormal oitalic Try different font styles by clicking the radiobuttons

#### CSS Code:

div {
 font-style:normal;
}

W3Schools.com - Play it

## Text

#### Text properties

- Font
  - Family, size, weight, style, stretch, spacing, ...
- Alignment
- Color
- Decoration
  - Underline, strike-through, ...

#### Font families

#### **SERIF**

Extra details on the ends of the main strokes of the letters. These details are known as serifs.

## •

In print, traditionally used for long passages of text because they are considered easier to read.

#### SANS-SERIF

Straight ends to letters, therefore have a much cleaner design.



Screens have a lower resolution than print. It the text is small, sans-serif fonts can be clearer to read.

#### MONOSPACE

Every letter in a monospace (or fixed-width) font is the same width.



Monospace fonts are commonly used for code because they align nicely, making the text easier to follow.

#### Examples

SERIF SANS-SERIF MONOSPACE

Times New Roman Arial Courier

Georgia Verdana Courier New

Helvetica Lucida console

## Setting font family

- Property: font-family
- Value: name(s) of the font(s)
- Alternatives can be defined
  - In case the given font is not present on the user's computer, the next in the sequence will be used
  - Put the general font family as last in the list

```
h1 {
    font-family: "Helvetica Neue", Helvetica, Arial, sans-serif;
}
```

First choice

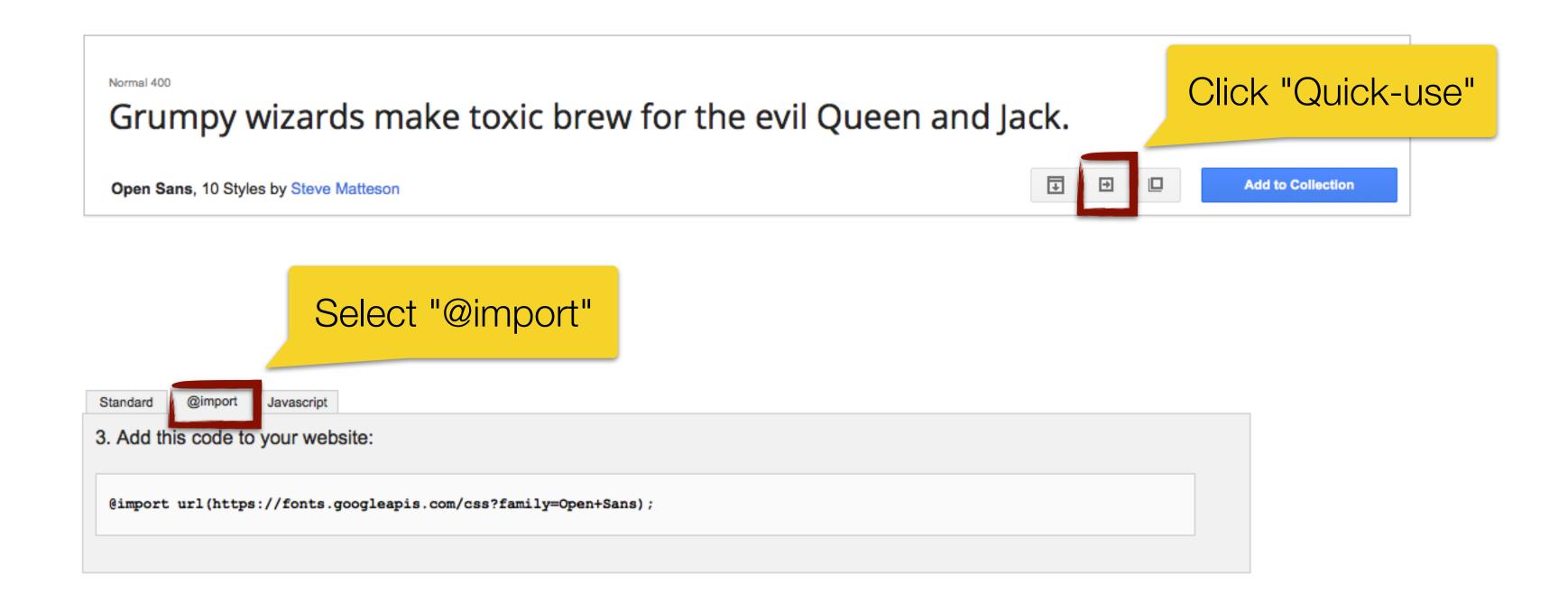
Fall-back choice

#### Importing fonts

- Add at beginning of style file @import url(address);
  - Alternative: use @font-face
    - See <a href="http://www.w3schools.com/css/css3\_fonts.asp">http://www.w3schools.com/css/css3\_fonts.asp</a>
- Great font resource: https://www.google.com/fonts

```
@import url(https://fonts.googleapis.com/css?family=Roboto);
h2 {
   font-family: "Roboto", sans-serif;
}
```

#### How to use Google Fonts



4. Integrate the fonts into your CSS:

The Google Fonts API will generate the necessary browser-specific CSS to use the fonts. All you need to do is add the font name to your CSS styles. For example:

```
font-family: 'Open Sans', sans-serif;
```

#### Font size

- Property: font-size
- Value: size in one of these units
  - Absolute
    - cm, mm, in
    - **px** pixels
    - **pt** points
  - Relative
    - **em** relative to the current font size (**recommended**)
    - % percentage
  - Keywords
    - xx-small, x-small, small, medium, large, x-large, xx-large

```
h1 {
    font-size: 2em;
}
h2 {
    font-size: 16pt;
}
h3 {
    font-size: medium;
}
```

#### Weight, style, stretch

**WEIGHT** 

Light

Medium

Bold

Black

STYLE

Normal Italic
Oblique

STRETCH

Condensed

Regular

Extended

The font weight not only adds emphasis but can also affect the amount of white space and contrast on a page.

Italic fonts have a cursive aspect to some of the lettering. Oblique font styles take the normal style and put it on an angle.

In condensed (or narrow) versions of the font, letters are thinner and closer together. In expanded versions they are thicker and further apart.

#### Weight, style, stretch

- Weight
  - Property: font-weight
  - Values: normal, bold, ...
  - http://www.w3schools.com/cssref/pr\_font\_weight.asp
- Style
  - Property: font-style
  - Values: normal, italic, oblique
  - http://www.w3schools.com/cssref/pr\_font\_font-style.asp

## Weight, style, stretch (2)

- Stretch
  - Property: font-stretch
  - Values: normal, condensed, expanded, ...
  - http://www.w3schools.com/cssref/css3\_pr\_font-stretch.asp

## Spacing

- Letter spacing
  - Property: letter-spacing
  - Value: length of extra space (px, cm, em, etc); negative values are allowed
  - http://www.w3schools.com/cssref/pr\_text\_letter-spacing.asp
- Word spacing
  - Property: word-spacing
  - Value: length of extra space (px, cm, etc); negative values are allowed
  - http://www.w3schools.com/cssref/pr\_text\_word-spacing.asp

#### Text alignment

- Property: text-align
- Values: center, left, right, justify
- http://www.w3schools.com/cssref/pr\_text\_text-align.asp

```
Right aligned text
```

#### Color

- Property: color
- Value: color given as
  - A HEX value, e.g., #ff0000
  - An rgb value, e.g., rgb(255,0,0)
  - A color name, e.g., red

```
Red text
```

Red text

#### Decoration

- Property: text-decoration
- Values: none, underline, overline, line-through
- http://www.w3schools.com/cssref/pr\_text\_text-decoration.asp

```
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras
a <span style="text-decoration: line-through;">maximus</span>
diam.
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras a maximus diam.

## Exercises #2, #2b

https://github.com/kbalog/web-programming/tree/master/exercises/css/properties

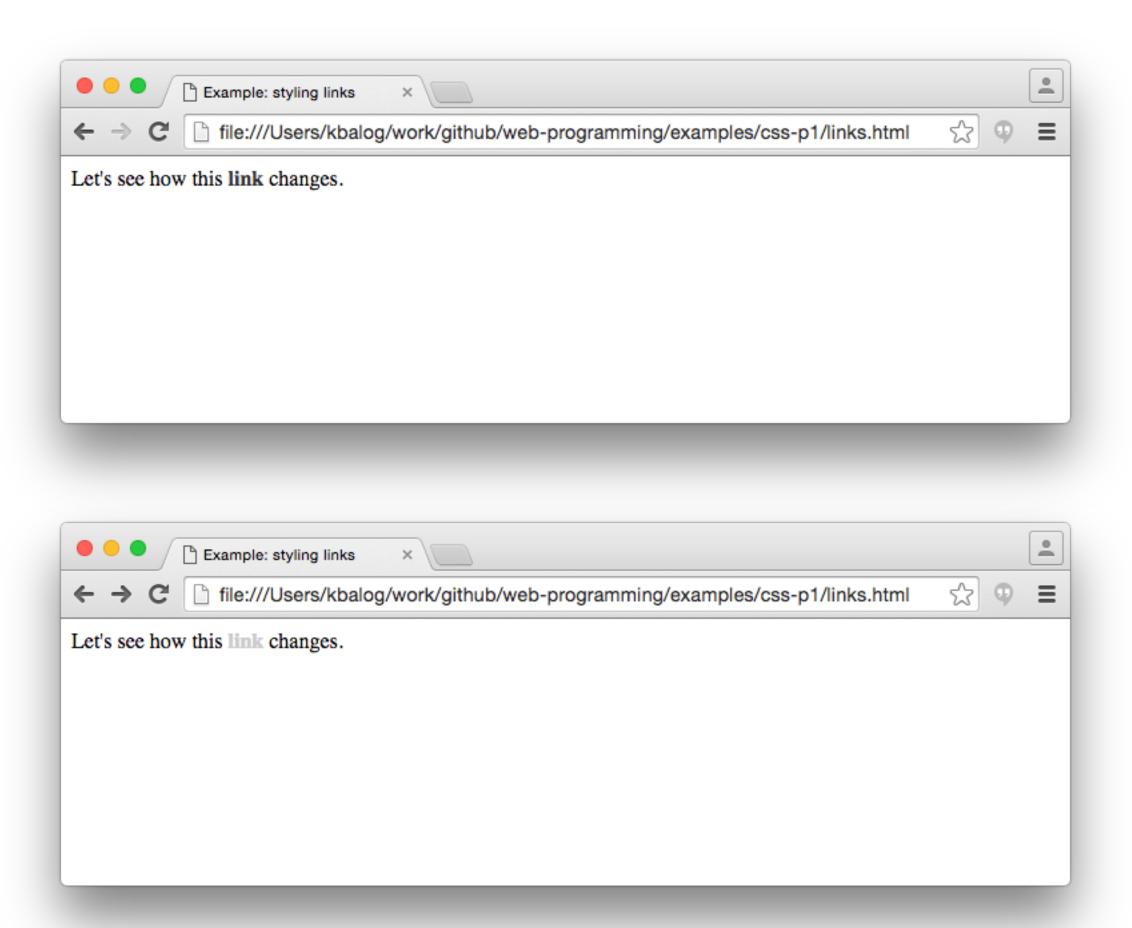
#### Links

- Links can be styled with any CSS property
- In addition, they can be styled differently based on their state
  - a:link a normal, unvisited link
  - a:visited a link the user has visited
  - a:hover a link when the user mouses over it
  - a:active a link the moment it is clicked
- Default behavior:
  - normal: blue, underlined <u>link</u>
  - visited: purple, underlined <u>link</u>

#### Example

c) examples/css-p1/links.html

```
<style>
    a {
        color: #333333;
        font-weight: bold;
        text-decoration: none;
    }
    a:hover {
        text-decoration: underline;
    }
    a:visited {
        color: #cccccc;
    }
</style>
```



## Exercise #3

https://github.com/kbalog/web-programming/tree/master/exercises/css/properties

# Colors and Backgrounds

### Color

```
/* color name */
h1 {
   color: DarkCyan;
}
/* hex code */
h2 {
   color: #ee3e80;
}
/* rgb value */
p {
   color: rgb(100,100,90);
}
```

## Background color

```
body {
  background-color: rgb(200,200,200);
}
h1 {
  background-color: DarkCyan;
}
p {
  background-color: #ee3e80;
}
```

### Color values

- by name (blue)
- hex RGB code (#0000FF)
  - see color names

http://www.w3.org/TR/css3-color/#svg-color

Named Numeric	Color name	Hex rgb	Decimal
	aliceblue	#F0F8FF	240,248,255
	antiquewhite	#FAEBD7	250,235,215
	aqua	#00FFFF	0,255,255
	aquamarine	#7FFFD4	127,255,212
	azure	#F0FFFF	240,255,255
	beige	#F5F5DC	245,245,220
	bisque	#FFE4C4	255,228,196
	black	#000000	0,0,0
	blanchedalmond	#FFEBCD	255,235,205
	blue	#0000FF	0,0,255
	blueviolet	#8A2BE2	138,43,226
	brown	#A52A2A	165,42,42
	burlywood	#DEB887	222,184,135

### CSS3 colors: RGBA

- RGBA allows us to set opacity
  - alpha value between 0.0 and 1.0

```
.one {
  background-color: rgb(0,0,0);
  opacity: 0.5;
}
.two {
  background-color: rgb(0,0,0);
  background-color: rgba(0,0,0,0.5);
}
```





result in older browers

### CSS3 colors: HSL/HSLa

HUE

angle represents the color

- Specify colors using Hue, Saturation, and Lightness (and alpha)



Saturation

amount of grey (in %)

Lightness

white (100%) vs. black (0%)

### CSS3 colors: HSL/HSLa

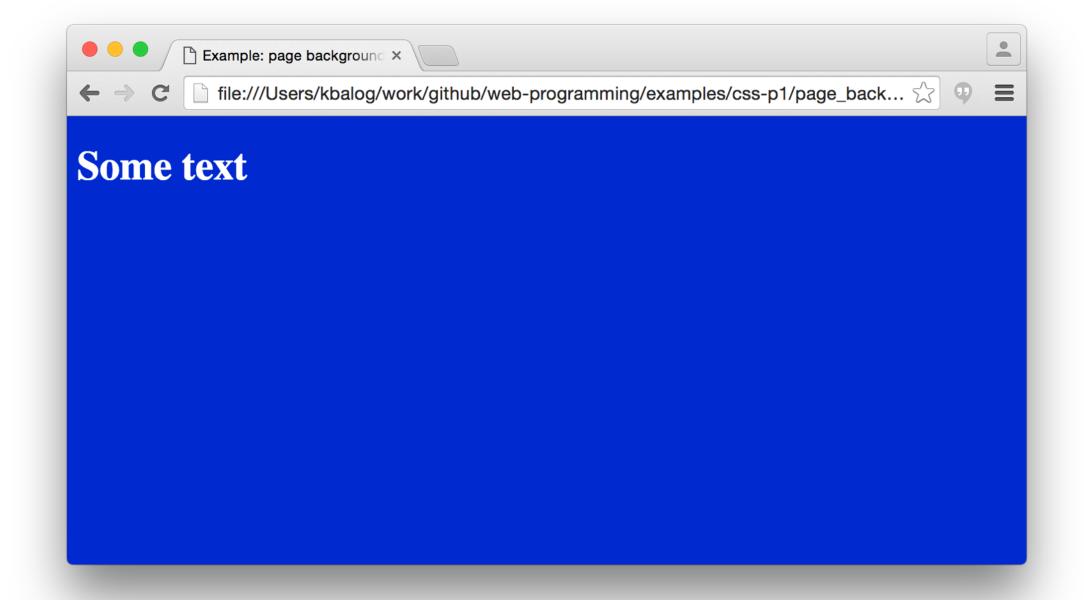
- RGBA allows us to set opacity

```
- alpha
body {
    background-color: hsl(0,0%,78%);
}
p {
    background-color: hsla(0,100%,100%,0.5);
}
```

## Page background color

- Set the background-color property of the body tag

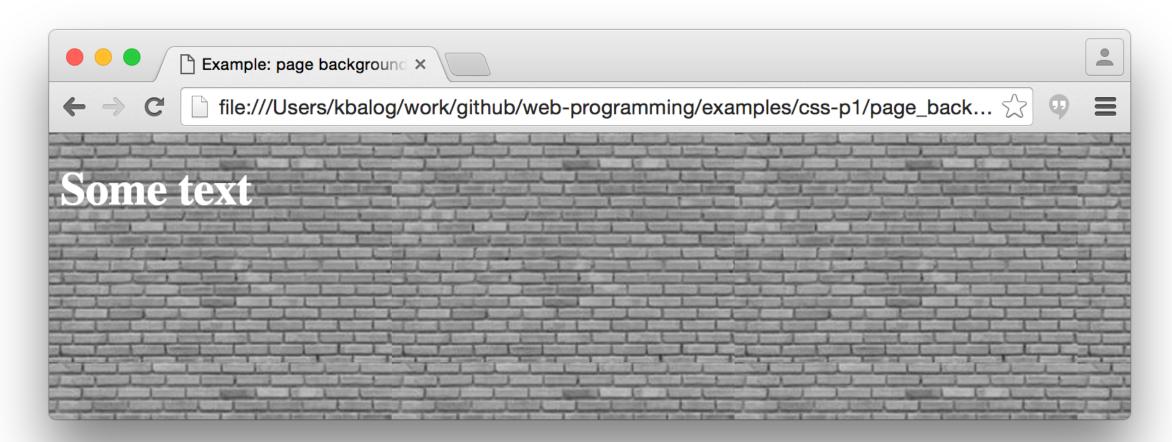
```
<body style="background-color: #0033cc;">
```



## Background image

- Property: background-image
- See also background-repeat
  - http://www.w3schools.com/cssref/pr\_background-repeat.asp

```
body {
    background-image: url("images/brick_pattern.jpg");
}
```

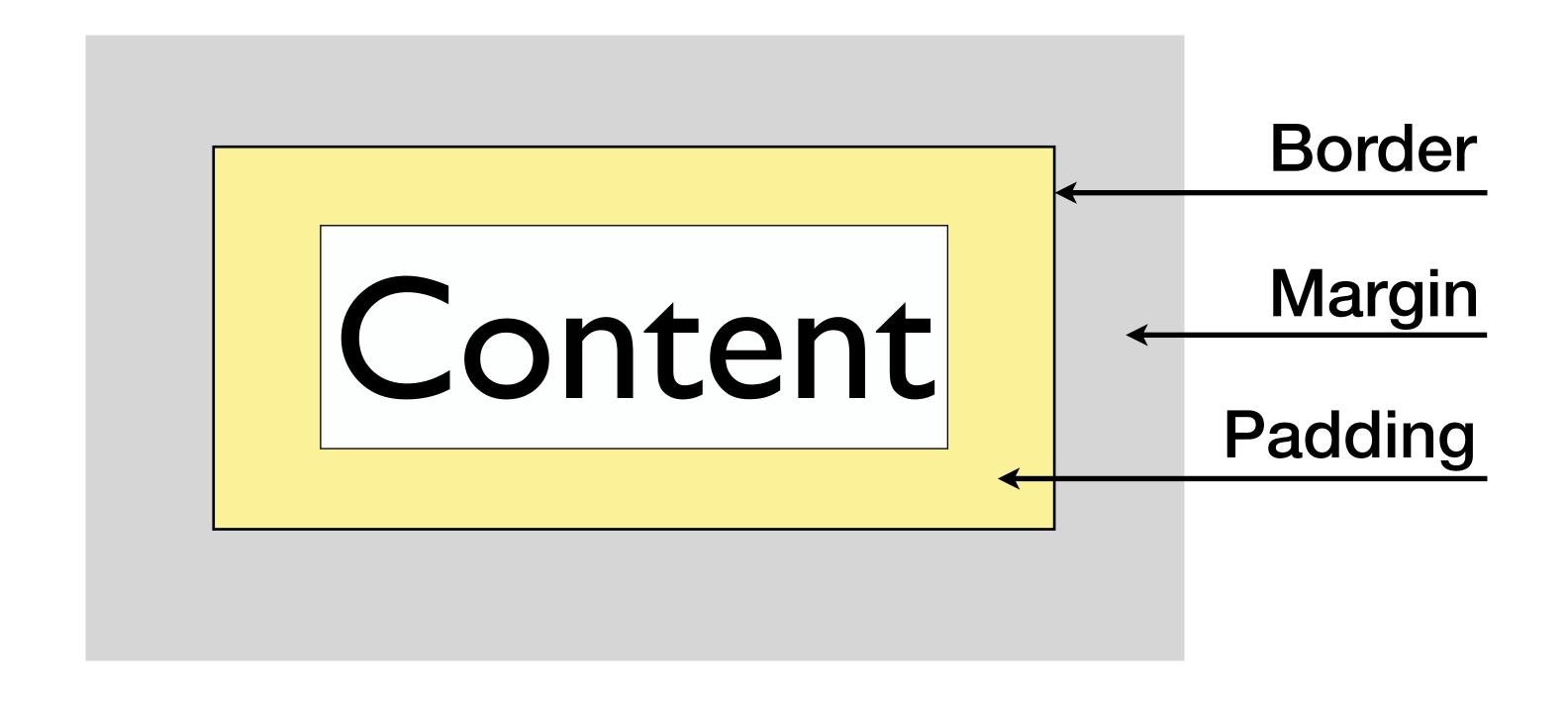


## Exercise #4

https://github.com/kbalog/web-programming/tree/master/exercises/css/properties

# Boxes

### The Box Model



## What margin and padding values were used here?

margin: 0px;

padding: 0px;

margin: padding: 10px;

0px;

10px; margin: padding: 0px;

margin: 10px;

padding: 10px;

#### Newsitem #1

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed vestibulum non orci quis porta. Integer ac malesuada mauris, ut gravida metus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

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#### Newsitem #2

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### Border width

- -border-width
  - in pixels (1px)
  - Or thin, medium, thick
- Possible to set values for each side
  - border-top-width, border-right-width,
    border-bottom-width, border-left-width
- Shorthand
  - border-width: 2px 1px 1px 2px;
  - clockwise order: top, right, bottom, left

## Border style

-border-style

solid
مامـ44مما
dotted
dashed
double
aroovo
groove
ridge
inset
outset

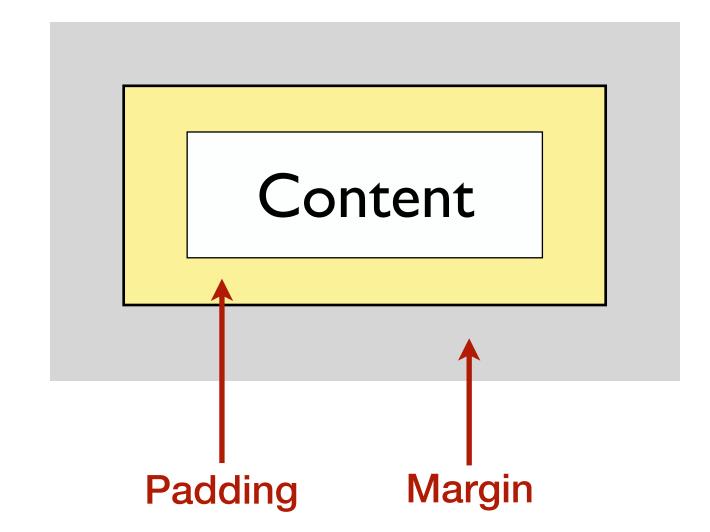
### Borders

- -border-color
  - Possible to contol the color of each side separately
    - border-top-color, border-right-color, ...
- Shorthand
  - border: 3px dotted #0088bb;

## Margin, padding

- -margin, padding
  - Value specified in px, pt, cm, em, etc.

```
margin: 0.2em;
padding: 5px;
```



- Possible to set values for each side separately
  - margin-top, margin-right, ...
  - padding-top, padding-right, ...
- Shorthand: specify values for each side in a single declaration
  - Clockwise order: top, right, bottom, left

```
padding: 10px 5px 3px 1px;
```

### Box dimensions

- width, height
  - pixels, percentages, or em
- For designs that adjust depending on the size of the browser window
  - min-width, max-width
    - The smallest/widest a box can stretch
  - min-height, max-height
    - Limit minimum and maximum height

### CSS3: box shadow

- -box-shadow: 3px 3px 2px #777777;
  - horizontal offset
  - vertical offset
  - blur distance (optional)
  - color



### CSS3: rounded corners

- -border-radius: 5px
  - Size of the radius in pixels



## Best practices

- Always use em to set font sizes
- Use relative units for lengths (ems and percentages)
- Always fall back on a generic font
- Use numbers, not names, for colors
- Test with multiple browsers
- Know when to stop!
  - Just because you can use 10 different fonts and 30 different colors on the same page doesn't mean you have to (or should)