Welcome

Introduction to web development

About this course

- Purpose
- 10 weeks
- Learning by doing (“Flipped classroom” - ish)
- Patrik , Deepak, and Eugene
- patriknygren82@gmail.com, deepakkiranbs@gmail.com, eugene.groshev@gmail.com

Requirements

- Browser Chrome (recommended)
- Editor **Light table** (recommended)
- Personal drive + use the teachers (always ask!)

Organisation of course

- Module 1: **HTML, CSS** (demo)
- Module 2: **JavaScript** (demo demo)
- Module 3: **Meteor** (demo)
- Fun, No Finals
- Certificate for Projects

Front-end

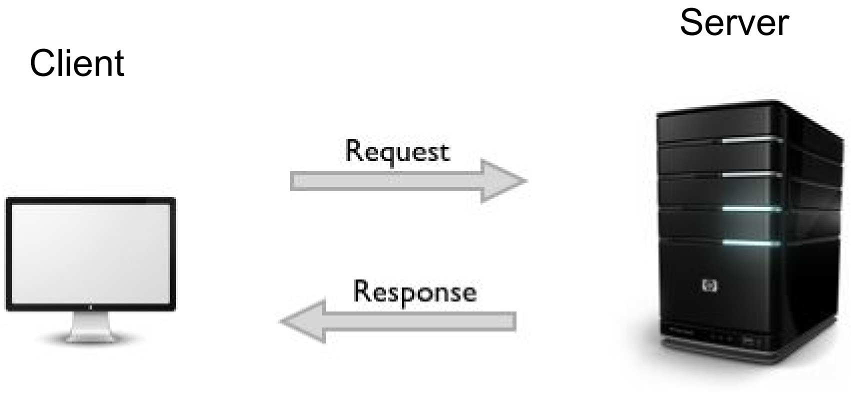
Back-end

Agenda for today

- Server-Client (Communication)
- Setup environment (editor and files)
- What is a website?
- **HTML** (exercises)
- **CSS** (exercises)
- Colors

How do computers talk?

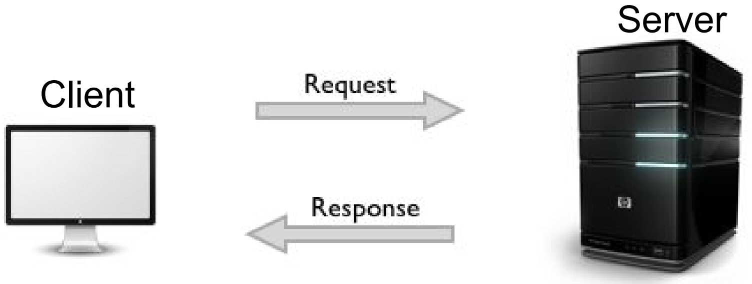
- What do you think happens?
- What is a protocol?
  - Request, Response
  - Set of rules (if this then that)
  - Language
- Application layer (User programs)
  - HTTP (HyperText Transfer Protocol)
  - SMTP (Simple Mail Transfer Protocol)
  - Telnet, etc
- What does it look like?



HTTP session

```
GET /index.html HTTP/1.1
Host: www.example.com
```

100.253.123



128.155.67

```
HTTP/1.1 200 OK
Date: Mon, 23 May 2005 22:38:34 GMT
Server: Apache/1.3.3.7 (Unix) (Red-Hat/Linux)
Last-Modified: Wed, 08 Jan 2003 23:11:55 GMT
ETag: "3f80f-1b6-3e1cb03b"
Content-Type: text/html; charset=UTF-8
Content-Length: 138
```

```
<html>
<head>
  <title>An Example Page</title>
</head>
<body>
  Hello World, this is a very simple HTML document.
</body>
</html>
```

HTTP methods

GET

```
GET /hello.htm HTTP/1.1
User-Agent: Mozilla/4.0 (compatible; MSIE5.01;
Windows NT)
Host: www.tutorialspoint.com
Accept-Language: en-us
```

POST

```
POST /cgi-bin/process.cgi HTTP/1.1
User-Agent: Mozilla/4.0 (compatible; MSIE5.01;
Windows NT)
Host: www.tutorialspoint.com
Content-Type: application/x-www-form-urlencoded
Content-Length: length
```

DELETE

```
DELETE http://example.com/order/1
```

200 OK

```
HTTP/1.1 200 OK
Date: Mon, 27 Jul 2009 12:28:53 GMT
Server: Apache/2.2.14 (Win32)
Last-Modified: Wed, 22 Jul 2009 19:15:56 GMT
Content-Length: 88
Content-Type: text/html
```

+ HTML, CSS and JavaScript

404 NOT FOUND

```
HTTP/1.1 404 Not Found
Date: Sun, 18 Oct 2012 10:36:20 GMT
```

OTHER

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Setup Environment

- Download Light Table http://lighttable.com
- Create a folder (Web-development-course) on ~/Desktop
- Get file helloworld (https://github.com/patriques82/webdev-course)
  - week 1 -> Html and Css -> helloworld -> “raw” -> save as

Light Table (work flow)

- Open downloaded folder in Light Table
  - File -> Open folder
- Open file in folder (helloworld.html)
- Open in tab
  - Ctrl (Cmd) + Enter
  - left click on tabset -> New tabset -> drag browser

```
<!DOCTYPE html>
<html>
<head>
  <title>An Example Page</title>
</head>
<body>
  Hello World!
</body>
</html>
```

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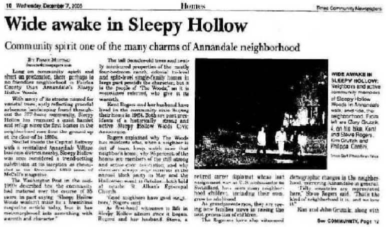
What is a website?

The work of a publisher and a print shop (browser)

Unstructured

Text, images, videos, sound



10 Wednesday, December 7, 2005 Homes Times Community Newspapers

Wide awake in Sleepy Hollow

Community spirit one of the many charms of Annandale neighborhood

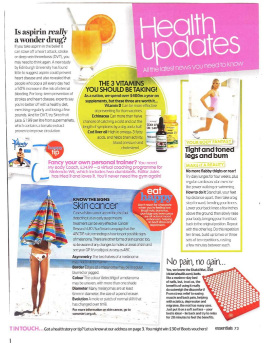
WIDE AWAKE IN SLEEPY HOLLOW: Neighbors and active community members of Sleepy Hollow Woods in Annandale walk, and ride, the neighborhood. From left are Gary Gruzik, 4, on his bike, Kent and Steve Rogers, Kim Gruzik and Philippa Cantin.

See COMMUNITY, Page 12

Structure

Text, images, videos, sound

=> Lists, headings, displayed images, tables, clickable links, etc etc… *Like newspaper*



Health updates

All the latest news you need to know

Is aspirin *really* a wonder drug?

If you take aspirin in the belief it can stave off a heart attack, stroke or deep vein thrombosis (DVT), you may need to think again. A new study by Edinburgh University has found little to suggest aspirin could prevent heart disease and also revealed that people who pop a pill every day had a 50% increase in the risk of internal bleeding. For long-term prevention of strokes and heart disease, experts say you're better off with a healthy diet, exercising regularly and losing a few pounds. And for DVT, try Sirco fruit juice, £1.99 per litre from supermarkets, which contains a tomato extract proven to improve circulation.

THE 3 VITAMINS YOU SHOULD BE TAKING!

As a nation, we spend over £400m a year on supplements, but these three are worth it…

Vitamin D Can be more effective at preventing flu than vaccines.

Echinacea Can more than halve chances of catching a cold and cut the length of symptoms by a day and a half.

Cod liver oil High in omega-3 fatty acids, and helps brain activity, blood pressure and cholesterol.

happy tip

Fancy your own personal trainer? You need My Body Coach, £34.99 – a virtual coaching programme for Nintendo Wii, which includes two dumbbells. Editor Jules has tried it and loves it. You'll never need the gym again!

YOUR BODY FANTASY

Tight and toned legs and bum

MAKE IT A REALITY

No more flabby thighs or rear! Try daily lunges for four weeks, plus regular cardiovascular exercise like power walking or swimming.

How to do it Stand tall, your feet hip distance apart, then take a big step forward, bending your knees. Lower your back knee a few inches above the ground, then slowly raise your body, bringing your front foot back to the original position. Repeat with the other leg. Do this repetition ten times, build up to two or three sets of ten repetitions, resting a few minutes between each.

KNOW THE SIGNS

Skin cancer

Cases of skin cancer are on the rise, but detecting it at an early stage means treatment can be very effective. Cancer Research UK's SunSmart campaign has the ABCDE rule, reminding us how to spot possible signs of melanoma. There are other forms of skin cancer, too, so be aware of any changes to moles or areas of skin and see your GP. It's really just as easy as ABC…

Asymmetry The two halves of a melanoma may not look the same.

Border Edges of a melanoma may be irregular, blurred or jagged.

Colour The colour detecting of a melanoma may be uneven, with more than one shade.

Diameter Many melanomas are at least 6mm in diameter, the size of a pencil eraser.

Evolution A mole or patch of normal skin that has changed over time.

For more information on skin cancer, go to sunsmart.org.uk.

eat happy

Don't reach for chocolate when you're feeling low. Brazil nuts, bananas, porridge and even peas are all natural mood enhancers, helping to beat stress and depression.

No pain, no gain…

Yes, we know the Shakti Mat, £50 (victoriahealth.com), looks like a modern-day bed of nails, but, trust us, the benefits of using it really do outweigh the discomfort! From stress relief to easing muscle and back pain, helping with sciatica, depression and migraine, the mat has many uses. Just put it on a soft surface – your bed is ideal – lie back and try to relax for 20 minutes to feel the benefits.

TINTOUCH… Got a health story or tip? Let us know at our address on page 3. You might win £30 of Boots vouchers! essentials 73

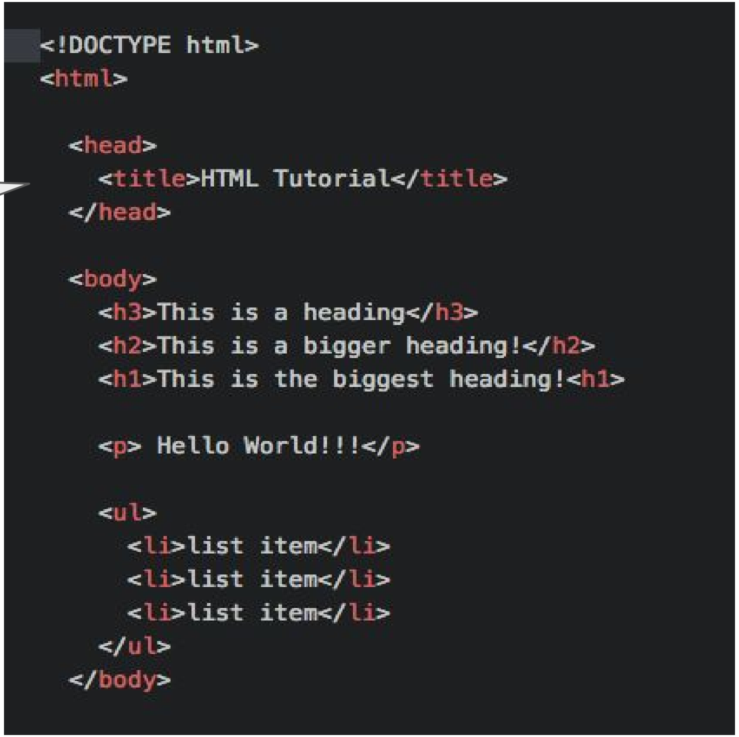
Style + Structure

Text, images, videos, sound

=> Designed lists, heading with right font, correctly placed images, background colors, clickable big buttons, etc etc… *Like a flashy magazine*

HTML

Head is “meta data” for the web browser

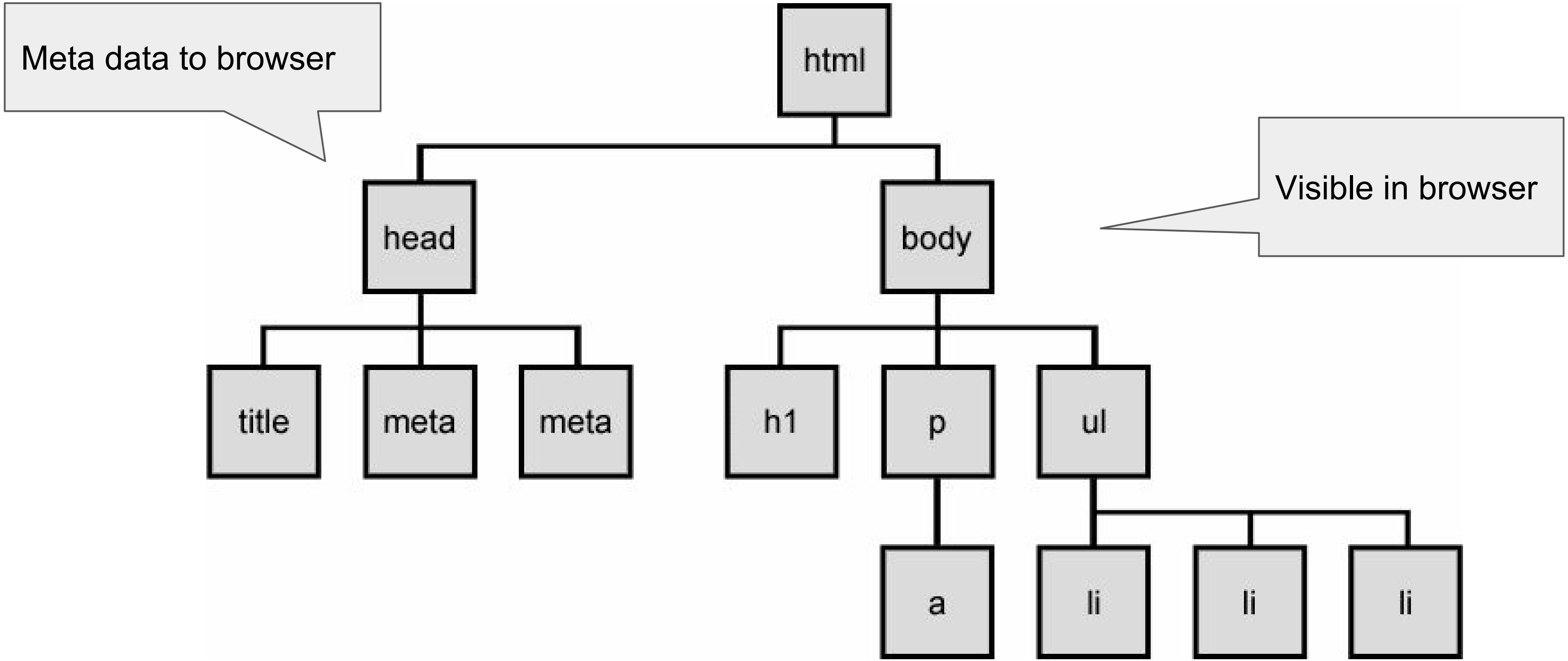


```
<!DOCTYPE html>
<html>

  <head>
    <title>HTML Tutorial</title>
  </head>

  <body>
    <h3>This is a heading</h3>
    <h2>This is a bigger heading!</h2>
    <h1>This is the biggest heading!<h1>

    <p> Hello World!!!</p>

    <ul>
      <li>list item</li>
      <li>list item</li>
      <li>list item</li>
    </ul>
  </body>
```

Body is what is visible

HTML (**H**yper **T**ext **M**arkup **L**anguage)

HTML DOM (document object model)



Meta data to browser

Visible in browser

HTML Tags

`<tagname>content</tagname> (In general)`

```
<div>
      <div>
            <div>
                  <h2>Once apon a time there was a king, and a queen...</h2>
                  <p>On a clear sunny day they went out for some air and got...</p>
            </div>
      </div>
      <div>
            <p>This story was created by Patrik.</p>
      </div>
</div>
```

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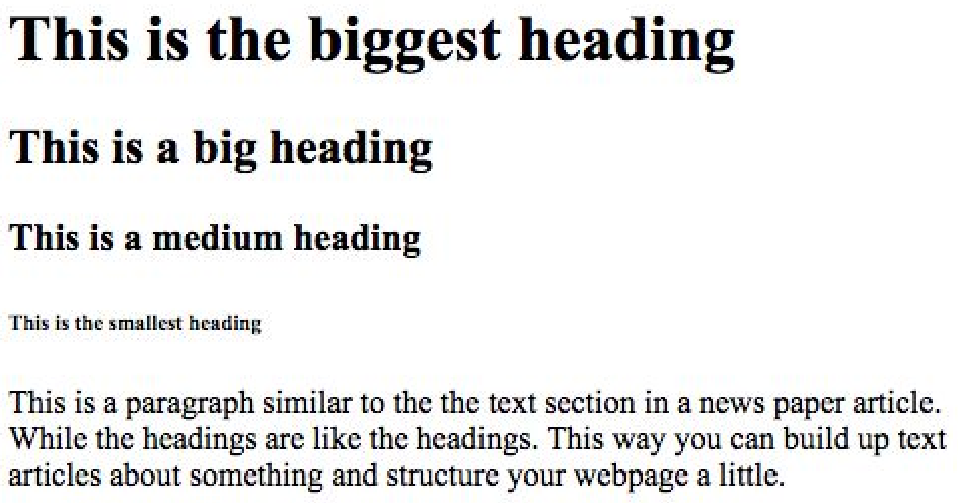
HTML Heading and Paragraphs-Tags (exercise 1)

```
<h1>This is the biggest heading</h1>

<h2>This is a big heading</h2>

<h3>This is a medium  heading</h3>

<h6>This is the smallest heading</h6>
```



This is the biggest heading

This is a big heading

This is a medium heading

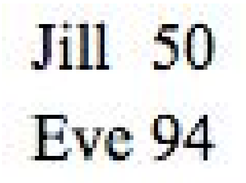
This is the smallest heading

This is a paragraph similar to the the text section in a news paper article. While the headings are like the headings. This way you can build up text articles about something and structure your webpage a little.

```
<p>This is a paragraph similar to the the text section in a news paper article. While the headings
are like the headings. This way you can build up text articles about something and structure your
webpage a little.</p>
```

HTML Table-Tag (exercise 2)

```
<table>

  <tr>

    <td>Jill</td>

    <td>50</td>

  </tr>

  <tr>

    <td>Eve</td>

    <td>94</td>

  </tr>

</table>
```



Jill	50
Eve	94

HTML Image-Tag + attributes (exercise 3)

```
<img src="./dog.jpeg" alt="woof" width="104" height="104">
```

Source: Where is the image

What height should the image have

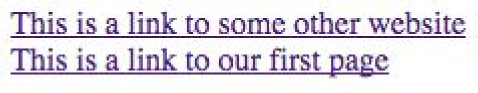
Alternative: What text to show if image is not found or if screen reader

HTML Link-Tag (exercise 4)

```
<a href="http://www.codeschool.com">This is a link to some other website</a>

<br>

<a href="./helloworld.html">This is a link to first page</a>
```

break tag

Attribute: Where should the link navigate the user

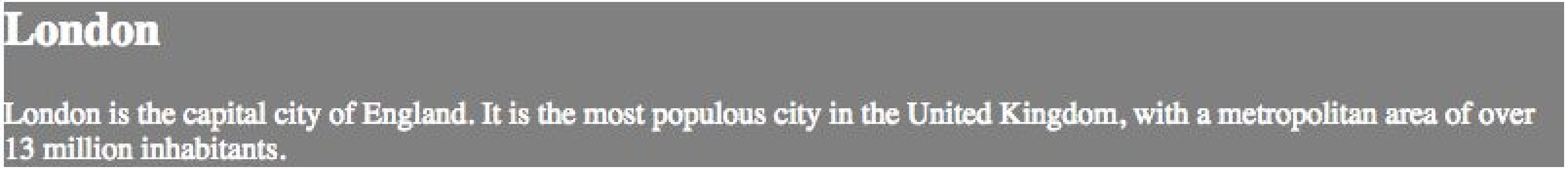


This is a link to some other website
This is a link to our first page

HTML Block-Tag (exercise 5)

Notice there are multiple values in the attribute!

```
<div style="background-color:grey; color:white; width:800px;">

      <h2>London</h2>

      <p>London is the capital city of England. It is the most populous city in the United Kingdom,
      with a metropolitan area of over 13 million inhabitants.</p>

</div>
```



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W3Schools: All Tags

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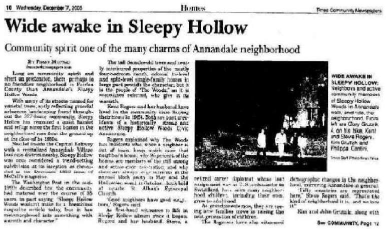

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Wide awake in Sleepy Hollow

Community spirit one of the many charms of Annandale neighborhood

By Frank Muench
[illegible]

Long on community spirit and short on pretension, there perhaps is no friendlier neighborhood in Fairfax County than Annandale's Sleepy Hollow Woods.

With many of its streets named for varietal trees, aptly reflecting graceful arboreous landscaping found throughout the 377-home community, Sleepy Hollow has remained a quiet hamlet and refuge since the first homes in the neighborhood rose from the ground up at the close of the 1950s.

Nestled inside the Capital Beltway with a revitalized Annandale Village business district nearby, Sleepy Hollow was once considered a trend-setting subdivision at its inception as chronicled in the December 1959 issue of McCall's magazine.

The Washington Post in the mid-1990s described how the community had matured over the course of 35 years in part saying "Sleepy Hollow Woods wouldn't make for a breathless magazine article today, but it has metamorphosed into something with warmth and character."

The tall decades-old trees and neatly manicured properties of the mostly four-bedroom ranch, colonial, bi-level and split-level single-family homes in large part provide the character, but it is the people of "The Woods," as it is sometimes referred, who give it its warmth.

Kent Rogers and her husband have lived in the community since buying their home in 1964. Both are past presidents of a historically strong and active Sleepy Hollow Woods Civic Association.

Rogers explained why The Woods has residents who, when a neighbor is out of town, keep watch over that neighbor's home; why 95 percent of the homes are members of the still strong and active civic association; and why there are always large turnouts at the annual block party in May and the Halloween event in October—both held at nearby St. Alban's Episcopal Church.

"Good neighbors have good neighbors," Rogers said.

As first-hand witnesses to life in Sleepy Hollow almost since it began, Rogers and her husband, Steve, a retired career diplomat whose last assignment was as U.S. ambassador to Swaziland, have seen many neighborhood children, including their own, grow to adulthood.

As grandparents now, they are seeing new families move in raising the next generation of children.

The Rogerses have also witnessed demographic changes in the neighborhood, mirroring Annandale in general.

"Fifty countries are represented here," Steve Rogers said. "That's the kind of neighborhood it is, and we love it."

Kim and John Gruttzik, along with

See COMMUNITY, Page 12

WIDE AWAKE IN SLEEPY HOLLOW: Neighbors and active community members of Sleepy Hollow Woods in Annandale walk, and ride, the neighborhood. From left are Gary Gruttzik, 4, on his bike, Kent and Steve Rogers, Kim Gruttzik and Philippa Cantini.

Times Staff Photo/Brian Price

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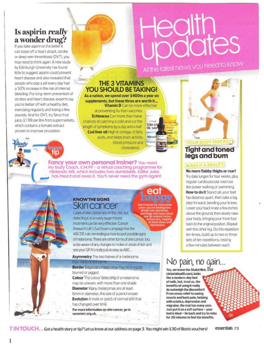

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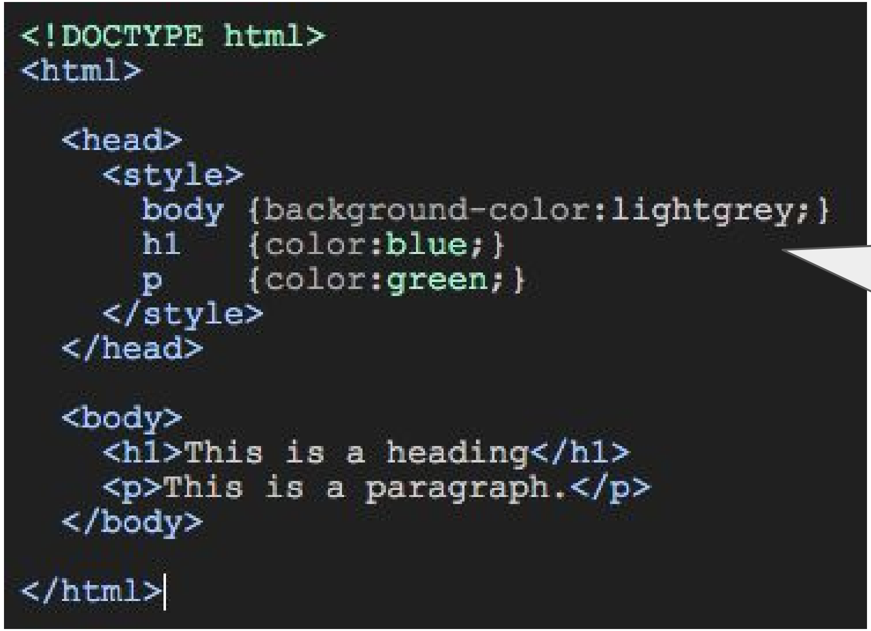
CSS



```
<!DOCTYPE html>
<html>

  <head>
    <style>
      body {background-color:lightgrey;}
      h1   {color:blue;}
      p    {color:green;}
    </style>
  </head>

  <body>
    <h1>This is a heading</h1>
    <p>This is a paragraph.</p>
  </body>

</html>
```

This is placed in the head element and not in the visible body.

CSS (**C**ascading **S**tyle **S**heets)

But wait here, didn’t we just see styling in the attribute?...

1. Inline:

```
<h1 style="color:blue;">This is a Blue Heading</h1>
```

2. Internal style sheet:

```
<style>
body {background-color:lightgrey;}
h1   {color:blue;}
p     {color:green;}
</style>
```

3. External style sheet:

```
<link rel="stylesheet" href="my_styles.css">
```

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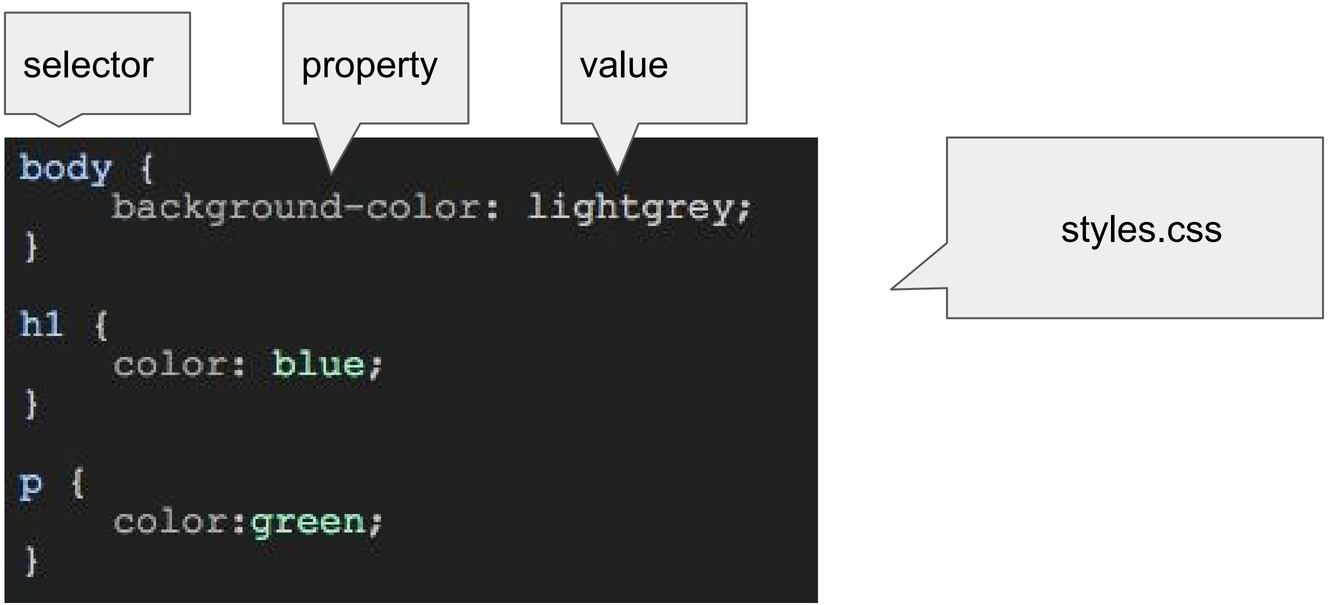
CSS external style sheet



selector

property

value

```
body {
    background-color: lightgrey;
}

h1 {
    color: blue;
}

p {
    color:green;
}
```

styles.css

Separate content (exercise 6)

HTML

```
<img src="./dog.jpeg" alt="woof" ~~width="104" height="104"~~>


<div ~~style="background-color:grey; color:white; width:800px;"~~>

...

</div>
```

add styling in head:

```
<link rel="stylesheet" href="my_styles.css">
```

CSS

```
img {
 width: 104;
 height: 104;
}

div {
 background-color: grey;
 color: white;
 width: 800px;
}
```

Block

my_styles.css

The power of separation

- Demo: Applying different styles
- You can change the look of an entire website by changing just one file!
- You can think about **structure** and **style** as separate things

Selectors (exercise 7)

1. Element selectors

```
img {
 width: 104;
 height: 104;
}
```

2. Id selectors

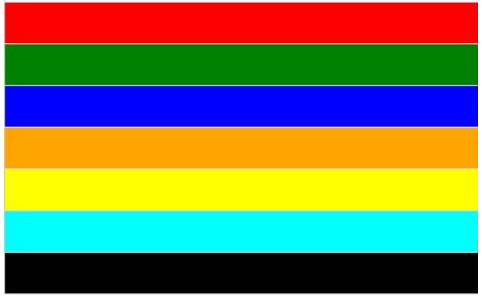
```
#the-div-element {
 background-color: grey;
 color: white;
 width: 800px;
}
<div id=”the-div-element”>...</div>
```

3. Class selectors

```
.all-headings  {
 background-color: grey;
 color: white;
 width: 800px;
}
<h1 class=”all-headings”>This is the biggest heading</h1>

<h6 class=”all-headings”>This is the smallest heading</h6>
```

Colors



- Naming: red, green, …, black
- Red green blue: rgb(255, 255, 255) - rgb(0, 0, 0)
- Hexadecimal: #FFFFFF - #000000
  - Little harder
  - But not so hard, there are converters

To next lecture...

Video: Internet (more advanced HTTP DNS)

Practice more: https://www.codecademy.com/learn/web 7 hrs (Thursday)

Work with your own website: Start to draw something on paper, links etc...

(This is your first step in the project)