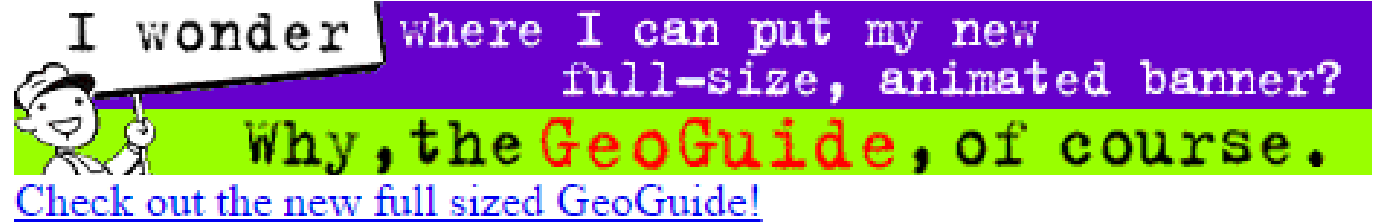


# HTML and CSS

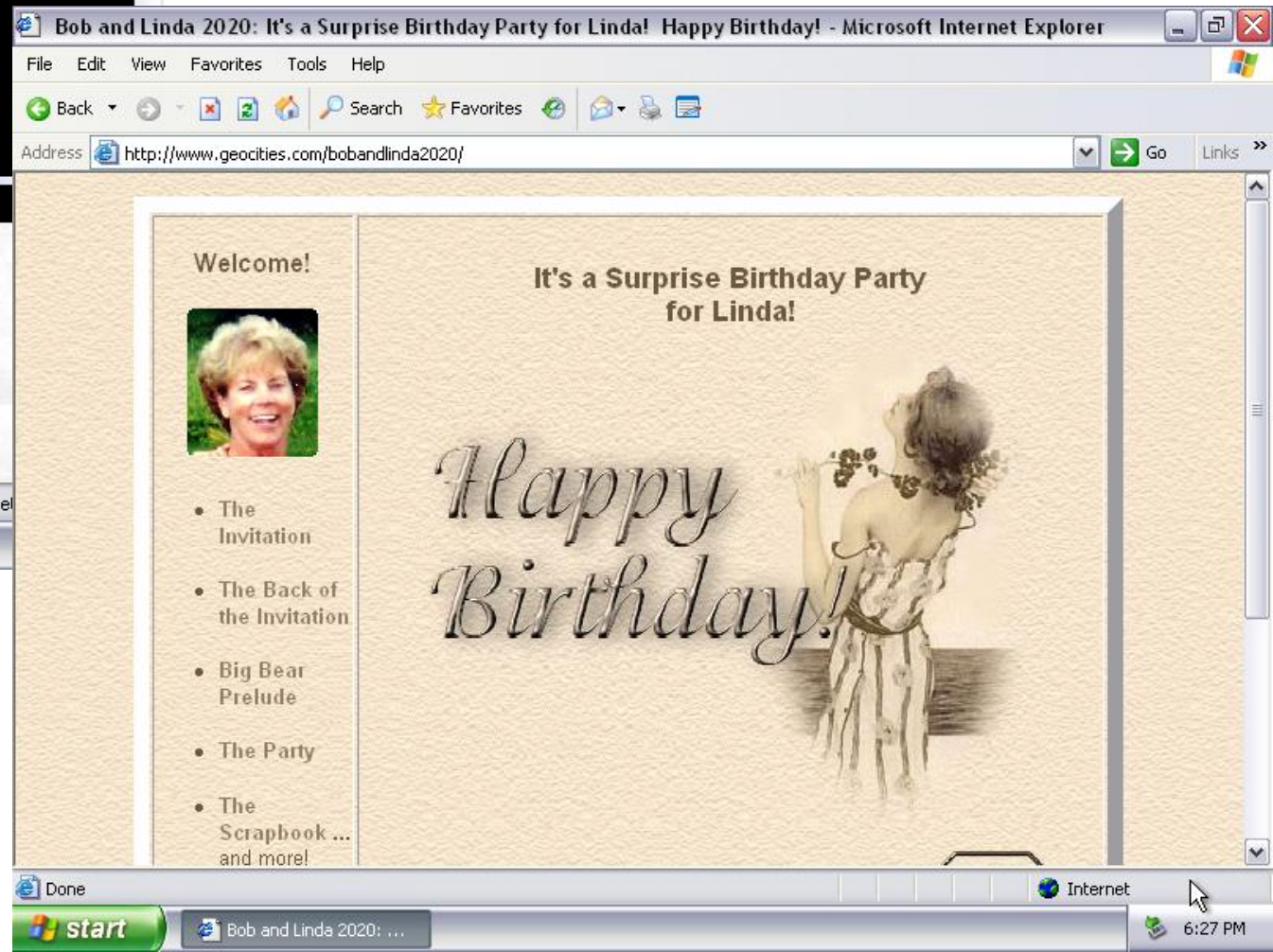
<http://codepen.io/davidkpiano/pen/NAZarB>

<https://www.youtube.com/watch?v=bY2PCHR3wOY>

# Geocities.com

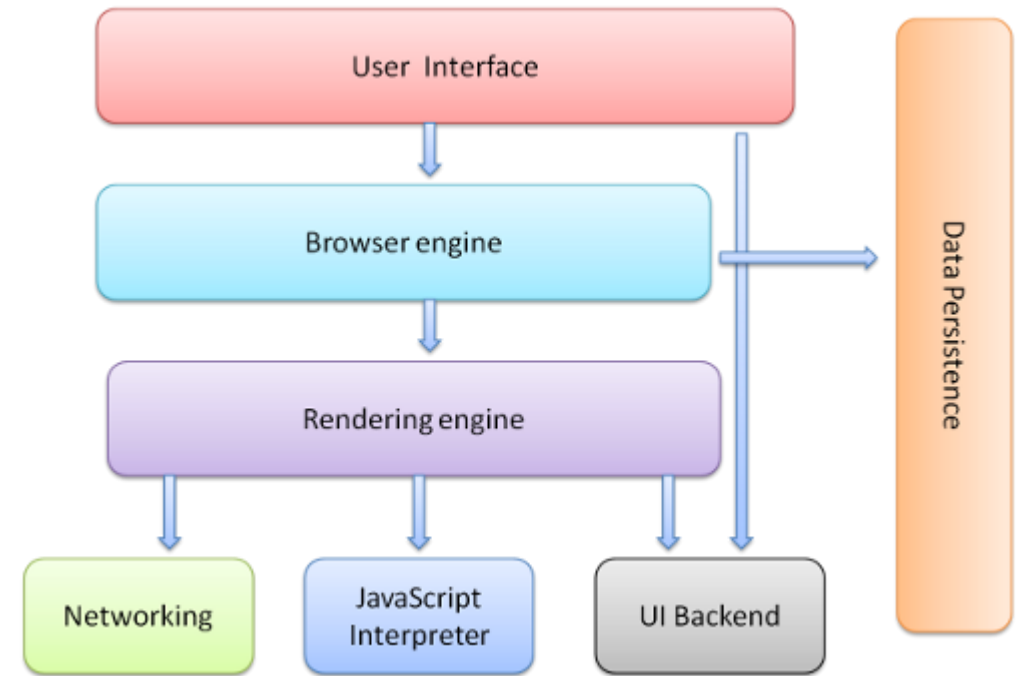


- Geocities is a landmark moment in the history of the web
- It was a free web hosting service founded in 1995
- This is what took the web out of the hands of academia and put it into the hands of the people
- ...and it was amazing!
- In 2009 Yahoo! (who bought geocities in 1999) destroyed Geocities, but the internet saved it by rescuing about a terabyte of Geocities pages
- <http://blog.geocities.institute/>
- <http://oneterabyteofkilobyteage.tumblr.com/>



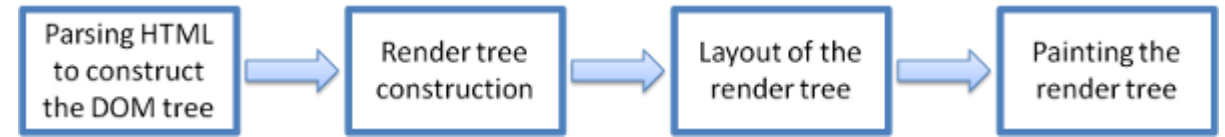
# Browsers

- Browsers present a web resource to you
- They request the resource (HTML, pdf, image, video) from a server and render it in the browser window
- The location of the resource is specified by a Uniform Resource Identifier (URI)
- Specifications for HTML and CSS are maintained by W3C, World Wide Web Consortium
- Browser compatibility is still something to think about (<http://gs.statcounter.com/>)

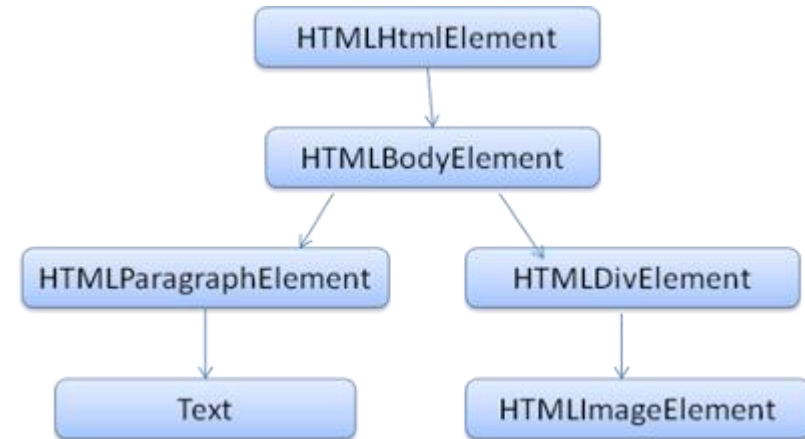


# The DOM

- Our web applications will process a request from the web browser and generate HTML on the fly for the browser to render
- A browser parses HTML and CSS to construct the Document Object Model (DOM) which is then rendered
- The DOM is very much like a tree, later we will be using JavaScript to navigate and change the DOM



```
<html>
  <body>
    <p>
      Hello World
    </p>
    <div> </div>
  </body>
</html>
```



# HTML

- Hyper Text Markup Language
- HTML is made up of
  - Text - obvious
  - Markup – this is how we change the style of the page
  - References to other resources – e.g. an image
  - Links to other pages – i.e. hyper
- HTML documents are made up of HTML tags
  - <elementName>content</elementName>
  - Tags contain attributes (such as src in links and images)
  - You will learn these through experience
  - Good resources (<http://www.w3schools.com/html/default.asp> )
  - On-line HTML editor (<http://scratchpad.io/> )

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

```
<elementName attribute="value">innerHTML</elementName>
```

# Essential tags

- All HTML documents must begin with a `<!DOCTYPE>` declaration which tells the browser which version of HTML the page is written in
- `<html>` is the container for all other HTML elements
- `<head>` contains the head elements which aren't rendered to the page e.g. the `<title>` tag specifies the title in the browser UI
- `<body>` defines the contents of the HTML document

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```



# Meta-data and open graph

- Name/value pairs which sit in the <head> tag
- <meta name="author" content="Sean Walton"/>
- Provides information for search engines and rich sharing sites so their systems don't have to guess
- Open Graph (<http://ogp.me/>) is essential if you want your site to look good when shared

```
<head>  
<title>The Rock (1996)</title>  
<meta property="og:title" content="The Rock" />  
<meta property="og:type" content="video.movie" />  
<meta property="og:url"  
content="http://www.imdb.com/title/tt0117500/" />  
<meta property="og:image" content="http://ia.media-  
imdb.com/images/rock.jpg" /> ...  
</head>
```

The screenshot shows a Facebook 'Share This Link' dialog box. At the top, there's a 'Share:' button and a dropdown menu set to 'On your own timeline'. Below this is a text input field labeled 'Write something...'. The main content area displays a preview of a blog post titled '6 Ways to Optimize Your Blog Posts for Search Engines' from 'www.wordpressintegration.com'. The preview includes a thumbnail image with numbered steps (01, 02, 04, 05) and a short description. Red arrows point from yellow boxes labeled with Open Graph meta-tags to their corresponding elements in the preview: 'og:title' points to the title, 'og:site\_name' points to the website name, 'og:image' points to the thumbnail, and 'og:description' points to the text description. At the bottom right, there are buttons for 'Public', 'Share Link', and 'Cancel'.



# Content tags

- Look them up as you need them (<http://www.w3schools.com/tags/default.asp> ) but here are some of the basics
  - `<h1>Headings</h1>` and `<p>Paragraphs</p>`
  - `<a href="http://www.dog.info" target="_blank">Links</a>`
  - ``
- <http://scratchpad.io/> or text editors are your friends for trying all this out

# Tables

- Tables are important structures when presenting data from databases
- Tables are defined using the `<table>` tag
  - Divided into rows with the `<tr>` tag
  - Rows are divided into columns with the `<td>` tag
  - Rows can have headings defined by the `<th>` tag
- Tables should be styled in CSS (more on that later)

```
<table>
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Points</th>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
</table>
```

Firstname	Lastname	Points
Eve	Jackson	94

# Lists

- Lists can be ordered `<ol>` or unordered `<ul>`
- Items on a list are contained in the `<ol>` or `<ul>` element
- Each item is put inside a `<li>` tag
- Lists can be useful to generate structured HTML from database enquires

```
<ol>  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```

1. Coffee
2. Tea
3. Milk

# Styling using Cascading Style Sheets (CSS)

- Websites used to be formatted and styled using HTML tags, that is now considered bad practice
- Instead CSS files define the style of various HTML elements, this makes life much easier and separates the concerns of the designer from the content creator (e.g. [http://www.w3schools.com/css/css\\_intro.asp](http://www.w3schools.com/css/css_intro.asp) )
- There are a huge number of properties look them up as you need them
- Cascading refers to the fact that there is a hierarchy of styles, some overriding others, this means we can use CSS to help with accessibility for users with disabilities
- Making good looking websites is easier than ever before - think about palettes <http://paletton.com/>
- <https://www.smashingmagazine.com/2016/04/web-developer-guide-color/>

index.html

```
<head>
<link rel="stylesheet" type="text/css"
href="mystyle.css">
</head>
```

mystyle.css

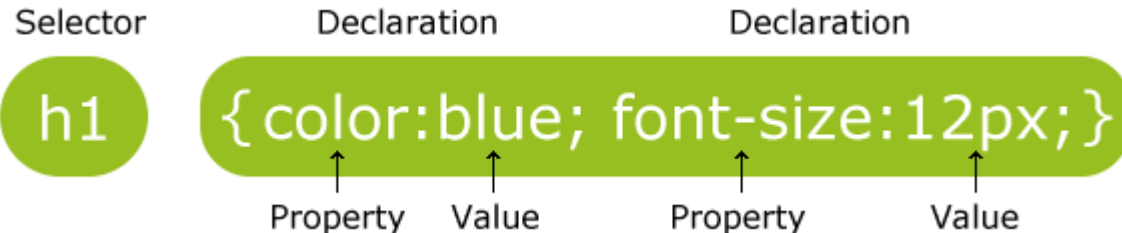
```
body {
    background-color: lightblue;
}

h1 {
    color: navy;
    margin-left: 20px;
}

/* Lets not forget comments in our css */
```

# CSS Selectors

- The element selector
  - All elements based on the element name
- The id selector
  - Looks for the id attribute of an HTML element (each id should point to a single entity i.e. unique)
- The class selector
  - Looks for the class attribute of an HTML element



Element sector

```
p {  
    text-align: center;  
    color: red;  
}
```

id sector

```
#para1 {  
    text-align: center;  
    color: red;  
}
```

class sector

```
.center {  
    text-align: center;  
    color: red;  
}
```

```
p.center {  
    text-align: center;  
    color: red;  
}
```

```
h1, h2, p {  
    text-align: center;  
    color: red;  
}
```

# CSS Selectors

---

- Classes allow us to combine selectors using the . Syntax
  - p.center would select <p> elements with class="center"
- Selectors can be grouped by separating them with commas

# The horror of frames...

- Introduced in 1996 frames allowed you to divide the browser window into rectangles (frames)
- Each frame has a different HTML page inside
- Usually a website would ask you – do you want the frames version or non-frames (terrible design)





Local Time

The Hague

Send me Mail

GuestBook

Links

FAQ's

Awards

WebRings

Search !

Home

\* New \*

Movies / TV

Classical

Rock'n'Roll

Christmas

# WELCOME

to

## The MIDI Universe

Home of the best MIDI files on the 'Net!

\*Use the **Index Bars** on the left and bottom of the screen  
to navigate through the MIDI files.

Any material contained on this site has been obtained through public  
distribution channels and is assumed to be either "public domain" or its  
free distribution to be allowed by the copyright holder.

If you hold copyright to any material contained on this site and wish its

removal, please contact [finn@home.nl](mailto:finn@home.nl)

Don't forget to **Sign** my **GUESTBOOK**,  
so I can keep track who's visiting me! Thank You.. :-)

Frames were often used for static navigation bars

- Because the designer didn't know if people would use frames or not the navigation would usually be on a side twice... in the side frame and in the home page.





# Layout and formatting with CSS

- Now we use layout elements and CSS to design websites with multiple columns and even floating windows
- The <div> tag is used to split websites into containers
- By setting the id of a div container you can easily get a reference to it in CSS or any front or back end code <div id="div1"></div>
- CSS (Cascading Style Sheet) then tells the browser how to layout these elements



```
<body>

<div id="header">
<h1>City Gallery</h1>
</div>
```

```
<div id="nav">
London<br>
Paris<br>
Tokyo
</div>
```

```
<div id="section">
<h1>London</h1>
```

```
<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>
```

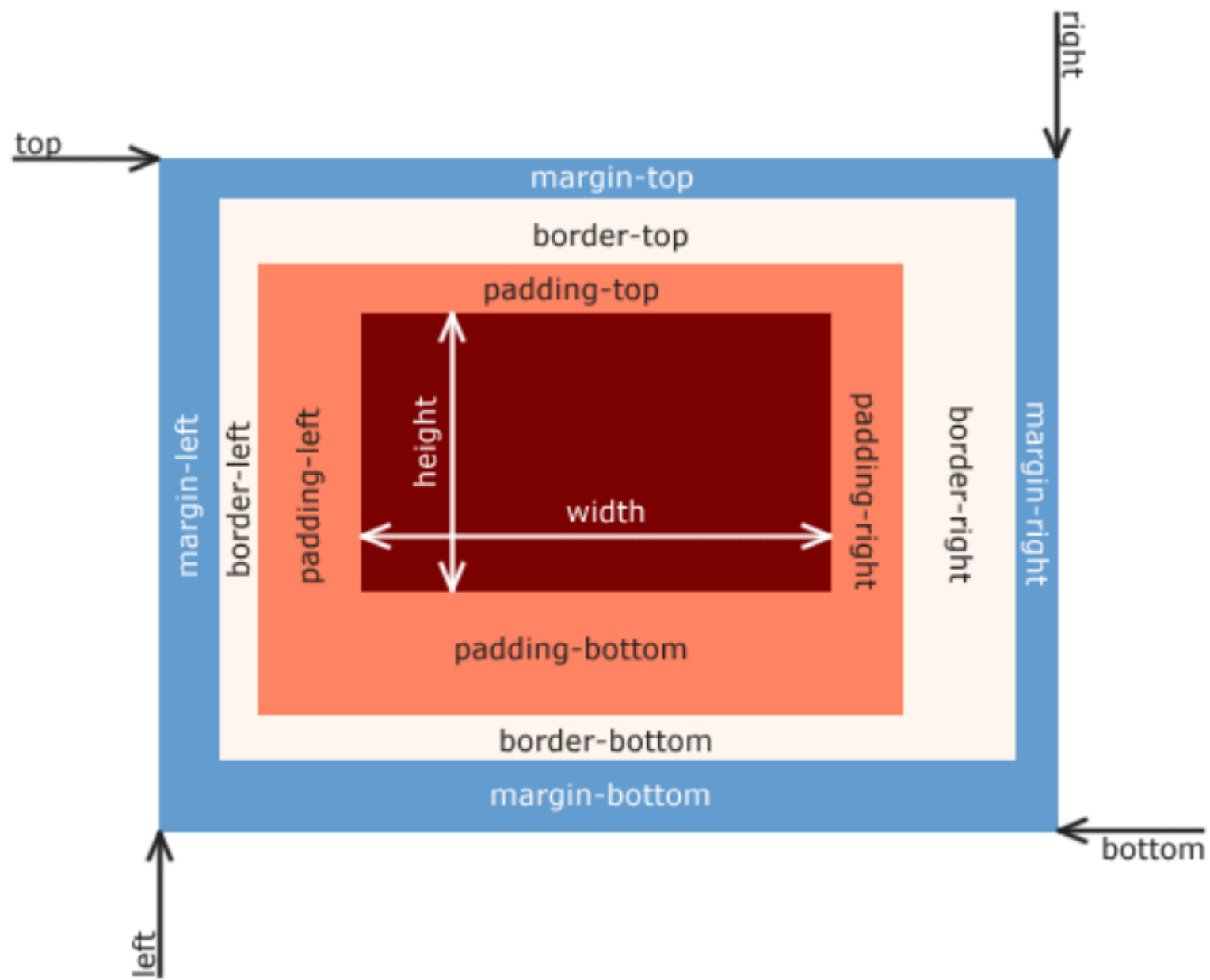
```
<p>Standing on the River Thames, London has been a major settlement for two millennia,
its history going back to its founding by the Romans, who named it Londinium.</p>
</div>
```

```
<div id="footer">
Copyright © W3Schools.com
</div>
</body>
```

City Gallery	
London Paris Tokyo	<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> <p>Standing on the River Thames, London has been a major settlement for two millennia, its history going back to its founding by the Romans, who named it Londinium.</p>
Copyright © W3Schools.com	

```
<style>
#header {
    background-color:black;
    color:white;
    text-align:center;
    padding:5px;
}
#nav {
    line-height:30px;
    background-color:#eeeeee;
    height:300px;
    width:100px;
    float:left;
    padding:5px;
}
#section {
    width:350px;
    float:left;
    padding:10px;
}
#footer {
    background-color:black;
    color:white;
    clear:both;
    text-align:center;
    padding:5px;
}
</style>
```





# Chrome Developer Tools

The screenshot displays the Chrome Developer Tools interface. The top section shows the browser window with the URL `www.w3schools.com/html/tryit.asp?filename=tryhtml_layout_divs`. Below the browser window, the "Edit The Code" section shows the HTML code for the page. The code includes a `div#section` with a width of 350px, a float of left, and a padding of 10px. The page content includes a header "City Gallery", a list of cities (London, Paris, Tokyo), and a detailed description of London. The bottom section shows the "Styles" panel, which displays the CSS rules for the `div#section` element. The styles include `display: block`, `width: 350px`, `float: left`, and `padding: 10px`. The "Elements" panel on the right shows the DOM tree, highlighting the `div#section` element. The "Console" panel is also visible, showing the output of the page.

Browser URL: `www.w3schools.com/html/tryit.asp?filename=tryhtml_layout_divs`

Page Content:

**City Gallery**

London  
Paris  
Tokyo

**London**

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.

Standing on the River Thames, London has been a major settlement for two millennia, its history going back to its founding by the Romans, who named it Londinium.

Copyright © W3Schools.com

Code Editor:

```
line-height: 30px;
```

Try it Yourself - © w3schools.com

Source Code:

```
resize;"></a>
<div id="container" class="horizontal">
  <div id="textareaccontainer" class="horizontal" style="height: 5.12048%;
width: 100%;"></div>
  <div id="iframecontainer" class="horizontal" style="height: 94.8795%;
width: 100%;">
    <div id="iframe" class="horizontal">
      <div id="iframewrapper">
        <iframe frameborder="0" id="iframeResult">
          #document
          <!DOCTYPE html>
          <html>
            <head>...</head>
            <body contenteditable="false">
              <div id="header">...</div>
              <div id="nav">...</div>
              <div id="section">...</div>
              <div id="footer">
                Copyright © W3Schools.com
              </div>
            </body>
          </html>
        </div>
      </div>
    </div>
  </div>
</div>
```

Styles:

```
element.style {
}

#section {
  width: 350px;
  float: left;
  padding: 10px;
}

div {
  display: block;
}
```

Properties:

Property	Value
display	block
float	left
height	224.813...
padding-bottom	10px
padding-left	10px
padding-right	10px



- Developer tools can help show you exactly why a particular element is styled the way it is

The screenshot displays the Chrome DevTools interface. The left pane shows the DOM tree with the following structure:

```
<!DOCTYPE html>
<html>
  <head>...</head>
  <body>
    <article>
      <nav>...</nav>
      <h1>...</h1>
      <p>...</p>
      <p>...</p>
      <h2>...</h2>
      <p>...</p>
      <pre data-language="text/html" class="snippet cm-s-default" data-sandbox="homepage">...</pre>
      <div class="image">...</div>
      <p>...</p>
      <p>...</p>
      <h2>
        <a class="h_ident" id="h_HnC81zb0Ot" href="#h_HnC81zb0Ot"></a> == $0
        "Trees"
      </h2>
      <p>...</p>
      <p>...</p>
      <p>...</p>
      <p>...</p>
      <p>...</p>
      <p>...</p>
      <div class="image">...</div>
      <p>...</p>
      <p>...</p>
      <p>...</p>
      <p>...</p>
      <pre id="talksAbout" data-language="javascript" class="snippet cm-s-default" data-sandbox="homepage">...</pre>
      <p>...</p>
      <h2>...</h2>
      <p>...</p>
      <p>...</p>
      <pre data-language="javascript" class="snippet cm-s-default" data-sandbox="homepage">...</pre>
      <p>...</p>
      <p>...</p>
      <pre data-language="text/html" class="snippet cm-s-default">...</pre>
      <p>...</p>
      <h2>...</h2>
      <p>...</p>
      <pre data-language="text/html" class="snippet cm-s-default">...</pre>
    </article>
  </body>
</html>
```

The right pane shows the Styles panel for the selected `h2` element. The styles are organized into a cascade:

- Inherited from `h2`** (ejs.css:9):
  - `font-size: 115%;`
- Inherited from `h1, h2, h3`** (ejs.css:8):
  - `font-family: 'Cinzel', Georgia, serif;`
  - `font-weight: 700;`
  - `margin: 1rem 0;`
  - `letter-spacing: 2px;`
- Inherited from `h2`** (user agent stylesheet):
  - `display: block;`
  - `font-size: 1.5em;`
  - `-webkit-margin-before: 0.83em;`
  - `-webkit-margin-after: 0.83em;`
  - `-webkit-margin-start: 0px;`
  - `-webkit-margin-end: 0px;`
  - `font-weight: bold;`
- Inherited from `body`** (ejs.css:2):
  - `font-family: Georgia, 'Nimbus Roman No9 L', 'Century Schoolbook L', serif;`
  - `font-size: 20px;`
  - `line-height: 1.45;`
  - `color: black;`
  - `background: white;`

At the bottom right, a diagram illustrates the box model with the following layers:

- margin** (outermost, dashed orange border)
- border** (solid orange border)
- padding** (dashed green border)
- content** (solid blue box, labeled `auto x auto`)

# New advances in HTML5



- HTML5 and CSS3 brought some major improvements to New addition's
  - Semantic elements, see image
  - New form control attributes
  - New graphic elements
  - New multimedia elements
  - New API's (geolocation and local storage are particularly exciting)
  - Removal of some formatting tags - really starting to force the use of CSS

# Good Practices

- Use lower case element names `<div>` `<p>` This is a paragraph.`</p>` `</div>`
- Close all elements, even if you don't have to.
- Close empty elements ``
- Use lower case attribute names `<div id="lowercase"></div>`
- Quote attribute values (as above)
- Always use the alt attribute in an image and specify the size, it stops the movement/flickering of a page as it loads images (i.e. have you ever clicked on the wrong link because it moved as the page loaded?)
- Don't put spaces between equals signs, avoid long code lines, don't over tab indent with spaces
- ...and many more  
([http://www.w3schools.com/html/html5\\_syntax.asp](http://www.w3schools.com/html/html5_syntax.asp) )



# Try to see the matrix...

---

- You can see the source HTML of any website you visit
- Try and figure out how all these websites work
- <https://github.com/ManrajGrover/SingleDivProject>

