

COMPSCI 111 / 111G

An introduction to practical computing

HTML5 and CSS

Essential Tags

- **HTML5 requires the following tags to be in your html source file:**
 - html
 - head
 - title
 - body

Block-level tags

Define the structure of a “block”

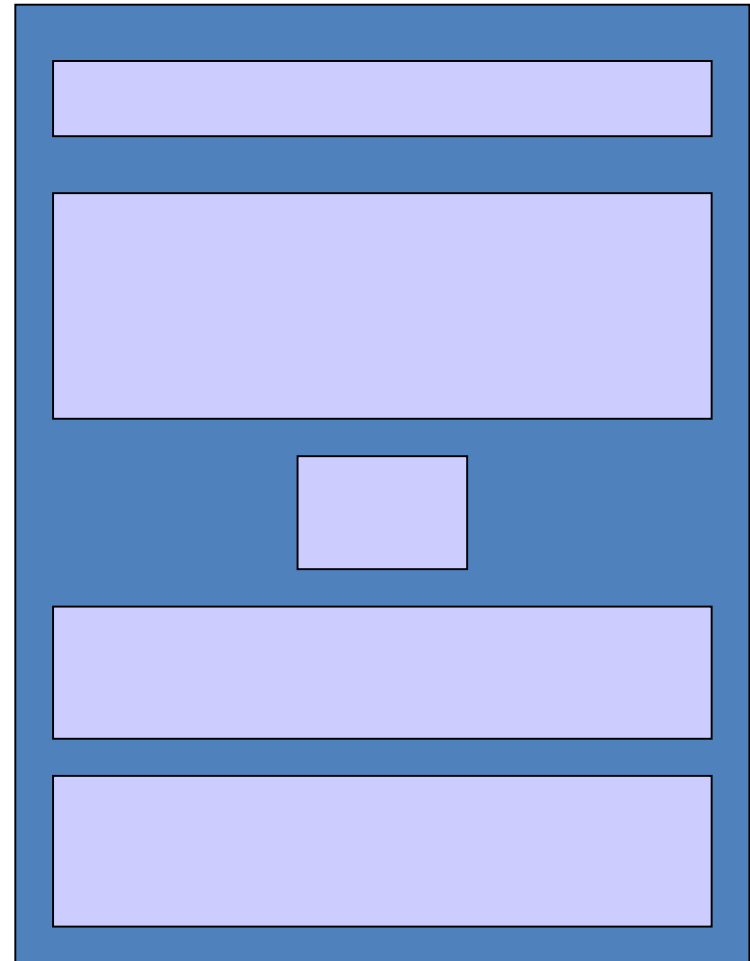
Headings

Paragraphs

Lists

Tables

Preformatted text



HTML5 Lecture 2

- **Inline tags**
- **Sections**
- **CSS stylesheets**

Inline tags

Appear within the blocks

Apply to words within paragraphs etc.

Common inline tags

Line Breaks

Images

Hypertext References

Empty tags

Tags that apply at a given point

Do not format content

Only the opening tag is required.

Line breaks

`
`

Images

``

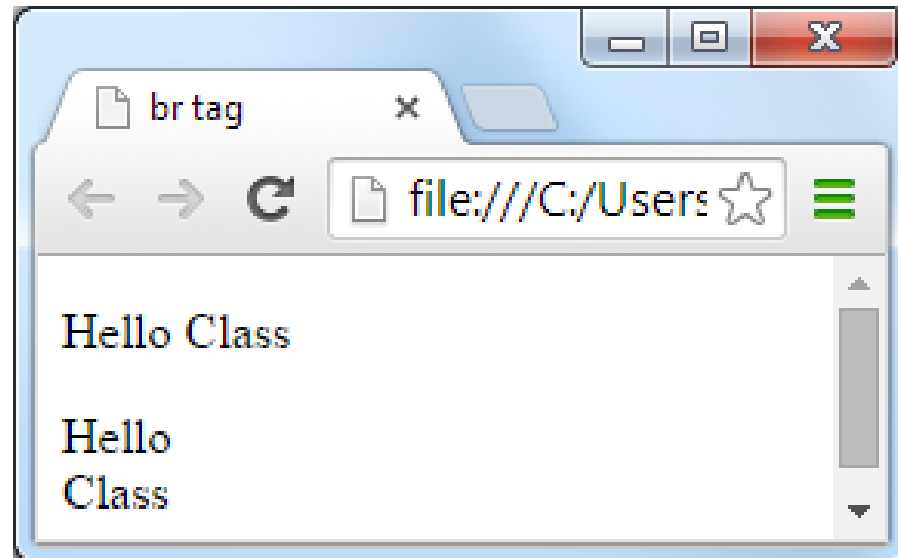
Line break

Breaks a line

Same as hitting the Enter key

Use `
`

```
<p>Hello Class</p>  
<p>Hello<br>Class</p>
```



Images

Pages may contain images

But images are not plain text

Can't be inserted directly into HTML page

Solution

Store the image on the internet (or locally on disk)

Tag contains the address of the image

Web browser loads image when required

Only use images the browser understands

GIF, JPG, PNG

Image tag

``

Insert an image at this location

`src`

The source file of the image

Attribute that specifies the file name

`alt`

Attribute to specify alternate text

Displayed if the image can't load

Important for people with visual impairment

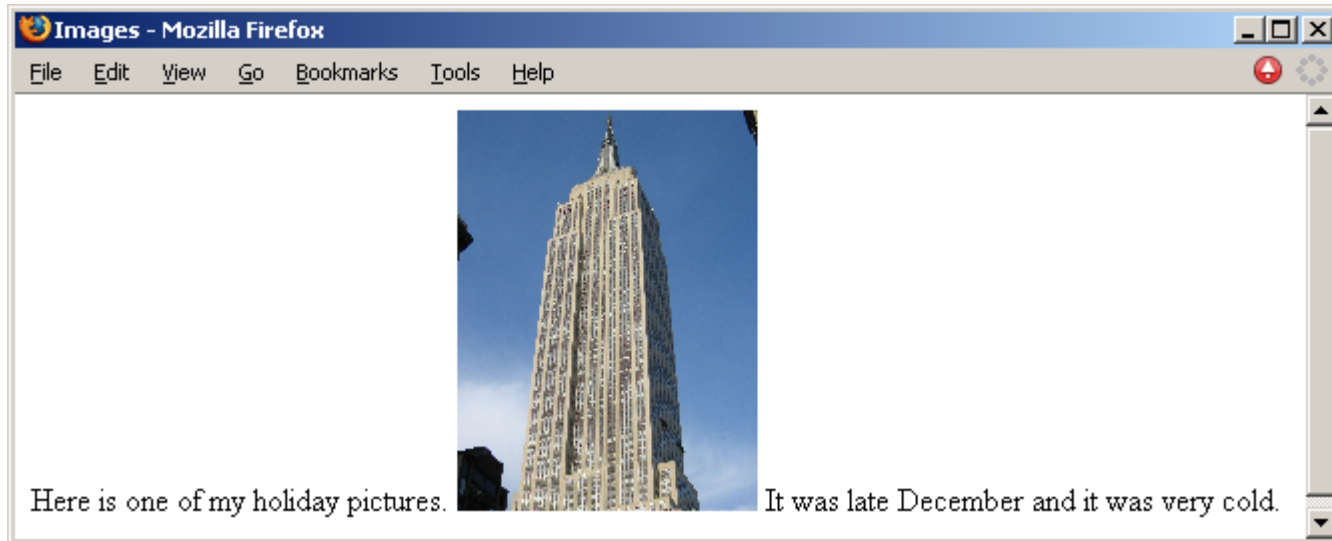
```

```

 example

An image is inserted inline, so it is used inside a block-level element (a paragraph in this example).

```
<p>  
Here is one of my holiday pictures.  
  
It was late December and it was very cold.  
</p>
```



Hypertext reference

A link to another resource on the WWW
References to other documents
Pages, images, files, sections

`<a>`

Anchor tag

`href`

Attribute used to specify the destination of the link
URL

```
<a href="... url ..." >link text</a>
```

URLs

Fully specified

Protocol

Host name

Path

File

Relative

Omit the first parts

Path and file

File

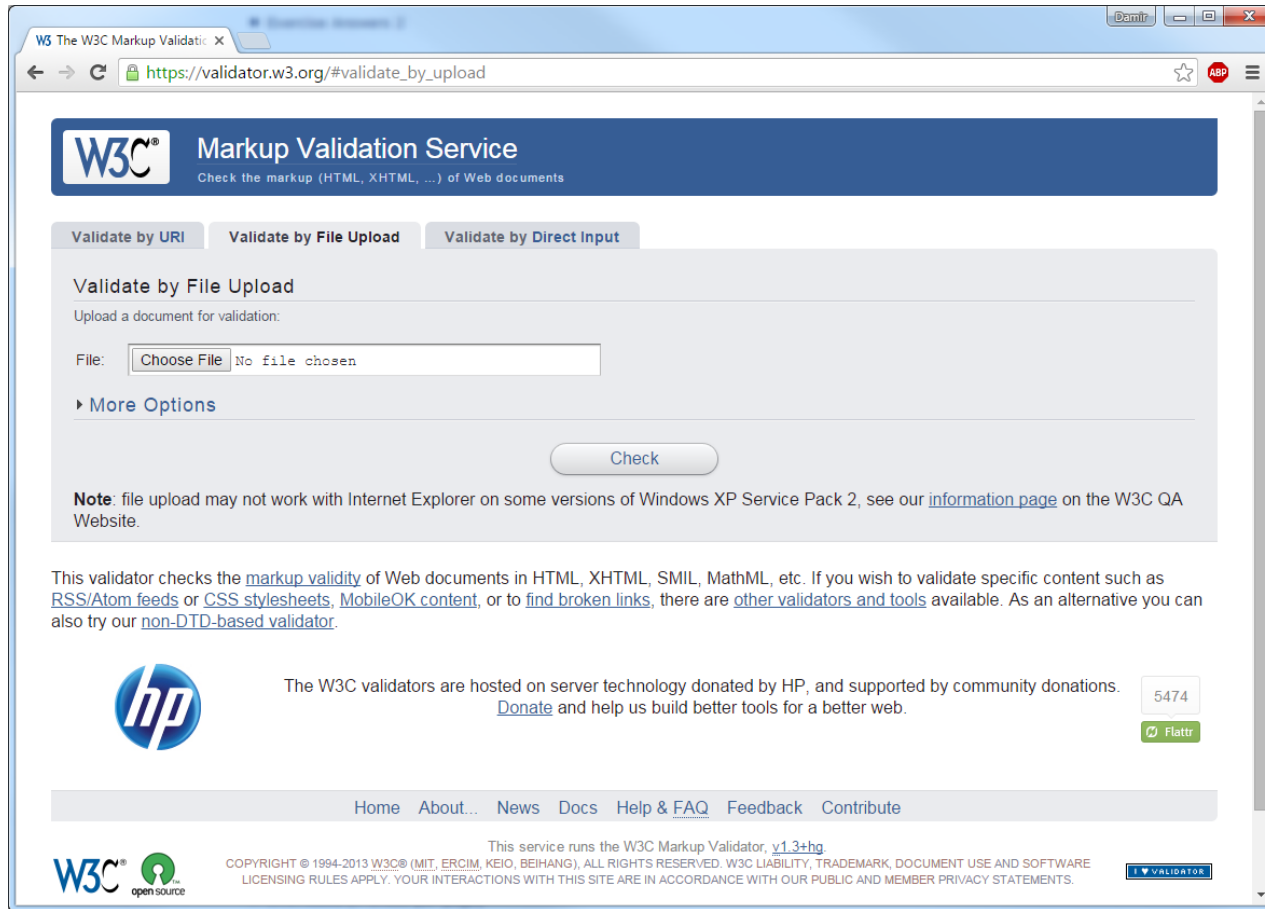
```
http://www.cs.auckland.ac.nz/courses/compsci111/index.html  
/couses/compsci111/index.html  
lectures/index.html  
index.html
```

HTML5 Exercise

Exercise 1: What HTML5 code is required to create a hypertext reference that links to a page at the location "<http://www.cs.auckland.ac.nz/courses/compsci111/>". The underlined link on the page should be the text "111 home page".

Validated Code

Online system to check correctness of code
Provided by W3C
<http://validator.w3.org>



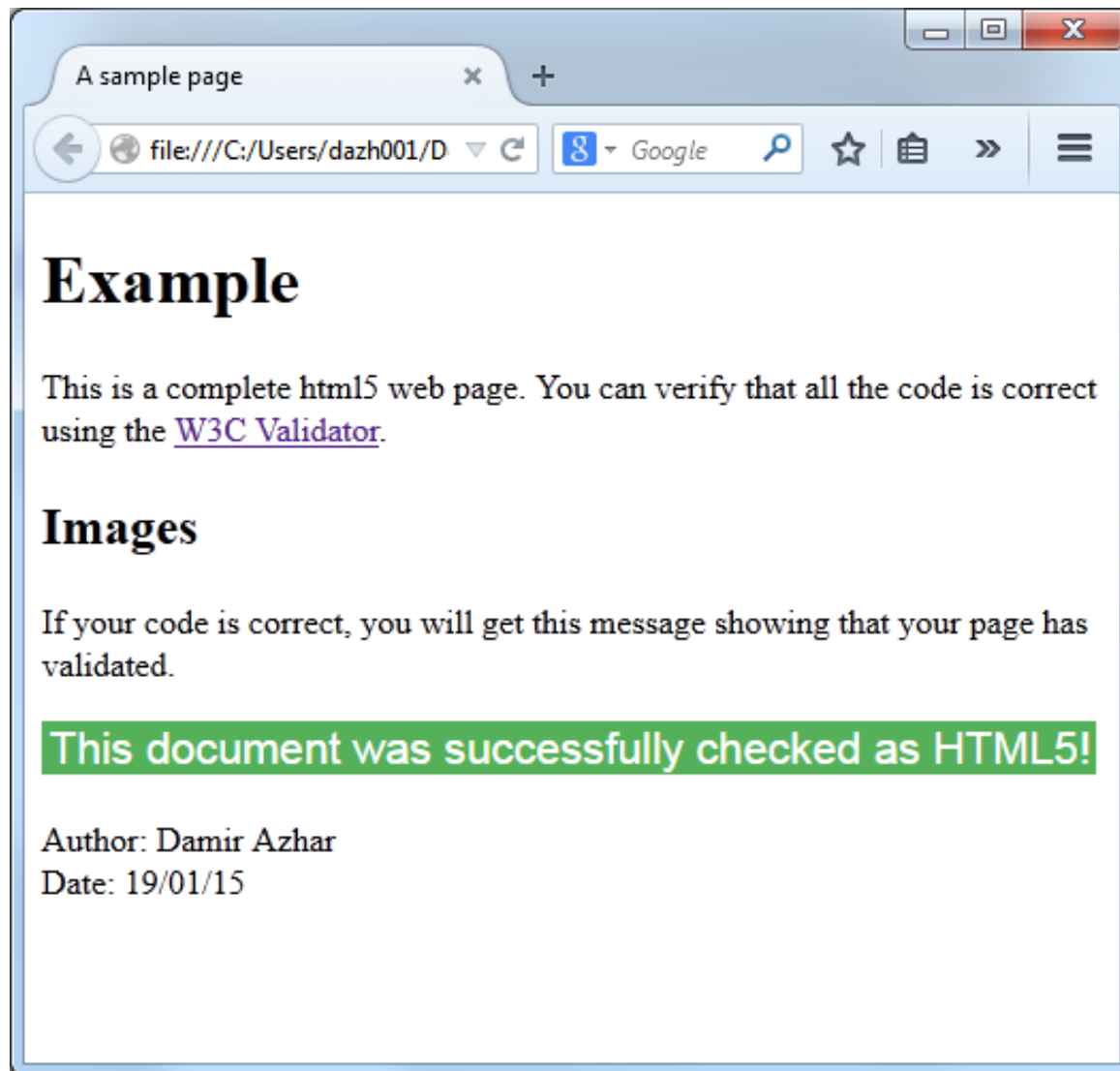
Example

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>A sample page</title>
</head>
<body>
<h1>Example</h1>
<p>This is a complete html5 web page. You can verify that all the code is
correct using the <a href="http://validator.w3.org">W3C Validator</a>.</p>

<h2>Images</h2>
<p>If your code is correct, you will get this message showing that your
page has validated.</p>
<p>

</p>
<p>
Author: Damir Azhar<br>
Date: 19/01/15<br>
</p>
</body>
</html>
```

Example page



Sections

- **<section>** tag defines a section in a HTML5 document.
 - Can be used to split a web page into different sections.
- Is an example of a semantic element.
 - An element that clearly defines its content to both the browser and the developer.

<section> example

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Section Tag Example</title>
</head>
<body>
<h1>About Me</h1>
```

```
<section>
<h2>Work</h2>
<p>Most of my work centres around COMPSCI 111 where I:</p>
<ul>
<li>Lecture</li>
<li>Run labs</li>
</ul>
</section>
```

```
<section>
<h2>Interests</h2>
<p>My interests include:</p>
<ul>
<li>Gaming</li>
<li>Reading</li>
</ul>
</section>
```

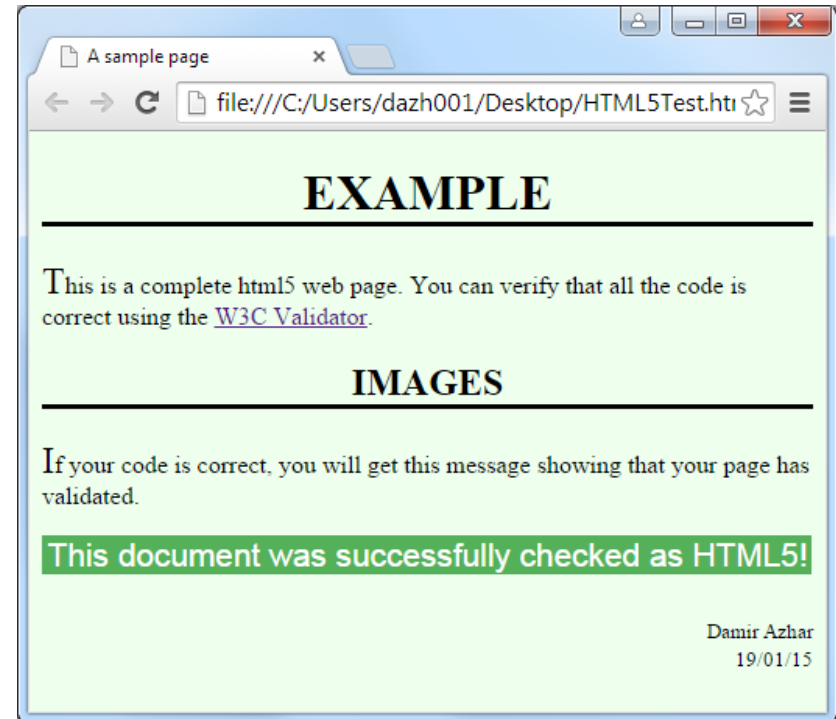
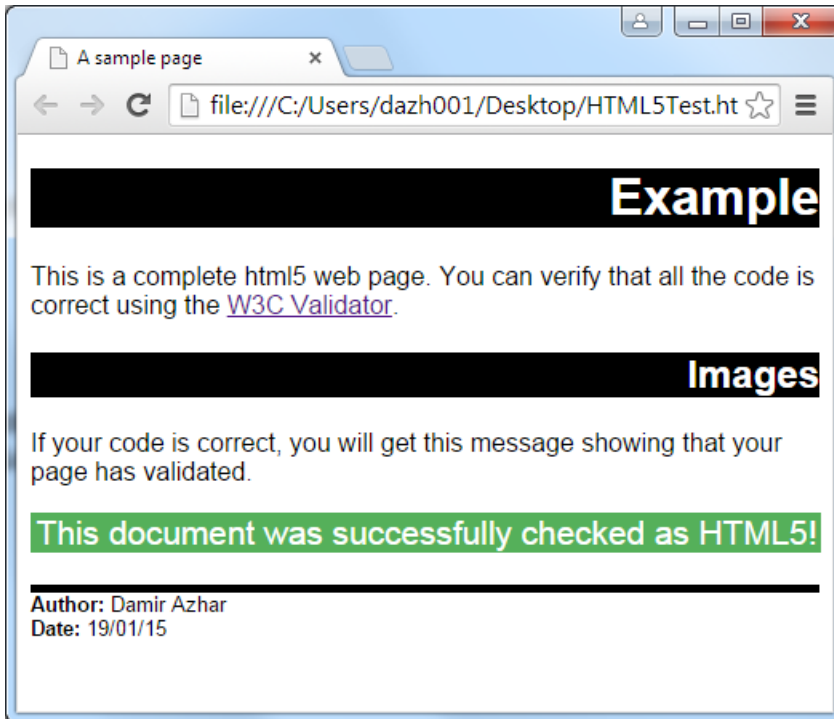
```
</body>
</html>
```



Styles

A style changes the way the HTML code is displayed

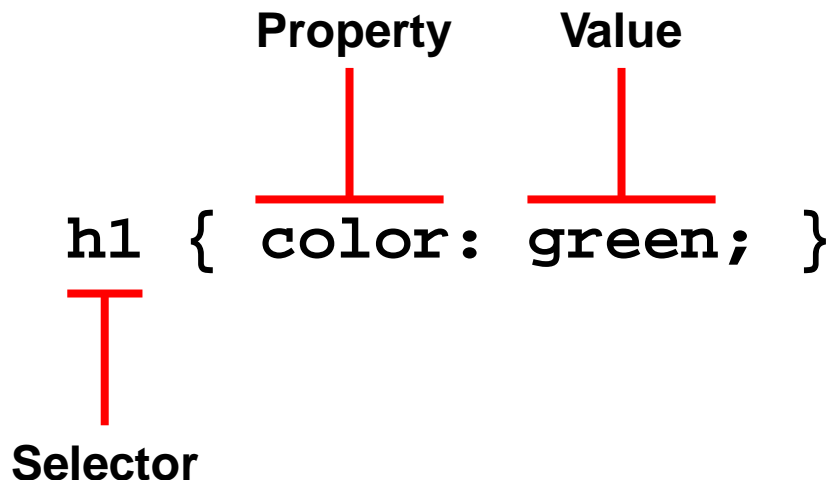
- Same page displayed using different styles



Defining a style

Styles are defined using rules

- Selector – determines what the rule applies to
- Property – the thing that will be changed
- Value – the value that will be used



Grouping rules

Multiple tags that use the same rule

- `h1 { font-weight: bold }`
- `h2 { font-weight: bold }`

Same style defined for multiple selectors

- `h1, h2 { font-weight: bold }`

Grouping rules

Same tag using multiple rules

- `h1 { color: green }`
- `h1 { text-align: center }`

Apply multiple properties to the same selector

- `h1 {`
- `color: green;`
- `text-align: center;`
- `}`

Class selectors

Sometimes want to apply a style to specified tags

- Most paragraphs are normal
- Some paragraphs are quotes

Define a style that can be applied to a group of tags

- Class selector

```
.className { property: value; }
```

In HTML5 source code

- Assign the tag to the class
- Use an attribute

```
<tag class="className"> ... </tag>
```

Example – class selector

Style defined as follows:

```
.quote
{
    text-align: center;
    font-style: italic;
}
```

HTML5 source code uses the style as follows:

```
<p class="quote">
Let's face it, the average computer user has
the brain of a Spider Monkey --- Bill Gates
</p>
```


Id selectors

Sometimes want to apply a style to a single tag

- E.g. Defining a special heading

Define a style that can be applied to a single tag

- Id selector

```
#idName { property: value; }
```

In HTML5 source code

- Use an attribute to specify the id used for the tag

```
<tag id="idName"> ... </tag>
```

Example – id selector

Style defined as follows:

```
#footer
{
    text-align: center;
    font-style: italic;
}
```

HTML5 source code uses the style as follows:

```
<p id="footer">
Copyright 2015
</p>
```

CSS Exercise

Exercise 2: What is a “selector” in a CSS style?

Location of the styles

Three possible locations

- External style sheet
- Internal style sheet
- Inline styles

External Style Sheet

Styles are defined in a file

- Used when styles apply to more than one web page
- Entire site has a consistent visual theme

```
.quote { text-align: center; }  
h1 { color: green; }
```

Saved in a file
called theme.css



Web page must be told where to find the style sheet

- `<link>` tag has 3 attributes:
 - *rel* specifies relationship between current document and linked document
 - *href* specifies location of linked document
 - *type* specifies media type of linked document
- Is an empty tag so only an opening `<link>` tag is required.

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

Internal Style Sheet

Styles are defined in the head of the page

- Used when styles apply to only the one web page
- Keeps all the visual formatting located in the same place

`<style type="text/css">`

- Used in the head of the document to contain styles
- ***type*** attribute specifies media type of the ***<style>*** tag

```
<head>
<title>Example</title>

<style type="text/css">
.quote { text-align: center; }

h1 { color: green; }
</style>

</head>
```

Inline styles

Styles are defined in the tag

- Used when style is applied only to that tag
- Can be required to override styles
- Rarely used (*why would you?*)

```
<p style="text-align: center;">  
This paragraph will be centred using  
an inline style.  
</p>
```

Cascading Style Sheets

Order to apply styles

1. Browser default
2. External style sheet
3. Internal style sheet
4. Inline styles



Increasing priority

http://en.wikipedia.org/wiki/Cascading_Style_Sheets

[http://en.wikipedia.org/wiki/Comparison_of_layout_engines_\(CSS\)](http://en.wikipedia.org/wiki/Comparison_of_layout_engines_(CSS))

CSS Exercises

- ***Exercise 3: Write a simple HTML5 page with the title “Simple CSS example”. The body of the page should contain a single paragraph with the text “Hello”. The text should have the “color” property set to “green”. An internal style sheet should be used to define an appropriate style that can be applied to the paragraph.***

CSS Exercises

Exercise 4: Put the following into increasing order of priority. The item at the bottom of the list should have the highest priority.

Internal Style, Browser Default, Inline Style, External Style

`<div>` and ``

Two additional tags used with CSS

- Allow a style to be applied to arbitrary group of elements

`<div>`

- Block-level tag
- May contain other block-level tags
- Invisible in HTML5, but can have styles applied

``

- Inline tag
- May contain other inline tags
- Invisible in HTML5, but can have styles applied

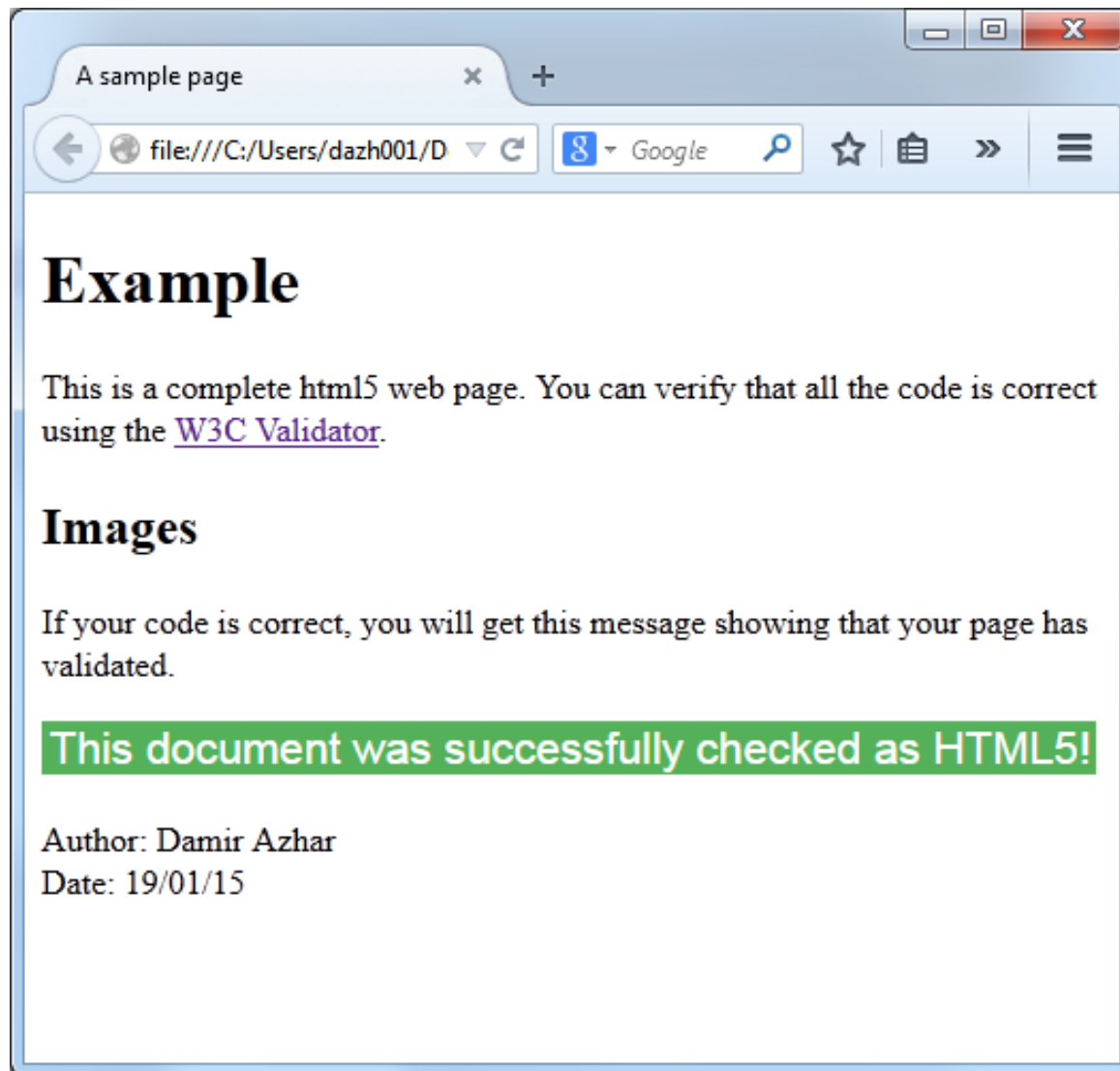
Examples

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>A sample page</title>
<link rel="stylesheet" href="mystyle.css" type="text/css">
</head>
<body>
<h1>Example</h1>
<p>This is a complete html5 web page. You can verify that all the code is
correct using the <a href="http://validator.w3.org">W3C Validator</a>.</p>

<h2>Images</h2>
<p>If your code is correct, you will get this message showing that your page
has validated.</p>
<p>

</p>
<p class="footer">
<span class="catName">Author:</span> Damir Azhar<br>
<span class="catName">Date:</span> 19/01/15<br>
</p>
</body>
</html>
```

No CSS



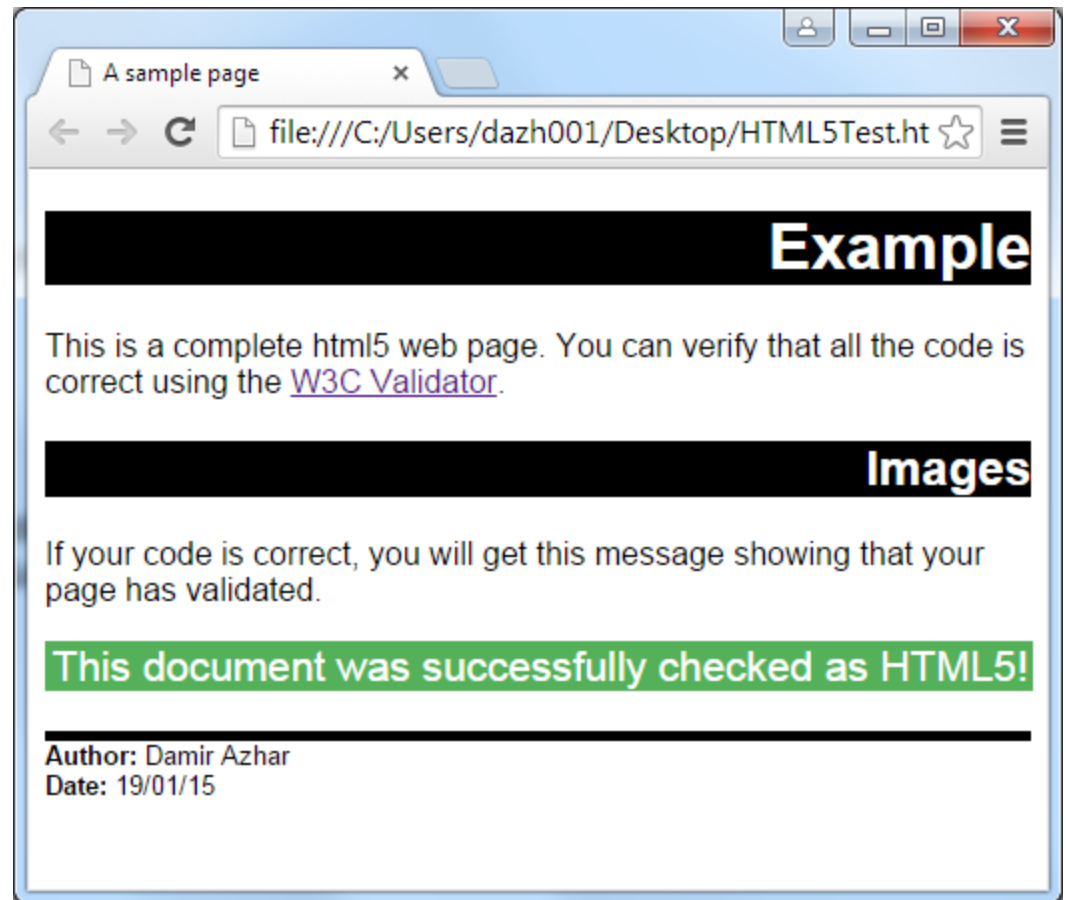
Same page with a style sheet

```
body
{
font-family: sans-serif;
}

h1, h2
{
text-align: right;
background-color: black;
color: white;
}

.footer
{
border-top-width: thick;
border-top-style: solid;
font-size: small;
}

.catName
{
font-weight: bold;
}
```



Same page, different style sheet

```
body { background-color: #eeffee; }
```

```
h1, h2  
{  
text-align: center;  
border-bottom-color: black;  
border-bottom-style: solid;  
color: black;  
text-transform: uppercase;  
}
```

```
p:first-letter  
{  
font-size: x-large;  
}
```

```
.footer  
{  
text-align:  
right; font-size:  
small;  
}
```

```
.catName { visibility: hidden; }
```

