

CS1102

Lecture 5 (Part A)

Web Development: HTML and CSS

**Not to be redistributed
to Course Hero or any
other public websites**

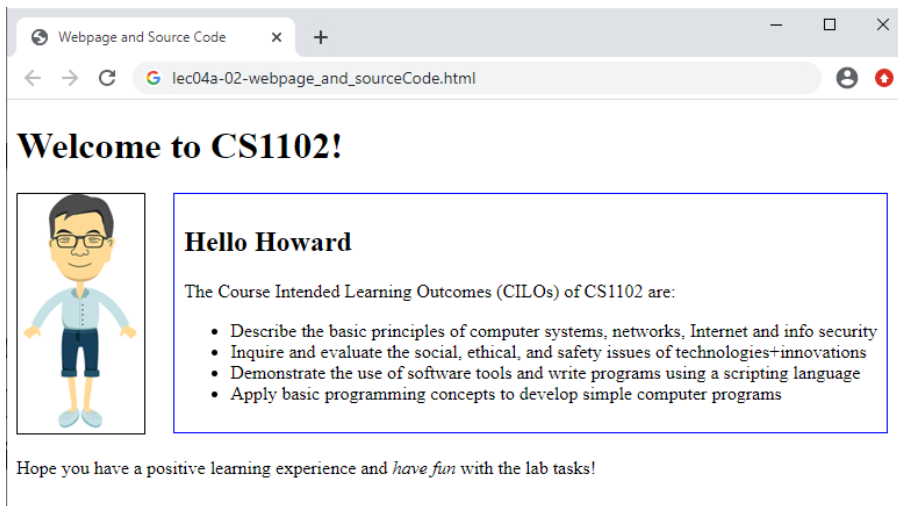


Semester A, 2021-2022
Department of Computer Science
City University of Hong Kong



Webpage and Source Code

- You can view a webpage on a browser that displays information with text, images, audio, video.
- If you look up the source code of the webpage (e.g., the file index.html), you will find that it contains text marked up with HTML tags often with CSS and Javascript



http://www.cs.cityu.edu.hk/~howard/Teaching/CS1102-Example/lec04a-02-webpage_and_sourcecode.html

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <meta charset="utf-8">
5     <meta name="author" content="Howard Leung" />
6     <meta name="description" content="CS1102 Lecture 6a - Webpage and Source Code">
7     <meta name="keywords" content="CS1102 Lecture, Webpage and Source Code" />
8     <title>Webpage and Source Code</title>
9     <style>
10      #main_container {
11        width: 850px;
12      }
13      #left_box {
14        width: 150px;
15      }
16      #right_box {
17        border-style: solid;
18        border-width: thin;
19        border-color: blue;
20        float: right;
21        padding: 10px;
22      }
23      #fun {
24        font-style: italic;
25      }
26    </style>
27    <script>
28      var name;
29      function askName() {
30        if ((name = prompt("What is your name?")) != null) {
31          document.getElementById("guest").innerHTML = name;
32        }
33      }
34    </script>
35  </head>
36  <body onload="askName()">
37    <!-- Page content begins here -->
38    <div id="main_container">
39      <h1>Welcome to CS1102</h1>
40      <div id="right_box">
41        <h2>Hello <span id="guest"></span></h2>
42        <p>The Course Intended Learning Outcomes (CILOs) of CS1102 are:
43        <ul>
44          <li>Describe the basic principles of computer systems, networks, Internet and information security</li>
45          <li>Inquire and evaluate the social, ethical, and safety issues of emerging technologies and innovations</li>
46          <li>Demonstrate the use of software tools and the ability to write simple programs using a scripting language</li>
47          <li>Apply basic programming concepts to develop simple computer programs</li>
48        </ul>
49        </p>
50      </div>
51      <div id="left_box">
52        
53      </div>
54      <div id="favorite_fruit">
55        <p>Hope you have a positive learning experience and <span id="fun">have fun</span> with the lab tasks!</p>
56      </div>
57    </div>
58    <!-- Page content ends here -->
59  </body>
60 </html>
```

<!DOCTYPE html> gives instruction to the web browser about the version of HTML used for that page. In this case, it is HTML5. https://www.w3schools.com/tags/tag_doctype.asp

CSS

Javascript

HTML tags

HTML, CSS and Javascript

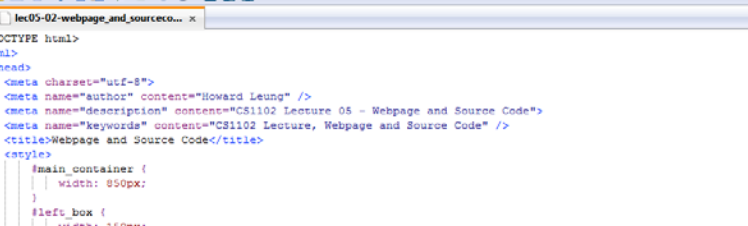
- Often you will find 3 components in a webpage source code:
 1. HTML
 - HyperText Markup Language (HTML) uses a set of codes called tags to describe the structure of a webpage
 2. CSS
 - Cascading Style Sheets (CSS) describes how the HTML elements should be displayed by specifying the fonts, colors, layout and placement of these HTML elements
 3. Javascript
 - Javascript is a programming language that can provide instructions for a browser to dynamically generate content for a website or enhance the website interactivity

Text Editor

- A webpage source code is stored in text format so a simple editor such as Notepad can be used to edit it
- However, it is better to use a code editor such as [Komodo Edit](#) because it provides additional support for writing code, e.g., syntax coloring, syntax error checking, etc.

```
lec05-02-webpage_and_source.html - Notepad
File Edit Format View Help
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<meta name="author" content="Howard Leung" />
<meta name="description" content="CS1102 Lecture 05 - webpage and Source Code">
<meta name="keywords" content="CS1102 Lecture, webpage and Source Code" />
<title>webpage and Source Code</title>
<style>
#main_container {
width: 850px;
}
#left_box {
width: 150px;
}
#right_box {
border-style: solid;
border-width: thin;
border-color: blue;
float: right;
padding: 10px;
}
#fun {
font-style: italic;
}
</style>
<script>
var name;
function askName(){
if ((name = prompt("what is your name?"))!=null)
document.getElementById("guest").innerHTML = name;
}
</script>
</head>
<body onload="askName();">
<!-- Page content begins here -->
<div id="main_container">
<h1>Welcome to CS1102</h1>
<div id="right_box">
<h2>Hello <span id="guest"></span></h2>
<p>The Course Intended Learning Outcomes (CILOs) of CS1102 are:
```

Notepad



The screenshot shows a web browser window with the address bar displaying "http://127.0.0.1:5555/lec05-02-webpage_and_sourcecode.html". The page content includes a form with a text input field and a "Submit" button. Below the form, there is a JavaScript alert box that says "What is your name?". The browser's status bar at the bottom shows "Ready", "CP1252", "Ln: 61 Col: 0", and "HTML5".

Komodo Edit

Structure of a Webpage

- HTML tags are placed inside angle brackets < >
- Most HTML tags work in pairs, with
 1. a start tag, or opening tag (e.g., <html>); and
 2. an end tag, or closing tag (e.g., </html>)

Each HTML file should have one and only one html tag, head section and body section

The indentation improves the visual layout of the HTML code so that it is easier for human to see the structure, but has no effect on the browser

```
1  <!DOCTYPE html>
2
3  <html>
4  <head>
5      <title>Introduction</title>
6  </head>
7
8  <body>
9      <p>This is a sample page</p>
10     <p>This is a sample page</p>
11     <p>This is a sample page</p>
12 </body>
13 </html>
```

opening html tag

head section

body section

closing html tag

HTML features to explore

- Adding a **title** of the webpage
- Creating **headings** with multiple levels
- Formatting **paragraphs**
- Generating **bullet list** and **numbered list**
- Inserting **links** to the webpage
- Displaying **images** on the webpage

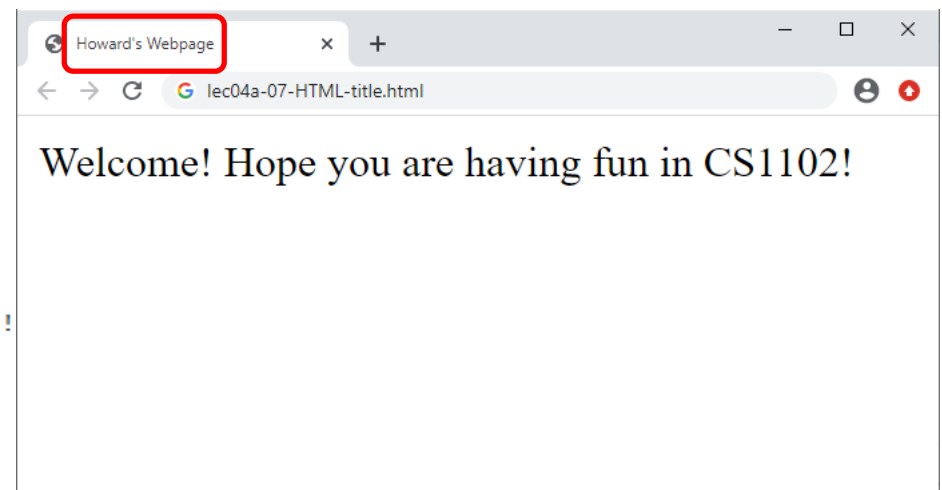
HTML: Title

- The page title can
 - help you quickly identify a webpage on a browser if you open many tabs
 - be used by search engine to determine the relevance with respect to keyword search
 - be used as the default title when you bookmark your webpage

The page title is added between the `<title>` and `</title>` tags in the HTML file

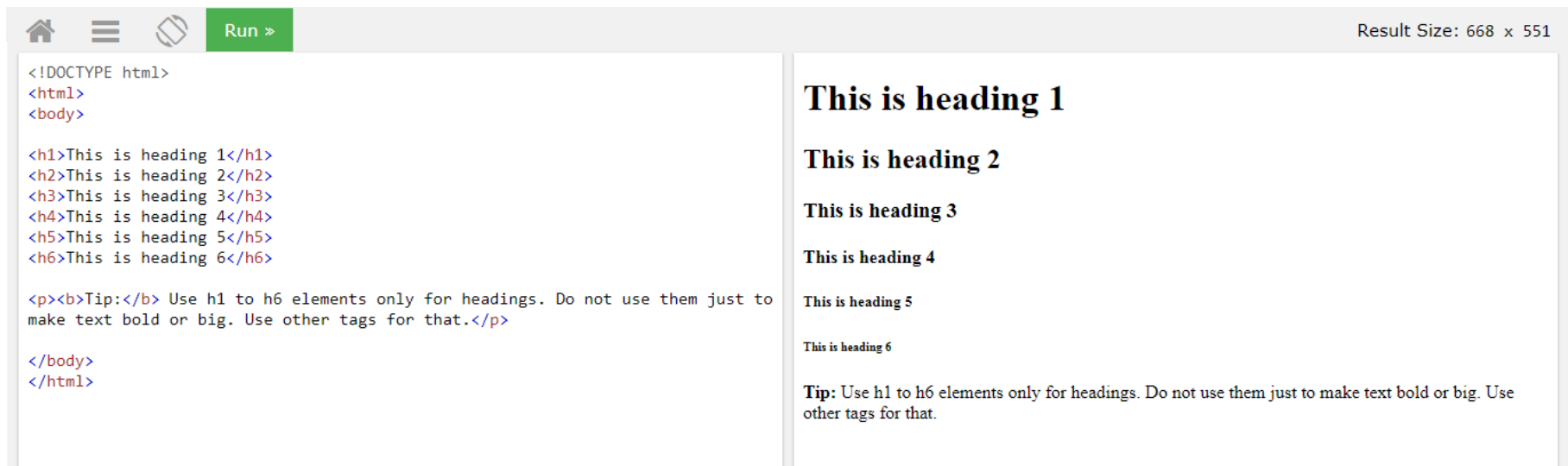
```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>Howard's Webpage</title>
5   </head>
6   <body>
7     <!-- Page content begins here -->
8     Welcome! Hope you are having fun in CS1102!
9     <!-- Page content ends here -->
10  </body>
11 </html>
```

Code Example: lec04a-07-HTML-title.html



HTML: Headings

- Webpage headings highlight different sections on the webpage so visitors can quickly scan for information of interest.
- There are 6 levels of headings: `<h1>`, `<h2>`, `<h3>`, `<h4>`, `<h5>`, `<h6>`
 - `<h1>` is the most important heading
 - `<h6>` is the least important heading



```
<!DOCTYPE html>
<html>
<body>

<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
<h6>This is heading 6</h6>

<p><b>Tip:</b> Use h1 to h6 elements only for headings. Do not use them just to
make text bold or big. Use other tags for that.</p>

</body>
</html>
```

Result Size: 668 x 551

This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

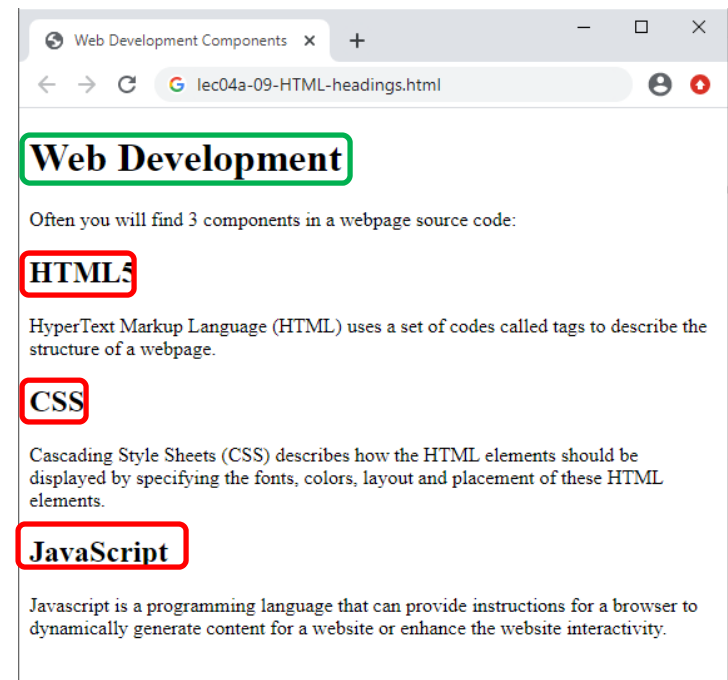
Tip: Use h1 to h6 elements only for headings. Do not use them just to make text bold or big. Use other tags for that.

https://www.w3schools.com/TAGs/tryit.asp?filename=tryhtml_headers

HTML: Headings Example

```
1 <!DOCTYPE html>
2 <html>
3   <head><!--
8     <title>Web Development Components</title>
9   </head>
10  <body>
11    <!-- Page content begins here -->
12    <h1>Web Development</h1>
13    Often you will find 3 components in a webpage source code:
14
15    <h2>HTML5</h2>
16    HyperText Markup Language (HTML) uses a set of codes called tags to
17    describe the structure of a webpage.
18
19    <h2>CSS</h2>
20    Cascading Style Sheets (CSS) describes how the HTML elements should
21    be displayed by specifying the fonts, colors, layout and placement of
22    these HTML elements.
23
24    <h2>JavaScript</h2>
25    Javascript is a programming language that can provide instructions
26    for a browser to dynamically generate content for a website or enhance
    the website interactivity.
27
28    <!-- Page content ends here -->
29  </body>
30 </html>
```

Code Example: lec04a-09-HTML-headings.html



HTML: Paragraphs

The `<p>` and `</p>` tags are used to define a paragraph inside

Browser will automatically insert line spacing between successive `<p>` tags to enhance readability

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>Web Development</title>
5 </head>
6 <body>
7 <!-- Paragraph 1 -->
8 <h1>Web Development</h1>
9 <p>Often you will find 3 components in a webpage source code:</p>
10
11 <h2>HTML5</h2>
12 <p>HyperText Markup Language (HTML) uses a set of codes called tags to describe the structure of a webpage. You should check to make sure that your HTML tags are valid, e.g., matching start tags with end tags.</p>
13
14 <p>The HTML tags are not displayed by the web browser in showing the webpage, but are used to determine how the document should be displayed. A webpage looks fine on one browser does not mean that it will always look the same on another browser so you should test on different browsers to ensure compatibility.</p>
15
16 <h2>CSS</h2>
17 <p>Cascading Style Sheets (CSS) describes how the HTML elements should be displayed by specifying the fonts, colors, layout and placement of these HTML elements. CSS can be embedded on the HTML file or can be defined and referred as an external file.</p>
18
19 <p>Although you could provide the same formatting and layout instructions using HTML, it is better to use CSS as a single CSS rule can be applied to multiple elements so it saves the efforts for defining the appearance of individual HTML elements one by one. The same CSS can also be applied across webpages under the same website.</p>
20
21 <h2>JavaScript</h2>
22 <p>JavaScript is a programming language that can provide instructions for a browser to dynamically generate content for a website or enhance the website interactivity. Like CSS, JavaScript can also be embedded on the HTML file or can be defined and referred as an external file.</p>
```

Line breaks

Line breaks and line spacing in the HTML file are not matched with the way the corresponding text is displayed on the browser

Web Development Components x +

lec04a-10-HTML-paragraph.html

Web Development

Often you will find 3 components in a webpage source code:

HTML5

HyperText Markup Language (HTML) uses a set of codes called tags to describe the structure of a webpage. You should check to make sure that your HTML tags are valid, e.g., matching start tags with end tags.

The HTML tags are not displayed by the web browser in showing the webpage, but are used to determine how the document should be displayed. A webpage looks fine on one browser does not mean that it will always look the same on another browser so you should test on different browsers to ensure compatibility.

CSS

Cascading Style Sheets (CSS) describes how the HTML elements should be displayed by specifying the fonts, colors, layout and placement of these HTML elements. CSS can be embedded on the HTML file or can be defined and referred as an external file.

Although you could provide the same formatting and layout instructions using HTML, it is better to use CSS as a single CSS rule can be applied to multiple elements so it saves the efforts for defining the appearance of individual HTML elements one by one. The same CSS can also be applied across webpages under the same website

JavaScript

JavaScript is a programming language that can provide instructions for a browser to dynamically generate content for a website or enhance the website interactivity. Like CSS, JavaScript can also be embedded on the HTML file or can be defined and referred as an external file.

HTML: Lists

- A list enhances the presentation of information under a category with many items
 - E.g., which of the following webpage has better readability to you?

Web Development

Often you will find 3 components in a webpage source code:

1. HTML: HyperText Markup Language (HTML) uses a set of codes called tags to describe the structure of a webpage
2. CSS: Cascading Style Sheets (CSS) describes how the HTML elements should be displayed by specifying the fonts, colors, layout and placement of these HTML elements
3. Javascript: Javascript is a programming language that can provide instructions for a browser to dynamically generate content for a website or enhance the website interactivity

Web Development

Often you will find 3 components in a webpage source code:

1) HTML: HyperText Markup Language (HTML) uses a set of codes called tags to describe the structure of a webpage; 2) CSS: Cascading Style Sheets (CSS) describes how the HTML elements should be displayed by specifying the fonts, colors, layout and placement of these HTML elements; 3) Javascript: Javascript is a programming language that can provide instructions for a browser to dynamically generate content for a website or enhance the website interactivity

HTML: Lists (2)

- An unordered list displays items with bullets

`` and `` define the beginning and end of an unordered list
`` and `` enclose each list item

```
<h4>An Unordered List:</h4>
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>
```

HTML

An Unordered List:

- Coffee
- Tea
- Milk

Browser display

https://www.w3schools.com/TAGs/tryit.asp?filename=tryhtml_lists4

- An ordered list displays items with automatic numbering

`` and `` define the beginning and end of an ordered list
`` and `` enclose each list item

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

HTML

1. Coffee
2. Tea
3. Milk

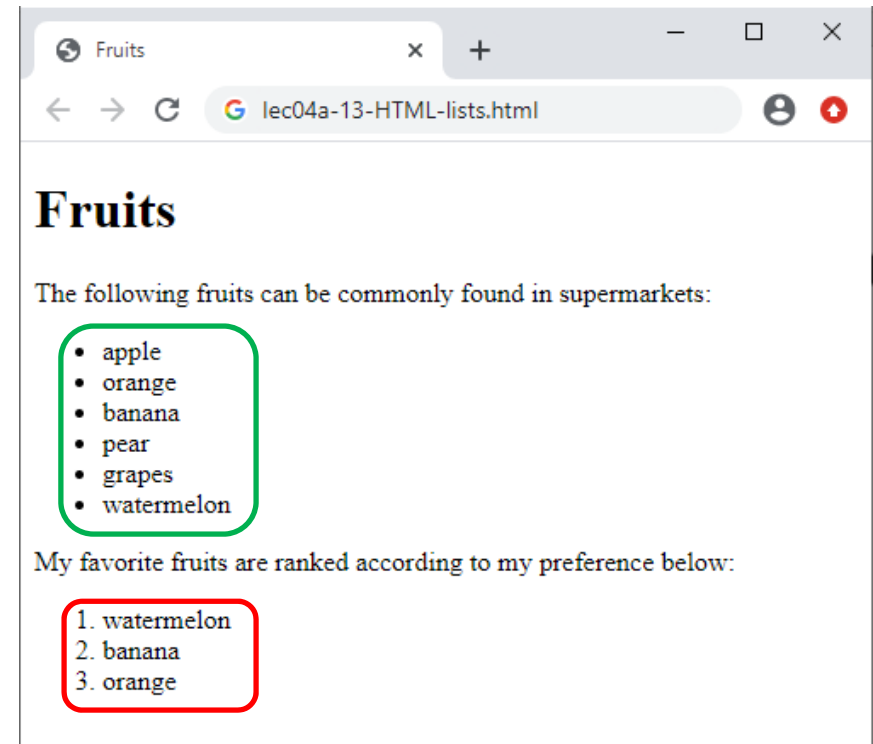
Browser display

https://www.w3schools.com/TAGs/tryit.asp?filename=tryhtml_lists

HTML: Lists Example

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>Fruits</title>
5   </head>
6   <body>
7     <!-- Page content begins here -->
8     <h1>Fruits</h1>
9     <p>The following fruits can be commonly found in supermarkets:</p>
10    <ul>
11      <li>apple</li>
12      <li>orange</li>
13      <li>banana</li>
14      <li>pear</li>
15      <li>grapes</li>
16      <li>watermelon</li>
17    </ul>
18    <p>My favorite fruits are ranked according to my preference below:</p>
19    <ol>
20      <li>watermelon</li>
21      <li>banana</li>
22      <li>orange</li>
23    </ol>
24    <!-- Page content ends here -->
25  </body>
26 </html>
```

Code Example: lec04a-13-HTML-lists.html

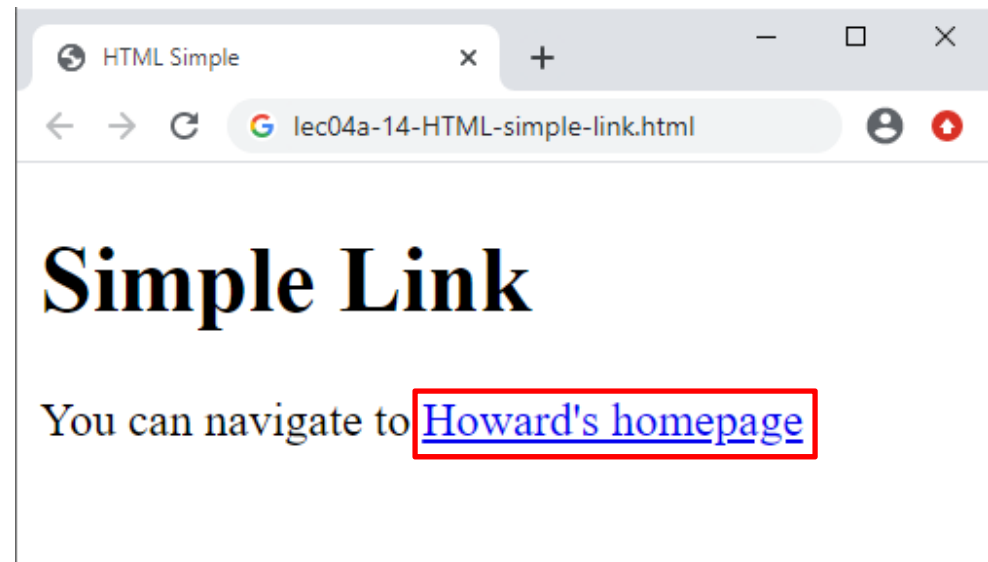


With lists, it would be easy to insert or delete items, or rearrange the order of the items. For numbered list, there is no need to worry about the numbering even when the items are modified because the numbering is automatic

HTML: Links

- A hyperlink, or simply called a link, can be text or image in a webpage that a user can click to navigate to another webpage

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>HTML Simple</title>
5   </head>
6   <body>
7     <!-- Page content begins here -->
8     <h1>Simple Link</h1>
9     <p>You can navigate to <a href="http://www.cs.cityu.edu.hk/~howard/">Howard's homepage</a></p>
10    <!-- Page content ends here -->
11  </body>
12 </html>
```



The `<a>` anchor tag is used to link to another hypertext location
The `href` attribute value contains the URL (Uniform Resource Locator), i.e., the link destination

Code Example: lec04a-14-HTML-simple-link.html

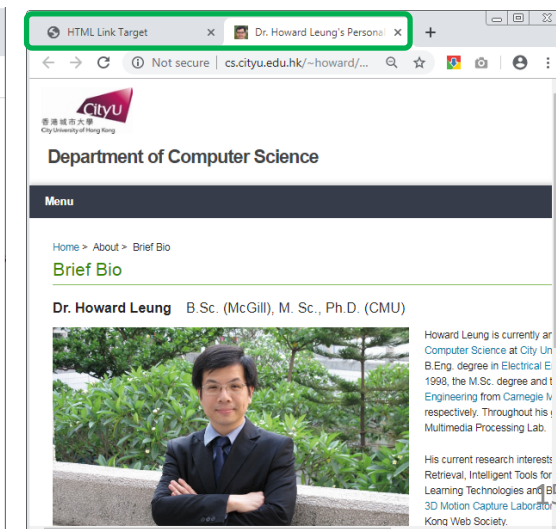
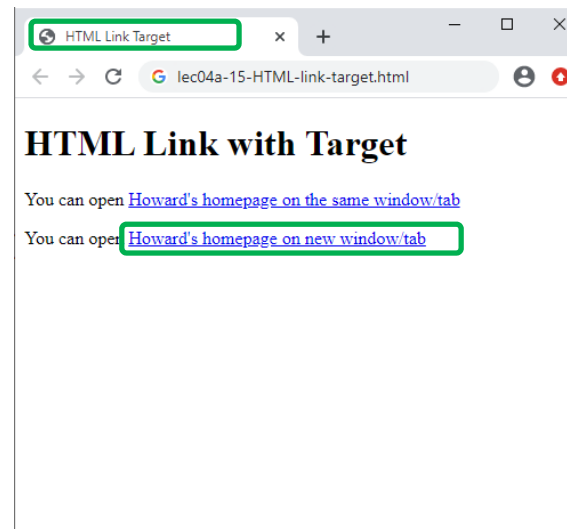
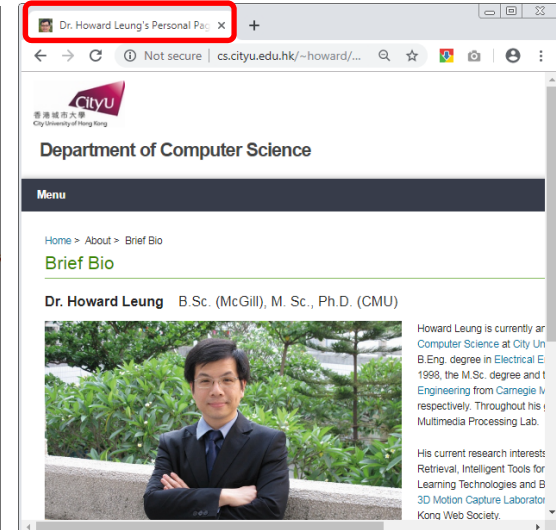
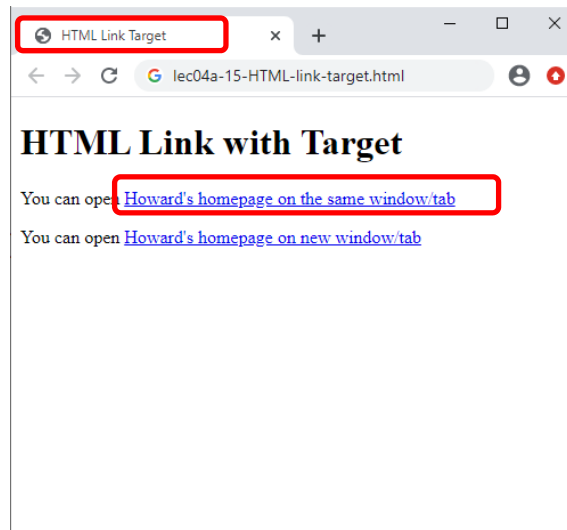
HTML: Link Target

By default, the link destination will be opened in the same browser tab or window

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>HTML Link Target</title>
5 </head>
6 <body>
7 <!-- Page content begins here -->
8 <h1>HTML Link with Target</h1>
9 <p>You can open Howard's homepage on the same window/tab</p>
10 <p>You can open Howard's homepage on new window/tab</p>
11 <!-- Page content ends here -->
12 </body>
13 </html>
```

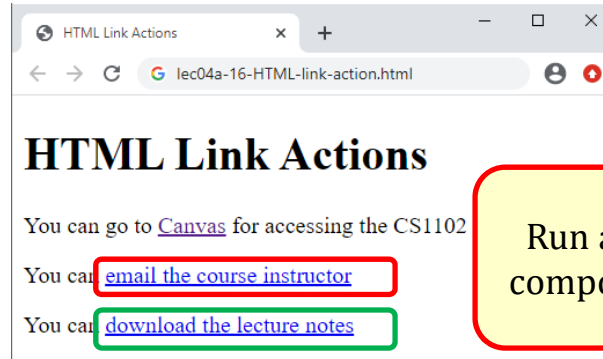
Code Example: lec04a-15-HTML-link-target.html

With the attribute `target="_blank"`, the linked destination is opened in a new window or tab



HTML: Link Actions

- A hyperlink can also be used to perform other action than navigating to another webpage



Run an email client (if installed) to compose email to a specific recipient

Download a file

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>HTML Link Actions</title>
5 </head>
6 <body>
7 <!-- Page content begins here -->
8 <h1>HTML Link Actions</h1>
9 <p>You can go to <a href="http://canvas.cityu.edu.hk/">Canvas</a> for accessing the CS1102 course page</p>
10 <p>You can <a href="mailto:howard@cityu.edu.hk">email the course instructor</a></p>
11 <p>You can <a href="CS1102_1718A_lec05-WebDevelopment.pdf">download the lecture notes</a></p>
12 <!-- Page content ends here -->
13 </body>
14 </html>
```

Code Example: lec04a-16-HTML-link-action.html

HTML: Images

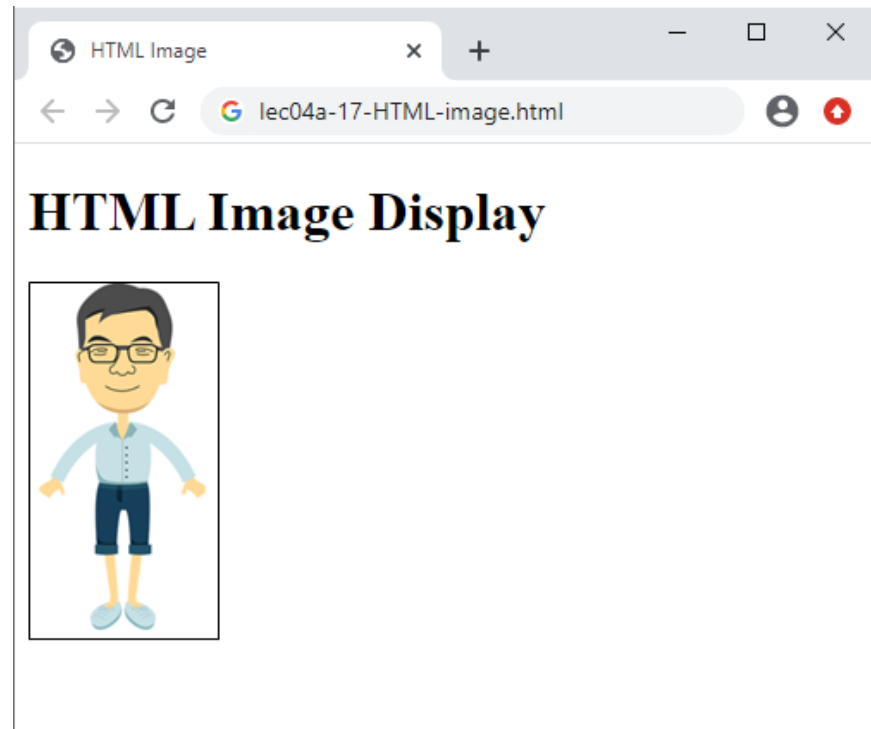
- Images are always stored as separate files. The `` tag can be used in the HTML code to provide instruction to the browser for displaying an image on a webpage

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>HTML Image</title>
5   </head>
6   <body>
7     <!-- Page content begins here -->
8     <h1>HTML Image Display</h1>
9     
10    <!-- Page content ends here -->
11  </body>
12 </html>
```

folder

lec04a-17-HTML-image.html

character.png

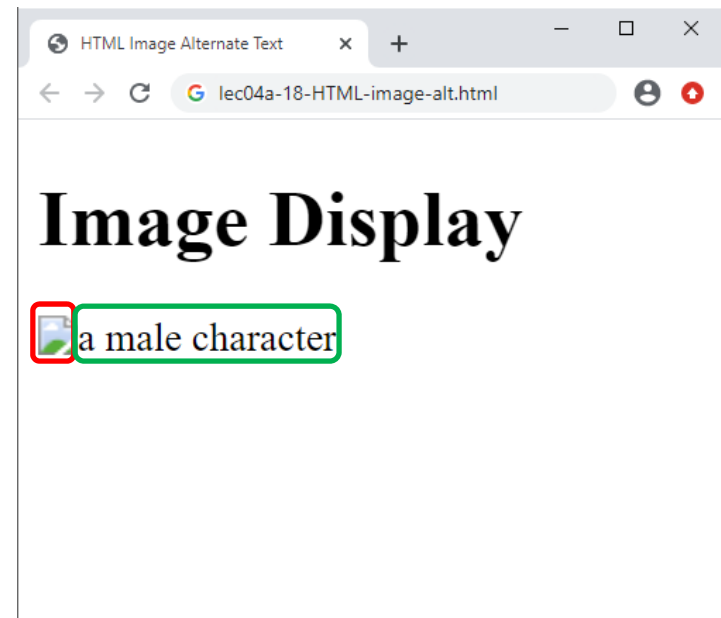


HTML: Images (2)

- The `alt` attribute is used to specify the alternate text for the image

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>HTML Image Alternate Text</title>
5   </head>
6   <body>
7     <!-- Page content begins here -->
8     <h1>Image Display</h1>
9
10    
11
12    <!-- Page content ends here -->
13  </body>
14 </html>
```

Code Example: lec04a-18-HTML-image-alt.html



The alternate text has the following functions:

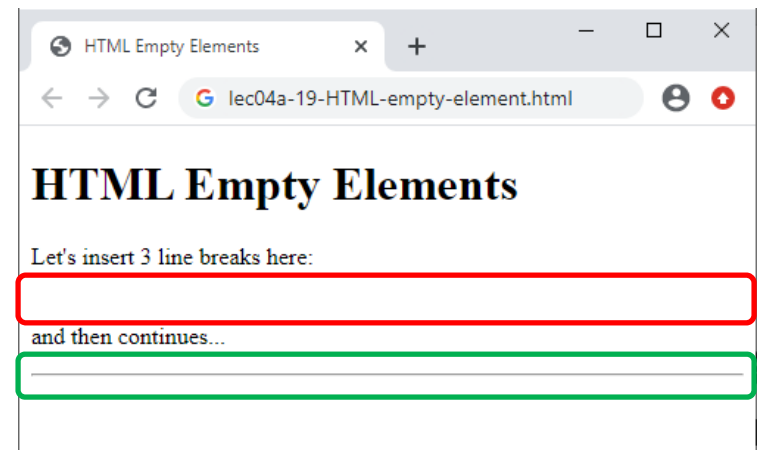
1. Alternate text will be displayed instead of an image when the image cannot be displayed in case the image does not exist or there is a typo in the image filename.
2. Visually impaired users may not be able to view the image but are still able to understand the image content by using screen reading software to read aloud the alternate text for the image

HTML: Empty Element

- Note that the `img` tag does not have a corresponding end tag
 - E.g., `` works alone and there is no such thing as ``
- HTML elements that do not require an end tag are called empty elements
- Other examples of empty elements:
 - `
`: add a line break
 - `<hr />`: add a horizontal rule (line)

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>HTML Empty Elements</title>
5   </head>
6   <body>
7     <!-- Page content begins here -->
8     <h1>HTML Empty Elements</h1>
9
10    <p>Let's insert 3 line breaks here: <br /><br /><br /> and then continues...</p>
11
12    <hr />
13
14    <!-- Page content ends here -->
15  </body>
16 </html>
```

Code Example: lec04a-19-HTML-empty-element.html



HTML: Image Link

- You have seen how to make a text hyperlink before. You can also make an image hyperlink so that the same link actions can be performed when the image is clicked

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>HTML Image Link</title>
5   </head>
6   <body>
7     <!-- Page content begins here -->
8     <h1>HTML Image Link</h1>
9
10    <p>Click on the following image or text to go to another webpage:<br/>
11
12    <a href="http://www.cs.cityu.edu.hk/~howard">
13      <br />
14      
15      <br />
16      Howard's Homepage
17    </a>
18
19    </p>
20
21    <!-- Page content ends here -->
22  </body>
23 </html>
```



Code Example: lec04a-20-HTML-image-link.html

Absolute URL vs Relative URL

- The URL can be specified either as an absolute URL or a relative URL

An absolute URL includes the full path

Usually absolute URL is used for linking to files from external websites (not on the same web server)

Other examples of full URL:

```
<a href="http://www.cs1102.org/lab/figure.jpg">  
<a href="c:\cs1102\lecture.ppt">
```

```
1 <!DOCTYPE html>  
2 <html>  
3 <head>  
8 <title>HTML Link Actions</title>  
9 </head>  
10 <body>  
11 <!-- Page content begins here -->  
12 <h1>HTML Link Actions</h1>  
13 <p>You can go to <a href="http://canvas.cityu.edu.hk/">Canvas</a> for accessing the CS1102 course page</p>  
14 <p>You can <a href="mailto:howard@cityu.edu.hk">email the course instructor</a></p>  
15 <p>You can <a href="CS1102_1718A_lec05-WebDevelopment.pdf">download the lecture notes</a></p>  
16 <!-- Page content ends here -->  
17 </body>  
18 </html>
```

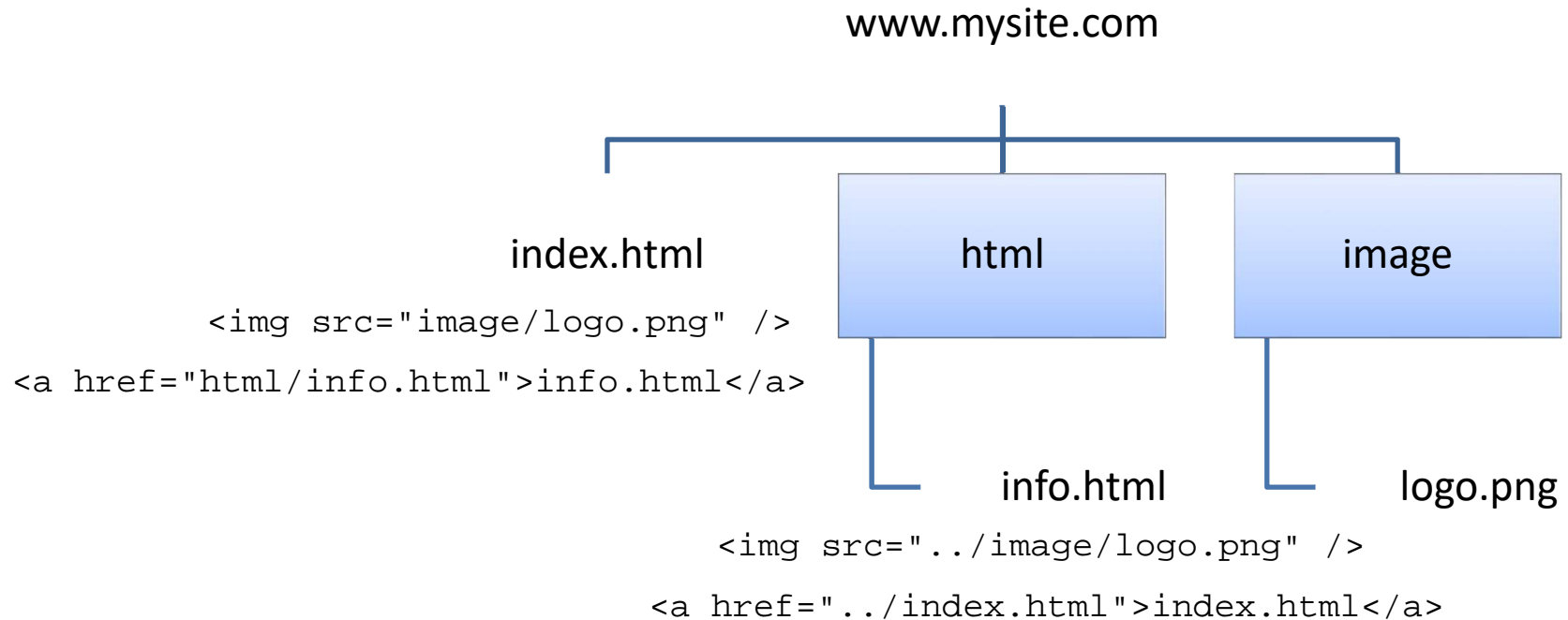
Relative URL specifies the location of a file relative to the location of the current file

Other examples of relative URL:

```
<a href="lab/figure.jpg">  
<a href="..\cs1102\lecture.ppt">
```

File Path

- Files on a website may be placed on different folders and the path needs to be specified in order to link to a file placed at a different folder



../ refers to the parent folder,
i.e., go up one level in the folder structure

CSS

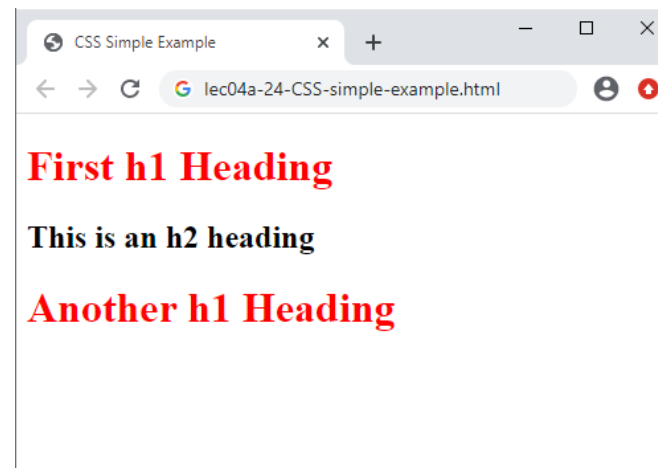
- Cascading Style Sheets (CSS) describes how the HTML elements should be displayed by specifying the fonts, colors, layout and placement of these HTML elements
- Although you could provide the same formatting and layout instructions using HTML, it is better to use CSS as a single CSS rule can be applied to multiple elements so it saves the efforts for defining the appearance of individual HTML elements one by one. The same CSS can also be applied across webpages under the same website

CSS: Simple Example

- CSS can be embedded in the head section of the webpage, with the styles defined inside the `<style>` `</style>` tags

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>CSS Simple Example</title>
5     <style>
6       h1 {
7         color: red;
8       }
9     </style>
10  </head>
11  <body>
12    <!-- Page content begins here -->
13
14    <h1>First h1 Heading</h1>
15
16    <h2>This is an h2 heading</h2>
17
18    <h1>Another h1 Heading</h1>
19
20    <!-- Page content ends here -->
21  </body>
22 </html>
```

This style sets all `<h1>` headings in red color



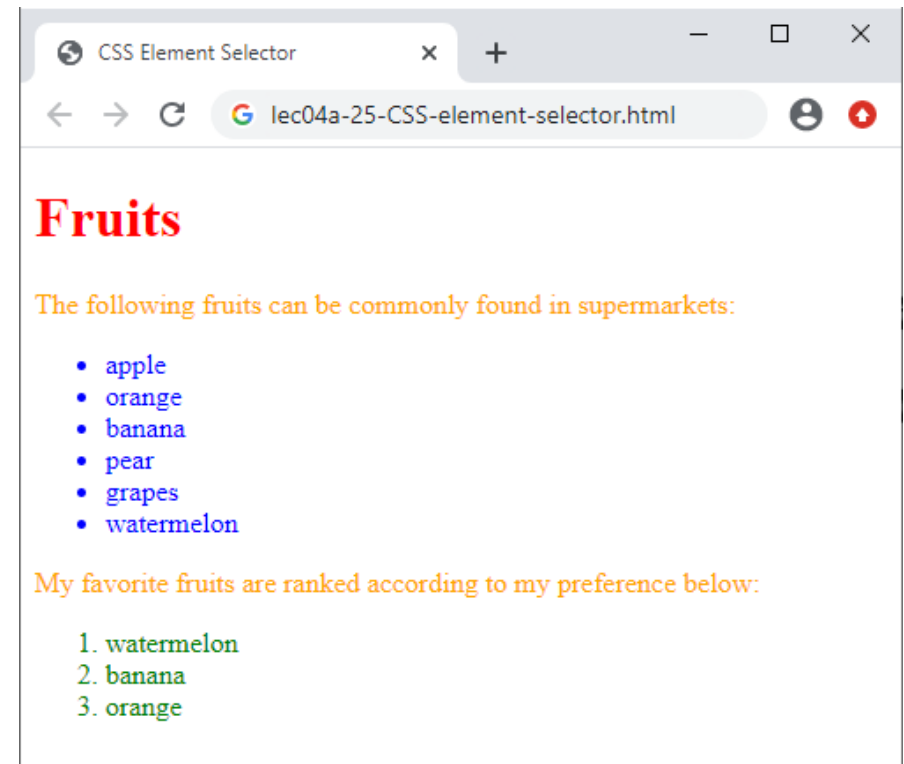
Code Example: lec04a-24-CSS-simple-example.html

CSS: Element Selector

- A CSS style can be applied to different HTML elements by using the corresponding HTML tag as element selector

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>CSS Element Selector</title>
5 <style>
6   h1 {
7     color: red;
8   }
9   ul {
10    color: blue;
11  }
12   ol {
13    color: green;
14  }
15   p {
16    color: orange;
17  }
18 </style>
19 </head>
20 <body>
21 <!-- Page content begins here -->
22 <h1>Fruits</h1>
23 <p>The following fruits can be commonly found in supermarkets:</p>
24 <ul>
25   <li>apple</li>
26   <li>orange</li>
27   <li>banana</li>
28   <li>pear</li>
29   <li>grapes</li>
30   <li>watermelon</li>
31 </ul>
32 <p>My favorite fruits are ranked according to my preference below:</p>
33 <ol>
34   <li>watermelon</li>
35   <li>banana</li>
36   <li>orange</li>
37 </ol>
38 <!-- Page content ends here -->
39 </body>
40 </html>
```

Code Example: lec04a-25-CSS-element-selector.html



The tag

- The tag can be used to enclose a part of the text such that the style can be applied.



Nothing, if you do not give it some special style (or add an attribute for specific purpose, e.g. an event handler)

Does ../ do anything if we do not set any style for it?



Span Tag Style

lec04a-26-span-tag.html

How can you become more effective learner?

- Take **initiative** in your learning
- Be **prepared** to the class (try to read the materials before hand)
- **Attend and participate** in all classes (both lecture & lab)
- Submit assignments **on time**
- Don't be afraid of **asking questions** (inside or outside classroom)
- Use **online resources** as much as possible
- **Refrain from academic dishonest behaviour**

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>Span Tag Style</title>
5     <style>
6       span {
7         color: red;
8       }
9     </style>
10  </head>
11  <body>
12    <!-- Page content begins here -->
13    <h1>How can you become more <span>effective learner</span></h1>
14    <ul>
15      <li>Take <span>initiative</span> in your learning</li>
16      <li>Be <span>prepared</span> to the class (try to read the materials before hand)</li>
17      <li><span>Attend and participate</span> in all classes (both lecture & lab) </li>
18      <li>Submit assignments <span>on time</span></li>
19      <li>Don't be afraid of <span>asking questions</span> (inside or outside classroom)</li>
20      <li>Use <span>online resources</span> as much as possible</li>
21      <span><li>Refrain from academic dishonest behaviour</li></span>
22    </ul>
23    <!-- Page content ends here -->
24  </body>
25 </html>
```

Code Example: lec04a-26-span-tag.html

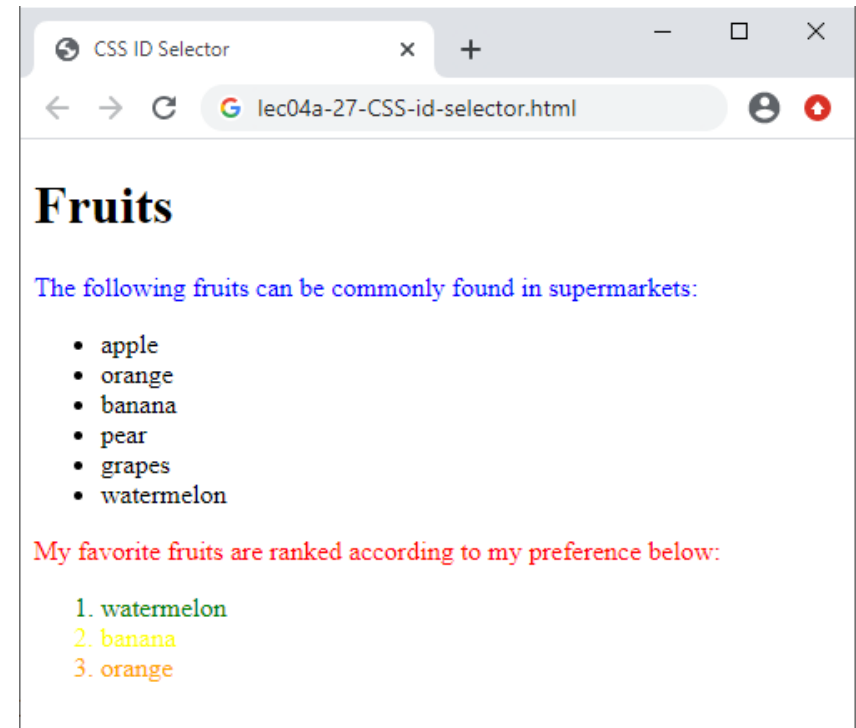
CSS: ID Selector

- Each html element can be labeled with an id. A CSS style can be applied to an element by specifying its id

Code Example: lec04a-27-CSS-id-selector.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>CSS ID Selector</title>
5 <style>
6   #paragraph1 {
7     color: blue;
8   }
9   #paragraph2 {
10    color: red;
11  }
12   #favorite1 {
13    color: green;
14  }
15   #favorite2 {
16    color: yellow;
17  }
18   #favorite3 {
19    color: orange;
20  }
21 </style>
22 </head>
23 <body>
24 <!-- Page content begins here -->
25 <h1>Fruits</h1>
26 <p id="paragraph1">The following fruits can be commonly found in supermarkets:</p>
27 <ul>
28   <li>apple</li>
29   <li>orange</li>
30   <li>banana</li>
31   <li>pear</li>
32   <li>grapes</li>
33   <li>watermelon</li>
34 </ul>
35 <p id="paragraph2">My favorite fruits are ranked according to my preference below:</p>
36 <ol>
37   <li id="favorite1">watermelon</li>
38   <li id="favorite2">banana</li>
39   <li id="favorite3">orange</li>
40 </ol>
41 <!-- Page content ends here -->
42 </body>
43 </html>
```

The hash # followed by the id is used to specify an id selector



Each id used to label an html element should be unique, i.e., it can only be used once and no two html elements should have the same id

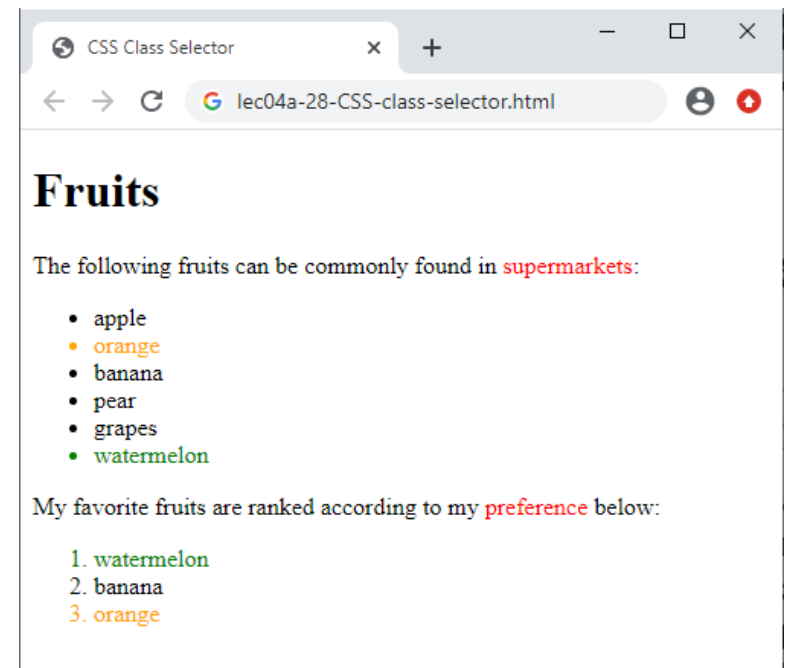
CSS: Class Selector

- A CSS style can be applied to all elements with the same class name

Code Example: lec04a-28-CSS-class-selector.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>CSS Class Selector</title>
5   <style>
6     .highlight {
7       color: red;
8     }
9     .watermelon {
10      color: green;
11    }
12     .orange {
13      color: orange;
14    }
15   </style>
16 </head>
17 <body>
18   <!-- Page content begins here -->
19   <h1>Fruits</h1>
20   <p>The following fruits can be commonly found in <span class="highlight">supermarkets</span></p>
21   <ul>
22     <li>apple</li>
23     <li class="orange">orange</li>
24     <li>banana</li>
25     <li>pear</li>
26     <li>grapes</li>
27     <li class="watermelon">watermelon</li>
28   </ul>
29   <p>My favorite fruits are ranked according to my <span class="highlight">preference</span> below:</p>
30   <ol>
31     <li class="watermelon">watermelon</li>
32     <li>banana</li>
33     <li class="orange">orange</li>
34   </ol>
35   <!-- Page content ends here -->
36 </body>
37 </html>
```

The period . followed by a class name is used to specify a class selector



Different html elements can be labeled with the same class name

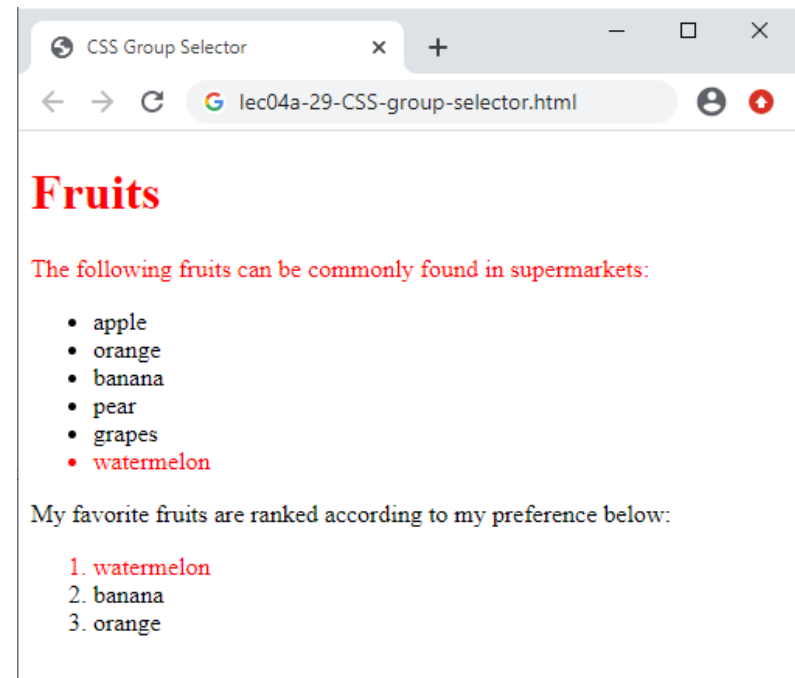
CSS: Group Selector

- A CSS style can be applied to a group of elements

Code Example: lec04a-29-CSS-group-selector.html

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>CSS Group Selector</title>
5     <style>
6       h1, #paragraph1, .highlight
7       {
8         color: red;
9       }
10    </style>
11  </head>
12  <body>
13    <!-- Page content begins here -->
14    <h1>Fruits</h1>
15    <p id="paragraph1">The following fruits can be commonly found in supermarkets:</p>
16    <ul>
17      <li>apple</li>
18      <li>orange</li>
19      <li>banana</li>
20      <li>pear</li>
21      <li>grapes</li>
22      <li class="highlight">watermelon</li>
23    </ul>
24    <p>My favorite fruits are ranked according to my preference below:</p>
25    <ol>
26      <li class="highlight">watermelon</li>
27      <li>banana</li>
28      <li>orange</li>
29    </ol>
30    <!-- Page content ends here -->
31  </body>
32 </html>
```

The comma , is used to separate individual selectors to specify a group selector



CSS: Color

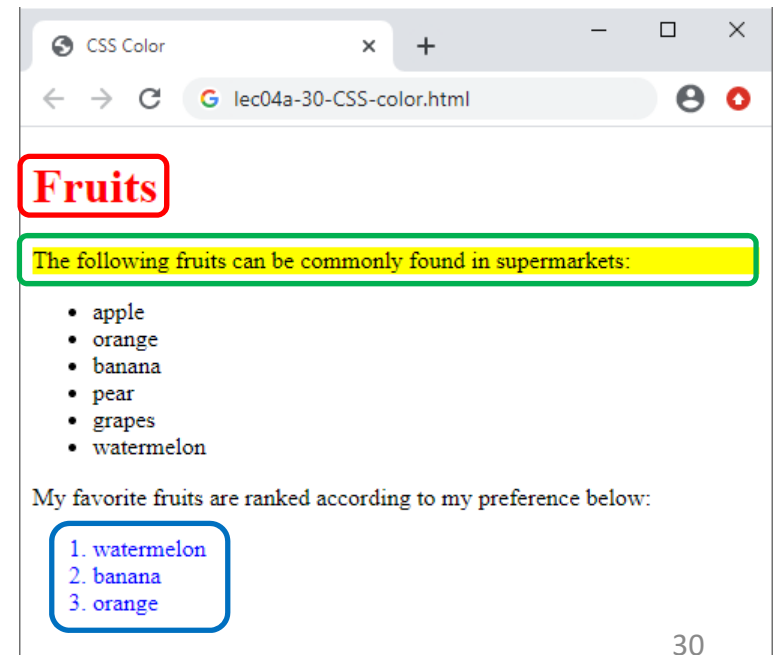
- There are other ways to set color properties in CSS

The color can be specified by the R,G,B values in the form of

- 3 decimal numbers ranging from 0-255, or
- 6 hexadecimal nibbles where every 2 hexadecimal nibbles represent each of R, G, B value respectively

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>CSS Color</title>
5   <style>
6     h1 {
7       color: rgb(255,0,0);
8     }
9     #paragraph1 {
10      background-color: yellow;
11    }
12    ol {
13      color: #0000FF;
14    }
15  </style>
16 </head>
17 <body>
18   <!-- Page content begins here -->
19   <h1>Fruits</h1>
20   <p id="paragraph1">The following fruits can be commonly found in supermarkets:</p>
21   <ul>
22     <li>apple</li>
23     <li>orange</li>
24     <li>banana</li>
25     <li>pear</li>
26     <li>grapes</li>
27     <li>watermelon</li>
28   </ul>
29   <p>My favorite fruits are ranked according to my preference below:</p>
30   <ol>
31     <li>watermelon</li>
32     <li>banana</li>
33     <li>orange</li>
34   </ol>
35   <!-- Page content ends here -->
36 </body>
37 </html>
```

Code Example: lec04a-30-CSS-color.html



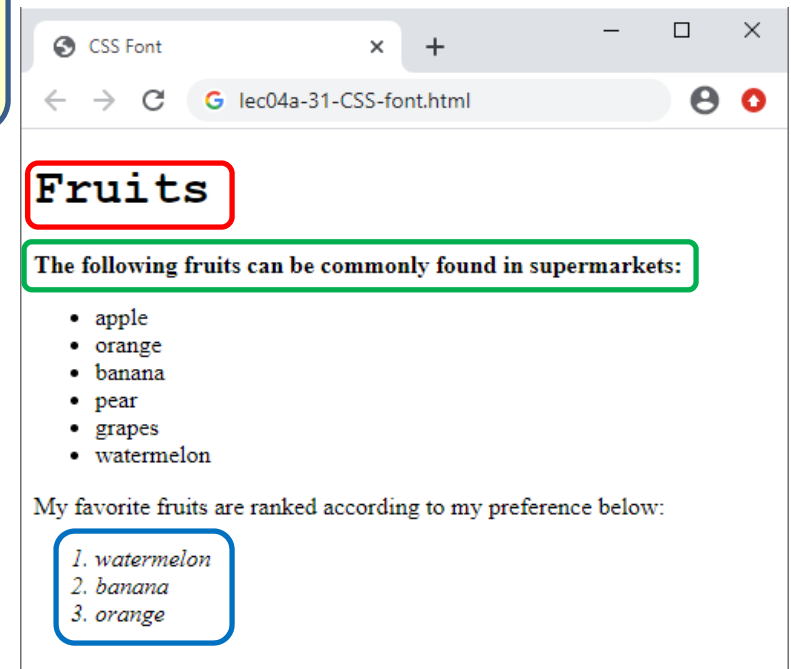
CSS: Font

- A CSS style can be applied to change various font properties

The font-family property can list fonts names. If a browser does not support the first font, it will then try the next font.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>CSS Font</title>
5 <style>
6   h1 {
7     font-family: "Courier New", Helvetica, Georgia;
8   }
9   #paragraph1 {
10    font-weight: bold;
11  }
12   ol {
13    font-style: italic;
14  }
15 </style>
16 </head>
17 <body>
18 <!-- Page content begins here -->
19 <h1>Fruits</h1>
20 <p id="paragraph1">The following fruits can be commonly found in supermarkets:</p>
21 <ul>
22   <li>apple</li>
23   <li>orange</li>
24   <li>banana</li>
25   <li>pear</li>
26   <li>grapes</li>
27   <li>watermelon</li>
28 </ul>
29 <p>My favorite fruits are ranked according to my preference below:</p>
30 <ol>
31   <li>watermelon</li>
32   <li>banana</li>
33   <li>orange</li>
34 </ol>
35 <!-- Page content ends here -->
36 </body>
37 </html>
```

Code Example: lec04a-31-CSS-font.html

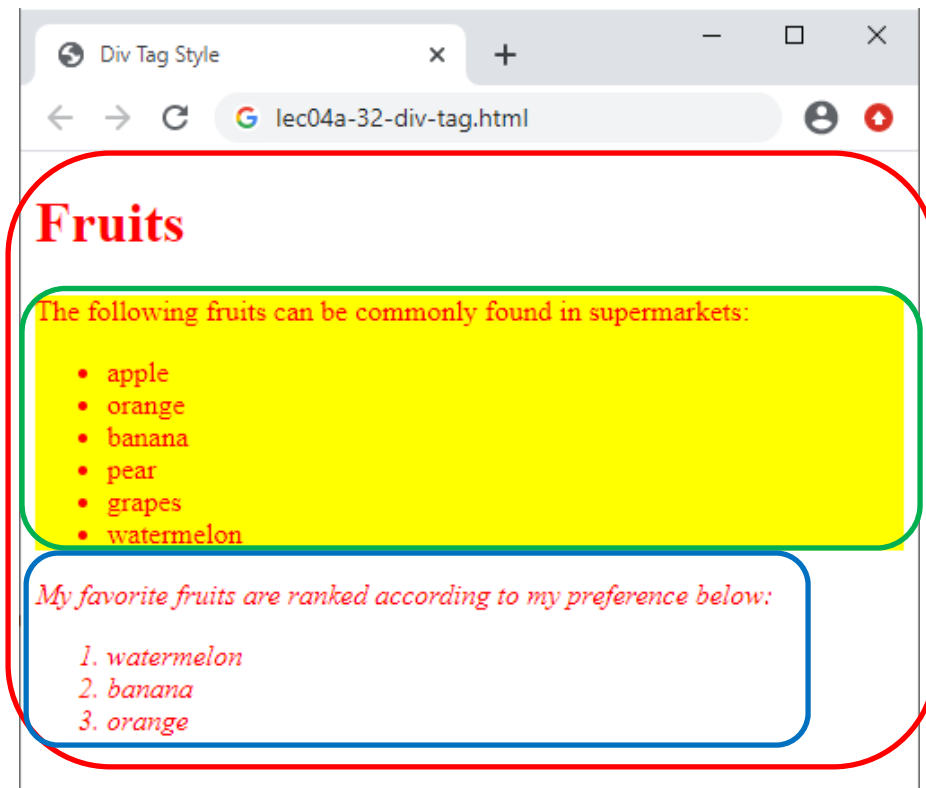


The <div> tag

- The <div> tag is often used to group different parts of a webpage together to form a section such that a style can be applied.

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>Div Tag Style</title>
5     <style>
6       #main_container {
7         color: red;
8       }
9       #common_fruit {
10        background-color: yellow;
11      }
12       #favorite_fruit {
13        font-style: italic;
14      }
15     </style>
16   </head>
17   <body>
18     <!-- Page content begins here -->
19     <div id="main_container">
20       <h1>Fruits</h1>
21       <div id="common_fruit">
22         <p>The following fruits can be commonly found in supermarkets:</p>
23         <ul>
24           <li>apple</li>
25           <li>orange</li>
26           <li>banana</li>
27           <li>pear</li>
28           <li>grapes</li>
29           <li>watermelon</li>
30         </ul>
31       </div>
32       <div id="favorite_fruit">
33         <p>My favorite fruits are ranked according to my preference below:</p>
34         <ol>
35           <li>watermelon</li>
36           <li>banana</li>
37           <li>orange</li>
38         </ol>
39       </div>
40     </div>
41     <!-- Page content ends here -->
42   </body>
43 </html>
```

Code Example: lec04a-32-div-tag.html



Lesson Summary

- HyperText Markup Language (HTML) uses a set of codes called tags to describe the structure of a webpage
- Cascading Style Sheets (CSS) describes how the HTML elements should be displayed by specifying the fonts, colors, layout and placement of these HTML elements

Reference

[1] HTML5 Tutorial

- <http://www.w3schools.com/html>

[2] Web Hypertext Application Technology Working Group (WHATWG)

- <http://www.whatwg.org>

[3] CSS Tutorial

- <http://www.w3schools.com/css/>