WEEK06 – HTML MARKUP LANGUAGE

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OUTLINE

1. **Introduction to HTML & HTML5**
2. **HTML Head**
3. **HTML Layout**
4. **Attributes of Tags**
5. HTML Heading & Paragraph
6. HTML Word Formatting
7. HTML Hyper Link
8. HTML Quotations & Images

INTRODUCTION TO HTML

HTML – Hypertext Markup Language, developed since 1990s; 1980, Tim Berners-Lee, an Englishman. At CERN, he wrote a program, Enquire, for a "memory substitute".
hypertext – an arrangement of the information in a computer database that allows a user to get information and to go from one document to another by clicking on highlighted words or pictures
1991 – Tim Berners-Lee invented HTML.
1995 – HTML Working Group defined HTML 2.0. **JavaScript** language emerged.
1998 – In early time, there was a browser war between Microsoft Internet Explorer and Netscape Navigator. It ended up with one pledged for antitrust violations and the other vanished.
1999 – W3C recommended HTML 4.01.
2000 – W3C recommended XHTML 1.0.
2014 – W3C recommended HTML 5.
2016 – W3C recommended HTML 5.1 & HTML 5.2 in 2017.
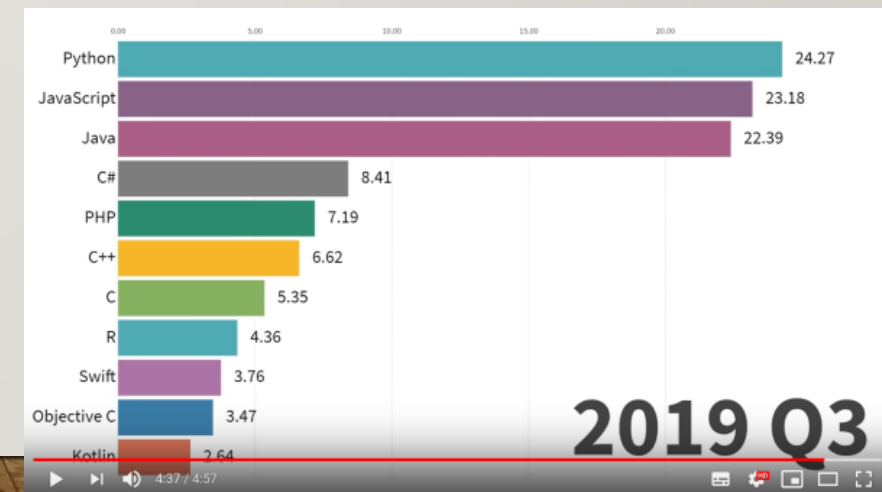
INTRODUCTION TO HTML

HTML is an **interpreted language** which can be executed by web **browsers**.

There are several browsers currently that can process the HTML language, including Internet Explorer, Google Chrome, Safari (iOS), Firefox (Mozilla), Opera (Opera, Norway).

HTML is not only a language of hypertext. It is an object-oriented programming language while it needs assistance from CSS, JavaScript and DOM (Document Object Model).
1995 – JavaScript was developed by Netscape. It is currently used for cross-platform programming. (Scheme, Lisp)
The HTML5 is an object-oriented language while the object-oriented features need to be manipulated using the JavaScript.

INTRODUCTION TO HTML

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- Markup language – tag to indicate the organization & content in the document

- Declare the type of the document - <!DOCTYPE>

- Start/end of the document - <html>

- Start/end of the head, show the title bar in the browser - <head>

- Start/end of the main text (body) - <body>

```
<!DOCTYPE html>
<html>
    <head>
        <title>Title of This Document File</title>
    </head>
    <body>
        <p>
        This is the content of the document file. It is similar to a word
        file with organized structure. Here a new paragraph is introduced
        by the tag - p.
        </p>
        <p>
        The p-tag is used to separate lines of words into two
        paragraphs. The context can be easily distributed by using a servwer
        and all kinds of browsers can read and show the document. Thus, it
        is very powerful to set up this kind of document for your concept
        broadcasting.
        </p>
        <p>
        Let's start to distribute our ideas worldwidely.
        </p>
    </body>
</html>
```

INTRODUCTION TO **HTML5**

- Simplify the document type & charset declaration
  - <!DOCTYPE html>, <meta charset="UTF-8">

- New elements: semantic elements: <header>, <footer>, <article>, <section>, <aside>, <nav>, <hgroup>; graphic elements: <svg>, <canvas>; multimedia elements: <audio>, <video>

- New API's (Application Programming Interfaces): HTML geolocation, drag and drop, local storage, application cache, web workers, server-sent events

- Removed elements: <acronym>, <applet>, <basefont>, <big>, <center>, <dir>, <font>, <frame>, <frameset>, <noframes>, <strike>, <tt>

$$html \begin{cases} \text{element} \\ \text{style} - \text{attribute} \\ \text{commands and code} \end{cases}$$

WHAT'S IN THE HTML HEAD?

- Head – document head (abstractive), not content head

- In the content between the opening tag, <element_name>, and the closing tag </element_name>

- <title> </title> - enclose the words shown on the title bar of the browser window

- <style> </style> - define the global styles of the document

- <link> - link to external style file, filename.css

- <meta> - specify the character set, a description of the page, keywords, author, refresh time, viewport

- <script> - globally used JavaScript codes

- <base> - define the base URL for all relative URLs used in this page, use it as #

html
head
body – show up area

THE HTML LAYOUTS

- Concept of container – object-oriented style

- <div> </div> grouping

- <header> </header> - a header or title of the document

- <section> </section> - a section

- <article> </article> - independent self-contained article

- <footer> </footer> - a footer in the document

- <details> </details> - defines additional details such as authors' contact information
  - <summary> </summary> - the heading in the detail section

- The layout can be implemented using CSS floats & CSS3 flexbox.
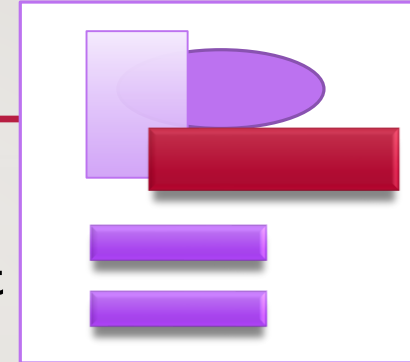
html
  head
  body – show up
  <header>..
  <nav>..

html
  header
  nav
  section   aside
  article
  footer

THE ATTRIBUTES OF THE HTML TAGS

- Each tag has several attributes that can be indicated.

- The attribute of href – a link address

- The attribute of src – the file name of the image source

- The attribute of width, height – the width and the height of the image

- The attribute of alt – an alternative text

- The attribute of style (developed to Cascading Style Sheets, css) – used to specify the style of an element (tag), inside it there are many style parameters including color, font, size, …

- The attribute of title – displayed as tooltip

- The attribute of type, lang, dir, accesskey, tabindex, spellcheck, hidden, contenteditable, cite … (id, class)

- The format to denote the attribute – use double (single) quotes to assign values, e.g. <footer title="The Author's Copyright Declaration">

$$html \begin{cases} element \begin{cases} void,\ empty\ elements,\ like < br > \\ non-void\ elements,\ like < p >, </p > \end{cases} \\ style-attribute \\ commands\ and\ code \end{cases}$$

THE APPEARANCE OF THE HTML DOCUMENT

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内能與等體積比熱

內能-internal energy

比熱-specific heat

熱力學的內能是氣體分子所有可能的動能加總，包括移動、轉動與振動動能。

有同學來信問到為何內能的變化量是系統氣體分子的莫耳數乘上等體積莫爾比 熱，再乘上溫度變化量？

先談一下熱能有兩種形式表現，一種是運動的幅度，像是振動幅度或是移動速 度等，另一種則是熵值即狀態數的增加，運動幅度增加的熱能會改變溫度，熵 值增加則可以在溫度不變時增加熱能，熱機是利用熵值增加與減少來吸熱放熱 並對外作功。

等體積莫耳比熱是指在等體積條件下，每單位溫度每莫耳氣體分子的熱容量， 等體積條件下氣體與外界沒有作功的交換，外界提供系統的熱能完全轉換成內 能而提高系統溫度。另一種比熱是等壓力比熱，此時系統與外界保持固定壓力 但可以有作功的能量交換，當外界提供給系統熱能時，系統的內能增加且溫度 上升，同時系統會對外作功，因此等壓力變溫能造成更多的熱能變化。

汽油引擎與柴油引擎的運作中有一段熱力學過程不同，在那段熱力學過程中汽 油引擎是等體積吸熱能，而柴油引擎是等壓力吸熱能。柴油引擎比汽油引擎扭 力大，且柴油引擎能源轉換效能較高較省油(但排放廢氣汙染程度較嚴重)。

The author, Wen-Bin Jian, received his bachelor degree in Physics from National Taiwan University. He has teaching experiences in physics for more than ten fifteen years. This document is maintained by Mr. Wen-Bin Jian. For all details of the content, you could contact Mr. Jian directly.
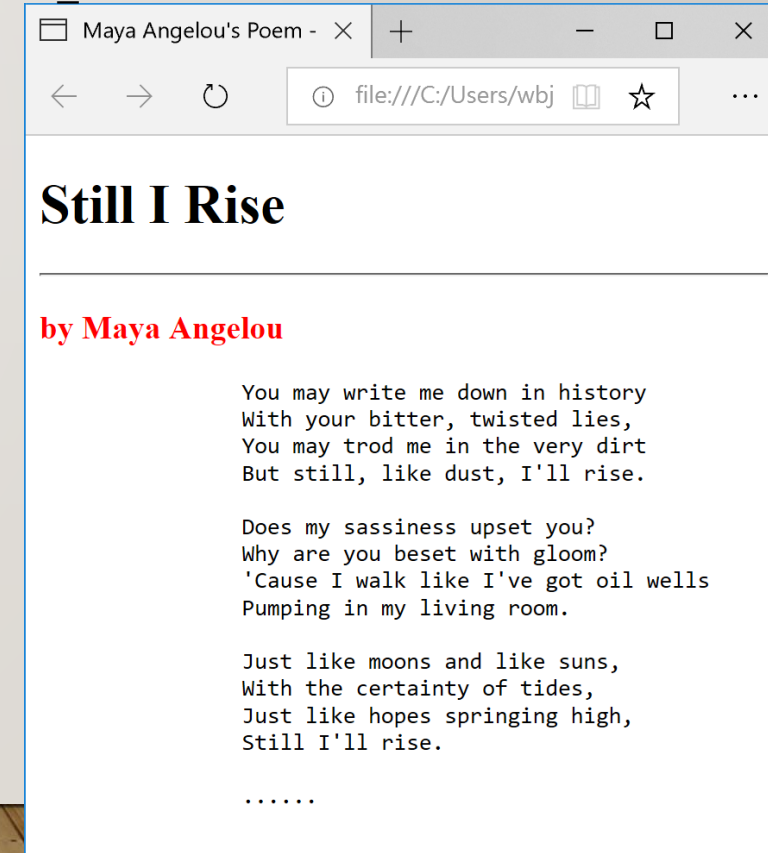
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HTML HEADINGS & PARAGRAPHS

- Document headings: <h1> </h1>, <h2> </h2>, …<h6> </h6>

- <hr> - draw a horizontal line to separate the content

- Empty elements do not have closing tags. One example is <hr>.

- Document paragraphs: <p> </p>

-
 - force a line break

- <pre> </pre> - preformatted text

IC_W603.html

Maya Angelou's Poem -   ×   +   —   □   ×

← → ↻   ⓘ file:///C:/Users/wbj   📖   ☆   …

Still I Rise

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by Maya Angelou

```
You may write me down in history
With your bitter, twisted lies,
You may trod me in the very dirt
But still, like dust, I'll rise.

Does my sassiness upset you?
Why are you beset with gloom?
'Cause I walk like I've got oil wells
Pumping in my living room.

Just like moons and like suns,
With the certainty of tides,
Just like hopes springing high,
Still I'll rise.

......
```

HTML FORMATTING OF WORDS

- <b> - bold text, <strong> - important text

- <i> - Italic text, <em> - emphasized text

- <mark> - marked text

- <small> - small text

- <u> - underlined text

- <abbr title="non-abbreviated"> - abbreviation

- <del> - deleted text

- <ins> - inserted text

- <s> - to strike through text

- <sub> - subscript text

- <sup> - superscript text

IC_W604.html

Formatting Text

file:///C:/Users/wbjia/Documents/Lecture%20Notes/2018%

Formatting of Text

by Wen-Bin Jian

Can you tell the difference between **the bold text** and **the important text**? Most of times, we are not able to clarify the subtle difference. You may try to check it when the two types of text are put together. On the other hand, you may feel the same difficulty to separate *the emphasized text* and *the Italic text*.

Here we give an example of a mathematical expression. We have two variables x and y following the expression:

$$x^2+y^2=1$$

It is easy to see that the expression gives a circle when the two variables, x and y, are used as coordinates of a two-dimensional space.

In this paragraph, we show all the other formats for text. We may use <mark> for the marked text. If you want to decrease the font size in line, you can use <small> to reduce the font size of the small text. Sometimes, you may want to mark the corrections for words and sentenses in your article. Then you may use <del>, <ins>, and <s> to show the deleted words, the inserted words, and the strunk through text.

Like what you used in Microsoft Words, you can also use the underline tage, <u>, to mark your words or sentence in your documents. In addition, the HTML provides you the abbreviation tag, <abbr>. Using the attribute of title, you can put the original words for the abbreviation, such as HTML. When your mouse pointer hovers over the abbreviated words, there will be a tooltip feature showing the original, non-abbreviated words.

HTML ANCHORS & HYPERLINKS

- description

- Attributes: href: destination address; target: _blank, _self, _parent, _top; title: information about the link; download: to download a file

- Another Site

- link to NCTU ftp server

- <h1 id="chap1"></h1>, Goto Chapter 1

- Call NCTU

- Contact Me

- <img src="filename" alt="description">

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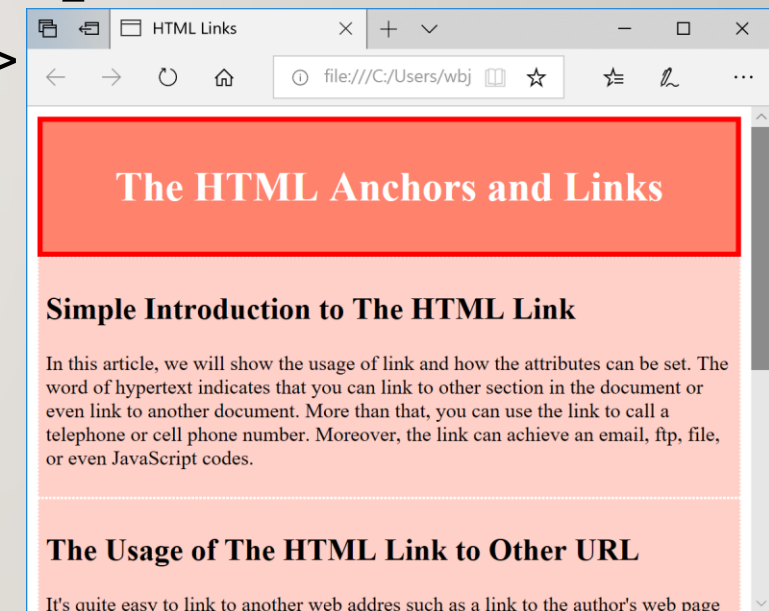
HTML COMMENTS & QUOTATIONS

- <!-- write comments about your codes here -->

- In line quotation: <q cite="link addr"> </q>

- Block quotation: <blockquote cite="link addr"> </blockquote>

- Contact information of authors: <address>

- Defining the text direction: <bdo dir="rtl"></bdo>

- The reference of the quoted source: <cite>title</cite>

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HTML IMAGES

- <img src="file" alt="text">

- <img src="file" style="width: 100px; height:100px;"> = <img src="file" width="100px" height="100px">
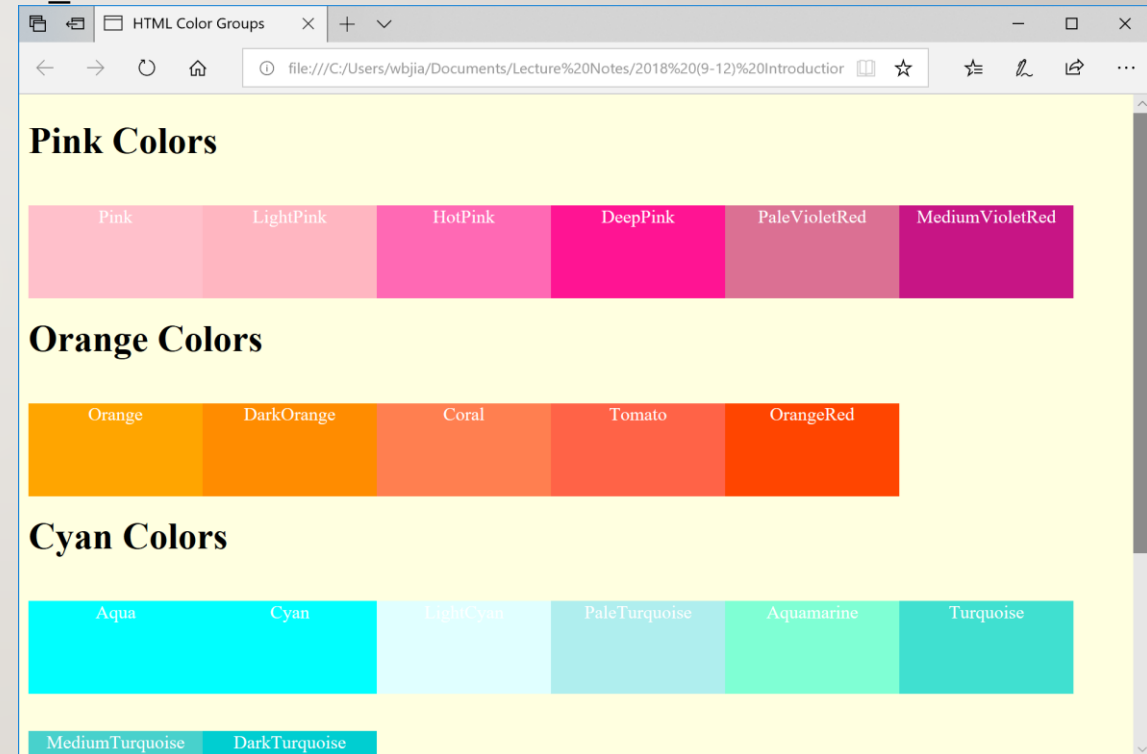
- To float your image: <img src="file" style="float: right;">, float to right

- Image map: clickable areas on the image
  - <img src="file" alt="expr" usemap="#mymap">
  - <map name="mymap"> <area shape="rect" coords="xl, yt, xr, yb" alt="expr" href="link addr">… </map>

- Responsive appearance:
  - <picture>
  - <source media="(min-width: 600px)" srcset="fileA"><source media="(min-width: 400px)" srcset="fileB"> <img src="fileC" alt="exprC" style="width: auto;">
  - </picture>

- Background image: <p style="background-image: url('name.jpg');"> … </p>

semantic:
<figure>
  <img src="">
  <figcaption></figcaption>
</figure>

HTML COLORS

- <p style="color: White; background-color: DodgeBlue; border: 2px solid Black;"></p>
  - 140 colors: Pink, LightPink, HotPink, DeepPink, PaleVioletRed, MediumVioletRed …

- color: rgb(255, 128, 128) – rgb(R, G, B)

- color: #ff8080 - #rrggbb

- color: rgba(255, 128, 128, 0.5)

IC_W607.html

EXERCISE

1. Please use all kinds of html tags to prepare a CV (curriculum vitae) for yourself.

2. Use the HTML table to prepare your weekly schedule of courses.

3. Use the HTML to design a list to show contact information of your friends. Make sure that you can use your cell phone to reach your friends by using links in your HTML file.

4. Use the HTML to design a Taiwan map on which you can click the city (or county) area and link to the city's government homepage.

5. Use the HTML to give a photo of a car with descriptions of its components. When you click on one component on the car, it will link to a description of that component.