WEEK07 – HTML MARKUP LANGUAGE

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OUTLINE

1. **HTML List & Tables**
2. **HTML Codes & iFrame**
3. **HTML id & class**
4. **HTML Entities & Symbols**
5. CSS Basic Concepts
6. CSS Selector
7. MathJAX

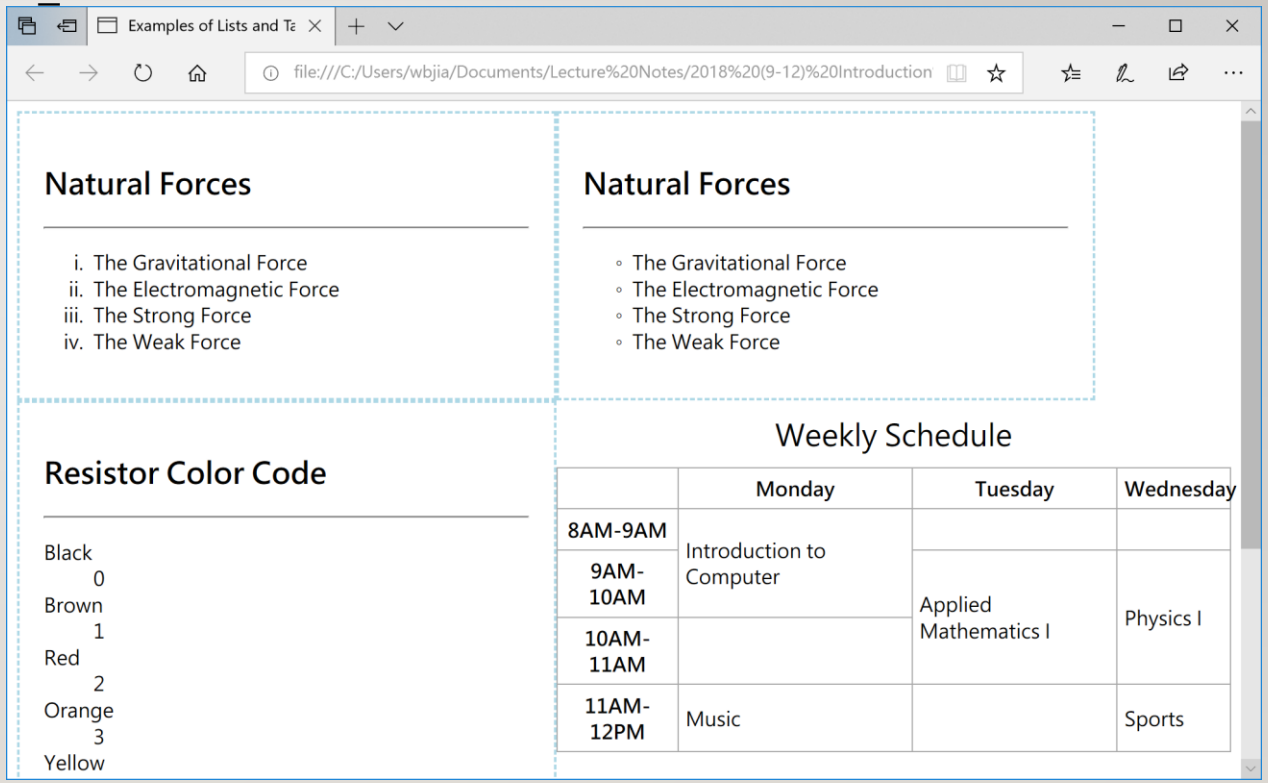
HTML LISTS

- Ordered List: <ol start="2"> …   … …
  - <ol type="1|a|A|i|I">
- Unordered List: <ul> … …
  - <ul type="disc|circle|square|none">
- Nested Lists: <ul> …   …   …
- Definition List: <dl> <dt>…</dt> <dd>…</dd> </dl>, name-value groups where 'dt' mark names and 'dd' mark values
- Horizontal List – used as menu, you can use the float style to do it

HTML TABLES

- The table started with <table>
- Giving a caption as <caption>
- Each line started with <tr>
- Each table head marked with <th>, each table data marked with <td>
- The attributes of colspan and rowspan
- Special styles: tr:nth-child(even) {background-color: Gray;} tr:nth-child(odd) {background-color: White;} th {color: White; background-color: Black;}
- Other elements: <colgroup>, <col>, <thead> <tbody> <tfoot>

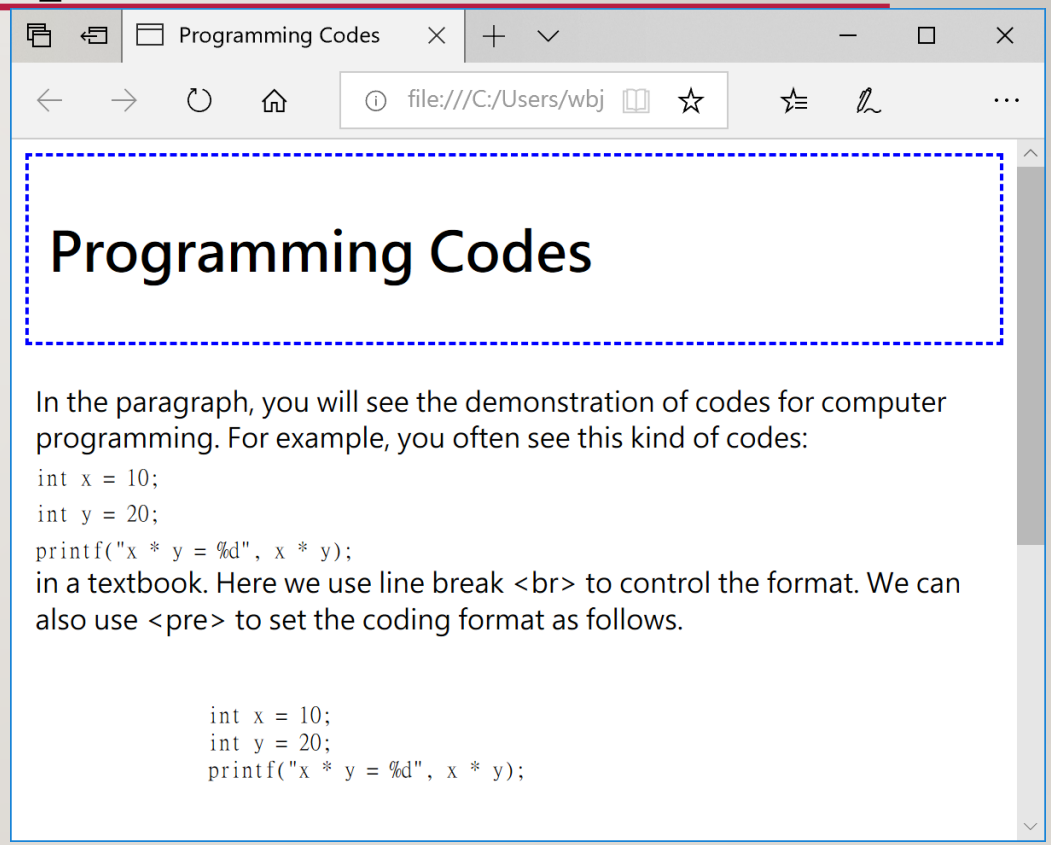
IC_W701.html



HTML COMPUTER CODES

- Programming Codes: <code> x = 5;
 y = 6;
 z = x + y; </code>
- <pre> <code> x = 42; if (x==42) printf("x is 42"); </code> </pre>
- User keyboard input: <kbd>Ctrl + S</kbd>
- Output from a program: <samp> </samp>
- Variables in programming codes: <var>E</var> = <var>mc</var>²

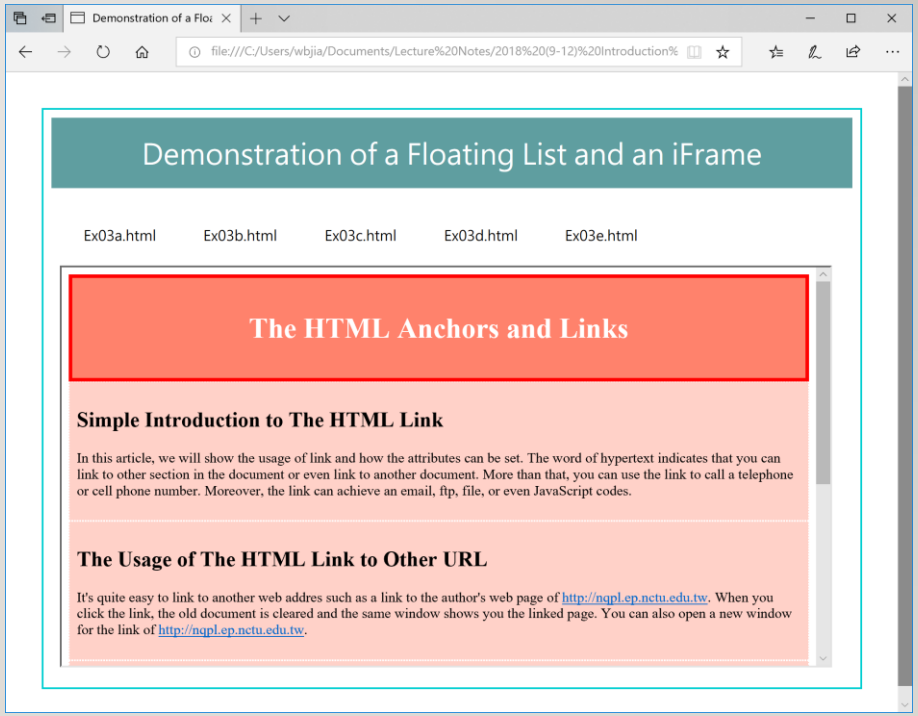
IC_W702.html



HTML IFRAMES

- An iFrame is used to show another HTML document in an area with a specified size in the current document.
- Use: <iframe src="…" width="n" height="n"></iframe>
- Remove the border: <iframe src="…" style="border:none;">
- Give a name to an iFrame <iframe src="…" name="iframe_name">
- A link can show the content in the frame: <a href="addr" target="iframe_name">

IC_W703.html



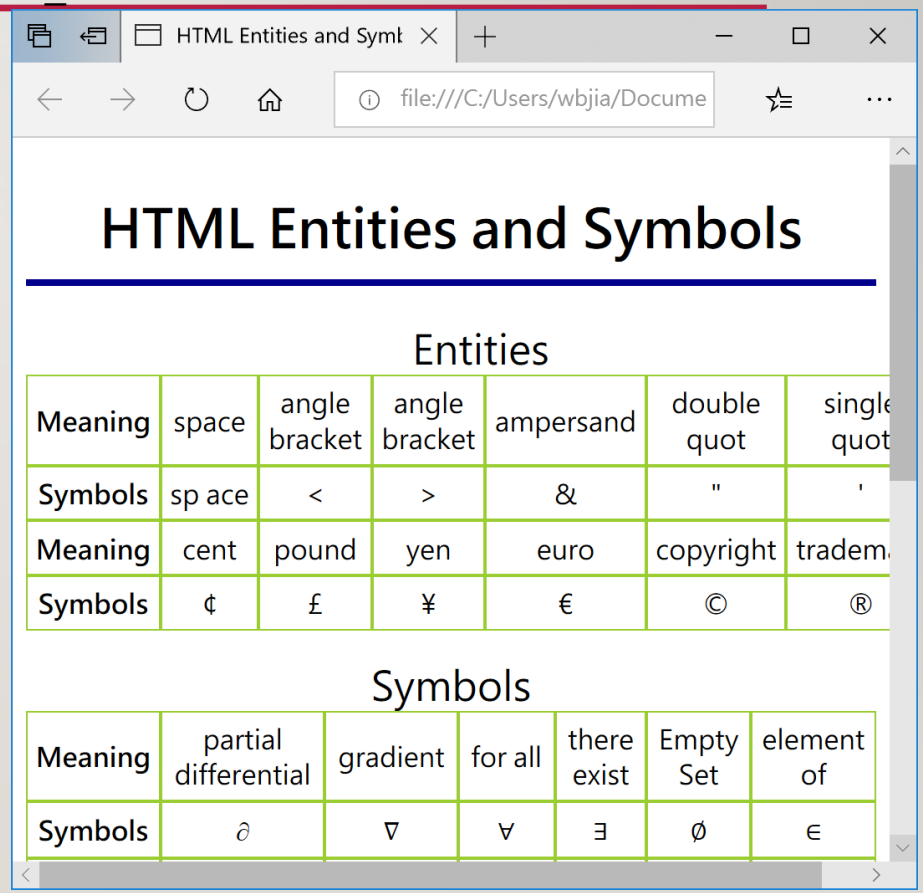
HTML ENTITIES

- Use   to add real spaces to your text
- The less than symbol < : <, the symbol > : >
- The symbol & : &
- The symbol “ : ", the symbol ‘ : '
- The symbol cent: ¢, pound: £, yen: ¥, euro: €
- The symbol copyright: ©, registered trademark: ®

HTML SYMBOLS

- Partial Differential: ∂ Nabla: ∇
- For All: ∀
- There Exist: ∃
- Empty Set: ∅
- Element of: ∈, Not an element of: ∉
- N-ary product: ∏ N-ary summation: ∑
- α, Α, β, γ, ε, ζ

IC_W704.html



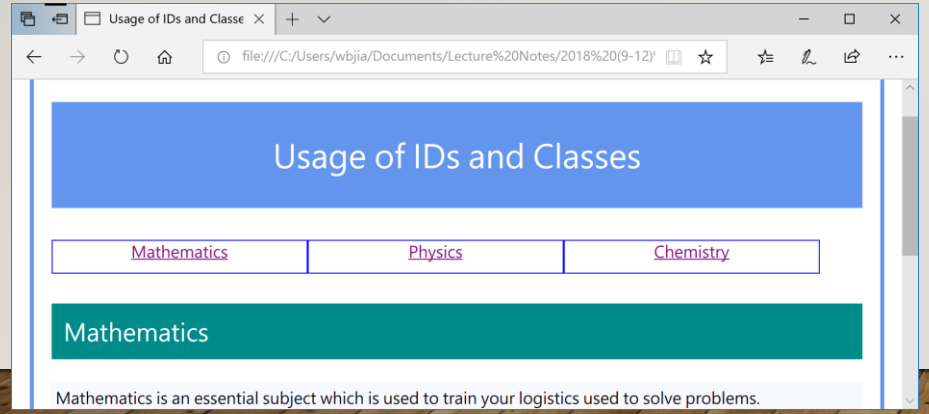
HTML ID & CLASSES

- The unique identity – id – in an HTML document: <element id="name">
- Use the element, e. g. style: <style> #name { color: black; … } </style>
- The id value is case sensitive.
- The class – class – in an HTML document can be used by several elements (a group of elements): <element class="class_name">
- Set the style for the group of the elements: <style> .class_name { color: black; …} </style>
- Link to the element with an id: <a href="html_demo.html#id_name">

使用id證號選擇

使用類別class選擇

IC_W705.html



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5. **CSS Basic Concepts**
6. **CSS Selector**
7. **MathJAX**

CSS BASIC CONCEPTS

- Usage: selector {attribute1: value1; attribute2: value2;}
- For example: p {font-size: 10px; color: blue;}
- The same effect while working on one tag:
- The style <style> descriptions are usually put in the <head>.
- You put style in a file and use it by <link rel="stylesheet" href="css_file_name" type="text/css">
- css unit: px – pixel, pt – (72 dpi, dots per inch), em – default font size, % - ratio to current font-size or window size, in – inch, cm – centimeter, mm – millimeter

CSS SELECTOR

- Name of tag: p, div, table, … select all containers of the same tag name
- Nested selection: → selector: div p {color: red;}
- Grouped selection: div, p {color: red;}
- Class selection: .impt {color: red; font-weight: bold;}
  - Using class: ….
- ID selection: #john {color: blue; font-size: 16px;}
  - Using ID:

使用類別class選擇

使用id證號選擇

CSS LEVEL 1 SELECTOR

使用類別class選擇

使用id證號選擇

使用element(tag name)標籤選擇

聯集選擇

巢狀式選擇

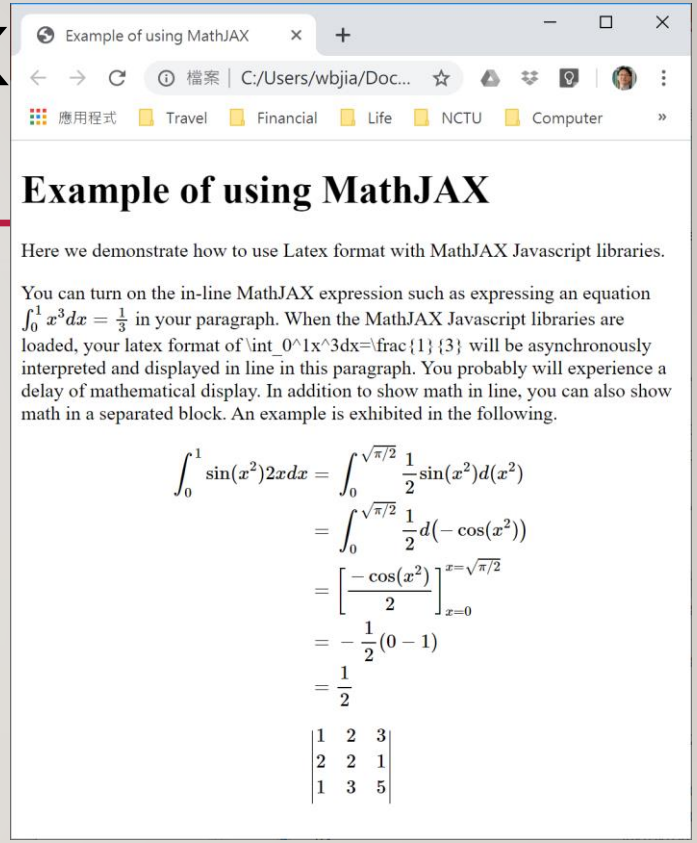
- .class
- #id
- tag name – element
- element, element　　element element
- :first-letter　　:first-line　　Ex: p:first-letter{color: red; font-size: 120%;}
- :link　　:visited
- :active　　:hover　　Ex: a:hover{color: white; background-color: deepblue;}

CSS STYLES

- width, height font-size, font-weight, font-style, font-family
- color, background-color, background-image
- text-decoration, text-transform, text-align, float, clear
- border-color, border-style, border-width
- margin, padding
- text-shadow, box-shadow, border-radius
- display (none, inline, block), display flex, float
- position: absolute(fixed, static, relative), left, top z-index

INTRODUCTION TO MATHJAX & LATEX

IC_W706.html



- Writing mathematical equations on your web pages
  - Latex language, an easy way to prepare your thesis
  - Latex is html tags while it express equations in a special format - \left[, \alpha, e^x, e^{x+x^2}
- MathJAX supports the formats of 1. Latext, 2. MathML, 3. AsciiMath.
- Start with including library:
- For IE11, add one more line:
- In-line math: \(math exp \)
- Block math: \[math exp \] or $$

```
<script type="text/javascript" id="MathJax-script" async
  src="https://cdn.jsdelivr.net/npm/mathjax@3/es5/tex-mml-chtml.js">
</script>
```

```
<script src="https://polyfill.io/v3/polyfill.min.js?features=es6"></script>
```

LATEX FORMAT FOR MATH EXPRESSIONS

- Exponents and indices: x^2, x_1 → x^2 or x^{2}, x_1
- Use braces to include one more characters: e^{x^{2+i}-2y_{0123}}
- Fractions: $\frac{a}{2}$ → \frac{a}{2}
- Roots: $\sqrt[n]{x^2+1}$ → \sqrt[n]{x^2+1}
- Sums: $\sum_{i=0}^{10} i = 55$ → \sum_{i=0}^{10}i=55
- Integrals: $\int_0^1 xdx$ → \int_0^1xdx; \int\limits_0^1xdx; $\oint xdx$ → \oint xdx
- Limit: $\lim_{x\to 0} \frac{x}{\sin(x)} = 1$ → \lim_{x\rightarrow 0}\frac{x}{\sin x}=1

LATEX FORMAT FOR MATH EXPRESSIONS

- dot → \cdot; x → \times; $\pm$ → \pm; $\hbar$ → \hbar; ∂ → \partial; ∇ → \nabla
- … → \cdots; \vdots; \ddots; \ldots
- Greek letters: \alpha, \beta, \gamma, \theta, \phi, \delta, \epsilon, \eta, \pi, \lambda
- Greek letters: \Gamma, \Omega, \Psi, \Phi, \Theta
- Relations: \leq, \geq, \sim, \simeq, \approx, \not<, \not>, \not=
- \sin, \cos, \tan, \ln, \log, \sinh, \arcsin
- Numbered equations: \[… \tag{1} \]
- \begin{eqnarray} (x+1)^2 &=& (x+1)(x+1) \\ &=& x^2+2x+1 \end{eqnarray}

LATEX FORMAT FOR MATH EXPRESSIONS

- Accents: \hat{a}, \vec{a}, \dot{a}, \ddot{a}, \bar{a}
- Matrix: $\begin{matrix} A & B \\ C & D \end{matrix}$ → \begin{matrix} A & B \\ C & D \end{matrix}
- Bmatrix: $\begin{bmatrix} A & B \\ C & D \end{bmatrix}$ → \begin{bmatrix} A & B \\ C & D \end{bmatrix}
  - \begin{bmatrix} 1 & 2 & 3 \\ 2 & 2 & 1 \\ 1 & 3 & 5 \end{bmatrix}
- Vmatrix: $\begin{vmatrix} A & B \\ C & D \end{vmatrix}$ → \begin{vmatrix} A & B \\ C & D \end{vmatrix}
- Pmatrix: $\begin{pmatrix} A & B \\ C & D \end{pmatrix}$ → \begin{pmatrix} A & B \\ C & D \end{pmatrix}

Parentheses, brackets, braces:

\left{, \right}, \left[, \right], \left(, \right)

EXERCISE

1. Please use MathJAX to present how you calculate the integration of $V =$

$$\int_0^R \int_0^{\pi} \int_0^{2\pi} r^2 \sin\theta \, d\phi d\theta dr$$

2. Please use MathJAX to present how you answer the question of $I =$

$$\int_{-c/2}^{c/2} \int_{-b/2}^{b/2} \int_{-a/2}^{a/2} (x^2 + y^2) \rho dx dy dz$$

3. Please use MathJAX to show how you apply matrix (Gaussian elimination) to solve the problem: Solve the system of equations: $x-y-z=2$, $3x-3y+2z=16$, $2x-y+z=9$.

4. Compute the determinant of $A = \begin{bmatrix} 2 & -3 & 0 & 1 \\ 5 & 4 & 2 & 0 \\ 1 & -1 & 0 & 3 \\ -2 & 1 & 0 & 0 \end{bmatrix}$ and use MathJAX to present all detail calculations.