(1A) HTML Basics

Systems and Web Development Workshop
2025 Spring

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Lecture and Lab this week

These slides are written as a **tutorial** for you to follow and learn.

- In the lecture, we give you an overview of the topics.
  - To understand the material, you need to go through the examples on your computer after the class and in the lab.
  - Listening to the lecture is not enough.
  - If you don't understand an example, run it on your computer. Change the example a little to see how the results change; learn by experiments.
- In the lab, you should follow the instructions in these slides on the computer to
  - Learn the material
 - Do the exercises

Lecture and Lab this week

- If you have a tablet or small laptop, you should bring it to class.

- In lecture, you can try the examples in your computer.
  - Examples are in iSpace's "sample codes" folder and online at W3 Schools.

- In lab, you can
  - Read the instructions of this PPT in your tablet/laptop and do the exercises in the lab computer (if your tablet/laptop is small).
  - Or read the instructions on the lab computer and do the exercises in your computer/laptop (if your tablet/laptop is big enough).
  - Submit to iSpace your code from the exercises.

Tips on doing the Class Exercises in lab

- If you do the exercises in a lab computer, bring a USB memory stick to the lab to save your results.

- In the desktop, create a folder name 1A_HTML.

- From iSpace, download the lecture slides and sample codes for this lab; put them in the 1A_HTML folder you've created.

- Follow the instructions from the slides to do the class exercises in lab.
  - After you finished the class exercises and submitted the results to iSpace
  - If you used the lab computer, copy the 1A_HTML folder to your memory stick. When the lab computer is turned off, your files will be deleted there.
  - If you used your computer, save the folder from desktop to something like SWDW\LabExercises\Lab1

What is HTML?

- HTML stands for HyperText Markup Language

- Example of hypertext:
  - In your iSpace page, "Systems and Web Development Workshop …" is a hypertext, which contains a link to another webpage.

- Markup language uses text to describe how a webpage appears in a browser.
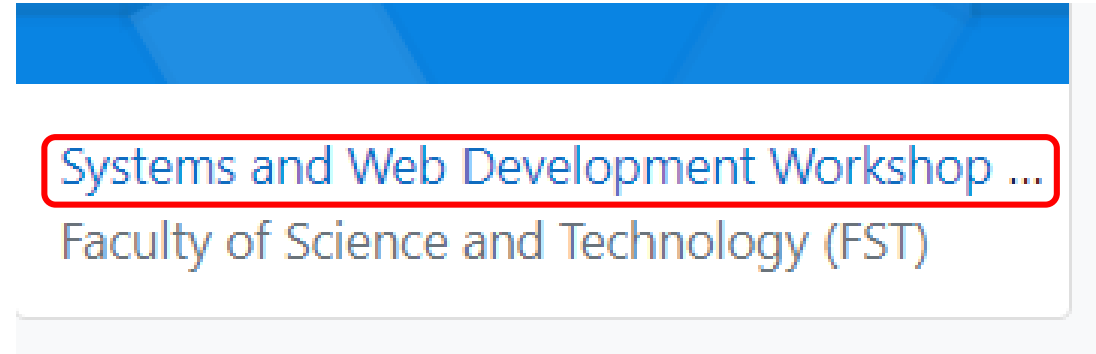
What is HTML?

- HTML elements are represented by pairs of tags, describing the different parts of the webpage.

  <title> My Title </title>   // describes the title of the webpage

  <html>   is the root element of an HTML page
  <head>   contains meta information about the document
  <title>   specifies a title for the document
  <body>   contains the visible page content
  <h1>   defines a large heading
  <p>   element defines a paragraph

Hyper Text Markup Language (HTML)

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

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

</body>
</html>
```

- HTML
  - Is standard mark up language for creating webpages
  - Uses tags < > to represent different parts of a webpage.
- In "mark up", browser displays the contents according to the tags' settings.

HTML Tags

\<tagname\>content goes here**...\</tagname\>**
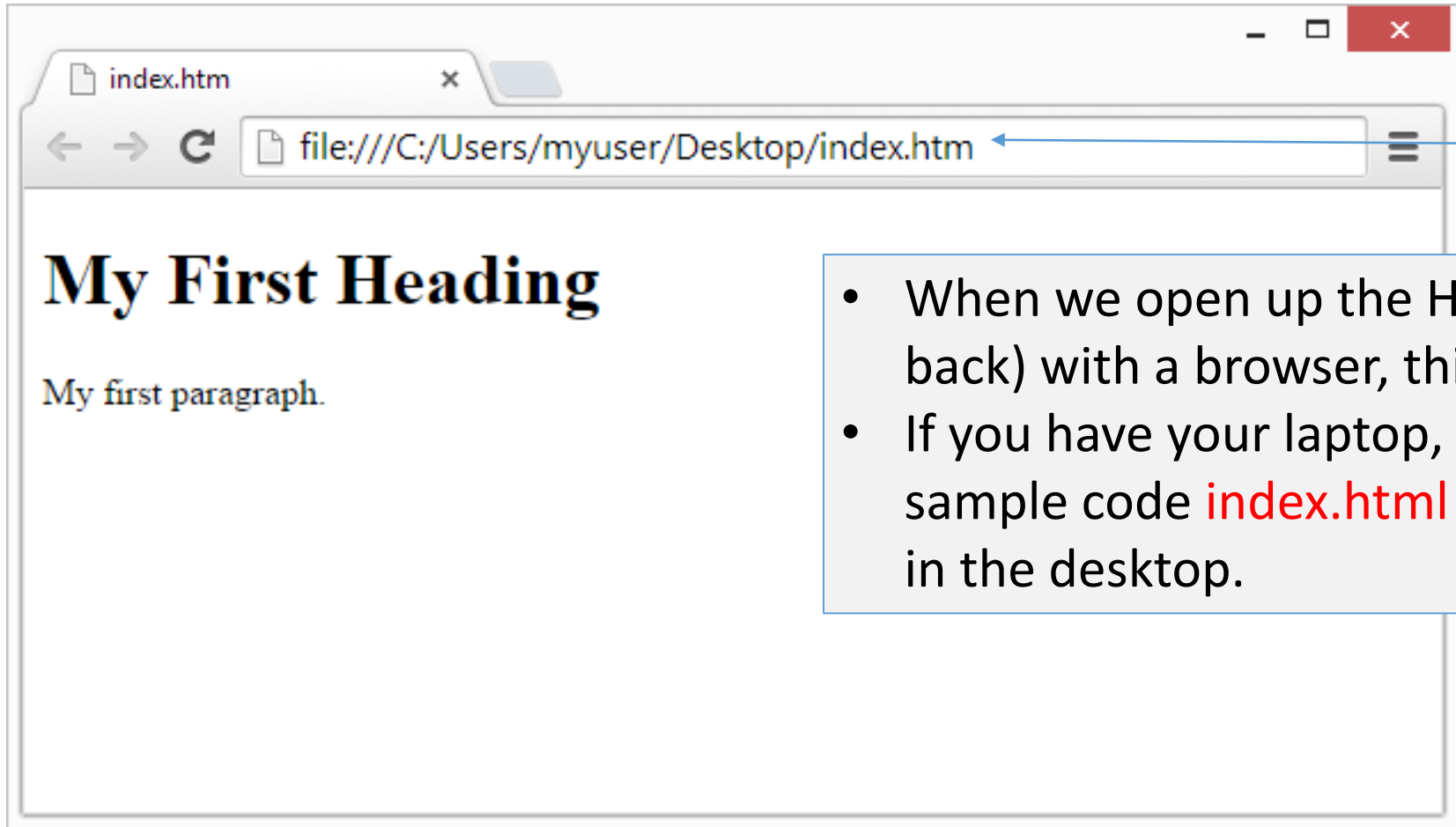
Start tag

End tag
Has a slash /

- HTML tags normally come **in pairs** like \<p\> and \</p\>
- The first tag in a pair is the **start tag,** the second tag is the **end tag**

Web Browsers

index.htm

file:///C:/Users/myuser/Desktop/index.htm

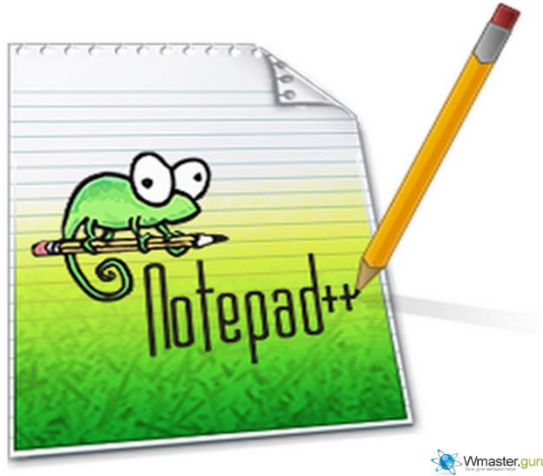Location of the file

My First Heading

My first paragraph.

- When we open up the HTML file (in 2 slides back) with a browser, this is what we see.
- If you have your laptop, double click the sample code index.html you've downloaded in the desktop.

HTML Editors

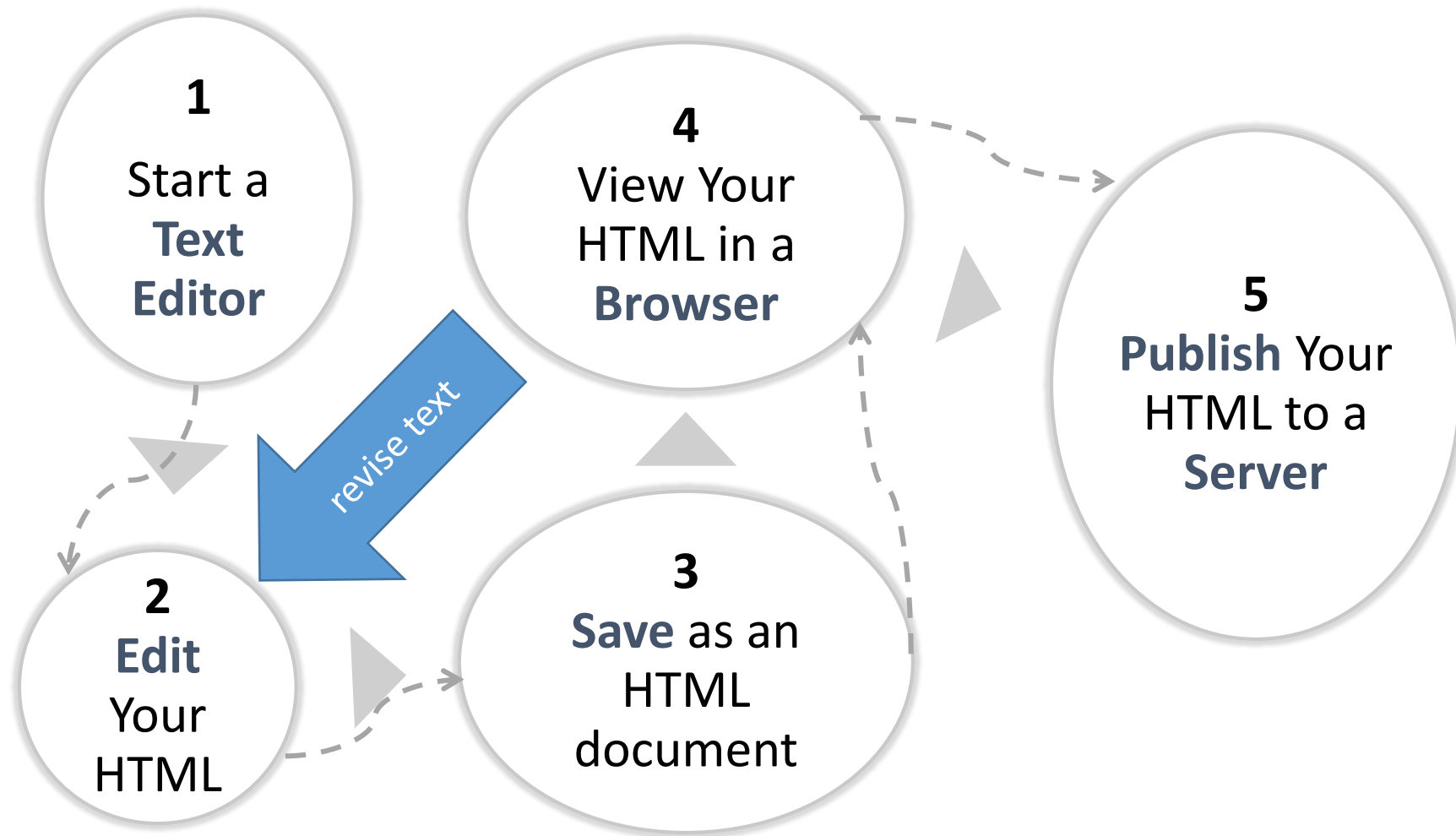Can use Notepad, Notepad++ or Sublime Text to create or edit HTML files.

Notepad
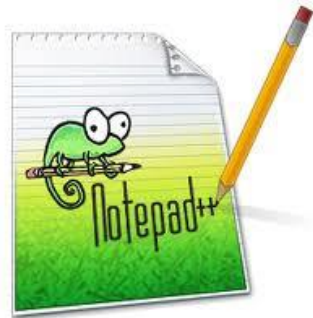
Notepad++

Sublime Text

5 Steps to Create a HTML file

1 Start a **Text Editor**

4 View Your HTML in a **Browser**

5 **Publish** Your HTML to a **Server**

revise text

2 **Edit** Your HTML

3 **Save** as an HTML document

Step 1: A Text Editor

- Notepad
  - Simple but comes with Windows
  - To start, go to

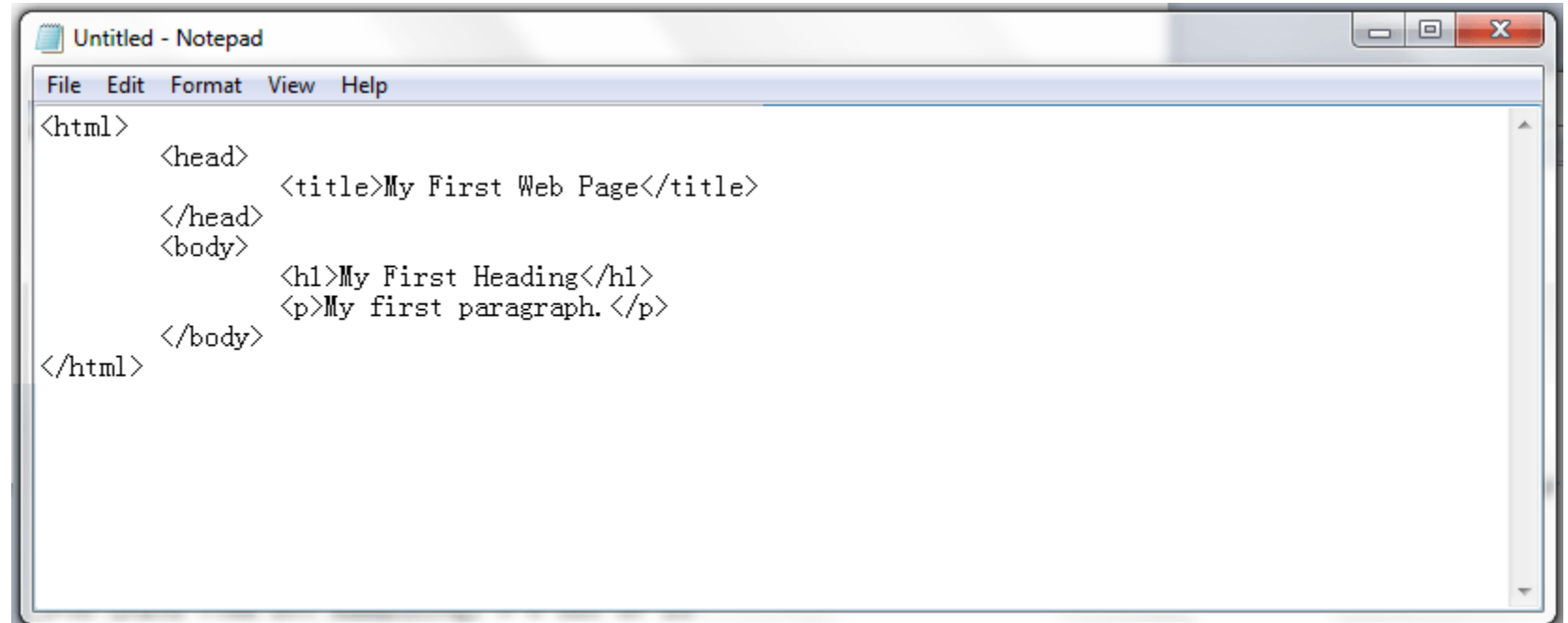   **In the Search icon, type in "Notepad" (without the quotes).**

- Notepad++ and Sublime
  - Offers Syntax Highlighting
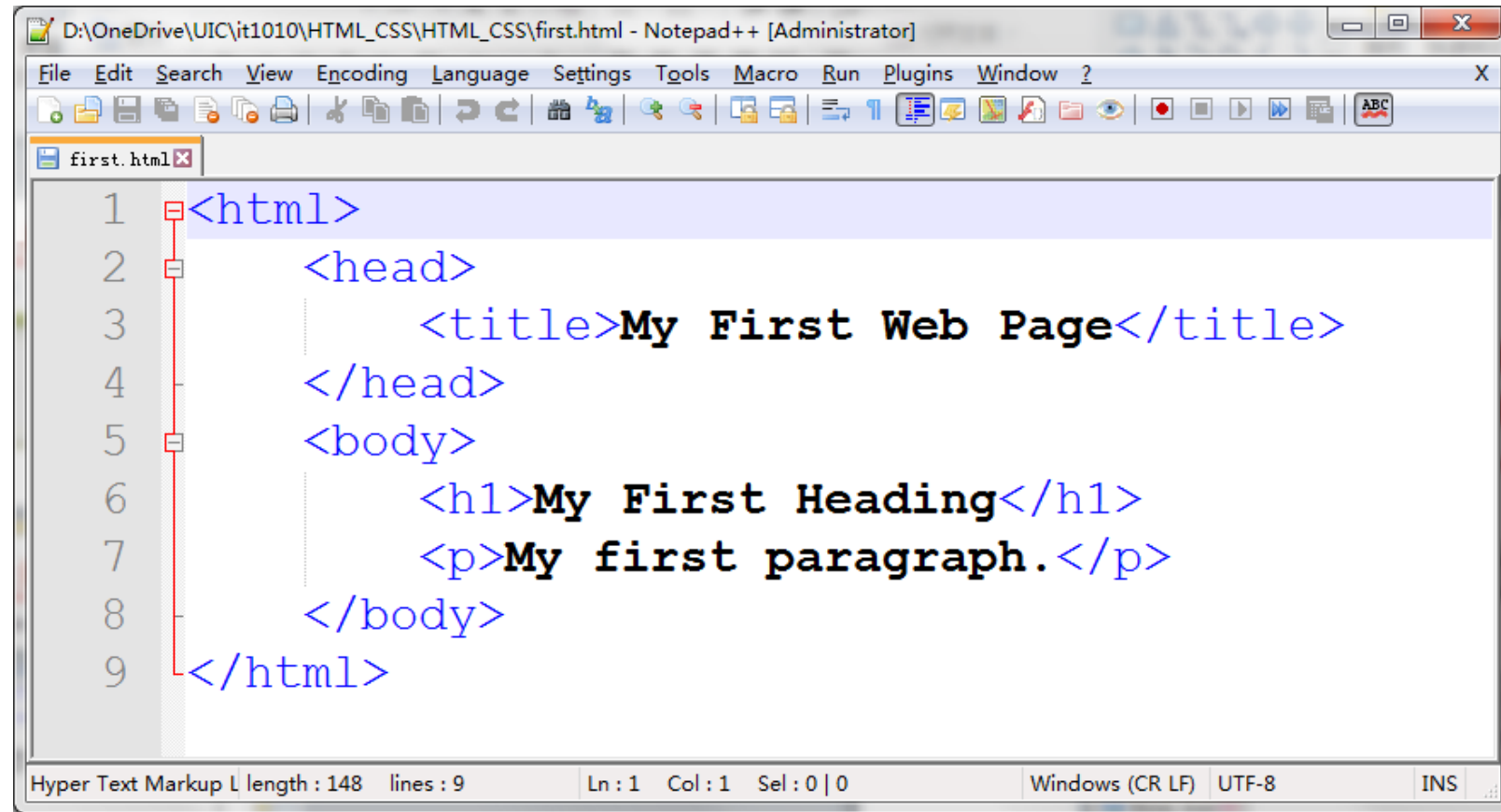 - Can download for free

Step 2: Edit

With Notepad

- Use the Tab key to indent the tags.
  - You cannot control the number of spaces in the browser output.
  - E.g. in line 2, hit Tab before typing in <head>

Step 2: Edit

- With Notepad++ and Sublime:

- Useful because if the color scheme is wrong, it means you've made a typo.

- Open index.html with Notepad or Sublime.
- Change some of the words outside of the tags.
    - E.g. change "My" to "Jefferson's" (or whatever your name is).

Step 3: Save

- Select **Save as..** in the file menu.
- Use the **.htm** or the **.html** extension
  - There is no difference, it is entirely up to you.
  - For example: first.html (from the sample code)
- Save the file in the **folder** (e.g. 1A_HTML) you've created on the desktop.

Step 4: View

My First Heading

My first paragraph.

URL: file:///D:/OneDrive/UIC/it1010/HTML_CSS/HTML_CSS/first.html

Tab title: My First Web Page

- Major Web browsers
  - Microsoft IE has been replaced by Microsoft Edge.

| IE | Firefox | Chrome | opera | Safari |
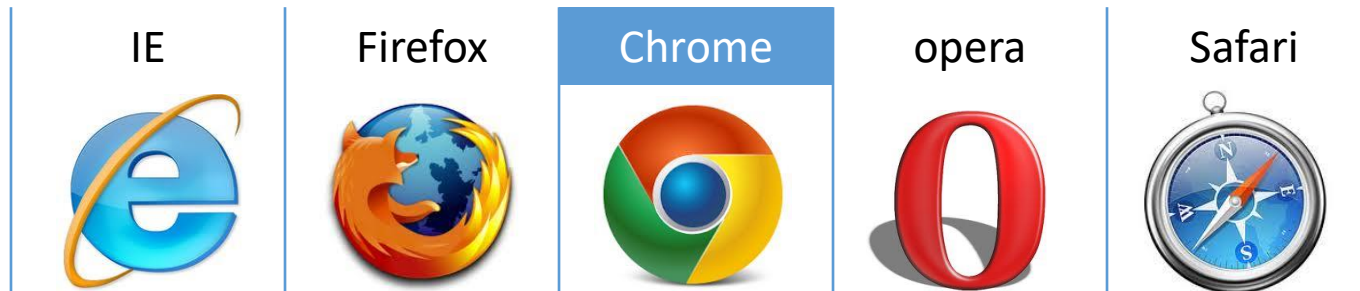
Step 5: Publish

- Connect to the Web Server via FTP
  - With windows **file explorer**
    - Address

ftp://xxxxxxxxx@stuweb.uic.edu.cn
ftp – Connect using the file transfer protocol
xxxxxxxxxx - The account (your student ID)
stuweb.uic.edu.hk – Hostname of our HTTP server
The password is the same as your email password

  - With FTP software

Filezilla   **Cyberduck**   **FireFTP** (Firefox Extension)

Step 5: Publish

- Put the file inside the folder **public_html**
  - public_html is the root directory of all your Web pages
- View your Web page using a Web browser through the **Internet**
  - Address:

  http://stuweb.uic.edu.hk/xxxxxxxxxx/first.html

My First Heading

My first paragraph.

HTML Editors

Use a simple text editor such as
TextEdit, Notepad, Notepad++, or Sublime

- For Notepad++
  - Color helps to separate tags and text
  - Can be set to complete starting by automatically entering closing tags
  - Highlights matching tags
  - Use CTRL + D to duplicate lines/text
  - Can run and select browser from the menu
  - Built in FTP
- Sublime has similar features

main.html

```
<!DOCTYPE html>
<html>
        <head>
        </head>
        <body>
        </body>
</html>
```

Let's talk about the various parts of the web page, starting with the most basic.

HTML Headings

- HTML headings are defined with the **<h1>** to **<h6>** tags.

<h1> defines the most important heading. </h1>

<h6> defines the least important heading: </h6>

HTML Headings

```
<!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>

</body>
</html>
```

This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

HTML Headings

- See more explanations and examples in W3 Schools.

On your computer, go to

https://www.w3schools.com/html/html_headings.asp

- Click "Try it Yourself"
- Change the example and check the result.

HTML paragraphs, links & images

Examples from W3 Schools.

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

<p>This is a paragraph.</p>
<p>This is another paragraph.</p>

<img src="w3schools.jpg" alt="W3Schools.com" />

<p><a href="https://www.w3schools.com">This is a link</a></p>

<p>This is a <a href="https://www.w3schools.com">link</a></p>

<a href="https://www.w3schools.com">
<img src="w3schools.jpg" alt="W3Schools.com" />
</a>

</body>
</html>
```

This is a paragraph.

This is another paragraph.

This is a link

This is a link

Text or image serves another purpose, such as a link to another page.

image <img>

- We can insert an image into the page using <img> tag
- These attributes can be used inside of the opening tag:
  - src – where the images is stored
  - alt – alternative text, if the image can't be displayed
  - style – contains css
  - title – shows text on when the mouse is over the image
  - width and height

This is a link

image and attributes

This is a link

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

<a href="https://www.w3schools.com">
This is a link</a><br/><br/>

<img src="img_girl.jpg"><br/>

<img src="img_girl.jpg"
width="50" height="60"
alt="Girl with a jacket">

</body>
</html>
```

Sample Code

My first heading

Second heading

- Download the sample code folder "HTML Samples" from iSpace to your desktop folder.

- Run the sample code first.html.

- Notice the link to another page.

- Open first.html with an editor, and see the code for that link, and the image CharlieBrown.jpg.

- Click on the link in the browser.

this is a link to the other page

Name	Tele	
Steve Jobs	123455	987654

first.html code

```
<body>
    <h1>My first heading</h1>
    <p>Second heading</p>
    <a href="./another.html">this is a link to the other page</a>

    <img src="CharlieBrown.jpg" width="100" height="100" alt="Aughhhhhhhh">
    <br><br>
```

Sample Code

Another heading

More heading

this is a link to the first page

- The browser opens another.html.

- Open another.html with an editor.

- Note the link back to first.html.

another.html code

```
<body>
    <h1>Another heading</h1>
    <p>More heading</p>
    <a href="./first.html">this is a link to the first page</a>
</body>
```

- In this example all 3 files (first.html, another.html and CharlieBrown.jpg) are in the current folder to the file your clicked. So the link begins with ./

HTML Table

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

<table style="width:100%">
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
  <tr>
    <td>John</td>
    <td>Doe</td>
    <td>80</td>
  </tr>
</table>

</body>
</html>
```

Firstname	Lastname	Age
Jill	Smith	50
Eve	Jackson	94
John	Doe	80

- An HTML table is defined with the <table> tag.

- Each table row is defined with the <tr> tag.

- A table header is defined with the <th> tag.

- By default, table headings are bold and centred.

- A table data in a cell is defined with the <td> tag.

HTML Table - Cell Spans

```html
<body>

<h2>Cell that spans two columns:</h2>
<table style="width:100%">
  <tr>
    <th>Name</th>
    <th colspan="2">Telephone</th>
  </tr>
  <tr>
    <td>Bill Gates</td>
    <td>55577854</td>
    <td>55577855</td>
  </tr>
</table>

</body>
```

Cell that spans two columns:

Name	Telephone	
Bill Gates	55577854	55577855

Border="1" is the default

More in
https://www.w3schools.com/html/
html_table_borders.asp

HTML Table - Cell Spans

```
<table style="width:100%">
  <tr>
    <th>Name:</th>
    <td>Bill Gates</td>
  </tr>
  <tr>
    <th rowspan="2">Telephone:</th>
    <td>55577854</td>
  </tr>
  <tr>
    <td>55577855</td>
  </tr>
</table>
```

Cell that spans two rows:

Name:	Bill Gates
Telephone:	55577854
	55577855

HTML Tables

- HTML Tables
- Table Borders
- Table Sizes
- Table Headers
- Padding & Spacing
- **Colspan & Rowspan**
- Table Styling
- Table Colgroup

HTML Lists

HTML Block & Inline

HTML Classes

HTML Id

HTML Iframes

HTML JavaScript

To make a cell span over multiple columns

Example

```
<table>
  <tr>
    <th colspan="2">Name</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>43</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
```

HTML Lists

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

<h2>An Unordered HTML List</h2>

<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>

<h2>An Ordered HTML List</h2>

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

</body>
</html>
```

An Unordered HTML List

- Coffee
- Tea
- Milk

An Ordered HTML List

1. Coffee
2. Tea
3. Milk

HTML Colors
HTML CSS
HTML Links
HTML Images
HTML Favicon
HTML Tables
HTML Lists
Lists
Unordered Lists
Ordered Lists
Other Lists
HTML Block & Inline
HTML Classes

Example

An unordered HTML list:

- Item
- Item
- Item
- Item

Try it Yourself »

Other elements

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

<p><b>This text is bold</b></p>
<p><i>This text is italic</i></p>
<p><u>This text is underline</u></p>
<p>This is<sub> subscript</sub> and
<sup>superscript</sup></p>

<!-- This is a comment -->
<p>This is a paragraph between comments</p>
<!-- Comments are not displayed in the browser -->

<!-- Do not display this at the moment
<img border="0" src="pic_mountain.jpg" alt="Mountain">
-->

<hr>

</body>
</html>
```

This text is bold

This text is italic

<u>This text is underline</u>

This is $_{subscript}$ and ^{superscript}

This is a paragraph between comments

See W3 Schools

Resources

- We only teach you some of the features. You need to look up how to do the rest in W3 Schools, "Try it Yourself".

- W3 Schools
  - w3schools.com/html
  - has more explanations and examples.
  - Can experiment with example codes in that site.
- W3 Schools in Chinese
  - w3schools.cn
  - w3ccoo.com
  - w3school.com.cn
  - Note: w3 school (no s) is a copycat, but it's still useful.

Sample Codes

- Study the sample codes in "HTML samples" folder.
  - Make small changes to the code and see the results in a browser.
  - If you don't understand any part of the code, check the previous slides or look up W3 Schools.
  - Check the code for the small table in first.html.
    - Start with this table, change the table one column or row at a time to make it look more and more like the table in the class exercise.

first.html output in browser

My first heading

Second heading

this is a link to the other page

Name	Tele	
Steve Jobs	123455	987654

Class Exercise – Intermediate Solution

Class Exercise: Table Layout

Logo	Website Title	PIC
Navigation		
1. list Item 2. list Item 3. list Item	Main Content	• list Item • list Item • list Item
Internal Links Internal Links External Links External Links		Photo
Site Footer		

- First create the table with place-holders just like this.
- Then fill in the actual content.

- In the small table of the sample code, change from 2 columns to 3 columns.
- Change the headers.
- Then add/change 1 row at a time to the table in this slide.

Class Exercise – Final Solution

Class Exercise:Table Layout

Logo	Websites	PIC
HOME UIC Bing Link1 Link2		
1. UIC 2. Bing 3. BiliBili		• Fast • Concise • This space for rent
Link1 page Link2 page BiliBili Baidu	Charlie Brown My hero	
Week 1 HTML basics		

- Create some links (that works), lists, and images.
- Submit the html files and images to iSpace.

Submit your solution to iSpace

- Put all your html and image files for your exercise solution into a folder.

- Zip the folder and submit it to iSpace.

- Class exercises are due 24 hours after the lab ends.