Introduction To Web Programming I

(CSC 211)

Lecture Note 2

Introduction to HTML and CSS

7th January, 2020

The HTML for a web page

- To develop a web page, you use HTML to define the content and structure of the page. Then, you use CSS to format that content.
- HTML stands for HyperText Markup Language. HTML is used to define the structure and content of a web page.
- Visit the university portal at https://www.myportal.fud.edu.ng , right-click the page and look at the menu that appears. From the that menu, click view page source. The source code for that page will now appears as a new tab in the browser.
- You can also use the keyboard shortcuts of CTRL + U on the browser to open a window with the portal's source code displayed assuming that you already visited the portal's web page.
- Observe the source code that was displayed and notice the **HTML** tags.
- We are going to learn the basics of developing such kind of web applications using HTML, CSS and JavaScript in this course.

The CSS for a web page

- In the past, HTML documents are coded so the HTML not only define the content and structure of the web page but also the formatting of that content.
- This mixture structural and formatting elements made it hard to edit, maintain and reformat the web pages.
- Today, however, CSS let you separate the formatting from the content and structure of a web page. As a result, the formatting that was once done with HTML should now be done with CSS.
- CSS stands for Cascading Styles Sheet and is used in web development to control how web pages are displayed by specifying the fonts, colors, borders, spacing, and layouts of the web pages.
- Exercise:
  - Highlight the latest trends in the development of HTML and CSS standards

Tools for web development

- To create and edit the HTML and CSS files for a website, you need either a text editor or an IDE for web development.
- To deploy a website on the Internet, you also need an FTP program to upload the files from your computer or network server to the web server.
- You can also use any available Integrated Development Environment (IDE) such as Netbeans, Aptana Studio, Brackets, Adobe DreamWeaver, MS Visual Studio, JetBrains, Eclipse, etc.
- Some common features of a text editor for HTML and CSS are syntax highlighting and auto-completion. Typical example of text editors are: Notepad, Notepad++, Sublime Text 3, Atom, VS Code, etc.
- We will be using Sublime Text 3 for demonstrations/practical in this course, however, it is fine to use any available text editor or IDE you wish.

How to publish web applications to a web server

- If you want deploy (or publish) your website on the Internet, you need to transfer the folders and files for your website from the development machine to a web server with Internet access.
- An FTP program not only lets you transfer files from a client to a web server but also from a web server to a client.
- Some IDEs provides an FTP program that allows you to publish your website.
- Popular FTP programs includes: FileZilla, FTP Voyager, CuteFTP, Fetch, etc.

Introduction to HTML

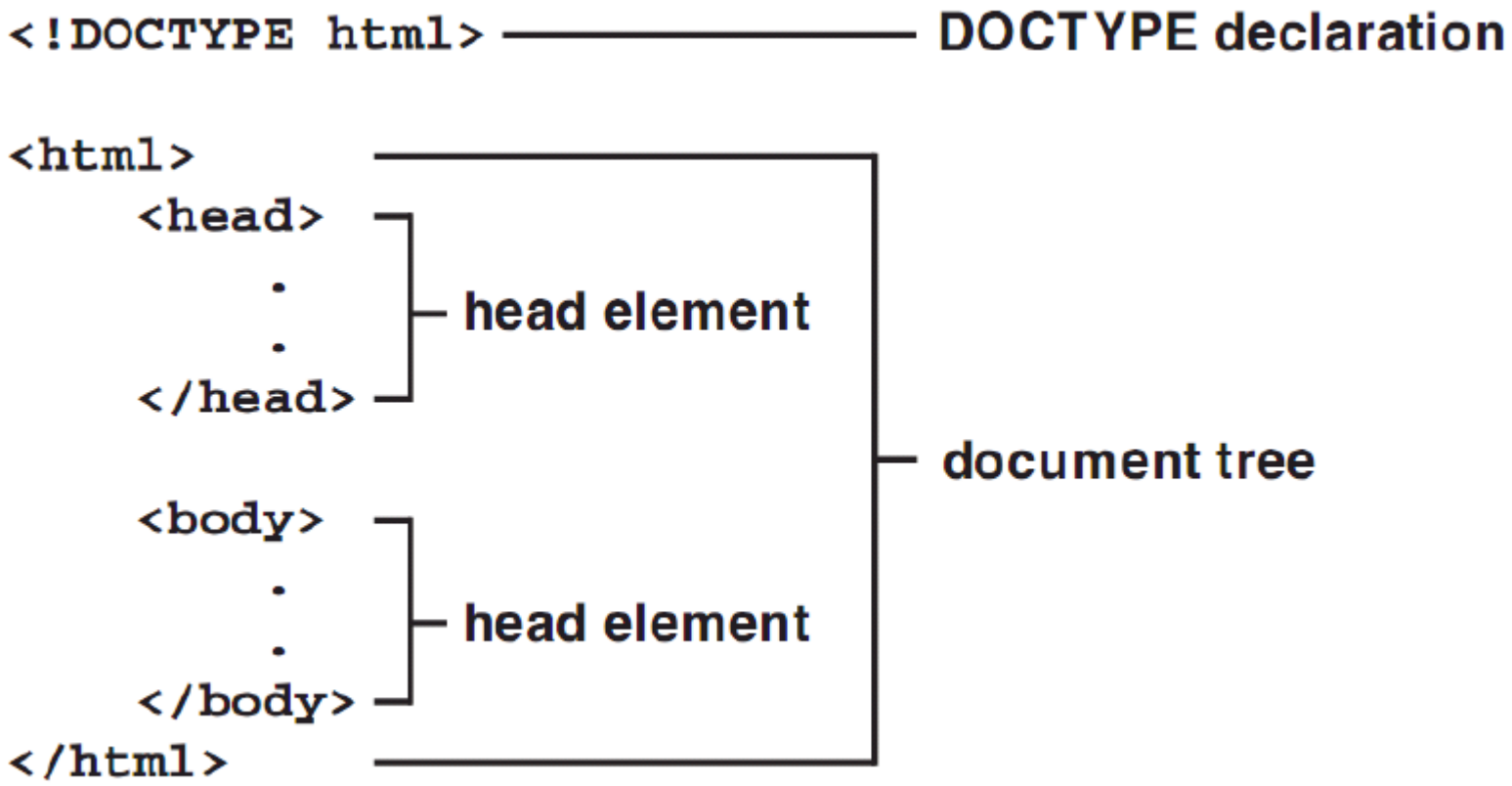
- HTML (Hypertext Markup Language) is the code that is used to structure a web page and its content. For example, content could be structured within a set of paragraphs, a list of bulleted points, or using images and data tables.
- HTML is not a programming language but rather a markup language that defines the structure of your web content. HTML consists of series of elements, which you use to enclose, or wrap, different parts of the content to make it appear a certain way, or act a certain way. The enclosing tags can make a word or image hyperlink to somewhere else, can italicize words, can make font bigger or smaller, and so on.
- **Anatomy of an HTML element**
  - The Opening tag: this consists of the name of the element wrapped in opening and closing **angle brackets** (< >). This states where the element begins or starts to take effect.
  - The closing tag: This is the same as the opening tag except that it states where the element ends. Failing to add a closing tag is common mistake among beginners and can lead to strange results.
  - The content: This is the content of the element.
  - The element: the opening tag, the closing tag and the content together comprise the element

- Elements in HTML have attributes; these are additional values that configure the elements or adjust their behavior in various ways to meet the criteria the users want.
- Some elements have no content. For instance, the
 element, which forces a line break, consists of just one tag. This type of tag is called an empty tag.
- HTML elements are commonly nested. To nest elements correctly, though you must close an inner set of tags before closing the outer set of tags.
- Hypertext refers to links that connect web pages to one another, either within a single website or between websites. Links are fundamental aspect of the Web.
- HTML uses “markup” to annotate text, and other content for display in a Web browser.

The HTML syntax

- When you code an HTML Document, you need to adhere to the rules for creating elements. These rules are referred to as the syntax of the language. You are going to learn the HTML syntax in the following lessons.
- An HTML document contains HTML elements that define the content and structure of a web page.
- Each document consists of two parts: the DOCTYPE declaration and the document tree.
- The DOCTYPE declaration indicates the version of HTML and is coded at the start of every HTML document.
- The document tree starts with the html element, which marks the beginning and end of the HTML code. This element can be referred to as the root element of the document.
- The html element always contains one head element that provides information about the document and one body element that provides the structure and content of the document.

The basic structure of an HTML document



Coding recommendations for HTML Document

❑ Although you can code the HTML using lowercase, uppercase, or mixed case letters, it is recommended to code all your html documents in lowercase letters for easy debugging and better readability.

How to code elements and tags

- Elements can be categorized as *inline-level* or *block-level* elements.
- Inline elements are those which only occupy the space bounded by the tags defining the elements, instead of breaking the flow of the content.
- An inline element does not start on a new line and only takes up as much width as necessary.
- By default, a block-level element occupies the entire space of its parent element (container), thereby creating a “block”.
- A block element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).

HTML Elements

- The <html> - represents the root (top-level element) of an HTML document, so it is also referred to as the root element. All other elements must be descendants of this element.
- <head> - Provides general information (metadata) about the document, including its title and links to its scripts and style sheets.
- <link> - This specifies relationships between the current document and an external resource. This element is most commonly used to link to style sheets, but is also used to establish site icons (both "favicon" style icons and mobile home screen/app icons) among other things.
- <meta> - The <meta> represents metadata that cannot be represented by other HTML meta-related elements, like <base>, <link>, <script>, <style> or <title>.
- <style> - Contains style information for a document, or part of a document.
- <title> - The HTML Title element (<title>) defines the document's title that is shown in a browser's title bar or a page's tab.
- <body> - Represents the content of an HTML document. There can be only one <body> element in a document.
- <address> - The <address> indicates that the enclosed HTML provides contact information for a person or people, or for an organization.

- <article> - The <article> represents a self-contained composition in a document, page, application, or site, which is intended to be independently distributable or reusable (e.g., in syndication). Examples include: a forum post, a magazine or newspaper article, or a blog entry.
- <aside> - The <aside> represents a portion of a document whose content is only indirectly related to the document's main content.
- <footer> - The<footer> represents a footer for its nearest sectioning content or sectioning root element. A footer typically contains information about the author of the section, copyright data or links to related documents.
- <header> - The <header> represents introductory content, typically a group of introductory or navigational aids. It may contain some heading elements but also other elements like a logo, a search form, an author name, and so on.
- <h1>, <h2>, <h3>, <h4>, <h5>, <h6> The HTML <h1>-<h6> elements represent six levels of section headings. <h1> is the highest section level and <h6> is the lowest.
- <hgroup> - The <hgroup> represents a multi-level heading for a section of a document. It groups a set of <h1>-<h6> elements.

- <main> - Represents the dominant content of the <body> of a document. The main content area consists of content that is directly related to or expands upon the central topic of a document, or the central functionality of an application.
- <nav> - This element represents a section of a page whose purpose is to provide navigation links, either within the current document or to other documents. Common examples of navigation sections are menus, tables of contents, and indexes.
- <section> - The <section> represents a standalone section — which doesn't have a more specific semantic element to represent it — contained within an HTML document.
- - The <ol> represents an ordered list of items, typically rendered as a numbered list.
- <p> - The <p> represents a paragraph.
- <pre> - The <pre> represents preformatted text which is to be presented exactly as written in the HTML file.
- - The <ul> represents an unordered list of items, typically rendered as a bulleted list.

How to code attributes

- Attributes can be coded within opening or empty tags to supply optional values.
- A Boolean attribute represents either an ***on*** or ***off*** value.
- The id attribute is used to identify a single HTML element, so its value can be used for just one HTML element.
- A class attribute with the same value can be used for more than one HTML element.
- **Coding rules of attribute**
  - An attribute consists of the attribute name, an equal sign (=), and the value for the attribute.
  - Attribute values do not have to be enclosed in quotes if they do not contain spaces.
  - Attribute values must be enclosed in single or double quotes if they contain one more spaces, but you cannot mix the type of quotation mark used for a single values.
  - Boolean attributes can be coded as just the attribute name. The do not have to include the equal sign and a value that is the same as the attribute name.
  - To code multiple attributes, separate each attribute with a space.
- For consistency, enclose all attribute values in double quotes.

How to code comment and whitespace

- An HTML comment is text that appears between the **<!--** and **-->** characters. Any that written between this characters is ignored by web browsers, thus, you can use them to explain portions of your HTML code that might otherwise be confusing.
- You can also use comments to comment out elements that you do not want the browser to display. This can be handy when you are testing a web page.
- An HTML comment can be coded on a single line or it can span two or more lines.
- Whitespace consists of characters like tab characters, line return characters, and extra spaces.
- Since whitespace is ignored by browsers, you can use it to indent lines of code and separate elements from one another by putting them on separate lines. This is a good coding practice because it makes your code easier to read.