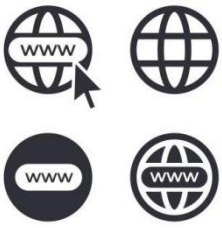
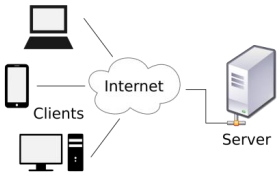
Chapter 1: Introductions To Web

World Wide Web (WWW)

The **World Wide Web (WWW)**, commonly known as **the Web**, is an information system where documents and other web resources are identified by **Uniform Resource Locators(URL)** or **Search Engines**, which may be interlinked by **hypertext**, and are accessible over the **internet** through the **Web Browser**.

The **Web**, is a global information infrastructure. A universal library and a collection of **web server**.



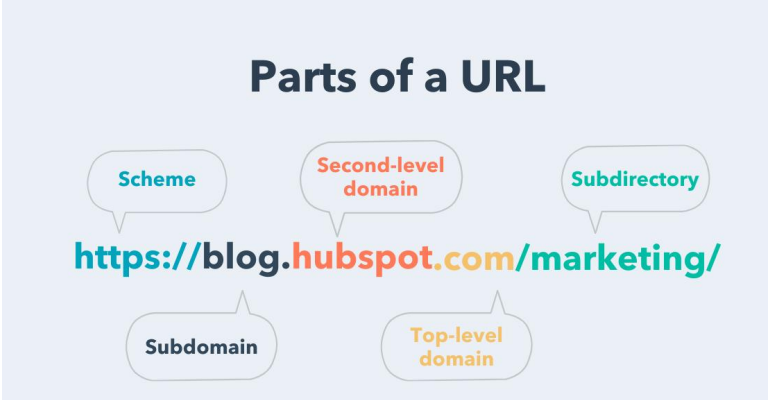


Uniform Resource Locator(URL)

These are words of patterns, use to refers to website. In other words, they are called domain names.

Examples of Uniform Resource Locator(URL) are

- http://www.sitename.com/
- www.example.com
- http://www.sitename.com/index.html
- www.example.com/contactus.php
- Etc.



Search Engines

These are tools on the web used to locate searched keywords or phrases.

Examples of Search Engines are

- Google
- Bing
- Yahoo!
- Baidu
- DuckDuckGo
- Yandex
- Ask.com
- Ecosia
- AOL
- Internet Archive
- Wolfram Alpha
- Lycos
- Etc.

Web Browser

These are tools or applications, used for accessing web resources. The purpose of a web browser is to read web resources and display them.

Examples of Web Browser are

- Internet Explorer.
- Google Chrome.
- Mozilla Firefox.
- Safari.
- Opera.
- Konqueror.
- Lynx.
- Tor Browser.
- UC Browser.
- Brave Browser.
- Etc.

Internet

The **Internet** serves as the means of communications of multiple computers including clients and servers globally.

Web Server

The Web Server, is a server software or device used for storing web resources which can be accessible by users via the internet using a **web browser**.
The primary function of a web server is to store, process and deliver web resources to clients. The communication between clients and server takes place using the Hypertext Transfer Protocol(HTTP).

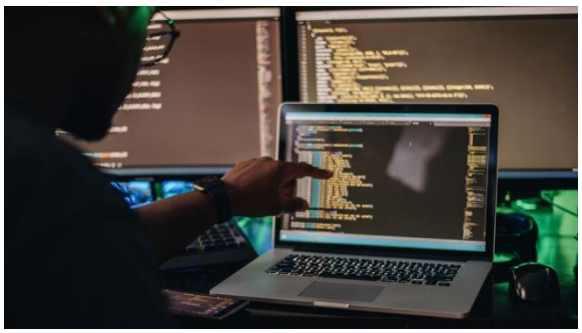
Web Resources

These are files and documents that are accessible on the web.

Examples of Web Resources are

- Webpages
- Documents
- Audios
- Images
- Videos
- Etc.

Tools used in creating web resources are



- HTML
- JAVASCRIPT
- MySQL
- CSS
- PHP
- Etc.

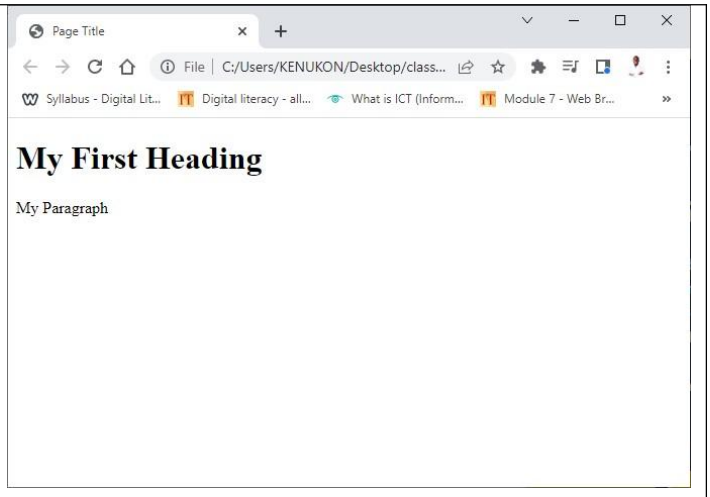
What is HTML?

HTML is a markup language for describing web documents (web pages).

- **HTML** stands for **H**yper **T**ext **M**arkup **L**anguage.
- A **Markup** language is a set of **markup tags**
- **HTML** documents are described by **HTML tags**
- Each **HTML tags** describes different document content

Example 1

```
<!DOCTYPE html>
<html>
    <head>
        <title>Page Title</title>
    </head>
    <body>
        <h1>My First Heading</h1>
        <p>My Paragraph</p>
    </body>
</html>
```



Example 1 Explained

- The **DOCTYPE** declaration defines the document type to be **HTML**
- The text between **<html>** and **</html>** describes an **HTML** document
- The text between **<head>** and **</head>** provides information about the document
- The text between **<title>** and **</title>** provides title for the document
- The text between **<body>** and **</body>** describes the visible page content
- The text between **<h1>** and **</h1>** describes a heading
- The text between ** ** and ** ** describes a paragraph

HTML Tags

HTML tags are keywords (tag names) surrounded by angle brackets: **<tagname>**content**</tagname>**

- HTML tags normally come in pairs like ** ** and ** **
- The first tag in a pair is the start tag, the second tag is the end tag
- The end tag is written like the start tag, but with a slash before the tag name
- The start tag is often called the opening tag
- The end tag is often called the closing tag

Tools used in creating and displaying HTML files are

- Editors
- Web Browsers

Editors

Editors are computer programs or applications used in creating and editing programming file and documents.
There are two types of Editors

- Plain Text Editors
- Integrated Development Environment (IDE)

Plain Text Editors

These are editors that edit plain text. Most of these plain text editors are embedded in **operating system(OS)** installed in computers.

Examples are

- Notepad
- TextEdit
- TextMate
- Etc.

Integrated Development Environment (IDE)

These are editors that has **graphical user interface(GUI)**, which enable users/programmers to reduce coding, has built-in automation tools and helps to debug easily.

Examples are

- Microsoft Visual Studio Code
- Microsoft Visual Studio
- Sublime Text
- Intelli J
- PyCharm
- Android Studio
- Adobe Dreamweaver
- Eclipse
- Komodo
- Etc.

Stated in the example 1 above, those code can be written using any Editor either **plain text editor** or **IDE**.
To differentiate the type of program your writing, you have to save the file with an extension of **".html"** or **".htm"** for **HTML** files. Otherwise, it will be saved and treated as the default extension of the editor, which might not be visible via the **web browser**.

Examples are

- Index.html
- contactus.html
- about_us.htm
- login.htm
- Etc.

Web Browser

As said earlier, the purpose of web browser is to read web resources (like HTML) and display them.
The browser does not display the HTML tags, but uses them to determine how to display the document.

What is CSS?

CSS is a stylesheet language that describes the presentation of an **HTML** or **XML** document.

- **CSS** stands for **C**ascading **S**tyle **S**heets
- **CSS** describes how **HTML** elements are to be displayed on screen, paper or in other devices
- **CSS** saves a lot of works, it can control the layout of multiple web pages all at once
- External stylesheets are stored in **CSS** files

Why use CSS?

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

Example 2

```
h1 {color:blue; align:right; border:1px solid;}
.nav {
        font:Bookman Old bold;
        background-color: yellow;
        margin: 10px;
}
#footer:a {
        padding-top: 5px;
        padding-buttom: 15px;
        border-color: black;
}
```

Example 2 Explained

- The **“h1”**, **“.nav”**, **“#footer:a”** are known as **selector**. Which refers to the element in an **HTML** file or documents.
- Every other thing between the curly bracket **“{“** and **“}”** are known as **declarations**. Which refers to the effect that will take place on the **selectors** been mentioned

- The word(s) before the colon **":"** in the declarations are known as **property**, and the one(s) after the colon **":"** are known as the **value**.
- The selector(s) points to the **HTML elements** you want to style.
- The **declaration block** contains one or more declaration(s) separated by semicolon(s).
- Each declaration includes a CSS property name and a value, separated by a colon.
- A CSS declaration always ends with a semicolon **";"** and declaration blocks are surrounded by curly braces.

Assessments

1. What is the difference between the web and the internet?
2. What is the difference between uniform resource locator(URL) and search engine?
3. Explain a Mark-up language.
4. Explain a Style-sheet language.

Quote of the Day.

"If you can't run, jog, if you can't jog, walk. If you can't walk, crawl, what ever you do, don't stop moving"

Chapter 2: HTML

What is HTML?

As said earlier, HTML is a markup language for describing web documents (web pages).

- HTML stands for Hyper Text Markup Language.
- A Markup language is a set of markup tags.
- HTML documents are described by HTML tags.
- Each HTML tags describes different document content.
- HTML are used to create webpage.

Note!

We have two types of webpages or websites.

- Static webpage/website
- Dynamic webpage/website

Static Webpage/website

A **static webpage/website** contains fixed contents, each is coded in **HTML** and displays the same information to every visitor. **Static sites** or **pages** are the basic types of webpages and are easiest to create. In other words, they are **webpage** or **website** that doesn't requires visitor's data input.

Dynamic Webpages/website

A **dynamic webpage/website** interact with users and visitors. There are regularly known as the **client** and **server-side webpage** or **website**. They are coded with **web programming languages**, but displays with **HTML**. In other words, they are **webpage** or **website** that allows visitors to input data.

HTML Elements

- **HTML documents** are made up by **HTML elements**.
- **HTML elements** are written with **opening tags**, **content** in-between and ends with **closing tags**.
- **<tagname>content</tagname>**
- The **HTML element** is everything from the **opening tag** to the **closing tag**.

Note!

Some HTML elements do not have closing tag.

Examples of an HTML Elements

Opening Tag	Element Content	Closing Tag
<h1>	My First Heading	</h1>
	My First Paragraph	

Nested HTML Elements

HTML elements can be nested. That is, placing element(s) inside another element(s). All HTML documents consist of nested HTML elements

Example

```
<!DOCTYPE html>
<html>
    <head>
        <title>Page Title</title>
    </head>
    <body>
        <h1>My First Heading</h1>
        <p>My Paragraph</p>
    </body>
</html>
```

Example Explained

- The **<html>** element defines the **whole document**. It has an opening tag **<html>** and a closing tag **</html>**.
- The element **content** is another HTML element (the **<body>** element and everything after it before the closing tag **</html>**).
- The **<body>** element defines the **document body**. It has an opening tag **<body>** and a closing tag **</body>**. The element **content** has other HTML elements (**<h1>** and ** ** elements and everything within and after them before the closing tag **</body>**).
- The **<h1>** element defines a **heading**. It has an opening tag **<h1>** and a closing tag **</h1>**. The element **content** is: My first heading.
- The ** ** element defines a **paragraph**. It has an opening tag ** ** and a closing tag ** **. The element **content** is: My first paragraph.

Don't Forget the End Tag

Some HTML elements will display correctly, even if you forget the end tag:

Example

```
<!DOCTYPE html>
<html>
    <body>
        <h1>This is a header
        <p>This is a paragraph
    </body>
</html>
```

Example Explained

- The example above works in all browsers, because the closing is considered optional.
- Never rely on this. It might produce unexpected results and/or errors if you forget the end tag.

Empty HTML Elements

- HTML elements with no content are called empty elements.
- **
** is an empty element without content or closing tag (the **
** tag defines a line break).
- Empty element can be "closed" in the opening tag like this: **
**.

HTML Tip: Use lowercase Tags

HTML tags are not case sensitive: <P> means the same as <p>. The HTML5 standard does not require lowercase tags, but W3C recommends lowercase in HTML4 and demands lowercase for strict documents type like XHTML.

HTML Attributes

Attributes provide additional information about HTML elements

- HTML elements can have **attributes**.
- Attributes provide **additional information** about an element
- Attributes are always specified in the **opening tag**
- Attributes come in names/value pairs like: **name= "value"**

The Lang Attributes

The document language can be declared in the **<html> tag**. The language is declared in the **lang** attribute.

Declaring a language is important for accessibility applications (screen readers) and search engines:

Example

```
<!DOCTYPE html>
<html lang = "en-US">
        <body>
                <h1>My First Heading </h1>
                <p>My First paragraph. </p>
        </body>
</html>
```

Example Explained

The **lang** is an **attribute name** attached to **<html>** tag, the **en-US** is the **attribute value** which is in double quotation marks.
The first two letters specify the language (en). If there is a dialect, use two more letters like(US).

The Title Attribute

The title attribute specifies extra information about an element. The information is most often shown as a **tooltip** text when the mouse moves over the element.

Example

```
<p title="About Roncloud"> The Roncloud Technologies, is a software development conpany and institute that trains people to become developer and a renowned IT personnel.</p>
```

Example Explained

The **<p>** element has a **title** attribute. The value of the attribute is "**About Roncloud**"
When you move the mouse over the element, the title will be displayed as a tooltip.

The href Attribute

HTML links are defined with the **<a>** tag. The link address is specified in the **href** attribute:

Example

```
<a href="http://www.roncloud.com.ng"> Roncloud  Technologies Official Website</a>
```

Example Explained

- The **<a>** elements tag serve as links. In other to declare the direction of the link, we use the **href attribute**.

- The **href** is the attribute name, the **"http://www.roncloud.com.ng"** is the value of the attribute.
- When you click on the link, it takes you to the mention page of the value slated in the href attribute.

Single or Double Quotes?

Double style quotes are the most common in HTML, but single style can also be used. In some situations, when the attribute value itself contains double quotes, it is necessary to use quotes:

Example

<p title='Roncloud "Developers" '>
Or vice versa:
<p title="Roncloud 'Developers' ">

Example Explanation

The attribute value has quote(s) in-between. It's advisable to use different quote to differentiate so as to avoid errors.

Attribute Tips: Use lowercase

- W3C recommends lowercase in HTML4, and demands lowercase for strict document type like XHTML.
- The HTML5 standard does not require lowercase attribute name. The **title="About Roncloud"** can also be written as **TITLE="About Roncloud"**
- The HTML5 standard does not require quotes around attribute values.
- The **href="http://www.roncloud.com.ng"** can also be written as **HREF=http://www.roncloud.com.ng**.

Note!
All web browser displays web pages differently. It's advisable as a web designer or programmer to test run on multiple browser, in other to see how it displays on different browser.

HTML Comment

HTML comments help in creating documentations for codes which serves as a guide for other developers to understand why certain codes are written.

Example

```
<!-- This is a comment -->
<p>This is a paragraph.</p>
<!-- Remember to add more information here -->
```

NOTE!

Comments are not displayed in the browser, but they can help in documenting your HTML source code.

It can also be used to disallow a certain code(s) from execution.

Assessment

1. Write a letter to a mentor of you, telling him or her about how you will love to be mentored by him or her using HTML.
2. List and define each Doctype of HTML and their functions.
3. Explain the benefits of attributes on HTML elements.
4. What does W3C stands for, and its function

Quote of the Day

It's a foolish man's idea, for a developer, to think he/she can code without having any bugs(errors).