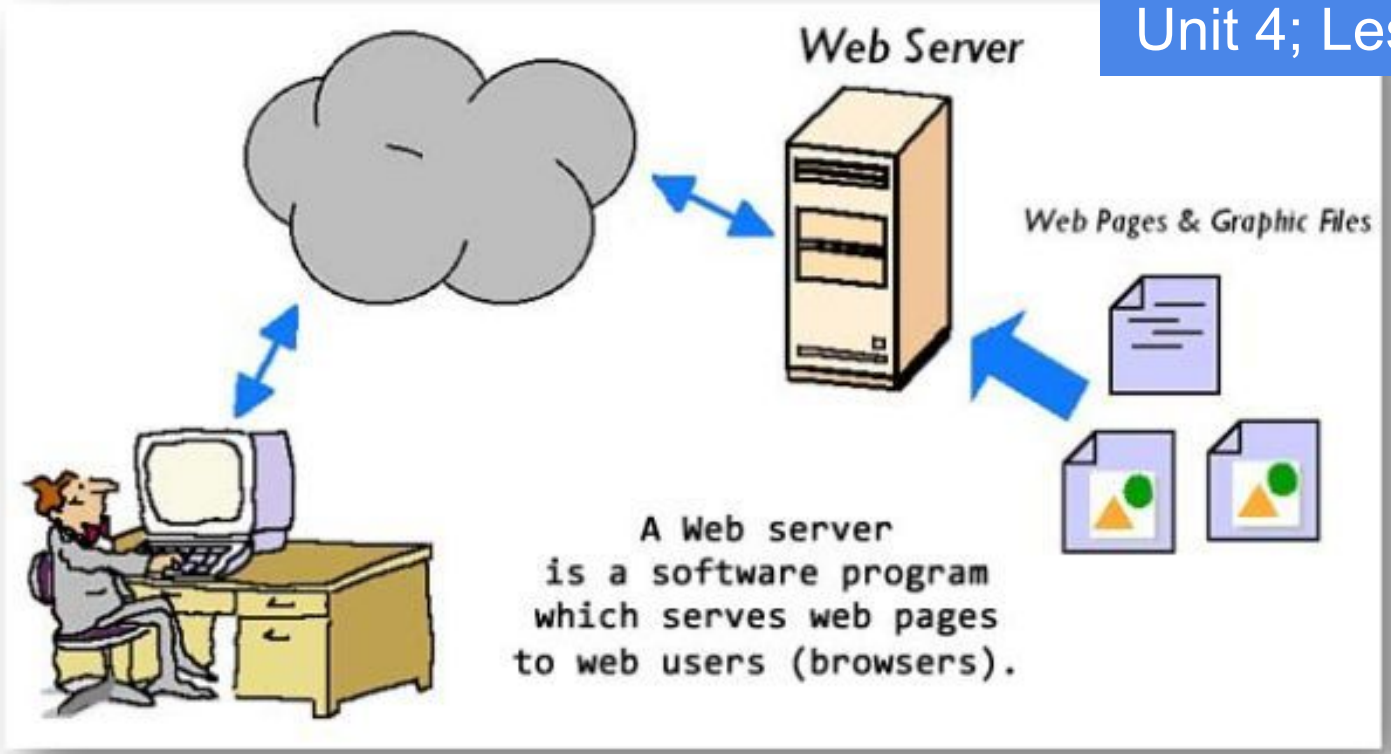
Unit 4; Lesson 4



Servers, HTTP & HTML

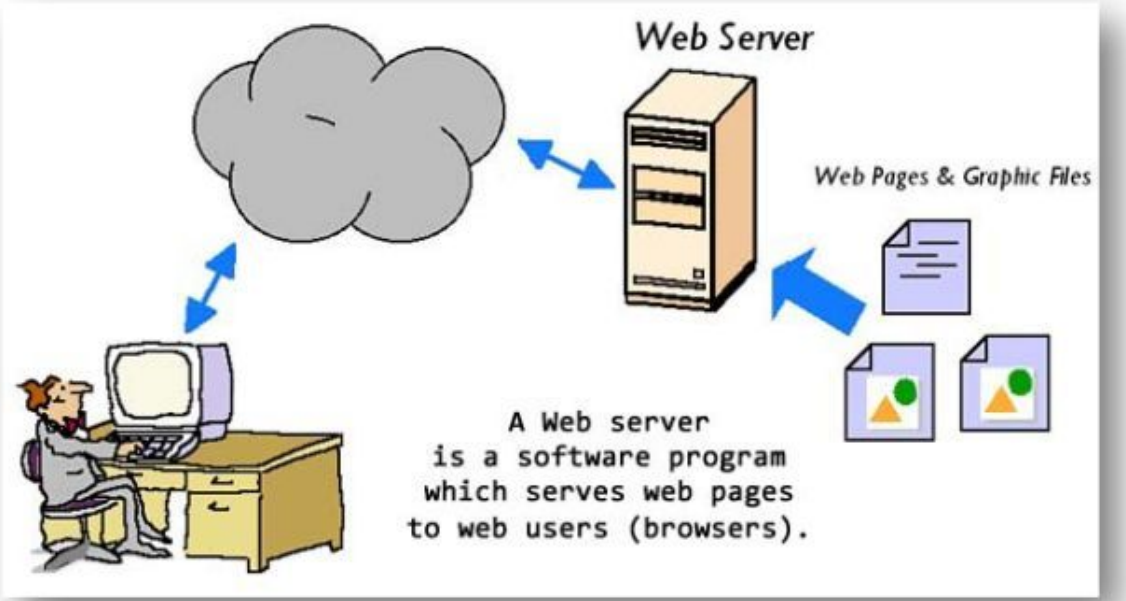

THE INTERNET
HTTP
& HTML

Where are HTML files stored on the Web?

When we go to a website, we are accessing an .html file from somewhere. Where are these files located?

For each website, there is a physical computer or server running a “web server” application.

This application allows you to connect and view the website.



https://www.c-sharpcorner.com/UploadFile/c8b86e/introduction-to-web-server/

What is a Server?

Servers are computers connected to a network that have been designed to *serve* a large group of people.

The “server” is just an application running on a computer somewhere such as a “Web Server”, a DNS Server, or an Email Server. This application handles requests from clients (communicates with other computers) and is often paired with a database to store information.

The name “server” can also be used to describe a computer that has been specially designed to run these server applications. These computers have redundant hard drives, high CPU power, and high quality network hardware to better meet the needs of many people accessing it all the time.

What **hardware** would a web server need?

What **hardware** would a web server need?

“Web Servers are not too CPU Intensive… RAM matters most.” (Burleson, 2017)

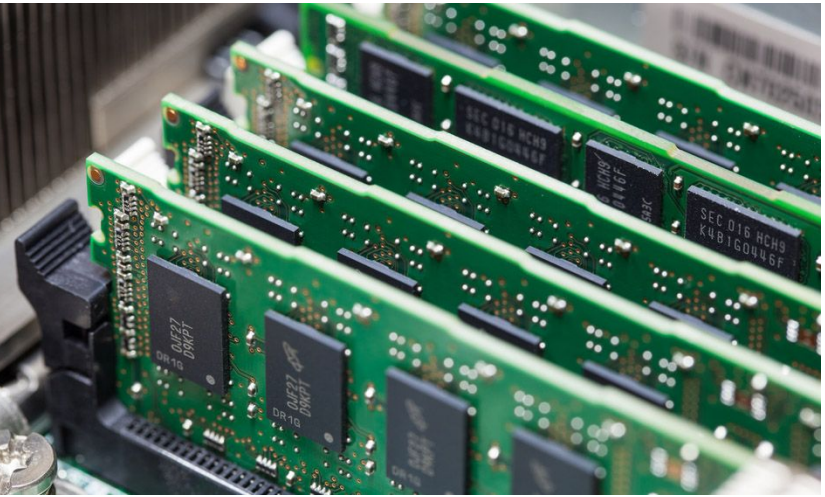


Image from: How to find your RAM speed, type and size on PC and Mac

Why?

HTTP Requests are not very CPU intensive. What slows down the connection time most for users is actually downloading images and larger files.

The Solution? In your Web Server, If you have a large cache in RAM with the most popular images, then it will speed up load times for those files.

Burleson, D. (2017). *What is the best webserver hardware configuration?* Burleson Consulting. Retrieved from http://www.dba-oracle.com/t_best_webserver_hardware_configuration.htm

Learn More about web servers

https://maccablo.com/web-servers-a-detailed-overview-popular-webservers/

HTTP

Hyper Text Transfer Protocol

A communication protocol that allows computers and servers to send GET and POST requests about documents and files.

Examples:

GET Requests

- HTML files
- Images

POST Requests

- Forum Posts
- Blog Posts
- Surveys
- Login

Steps “Under the Hood”

1. Type URL into web browser
2. Browser sends URL to a DNS Server
3. DNS server returns IP address of Website hosted on a web server.
4. Your computer establishes a secure connection to the web server at that IP address
5. Browser uses an HTTP GET request to ask the web server for HTML

Browser Cache

A temporary storage of images and data on your computer from websites that you have visited.

Improves the loading speeds of websites when you visit them often because it will not need to send HTTP GET requests for images you already have.

Cookies

A unique ID number that links your Web Browser to a server
identifies you so that you can receive personalized information from a website.

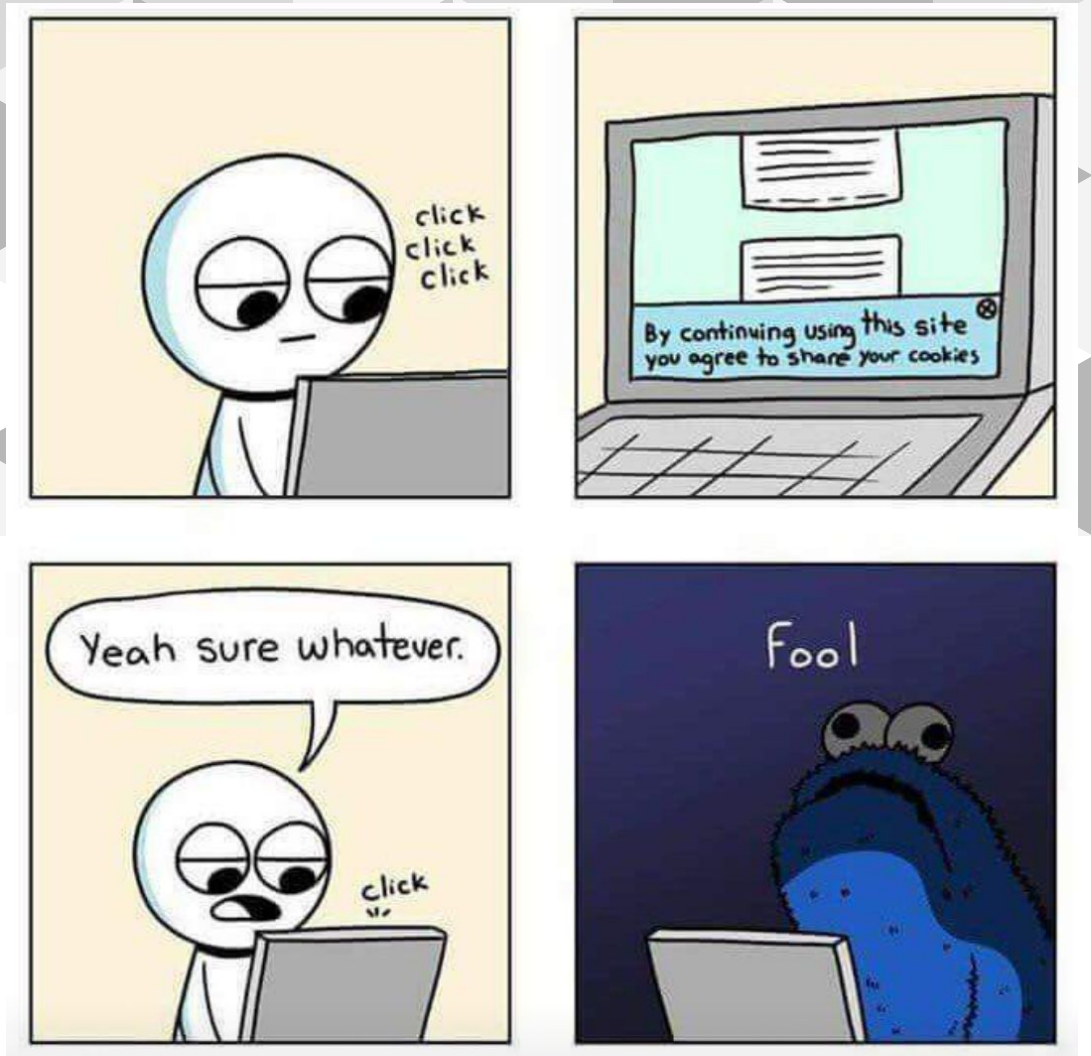
This is why, when you clear your cache or delete browsing data, you often need to login to websites again.

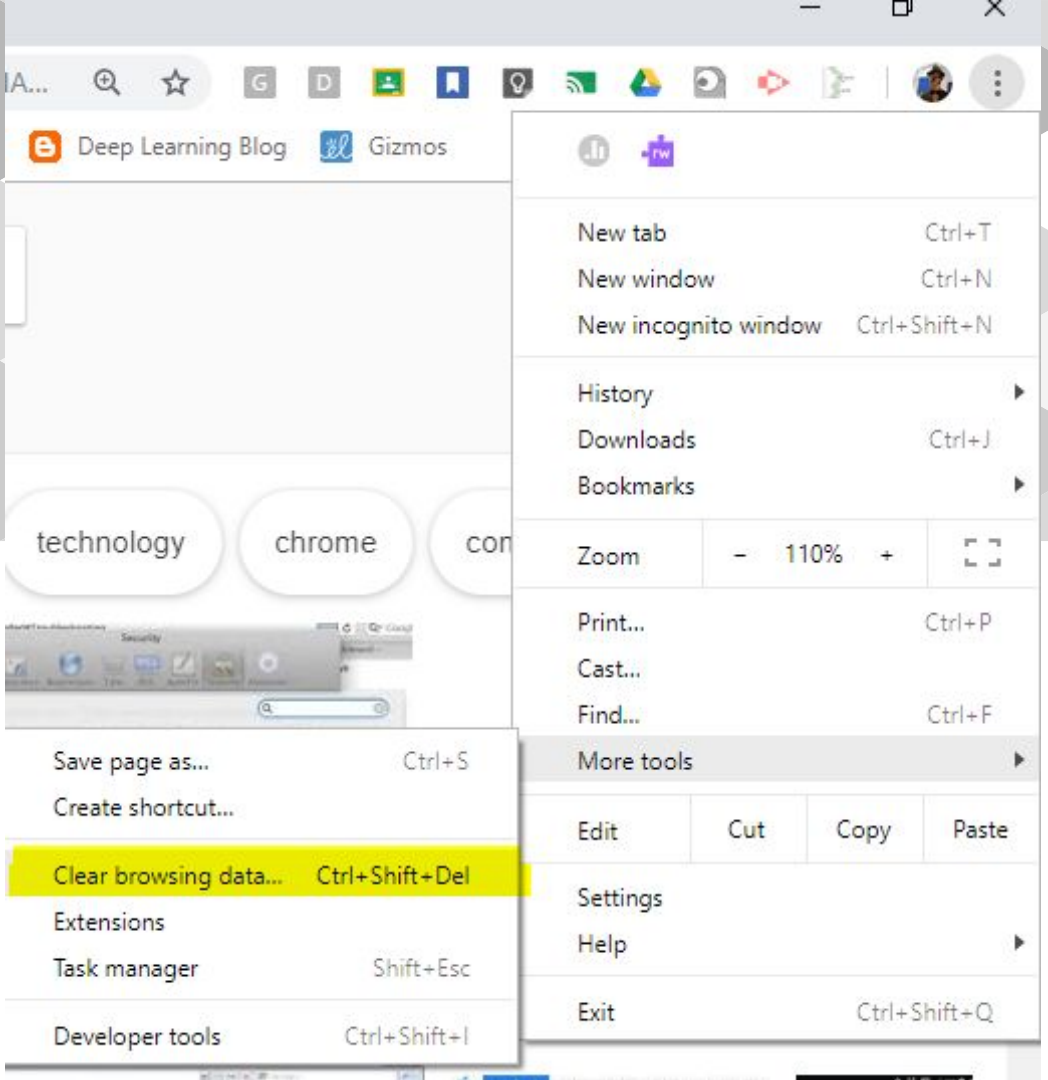
Examples of Cookies

- Templates on Gmail or Replit where you can set personalized theme/ colour
- Fillable forms which offer past entries as suggestions
- Chocolate chip (just kidding)

Be aware when you are using cookies!

Cookies are okay for trustworthy websites… but if you are uncertain about the credibility of a website and it asks you to “Save Cookies” ….better to decline





Why would we want to clear cache, browsing history and cookies?

When using a public computer (library, hotels, friends computers) or a shared computer at home.

You don't want other people logging in to your accounts!!!

SSL / TLS

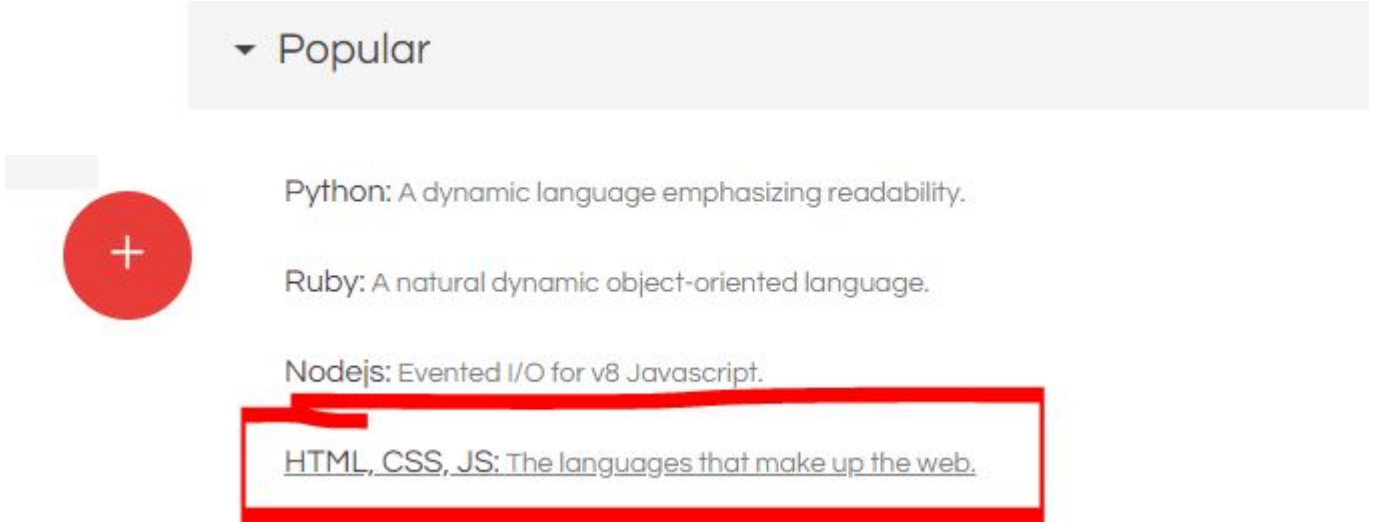
Secure Sockets Layer and Transfer Layer Security

Used to ensure the safety and security of HTTP requests that are sent and received. On most browsers a lock icon indicates that your connection is safe.

Building Websites Using Online Tools

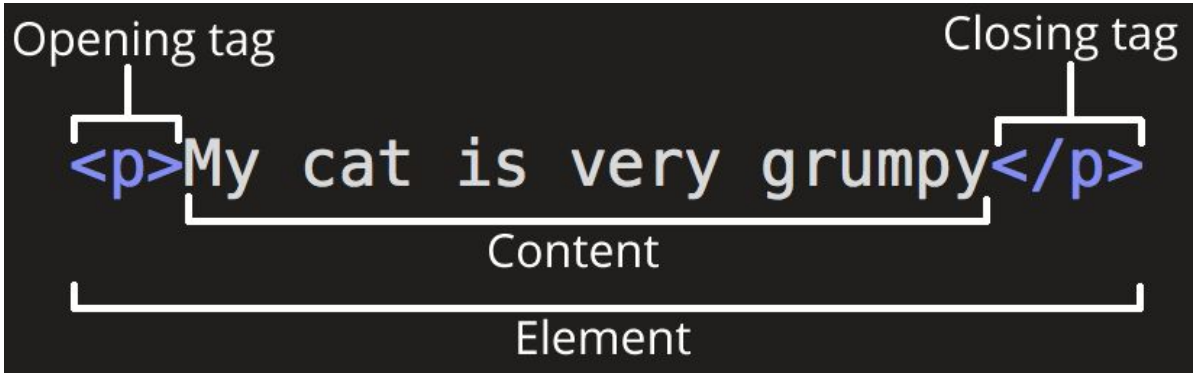
Create an account on Repl.it and Create an HTML project

Create a new HTML Repl.it project



Rename it!

HTML Structure

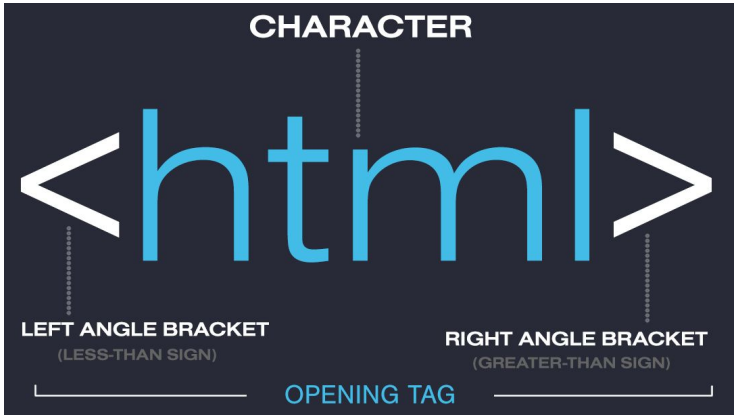


Element - A structural object in HTML that contains content or other structural objects.

Tag (opening tag and closing tag)

Content - the information between the tags

<h1>More About Tags</h1>



Most elements have an **opening tag** such as and a **closing tag** such as

Attributes are things that go INSIDE the opening tag that help to define the element. A tag can have 0 or many attributes.

```
<img src="cool_cat.gif" width="100px" >
```

<h1>Attributes</h1>

Common Attributes

href
src
width
height
style
alt
id

Complete Reference:
https://www.w3schools.com/tags/ref_attributes.asp

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

<img src="cool_cat.gif" width="100px">
```

Attributes are always described with a **name** followed by a **value** in **"quotation marks"**.

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

Structure of an HTML document

<HTML>

<Head>

"The header" contains information about the document such as the title, and any links to other files.

</Head>

<Body>

Contains the **contents** of the page that are seen in the main view. paragraphs, headers, images, links, etc.

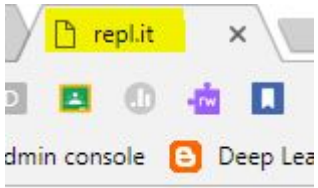
</Body>

</HTML>

What is the HEADER for? <HEAD>

Provides information about the document including a title and any links to other files. The header is loaded by the browser first before the body is displayed.

<title> THE NAME OF YOUR WEBSITE </title>



← shows here

<link href="index.css" rel="stylesheet" type="text/css" />

A link to an external “stylesheet” that can be used to control the appearance of the page.

We will talk more about CSS soon!

Today's Activity: **Restaurant Blog**

ALWAYS TEST YOUR LINKS! MAKE SURE THEY GO TO THE RIGHT PLACE!

Change the contents of <title> in the <head> to be "yourName's Food"

Add an external food image or gif from somewhere on the web by using the **<img> tag** with the **src attribute**. Adjust the size using the **width** and **height** attributes.

Add an internal image from the web server by uploading an image to your project

Add a link to a food website of your choice. **<a> tag** with the **href attribute**.

Add links to 4 other student's websites by using the **<a> tag** with the **href attribute**.

Put the last 4 links as an unordered list <ul> element with <li>... items in it.

Turn in before the end of class! (hand in the link to google classroom)

W3 Schools Reference

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

If you forget how to do something you can use this website to search for tips.

Vocabulary Review

Go back through the slides and make sure you understand these words:

Vocabulary Words Learned

- ❏ Servers
- ❏ HTTP
- ❏ Get / Post Requests
- ❏ Browser Cache
- ❏ Cookies
- ❏ SSL / TLS
- ❏ Elements vs Tag vs Content
- ❏ HTML Attributes

HTML TAGS Learned

- ❏ HEAD <head>
- ❏ TITLE <title>My Website</title>
- ❏ LINK <link href=”mystylesheet.css” rel=”stylesheet” type=”text/css”>
- ❏ URL <a href=”...”>
- ❏ LIST (Unordered)
- ❏ ITEMS IN LIST