# Unit 1

* review your knowledge and practice your skills in writing web pages in HTML and CSS

## Intro

HTML (HyperText Markup Language) is a language that defines the content and structure of web pages. The newest version is HTML5.

CSS (Cascading Style Sheets) defines the presentation and styling of elements on web pages. CSS is usually a separate file from the HTML. This allows the presentation of the website to be independent of its content. The newest version is CSS3.

JavaScript – allows the web page to be dynamic by manipulating the HTML and CSS code. This can be done in response to events such as mouse clicks, keyboard presses, time changes, and many others, making the webpage appear responsive and interactive.

Web Servers –

The main purpose of a web server is to respond to requests from clients. An extremely common use case is a web browser client requesting a web page using a URL. The web server would then respond by sending back the HTML web page corresponding to that URL.

For a client and a server to communicate, they need to have a common language. In this case, the language is HTTP (Hypertext Transfer Protocol).

Resources on the internet are identified by a URI (Uniform Resource Identifiers). A URL is a type of URI that starts with http://

Terms:

URI - Resources on the internet are identified by a URI (Uniform Resource Identifiers)

URL - A URL is a type of URI that starts with http://

IP (Internet Protocol) – the address of the server (different from hostname, since the owner of the hostname can change)

Hostname – the name of a website (eg. google)

HTTP Transactions:

1. Client requests a web page by entering its URL into the search bar
2. The hostname of the URL is translated into an IP address
3. The request is then forwarded to the IP address
4. The web server receives the requests and send back the web page as a response

Note: There may be more parameters in the URL which is used by the server to get a specific resource. Eg. comp466.com/instructor would get the instructor web page of the comp466 website so you can get more info on the amazing instructors.

Requests Types:

1. The two most common request types are GET and POST
2. GET method is used when the client wants to get some resource or information from the server (eg. getting a web page)
3. The POST method is used when the client wants to send information to the server (eg. saving a user’s settings)

Multitier Application Architecture

* Web applications, especially large-scale applications, are usually separated into three different tiers to increase modularity and organization
* The data tier (bottom tier) is where all the information is stored
* The controller logic tier (middle tier) manages and process the information send to and from the data tier. (This is also where business logic would be handled)
* The client tier (top tier) is the API which allows the user to view and interact with the data in the data tier. It only communicates with the controller logic tier to retrieve information and save new/updated information.

HTML5

* An element is one component of an HTML document
* Most HTML elements have a start tag and an end tag. Eg. <p> I am a paragraph tag </p>
* Some elements are self closing: Eg. <img> or <img />

Common HTML elements

* Headings (h1-h6): Used to display headings
* Paragraphs (p): Used to display paragraphs
* Anchor (a): Used to display links
* Image (img): A self closing tag used to display images

Page Structure Elements

* Figure (figure): Used to display a figure such as an image or a chart
* Article (article): Used to display information such as an article or blog post
* Section (section): Used to create a logical separation within a HTML document
* Header (header): Used to display the page header which usually contains the title of the page and possibly a banner
* Footer (footer): Used to display the page footer which is usually at the very bottom of the page and contains miscellaneous information such as the copyright information or contact information or links to other pages
* Navigation (nav): Used to display the page navigation which includes links to other pages and may also include the logo
* Aside (aside): Used to display a content that is related to the text on the page but is separated from the flow on the rest of the page, such as in a sidebar

HTML Input elements

* Date (date):
* Email (email):
* Number (number):
* Range (range):
* Telephone (tel):
* Time (time):
* URL (url):

CSS3

* You must first select the element(s) you want to apply the styles to and then specify the property you want to change and the value you want to change it to

body {

*background-color*: blue;

}

.*my-class* {

*padding*: 10*px*;

}

#*my-id* {

*font-size*: 3.5*rem*;

}

* You can also combine elements, classes and ids to create styles that affect specific elements.

Style Properties

* font-family
* font-size
* color
* margin
* padding
* border
* background
* display