CHAPTER 01:

Internet: The Internet is a network of computers communicating with each other.

Reasons for Internet Growth in the 90s:

- Development of the world wide web.
- Personal computers have become more available and affordable.
- Online service providers offered low-cost connections.

The World Wide Web is the graphical user interface to information stored on web servers connected throughout the Internet.

Q. What's the difference between the Internet and the World Wide Web?
A. The WWW uses the Internet. The web uses the Internet to communicate between a client computer and a web server using HTML and the HTTP protocol.

Who Owns the Internet: There is no one in charge of the Internet, but some organizations are coordinating some aspects of it. E.g., the Internet Engineering Task Force (IEFT) for Internet protocol standard notification, Internet Architecture Board (IAB) and others.

Intranet: Private network used inside an organization to share information between people.

Extranet: Private network to share data between organizations. E.g., VPNs.

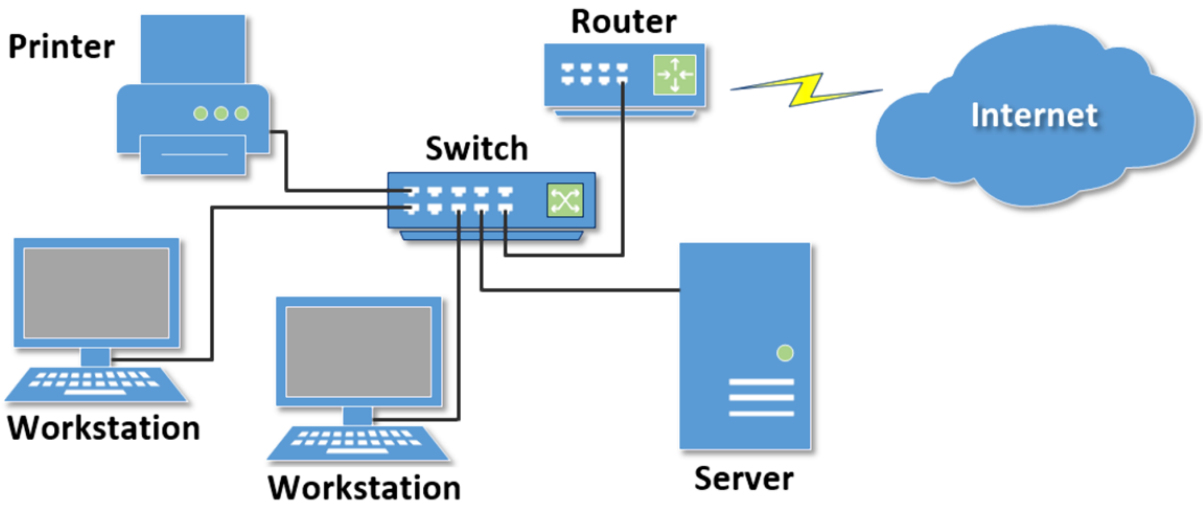
W3C: World Wide Web Consortium develop recommendations and prototype technologies related to the web.

Ethics: Americans with Disabilities Act (ADA) prohibits any kind of discrimination against people with disabilities. The Web Accessibility Initiative (WAI) is a great part of the W3C and is responsible for this.

Universal Design for the Web: Essential to keep the system robust and usable to the greatest extent possible of people. This would avoid unnecessary specialization and adaptations.

Internet Backbone: It is the infrastructure of a set of paths that local or regional networks connect to for long-distance interconnection.

Network:



The Client-Server Model:

Client-Server architecture is a model where a client sends a request for resources to a server. When the server receives the request, it will send back the files to the client over the network.

Suggested flow for the web:

1. The browser (client) makes an HTTP request to access an URL.
2. The ISP (Internet Service Provider) asks the DNS (Domain Name Service) for the IP address.
3. The DNS checks the IP address relative to the URL, and sends it to the ISP, and the ISP send it to the browser.
4. The browser sends an HTTP request to the server.
5. The server processes the client request, gather the resources and send it back to the client.

Web Client vs. Web Server:

WC. Connected to the Internet when needed.
WS. It is continuously connected to the Internet.

WC. Uses HTTP.
WS. Uses HTTP.

WC. Request web pages from a server.

WS. Receives requests for web pages.

WC. Receives web pages and files from a server.
WS. Respond to a client request with a status code, the web page and files.

The web exchanges occur through the MIME type. MIME stands for Multi-Purpose Internet Mail Extensions. The MIME is a set of rules to exchange multimedia documents amongst computers on the web.

Internet Protocols:

- **FTP:** File Transfer Protocol is used to move files between computers on the Internet. Developers use it to send files to a web server or to retrieve from it.
- **Email:** to send email Simple Mail Transfer Protocol (SMTP), and to receive it can be Post Office Protocol (POP3) or Internet Mail Access Protocol (IMAP)
- **HTTP:** Hypertext Transfer Protocol for exchange file on the web.
- **TCP:** Transmission Control Protocol ensures the integrity of the data, breaking it into packets. The TCP is connection-oriented; in other words, it tries to guarantees that the data will arrive at the other end.
- **IP:** The Internet Protocol defines how the computer sends the packets over the Internet.

TCP/IP Architecture:

The Internet uses the TCO/IP architecture to exchange data between computers.

The TCP protocol breaks the data into packets and associate with each packet some information such as source, destination, checksum…

The IP protocol takes over after the TCP. The IP will be responsible for routing these packets throughout the Internet.

Uniform Resource Identifiers and Domain Names:

URI and URLs: The Uniform Resource Locator (URL) is a type of Uniform Resource Identifier (URI). The URI is used to represent a network location of a resource such as a web page, files, videos, etc. The URLs are used to describe the link with the protocol, the domain name and the hierarchical location of the file on the webserver.

E.g., http://www.devfoundations.net/chapter1/index.html

Internet protocol
Webserver
Domain name
Folder and Web page file name

Markup Languges:

- **SGML** – Standard Generalized Markup Language
  - A standard for specifying a markup language or tag set

- **HTML** – Hypertext Markup Language
  - A set of markup symbols or codes placed in a file to display it on a web browser

- **XML** – eXtensible Markup Language
  - A text-based language designed to describe, deliver, and exchange structured information
  - Intended to extend the power of HTML by separating data from presentation

- **XHTML** – eXtensible Hypertext Markup Language
  - Developed by W3C as the formulation of HTML 4.0 as an application of XML
  - Combines the formatting strengths of HTML 4.0 and the data structure and extensibility strengths of XML

Checkpoint 1.2:

1. Describe the components of the client/server model as applied to the internet

   We have mainly 3 components. The workstation for the client-side, a server and the network infrastructure.

   The client-side workstation is a computer, smartphone, tablet that is going to make use of a service throughout the internet.

   The server side is a computer that processes, executes and respond to a client request.

   The network is the infrastructure and peripheric necessary to provide internet resources like a router.

2. Identify two protocols used on the internet to convey information that use the Internet but do not use the web.

   SMTP and POP3. Both are protocols related to exchange information from an email. The SMTP is for sending an email and the POP3 is to receive an email.

3. Explain similarities and differences between a URL and a domain name.

Both, URI's and URL's are used to represent a network location of a resource and distinguish one from another. However, the URI does not contain specifications about what protocol to use to access the resource. Other difference is that URLs are a type of URI.

CHAPTER 02:

HTML Elements:

- Markups are elements in HTML
- Each element can be coded as a tag
- Tags can come in pairs (the opening and closing tags) or it can come self-contained.
    - <tag></tag>
    - <tag/>

<!DOCTYPE html>

- identifies the version of HTML the document is using.
- HTML5
- Different to represent older HTML documents and XHTML

<head> … </head>

- Contains information that describes the web page.
- <title></title>
- <meta> tags to include the charset, description, keywords.

<body> … </body>

- Display the content of the web page.
- <header>, <main>, <nav>, <section>, <footer> …

Block level elements:

```
<address>    <article>    <aside>      <blockquote> <canvas>
<dd>         <div>        <dl>         <dt>         <fieldset>
<figcaption> <figure>     <footer>     <form>       <h1>-<h6>
<header>     <hr>         <li>         <main>       <nav>
<noscript>   <ol>         <p>          <pre>        <section>
<table>      <tfoot>      <ul>         <video>
```

Inline level elements:

```
<a>          <abbr>       <acronym>    <b>          <bdo>
<big>        <br>         <button>     <cite>       <code>
<dfn>        <em>         <i>          <img>        <input>
<kbd>        <label>      <map>        <object>     <output>
<q>          <samp>       <script>     <select>     <small>
<span>       <strong>     <sub>        <sup>        <textarea>
<time>       <tt>         <var>
```

<blockquote> … </blockquote>

- Indents a block of text for specials emphasis

Phrase Elements:

Element	Example	Usage
<b>	bold text	Text that has no extra importance but is styled in bold font by usage and convention
****	emphasized text	Causes text to be emphasized in relation to other text; usually displayed in italics
<i>	italicized text	Text that has no extra importance but is styled in italics by usage and convention
<mark>	**mark** text	Text that is highlighted in order to be easily referenced (HTML5 only)
<small>	small text	Legal disclaimers and notices ("fine print") displayed in small font-size
****	strong text	Strong importance; causes text to stand out from surrounding text; usually displayed in bold
<sub>	$_{sub}$ text	Displays a subscript as small text below the baseline
<sup>	^{sup} text	Displays a superscript as small text above the baseline

HTML Lists:

- Unordered list
  - Something

- Ordered List
  - Something

- Description List (definition list): useful to display a list of terms and descriptions or a list of FAQ and answers.

  - <dl></dl>
  - <dt>Title</dt>
  - <dd>Content</dd>

Special Characters:

Character	Code
©	&copy;
<	&lt;
>	&gt;
&	&amp;

HTML Structural Elements:

header Element

<header></header>

Contains the web page document's headings

nav Element

<nav></nav>

Contains web page document's main navigation

main Element

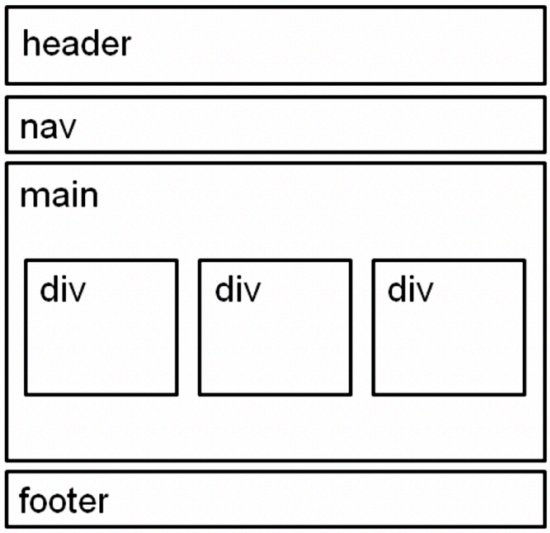
<main></main>

Contains the web page document's main content

footer Element

<footer></footer>

Contains the web page document's footer



CHAPTER 03:

Common Formatting Elements:

- background-color
- color
- font-family
- font-size
- font-style
- font-weight
- line-height
- margin
- text-align
- text-decoration
- width
- line-height: space allowed for the line of text
- letter spacing
- text-indent

Inline CSS:

- Configured in some element inside the <body> tag
- Use the style attribute of an HTML tag.
- <h1 style="color: #ff000000;background-color:#00ff00">I am red and my background is green</h1>

Embedded CSS:

- Configured in inside the <head> tag
- Use the tag <style> … </style>
- Reference the tag name, the class, or id.

CSS Selectors:

- HTML element selector
- Class selector
    - <h1 class="heading1"> … </h1>
    - .heading1 { }

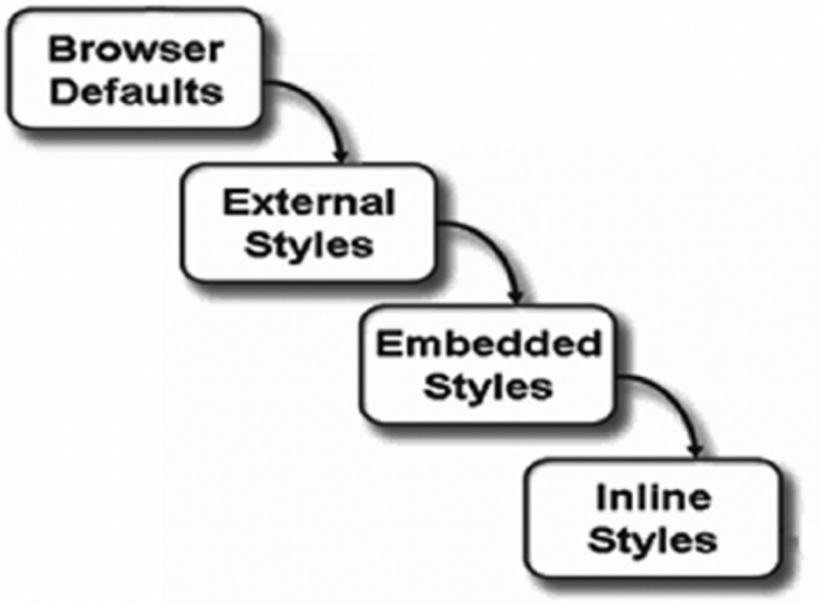
- Id selector
    - <h1 id="heading1"> … </h1>
    - #heading1 { }

- Descendant selector
    - .heading1 p { }
    - AKA contextual selector
    - Reduces the number of classes and ids you need to apply in the HTML

External Style Sheet:

- Extension ".css"
- Contains only style rules
- Does not contain HTML tags
- Added on the <head> tag.
    - <link rel="stylesheet" href="color.css">

The Cascade:



CHAPTER 04: Visual Elements and Graphics

GIF:

- Graphics Interchange Format
- Best for art and logo
- Maximum of 256 colours
- One channel can be the transparent
- Can be animated
- Use lossless compression
- Can be interlaced

JPEG:

- Joint Photographic Experts Group
- Best for photographs
- Up to 16.7 million color
- Use lossy compression
- Cannot be animated
- Cannot be made transparent
- Progressive JPEG – similar to interlaced display

PNG:

- Portable Network Graphic
- Support millions of colors
- Support multiple level of transparency (but most web browser do not)
- Support interlacing
- Use lossless compression
- Combines the best of gif and jpeg
- Browser support is growing

Thumbnail Image Link:

A small image configured to link to a larger version of that image.