



Overview 2

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Reminder: Did you check your TC WebMail? Did you check the Quarantine folder?

Additional Notes Netiquette and Smiley

Netiquette is about not what you can do, but what you should do. The Core Rules of Netiquette were written by Virginia Shea, and discuss how you, as an Internet User, suddenly have a lot of power... and why you shouldn't let it go to your head!

Below are the 10 rules Virginia Shea developed, and my quick take on them. If you would like to read what she said, go to www.albion.com/netiquette/corerules.html

Rule 1: Remember the Human (you aren't dealing with machines, you are dealing with people who put information on machines; just because you can't see them doesn't mean they don't exist. All other rules relate to this one. Remember this Mantra: Treat others as you wish to be treated)

Rule 2: Adhere to the same standards of behavior online that you follow in real life (Don't hide behind the anonymity of a made up username, and forget everything you mother taught you! Behave on line as you would in the non-virtual world. Treat others as you wish to be treated)

Rule 3: Know where you are in cyberspace (It is illegal for people in Saudi Arabia to have pictures of bikini models... so don't email one there. You have to contend with import/export and local laws, as well as laws of places you visit electronically)

Rule 4: Respect other people's time and bandwidth (Every file you get uses someone's computer power, and takes up bandwidth, which they may have to pay for. Or listening to Internet radio instead of real radio could tie up bandwidth your company needs for e-mail. Just be aware of the implications. Treat others as you wish to be treated)

Rule 5: Make yourself look good online (Electronic communication lacks the nuances of body language and inflection, be sure of what you are communicating... look for double meanings, and use spell check!) More on this topic [below](#)...

Rule 6: Share expert knowledge (What makes the system work is the idea of 'you rub my back, I'll rub yours.' Treat others as you wish to be treated)

Rule 7: Help keep flame wars under control (If someone is an idiot, they deserve to know. Once. Don't swamp their mailbox with insults every day for the rest of your life. Treat others as you wish to be treated)

Rule 8: Respect other people's privacy (If you don't want folks looking in your medicine cabinet, return the favor. Treat others as you wish to be treated)

Rule 9: Don't abuse your power (You could look through other folks files, you could tie up their server, you could ruin their mail box... don't. Treat others as you wish to be treated)

Rule 10: Be forgiving of other people's mistakes (You will make mistakes. How do you want to find out about it? A flame, or a friendly hint? Treat others as you wish to be treated)

Smileys and trying to communicate with email

Many people retain information according to the following rates:

10% of what they read

20% of what they hear

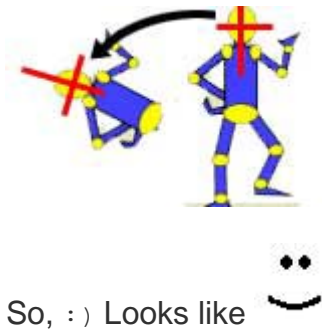
30% of what they see

70% of what they see and hear...

The problem with email is that you have eliminated 90% of communication when you are stuck with just reading. To try and overcome this shortcoming, many people try to use emoticons or abbreviations.






Emoticons (*Emotion Icons*), or smileys, are keystrokes to represent your body language. If someone in person asks me how a student is doing... reading 'just fine' has a completely different meaning than if I said it in person, and I rolled my eyes. So to try and convey a smile, a frown, etc. people use smileys.

To read a smiley, you have to turn your head 90° to the left.



So, :) Looks like

Some Programs actually convert the keystrokes into pictures, to take away the guessing.

To Get This:	Type This:
	:)
	:D
	:O
	:P
	;))

And guessing can be a problem, when people use non-standard, complex emoticons, such as (8u{ }>. (That's me... but since it didn't convey anything until I said that, it is an example of how NOT to use them, as they don't help communication.

Many people will also use abbreviations and acronyms to try and improve communication. A lot of you know that LOL is laughing out loud, and that IMHO is In My Humble Opinion, but a lot of these also get to complex to be useful. It is so much easier to just say what you mean, re-read it for clarity, and then send it!

But just in case, here is a short list of chat acronyms (or chaq, pronounced "chalk") :

BFT or ttfn, bye or tata for now

BRB, be right back

BTW, by the way

CWOT, complete waste of time

DIY, do it yourself

RTM, read the manual

A more detailed list is at <http://www.sharpened.net/glossary/acronyms.php>

Hobbe's Time Line

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Permission is granted for use of this document in whole or in part for non commercial purposes as long as appropriate credit is given to the author/maintainer. A copy of the material the Timeline appears in is appreciated. For commercial uses, please contact the author first. The author wishes to acknowledge the Internet Society for hosting this document, and the many Net folks who have contributed suggestions and helped with the author's genealogy search.

1950s

1957	My Notes (Stuff for Review over here :)
USSR launches Sputnik, first artificial earth satellite. In response, US forms the Advanced Research Projects Agency (ARPA) within the Department of Defense (DoD) to establish US lead in science and technology applicable to the military (: amk:)	This was huge to the US, it meant that the Russians beat us into space, and had the ability to perhaps drop bombs from space, and knock out our communications. So, The US knew they needed a better way for Generals to talk to each other in case of war, and a better way for scientists to talk to each other, to get caught up.

1960s

1962	
Paul Baran, RAND: "On Distributed Communications Networks" <ul style="list-style-type: none">• Packet-switching (PS) networks; no single outage point	It took 5 years for someone to think of an idea of communications that could survive a nuclear bomb... by de-centralizing the network, and letting the parts be responsible for moving the messages.
1965	
ARPA sponsors study on "cooperative network of time-sharing computers"	ARPA: they gave us the stealth bomber... now they want to build that bomb proof network... 8 years after the need arose.
1967	
ACM Symposium on Operating Principles <ul style="list-style-type: none">• First design paper on ARPANET published by Lawrence G. Roberts• Plan presented for a packet-switching network	10 years after Sputnik, now we have a design.
1969	
ARPANET commissioned by DoD for research into networking	The Internet goes on-line in 1969... same year man walked on the moon. Which is more important, now?
First Request for Comment (RFC): "Host Software" by Steve Crocker	Instead of letting problems fester for years, they had a method of letting people know there is an issue to tackle... the RFC.

1970s

1970

ALOHAnet developed by Norman Abrahamson, U of Hawaii (:sk2:)

ARPANET hosts start using Network Control Protocol (NCP).

1971

15 nodes (23 hosts): UCLA, SRI, UCSB, U of Utah, BBN, MIT, RAND, SDC, Harvard, Lincoln Lab, Stanford, UIU(C), CWRU, CMU, NASA/Ames

Hold on, the Internet had only 23 server computers back then?

1972

ALOHAnet connected to the ARPANET

The Internet leaves the Continental US.

InterNetworking Working Group (INWG) created to address need for establishing agreed upon protocols. Chairman: Vinton Cerf.

Ray Tomlinson of BBN invents email

Birth of e-mail.

Telnet specification (RFC 318)

1973

First international connections to the ARPANET: University College of London (England) and Royal Radar Establishment (Norway)

The Internet expands beyond the US.

Bob Metcalfe's Harvard PhD Thesis outlines idea for Ethernet (:amk:)

This is how you connect little computers to a network. Bob went on to found 3Com... maybe you see football games played in his stadium in San Francisco.

Bob Kahn poses Internet problem, starts internetting research program at ARPA. Vinton Cerf sketches gateway architecture in March on back of envelope in hotel lobby in San Francisco (:vgc:)

Vinton Cerf is a neat guy. Designs a way to connect lots of different kinds of computers together. I met him a few years ago... looks just like me. Tall, bald, bearded, good looking...

File Transfer specification (RFC 454)

You still will use this 30 year old technology to upload to a web server

1974

Vint Cerf and Bob Kahn publish "A Protocol for Packet Network Internetworking" which specified in detail the design of a Transmission Control Program (TCP). (:amk:)

1976

Elizabeth, Queen of the United Kingdom sends out an e-mail (various Net folks have e-mailed dates ranging from 1971 to 1978; 1976 was the most submitted and the only found in print)

Note when a US President goes online... and our country invented this stuff!

UUCP (Unix-to-Unix CoPy) developed at AT&T Bell Labs and distributed with UNIX one year later.

1977

Mail specification (RFC 733)

1980s

1982

DCA and ARPA establishes the Transmission Control Protocol (TCP) and Internet Protocol (IP), as the protocol suite, commonly known as TCP/IP, for ARPANET. (:vgc:)

We still use TCP/IP, but it is due for an overhaul, to allow more devices to connect by expanding the number of IP addresses.

- This leads to one of the first definitions of an "internet"

- DoD declares TCP/IP suite to be standard for DoD (:vgc:)

External Gateway Protocol (RFC 827) specification. EGP is used for gateways between networks.

1983

Name server developed at U of Wisconsin, no longer requiring users to know the exact path to other systems.

Cutover from NCP to TCP/IP (1 January)

ARPANET split into ARPANET and MILNET; Generals don't want to share anymore...

Desktop workstations come into being, many with Berkeley UNIX which includes IP networking software.

Internet Activities Board (IAB) established, replacing ICCB

Berkeley releases 4.2BSD incorporating TCP/IP (:mpc:)

First computer operating system to include TCP/IP... this is why BSD and other UNIX computers constitute the majority of web servers

1984

Domain Name Server (DNS) introduced.

Instead of using just IP numbers (32 1s and 0s) to identify a computer, we can also use a name, such as DCCCD.EDU or TEMPLEJC.EDU

of hosts breaks 1,000

Pay attention to the growth now

1986

NSFNET created (backbone speed of 56Kbps)

- NSF establishes 5 super-computing centers to provide high-computing power for all.

1987

1000th RFC: "Request For Comments reference guide"

of hosts breaks 10,000 # of BITNET hosts breaks 1,000

About every 2 1/2 years, the Internet grows by a factor of 10... not doubling, as in 2 to 4, but by a factor of 10, from 1,000 to 10,000

1988

1 November - Internet worm burrows through the Net, affecting ~6,000 of the 60,000 hosts on the Internet (:ph1:)

DoD chooses to adopt OSI and sees use of TCP/IP as an interim.

NSFNET backbone upgraded to T1 (1.544Mbps)

Countries connecting to NSFNET: Canada, Denmark, Finland, France, Iceland, Norway, Sweden

1989

of hosts breaks 100,000

Cuckoo's Egg written by Clifford Stoll tells the real-life tale of a German cracker group who infiltrated numerous US facilities

Great Story, but Stoll is now an idiot

Countries connecting to NSFNET: Australia, Germany, Israel, Italy, Japan, Mexico, Netherlands, New Zealand, Puerto Rico, UK

1990s

1990

ARPANET ceases to exist

Al Gore supports a bill to keep things going when ARPA shuts it down: the Internet. Write a note and thank him. He never said he invented it, by the way.

Archie released by Peter Deutsch, Alan Emtage, and Bill Heelan at McGill

The World comes on-line (world.std.com), becoming the first commercial provider of Internet dial-up access

Countries connecting to NSFNET: Argentina, Austria, Belgium, Brazil, Chile, Greece, India, Ireland, South Korea, Spain, Switzerland

1991

Gopher released by Paul Lindner and Mark P. McCahill from the U of Minn

Until now, you used one program to search for files, another to transfer files, and yet another to read the file. Gopher did all of that in one program.

PGP (Pretty Good Privacy) released by Philip Zimmerman (:ad1:)

US High Performance Computing Act (Gore 1) establishes the National Research and Education Network (NREN) NSFNET backbone upgraded to T3 (44.736Mbps)

NSFNET traffic passes 1 trillion bytes/month and 10 billion packets/month

Countries connecting to NSFNET: Croatia, Czech Republic, Hong Kong, Hungary, Poland, Portugal, Singapore, South Africa, Taiwan, Tunisia

1992

Internet Society (ISOC) is chartered

There is no King of the Internet, just volunteers who make recommendations... which most people adopt. What a great way to run the world.

World-Wide Web (WWW) released by CERN; Tim Berners-Lee developer, a prototype browser

Tim wants folks reading his scientific papers to be able to read similar papers, so he add the ideas of links. He now runs the volunteer group that oversees new ideas for the WWW

of hosts breaks 1,000,000

Still growing by a factor of 10

IAB reconstituted as the Internet Architecture Board and becomes part of the Internet Society

Veronica, a gopherspace search tool, is released by UofNevada

Computer people are weird. Archie is an FTP search engine, and Veronica and Jughead are Gopher search engines.

Countries connecting to NSFNET: Cameroon, Cyprus, Ecuador, Estonia, Kuwait, Latvia, Luxembourg, Malaysia, Slovakia, Slovenia, Thailand, Venezuela

1993

InterNIC created by NSF to provide specific Internet services: (:sc1:)

- directory and database services (AT&T)
- registration services (Network Solutions Inc.)
- information services (General Atomics/CERFnet)

US White House comes on-line (<http://www.whitehouse.gov/>):

Finally, 17 years after the Queen.

- President Bill Clinton: president@whitehouse.gov
- Vice-President Al Gore: vice-president@whitehouse.gov

US National Information Infrastructure Act

Mosaic takes the Internet by storm; WWW proliferates at a 341,634% annual growth rate of service traffic.

Marc Andreesson had taken Tim Berners-Lee's idea, added pictures to web pages, and develops a free server and browser while at the University of Illinois. This was the first browser for personal computers

Marc later decides to start a company to sell some of this stuff... the first commercial browser was called Netscape.

Gopher's growth is 997%.

Countries connecting to NSFNET: Bulgaria, Costa Rica, Egypt, Fiji, Ghana, Guam, Indonesia, Kazakhstan, Kenya, Liechtenstein, Peru, Romania, Russian Federation, Turkey, Ukrayne, UAE, Virgin Islands

HTML and the Art of the Web Page

1994

ARPANET/Internet celebrates 25th anniversary

Arizona law firm of Canter & Siegel "spams" the Internet with email advertising green card lottery services; Net citizens flame back

NSFNET traffic passes 10 trillion bytes/month

WWW edges out telnet to become 2nd most popular service on the Net (behind ftp-data) based on % of packets and bytes traffic distribution on NSFNET

Countries connecting to NSFNET: Algeria, Armenia, Bermuda, Burkina Faso, China, Colombia, French Polynesia, Jamaica, Lebanon, Lithuania, Macau, Morocco, New Caledonia, Nicaragua, Niger, Panama, Philippines, Senegal, Sri Lanka, Swaziland, Uruguay, Uzbekistan

1995

WWW surpasses ftp-data in March as the service with greatest traffic on NSFNet based on packet count, and in April based on byte count

[It used to take 10 years for a good idea to take root, but look how fast WWW grew.](#)

NSFNET reverts back to a research network.

Traditional online dial-up systems (CompuServe, American Online, Prodigy) begin to provide Internet access

Registration of domain names is no longer free. Beginning 14 September, a \$50 annual fee has been imposed, which up until now was subsidized by NSF.

- NSF continues to pay for .edu registration, and on an interim basis for .gov "

1996

Number of .com sites surpasses .edu sites

[The scientists now have their own network, called Internet 2. It is 100 times faster than what you can get at school.](#)

Patents, Trademarks, and Copyrights... **protect the rights of those who create something.**

The way this applies to web pages, very briefly, is as follows.

If you create something, and put it in a tangible form, it is automatically copyrighted. A web page is a fixed, tangible form, and therefore it is copyrighted. It helps if you note this on your material with the ©, and it helps if you register your material with the Copyright Office of the Library of Congress, but these steps are not required.

Once created, no one can use your material without permission until their copyright or patent expires. Period.

This also means you may not use other people's material on your web site without their permission. Period.

Some sites have notices, which state that you may use their drawings, etc.; this is their way of granting you permission. If this notice is not present, you must ask them. E-mail is usually is not considered legal permission, as there is no signature or proof of who sent it.

Legal Gray Areas

It is possible to get a picture of Mickey Mouse from sites aside from Disney, and while these 'generous' sites may grant you permission to use *their* version of Mickey... they did not have permission in the first place, so them granting you permission to copy it to your site is useless. They are breaking the law, and you would be distributing illegal copies.

It is possible to pull an image from Disney, and display it on your site, which seems legal, as you are not storing the image. And, Disney had put it up there on the Internet already for people to look at... but this is theft of bandwidth, and the image is not being used as the copyright holders intended.

Finally, copyrights do expire, normally 50 years after the death of the author, or 75 years after the item was released if the author is still alive.

How you can copyright something someone else made.

Aside from being able to copyright the original, you *can* copyright your version, if you have permission to make your own version or if there is not copyright in place.

Example: Barnes and Noble can copyright the Sherlock Holmes books that *they* publish, or the New York Philharmonic can copyright *their* performance of Beethoven's 9th Symphony, as they have the legal right to publish or perform the material since both original copyrights have expired. But again, these new, legal expressions are now copyrighted... preventing you from photocopying a book, or copying a CD.

You can make your own version of the Mona Lisa if you paint it from memory as the original is out of copyright; but if you use a photograph as your starting point, you are violating the copyright of the photographer.

So, in this class,

- 1) you must have created it yourself, or
- 2) you must have written permission to use anyone else's material, or
- 3) you must have legal permission to use the material, by way of fair use.

Fair Use: A POSSIBLE exception to copyright law

Fair use states that *some* work can be used without permission under a few rules:

- 1) to parody a copyrighted work
- 2) to critique or review a copyrighted work, only a small portion is used (a rule of thumb is 10% or less) and credit is given
- 3) review a copyrighted work for scholarly purposes (again, only if a small portion is used and credit is given)

PS You can't claim your webpage on a game, mp3, or movie is scholarly.

So let me repeat, in this class, to use something on your web page,

- 1) you must have created it yourself, or
- 2) you must have written permission to use anyone else's material, or
- 3) you must have legal permission to use the material, by way of fair use.

Check before using something you didn't make.

See also <http://www.copyright.gov/>

Searching Techniques at Most Search Engines

To increase the precision of your search results, many search engines require that most of the words in your search string be present in the result documents. So, it may be better to start by listing just a few *key* words, and add additional terms to refine searches.

To gain even more control over your results, please read through the following hints.

Most search engines support full Boolean capability; Boolean terms are **AND**, **OR**, & **NOT**.

Use **AND** to connect a series of keywords you would expect to be in your documents, this forces the search engine to include that word in documents.

Example: War AND Peace

will return documents that contain both the word *War* *and* the word *Peace*, not just one or the other as with a simple series of words.

Use **OR** to retrieve documents that include *either* of the search words

Example: encryption OR cryptography

will locate documents that either include the word *encryption* *or* the word *cryptography*.

Use **NOT** to indicate a word that must *not* appear in the documents.

Example:

dolphins NOT NFL

will deliver searches on the mammal, rather than the football team.

Some browsers use + and - instead of **AND** or **NOT**; you may use a + (plus) to indicate words that **must** be present in the documents and a - (minus) for those that **must not** be present.

Examples:

+dolphins -NFL

+recipes for +cake -nuts

Use **"quotes"** around specific phrases to focus your search on occurrences of the actual phrase.

Example

"War AND Peace"

will return documents with the phrase "War and Peace" (such as discussion of the book by Leo Tolstoy), instead of random pages on conflict and quiet; thus you can use quotes to force the search on the phrase, rather than individual words.

HTML and the Art of the Web Page

Slowly add additional words in your search if the results are still too random, but don't do this too early... you may be putting blinders on the search engine, and miss good results. The often, the more words you enter, the more on target your results will be.

Examples:

ski resorts Vermont

*(instead of **skiing**)*

ergonomic workstation mouse keyboard

*(instead of **ergonomics**)*

Most search engines support a truncation symbol (wildcard) in queries. Often you must have at least four non-wildcard characters in a word before you introduce a wildcard. The * (asterisk) can be used to replace multiple characters.

(Please note that often search engines automatically stems most common plural and singular forms of words; a search on **cat** will also return results containing the word **cats**, and a search on **cats** will return results containing the word **cat**.)

Examples:

chemi* will find results containing words that begin with 'chemi' (e.g. chemical, chemistry, chemist)

psych*ist will find all results which contain words that begin and end with 'psych' and 'ist' (e.g. psychologist, psychiatrist)

A list of search engines:

<http://www.google.com>
<http://www.ask.com>
<http://www.yahoo.com>
<http://bing.com>

What search Engines Look For

Some Search engines simply take the first 25 words or so that appear on your page and compare searches to just those words. But, many search engines use the <META> tag, nested in the <HEAD> when collecting data to include in the search engine database.

More on the <META> tag in Overview 13.

Preview of Meta tags

There are many variations of the meta tags that can be nested in <head>

```
<meta name="description" content="your info">
```

Which allows the search engine to capture a description you create, and

```
<meta name="keywords" content="your info">
```

Which allows the search engine to capture keywords you designate.

There are other <META> tags, as well, such as

```
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
```

Which tells the browser which character set was used to render typed items,

```
<link rel="meta" href="http://www.example.org/labels.rdf"
type="application/rdf+xml" title="ICRA labels" />
```

```
<meta http-equiv="pics-label" content='(pics-1.1
"http://www.icra.org/pics/vocabularyv03/" 1 gen true for
"http://www.example.org" r (n 0 s 0 v 0 l 0 oa 1 c 0 ))' />
```

Which allows the browser to detect parental control ratings (See <http://www.icra.org/webmasters/>), and

```
<META HTTP-EQUIV="REFRESH" CONTENT="x; URL=y">
```

Which automatically jumps to another page 'y' after 'x' seconds. (You could even force the current page to be reloaded...)

We will not use meta tags now, but be aware that they exist.

What is the Internet

Let's start with what the Internet is not; it is not an overnight sensation.

Started in 1969 as a small communications tool for the scientific and military communities, the number of users practically doubled yearly until it reached today's staggering figures, and continues... because it works. It allows information to flow, and fuels our information age.

Granted, it is still in its infancy, subject to growing pangs and fears, but it will not be a temporary fad. Once people see the work (and fun) that can be done on-line (and the recent trendy aura wears off allowing mature growth sets in), the Internet will become as indispensable as newspapers, books, televisions and shopping centers; not because it will replace them... but because it can enhance and expand their effect.

The Internet is not run by the US. While originally operated by the Department of Defense, currently the Internet is a free standing network that receives *influence* (or perhaps *direction* is a better word) from the Internet Society. But the Internet Society has no real control aside from suggesting standards... the Internet as a whole today is an unregulated entity that basically transcends any nation's control. While limits may be attempted on a local area by a government, as a whole it is unfettered and working pretty well on its own.

Finally, the Internet is not unchanging. The beast is dynamic. Computer time is like dog years, multiplied by a factor of 10, or more. Information sources come and go at incredible rates, but new tools are introduced every few months to better access and locate those bits of gold among the rubble that is today's Internet. Many businesses and individuals are developing truly engaging Internet sites, and keeping them up for the long run.

What is included in the Internet?

While most people today equate the Internet with the World Wide Web (described shortly), it is much more than that. It is email, remote access (such as telnet and ftp), and information and storage areas (such as the now nearly dead gopher, and www, the World Wide Web.) After a brief intro to each topic, some terms for use are also given, such as URL and browsing.

e-mail

If you participate on most any computer network, you are identified to the network with an electronic address. This way software can not only flow from your computer, but be drawn to it. One of the first tools on the Internet was e-mail, which allowed not only software to flow across the network, but messages for a particular user, as well.

e-mail addresses

Much as a conventional street address is composed of many parts, so is the electron mail address. Addresses can be read from *right* to *left*, from the general to the specific. Street addresses go from a region, to a city, to a street, to a particular place, to a particular individual. E-mail addresses go to a particular region, to a particular institution (domain), to a particular computer (host), where it is held for a particular individual (user). The sections are divided by periods, and the user portion is set off by the @ (at) sign. Some e-mail addresses have more sections to further point within a domain. Below are the parts of both a street and an e-mail address.

Street Address	Craig Collins	2600 S. First	Temple, TX	76504
	individual	building on street	city	region
e-mail address	craig.collins@	mail.	templejc.	edu
	user	host	domain	top-level domain

Remote Computer Access Tools

In the beginning, using the Internet meant using someone else's computer, from 500 miles away. This is called remote access, and the prime tools were Telnet and FTP.

Telnet is a method of 'driving' a computer that could be in a different state from the operator. Programs could be executed, files created or changed, whatever you could do if you were sitting at the actual machine. While still in use today for running certain networks, it is not what most people deal with or think of when you mention the Internet.

ftp, for File Transfer Protocol, is still a widely used tool to copy files from one machine to another machine. The biggest problem with FTP was not the act of copying files, but finding files to copy in the first place. One of the first tools to locate information on the Internet was a search engine for FTP called Archie. To ftp from a browser, use ftp:// instead of http://

Information Storage Areas

Today when you think of the Internet, you don't think of accessing someone else's computer or copying files, you probably think of browsing. The modern, easy way to look at data: window shopping, and not necessarily keeping everything you look at. The files placed on this part of the Internet come in quite a few flavors, such as Wide Area Index Search and Gopher, but almost everyone of them has fallen by the wayside since the introduction of the World Wide Web in the early 90's.

WWW, The World Wide Web

What is the web? The World Wide Web, or just Web, is a method of not only making information available, but linking it to related information as well. These links are more appropriately called hyper text links, and the development of HTML (Hyper Text Markup Language) enabled documents sent across the globe to look more like magazine layouts than typewriter produced term papers. Taking the it one step further was the inclusion of images and sound in a document in 1993, and hyper media Internet was born!

Browsing

One of the reasons the Internet has come into the mainstream and grown so quickly is the fact that there is now very good, user-friendly software products available for home computers. These 'browsers' allow users to access and navigate through the millions of sites now on the web. After starting the browser, your computer retrieves information from an Internet site that has been set as its 'home', normally a site maintained by the company that created your browser. From here, normally you have three options:

going to sites that are recorded in the equivalent of a speed dialer, one is to use a 'search engine' and one is to follow links from the site you are currently visiting. All of these methods involve URL's.

URL

URL's (Uniform Resource Locators) are just a web sites address, very similar to an e-mail address for an individual. When you watch TV, and it says to visit someone's site, the mumbo jumbo they give our is their URL.

URL's, as with e-mail, are divided up into routing sections. The standard form begins with a command to your browser to expect a hyper text page, followed by the host, the domain, and the top level domain.

Below is a comparison of e-mail and web site addresses.

e-mail address		ccollins1@		hotmail.	com
		user	host	domain	top-level domain
URL	http://		www.	templejc.	edu
	Protocol		host	domain	top-level domain

A protocol is a rule for transferring hypertext documents.

Most sites have an automatic starting point that is shown when you visit a site, while others require you to specify a particular file, or page, before anything is revealed. These non-default pages are files that usually end with .htm or .html, again representing hypertext information.

This file information goes to the right, separated by a '/', such as
<http://www.templejc.edu/dept/cis/CCollins/Collins.htm>

URL	http://	www.	templejc.	edu	/dept/cis/CCollins/Collins.htm
	Protocol	host	domain	top-level domain	path to a particular file name

top level domains

The top level domains are the first routing sign, and point to one of seven regions the Internet is divided into. The 'regions' are used not only for the World Wide Web, but on e-mail, too:

- .com, for commercial; the largest region as far as sheer numbers
- .edu, for educational, the largest segment until 1996
- .org, for organization, usually non-profit
- .net, for network, which usually are to support the Internet,
- .gov, for government, as in the President's e-mail
- .mil, for military, and finally the little used
- .int, for International.

Recently several new top level domains were added, such as .info

Some site us a two letter country code, such as

- o .uk for the United Kingdom or
- o .jp for Japan or
- o .tv for Tuvalu (a small island nation, not short for TeleVision).

TCP-IP

TCP/IP is the basis for Internet Communications. When participating on the Internet, you have many options: any number of pieces of hardware such as a computer or cell phone with a physical or wireless connection to the Internet, at least one of a variety of software tools, such as telnet, ftp, or a browser, but you must have TCP/IP. So how does TCP/IP work?

Many people believe since a lot of the Internet traffic flows over phone lines that all the information follows one path straight from the sender to the receiver immediately, just as a phone call works. That is called circuit switched delivery. But in fact, the Internet works more like the post office, moving information by different routes when a carrier is available to pick up and forward. This is called packet switched delivery. The only difference between the post office and the Internet is that the whole process may take less than a second to break, distribute, collect and reassemble a message whose parts may have gone through Texas and Japan on the way. Why do you suppose a straight connection from sender to receiver is not used on the Internet?

The answer is: much of the time when you are on the Internet, nothing is being transferred, such as when you are reading a page. It would be wasteful to tie up a line. You may also recall that one of the major reasons to build the Internet was to get away from centralized communications. Any number of routes can be used, even if a particular station is not working.

TCP/IP first takes the data you are ready to move across the internet, and breaks it into smaller pieces, called packets. These packets are each numbered, and are stamped with information concerning who the packet is from, where it is going, and how many packets there are total.

Then TCP/IP places the information on the Internet, starting with the local host computer. This first computer examines each packet, finds the 'TO' address, and polls nearby computer on the Internet to see which one a) is not busy, and b) if that computer can forward a packet.

When a computer responds, the packet is sent to that machine, where the process is repeated.

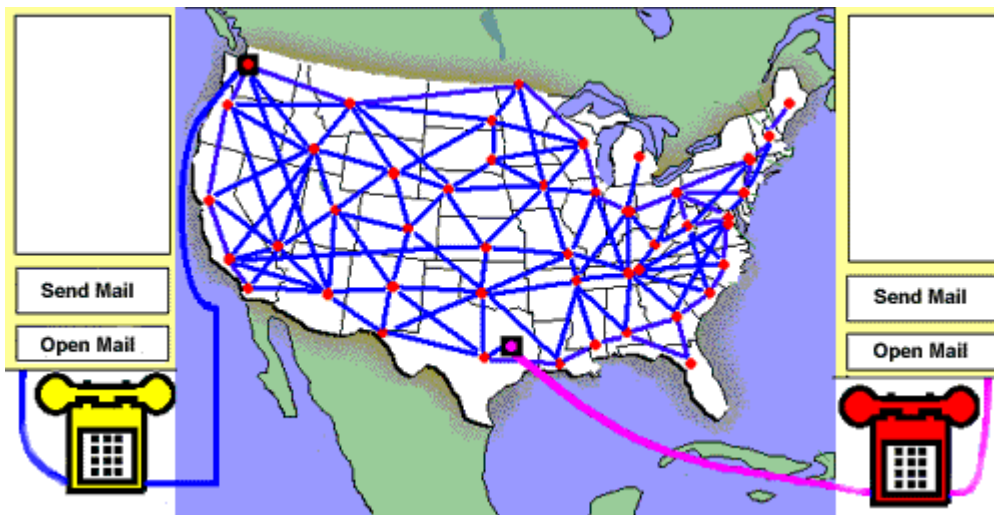
It is important to note that the same computer(s) probably will not handle all of the out-going packets. Some of the computers that 'volunteer' may actually be out of the way, depending on how busy the

Internet is at that time.

Therefore it is possible that many of the last packets sent will actually arrive at the destination before some of the first packets, depending on which computers handled what packets. However, the difference is often measured in milliseconds, and is not noticed.

At the receiving host computer, the message is reassembled. TCP/IP uses error-correcting 'checksums' to validate the data received, and requests replacement packets from the sending machine. Once the packets are all accounted for, they are re-assembled and held, until the recipient requests that host deliver their mail.

To begin a (very large) demo, go to this page on the class web site. It will show a message being composed near Redmond Washington, broken into packets, placed upon the Internet where they find their way to Central Texas. The packets are sequenced, checked for errors, and finally the mail is made available for reading...



How To: Your First Web Page



An eight minute video is available on the class website illustrating the following steps. I recommend you **read over this web page first**, then watch the video to see the steps being performed.

Note on Controlling File Names in Windows

Many computers are set up to hide known file extensions, this can be very confusing for computer students. To set your computer to display the entire file name:

- Open My Computer or Windows Explorer
- Choose Tools\Folder Options... (for Vista users, press the [Alt] key to reveal the Tools menu, then select Folder Options)
- Choose the View tab
- Click **off** the check mark next to 'Hide extensions for known file types'
 - Click OK

How web pages work

Web pages are simply plain text files that contain simple markup language controls, called tags; these tags format documents for viewing by a web page browser, such as Internet Explorer or Mozilla. A tag is enclosed between a less than sign (<) and a greater than sign (>).

99% of all tags are pairs; you start a tagged area, then end the tagged area, such as telling the browser when to turn on making words bold, and then when to turn off making word bold. So, think of tags as light switches, to turn on and off some formatting.

Starting a plain text editor

Windows Users:

To begin this project, launch **Notepad**.

From the [Start] button, open up to the **Programs** tab, then open the **Accessories** tab. Click on **Notepad**.

Linux Users:

From a Terminal prompt, touch `template.htm`, then either `emacs template.htm` or `vi template.htm`

All browsers need to be instructed as to what type of file to they are about to deal with, so the first tag set that we need to type in your text editor identifies the page as a Hyper-text document. Type in:

```
<HTML> </HTML>
```

I usually type in both the starting tag `<HTML>` and the ending tag `</HTML>` at the same time, this way I don't forget the ending tag later. Next, place the insertion point between the tag set, and hit the enter key a few times to give you space to work. What is typed *in between these two tags* will be part of the web page.

```
<HTML>
```

```
</HTML>
```

Next, we need to know that there are two parts of the web page, the part the computer reads, and the part the users read. We'll insert the computer's part next. Just as Microsoft Word has parts of the document reserved for page numbers, etc., web pages also have something similar to a header section, called the head.

Between the two `<HTML>` tags, add the head section, as follows. Don't worry about how many spaces or how many lines are between things...browsers ignore this "white" space. It also doesn't matter if you use capital letters or not.

```
<HTML>
```

```
<HEAD>
```

```
</HEAD>
```

```
</HTML>
```

Usually, the only thing that goes in between the head tags is something to create a title. So add the following so that your entire page looks like:

```
<HTML>
```

```
<HEAD>
```

```
<TITLE>
```

```
</TITLE>
```

```
</HEAD>
```

```
</HTML>
```

Now, just as in Microsoft Word, we need to add the section where all the words go; just as Microsoft Word has a body area, web pages also have something similar, also called the body.

HTML and the Art of the Web Page

```
<HTML>  
  
<HEAD>  
  
<TITLE>  
  
</TITLE>  
  
</HEAD>  
  
<BODY>  
  
</BODY>  
  
</HTML>
```

Notice the two HTML tags surround the entire document. Within the document you have a HEAD section and a BODY section. And within the head, you have an area for a TITLE. We are now ready to save this document, which will be the starting point for all of your web documents.

Windows Users:

Click on the **File** menu item, then select **Save**. This will open the Save As dialog box. For the file name, type in

"template.htm"

Please make sure that the extension is .htm, and not txt. In the upper box, select to save the file, perhaps on your floppy disk, A: . Then choose **Save**.

Linux User:

Choose File\Save Current Buffers

Now we have a file that contains all the required tags. Instead of having to type them in each time, we can simply open the file, and using the File\Save As menu, create a new file with a new name.

Let's do that now; Using File\Save As, name the file **test1.htm**. You should now have two, identical documents, template.htm and test1.htm, with test1.htm now open

Again, you'll be able to use the template.htm later as a starting point later, so we will be making our changes only to copies of it, as we have

done. Whenever you want to start a new web page, open `template.htm`, and then use **save as** to create a copy, with a different name. This page contains all the required tags...all it lacks is your formatted text.

Now modify `test1.htm` by inserting a title between the `<TITLE>` tags. Call it something like *My 1st page*.

```
<HTML>

<HEAD>

<TITLE>

My 1st page

</TITLE>

</HEAD>

<BODY>

</BODY>

</HTML>
```

Now click the **File** menu item, and then select the **save** option. (Not *save as*, the file already has a name.)

Next, minimize your text editor window; **DO NOT CLOSE THE WINDOW**, as we will be switching back to it.

Windows Users:

Start My Computer, and browse to the location where you saved `test1.htm`, and double click it.

Linux Users:

Open your 'home' folder, locate `test1.htm`, and double click it.

This should launch Internet Explorer or the Mozilla browser, placing **test1.htm** in **address** text box.

HTML and the Art of the Web Page

It may look like nothing is being displayed, but look in the upper left hand corner of the browser window, in the blue title bar. It should read "My 1st page". This is appropriate as we have only put in a title.



Next, leave the browser running, but click on the your text editor icon on the task bar, to switch to your text editor.

If you accidentally closed Notepad, and are using Internet Explorer 7 or earlier, choose View\Source.
If you accidentally closed Notepad, and are using Firefox or Internet Explorer 8, go to the folder, right click test1.htm, and choose Open with... and choose Notepad

Between the <BODY>tags, type Hi.

```
<HTML>

<HEAD>

<TITLE>

My 1st page

</TITLE>

</HEAD>

<BODY>

Hi

</BODY>

</HTML>
```

Save your text editor file, click on the browser icon, then click on the refresh/reload button. You should now see the word **Hi** displayed.



Switch back to your text editor, and highlight the word Hi by clicking just to the left of the word, and drag across it with the mouse button still depressed. When the word is highlighted, press down the [Ctrl] button and hold it down. Now tap the [c] key and let go of both. Now press the [End] key. This will break the highlight, and place the cursor at the end of the line. Press the [Enter] key to create a new line below the word **Hi**. Now, press down the [Ctrl] button and hold it down. Now tap the [v] key and let go of both. A copy of the word **Hi** should now be pasted in below the original. (You could also have used the edit menu.)

```
<HTML>

<HEAD>

<TITLE>

My 1st page

</TITLE>

</HEAD>

<BODY>

Hi
Hi

</BODY>

</HTML>
```

HTML and the Art of the Web Page

Save the changes, and switch back to your browser. Refresh/reload (Internet Explorer can be refreshed by using the [F5] key.)

You should now have two **Hi**'s, but are they one on top of the other?

No. I'll bet they are side by side.



Why? Because the browser ignored the white space separating the two, and thus they are displayed side by side.

In Microsoft Word, you start a new line by inserting a line break... so let's force a line break here. In your text editor, make the following change, and save.

```
<HTML>

<HEAD>

<TITLE>

My 1st page

</TITLE>

</HEAD>

<BODY>

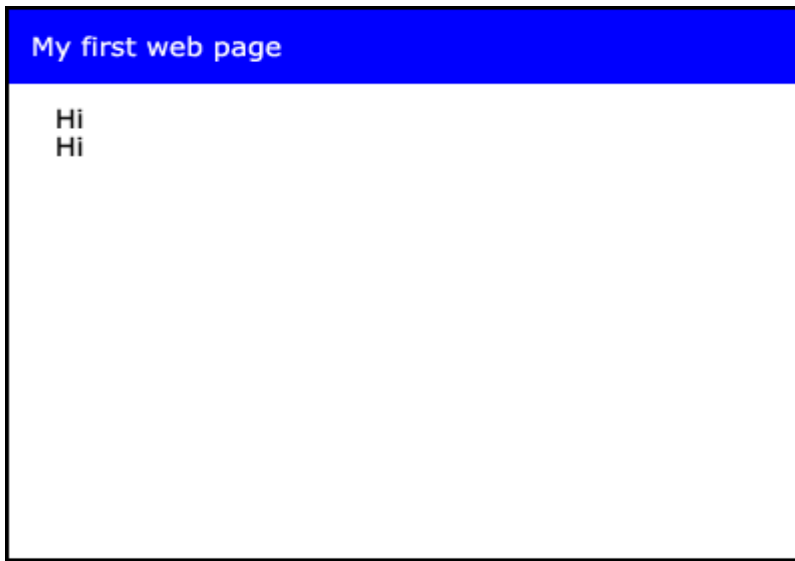
Hi <BR>
Hi

</BODY>

</HTML>
```

Notice that the break tag `
` does not have an ending component, as this tag is not surrounding text in order to format the text for display. You don't start breaking your leg, then finish breaking you leg later... it is just a break!

Switch to your browser, refresh, and you should now see the two **Hi**'s displayed in stacked fashion.



Now, when we read a newspaper, we know when a new story starts, because of headlines. Headlines are different sizes, bold, and always are on on a different line than the story. So, let's try to add one of the 6 headlines by make the following changes, and note the results in your browser. Remember, every time you make a change in your editor, save your document, switch to your browser, then refresh/reload.

Recall also, tags normally surround the text that they will format for the browser.

Only the `<BODY>` section will be changing this time, but the other tags must still be on your document.

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First we'll get rid of the `
`, and surround the first word Hi with a headline size 6 tag set.

```
1. <HTML>
   <HEAD>
   <TITLE> My first web page </TITLE>
   <BODY>
   <H6>Hi</H6>
   Hi
   </BODY>
   </HTML>
```

You should see a really small first line now, as h6 is the smallest headline, and this tag surrounds the first word Hi.



Now, let's try a headline size 2, by replacing the h6 tags with H2 tags.

```
2. <HTML>
<HEAD>
<TITLE> My first web page </TITLE>
<BODY>
Hi<BR>
<H2>hi</H2>
</BODY>
</HTML>
```



This is the second largest... I avoided using H1 tags, as they look a little too much like Hi, but you can try an H1 set if you like!

In the steps below, DO NOT ADD ADDITIONAL BODY TAGS! Simply edit the existing body tag to reflect the changes. From this step on, the items are being inserted **between** the "<body" and the ">" in <body>... again, ALL of these changes made are BETWEEN the < and the >. Also and use the number "0", not the letter "o"
Changes to be made are in **bold**. Don't forget to save after each change, and refresh/reload your browser.

- **NOTE:** Do NOT use curly quotation marks, such as ”; only use straight quotation marks, such as ”.

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```
3. <HTML>
   <HEAD>
   <TITLE> My first web page </TITLE>
   <BODY BGCOLOR="green">
   Hi<BR>
   <H2>hi</H2>
   </BODY>
</HTML>
```

This modifies the background color to be green. The modifier is called an attribute, and attributes are followed by ="value", in this case, bgcolor="green"

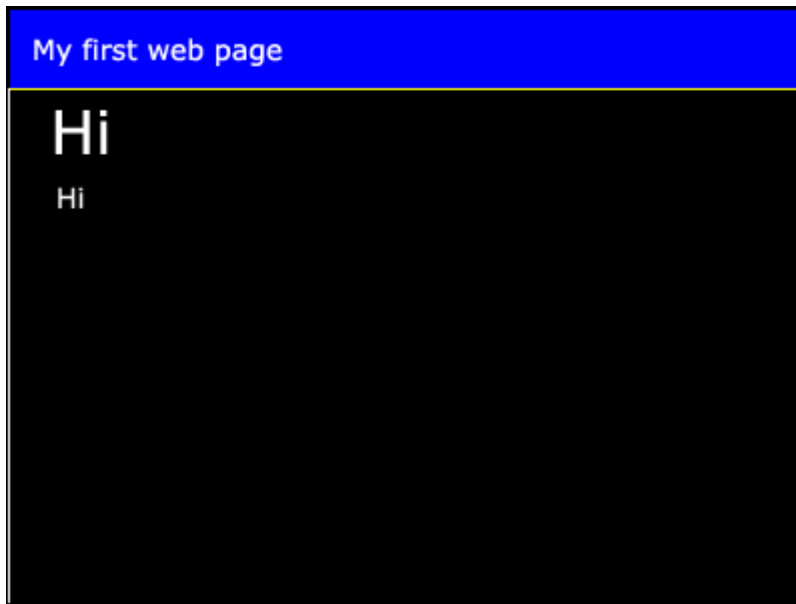
```
4. <HTML>
   <HEAD>
   <TITLE> My first web page </TITLE>
   <BODY BGCOLOR="#00FF00">
   Hi<BR>
   <H2>hi</H2>
   </BODY>
</HTML>
```

Think of a room with 6 lights, 2 red, 2 green, and 2 blue. If 0 is off, and F is fully on, then #00ff00 means no red light, lots of green light, and no blue light... making the background green. Try this now.

```
5. <HTML>
   <HEAD>
   <TITLE> My first web page </TITLE>
   <BODY BGCOLOR="#000000">
   Hi<BR>
   <H2>hi</H2>
   </BODY>
</HTML>
```

Did you guess that if no lights are on, that the room would be black? If the background is black, let's make the text white. Again this is all between the <body and the >, even though I am adding another instruction on the next line down.

```
6. <HTML>
<HEAD>
<TITLE> My first web page </TITLE>
<BODY TEXT="#FFFFFF"
BGCOLOR="#000000">
Hi<BR>
<H2>hi</H2>
</BODY>
</HTML>
```



What else goes in web page?

Oh yes... now, let's add a picture.

Open [Google](#) and select to search for Images. Type in something, such as *money* or *Lincoln*, and search. You will be presented a list of images; right click one of those images, and choose *Save Picture As...*

Make sure you save the picture in the same folder as the web page you are working on, and give it a short, memorable name. (I'll call mine 'pres.jpg').



NOTE, this is 'fair use' of a copyrighted image, since only you are viewing it. You may NOT use this image on web pages that you post to the Internet. Review Copyrights (see page 17), if you aren't sure how to use copyrighted images

HTML and the Art of the Web Page

Now, switch back to your text editor and insert the following line.

```
<HTML>
<HEAD>
<TITLE> My first web page </TITLE>
<BODY TEXT="#FFFFFF"
BGCOLOR="#000000">
Hi<BR>
<H2>hi</H2>

</BODY>
</HTML>
```

Then, switch back to the browser, and refresh.

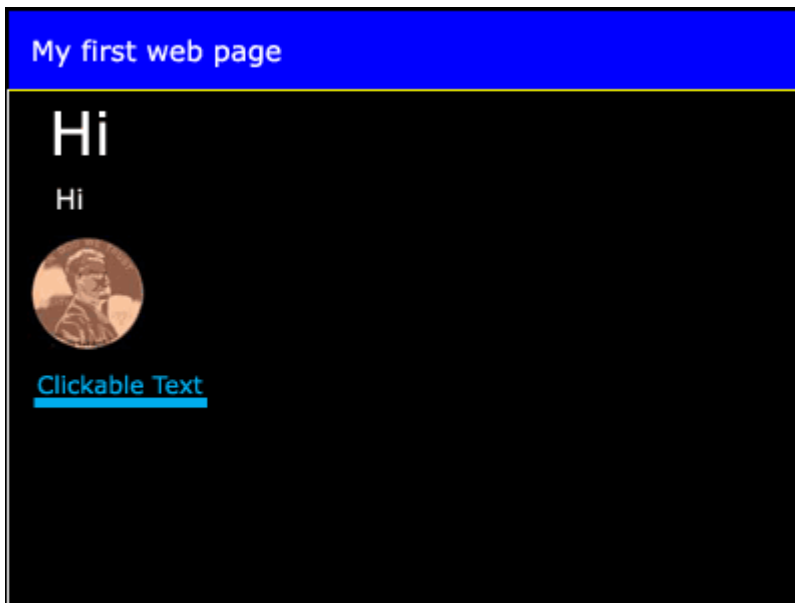
Finally, we'll create a link, using the anchor tag. An anchor tag allows you to not only move to another site, but to later return to sight you came from by using the back button, hence the anchor name. Just as the **image** tag required the **source** attribute to point to the location of the image, the **a** tag requires an **href** attribute to point to the fully qualified URL of the site you wish to link to. And just as the **H2** tag set needs to surround the text to render as a headline, the **a** tags need to surround the text that will become the clickable link.

Note, shown below is the entire document... your work in your text editor should be identical, aside from URL!

Please replace **URL** below with a favorite web site, such as <http://www.google.com> or <http://www.templejc.edu> .
(You must include the <http://>)

```
<HTML>
<HEAD>
<TITLE>My First Web Page</TITLE>
</HEAD>
<BODY TEXT="#FFFFFF"
BGCOLOR="#000000">
Hi<BR>
<H2>hi</H2>
<br>
<a href="URL"> Clickable Text </a>
</BODY>
</HTML>
```

```
<HTML>
<HEAD>
<TITLE>My First Web Page</TITLE>
</HEAD>
<BODY TEXT="#FFFFFF"
BGCOLOR="#000000">
Hi<BR>
<H2>hi</H2>
<br>
<a href="http://www.templejc.edu"> Clickable Text </a>
</BODY>
</HTML>
```



Additional Notes

This sample web page introduces many concepts that need further refining, such as the notion of networks, numerical representation of color, and how to control images. All of these topics will be addressed in future overviews, but a few topics deserve a little attention right now.

Tim Berners-Lee came up with the World Wide Web as easy to use method of sharing data; his key idea was to be able to *link* to related documents using something called hypertext. What made this idea work was software to distribute web pages, called a Web server, and software to receive web pages was called a Web browser. You may recall from the Timeline (page 10) that Marc Andreesson and his group at the University of Illinois/UC developed the first viable server and browser. The browser code-name was Mozilla but they called the finished product Mosaic. Andreesson later helped create a business to continue this software development resulted in Netscape Navigator, the first commercially available browser.

How To: Check for errors in HTML

- Make sure you are starting with
`<html>`
`<head>`
`<title>`
`</title>`
`</head>`
`<body>`
`</body>`
`</html>`
- You only use `<body>` `</body>` once, and **all** the items to display in the main browser window go in between.
- When constructing a web page in HTML, it is important to build up your page one item at a time; not all at once, and not in a linear fashion. That is, don't start typing from start to finish, then look at the browser.

If you put in a less than sign to start making a tag, you should immediately put in the the greater than sign.

```
< >
```

If you have a beginning tag that is used to change the appearance of text, you should immediately put in the ending tag.

```
< > </ >
```

If the tag requires an attribute, make sure there is a space after the tag before you place the attribute, and type in the = followed immediately by TWO quotation marks " ".

No space between attribute and the =

```
<tag attribute=""> </tag>
```

Insert the attribute value between the " and ", no spaces.

```
<tag attribute="value"> </tag>
```

Insert the text that the tag/attribute will format, between the tags.

```
<tag attribute="value">Text</tag>
```

TEST JUST THIS CODE in your browser.

If you wish to add additional attributes, add them one at a time, testing the code in between.

SUMMARY: Most errors on a web page are due to missing one of these matched elements

< and >; < > and </ >; =" and "

- Be careful spelling; if copying something, make sure it is plain text and don't use word processors.

" is not the same as " (plain quotation marks, not curly quotation marks)

a href is not the same as a herf

a href="pagetwo.htm" wont find a file named *page-two.htm*

- Separate components with a space
<tag attribute="value" attribute="value" attribute="value">
</tag>
- When looking at a web page's code, the error is almost always above where it starts to look wrong in the browser. A bug chunk of a web page will disappear if you miss a " earlier in your code.
- You only use <body> </body> once, and **all** the items to display in the main browser window go in between.
- Many times you have compound mistakes (if you don't add a piece at a time, as recommended)... fix them one at a time, and test the code before moving on.

Common problems in Web Design labs

- **Files names**
Files with incorrect file names (labs have specified file names)
If you have not set your computer correctly, as shown in the Orientation, FAQ, and the top of the practice web page, you may wind up with files named page1.htm.htm instead of page1.htm
because your computer is hiding part of the filename.
My notes also say not to use upper case letters or spaces in filenames.
- **Zip**
You are not zipping files, or are complaining the zip breaks the file
How to zip is included on the lab web site, and at <http://www.templejc.edu/dept/cis/CCollins/media/zip/zip.html>
A zipped page does not function correctly until I unzip it.
- **Spaces between quotation marks**
You cannot put extra space within quotation marks...
"white " is not the same as
"white"

Additional Notes, preparing for Lab 1

As you learned for the first web page (page 28), HTML web pages are just plain text, meaning Notepad can generate great web pages if you don't want to spend money on Editors. Yes, we will experiment with editors, later, but only after you understand how HTML really works. So, in the meantime, we need to focus on how to write HTML ourselves.

Patrick Carey had some great tips on writing HTML in his "Creating Web Pages with HTML..." series.

Tips for Good HTML Code

- Use line breaks and indented text to make your HTML file easier to read
- Insert comments in your HTML file to document your work
- Enter all tags and attributes in lowercase
- Place all attribute values in quotes
- Close all two sided tags
- Make sure that nested elements do not cross
`<i>` should end with `</i>`, NOT `</i>`
...
- Include the `alt` attribute for any image, to specify alternative text for non-graphical browsers and to support visually challenged users
...
- Test your Web page

Some other things to recall when creating your future labs include: tags are not case sensitive, but many file names are; so normally you use lower case everywhere, and avoid spaces in file-names.

If using another book to help you as you learn to create web pages, please realize that many of these books often start with something called 'styles.'

Styles, including 'inline style' items, can provide extra, more complex formatting than should be discussed this early in your learning curve; but by the end of the semester styles, including Cascading Style Sheets (CSS) **will** be covered.

Just note, this text will wait on 'styles' until you have had a chance to practice the basics of HTML, often referred to as HTML 3.

If you are continuing on to Web Design II, books like Carey's are used to implement the more complex HTML 4. But, especially early in the semester, this material will stick with traditional HTML.

Other reference guides still should introduce the basic HTML\HEAD\BODY structure, and should start you formatting text with many different size headlines, and should include that just as in a word processor, you can not only break a line with `
`, but also organize information using the `<P></P>` paragraph set. Paragraphs come with a built in line break, just as headline tags do.

Your other reference book may also introduce lists. Basically, you surround the text of the list with either `` or `` tags, depending on whether you want an ordered (numbered) list, or an unordered (bullet) list. Where ever you want the bullet or number, drop in a List Item tag, ``.

`` or ``?

In the old days, if your computer was using a font that did not have a bold attribute, the ` ` tag set would not work, but the ` ` set would at least add some emphasis to the text. Today, PC's typically use Times which does include a bold attribute; Mac's use Chicago, which also has a bold attribute, so `` and `` appear the same on most computers.

So, while there are many ways to format text, few people care if it is logical or physical formatting, so focus on which tag is easier to remember... I prefer `` for bold much more than ``, as they look identical on most browsers, so I choose the one that requires less typing, and is similar to the formatting I use in word processing... `` for bold, `<I>` for italic, etc..

But technically, `` is safer to use, since it is not reliant on the font installed on your computer.

You have already inserted an in-line image during first your first web page (page 28), but typically you can only use jpg or gif files. This text will include more on graphic formats in Overview 7.

You have probably wondered how to display the `<` or `>` on a web page, such as if trying to display $1 < 2$ for math, or how to add the copyright symbol to a page, this text will shortly cover how to create many special characters using `&xxx;` combinations, such as `<` to make a `<`, and

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© to make a ©. Finally, many references use <HR>, the horizontal rule, to draw a line across a web page. This too will be covered in lab 1.

By following the instructions for the upcoming lab 1, you will soon build a web page that illustrates many of these points.

In the next overview, you will be officially introduced to basic formatting of web pages... so you will need to make notes on these upcoming new tags (making notes on tags is called *documentation* in this text). Then, after creating the web page you should be answer a few questions, and submit Lab 1! This text will show you how to take the quiz and use the dropbox required to submit your lab 1.

Completing Overview 2

To prepare for future labs and exams, it is suggested that you take the practice test in D2L.

What's Due at the end of Overview 2?

- Submit by 11:59 pm, Friday, of the current week (see Class website for due dates)
 - MUD 2 (My Understanding, Details) Respond in the class D2L Discussion forum to the following:
 - What topics, if any, during this time frame do you feel very comfortable with?
Why?
 - What topics, if any, during this time frame do you not feel comfortable with?
 - Participation Discussion 2 Respond in the class D2L Discussion forum to the following:
 - Discuss your level of experience in programming languages, or using markup languages, if any



For the next time frame:

- Read remainder Carey Tutorial 01
- Each test has a review; you may wish to write out pertinent information from the readings and activities
- After completing this overview, you may wish to start on the Overview 3 material, and preview Lab 1