



University of Diyala
College of Engineering
Department of Computer Engineering



Computer Science

1st stage

- Course Number: U 102
- Course Name: Computer Science
- Credit Hours: (2-1-0-2)
- Prerequisites: None
- Course Contents: Computer Architecture, Computer Assembly and parts Characteristics, History of Computer, Generations of computer, Types of computer, Personal computer, major parts of the Computer (Hard Ware); Input Devices, Processor, Output Devices, Storage Devices, Internal Components, Software; Types of software, System software, Application software, Computer Languages and Scripting, Booting, Computer maintenance and troubleshooting, BIOS Setting, Open Source Software and Linux OS, Navigating Linux GUI, The Internet.

Internet

- Internet is a specific interconnected network that connects computers all over the world using a common set of interconnection standards or protocols.
- When Connect to the Internet requires special hardware such as:
 - Modem – short for modulator / demodulator - which connects computers using a standard telephone line
 - Network interface card (NIC) – which connects computers using a special type of network cabling.

Connecting to a Network

- In order to communicate with another computer over a network, you must do two things:
 - 1- Use the set of rules governing communication over the network, called a protocol. Your computer will generally handle this.
 - 2- Know the address of the computer you want to communicate with. There are two types of network addresses:
 - Medium access control (MAC) address which is used inside a single network
 - Internet protocol (IP) address which is used on the Internet

World Wide Web

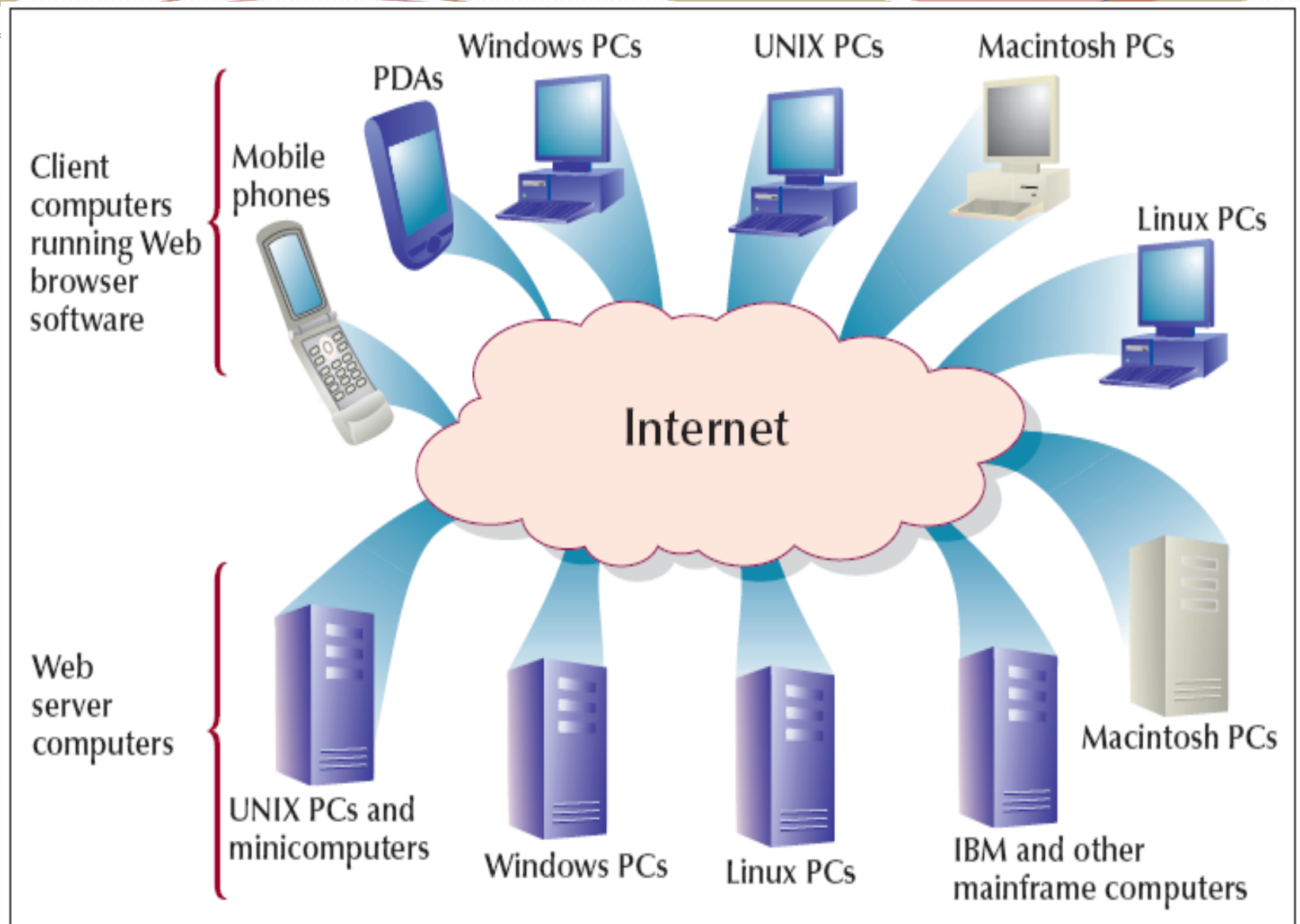
- The World Wide Web (web for short or www) is a collection of interlinked multimedia documents that are stored on the Internet and accessed using a common protocol (HTTP).
- So, what is the relation between the internet and the World Wide Web?
 - World Wide Web (WWW) is an Internet based software application.
- Other Internet applications are:
 - Email
 - ftp (file transfer protocol)
 - Messenger

web server

- is a computer programs that delivers (serves) content web pages, using the Hypertext Transfer Protocol HTTP.
- The term web server can also refer to a computer connected to the Internet that contains files their owners have made available publicly through their Internet connections.

Web Client

- When you use your Internet connection to become part of the Web, your computer becomes a Web client in a worldwide network called a client/server network.
- Web browsers are software that you run on your computer to make it work as a Web client



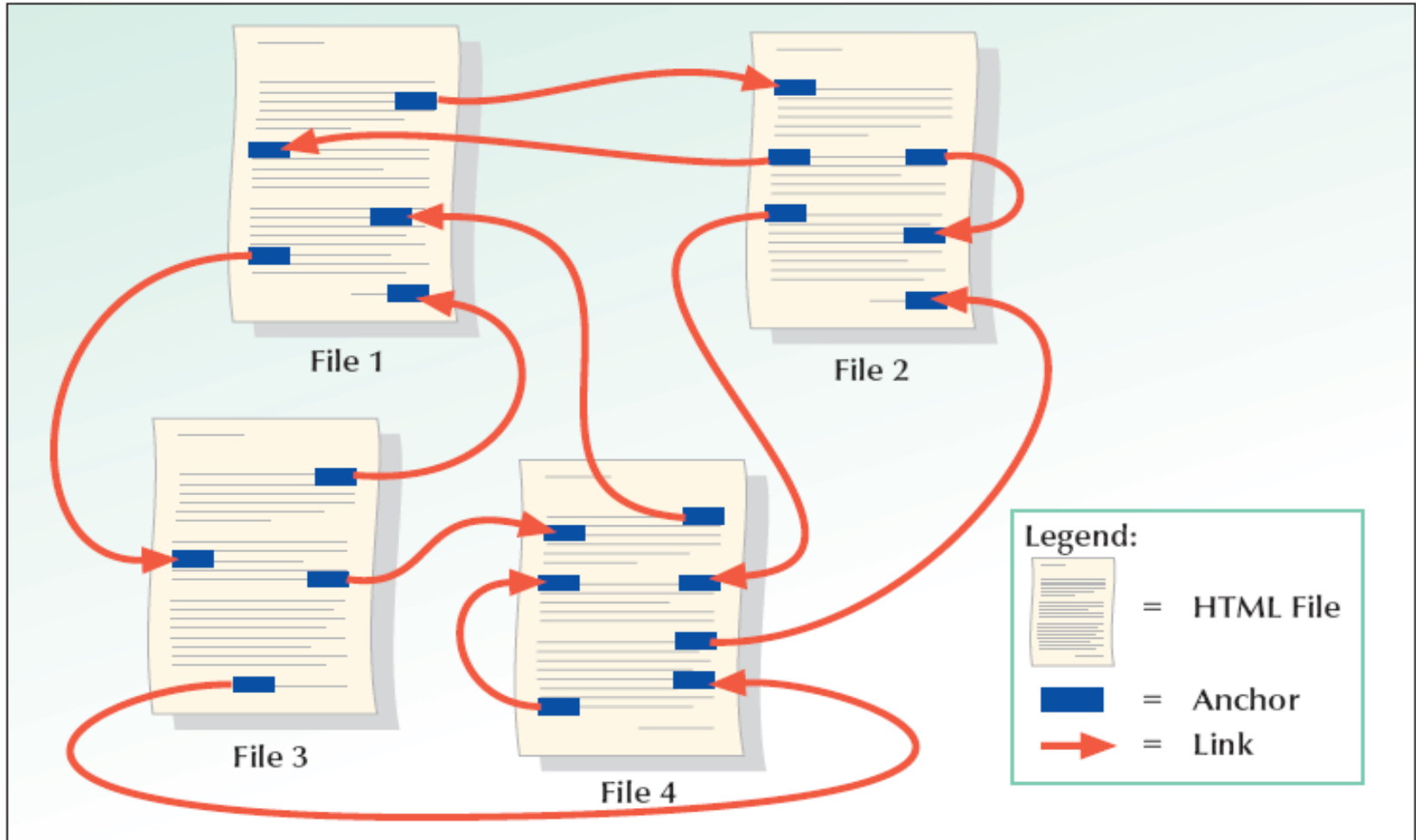
HTML

- HTML is a standard language used on the Web to format documents.
- HTML uses codes (tags) to tell the Web browser software how to display text.
- HTML document is defined as a text file that contains HTML tags.
- When a Web browser displays an HTML document, it is referred to as a Web page.

HTML

- One of the most important features of html is HTML anchor tag
- create Hypertext links.
- Hypertext links can connect HTML documents together or can connect one part of HTML document to another part.
- When hyperlinks connect to Multimedia files , it is called Hypermedia links.
- Having a collection of linked Web pages with a common theme or focus is called a website.
- Each website should have a main or home page to start the web site from.

HTML



Domain Name Addressing

- Each computer on the Web is given a unique identification number called Internet Protocol Address or (IP).
- Remembering IP addresses are hard to remember
- IP address may also be assigned a host or domain name.

Domain Name Addressing

- Domain names are unique names associated with specific IP addresses by a program that runs on an Internet host computer.
- This program is called **DNS (Domain Name System) software**.
- Domain Name Software or (DNS) is an Internet service that translates domain names into IP addresses.

Domain Name Addressing

- Every time you use a domain name, a DNS service must translate the name into the corresponding IP address.
- For example, the domain name **www.example.com** might translate to **198.105.232.4**.
- The host computer that runs the DNS service or software is called Domain name server or **DNS server**.

Domain Name Addressing

- The last part of domain name is called its top-level domain (TLD).

Original General TLDs		Country TLDs		General TLDs Added Since 2000	
TLD	Use	TLD	Country	TLD	Use
.com	U.S. Commercial	.au	Australia	.uk	United Kingdom
.edu	U.S. Four-year educational institution	.ca	Canada	.asia	Companies, individuals, and organizations based in Asian-Pacific regions
.gov	U.S. Federal government	.de	Germany	.biz	Businesses
.mil	U.S. Military	.fi	Finland	.info	General use
.net	U.S. General use	.fr	France	.int	International organizations and programs endorsed by a treaty between or among nations
.org	U. S. Not-for-profit organization	.jp	Japan	.name	Individual persons
.us	U.S. General use	.se	Sweden	.pro	Professionals (such as accountants, lawyers, physicians)

Addressing Schema

- How to tell the browser the needed information to allocate the wanted web site to be displayed.
- The Addressing schema = uniform resource locator (URL)
- URLs, or Uniform Resource Locators, are the schema by which documents or data are addressed in the World Wide Web.
- URL contains the following information:
 - **Transfer protocol** to use when transporting the file
 - **Domain name** of computer on which file resides
 - **Pathname** of folder or directory on computer on which file resides
 - **Name** of the file



Internet Service Providers (ISPs)

- ISP is a company that offers its customer access to the Internet.
- The ISP connects to its customers using a data transmission technology appropriate for delivering Internet Protocol datagrams
 - dial-up
 - DSL
 - cable modem
 - wireless
 - dedicated high-speed interconnects.

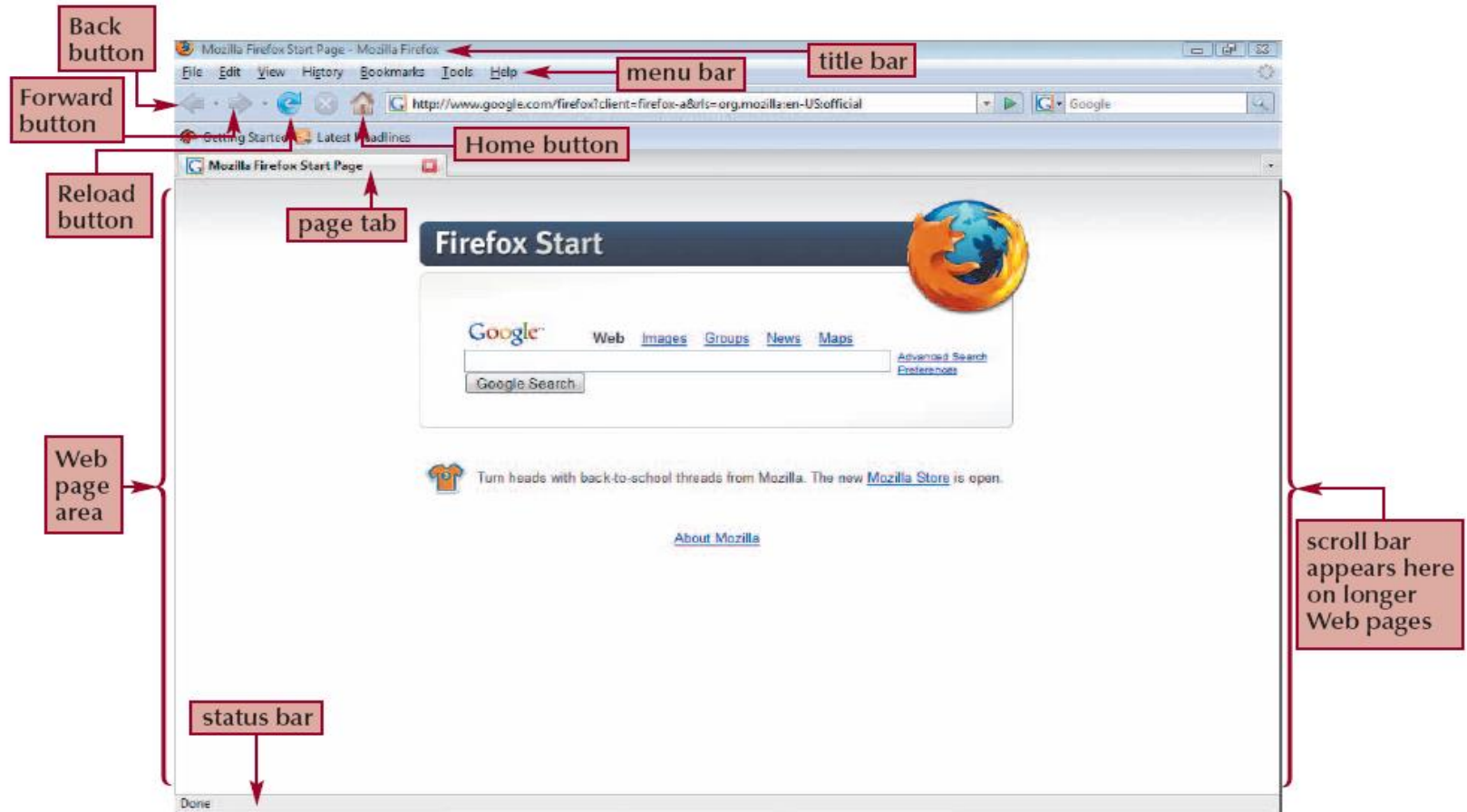
Internet Service Providers (ISPs)

- ISPs charge persons for a fee and provide the following services:
 - Adding your computer to the ISP's network, allowing you to communicate with other computers on the Internet
 - Giving your computer an IP address, allowing other computers on the Internet to communicate with you
 - Providing you access to a DNS server.

Main Elements of Web Browsers



Main Elements of Web Browsers



Hyperlinks:

- The true power of HTML lies in the use of *hyperlinks*.
- Most browsers render hyperlinked text in blue and underline it.
- Hyperlinked graphics have a blue border.
- The browser's status bar shows the URL of the resource linked to by the hyperlink.
- The browser changes the cursor, usually to a hand.

Search Engines

- Allows the user to type in a word or phrase to search for, then returns results that it determines most closely match the user's request.
- The user's request is called a *query*. Each individual result is called a *hit*.
- Some popular search engines are Yahoo, Google and AltaVista

Search Engines

- Search engines are constantly updating their “knowledge” of information on the Internet using *spiders*.
- Spiders are programs that *crawl* the Internet (i.e. follow all possible links and reporting the information found there back to the search engine.).
- Some search engines do not use spiders. Instead, they query many other search engines and combine the list of hits. These engines are called ***meta-search engines***. Some popular meta-search engines are Dogpile, MetaCrawler, and Excite.

Email

- To send and receive email, you need an email account.
- An email address of the form *username@domainname.tld*.
- Mail storage where your incoming messages are stored. (ISP “10M”- and web mails “2G”)

File Transfer

- Files can be transferred from one computer to another over the Internet using the file transfer protocol (FTP).
- The process of transferring a file from a remote host to your local machine is called *downloading*.
- The process of transferring a file from your local machine is called *uploading*.
- Most browsers natively support downloading, but uploading often requires a special utility called an FTP client.

File Transfer

To download with an Internet browser,

The diagram illustrates the process of downloading a file using two different web browsers. It features two context menus and two arrows pointing towards them.

Internet Explorer Context Menu: A yellow arrow labeled "Internet Explorer" points to a context menu. The menu is open over a link labeled "syllabus". The options are: "Open", "Open in New Window", "Save Target As..." (highlighted), "Print Target", "Cut", "Copy", "Copy Shortcut", "Paste", "Add to Favorites...", and "Properties".

Firefox Context Menu: A yellow arrow labeled "Firefox" points to a context menu. The menu is open over a link. The options are: "Open Link in New Window", "Open Link in New Tab", "Bookmark This Link...", "Save Link As..." (highlighted), "Send Link...", "Copy Link Location", "Properties", and "Web Developer" (with a right-pointing arrow).