INVENTION IN COMPUTER SCIENCE

WOLRD WIDE WEB

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What is the World Wide Web?

- The Web is not the Internet
  - The Internet is a global data communications network
  - The Web is just one of the many technologies that use the Internet to distribute data

Introduction cont...

- The World Wide Web (usually referred to simply as the Web) is a collection of HTML documents, images, videos, and sound files that can be linked to each other and accessed over the Internet using a protocol called HTTP.

Evolution of the Web

- In 1993 there were a total of 130 Web sites; by 1996 there were 100,000 Web sites.
- Today, there are more than a billion Web sites and new sites appear every day.
- Ted Nelson coined the term hypertext to describe a computer system that could store literary documents, link them in logical relationships, and allow readers to comment and annotate on what they read.

Evolution of the Web cont..

- In 1990 British scientist Tim Berners-Lee developed specifications for URLs, HTML, and
- HTTP — the foundation technologies of today's Web.
- Berners-Lee created the Web browser software Nexus.
- In 1993 Marc Andreessen at the University of Illinois created the Web browser Mosaic that led to the development of the popular browser Netscape.

Web Sites

- A Web site typically contains a collection of related information organized and formatted so it can be accessed using a browser
- A Web server is an Internet-based computer that stores Web site content and accepts requests from browsers

Web Sites cont..

- A Web page is based on an HTML source document that is stored as a file on a Web server

Hypertext Links

- Web pages are connected by hypertext links (commonly referred to simply as links).
- Links are commonly indicated by the underlined or colored text, a photo, button, tab, or object

Hypertext Links cont ..

- Web pages have **unidirectional links;** Document A links to Document B, but not vice versa.
- **Bidirectional links** connect two documents using a two-way link that can be followed from either document

Uniform Resource Locators (URLs)

- Every Web page has a unique address called a URL (Uniform Resource Locator, pronounced “you are ELL”).
- Most URLs begin with http:// to indicate the Web’s standard communications protocol
- The file name of a specific Web page always appears last in the URL.

URLs

- Some URLs contain a search string rather than the name of an HTML document.

  Rules for correctly typing a URL:

- – A URL never contains spaces
- – The http:// can be omitted
- – Always use a forward slash (/)
- – Duplicate the URL's capitalization exactly —some Web servers are case sensitive
- – Links aren't URLs, but a link contains the URL that "links" to another Web page

URLs cont..

- Many URLs are long and complex; this can be a problem
- Several services, such as Bitly and Goo.gl, create short URLs
- 1. Copy and paste the full URL into the box provided by
- a short URL service such as Goo.gl.
- 2. The service produces a short URL.
- 3. The short URL is stored on the server along with the full URL.
- 4. Links to the short URL are directed to the server, which forwards the link to the full URL.

URLs cont..

- Short URL services may lead consumers to believe that all short URLs will last forever
- Short URLs are sometimes used to disguise the real address of a Web site that is illegitimate
- Short URL services may be blocked by Web hosts and ISPs
- Web surfers should be aware that short URLs may lead to questionable Web sites and scams.

Browser Basics

- The essential elements of a browser include:
  - An entry area for URLs and searches
  - Navigation controls
  - A refresh button
  - A home button
  - A settings menu
  - And a display area

Browser Basics cont..

- Today's most popular browsers are:
  - Apple Safari
  - Google Chrome
  - Microsoft Internet Explorer (IE)
  - Microsoft Edge
  - Mozilla Firefox

Browser Basics cont..

- You can designate a default browser so that it is automatically used when you click a link in an email message or PDF file.

Customization

- You can customize your browser by doing the following:
  – Change your home page
  – Customize bookmarks and favorites
  – Control tab behavior
  – Select predictive services
  – Adjust password settings

Customization cont..

- The browser home page is the first page displayed when the browser starts.
- If your primary use of the Web is seeking information, then a search engine site, such as Google, makes a good home page.
- You can also use services such as Protopage, My Yahoo, or uStart to design your own start page.

Customization cont..

- Bookmarks (or Favorites, as they are called in Microsoft browsers) link to pages that you use frequently.
- Browser tabs allow your browser to queue up multiple Web pages so that you can easily switch between them

Customization cont ..

- A browser extension adds features to a browser.
- Browsers provide a list of installed extensions and provide tools for disabling, enabling, or deleting them.
- A plugin is a program that extends a browser's

  ability to work with file formats. Popular plugins include Adobe Reader for viewing PDF files,

  Adobe Flash Player for animations, and QuickTime Player for videos.
- Plugins have been exploited by hackers to access computers without authorization and plant malware.
- In Chrome, Safari, and Firefox, plugins are managed from the browser. In Internet Explorer, plugins are managed along with other installed software through the Control Panel.

Browser Cache

- Browsers pull HTML documents, images, and other Web page elements to your local device; ads are pulled down too.
- When your browser fetches pages and graphics to form a Web page, it stores that material on your device in temporary files referred to as a browser cache, Web cache, or browser history.

Browser Cache cont..

- The information in a browser cache can be seen with browsers, such as Google Chrome, and used to see a listing of files in the browser cache and even retrieve them .
- Browsers include settings for limiting the time cached files remain on your device, limiting the amount of space they can use on the hard disk and deleting all the cached files.
- In addition to the cache, your browser maintains a History list of sites that you've visited; you can delete the History list, usually using a process similar to clearing a browser cache.

Browser Cache cont..

- Today’s browsers also offer private browsing modes, in which traces of your activity are not maintained in the History list or browser cache; use it when you prefer not to leave a trail that can be seen by others who gain access to a device you have recently used.
- Browsers ask to save passwords when you log in to sites.
- The potential risk of stored passwords is that anyone who gains access to your device can easily log in to your password-protected sites because the passwords are supplied by your browser.

HTTP

- HTTP is a communication protocol that works with TCP/IP to get the elements for Web pages to a local browser.
- A set of commands called HTTP methods help your browser communicate with Web servers.

Cookies

- A cookie (technically an HTTP cookie) is a small chunk of data generated by a Web server and stored as a text file in memory or on disk.
- Web sites use cookies to:
  - Monitor your path through a site
  - Gather information
  - Collect personal information
  - Verify that you have logged into a site using a valid ID.

Cookies cont..

- There are two kinds of cookies: session cookies and persistent cookies
  – Session cookies – cookies stored in memory and deleted when the browser is closed
  – Persistent cookies – cookies that are stored on a device after a session ends; some are programmed to time out after a designated date
- A first-party cookie is set by the domain that hosts a Web page.
- A third-party cookie is set by a site other than the one you connected to.

HTTPs

- The data that you transmit to a Web server can be secured if it is sent over an HTTP Secure connection, which encrypts the data stream between client devices and servers.
- Sites that use HTTP Secure are required to present an SSL certificate to the browser; this helps the
- browser verify that the site is not pretending to be another site.
- Look for these certificate icons when you want secure browsing:
- HTTP Secure is based on HTTP and a public key encryption technology called SSL/TLS
- Public key encryption is a very clever process that requires one key to encrypt data, but a different key to decrypt it; the encryption key can’t be used to decrypt the message.

Thank you