Lesson Proper for Week 13

WEB BROWSER

o A web browser, also known as a “browser,” is an application software that allows users to find, access, display, and view websites.

o A web browser is a software application that is used to access the World Wide Web (www) or as known by everyone on the Internet. It is an interface between us and the information available on the web.

o The web browser can be called a client program as it requests the webserver for the information demanded by the user.

o Browsers convert Hypertext Transfer Protocol (HTTP) web pages and websites into human-readable content. They can also show other protocols and prefixes, such as secure HTTP (HTTPS), File Transfer Protocol (FTP), email handling (mailto:), and files (file:).

How does a browser work?

The whole process of gathering information begins with the user when it enters the URL of the desired website in the address bar. The browser is a part of the client-server model where it plays the part of the client

it sends requested information to the web server through HTTP- hypertext transfer protocol. Once the request is received, the server gathers the related information it forwards it through web pages.

When a URL is entered, supposedly artoftesting.com the web browser first requests the DNS (Domain name server) the IP address of the artoftesting.com. The DNS is a phonebook of the internet and therefore, it stores the system names and their corresponding IP addresses.

Next, once the IP address is found the address is used to request the servers of 'artOfTesting' website for the content. This is then fulfilled and displayed on the client's screen.

MAIN FUNCTIONS OF WEB BROWSERS

a. The main task is to collect information from the Internet and make it accessible to users.

b. A web browser can be used to visit any website. When we type a URL into a browser, the web server redirects us to that website.

c. Plugins are available on the web browser to run Java applets and flash content.

d. It simplifies Internet surfing because once we arrive at a website, we can quickly check the hyperlinks and access a wealth of information.

e. Internal cache is used by browsers and is saved so that the user can open the same webpage multiple times without losing any data.

f. A web browser can open multiple web pages at the same time.

Back, forward, reload, stop reload, home, and other options are available on these web browsers, making them simple and convenient to use.

FEATURES OF A WEB BROWSER

Some of the features of the web browser include-

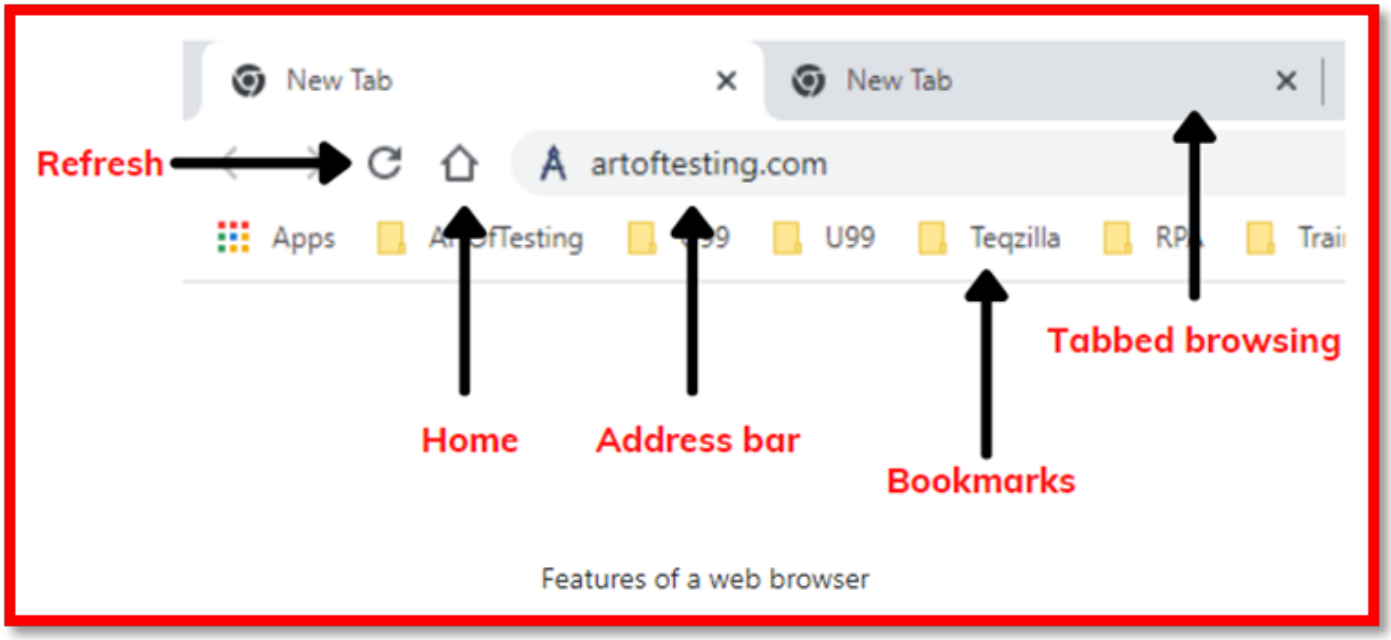
1. Home button – Clicking the 'Home' button brings the user directly back to the home page of the browser. We can set any webpage as the home page. Usually people prefer to have search engines like – Google.com as their home page.

2. Address bar – The address bar is where the URL of the desired website is entered. This bar helps us to navigate to the desired website of our choice.

3. Refresh button – The refresh button is to reload the page. In some cases, the page locally stores and saves the information. This prevents users from seeing the updated information. Therefore, the refresh button is helpful in such cases.

4. Bookmarks – This option is to save a particular website for reference later in the future. It is used to mark pages that might be important or prove to be useful in the future.

Tabbed browsing – This feature helps to open new screens on the same browser for multiple browsing at the same time.



ELEMENT OF A WEB BROWSER

The web browser is made of 7 main components that work in sync to make the web browser function-able. These are-

1. User Interface

The user interface is the first page that you see when you open the web browser. This page has the address bar, forward/ backward button, menu, bookmarking option, and a few more options.

2. Browser Engine

The browser engine acts as an interface between the rendering engine and the UI of the browser. Based on the input, it manipulated the rendering engine to provide output.

3. Rendering engine

The rendering engine is responsible for producing requested content to the browser and displaying it on the screen. It parses the HTML documents and then converts them to readable form. All the browsers we know have their own rendering engines.

§ The safari uses WebKit.

§ Chrome and Opera use Blink (fork of WebKit).

§ Internet explored use Trident.

§ Firefox uses Gecko.

The WebKit is an open-source rendering engine and was made for Linux. It has been modified the Apple to support mac and windows too.

4. Networking

The network layer is responsible for security and communication on the internet. It is also used for HTTP requests and to cache the documents retrieved in order to reduce network traffic.

5. UI Backend

It is for drawing basic boxes and windows/ widgets. This is for a generic interface and independent of any specific platform. Behind all this, it uses an Operating system for UI methods.

6. JavaScript Interpreter

As we all know the JavaScript is responsible for all the websites/ webpages. All these pages are written in JavaScript language. Therefore this interpreter translates these pages and these are sent to the rendering engine to display the final results.

7. Data persistence

Data persistence or storage is for saving the data locally, like cookies. The browsers support storage mechanisms like IndexedDB, WebSQL, File System, etc. to store databases locally on your computer. This way user data is handled like cache, bookmarks, cookies, etc.

WEB BROWSERS TYPES

The following are some examples of web browsers and their unique features:

The World Wide Web

The very first web browser, In 1990, the company was founded. To avoid any confusion with the World Wide Web, it was later renamed “Nexus”. Had very simple features and a graphical interface that was less interactive. The bookmark feature was not available.

Mosaic

It was first introduced in 1993 and was the second web browser to be released. It had a more appealing graphical user interface. The use of images, text, and graphics could all be combined. It was developed at the National Center for Supercomputing Applications (National Center for Supercomputing Applications). Marc Andreessen was the man in charge of the Mosaic development team. It was dubbed “the world’s first widely used browser.

Netscape Navigator

It came out in 1994. In terms of usage share in the 1990s, it was the most popular browser. Netscape released new versions of this browser. It had a sophisticated licencing scheme that allowed for unrestricted non-commercial use.

Internet Explorer

Microsoft introduced it in 1995. By 2003, it had surpassed Internet Explorer as the most widely used browser, with nearly 95% of all users using it. Microsoft released nearly ten versions of Internet Explorer, each of which was gradually upgraded. It came pre-installed on Microsoft’s Windows operating system. It was replaced by “Microsoft Edge” in 2015, when Windows 10 5 made it the default browser.

Firefox

It was first released in 2002, and it was developed by the Mozilla Foundation. During 2003-04, Firefox overtook Internet Explorer as the most popular browser and became the dominant browser. With Firefox, location-aware browsing became possible. This browser is also available for mobile phones, laptops, and other mobile devices.

Google Chrome

Google introduced it in 2008. It's a web browser that works on all platforms. Multiple features from previous browsers were combined to create better and more modern features. Google created the ad-blocking feature to protect computers from malware and keep user data safe and secure. Private searching is available in Incognito mode, which means no cookies or history are saved. It has the best user interface to date.

◄ Preliminary Activity for Week 13 Jump to...

Analysis, Application, and Exploration for Week 13 ►

Navigation

Home
Dashboard
Site pages
My courses
Capstone Project 1
Network Attacks: Detection, Analysis & Counter...
Participants
General
12 - Midterm Examination
13 Browser And Browser Functionality
Preliminary Activity for Week 13
Lesson Proper for Week 13
Analysis, Application, and Exploration for Week 13
Generalization for Week 13
Evaluation for Week 13
Assignment for Week 13
Ojt/Practicum 1
Social And Professional Issues
System Integration And Architecture 2
Courses

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Activities

- Assignments
- Forums
- Quizzes
- Resources