

New
syllabus
2021-22



Chapter 9
Web
Browsers

Informatics Practices Class XII (As per CBSE Board)

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Web browsers



Web browser –

A browser, short for web browser, is the software application that is used to search for, reach and explore websites.

The primary function of a web browser is to render HTML code (the code used to design or "mark up" webpages). Each time a web browser loads a web page received from web server, it processes the HTML, which may include text, links, and references to images and other items, such as cascading style sheets and JavaScript functions. The browser processes these items, then renders them in the browser window.

Web browsers



Basic Features of a good Web browser –

Speed - A browser should be able to quickly load webpages including multimedia files, no matter how dynamic the content. Nowadays images and videos dominate online platforms which require too much data to be processed.

Simplicity - A browser should have easy and simple user interface. The user interface shouldn't take up a lot of screen space, which would be better used for the content that a user is trying to consume.

Security - Browsers should also be very secure, as there are number of security threats available on internet, which can lead to serious data breach and leakage



Major functions of a typical Web browser –

- ❖ Send and receive internet resources
- ❖ Access web pages ,render and display them
- ❖ Select and save our favorite pages
- ❖ Print documents
- ❖ Keep records of our activity
- ❖ Store information in the cloud
- ❖ Install applications

Web browsers

How web browser works –

The User Interface: space where User interacts with the browser.

The Browser Engine: it queries and manipulates the rendering engine

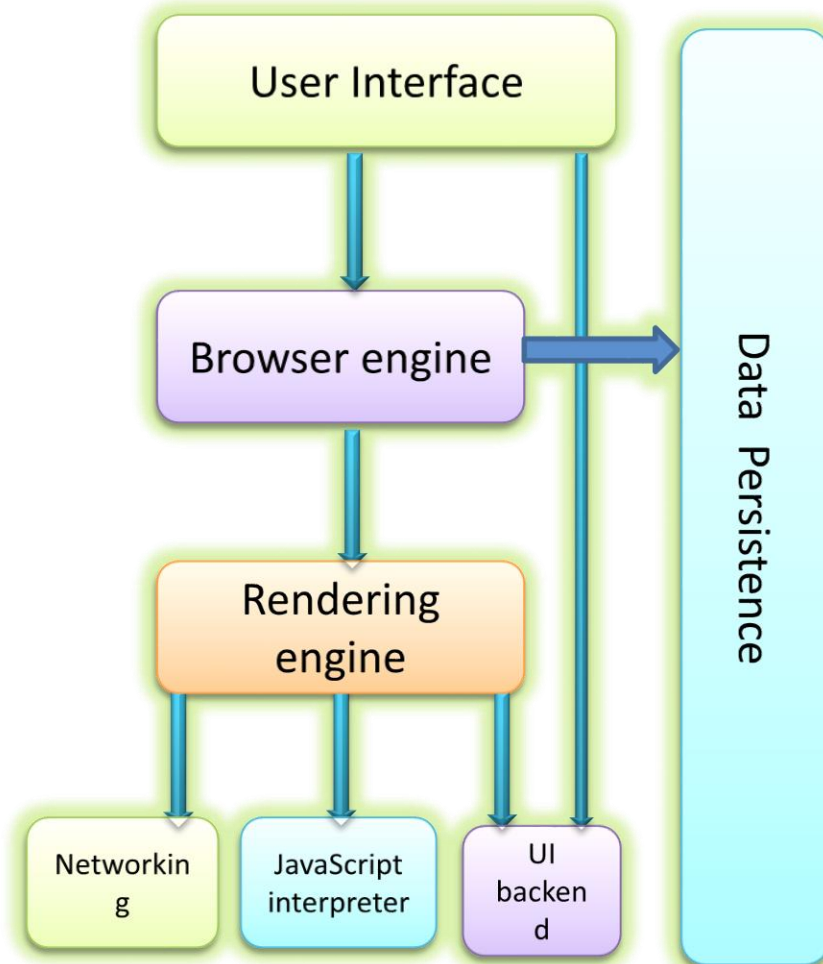
The Rendering Engine: It interprets the HTML, XML documents and images as per CSS and generates the layout to display.

Networking: handles all aspects of Internet communication & security using http(s)/ftp.

JavaScript Interpreter: interprets and executes the javascript code embedded in a website.

UI Backend: for drawing basic widgets like combo boxes and windows etc.

Data Persistence/Storage: It manages user data such as cache, cookies, bookmarks and preferences.



Web browsers



Commonly Used web browsers –

Google Chrome

Google Inc. has developed google chrome web browser. It is an open and free source. It runs on different operating systems, like Microsoft Windows, Mac OS X, Chrome OS, Linux, Android and iOS. It was launched in 2008 and since then it has become the most popular web browser in the world market. Google Chrome is very strong in its application performance and JavaScript processing speeds. It allows users to create local desktop shortcuts which will open the desired web page quickly and easily.

Mozilla Firefox

This web browser is free and open, developed by the Mozilla Corporation and the Mozilla Foundation in 2002. It works on Microsoft Windows, Mac OS and Linux operating systems. Firefox features a pop-up blocker, anti-phishing and anti-malware warnings, making it easy to validate a website before we enter .

Web browsers



Commonly Used web browsers –

Apple Safari



This web browser is free and open source, developed by Apple Inc. It works on OS X, iOS, and Microsoft Windows operating systems. Its market launch in 2003. Works on webkit to render graphics and run javascript Safari is faster and more energy efficient than other browsers

Internet Explorer 

This web browser was developed by Microsoft Corporation, integrated into the Microsoft Windows operating system in all its versions. It was launched in 1995 and was the most popular web browser until it was moved by Google Chrome in 2011. It supports addons, improved security and power saving features

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Commonly Used web browsers –

Opera **O**

Opera is a web browser developed by the company Opera Software. It is compatible with Microsoft Windows and Mac OS X operating systems mainly. Although it also works, in older versions, on Linux. It was launched in 1995. It provide integrated adblocker, faster with opera turbo, sidebar extension for multitask.



Google chrome browser settings –

1. No More Notification Requests - `chrome://settings/content/notifications`
2. Get Around Ad Blocker Blocking - `chrome://settings/content/javascript`
3. Font and Sizing - `chrome://settings/fonts`
4. Review web Passwords - `chrome://settings/passwords`
5. Customize web Startup Pages - `chrome://settings/onStartup`
6. Send a Do Not Track Request - `chrome://settings/privacy`
7. Set Flash to Ask First - `chrome://settings/content`
8. Mic and Camera Access - `chrome://settings/content`
9. Send Reports to Google - `chrome://settings/syncSetup`

Resetting Chrome to Default Settings

If we ever break Chrome by accident and want to reset everything, it's super easy. Scroll to the bottom of settings and click Advanced. Then:

- On Mac, Chromebook, or Linux: Under Reset Settings, click Restore settings to their original defaults > Reset Settings.
- On Windows: Under Reset and cleanup, click Reset Settings > Reset Settings.



Mozilla firefox browser settings –

1. Homepage,font&color,downloads – //option/general
2. Searchbar and search engine - //option/search
3. Forms,passwords,history,cookies,security - //option/privacy and security
4. Firefox account - //option/firefox account

Resetting Mozilla firefox to Default Settings

- Click the menu icon, then click on “Help”. Click on Firefox's main menu button, represented by three horizontal lines. ...
- Click “Troubleshooting Information”. ...
- Click on “Refresh Firefox” ...
- Confirm. ...
- Click “Finish”.

Web browsers



Internet explorer browser settings –

1. Homepage, browsing history , appearance(font color)– //tools/internet options/general
2. Security level for zones(internet,local internet,trusted sites,restricted sites) - //tools/internet options/security
3. Privacy,popup blocker - //tools/internet options/privacy
4. Parental control,autocomplete- //tools/internet options/content
5. Setup internet connections - //tools/internet options/connections
6. Default web browser,add-ons- //tools/internet options/programs
7. Accessibilit,browsing,multimedia,security - //tools/inetnet options/advanced/settings

Resetting Internet explorer to Default Settings

//tools/inetnet options/advanced/Reset



Opera browser settings –

1. Homepage,popup,language - `//settings /preferences/general`
2. Password manager - `//settings /preferences/forms`
3. Search engine - `//settings /preferences/search`
4. Font,color,zoom - `//settings /preferences/webpages`
5. History,cookies,security,storage,network,notification- `//settings /preferences/advanced`

Resetting Opera to Default Settings

- Close Opera and open command prompt from the start menu.
- Enter the following command to remove the preferences file: `del %AppData%\Opera\Opera\operaprefs.ini`
- `Reset-Opera-settings-to-default-by-removing-the-operaprefs.ini-file`
- The file will be removed from the system. The next time Opera is launched, the file will be re-created with the custom preferences wiped.

Add-ons/Extensions

Add-ons are tools which integrate into our browser. They're similar to regular apps or programs, but only run when the browser runs. Add-ons can allow the viewing of certain types of Web content, such as Microsoft's Silverlight necessary for Netflix movies.

How Add-ons Are Installed

There are two key ways in which add-ons become installed – through an external installer and through the browser's own add-on service. The add-on service is the most reliable way of installing an add-on, with the browser service providing a relative “vetting” process for the general safety of the add-on. Outside programs can also install add-ons in web browser as part of its separate installation process. Microsoft Office, for example, may place an add-on which speeds up the in-browser opening of office documents.

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How to Remove Add-ons


Add-ons can be removed in one of two ways. Some add-ons, particularly ones installed outside of the browser, create an entry in the “Programs” portion of the control panel. Removing these is done in the same way we uninstall any other program. Many add-ons, however, can only be removed through the browser’s add-on manager.

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Add-ons manager in

- Google chrome - /more tools/extensions
- Mozilla firefox - /add-ons option or ctrl+shift+A
- Internet explorer - /tools/manage add-ons
- Opera - <https://addons.opera.com/en/extensions/>

Web browsers



A plugin is a piece of software that acts as an add-on to a web browser and gives the browser additional functionality. Plugins can allow a web browser to display additional content it was not originally designed to display. An example of a plugin is the free Macromedia Flash Player, a plugin that allows the web browser to display animations using the Flash format.

Most plugins are available as free downloads. To install the plugin, we visit the website of the plugin's developer and click on a link that will download the installer for the plugin we have selected. We can save the installer to an easy to find location such as the Desktop or a specific folder we have created to organize all of our downloads. Once we have downloaded the installer, we can open it and follow the prompts to install the plugin on our system.

Web browsers



Difference between add ons and plugins

Plug-in is a complete program and add-on is not a program. For example Flash is a plug-in made by adobe is required to play a video in flash player. Also Java is a plug-in made by Sun Microsystems which is used to run programs based on Java. Plug-in is not bounded for browsers only. Flash can be installed in computers to play flash files. Similarly Java can be installed to run Java files.

On the other hand add-on is not a complete program. It is used to add a particular functionality to a browser. If we suppose to install add-on on other work environment, say, wer operating system, we can't do it. It means, add-ons are limited to a certain boundary.

Web browsers



Cookies - are small bits of data stored as text files on a browser. Websites use those small bits of data to keep track of users and enable user-specific

What's in a Cookie?

Each cookie is effectively a small lookup table containing pairs of (key, data) values. Once the cookie has been read by the code on the server or client computer, the data can be retrieved and used to customise the web page appropriately. features.

Suppose we want to have a counter for a webpage to access it three times only, this value can be stored over users computer at first attempt it will be 1 then 2 and then 3 on next time server will not allow to access that page.

Web browsers



When are Cookies Created?

Writing data to a cookie is usually done when a new webpage is loaded with code to create cookies.

Why are Cookies Used?

Cookies are a easiest way to carry information from one session on a website to another, or between sessions on related websites, without having to burden a server machine with massive amounts of data storage. Storing the data on the server without using cookies would also be problematic because it would be difficult to retrieve a particular user's information without requiring a login on each visit to the website.

Web browsers



How Long Does a Cookie Last?

The time of expiry of a cookie can be set through using server site scripting language ,when the cookie is created. By default the cookie is destroyed when the current browser window is closed, but it can be made to persist for an arbitrary length of time after that.

How Secure are Cookies?

Cookies are not a threat to privacy, since they can only be used to store information that the user has volunteered or that the web server already has.



What are Tracking Cookies?

Some commercial websites may include embedded advertising material which is served from a third-party sites, and it is possible to store a cookie for that third-party site, containing information fed to it from the containing site - such information might include the name of the site, particular products being viewed etc. Then third party can advertise you in future with the help of tracking cookies.

Are Cookies Enabled in my Browser?

When a webpage with cookies is opened a popup appears to enable cookies ,if browser setting is disabled for cookies.

We can also check it through browsers setting options.