Web browser:

A **web browser** (commonly referred to as a **browser**) is a software application for retrieving, presenting and traversing information resources on the World Wide Web. An *information resource* is identified by a Uniform Resource Identifier (URI/URL) that may be a web page, image, video or other piece of content.[1] Hyperlinks present in resources enable users easily to navigate their browsers to related resources.

Although browsers are primarily intended to use the World Wide Web, they can also be used to access information provided by web servers in private networks or files in file systems.

The major web browsers are Firefox, Google Chrome, Internet Explorer/Microsoft Edge,[

The primary purpose of a web browser is to bring information resources to the user ("retrieval" or "fetching"), allowing them to view the information ("display", "rendering"), and then access other information ("navigation", "following links").

This process begins when the user inputs a Uniform Resource Locator (URL), for example *http://en.wikipedia.org/*, into the browser. The prefix of the URL, the Uniform Resource Identifier or URI, determines how the URL will be interpreted. The most commonly used kind of URI starts with *http:* and identifies a resource to be retrieved over the Hypertext Transfer Protocol (HTTP).[17] Many browsers also support a variety of other prefixes, such as *https:* for HTTPS, *ftp:* for the File Transfer Protocol, and *file:* for local files. Prefixes that the web browser cannot directly handle are often handed off to another application entirely. For example, *mailto:* URIs are usually passed to the user's default e-mail application, and *news:* URIs are passed to the user's default newsgroup reader.

A **meta-search engine** is a **search** tool that sends user requests to several other **search engines** and/or databases and aggregates the results into a single list or displays them according to their source. **Metasearch engines** enable users to enter **search** criteria once and access several **search engines** simultaneously. On the other hand, a subject directory is a catalog of sites collected and organized by humans. Subject directories are often called subject "trees" because they start with a few main categories and then branch out into subcategories, topics, and subtopics. A **metasearch engine** (or aggregator) is a search tool that uses another search engine's data to produce their own results from the Internet.[1][2] Metasearch engines take input from a user and simultaneously send out queries to third party search engines for results. Sufficient data is gathered, formatted by their ranks and presented to the users.

However, Metasearch also has issues. Scores of websites stored on search engines are all different: this can draw in irrelevant documents. Other problems such as spamming also significantly reduce the accuracy of the search.[3] The process of fusion aims to tackle this issue and improve the engineering of a metasearch engine.[4]

There are many types of metasearch engines available to allow users to access specialised information in a particular field. These include Savvysearch engine and Metaseek engine.
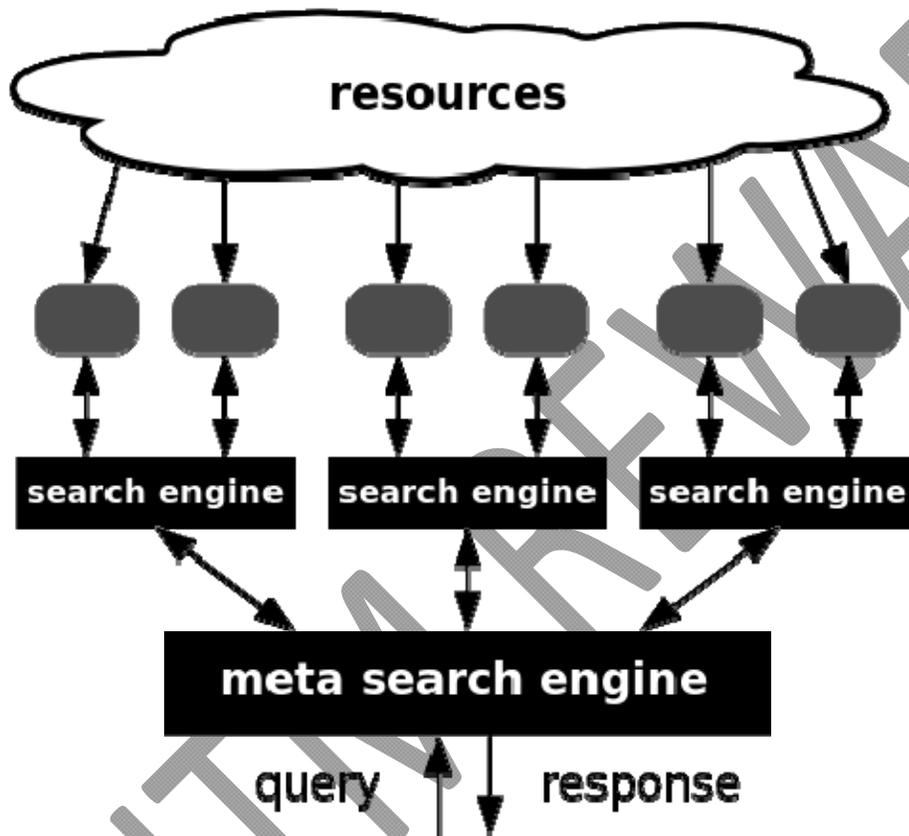
Advantages

By sending multiple queries to several other search engines this extends the search coverage of the topic and allows more information to be found. They use the indexes built by other search engines, aggregating and often post-processing results in unique ways. A metasearch engine has an advantage over a single search engine because more results can be retrieved with the same amount of exertion.[2] It also reduces the work of users from having to individually type in searches from different engines to look for resources.[2]

Metasearching is also a useful approach if the purpose of the user's search is to get an overview of the topic or to get quick answers. Instead of having to go through multiple search engines like Yahoo! or Google and comparing results, metasearch engines are able to quickly compile and

combine results. They can do it either by listing results from each engine queried with no additional post-processing (Dogpile) or by analyzing the results and ranking them by their own rules

Disadvantages

Metasearch engines are not capable of decoding query forms or able to fully translate query syntax. The number of links generated by metasearch engines are limited, and therefore do not provide the user with the complete results of a query.[9] The majority of metasearch engines do not provide over ten linked files from a single search engine, and generally do not interact with larger search engines for results. Sponsored webpages are prioritised and are normally displayed first.[10]

Metasearching also gives the illusion that there is more coverage of the topic queried, particularly if the user is searching for popular or commonplace information. It's common to end with multiple identical results from the queried engines. It is also harder for users to search with advanced search syntax to be sent with the query, so results may not be as precise as when a user is using an advanced search interface at a specific engine. This results in many metasearch engines using simple searching

How Search Engines Work

The term "search engine" is often used generically to describe both crawler-based search engines and human-powered directories. These two types of search engines gather their listings in radically different ways:

- They search the Internet -- or select pieces of the Internet -- based on important words.
- They keep an index of the words they find, and where they find them.
- They allow users to look for words or combinations of words found in that index.

Early search engines held an index of a few hundred thousand pages and documents, and received maybe one or two thousand inquiries each day. Today, a top search engine will index hundreds of millions of pages, and respond to tens of millions of queries per day. In this article, we'll tell you how these major tasks are performed, and how Internet search engines put the pieces together in order to let you find the information you need on the Web.

<u>Telnet</u>

Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers. Through Telnet, an administrator or another user can access someone else's computer remotely. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. With Telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer.

Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers. Through Telnet, an administrator or another user can access someone else's computer remotely. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. With Telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer.

A Telnet command request looks like this (the computer name is made-up):

telnet the.libraryat.whatis.edu

The result of this request would be an invitation to log on with a userid and a prompt for a password. If accepted, you would be logged on like any user who used this computer every day.

Telnet is most likely to be used by program developers and anyone who has a need to use specific applications or data located at a particular host computer.

File Transfer Protocol

The **File Transfer Protocol** (**FTP**) is a standard network protocol used to transfer computer files between a client and server on a computer network.

FTP is built on a client-server model architecture and uses separate control and data connections between the client and the server.[1] FTP users may authenticate themselves with a clear-text sign-in protocol, normally in the form of a username and password, but can connect anonymously if the server is configured to allow it. For secure transmission that protects the username and password, and encrypts the content, FTP is often secured with SSL/TLS (FTPS). SSH File Transfer Protocol (SFTP) is sometimes also used instead, but is technologically different.

The first FTP client applications were command-line programs developed before operating systems had graphical user interfaces, and are still shipped with most Windows, Unix, and Linux operating systems.[2][3] Many FTP clients and automation utilities have since been developed for desktops, servers, mobile devices, and hardware, and FTP has been incorporated into productivity applications, such as web page editors
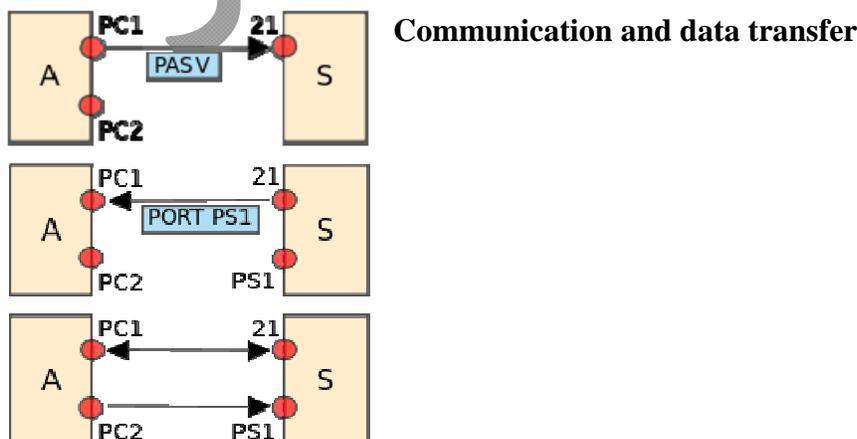

Communication and data transfer

Illustration of starting a passive connection using port 21

FTP may run in *active* or *passive* mode, which determines how the data connection is established.[5] In both cases, the client creates a TCP control connection from a random, usually an unprivileged, port N to the FTP server command port 21.

- In active mode, the client starts listening for incoming data connections from the server on port M. It sends the FTP command PORT M to inform the server on which port it is listening. The server then initiates a data channel to the client from its port 20, the FTP server data port.
- In situations where the client is behind a firewall and unable to accept incoming TCP connections, *passive mode* may be used. In this mode, the client uses the control connection to send a PASV command to the server and then receives a server IP address and server port number from the server,[5][6] which the client then uses to open a data connection from an arbitrary client port to the server IP address and server port number received

File Transfer Protocol (FTP) is a standard Internet protocol for transmitting files between computers on the Internet over TCP/IP connections.

FTP is a client-server protocol that relies on two communications channels between client and server: a command channel for controlling the conversation and a data channel for transmitting file content. Clients initiate conversations with servers by requesting to download a file. Using FTP, a client can upload, download, delete, rename, move and copy files on a server. A user typically needs to log on to the FTP server, although some servers make some or all of their content available without login, also known as anonymous FTP

Coast-to-Coast Surfing

The Web provides a means of accessing an enormous collection of information, including text, graphics, audio, video, movies, and so on. One of the most exciting aspects of the Web is that information can be accessed in a nonlinear and experimental fashion. Unlike reading a book by flipping to the next page in sequential order, you can "jump" from one topic to another via hyperlinks. This nonlinear approach to information gathering, or browsing is sometimes referred to as "coast-to-coast surfing".

HTML

HyperText Markup Language (HTML) is the predominant markup language for web pages. HTML elements are the basic building-blocks of web pages. HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items.

WEB PAGE INSTALLATION:

In order to view web pages, one needs to install them on the Web Server. A Web Server is a program, located on a computer with internet access that responds to a browser's request for a URL.

WEB PAGE SETUP:

Web pages are created with the help of HTML (Hyper Text Markup Language). The pages are set up with the help of the tags available in HTML. Some of them are:

Head tag The <HEAD> tag has no attributes. Several other tags can be included inside it.
Basefont tagThe <BASEFONT> tag defines the font size to be used in the HTML document and may be included in the head of the document.
Base tag The <BASE> tag is useful for setting some global parameters of an HTML document and may be included in the head of the document. A global parameter is an attribute that has an effect on the entire document.
Meta tag The <META> tag is used to include additional information about a document and can be used to pass additional information to a browser. There is no ending for a <META> tag and a document can have multiple META tags.

HTML Documents

All HTML documents must start with a document type declaration: **<!DOCTYPE html>**.

The HTML document itself begins with **<html>** and ends with **</html>**.

The visible part of the HTML document is between **<body>** and **</body>**.

<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>

HTML Headings

HTML headings are defined with the **<h1>** to **<h6>** tags.

<h1> defines the most important heading. <h6> defines the least important heading

```
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
```

HTML Paragraphs

HTML paragraphs are defined with the **<p>** tag:

```
<p>This is a paragraph.</p>
<p>This is another paragraph.</p>
```

HTML Links

HTML links are defined with the **<a>** tag:

```
<a href="http://www.w3schools.com">This is a link</a>
```

HTML Images

HTML images are defined with the **<img>** tag.

The source file (src), alternative text (alt), width, and height are provided as attributes:

```
<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">
```

To save a new page created in FrontPage Express:

1. From the File Menu, choose Save As.
2. Press the As File... button (do not use the "Page Location" option).
3. Choose a folder on your disk that will only contain your Web site files.
4. Type the name you want to use for the file.

Plug-in

In computing, a **plug-in** (or **plugin**, **add-in**, **addin**, **add-on**, **addon**, or **extension**) is a software component that adds a specific feature to an existing computer program. When a program supports plug-ins, it enables customization. The common examples are the plug-ins used in web browsers to add new features such as search-engines, virus scanners, or the ability to use a new file type such as a new video format. Well-known browser plug-ins include the Adobe Flash Player, the QuickTime Player, and the Java plug-in, which can launch a user-activated Java applet on a web page to its execution on a local Java virtual machine.

A theme or skin is a preset package containing additional or changed graphical appearance details, achieved by the use of a graphical user interface (GUI) that can be applied to specific software and websites to suit the purpose, topic, or tastes of different users to customize the look and feel of a piece of computer software or an operating system front-end GUI (and window managers).