HTTP *is the foundation of data communication for the World Wide Web.*

The **Hypertext Transfer Protocol (HTTP)** is an application protocol for distributed, hypermedia information systems. HTTP is the foundation of data communication for the World Wide Web.

Hypertext is structured text that uses logical links (hyperlinks) between nodes containing text. HTTP is the protocol to exchange or transfer hypertext. A web browser, for example, may be the client and an application running on a computer hosting a web site may be the server. The client submits an HTTP request message to the server. The server, which provides resources such as HTML files and other content, or performs other functions on behalf of the client, returns a response message to the client. The response contains completion status information about the request and may also contain requested content in its message body.

Request methods of HTTP

GET

The GET method requests a representation of the specified resource. Requests using GET should only retrieve data and should have no other effect.

HEAD

The HEAD method asks for a response identical to that of a GET request, but without the response body. This is useful for retrieving meta-information written in response headers, without having to transport the entire content.

POST

The POST method requests that the server accept the entity enclosed in the request as a new subordinate of the web resource identified by the URI.

PUT

The PUT method requests that the enclosed entity be stored under the supplied URI. If the URI refers to an already existing resource, it is modified; if the URI does not point to an existing resource, then the server can create the resource with that URI.

DELETE

The DELETE method deletes the specified resource.

TRACE

The TRACE method echoes the received request so that a client can see what (if any) changes or additions have been made by intermediate servers.

OPTIONS

The OPTIONS method returns the HTTP methods that the server supports for the specified URL. This can be used to check the functionality of a web server by requesting '*' instead of a specific resource.

CONNECT

The CONNECT method converts the request connection to a transparent TCP/IP tunnel, usually to facilitate SSL-encrypted communication (HTTPS) through an unencrypted HTTP proxy.

PATCH

The PATCH method applies partial modifications to a resource.

All general-purpose HTTP servers are required to implement at least the GET and HEAD methods and, whenever possible, also the OPTIONS method.

WWW - World Wide Web

The World Wide Web consists of all the Web sites connected to the Internet worldwide that access Web content. With a web browser, one can view web pages that may contain text, images and other multimedia and navigate between them by using hyperlinks.

There are several Web browsers that make it easy to access the World Wide Web (WWW). Name of some of them are:-

- Google Chrome
- Mozilla Firefox
- Netscape Navigator and Netscape Communicator
- Microsoft's Internet Explorer
- Opera, for mobile as well as for PC
- Safari, for MAC system

Browsers are also used in Mobile devices to access content from World Wide Web.

The term/name WWW is often mistakenly used as a synonym for the Internet itself, but the Web is actually something that is available via the Internet, just like e-mail and many other Internet services.

URL (Uniform Resource Locator)

URL stands for *Uniform Resource Locator* and is a reference (an address) to a resource on the Internet.

A URL has two main components:

- Protocol identifier: For the URL `http://example.com`, the protocol identifier is `http`.

  Example: ***https://***www.google.co.in/

- Resource name: For the URL `http://example.com`, the resource name is `example.com`.

  Example: *https://*www.***google***.co.in/

The protocol identifier and the resource name are separated by a colon and two forward slashes. The protocol identifier indicates the name of the protocol to be used to fetch the resource. The example uses the Hypertext Transfer Protocol (HTTP), which is typically used to serve up hypertext documents. HTTP is just one of many different protocols used to access different types of resources on the net. Other protocols include File Transfer Protocol (FTP), Gopher, File, and News.

The resource name is the complete address to the resource. The format of the resource name depends entirely on the protocol used, but for many protocols, including HTTP, the resource name contains one or more of the following components:

Host Name
: The name of the machine on which the resource lives.

Filename
: The pathname to the file on the machine.

Port Number
: The port number to which to connect (typically optional).

Reference
: A reference to a named anchor within a resource that usually identifies a specific location within a file (typically optional).

URI (**Uniform Resource Identifiers)**

Uniform Resource Identifier (URI) is a string of characters used to identify a resource.

Syntax

The syntax of generic URIs and absolute URI references was first defined in Request for Comments (RFC) 2396, published in August 1998, and finalized in RFC 3986, published in January 2005

scheme:[**//**[**user**[**:password**]**@**]**host**[**:port**]][**/path**][?**query**][#**fragment**]

Example: **https://mail.google.com/mail/u/0/#inbox**

The **scheme**, consisting of a sequence of characters beginning with a letter and followed by any combination of letters, digits, plus (+), period (.), or hyphen (-). Although schemes are case-insensitive, the canonical form is lowercase and documents that specify schemes must do so with lowercase letters. It is followed by a colon (:). Examples of popular schemes include http(s), ftp, mailto, file, data, and irc. URI schemes should be registered with the Internet Assigned Numbers Authority (IANA).

Two slashes (//): This is required by some schemes and not required by some others. When the authority component (explained below) is absent, the path component cannot begin with two slashes.

An authority part, comprising:

- An optional authentication section of a user name and password, separated by a colon, followed by an at symbol (@)
- A "host", consisting of either a registered name (including but not limited to a hostname), or an IP address. IPv4 addresses must be in dot-decimal notation, and IPv6 addresses must be enclosed in brackets ([ ]).

An optional port number, separated from the hostname by a colon

A path, which contains data, usually organized in hierarchical form, that appears as a sequence of segments separated by slashes. The path must begin with a single slash (/) if an authority part was present, and may also if one was not, but must not begin with a double slash. The path is always defined, though the defined path may be empty (zero length), therefore no trailing slash.

An optional query, separated from the preceding part by a question mark (?), containing a query string of non-hierarchical data. Its syntax is not well defined, but by convention is most often a sequence of attribute–value pairs separated by a delimiter.

An optional fragment, separated from the preceding part by a hash (#). The fragment contains a fragment identifier providing direction to a secondary resource, such as a section heading in an article identified by the remainder of the URI. When the primary resource is an HTML document, the fragment is often an id attribute of a specific element, and web browsers will scroll this element into view.

Uses of URIs

- Addresses on the Web
- Namespaces in XML QNames
- Namespaces in QNames in other languages
- Identifiers of things and concepts (e.g. RDF)
- Unique keys (e.g. MIME message ID)