**HTTP – Hypertext Transfer Protocol**

**Definition:**

* A protocol used by the World Wide Web (WWW), which defines how the messages transferred are formatted and transmitted. It also determines the actions that browsers and web servers take upon command.

**HTTP is a stateless Protocol:**

* HTTP is called a stateless protocol because it’s commands execute independently, without considering the previous actions or commands that were done.

**HTTP is an** **asymmetric request-response client-serverprotocol:**

* The HTTP client pulls data or information from servers instead of the server pushing data to client. A client request is needed to feed information to the client itself. Hence calling HTTP a “pull protocol”.

**URL:**

* Uniform Resource Locator
* Uniquely defines sources in the web.
* Four parts;

-Protocol

-Hostname

-Port

-Path and file name

**History:**

* **HTTP 0.9 : The One-Line Protocol**

-The commands consists of a single line. Mainly HTML, no headers or other metadata.

**Features of HTTP 0.9 :**

* Client-server, request-response protocol.
* ASCII protocol, running over a TCP/IP link.
* Designed to transfer hypertext documents (HTML).
* The connection between server and client is closed after every request.

## HTTP 1.0 : Rapid Growth and Informational RFC

## Changes that were made :

* Request may consist of multiple newline separated header fields.
* Response object is prefixed with a response status line.
* Response object has its own set of newline separated header fields.
* Response object is not limited to hypertext.
* The connection between server and client is closed after every request.

## HTTP 1.1 : Internet Standard

## HTTP developed and added :

## - Content

## - Encoding

## - Character set

## - Language negotiation

## -Transfer encoding

## - Caching Directives

## - Client Cookies

## HTTP/2 : Improving Transport Performance

## Focused on improving in areas where in transfer performance is in mind.

## HTTP Syntax :

## It uses (ABNF) Augmented Backus-Naur Form.

## It uses Request Line that is in the first line of the header, and followed by optional request headers.

## Uses "<major>, <minor>" numbering scheme to indicate the protocol version.

## HTTP uses three Data/Time Format.

## It uses character set to refer to a method used with one or more tables to convert a sequence of octets into a sequence of characters.

## Content coding values indicate an encoding transformation that has been or can be applied.

## Uses Internet Media Types to provide open and extensible data typing and type negotiation.

## Product tokens are used to identify themselves by software name and version.

## It uses Quality Values that use floating points to indicate the importance of various negotiable parameters.

## HTTP Concepts

## Client - browser

## HTTP server – Microsoft Information Service (IIS), Apache

## Web page - group of objects

## Object – text, images, files, etc.

## Uniform Resource Locator

Sources:

<https://www.webopedia.com/TERM/H/HTTP.html>

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<https://www.w3.org/Protocols/rfc2616/rfc2616-sec3.html#sec3.2.1>

<http://www.ntu.edu.sg/home/ehchua/programming/webprogramming/http_basics.html>