

University Mohamed Boudiaf - Msila
Faculty of Mathematics and Computer Science
Department of Computer Science
1st Year Master - SIGL



Web Technologies

Introduction

Mohamed Kamel

Academic Year 2025/2026

Table of Contents

- ① Introduction
- ② Internet
- ③ Protocols
- ④ HTTP protocol

Web

- The Web is the common name for the World Wide Web
- The Web is an information system enabling documents and other web resources to be accessed over the Internet.
- Documents and downloadable media are made available to the network through web servers and can be accessed by programs such as web browsers.

- Internet is the global system of interconnected computer networks
- Internet allows information to be sent from a computer to another

Brief history

- 1969, ARPANET
- 1989, Web, invented by Tim Berners-Lee
- 1990, nxoc01.cern.ch, the first web server
- 1994, PHP, Yahoo
- 1995, IE, Apache, Java, Javascript

Brief history

- 1996, Hotmail, the first web based mail
- 1998, Google
- 2004, Web 2.0
- 2007, HTML 5

Terminologies

- HTML, HyperText Markup Language,
- URL, Uniform Resource Locator,
- Protocol
- HTTP, HyperText Transfer Protocol,
- HTTPS
- FTP, File Transfer Protocol

Terminologies

- Web page
- Web site
- Web browser/navigator/client
- Web server
- DNS, Domain Name System

URL

- Format,

protocol://username:password@domain:port/path/filename?parameters

- Examples,

- <https://www.univ-msila.dz/index.php?q=informatique>
- <ftp://mi.univ-msila.dz>
- <file:///C:/Users/Public/Desktop/Picture.png>

Protocols

- **Internet Protocol (IP)**, is a protocol, or set of rules, for routing and addressing packets of data so that they can travel across networks and arrive at the correct destination.
- **Transmission Control Protocol (TCP)**, TCP is a popular communication protocol which is used for communicating over a network. It divides any message into series of packets that are sent from source to destination and there it gets reassembled at the destination.

Protocols

- **User Datagram Protocol (UDP)**, UDP is a substitute communication protocol to Transmission Control Protocol implemented primarily for creating loss-tolerating and low-latency linking between different applications.
- **Post office Protocol (POP)**, POP3 is designed for receiving incoming E-mails.
- **Simple Mail Transport Protocol (SMTP)**, SMTP is designed to send and distribute outgoing E-Mail.

Protocols

- **File Transfer Protocol (FTP)**, FTP allows users to transfer files from one machine to another.
- **Hyper Text Transfer Protocol (HTTP)**, HTTP is designed for transferring a hypertext among two or more systems. HTML tags are used for creating links. These links may be in any form like text or images.

Protocols

- **Hyper Text Transfer Protocol Secure (HTTPS)**, HTTPS is a secured HTTP protocol.
- **Telnet**, Telnet is a set of rules designed for connecting one system with another.

HTTP Request

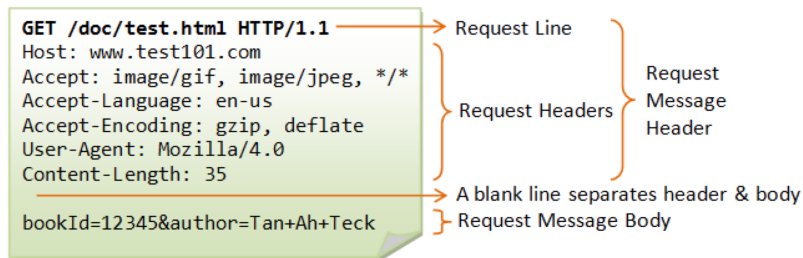


Figure: HTTP Request

HTTP Response

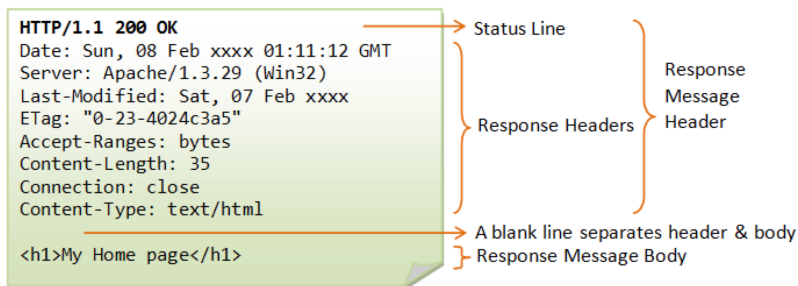


Figure: HTTP Response

HTTP Response codes

- 1xx Informational responses
- 2xx Successful responses
- 3xx Redirection messages
- 4xx Client error responses
- 5xx Server error responses

Exapmles of HTTP responses

- 200 OK
- 301 Moved Permanently
- 307 Temporary Redirect
- 403 Forbidden
- 404 Not Found
- 500 Internal Server Error
- 503 Service Unavailable

HTTP request methods

- **GET**, requests a representation of the specified resource.
Requests using GET should only retrieve data.
- **HEAD**, asks for a response identical to a GET request, but without the response body.
- **POST**, submits an entity to the specified resource, often causing a change in state or side effects on the server.
- **PUT**, replaces all current representations of the target resource with the request payload.

HTTP request methods

- **DELETE**, deletes the specified resource.
- **CONNECT**, establishes a tunnel to the server identified by the target resource.
- **OPTIONS**, describes the communication options for the target resource.
- **TRACE**, performs a message loop-back test along the path to the target resource.
- **PATCH**, applies partial modifications to a resource.

Some HTTP request fields

- **Accept**, e.g. `Accept: text/html`
- **Accept-Encoding**,
- **Referrer**,
- **Content-Length**,
- **Content-Type**,

Questions ?