

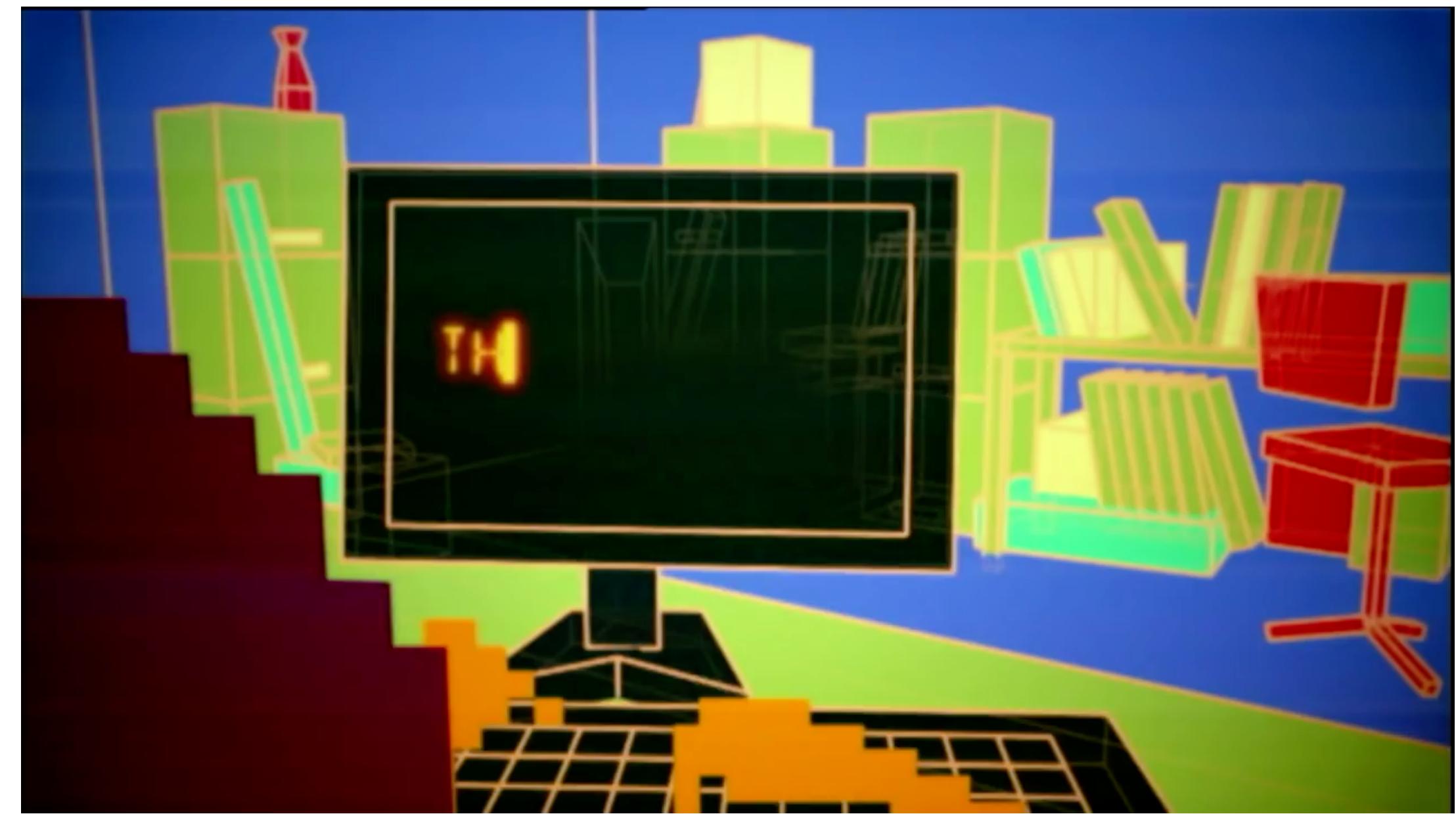
# Web Technologies

Dr. Angel J. Lopez

# Introduction

Definitions, Brief history of the Web , Client (browser) and server, The Web architecture, Web applications

The Internet?



# Questions

- What is the Internet?
- How long has been the Internet around?

History of the Internet....

# Questions

- What is the Internet?
- How long has been the Internet around?

# Questions

- What is the Internet?
  - The internet is a global network of computers which are all connected allowing us to share information and communication with each other
- How long has been the Internet around?
  - The Internet goes back to the 1960s and is a by product of the Cold War between the United States and the Soviet Union

# The World Wide Web

(aka the Web)

# The World Wide Web

In 1989, Tim Berners-Lee had suggested a way to let all users, but particularly scientists, browse each others' papers on the Internet

**Tim Berners-Lee**  
[w3.org/people/berners-lee](http://w3.org/people/berners-lee)

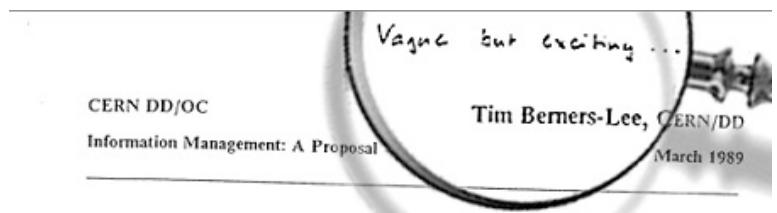


Sir Timothy John Berners-Lee, also known as TimBL, is an English engineer and computer scientist, best known as the inventor of the World Wide Web. He is a Professorial Fellow of Computer Science at the University of Oxford and a professor at the Massachusetts Institute of Technology. [Wikipedia](#)

**Born:** Timothy John Berners-Lee, Jun 8, 1955, London, England, UK

**Other names:** TimBL, TBL

**Education:** Queen's College, Oxford (BA)

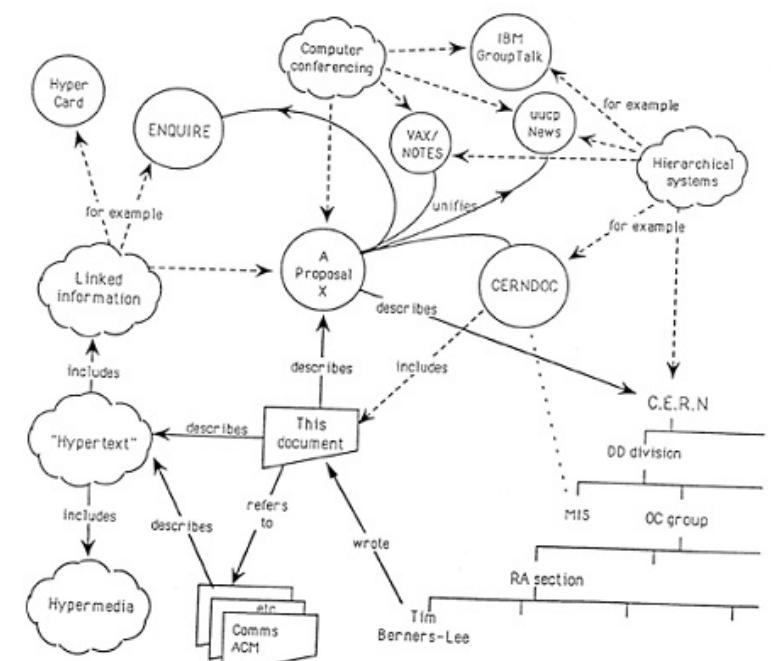


## Information Management: A Proposal

### Abstract

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

Keywords: Hypertext, Computer conferencing, Document retrieval, Information management, Project control



<https://cds.cern.ch/record/369245/files/dd-89-001.pdf>

# The World Wide Web

Also known as ‘the web’ is one of the way that information is shared on the internet

The web is composed by millions of connected digital documents that can be viewed using a web browser

## Tim Berners-Lee

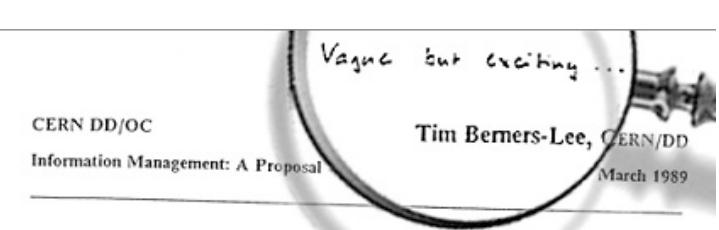
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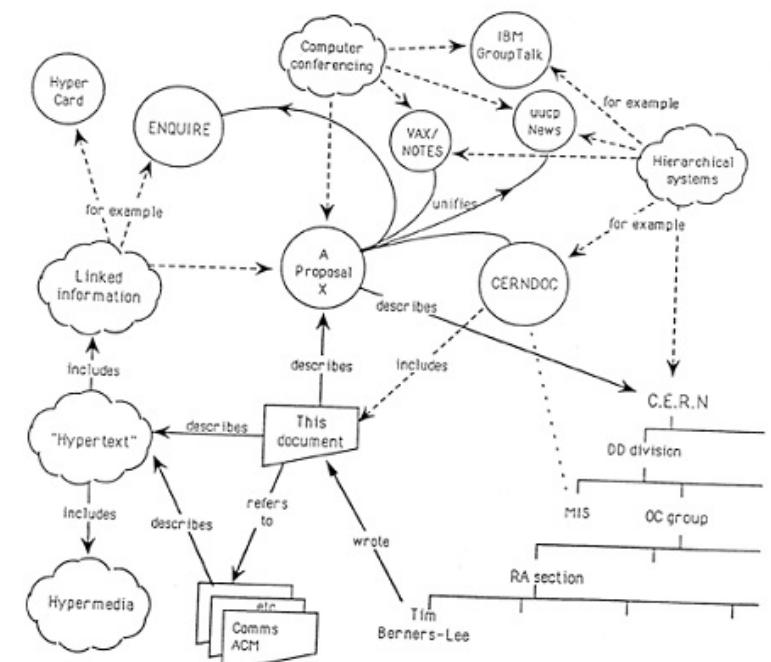


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# The World Wide Web

- **Decentralisation:** No permission is needed from a central authority to post anything on the web
- **Non-discrimination:** This principle of equity is also known as Net Neutrality
- **Bottom-up design:** Instead of code being written and controlled by a small group of experts, it was developed in full view of everyone, encouraging maximum participation and experimentation
- **Universality:** For anyone to be able to publish anything on the web
- **Consensus:** For universal standards to work

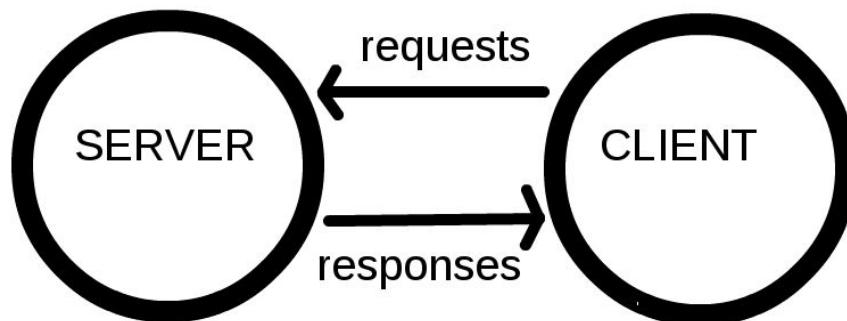
# The World Wide Web

- HTML
- URI (URL)
- HTTP
- Web browser

<https://cds.cern.ch/record/369245/files/dd-89-001.pdf>

# Basic Web Architecture

- The web is a two-tiered architecture.
  - A web browser displays information content,
  - and a web server that transfers information to the client.



# Web Browser

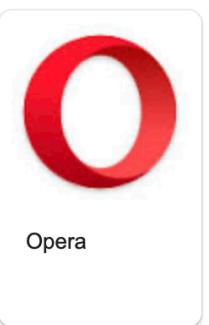
- The primary purpose is to bring information resources to the user
- An application for retrieving, presenting, and traversing information resources



Google  
Chrome



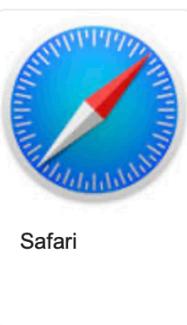
Firefox



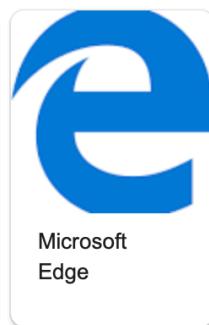
Opera



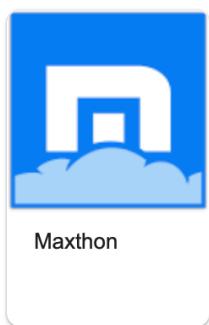
Internet  
Explorer



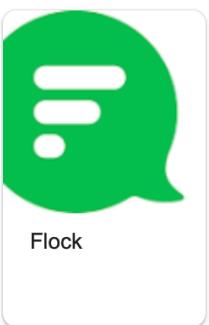
Safari



Microsoft  
Edge



Maxthon



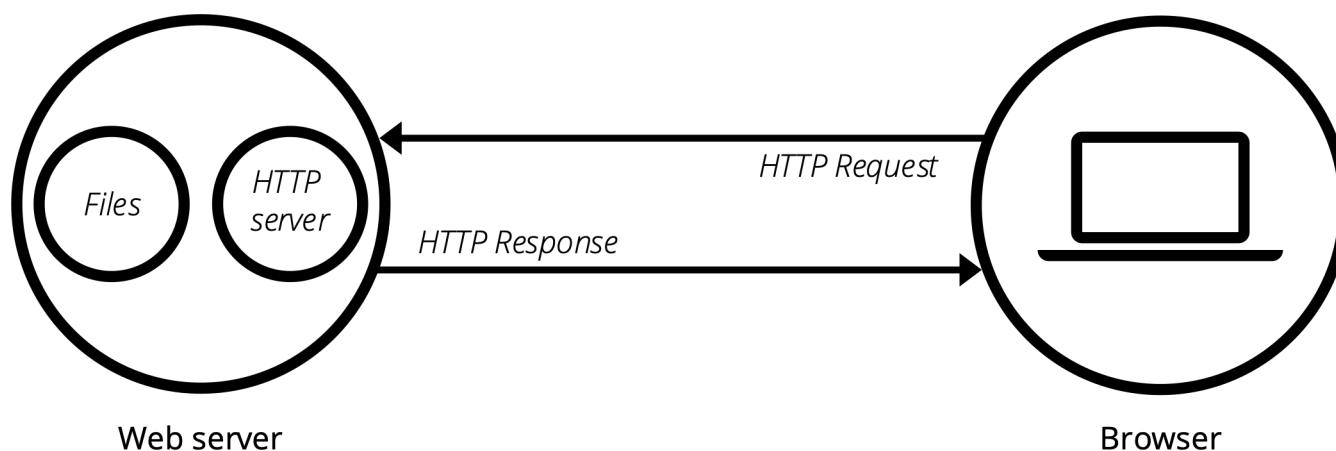
Flock



SeaMonkey

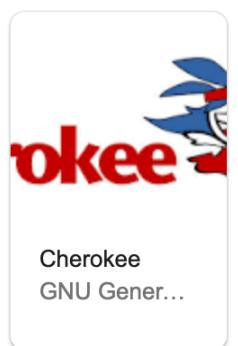
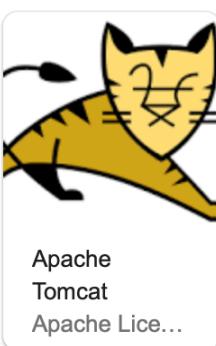
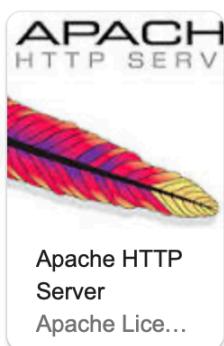
# Web Server

- The term web server or webserver can mean one of two things:
  - A computer program that accepts HTTP requests and return HTTP responses with optional data content.
  - A dedicated computer/appliance, that runs a web server program, may be referred to as Web servers as well



# Web Server

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  - A dedicated computer/appliance, that runs a web server program, may be referred to as Web servers as well
- Examples:



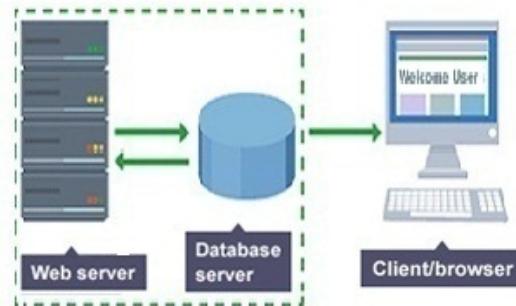
# Web Server

**Dynamic web server**

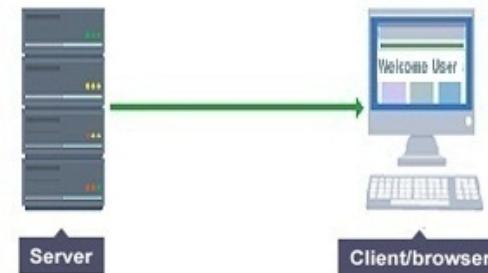
**Static web server**

# Web Server

Dynamic web server



Static web server



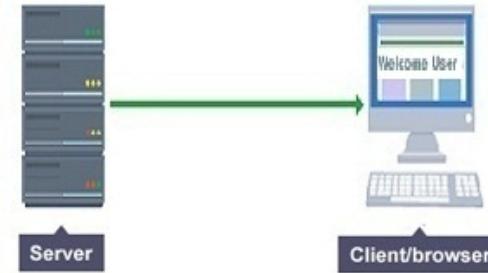
Vs.

# Web Server

Dynamic web server



Static web server



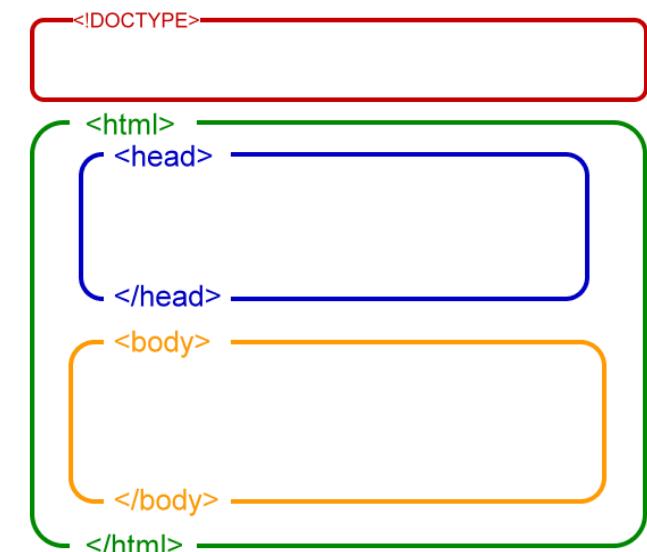
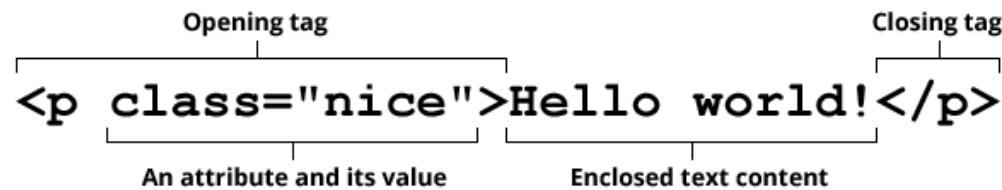
Vs.

- Loading time?
- Cost?
- Maintenance?
- Development?
- Update?

# HTML

- Document layout language (not a programming language)
- Defines structure and appearance of Web pages
- An HTML document is a plaintext document structured with elements.

Anatomy of an HTML element



# HTTP (HyperText Transfer Protocol)

- HTTP is a request/response standard of a client and a server
- Typically, an HTTP client initiates a request
- Resources to be accessed by HTTP are identified using Uniform Resource Identifiers (URIs).

# URL (Uniform Resource Locator)

- A URL is nothing more than the address of a given unique resource on the Web

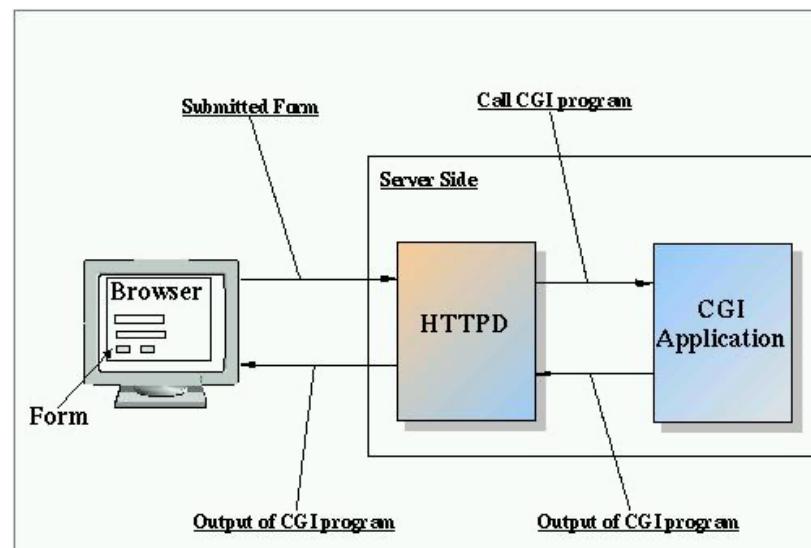
`https://developer.mozilla.org`

`https://developer.mozilla.org/en-US/docs/Learn/`

`https://developer.mozilla.org/en-US/search?q=URL`

# Web Architecture Extensibility

- CGI extends the architecture to three-tiers by adding a back-end server that provides services to the Web server.
- Helpers/plug-ins and Java/JavaScript provide other interesting Web architecture extensions.



# JavaScript

- JavaScript is a scripting language designed for creating dynamic, interactive Web applications that link together objects and resources on both clients and servers.
  - Getting your Web page to respond or react directly to user interaction with form elements and hypertext links
  - Preprocessing data on the client before submission to a server
  - Changing content and styles

# Questions

- Why does the Internet not have a central hub?
- How is information sent across the Internet?
- Who invented HTML?
- What is the difference between the Internet and the World Wide Web?

# Questions

- Web page,
- Website,
- Web Server,
- Search Engine?

# Website vs Web application

# Website



# Web Application

