

Chapter 0

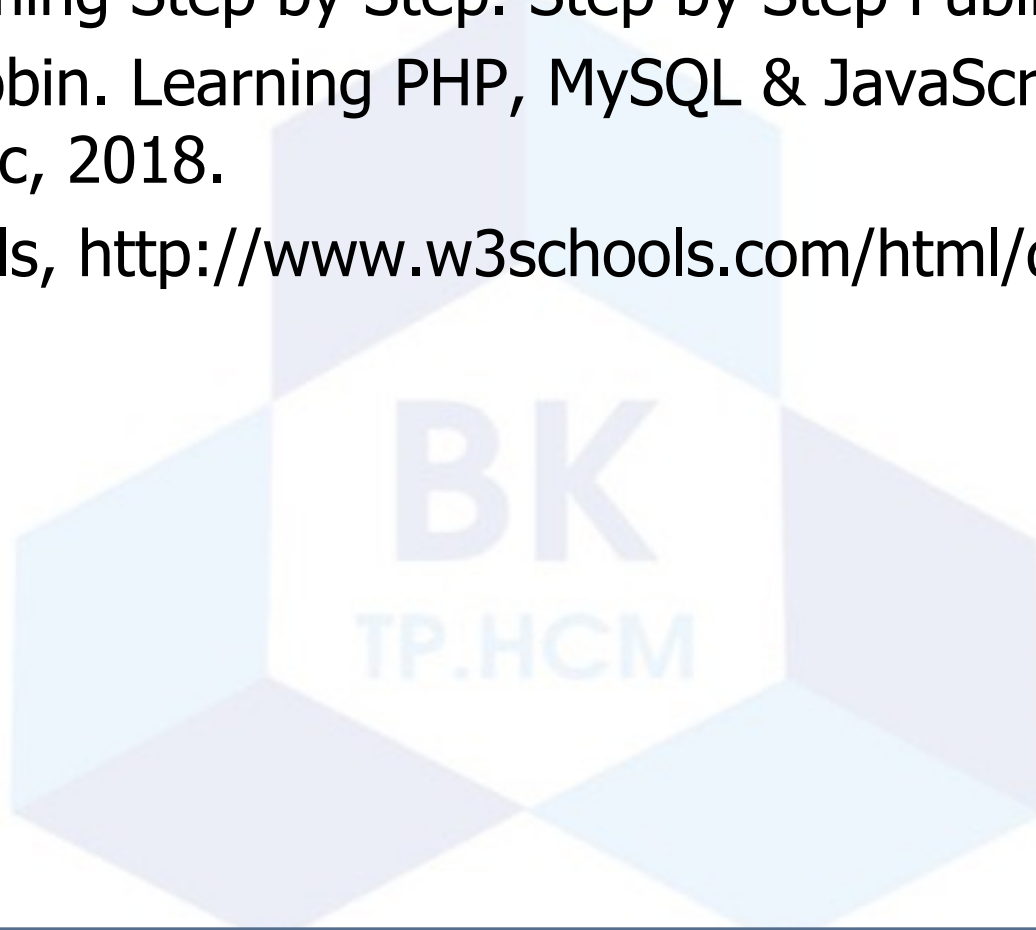
Overview

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Books and references

- Stepp, Martin, Jessica Miller, and Victoria Kirst. Web Programming Step by Step. Step by Step Publishing, 2012.
- Nixon, Robin. Learning PHP, MySQL & JavaScript. O'Reilly Media, Inc, 2018.
- W3Schools, <http://www.w3schools.com/html/default.asp>



Content

- HTML5 + Forms
- CSS + CSS3
- JavaScript
- PHP
- PHP & MySQL
- Cookies and Sessions
- Web Services
- Search Engine Optimization
- Web Security

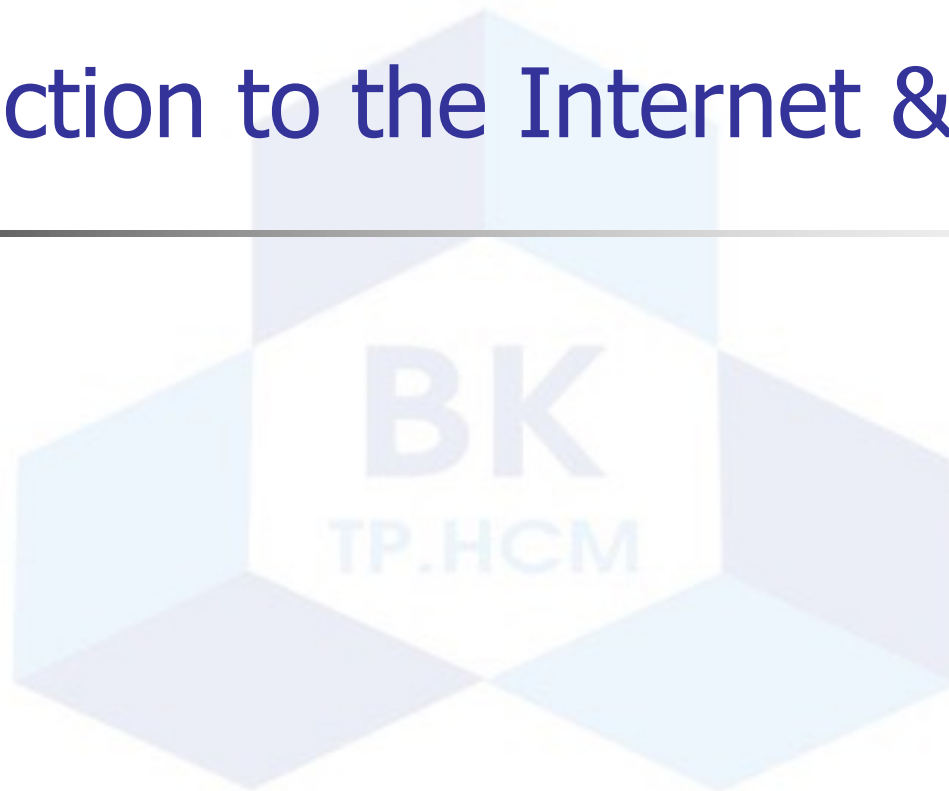


Grading

- Thực hành: 10%
- Thí nghiệm: 10%
- Assignment: 40%
- Final Exam: 40%

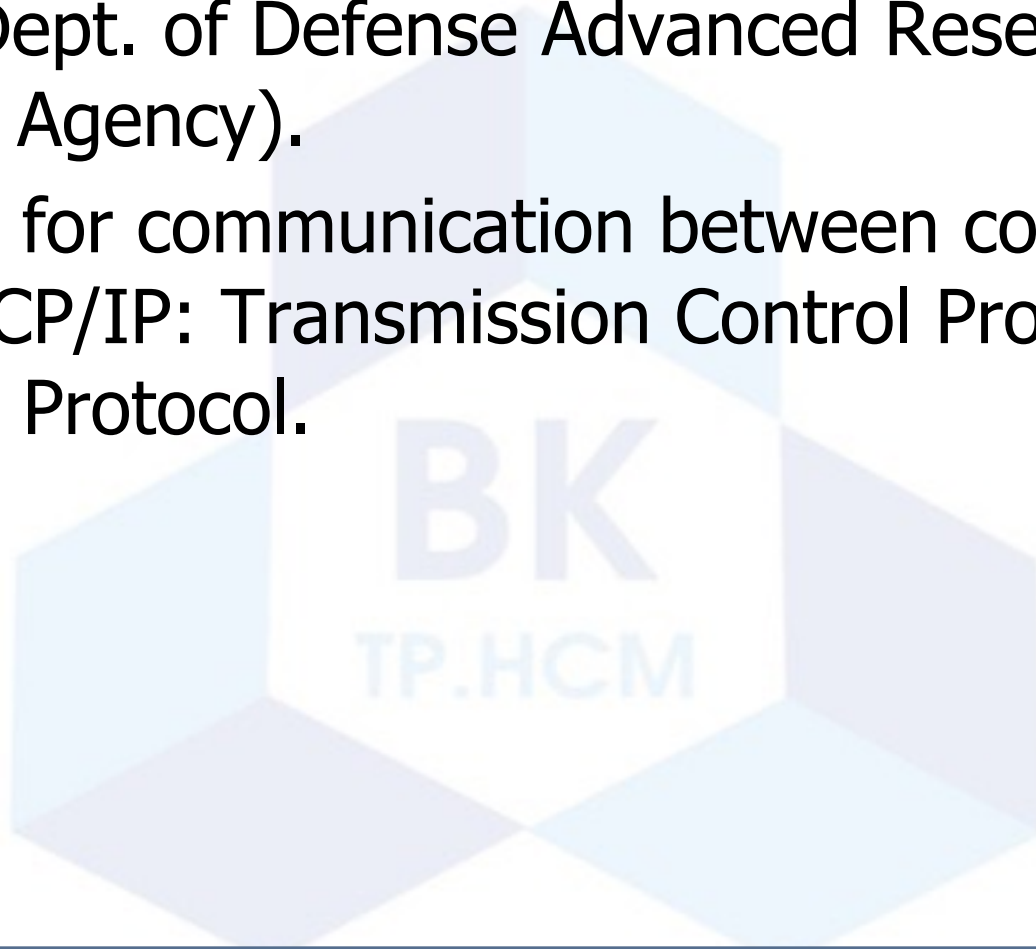


Introduction to the Internet & the Web



The Internet

- Developed beginning in the 1960s, sponsored by ARPA (Dept. of Defense Advanced Research Projects Agency).
- Protocol for communication between computers is called TCP/IP: Transmission Control Protocol / Internet Protocol.

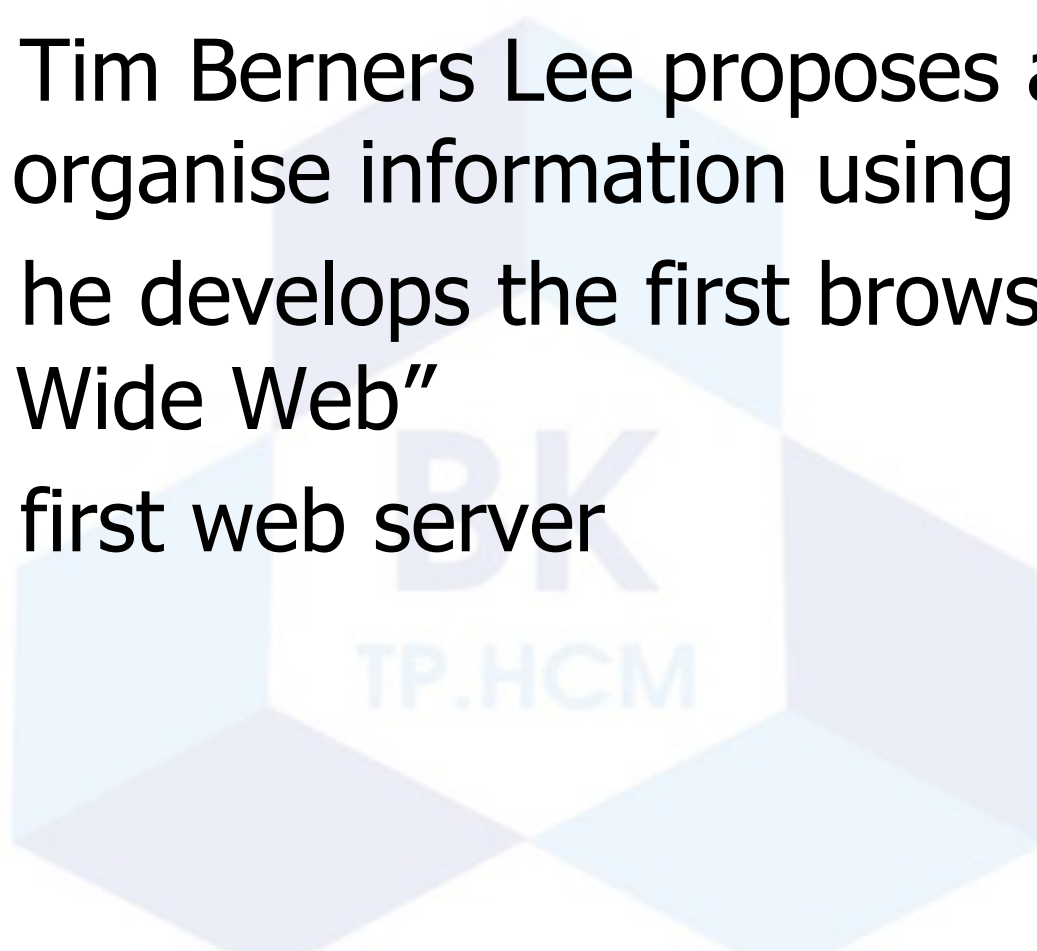


Before the Web

- Internet was already existing
- Resources on the internet were found using command line tools like FTP
- Example:
 - Run ftp program
 - Enter “C host” (connects to a server) – Enter username
 - Enter password
 - Ls (lists files)
 - Get file
 - Cd (change directory)
- There were no links
- You had to know where the information was

The Invention

- 1989 – Tim Berners Lee proposes at CERN a way to organise information using hyperlinks
- 1990 – he develops the first browser – “World Wide Web”
- 1991 – first web server



Conclusions

- World wide web was first a way to link text documents
- It evolved into
 - Providing different kinds of content (images, video)
 - providing services for people (games, answers, news)
 - Providing means for people to create content (wikis, forums, social networking applications, blogs)
 - Providing services for computers



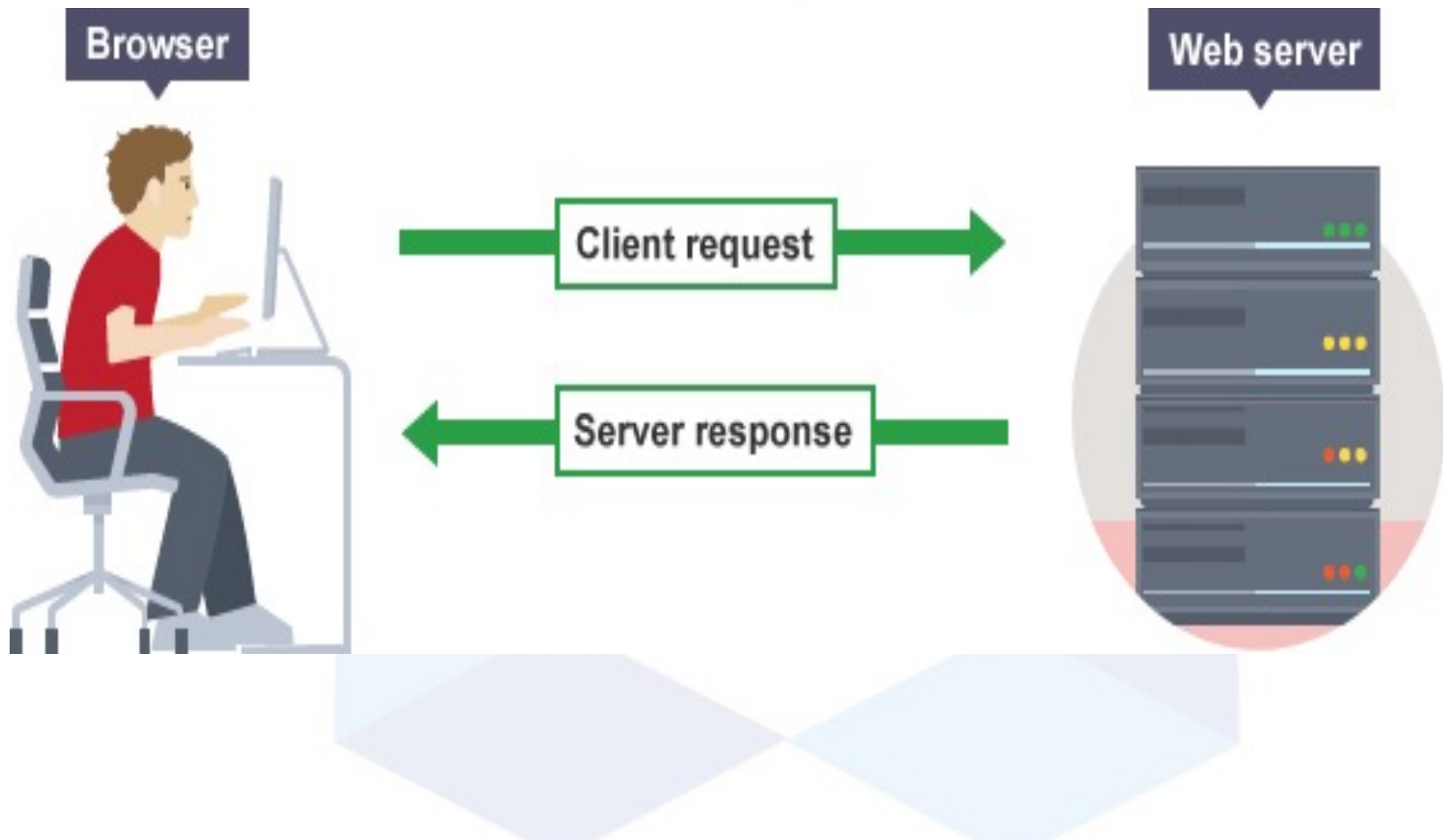
Conclusions

- The content was first static – text pages that were rarely changed and only by the owner
- Content became dynamic updated from the server's database
- Content became updated real time (without refreshing the page using asynchronous technologies)
- Content comes from different sources and it's aggregated on a page

How the web works

- The client-server model
- Client and server operate on machines which are able to communicate through a network
- The server waits for requests from a clients
- Server receives a requests from a client
 - Performs a the requested work
 - Or lookup the requested data
 - And send a response to the client
- Servers: file servers, web servers, name servers
- Clients: browsers, email clients

How the web works

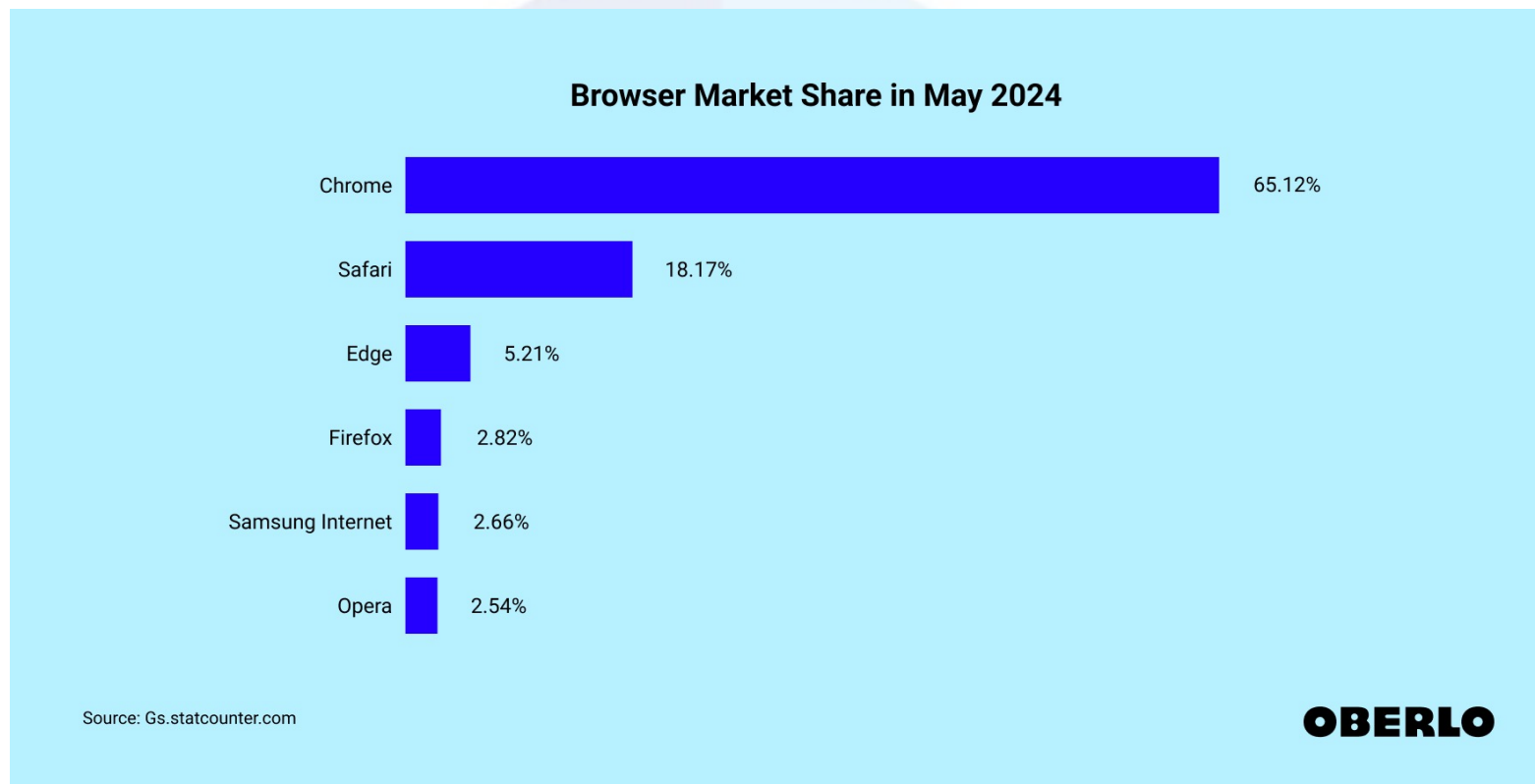


URL format

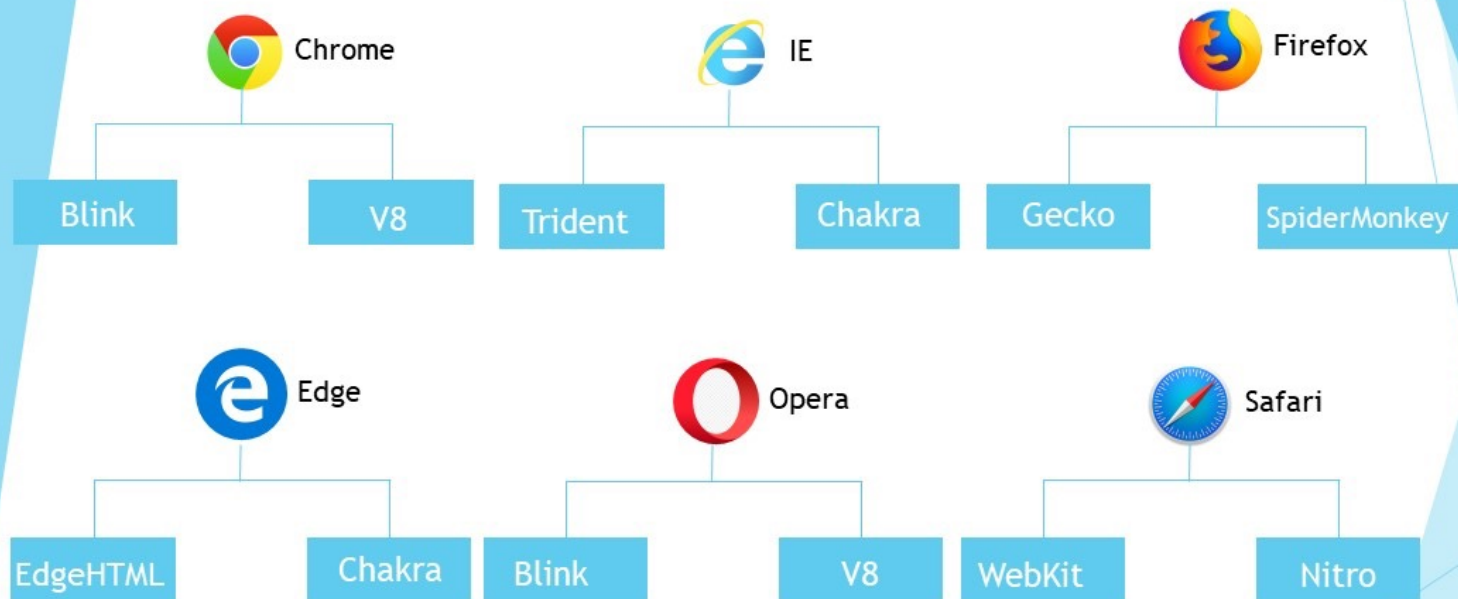
- URL: Uniform Resource Locator
- `<scheme>://<server-domain-name>/<pathname>`
 - `<scheme>` which protocol to use
 - `http`: Hypertext Transfer Protocol
 - `file`: which tells the client document is in a local machine
 - `ftp`: file transfer protocol
 - `<server-domain-name>` identifies the server system
 - i.e. `hcmut.edu.vn`
 - `<pathname>` tells the server where to find the file
- `http://www.cse.hcmut.edu.vn/site/vi/Category`

Web browsers and servers

- **A browser:** is a program that can retrieve files from the world wide web and render text, images, or sounds encoded in the files.
 - i.e. IE, Google Chrome, FireFox,...

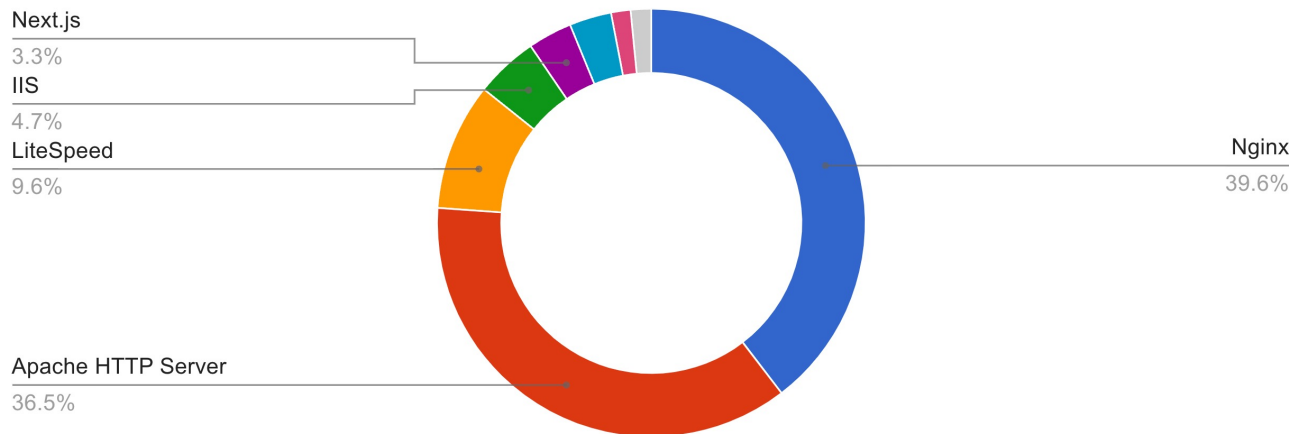


Rendering Engines & JavaScript Engines

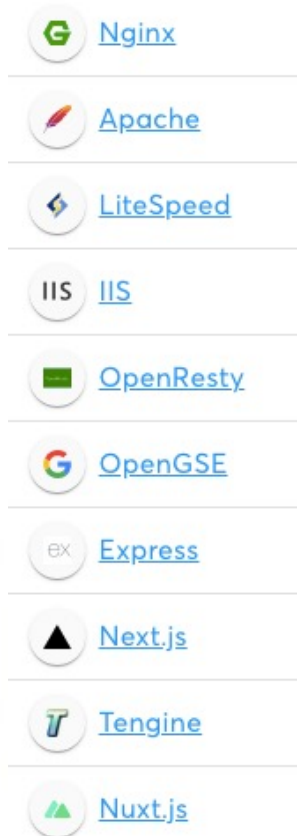


Web browsers and servers

- **A web server:** is an application which waits for client requests, fetches requested documents from disk and transmits them the client.
 - i.e Apache, IIS, Nginx,...



Source: <https://www.wappalyzer.com/technologies/web-servers>



What happened when you click on hyperlink?

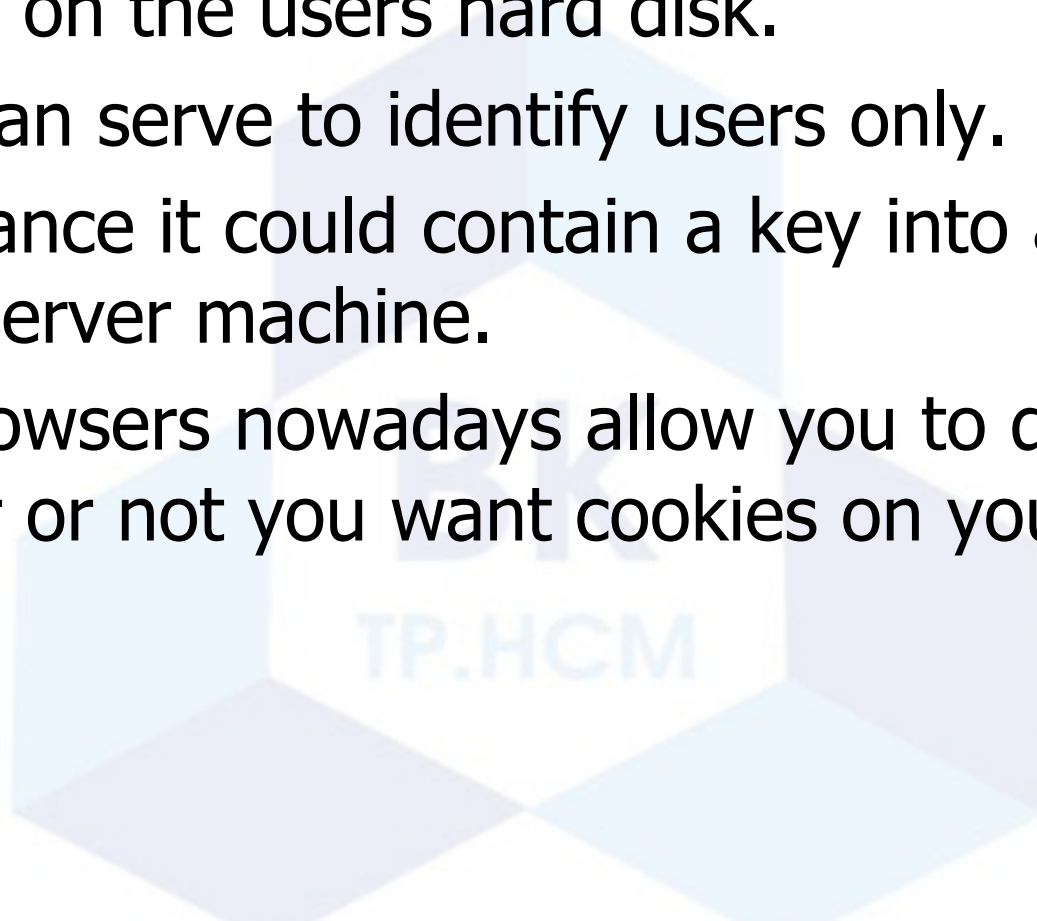
- Determine URL and extract domain name.
- Use the name server to get Internet Protocol (IP) address (DNS - Domain Name System)
- Make a Transmission Control Protocol (TCP) connect to port 80 and send a request for a web page once the server has accepted to connection.
- The server send the file and releases the TCP connection
- The client displays the document.

Stateless connection

- Both client and server release TCP connection after a page has been transferred.
- HTTP1.0 is stateless
 - Connections are not persistent
 - There is no indication to the server whether new transactions involve the same client
- HTTP 1.1 is persistent
 - By keeping track of the client IP addresses
 - However, there is no way of identifying a repeated visits to the site by the same user.
 - Furthermore, Internet Service Provider (ISP)s reallocate IP addresses to dial-up customers as new user dial in.

Cookies

- Request the browser to store a small data file (cookie) on the users hard disk.
- Which can serve to identify users only.
- For instance it could contain a key into a database on the server machine.
- Most browsers nowadays allow you to decide whether or not you want cookies on your machine.



W3C

- The World Wide Web Consortium (W3C) is an international community where Member organizations, a full-time staff, and the public work together to develop Web standards. Led by Web inventor Tim Berners-Lee and CEO Jeffrey Jaffe, W3C's mission is to lead the Web to its full potential.
- <http://www.w3.org/Consortium/>

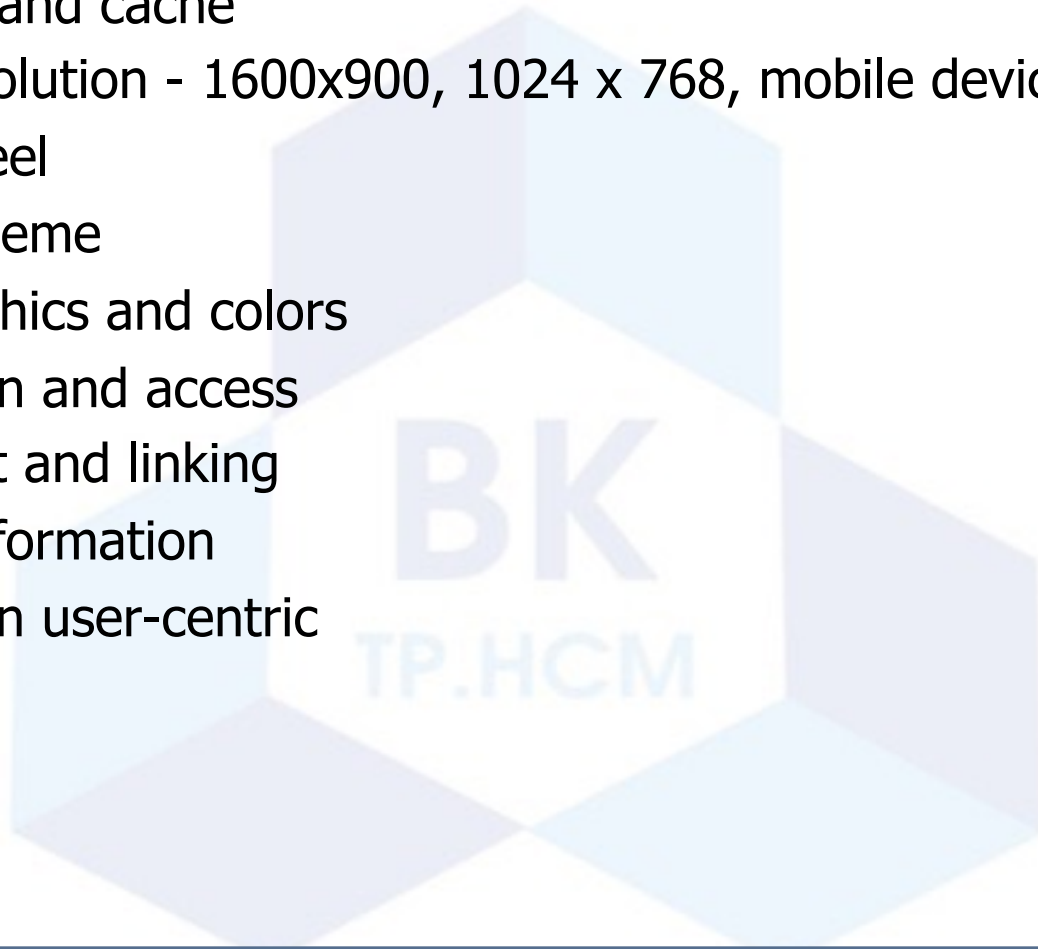
Web Development Life Cycle

Table 1-4 Web Development Phases and Questions

WEB DEVELOPMENT PHASE	QUESTIONS TO ASK
Planning	<ul style="list-style-type: none">• What is the purpose of this Web site?• Who will use this Web site?• What are the users' computing environments?• Who owns and authors the information on the Web site?• Who decides if/where the information goes on the Web site?
Analysis	<ul style="list-style-type: none">• What tasks do the users need to perform?• What information is useful to the users?• What process considerations must be made?
Design and Development	<ul style="list-style-type: none">• How will the Web pages be organized?• What type of Web site structure is appropriate for the content?• What forms of multimedia contribute positively to the Web site?• How can accessibility issues be addressed without limiting usability?• Do we need to design for an international audience?
Testing	<ul style="list-style-type: none">• Is the Web site content correct?• Does the Web site function correctly?• Are users able to find the information they need and to complete desired tasks?• Is navigation easy?
Implementation and Maintenance	<ul style="list-style-type: none">• How is the Web site published?• How is the Web site updated?• Who is responsible for content updates?• Who is responsible for structure updates?• How will users be notified about updates to the Web site?• Will the Web site be monitored?

Website design issues

- Browser and OS
- Bandwidth and cache
- Display resolution - 1600x900, 1024 x 768, mobile devices, tablets.
- Look and feel
- Web site theme
- Fonts, graphics and colors
- Presentation and access
- Page layout and linking
- Locating information
- Make design user-centric
- Sitemap



Tài Liệu Tham Khảo

- Stepp, Martin, Jessica Miller, and Victoria Kirst. Web Programming Step by Step. Step by Step Publishing, 2012.
- Nixon, Robin. Learning PHP, MySQL & JavaScript. O'Reilly Media, Inc, 2018.
- W3Schools, <http://www.w3schools.com/html/default.asp>

