

Unit 5 Using Internet

- What is Network?
- Network vs. Internet
- Advantage of Network
- Dis advantage of Network

Development of the internet

Development of the Internet

- The first step towards the construction of Internet was taken by U.S. Department of Defense in 1969, when they approved a project named **ARPANET** (acronym for **Advanced Research Projects Agency NETWORK**).
- This project was started to connect computers of different universities and US Defense in such a manner that the network could even survive after a nuclear attack
- The users of this network were able to share data and communicate by using short text messages.

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- To use ARPANET, a university was required to have a research contract with the Department of Defense.
- Due to this problem, in 1970's the NSF (U.S. National Science Foundation) created a common network called **CSNET (Computer Science Network)** which allowed dial-up connections to ARPANET.

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- The idea of CSNET was simple but it was a grand success.
- By 1980's around 200 computers were connected to this network.
- Research and development in the field of network resulted into the formation of a new, high-capacity and more speedy network called **NSFNET (National Science Foundation Network)**.

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- This network got an instantaneous success and forced NSF to think for a better and fast version of it.
- The research led to the creation of a new network called **ANSNET (Advanced Network Services)** in 1992.
- In 1995, a more advanced version of the network called **VBNS (Very high speed Backbone Network System)** was developed and it replaced ANSNET from the market.
- In 1995, a new name was given to the collection of these networks and is now called **THE INTERNET**.
- The number of computers being connected to the Internet doubles in less than a year.

Summary of Internet Development Trend

ARPANET→CSNET→NSFNET→ANSNET→
VBNS→Internet

Advantages and Disadvantages Of Internet

Advantages of Internet

- ✓ Sharing and collecting information
- ✓ E-commerce
- ✓ News
- ✓ Advertisement
- ✓ Communication
 - ✓ E-mail
 - ✓ Chatting
 - ✓ Video conferencing
 - ✓ Internet telephony

Advantages of Internet

✓ **Formation of communities**

❖ Internet helps in formation of communities or forums. Here, a number of people can participate in different types of debates and discussions to express their views and gather valuable knowledge.

✓ **Entertainment**

✓ **Online learning**

✓ **Services**

- A variety of services are offered via Internet, for example job searching, online banking, online results, buying movie tickets, airlines and railways schedules, hotel reservations and consultation services (e.g., medical help), etc.

Disadvantages of Internet

- **Virus threat**
- **Spamming**
 - Spamming denotes distribution of unsolicited e-mails in large numbers. They are meaningless and they unnecessarily block the whole system.
- **Security problems**
- **Pornography**
 - Pornography is definitely harmful for the children
- **Filtration of information**
 - When a keyword is given to a search engine for searching information of a specific topic, a large number of related links are displayed

Disadvantages of Internet

- **Accuracy of information**
- **Wastage of time**
 - A lot of time is wasted by Internet users to collect the information on the Internet.
 - Some people waste a lot of time in chatting or to play games

Group Discussion

- WWW
- Website
- Webpage
- Homepage
- Web application
- Web server
- Web client
- Web browser

Terminologies

- **WWW or Web:** is a set of programs, standards and protocols that allows the text, images, animations, sounds, videos to be stored and accessed and linked together.
- A **webpage** is a document on the **World Wide Web** that can include text, pictures, sound and video.
- **Website** is the location of a web domain name in a computer somewhere on the Internet.
- Its is computer with a domain name

Types of Websites

Static Website

- A static website is one that has web pages stored on the server in the format that is sent to a client web browser.
- It is primarily coded in Hypertext Markup Language (HTML).
- Visitors are not able to control what information they receive via a static website, and must instead settle for whatever content the website owner has decided to offer at that time.

Dynamic Website

- A dynamic website is one that changes or customizes itself frequently and automatically, based on certain criteria. Dynamic websites can have two types of dynamic activity: Code and Content.

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- Dynamic code is invisible or behind the scenes and dynamic content is visible or fully displayed.
- The main purpose of a dynamic website is automation.
- A dynamic website can operate more effectively, be built more efficiently and is easier to maintain, update and expand.
- It is much simpler to build a template and a database than to build hundreds or thousands of individual, static HTML web pages.

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- **Web server** is a particular computer on the Internet that hosts websites, serving pages to viewers upon request.
- This service is referred to as web hosting.
- Web hosts rent out space on their web servers to people or businesses to set-up their own websites.
- The web server allocates a unique website address to each website it hosts.

Keywords and Connectors

- **Keyword:** The subject word or words of the topic you wish to find in a web search.
- **Connectors:** These are symbols and words you can use in conjunction with your keywords to qualify their relationships and meaning. For example AND, OR, NOT

Cont'd

- **AND** is a connector that connects two or more search words and means that all of them must appear in the search results.
- Use AND to narrow your search.
- **OR** is a connector that connects two or more search words and indicates that any of the two may appear in the results.
- Use OR to expand your search.

Cont'd

- **NOT** is a Boolean connector. When inserted before a word, it excludes that word from the results.

Web Technologies

- Web Technology refers to the various tools and techniques that are utilized in the process of communication between different types of devices over the internet.
- A web browser is used to access web pages. Web browsers can be defined as programs that display text, data, pictures, animation, and video on the Internet.
- Hyperlinked resources on the World Wide Web can be accessed using software interfaces provided by Web browsers.

Web Technologies includes:

- HTML (HyperText Markup Language)
- XML (Extensible Markup Language)
- CSS (Cascading Style Sheets)
- JavaScript
- Java
- VBScript
- PHP
- C#
- ASP
- ASP.NET

URL (Uniform Resource Locator)

- A URL (Uniform Resource Locator) is the unique address for a file that is accessible on the Internet.
- The URL contains the name of the *protocol* to be used to access the file resource, a *domain name* that identifies a specific computer on the Internet, and a *pathname*, a hierarchical description that specifies the location of a file in that computer.

Protocol

- A protocol is a set of rules that govern data communications.
- A protocol defines what is communicated, how it is communicated, and when it is communicated.
- It represents an agreement between the communicating devices.
- Without a protocol, two devices may be connected but not communicating, just as a person speaking Portuguese cannot be understood by a person who speaks only English
- Example **HTTP, FTP**

Types of protocols

HTTP (Hypertext Transfer Protocol)

- HTTP is designed for transferring a **hypertext** among two or more systems.
- It is the network protocol used to deliver virtually all files and other data (collectively called resources) on the World Wide Web, whether they are HTML files, image files, query results, or anything else.
- HTTP functions as a **request-response** protocol in the client-server computing model.
- Usually, HTTP takes place through TCP/IP sockets.
- A browser is an HTTP client because it sends requests to an HTTP server (Web server), which then sends responses back to the client.

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- **Hyper Text Transfer Protocol Secure (HTTPS):** HTTPS is abbreviated as Hyper Text Transfer Protocol Secure is a standard protocol to secure the communication among two computers one using the browser and other fetching data from web server.
- HTTP is used for transferring data between the client browser (request) and the web server (response) in the hypertext format, same in case of HTTPS except that the transferring of data is done in an encrypted format.
- So it can be said that https thwart hackers from interpretation or modification of data throughout the transfer of packets.

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- **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.
- **Internet Protocol (IP):** IP is designed explicitly as addressing protocol.
- It is mostly used with TCP. The IP addresses in packets help in routing them through different nodes in a network until it reaches the destination system. TCP/IP is the most popular protocol connecting the networks.

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- **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.
- **File Transfer Protocol (FTP):** FTP allows users to transfer files from one machine to another. Types of files may include program files, multimedia files, text files, and documents, etc.

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- **Telnet:** Telnet is a set of rules designed for connecting one system with another. The connecting process here is termed as remote login. The system which requests for connection is the local computer, and the system which accepts the connection is the remote computer.
- **Gopher:** Gopher is a collection of rules implemented for searching, retrieving as well as displaying documents from isolated sites. Gopher also works on the client/server principle.

Web development

- Web development refers to the building, creating, and maintaining of websites.
- It includes aspects such as web design, web publishing, web programming, and database management.
- It is the creation of an application that works over the internet i.e. websites.

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- patterns (or models) to design web architecture are:

1. All-in-One:

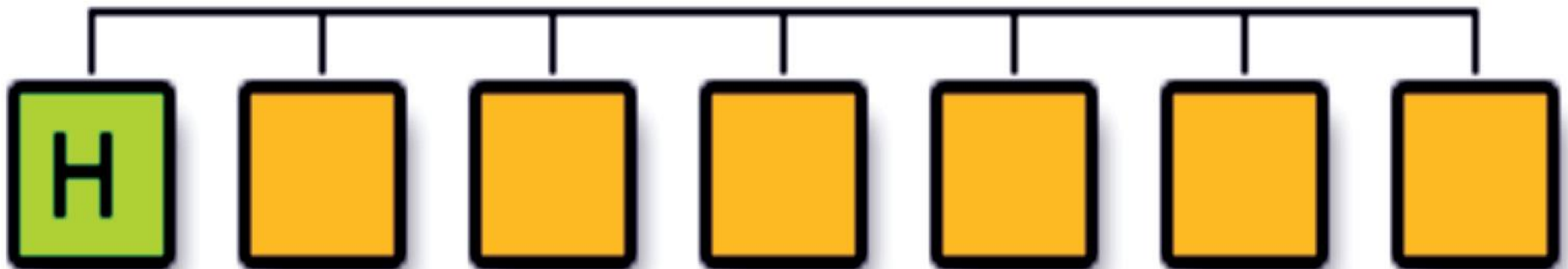
- All the information is placed on a single Home page.
- It's the simplest model



Cont'd

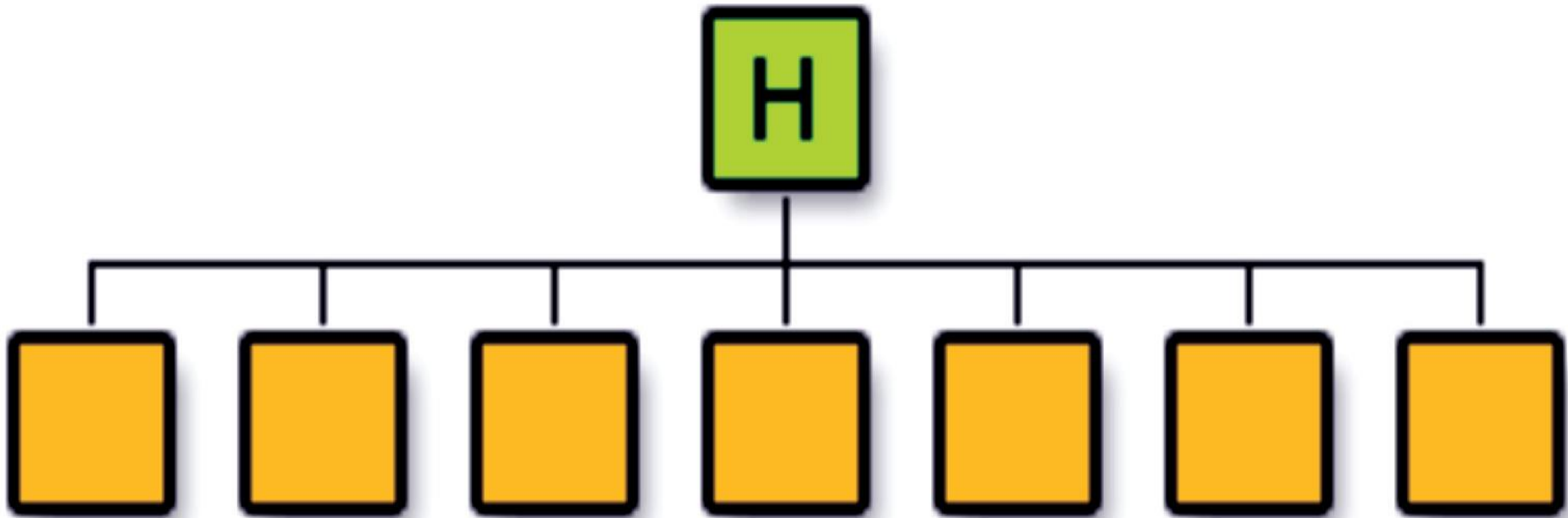
2. Flat

- In a flat pattern (or *monocline grouping*) all the web pages are arranged as peers and everyone is accessible from every other one



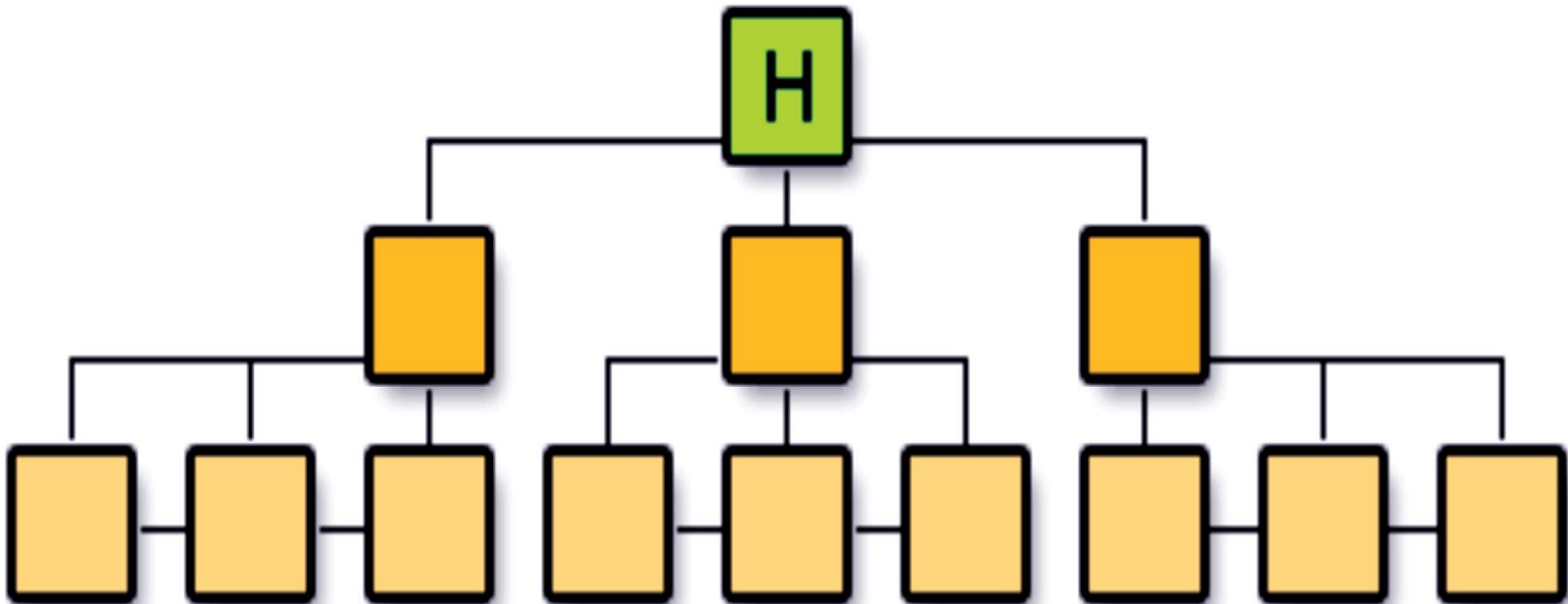
Cont'd

3. Index: An index structure is like the flat pattern, with an additional list of contents



Cont'd

4. **Strict Hierarchy:** A strict hierarchy describes a system where the user can only access a lower-level webpage via its parent

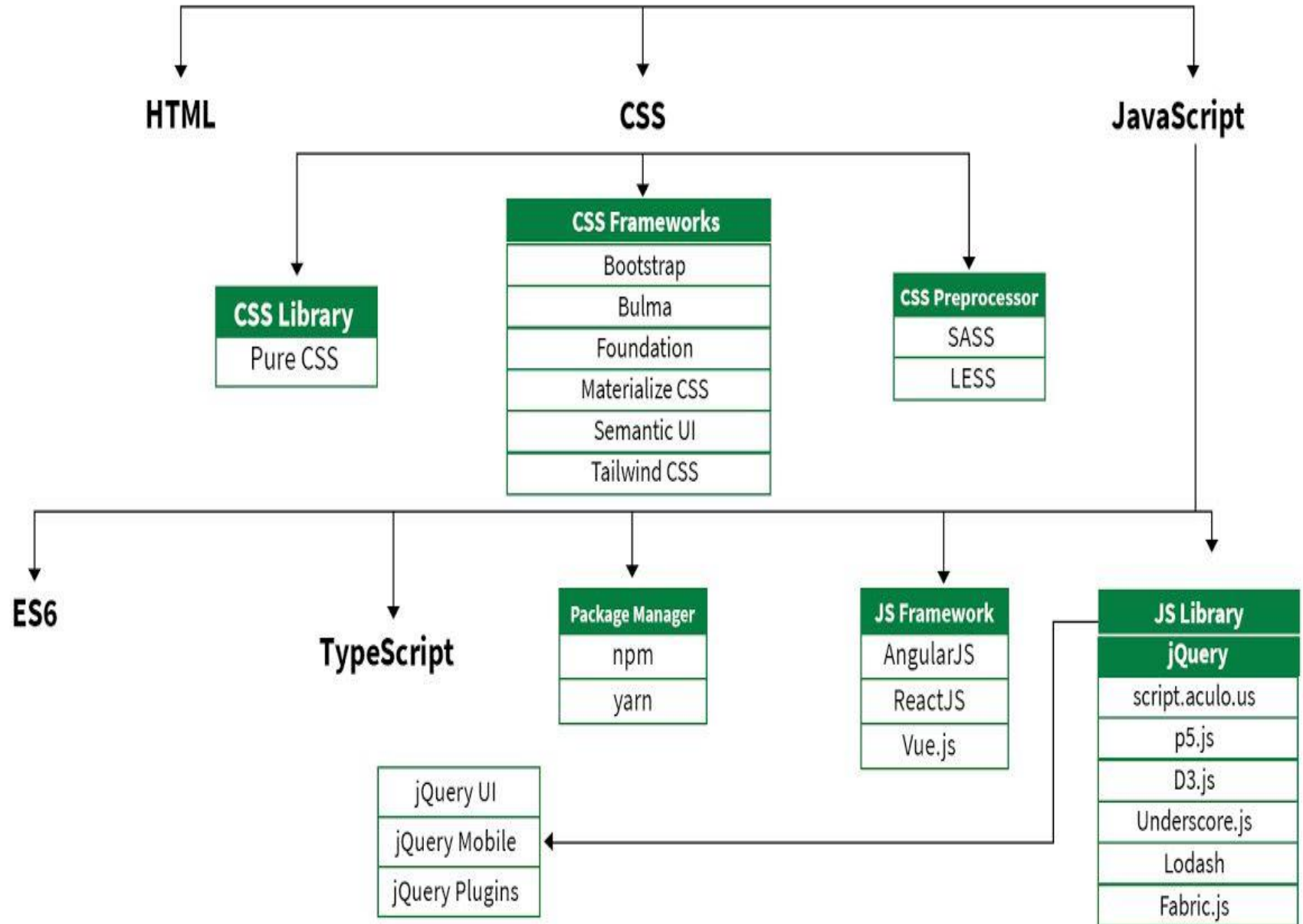


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Web Development can be classified into two ways:

- Frontend Development: The part of a website that the user interacts directly is termed as front end. It is also referred to as the 'client side' of the application.

Frontend

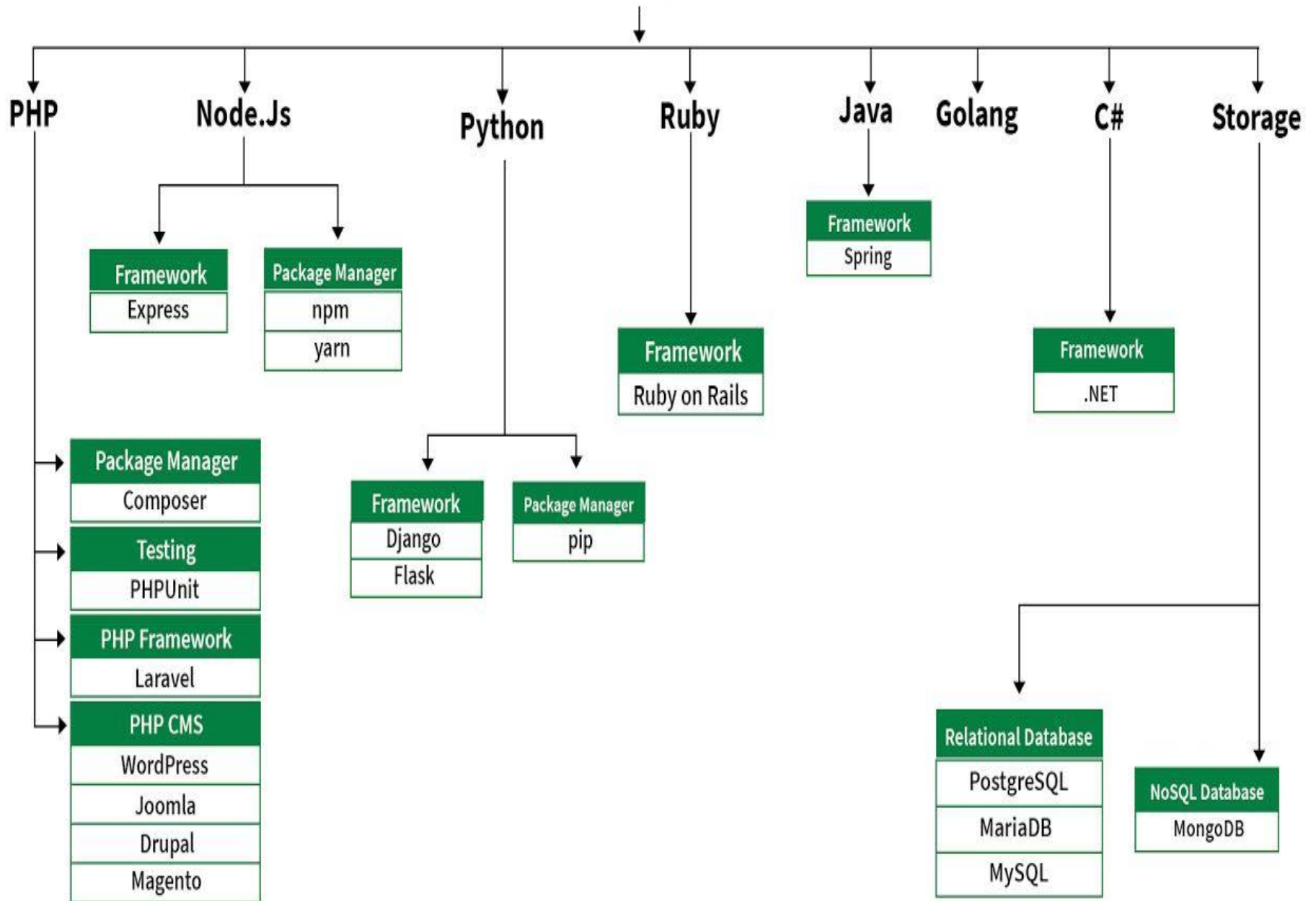


Cont'd

Backend Development:

- Backend is the server side of a website.
- It is the part of the website that users cannot see and interact.
- It is the portion of software that does not come in direct contact with the users.
- It is used to store and arrange data.

Backend



HTML (Hypertext Markup Language)

- It is a set of special instructions that are used to specify document structure, formatting, and links to other multimedia documents.
- HTML is the standard markup language for creating Web pages.
- In HTML, every command is surrounded by **angle bracket** <>
- HTML is **not** case sensitive, <title> is the same as <TITLE>, which is same as <TITLe>.
- Html tags ends with forward slash (/) i.e (</title>

HTML Editors

- Notepad
- Notepad ++
- Adobe Dreamweaver
- Sublime text and etc

Html simple syntax

```
<html>  
<head>  
<title>Page Title</title>  
</head>  
<body>  
</body>  
</html>
```

Then save as **.html** and open with browsers

Headings

- HTML contains six heading elements (h1, h2, h3, h4, h5, h6)
- H1 is rendered in the largest font.
- H6 is rendered in the smallest font.

Cont'd

```
<html>
<head>
<title>Page Title</title>
</head>
<body>
<h1> This is first heading</h1>
<h2> This is second heading</h2>
<h3> This is third heading</h3>
<h4> This is fourth heading</h4>
<h5> This is fifth heading</h5>
<h6> This is sixth heading</h6>
</body>
</html>
```