UNIT-1

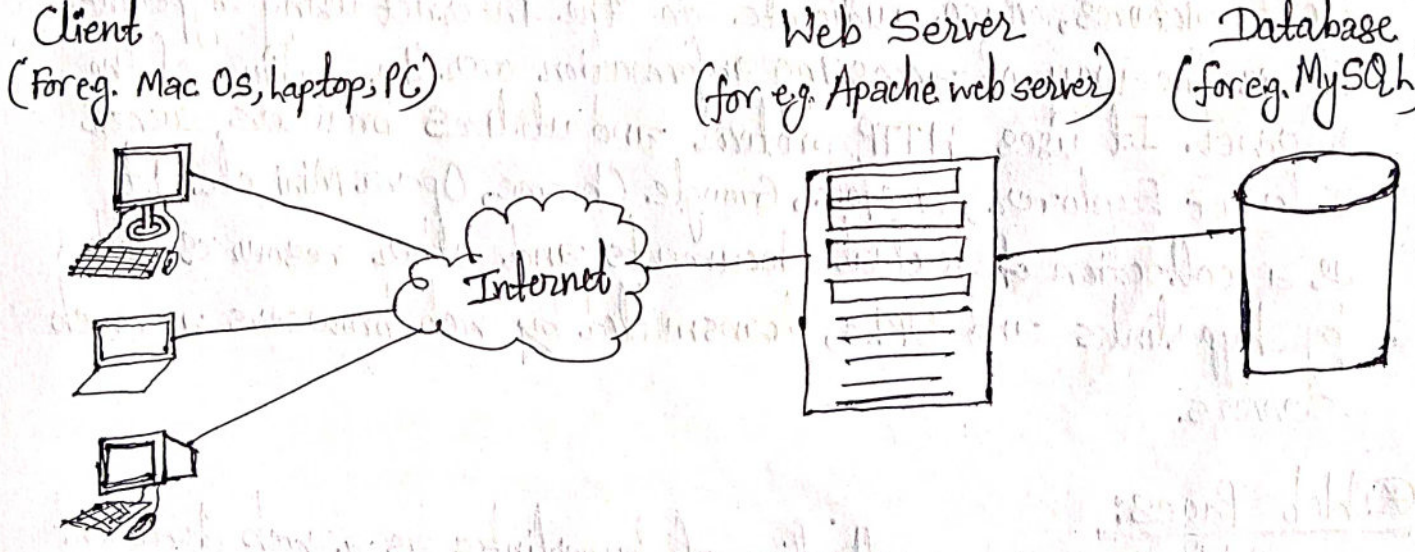
Introduction

If theory of this chapter for some topic feels lengthy then we can escape some lines just we should have some concept.

⊛ Internet:

The Internet is a vast network that connects computers all over the world. Through the Internet, people can share information and communicate from anywhere with an internet connection. The internet consists of technologies developed by different individuals and organizations. Important figures include Robert W. Taylor, who led the development of the ARPANET (an early prototype of the internet), and Vinton Cerf and Robert Kahn, who developed TCP/IP technologies.

Internet is a short form of technical term internetwork and also often referred to as Net. Internet connects millions of ~~us~~ computers together globally, forming a network in which any computer can communicate with any other computer as long as they both are connected to the internet. It consists of private, public, academic, business and government networks of local to global scope. It is based on Client-Server Architecture. Internet is used for various purposes like Emailing, Social networking, Chat, Information sharing, Entertainment, Online jobs. etc.

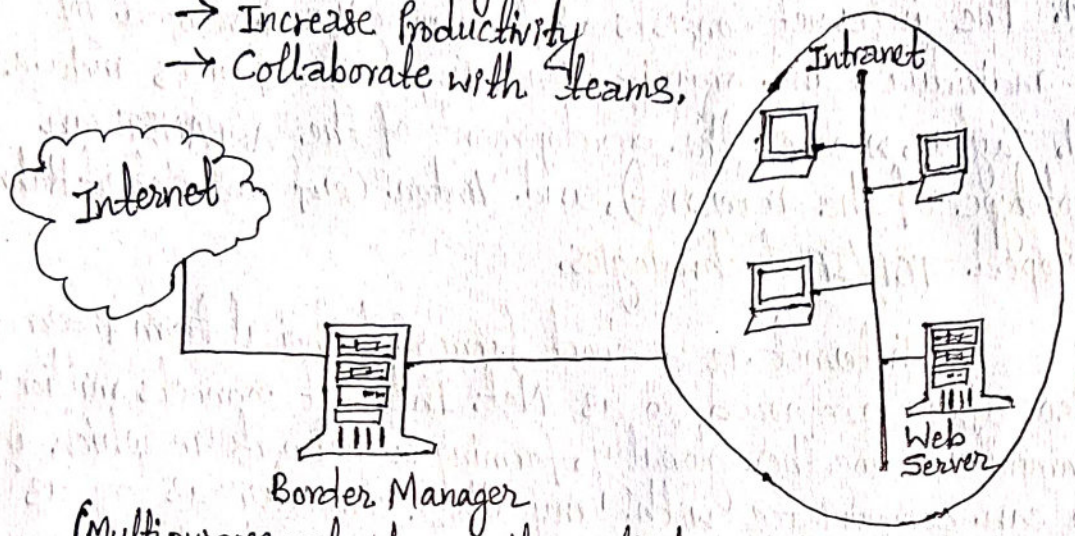


⊛ Intranet:

Intranet is a local or restricted communication network, especially a private network created using World Wide Web software. It is a computer network for sharing information and other services within an organization. The primary use of intranet is to help employees

securely communicate with eachother. Modern intranets use social intranet features that allow employees to create profile, and to submit, like, comment and share posts. An intranet software is primarily used by organizations as a tool to:

→ Share organizational updates
→ Store files
→ Connect Employees
→ Increase Productivity
→ Collaborate with teams.



(Multi purpose network security application designed as a proxy server, firewall and VPN).

⊛ World Wide Web (WWW):-

It is the networked information system that provides a simple way of browsing different types of information such as text, pictures, video, audio etc. on the internet using hyperlinks. It is the way of accessing information over the medium of the internet. It uses HTTP protocol and utilizes browsers, such as Internet Explorer, Firefox, Google Chrome, Opera Mini etc. It is a collection of textual documents and other resources, linked by hyperlinks and URLs, transmitted by web browsers and web servers.

⊛ Web Pages:

Web Page is a collection of hyperlinks as a web document found in internet. It is a document commonly written in HTML that is accessible through the internet. It is accessed by entering a URL address and may contain text, graphics and hyperlinks to other web pages and files. The collection of web pages and web contents is called website. Web Pages can be static or dynamic.

Static Web Pages: It is sometimes called a flat page or stationary page also. It is a page that is built using HTML code and features the same presentation and content, regardless of user identity or other factors. It is very difficult to manage the static web pages because web pages should be edited in the server to change the content. A static web page is ready before it is accessed. Static web pages are eaiser to code and assemble than dynamic web pages, which may feature customizable content according to a user's identity or other factors.

Dynamic Web Pages: It is a web page that displays different content each time it's viewed. It is very easy to manage because web pages can be editited easily from dashboard without editing in the server to change the content. Dynamic web pages are generally rendered by database operations in the server. The content of a dynamic web page is generated by server each time it is accessed. Dynamic web pages are a bit complex to code and assemble than static web pages.

Web Clients:-

Web client is any device such as computer or mobile phone that uses web browser and requests a web server for web resources. A web browser can be considered as a web client. Web Client is an application that uses HTTP to communicate with web server. The server sends requested resource back to the web client.

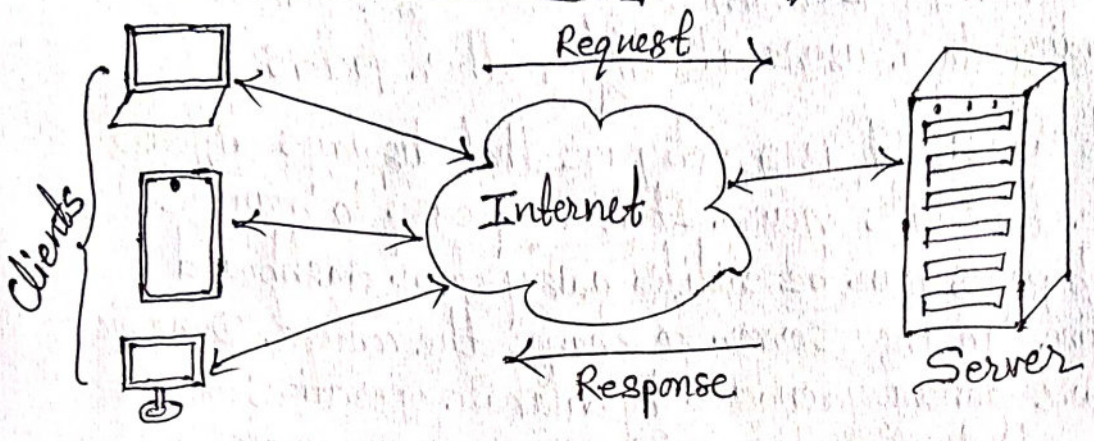
Web Servers:-

Web server is a computer or computer software that listens and responds to a clients computer request made through a web browser. It is a machine that hosts web pages and other web documents. It provides web documents and other online services using HTTP. Web server can contain one or more websites. The primary function of web server is to store, process and deliver web pages to web clients. Pages delivered are most frequently HTML documents, which may include images, style sheets, texts, and hyperlinks to other web pages and files.

Functions of web servers:-

→ Stores and secures website data.
→ Provides web database access.
→ Serve the end user requests.
→ Bandwith controlling to regulate network traffic.
→ Virtual hosting.
→ Server side web scripting.

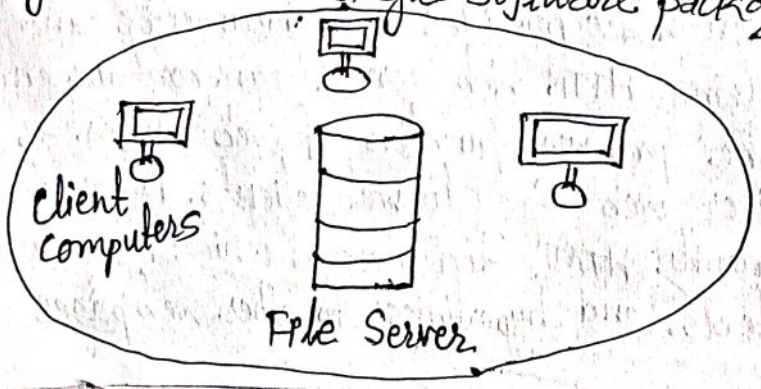
⊛. Client-Server Architecture:- [Imp]



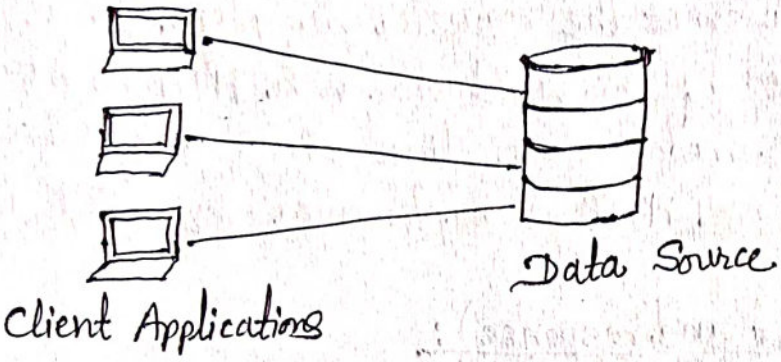
Client-Server architecture is a computing model in which client requests server for resources. Server hosts, delivers and manages most of the resources and services to be consumed by the client. It has one or more clients connected to a central server over a network or internet connection. WWW is based on this architecture.

Types:

1) One Tier → In one tier the user interface, marketing logic and data logic are present in the same system. This kind of service is reasonable. The data is usually stored in the local system or a shared drive. Completely unscalable and only one user can access the system at a given time via the local client. It consists of presentation, business and data access layers within a single software package.

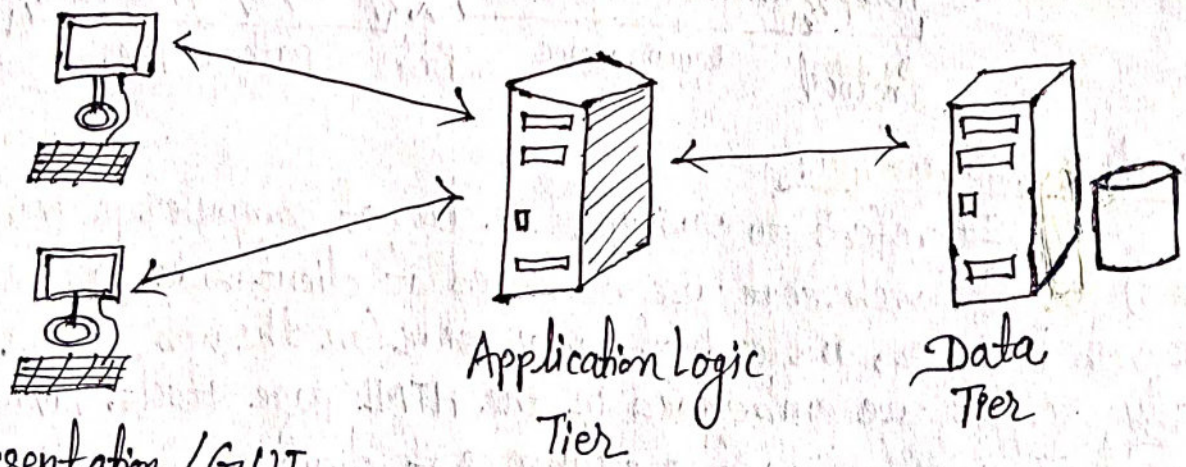


⇒ Two Tier → In this architecture, client and server have to come in direct incorporation. If a client is giving an input to the server, there shouldn't be any intermediate. It is considered as affordable architecture. Multiple users can connect to the server at once. It is not suitable for security reasons.



⇒ Multi Tier (N-tier):

N-tier architecture is really 3 tier architecture in which the middle tier may or may not be split up into new tiers. The application tier is broken down into separate parts. The primary advantage of N-tier architectures is that they make load balencing possible. ~~N-tired~~ N-tiered architectures are also more easily scalable, since only servers experiencing high demand, such as application server, need be upgraded. The primary disadvantage of N-tier architectures is that it is also more difficult to program and test an N-tier architecture due to its increased complexity.



⊛. HTTP:

HTTP stands for Hyper Text Transfer Protocol. It defines how messages are formatted and transmitted, and what actions web servers and browsers should take in response to various commands. For example, when we enter a URL in our browser, this actually sends an HTTP command to the web server directing it to fetch and transmit the requested web page. It is underlying protocol used by the world wide web. HTTP is based on the client-server model where client sends a request and server sends a response. HTTP is implemented over a TCP connection.

Working: (HTTP request and response):

→ User enters web address in browser.
→ Browser uses DNS to locate IP address.
→ Browser opens TCP connection to server.
→ Browser sends HTTP request over connection.
→ Server sends HTTP response over connection.
→ Browser displays body of response in browser window of client.

⊛. URL:

URL stands for Uniform Resource Locator. A URL is nothing more than the address of a given unique resource on the web. Such resources can be HTML page, a CSS document, an image etc. URL is a form of URI and standardized naming convention for addressing documents accessible over the Internet and Intranet.

For example: http://www.example.com:80/path/to/myfile.html?key1=value1

Protocol — Domain name — Port — path to file — parameter

⊛ Client Side Scripting:

It refers to writing the class of computer programs (scripts) on the web that are executed at client-side, by the user's web browser, instead of server-side (on the web server). Usually scripts are embedded in the HTML page itself. Javascript, VBScript, Jscript etc. are the examples of client side scripting technologies. Javascript is probably the most widely used client-side scripting language.

In client-side scripting the source code is transferred from the web server to the users computer over the internet and run directly in the browser. The scripting language needs to be enabled on the client computer. Sometimes if a user is conscious of security risks they may switch the scripting facility off.

⊛. Server Side Scripting :-

It includes writing the applications executed by the server at run-time to process client input or generate document in response to client request. So the server side scripts consist the directives embedded in web page for server to process before passing page to requestor. It is usually used to provide interactive web sites that interface to databases or other data stores. PHP, ASP, Java, Python etc. are mainly used languages for server side scripting. The primary advantage to server-side scripting is the ability to highly customize the response based on the user's requirement, access rights, or queries into data stores.

⊛ Web 1.0 vs. Web 2.0

Web 1.0	Web 2.0
→ It is the "readable" phrase of world wide web with flat data.	→ It is the "writable" phrase of the world wide web with interactive data.
→ There is only limited interaction between sites and web users.	→ there is unlimited interaction between sites and web users.
→ It is simply an information portal where users passively receive information without being given the oppurtunity to post reviews, comments and feedback.	→ It encourages participation, collaboration and information sharing. → Eg. Youtube, Wiki, facebook, Flickr and so on.