

PL3 - Practical No. 2].

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* Problem Statement 1).

Study and distinguish the concepts in your words.

i). Client - Server architecture, Internet and World Wide Web.

- A]. Client - Server Architecture -

Architecture of a computer network in which many clients (remote processors) request and receive service from a centralized server (host computer). Client computers provide an interface to allow a computer user to request services of the server and to display the results the server returns.

Server waits for requests to arrive from clients and then respond to them. Ideally, a server provides a standardized transparent interface to clients so that clients need not be aware of the specifics of the system (i.e., the hardware and software) that is providing the service. Clients are often situated at workstations or on personal computers, while servers are located elsewhere on the network, usually on more powerful machines. This computing model is especially effective when clients and the server each have distinct

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tasks that they routinely perform. In hospital data processing, for example, a client computer can be running an application program for entering patient information while the server computer is running another program that manages the database in which the information is permanently stored.

Many clients can access the server's information is permanently stored. Many clients access simultaneously, and, at the same time, a client computer can perform other tasks, such as sending e-mail. Because both client and server computers are considered independent devices, the client-server model is completely different from the old mainframe model, in which a centralized mainframe computer performed all the tasks for its associated "dumb" terminals, which merely communicated with the central mainframe.

B). Internet

Internet is a world-wide global system of interconnected computer networks. Internet uses the standard Internet Protocol (TCP/IP). Every computer in internet is identified by a unique IP address. IP address is a unique set of numbers (such as 110.22.33.114) which identifies a computer location. A special computer DNS [Domain Name Server] is used to give name to the IP Address so that user

can locate a computer by a name. For example, a DNS server will resolve a name `www.google.com` to a particular IP address to uniquely identify the computer on which this website is hosted. Internet is accessible to every user all over the world.

c). World Wide Web

World Wide Web, which is also known as a Web, is a collection of websites or web pages stored in web servers and connected to local computers through the internet. These websites contain text pages, digital images, audios, videos, etc. Users can access the content of these websites from any part of the world over the internet using their devices such as computers, laptops, cell phones, etc. The WWW, along with internet, enables the retrieval and display of text and media to your device.

2). Web Browser and Web Server.

a). Web Browser :

A web browser is a software program that allows a user to locate, access, and display web pages. In common usage, a web browser is usually shortened to "browser". Web browser are used primarily for displaying and accessing websites on the internet, as well as other content created using languages such as Hypertext Markup Language (HTML) and Extensible Markup Language (XML). Browsers translate web pages and websites delivered using HTTP into human-readable content. They also

have the ability to display other protocols and prefixes, such as secure HTTP (HTTPS), File Transfer Protocol (FTP), Email handling (mailto:), and files (file:). In addition, most browsers also support external plug-ins required to display active content, such as in-page video, audio and game content.

B]. Web Server:

Web Server is a computer where the web content is stored. Basically web server is used to host the web sites but there exists other web servers also such as gaming, storage, FTP, email, etc. Web site is collection of web pages while web server is a software that respond to the request for web resources.

* Problem Statement 2).

Study and describe the following concepts in your words:

i]. Hypertext.

- i). Hypertext is text which is not constrained to be linear.
- ii). Hypertext is text which contains links to other texts. The term was coined by Ted Nelson around 1965.
- iii). HyperMedia is a term used for hypertext which is not constrained to be text. it can include graphics, video and sound.

2]. Hyperlink -

A hyperlink is a piece of text that when clicked takes the user to a webpage. Hyperlinks can also link to email addresses; when clicked, these hyperlinks will open an email program to send an email to that address. Hyperlinks are formatted with a different color (blue, by default) and an underline.

3]. HTTP -

The Hypertext Transfer Protocol (HTTP) is the foundation of the World Wide Web, and is used to load web pages using hypertext links. HTTP is an application layer protocol designed to transfer information between networked devices and runs on top of other layers of the network protocol stack. A typical flow over HTTP involves a client machine making a request to a server, which then sends a response message.

4]. HTTP Status Codes with Meaning -

A]. 1xx Informational .

100 - Continue.

101 - Switching Protocols.

102 - Processing.

B]. 2xx Success .

200 - OK

201 - Created

202 - Accepted.

203 - Non-authoritative Information.

204 - No Content.

205 - Reset Content.

206 - Partial Content.

207 - Multi Status.

208 - Already Reported.

209 - IM Used.

c). 3xx Redirection.

300 - Multiple Choices

301 - Moved Permanently

302 - Found

303 - See Other

304 - Not Modified

305 - Use Proxy

307 - Temporary Redirect.

308 - Permanent Redirect.

d). 4xx Client Error.

400 - Bad Request

401 - Unauthorized

402 - Payment Required

403 - Forbidden

404 - Not found

405 - Method not Allowed.

406 - Not Acceptable.

407 - Proxy Authentication Required.

408 - Request Timeout.

409 - Conflict.

410 - Gone

411 - Length Required.

412 - PreCondition Failed.

- 413 - Payload Too Large.
- 414 - Request-URI Too Long.
- 415 - Unsupported Media Type.
- 416 - Requested Range not Satisfiable.
- 417 - Expectation Failed.
- 418 - I'm a teapot.
- 421 - Misdirected Request.
- 422 - Unprocessable Entity.
- 423 - Locked.
- 424 - Failed Dependency.
- 426 - Upgrade Required.
- 428 - Precondition Required.
- 429 - Too Many Requests.
- 431 - Request Header Fields Too Large.
- 444 - Connection Closed Without Response.
- 451 - Unavailable For Legal Resources.
- 499 - Client Closed Requests.

E1. 5xx Server Error

- 500 - Internal Server Error.
- 501 - Not Implemented.
- 502 - Bad Gateway.
- 503 - Service Unavailable.
- 504 - Gateway Timeout.
- 505 - HTTP Version Not Supported.
- 506 - Variant also Negotiates.
- 507 - Insufficient Storage.
- 508 - Loop Detected.
- 510 - Not Extended.
- 511 - Network Authentication Required.
- 599 - Network Connect Timeout Error.