WWW – World Wide Web

Internet – Refers to the global information system.

Internetwork – Connection of network.

Nodes – Device that are being connected .

IoT – Internet of things

Protocol – is the standard way of representing data.

IP Address – A unique address that is being load by a device.

IPv4 – 32-bit

IPv6 – 64-bit

Transmission Control Protocol/Internet Protocol (TCP/IP)

1969 – When four computers are connected to ARPANET.

Packet-Switch Communication / store-and-form – Sending to the device and so on . . .

1972 – Email was introduced.

1989 – World Wide Web was introduced.

Tim Berners Lee – Invented HTML, father of the modern web.

CERN – HTTP, HTML, URL, Web Service, Web Client.

Gopher – Protocol and application, hierarchy of application, level and expanding.

Usenet – It was like a bulletin-board, a community discussion board.

Application Layer – Top Layer, done by two protocols, by Tim Berners Lee.

IETF – Internet Engineering Task Force, was jointly developed by W3C and IETF

HTTP – Runs on the top of TCP/IP using TCP Port 80 by default, os TCP port 443 for HTTP is based on (HTTP over SSL/TLS)

HTTP – Is based on a client-server architecture, it provides ecrypted informaton

IP + Port = socket or network socket

Origin Server – Where the web pages are physically installed.

Origin Server 🡪Proxy Server 🡪Gateways🡪Tunnels

Gateway – Connects 2 networks

Tunnels – Interconnection between two points.

HTTP1 – Uses a request-response standard protocol “pull protocol”.

HTTP – is a stateless communication protocol, this does not keep information.

HTTP2 – It has a “push protocol”.

HTTP provides support for other functionalities, such as:

1. Cache control

2. Content Media type (MIME) Specification

3. Language and Character set specification

4. Content/transfer Codings

5. Content Negotiation

6. Client-server protocol negotitons.

7. Persistent Connections.

8. Request pipelining

9. Authentication/authorization.

MIME – Multipurpose Internet Mail Extensions

HTTP Resources are identified using URLs

RFC 3986 or more specifically, HTTP URLs

Authority – Is made of: user information or authentication credentials

Host: Domain name, Port number.

Query – Typically provided as key=value pairs, with ampersand.

Fragment Identifier – Starts with #\_\_\_\_\_\_\_

Standard Methods – Are safe methods, independent method, and cacheable method.

1. GET –Used to request from the server the retrieval of the resource d by the request uri, the retrieved response is returned I the message body of the reponse as an entity.

2.HEAD – is identical to GET, except that the entity is not included in the response. Also used to retrieve meta information about the entity implied by the request without transferring the entity itself. Like get, it must be supported by all general-purpose servers.

3. POST – Used to request the server accept data entities enclosing in the message body for processing by the response identifies by the request uri. Typically used in submitting html from data.

4.PUT – used to request the server to store the enclosed entity in the message body under the specified uri.

5. DELETE – Used to request the server to delete the resource identifies by the request uri.

6. OPTIONS – Used to request from the server information about the communication options available for the response identified by the required uri.

7. TRACE – used to request the server to echo back to the client the received request. Typically used for testing/diagnostics if the request/response chain.

8. CONNECT – Reserved for the tunnelling proxy servers.

Mkcol – Make Collections

General Header Fields :

Cache-control Pragma upgrade

Connection Trailer via

Date transfer-encoding warning

Request Header Fields:

Accept host max-forwards

Accept-charsert if-match proxy-authorizaton

Accept-encoding if-modified-since range

Accept-language if-none-match referrer

If-unmodified-since TE- Trailer encoding

User agent

Entity Header Fields:

Allow

Content-encoding

Content-language

Content-length

Content location

HTML – HyperText Markup Language

Markup language – is a language used to get some document or resources and identify the resource with a special notation.

W3C – Oversees the development of HTML

Versions of HTML:

HTML 1.0

HTML 2.0 – RFC 1866

HTML 3.0

HTML 3.2

HTML 4.0 – published in 1997

HTML 4.01 – published in 1999, it has three versions, the strict version, transitional version, frameset version

XHTML 1.0

XHTML 1.1

XHTML 2.0

HTML 5 – published in 2014

HTML 5.1 – published in 2016

Web has three parts:

Structure and content

Presentational Aspects

Bahavioral

XML – is very strict

Ian Hickson and his group WHATWG – decided to evolve HTML 4.01

HTTP versions:

HTTP 0.9 – (1991) only three methods (GET, HEAD, POST)

HTTP 1.0 – (RFC 1945, May 1996) all eight methods.

HTTP 1.1 – (RFC 2068, Jan 1997) (RFC 2616, June 1999)

HTTP fundamentals:

1. Runs on top of the TCP/IP using TCP port 80 by default or TCP port 443

2. HTTP is based on a client-server architecture

3. HTTP uses request-response standard protocol

HTTP request message:

a. Request Line

b. Message Headers

c. Empty Line

d. message body (optional)

HTTP response message:

a. Status Line

b. message headers

c. empty line

d. message body (optional)