* World Wide Web - The World Wide Web (abbreviated WWW or the Web) is an information space that allows documents to be connected to other document by hyperlinks.
* Internet
  + Massive global network of networks
  + Global information system logically connected through IP
  + Internetwork
* Protocols
  + Communication standard
  + Standard way of representing data
* IP address
  + Able to support communication using the transmission control protocol
* Internet
  + 1969 – ARPANET -  first network to implement the protocol suite [TCP/IP](https://en.wikipedia.org/wiki/TCP/IP)
  + 1972 – Email
  + 1989 – Sir Tim Berners-Lee
    - CERN - nuclear research center
    - HTTP, HTML, URL, webserver, webclients/web browser
* WAIS – wide area information services
  + [client–server](https://en.wikipedia.org/wiki/Client%E2%80%93server) text searching system that uses the [ANSI](https://en.wikipedia.org/wiki/American_National_Standards_Institute) Standard [Z39.50](https://en.wikipedia.org/wiki/Z39.50) and [Protocol](https://en.wikipedia.org/wiki/Protocol_(computing)) Specifications to search index [databases](https://en.wikipedia.org/wiki/Database) on remote computers
* Gopher - similar to WAIS but with hierarchy
* Usenet – Worldwide distributed discussion system available on internet
* Web resources – HTML Files
* HTTP
  + Application layer communication protocol
  + W3C & IETF
  + HTTP/2 builds on the success of SPDY, which was used as a starting point for the new protocol.
    - it’s a **tunnel for the protocol** and modifies the way existing HTTP requests and responses are sent.
  + usually takes place over TCP/IP connections
  + default port is TCP 80
  + Network socket – combination of port & IP
  + TLS &SSL – TLS and his predecessor SSL (Secure Sockets Layer) is the standard security technology for establishing secure communications between a web server and a browser
  + port 443 is the standard TCP port that is used for website which use SSL
* HTTP – client server architecture
  + Server
    - Hosting web resources
    - Waiting for clients
    - Origin server - server on which a given resource resides or is to be created.
    - Proxy server - intermediary program which acts as both a server and a client

for the purpose of making requests on behalf of other clients.

* + - Gateway - server which acts as an intermediary for some other server.
    - Tunnel - server which acts as an intermediary for some other server.
  + Client(User Agent)
    - Make request
    - Any application that contacts a web server
    - Ex. Web browser
    - Web crawlers/spider - is an Internet bot which systematically browses the World Wide Web, typically for the purpose of Web indexing
  + Major Characteristic
    - Request – response protocol
      * Pull protocol - clients always initiates the request from the server
      * “Polling” - process where the computer or controlling device waits for an external device to check for its readiness or state, often with low-level hardware
      * HTTP 2 – server can now send information to the client
    - Stateless protocol – serve and forget protocol
      * Server does not keep any information about clients in between request
    - Cache Control
      * Locality of reference Principle - phenomenon in which the same values, or related storage locations, are frequently accessed, depending on the memory access pattern.
      * MIME – Multipurpose Internet Mail Extension
* <http://info.cern.ch/> - home of the first website
* <http://archive.org/web/> - version of websites