HTTP Protocol

- **Http:** A simple protocol to exchange these documents, the *Hypertext Transfer Protocol*.

Versions of Http:

- HTTP/0.9 – The one-line protocol
  - The earliest version of HTTP, used in the early days of the web.
  - Simple and limited, supporting only the GET method for retrieving HTML documents.
- HTTP/1.0 – Building extensibility
  - Introduced additional request methods like POST and HEAD.
  - Included status codes and header fields for richer communication.
  - Connections had to be re-established for each request, leading to performance issues.
- HTTP/1.1 – The standardized protocol
  - Introduced in 1997 with various improvements over HTTP/1.0.
  - Persistent connections (keep-alive) to reduce latency.
  - Pipelining allowed multiple requests on a single connection it means that This allowed a second request to be sent before the answer to the first one was fully transmitted.
  - Enhanced caching mechanisms and support for virtual hosting.
- HTTP/2 – A protocol for greater performance
  - It's a binary protocol rather than a text protocol. It can't be read and created manually. Despite this hurdle, it allows for the implementation of improved optimization techniques.
  - It's a multiplexed protocol. Parallel requests can be made over the same connection, removing the constraints of the HTTP/1.x protocol.
  - It compresses headers. As these are often similar among a set of requests, this removes the duplication and overhead of data transmitted.
  - It allows a server to populate data in a client cache through a mechanism called the server push.
- HTTP/3 - HTTP over QUIC
  - The latest version of the document.
  - Introduced in 2020, built on top of the QUIC transport protocol.

- QUIC brings benefits like reduced latency, connection multiplexing, and faster handshakes.
- Retains features from HTTP/2 and aims to enhance performance and security.