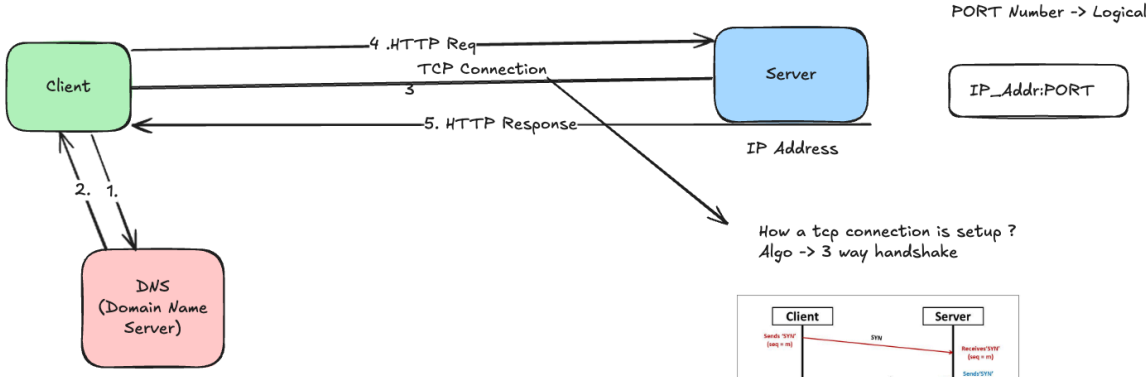
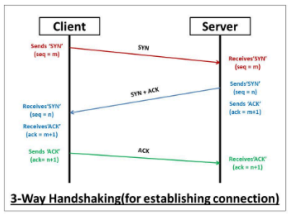
What happens when we type a URL in browser

URL - www.social.com

PORT Number -> Logical number



How a tcp connection is setup ?
Algo -> 3 way handshake



1. Client comm with DNS to get the IP address of the corresponding URL.
2. DNS returns us the IP address of the corresponding URL.
3. Setup tcp conn
4. On top of the tcp conn, send the http request
5. Server process the request and send a http response

Protocol -> Refers to rules setup in order for a task to be done.

In the networking world, if 2 machines need to comm with each other, they need to follow some rules.
These rules will be different for different type of communication.

- If one machine needs to send emails, then the rule can be different (SMTP - Simple main transfer protocol)
- If one machine needs to send files to other machine then the rules can be different (FTP - file transfer protocol)
- If one machine needs to fetch some HTML data from other machine then rules can be different (HTTP - hyper text transfer protocol)

and so one.....

Network Stack

(OSI model and TCP/IP Model)

These models define the steps for most of the protocols to work when one machine has to communicate with other machine.
When a client has to raise a request, it needs to go through 5 layer (acc to TCP/IP model)
These 5 layers are 5 phases through which a request following a particular protocol goes through.
On every layer different protocols exists.

Flow from client side

1. Application layer

   - This is the first layer of network stack
   - This layer exist on the final apps (zomato app, twitter app, google.com app) that user interacts with.

Logic of how this layer needs to work is implemented on these apps.
- On this layer, we write how the user interaction should work.
- Protocols like HTTP, HTTPs, SMTP, FTP, Webrtc, VOIP etc all of these exists and are controlled in the application layer.
- This is the place where most of the codes of a project is written.

2. Transport layer

- This is the second layer of network stack
- Data collected on the application layer is passed on to the transport layer.
- Transport layer exists on the OS
- Any protocol u r following on application layer can be classified in one of the 2 categories (reliable or unreliable)
  Ex- HTTP, websockets, ftp ====> reliable protocols
  Ex- VoIP, NTP, ====> non reliable protocol
- if request from app layer is coming from a reliable protocol, then that protocol is going to depend on TCP protocol implemented on transport layer, and for non reliable ones they depend on UDP.

- On transport layer we only have 2 protocols, TCP and UDP
- Data is converted to segments (if tcp is followed) or datagrams(if udp is followed)

3. Network layer

- This is the 3rd layer in the stack
- Data collected at transport layer is passed on to network layer
- Logic of network layer exists in OS kernel but also in the Network drivers and hardwares
- How to route your packets
- Everything is now 1 protocol - IP

Netowork Access Layer

4. Data link layer

- Error detection
- Most of the logic is written in the NIC, OS drivers, wifi routers etc (mainly networking hardwares)

5. Physical layer

- Actual final physical wires

localhost:PORTOfRedis

localhost:6379
127.0.0.1:6379