

Client - Server Model

Client :

A client is a machine or process that requests data or service from a server.

NOTE : A single machine / piece of software can be both a client and a server at the same time. Eg: A single machine could act as a server for end user and as a client for a database.

Server :

A machine or process that provides data or service for a client usually by listening for incoming network calls.

When the user enters "www.google.com" the resource behind the scenes makes a **Dns Query** to find out the **IP address** of google.com

IP Address

An address given to each machine connected

to the public internet. IPv4 addresses consists of four numbers separated by dots a.b.c.d where all the four numbers are between 0 and 255. IP address will generally be given by the school provider.

Eg: 127.0.0.1 → refers to our own local machine (aka) localhost.

In cmd prompt enter

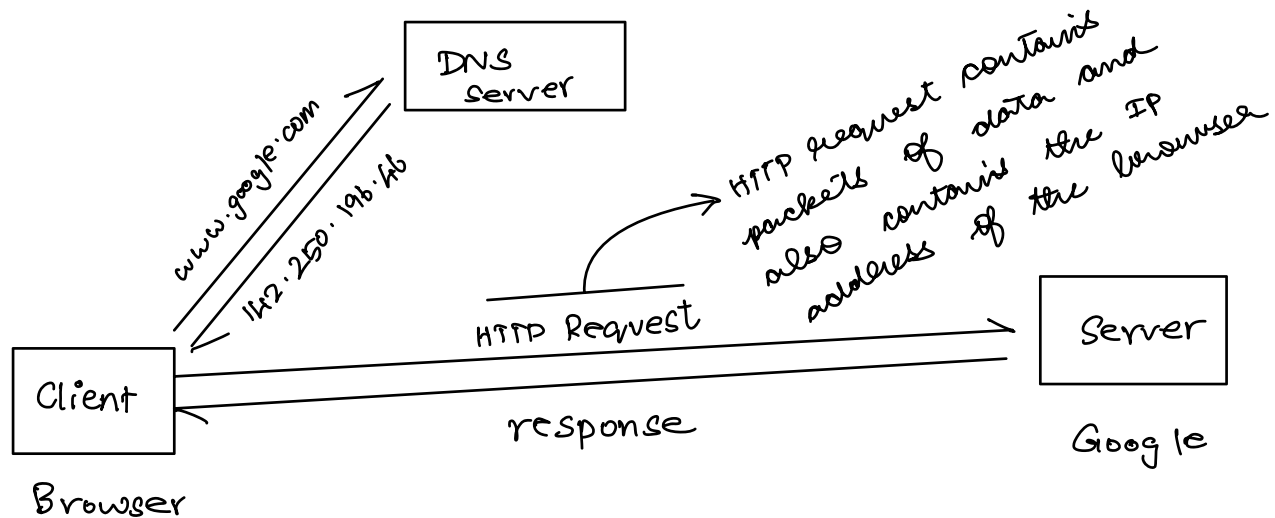
```
dig google.com
```

to get the IP address

192.168.x.y → your private network. Our machine and all the machine on our private WiFi network will usually have the 192.168 prefix.

DNS

DNS stands for the Domain Name System. In order to find the IP address corresponding to the domain name the browser makes request to pre determined servers which returns the IP address of the domain.



Ports:

In order for multiple programs to listen for new network connections on the same machine without colliding they pick a port to listen on.

A port is an integer between 0 to 65,535 i.e. there are 2^{16} ports in total.

Ports	Uses
0 - 1023	System Ports. These shouldn't be used by user-level processes
80	http
443	https

53	DNS lookup
22	Secure Shell

IP Address → is like the address of an apartment

Ports → is like the house number.

Terminal-1

```
>> nc -l 8081
>> Hi
```

listen → port

This is an IP address that points

Terminal-2

```
>> nc 127.0.0.1 8081
>> Hi
```

back to our local machine

Ncat is a tool that allows us to read from / write to network connections.

The command in Terminal 1 → listen to the port 8081
means

Once you start typing in terminal-2 it appears in terminal-1

NOTE: For this to work we have to install ncat.