Day 1. Introduction to Addressing

> **Date:** 19 December 2024

How does one reach a specific website?

There are more than a billion websites on the internet, and even more number of devices connected to it.

So, some questions arise:

1. How do we access the contents of a website?
2. How can we know where to look for something on the internet?'
3. How do we *identify* a website?

This is where the concept of Addressing, specifically, *IP Addressing* helps.

Domain Names

Just like every person has a name, similarly, every website has a name too, and it has a Web Address too.

For Example:

> The Web address for YouTube is **www.youtube.com

This is the **Domain Name** for YouTube.

A *Domain* is Property or Area that someone controls.

A **Domain Name** then, is the *area* of the Internet that belongs to the Website.

But, we cannot randomly assign names to things, there must be a system for it in place.

This is where **DNS** comes in.

DNS

DNS stands for *Domain Name System*.

Obvious from the name, **DNS** is what dictates how websites can be given their domain names, and how we make sure that websites can be accessed.

There is one another unique problem to consider:

> Say, there are 2 people named, Aditya Gupta. How does the government distinguish between these 2? What exactly is it that the government assigns to each citizen of India, that is a unique identifier for them?
> *The government assigns everyone a Number, an Aadhar Number.*

Similarly, each Domain, each website is assigned a set of numbers, a numeric identifier, an address.

This is the backbone of *IP Addressing.*

IP Address

IP Address stands for *Internet Protocol Address*

As we discussed, a **protocol** is an agreed format of communication between 2 machines, just like we use a *language* as a medium to understand each other.

An IP address is a numeric format of the Domain Name, which is unique to each website.

For example:

Google has the domain name :
https://www.google.com

And the IP address associated with it is:
https://172.217.164.110/

Both of these are equivalent, and take you to Google's homepage.

The **Domain Name System** maps *Domain names* to *IP addresses*.

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§ Important Related Information (What comes next)

1. Clients and Servers
2. Domain Name System Servers
3. Understanding Binary and Decimal Conversions
4. **Practical** --> How to make a website With Drag and Drop.
5. **Practical** --> How to publish a website on the Internet.
6. **Practical** --> How to buy/license a Domain Name for your website
7. *Optional* --> IP Addresses, in-depth.

$> Fin.$ *made with love and coffee*
