Network

Networking: It's a connection between two or more machines to communicate with each other.

Network components:

- NIC (Network Interface Card)
- Media
- Topology
- Protocol
- IP Addresses

Basic requirements for Networking

NIC (Network Interface Card):

- It is a computer hardware component that connects a computer to a computer network.
- Each NIC will have a unique MAC address to avoid conflicts b/w same NIC adapters.
- We represent these by the word "eth" or "ens".

Media: It is a medium via which two different computer's NIC card will be connected.

E.g: RJ 45

Topology: Design in which the computers in the network will be connected to each other.

Eg : Bus, Ring, Star, Mesh and Tree

Protocol: Defines rules and conventions for communication b/w network devices.

IP Address: An Internet Protocol **address** is a numerical label assigned to each device connected to a computer network for communication.

Eg : Like Phone number

Protocol

TCP/IP:

- Transmission Control Protocol
- It is connection oriented
- TCP acknowledgement will be sent/received
- Slow Communication
    - Eg: HTTP, HTTPS

UDP:

- User Datagram Protocol
- Connectionless
- No Acknowledgement for UDP
- Faster Communication
    - Eg: DNS, DHCP

IP Addresses Classes

- **IP Address Classes**

The IP addresses are further broken down into classes. These classes are A, B, C, D, E and their possible ranges can be seen in Figure below.

Class	Start	End	Default subnet mask	CIDR
Class A	0.0.0.0	127.255.255.255	255.0.0.0	/8
Class B	128.0.0.0	191.255.255.255	255.255.0.0	/16
Class C	192.0.0.0	223.255.255.255	255.255.255.0	/24
Class D (multicast)	224.0.0.0	239.255.255.255		
Class E (reserved)	240.0.0.0	255.255.255.255		

*CIDR - Classless Inter-Domain Routing

* 127.0.0.0 to 127.255.255.255 is reserved for loopback address