

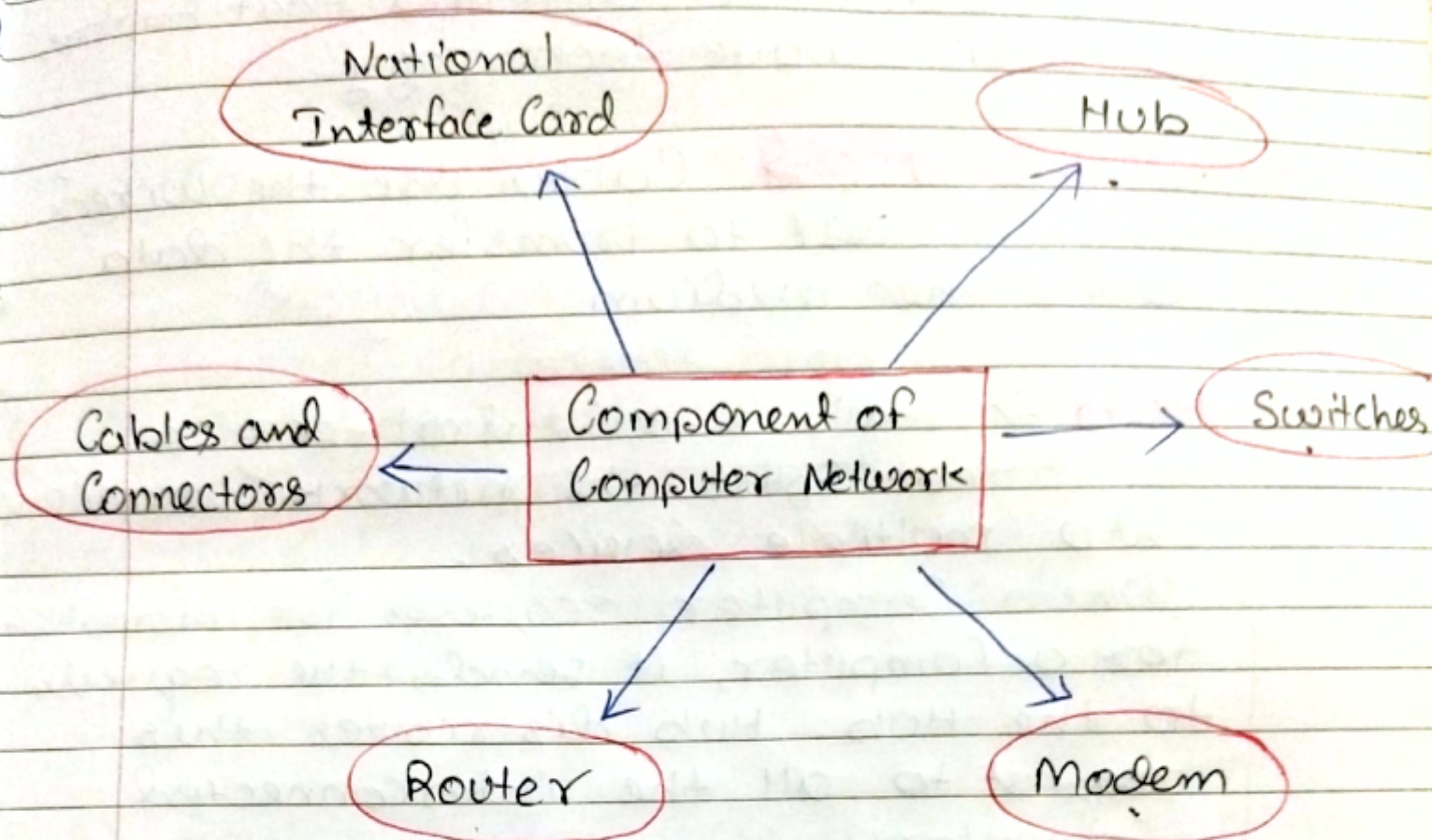
Computer Network

01

Computer Network $\Rightarrow$ • Computer Network refers to interconnected computing devices that can exchange data and share resources with each other.

- Computer Network is a group of computers connected with each other through wires, optical fibres or optical links so that various devices can interact with each other through a network.
- A Computer Network is a system in which multiple computers are connected to each other to share information and resources.
- A Computer network is a set of computers sharing resources located on or provided by network nodes. The computers use common communication protocols over digital interconnections to communicate with each other.
- A Computer Network is defined as a system that connects two or more computing devices for transmitting and sharing information.

Components of Computer Network:



1) NIC (National Interface Card) ⇒

NIC is a device that helps the computer to communicate with another device.

The network interface card contains the hardware addresses, the data-link layer protocol uses this address to identify the system on the network so that it transfers the data to the correct destination.

There are two types of NIC.

1) **wireless NIC** ⇒ All the modern laptops use the wireless NIC.

in wireless NIC, a connection is made using the antenna that employs the radio wave technology.

2) **Wired NIC** $\Rightarrow$ Cables use the wired NIC to transfer the data over the medium.

2) **Hub** $\Rightarrow$ Hub is a central device that splits the network connection into multiple devices. When a computer requests for information for a computer, it sends the requests to the Hub. Hub distributes this request to all the interconnected computers.

3) **Switches** $\Rightarrow$ Switch is a networking device that groups all the devices over the network to transfer the data to another device.

A switch is better than Hub as it does not broadcast the message over the network. Such as it sends the message to the device for which it belongs to.

4) **Cables and Connectors** $\Rightarrow$ Cables is a transmission media that transmits the communication signals.

There are three types of cables

- 1) Twisted pair Cable → It is a high-speed cable that transmits the data over 1Gbps or more.
- 2) Coaxial Cable → Coaxial cable resembles like a TV installation cable. Coaxial cable is more expensive than twisted pair cable.
- 3) Fibre optic Cable → Fibre optic cable is a high-speed cable that transmits the data using light beams. It provides high data transmission speed as compared to other cables.
- 4) Router → Router is a device that connects the LAN to the internet. The router is mainly used to connect the distinct networks or connect the internet to multiple computers.
- 5) Modem → Modem connects the computer to the internet over the existing telephone line.

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Features of Computer network



1) **Communication Speed** → Network provides us to communicate over the network in a fast and efficient manner. For Ex. we can do video conferencing, email managing etc. over the internet. The computer network is a great way

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through transmission media

3) **Scalability** → The Scalability of a Computer network simply means that we can add new nodes or components of the network easily. Any computer network must be scalable so we can extend it easily by adding new nodes. After adding new nodes to the network, the speed of connection decreases, which leads to a decrease in the speed of transmission of data.

4) **Performance** → The performance of a Computer network is measured using response time and with the help of the speed of data transmission. For better performance, the response time of sending and receiving data from one node to another should be minimum.

5) **Software and hardware sharing** → We can install the application on the main server, therefore

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