Second Chapter

Data Communication and Network

Data Communication

- Data Communications is the process of using computing and communication Technology to transfer data from one place to another
- It Enables the movement of electronic or digital data between two or more network devices ,regardless of geographical location , technological medium or data contents .

Components of Data Communication

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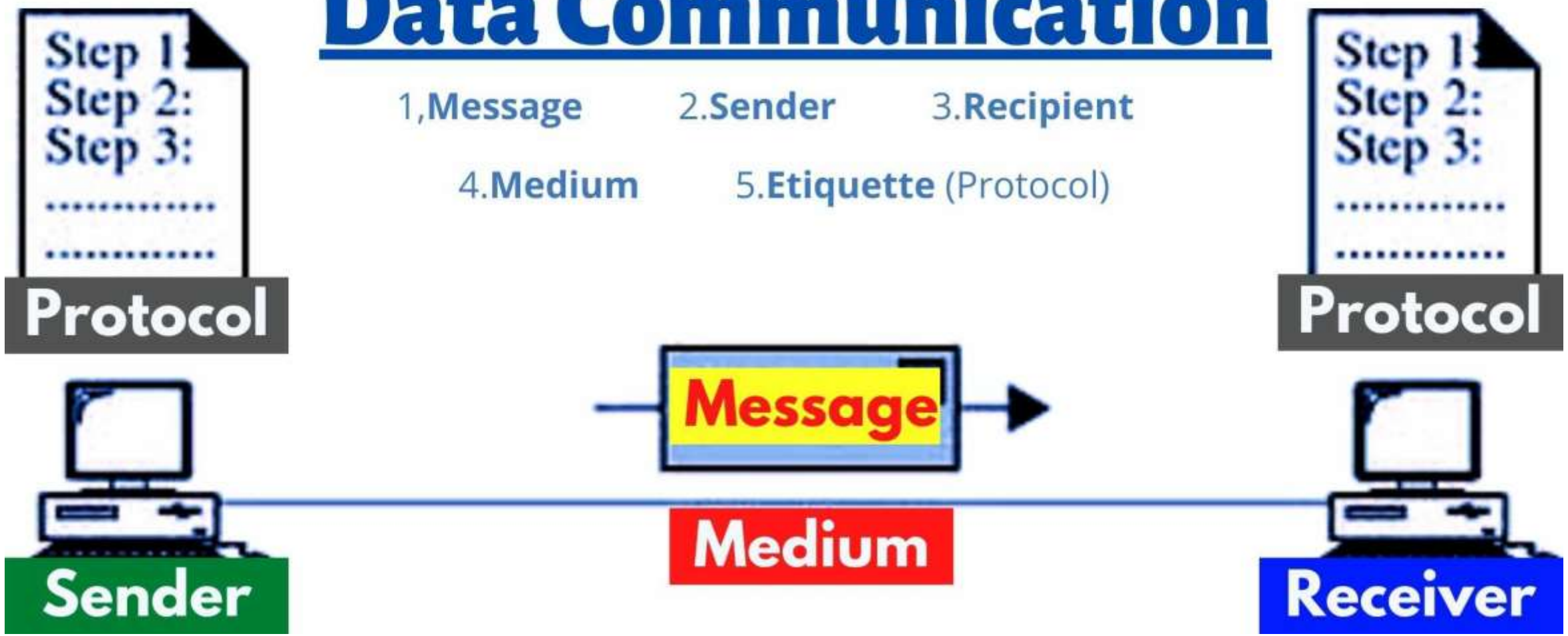
1,**Message** 2.**Sender** 3.**Recipient**

4.**Medium** 5.**Etiquette** (Protocol)



Basic Elements of Data Communication

1.Sender:- (source) which creates the message to be transferred.

2.Medium:- which carry message.

3.Receiver:- which receives the message

4.Data:- The information or message to be carried.

5.Protocol:- Rules to carry the data.

Message Signal

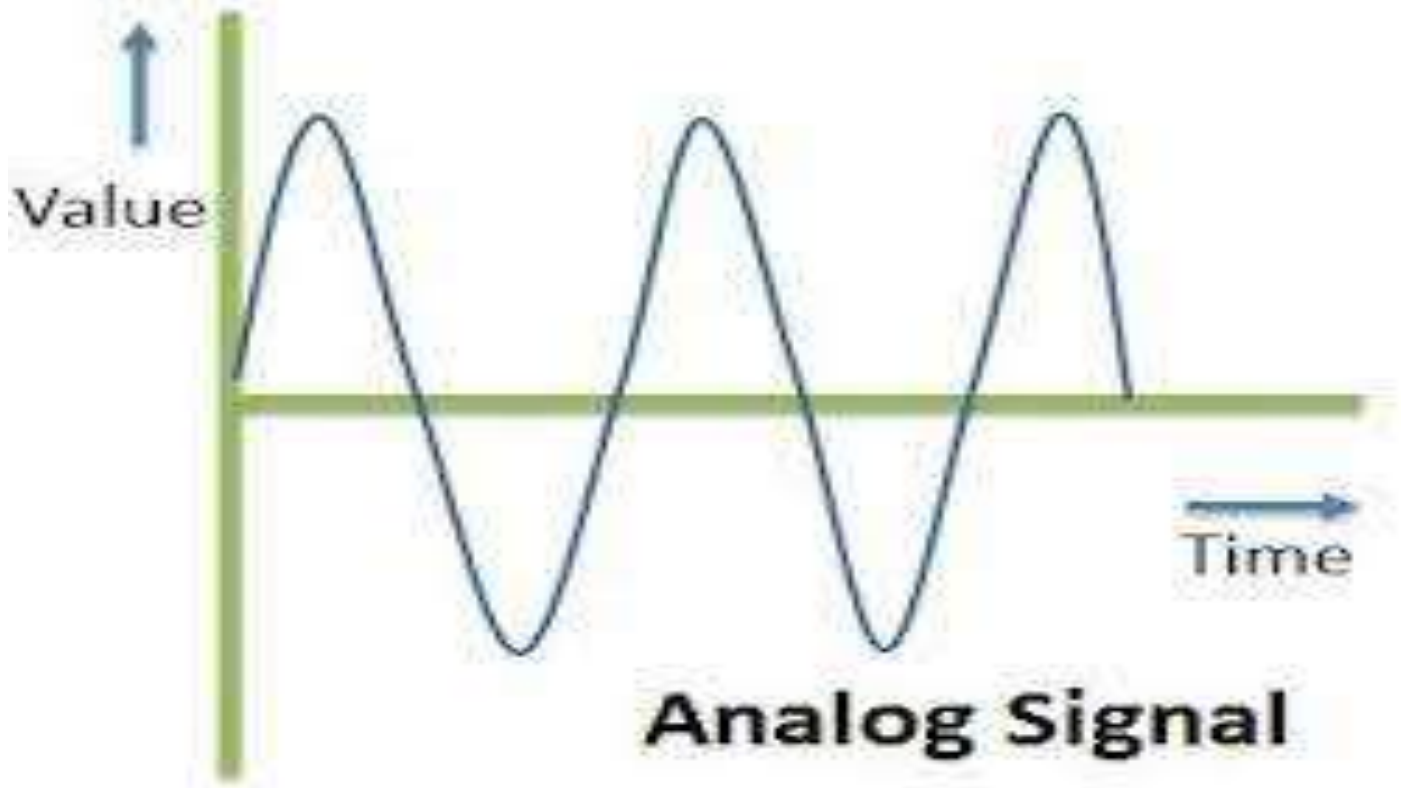
- Message signal have to converted in to electrical signal to make them suitable for transmission through the channel

Type of Electrical signal

- Analog Signal
- Digital Signal

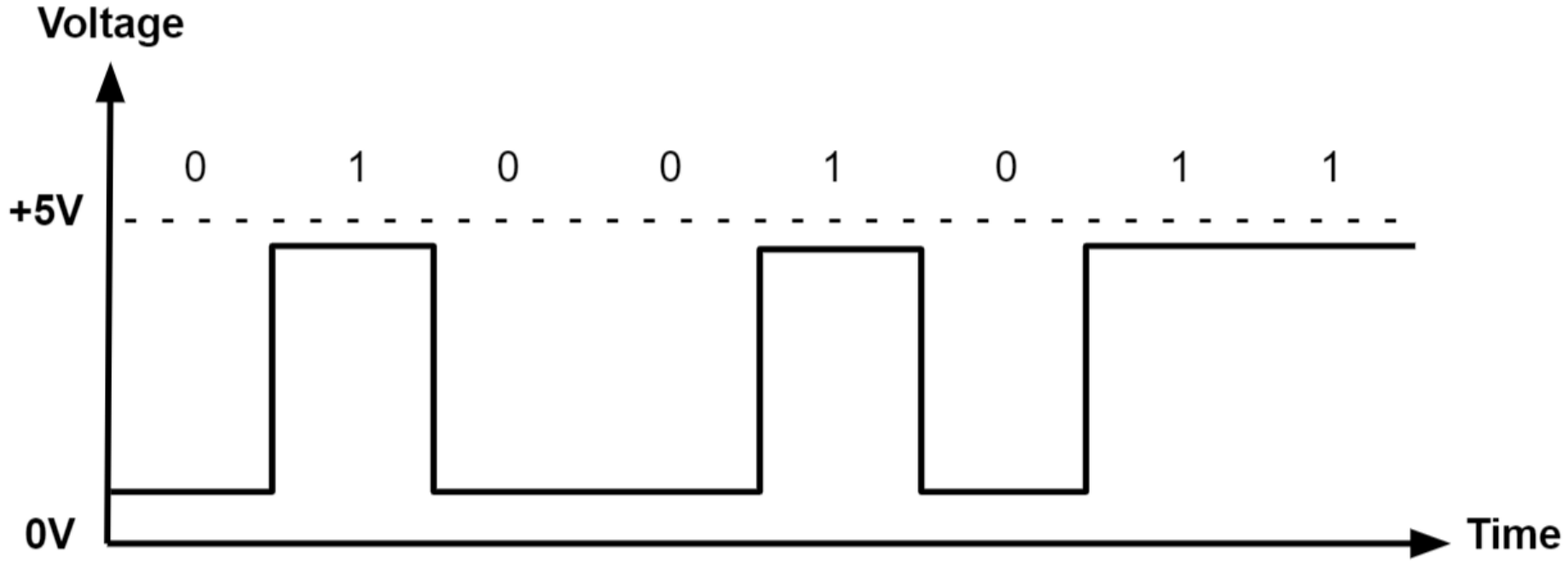
Analog Signal

- The signal which Continuously change its value within time is known as analog signal



Digital Signal

Digital signal is a discrete signal that carry information in a bit form



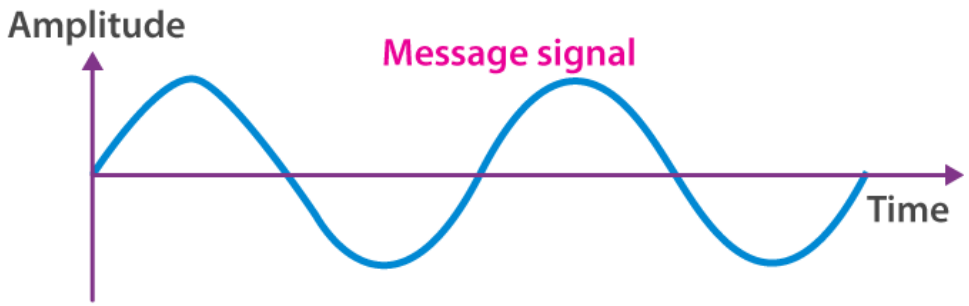
Modulation and demodulation

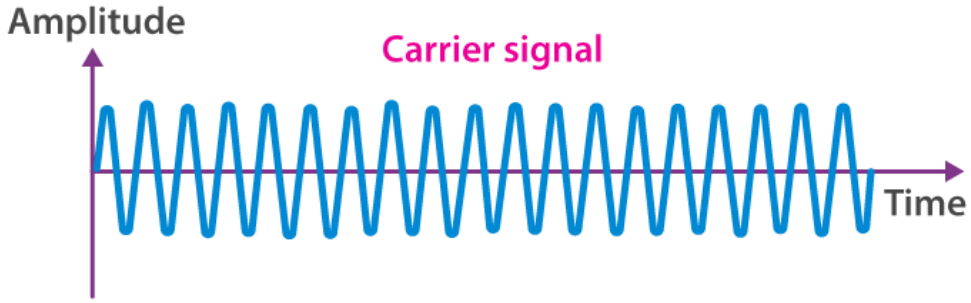
Modulation

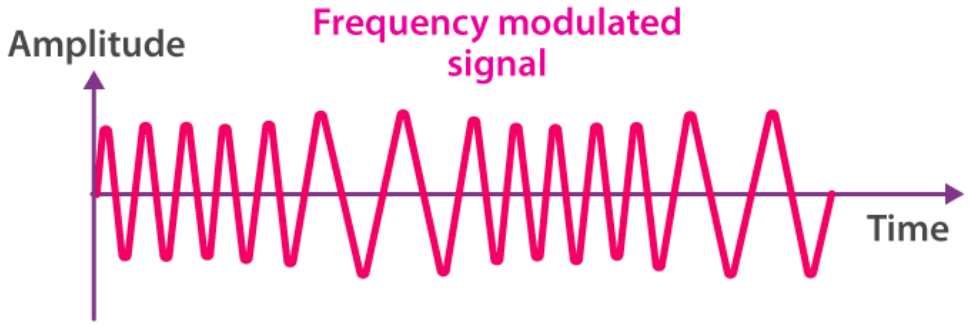
- The process of super imposing the message signal over carrier wave is called modulation

Demodulation

- The process of separating the message signal from the carrier wave is called demodulation







Attenuation

- The loss in strength of the signal during propagation is called attenuation

Distortion

- Distortion means that the signal change its form or shape

Noise

- Any Electrical signal which interferes with an information signal called noise

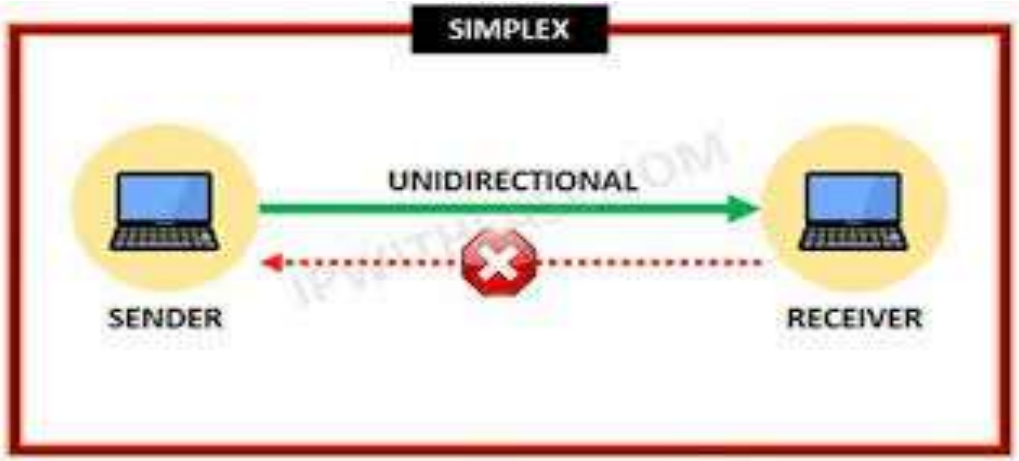
Amplification

- It is the process to amplify the signal using amplifier called amplification

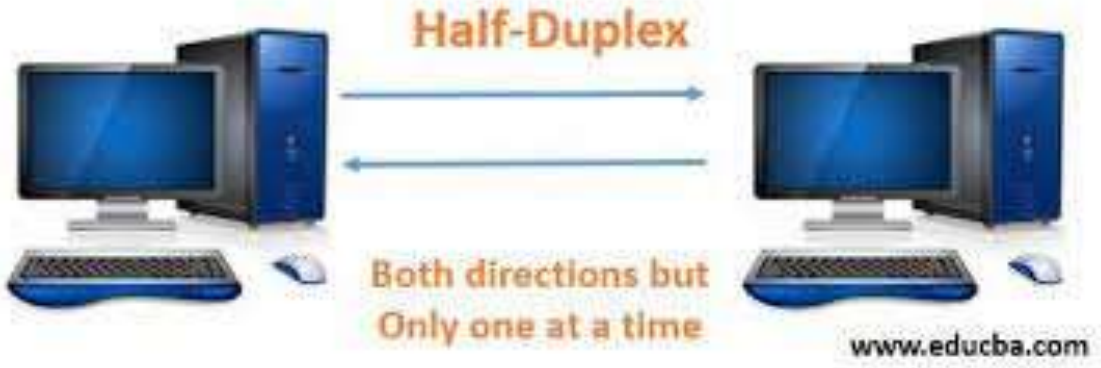
Modes of Communication

- Simplex
- Half Duplex
- Duplex

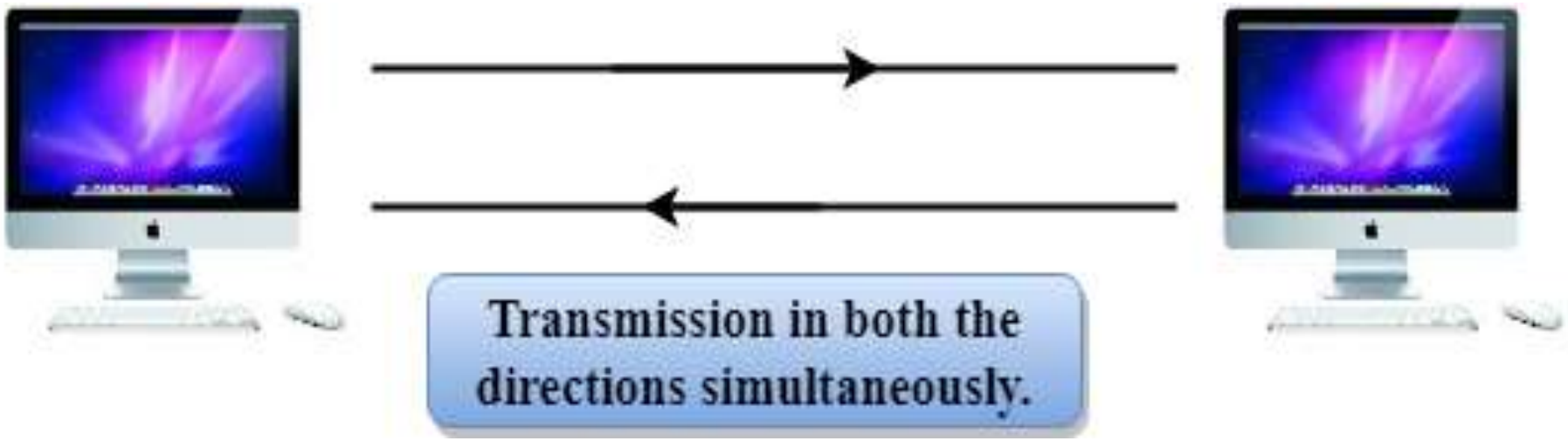
- **Simplex:** It is unidirectional mode of communication on which Only sender can sends the data and receiver receives it., radio, television



- **Half duplex:** It is the bidirectional mode of communication in which sender can send the data and receives the data as well and vice versa but only one at a time that means sender is not allowed to receive data while it is sending data. For eg, walkie talkie



- **Full duplex:** It is the bidirectional mode of communication in which both sender and receiver can send and receives data simultaneously. For eg, mobile phones, telephone etc



Computer Network

Computer Network is an interconnection of two or more computer that are able to exchange information . The connection between computers can be done via cabling, most commonly the Ethernet cable, or fiber optic cable. Connections can also be wireless.

Types of network (On the basis of geographical area covered)

- LAN (Local Area Network)
- MAN (metropolitan area network)
- WAN(Wide Area Network)

On The Basic of Architecture

- Per to per network
- Clint Server Network