

Aim: Study of different types of Network cables.

a) Understand different types of network cable.

Cable type	Category	Maximum Data Transmission	Advantage/ Disadvantages	Application/ Use
UTP	Category 3	10 bps	Advantages • Cheaper in cost	10 Base-T Ethernet
	Category 5	upto 100 Mbps	• Easy to install as They have a smaller overall diameter	Fast Ethernet Gigabit Ethernet
	Category 5e	1 Gbps	Disadvantages • More prone to (EMI) electromagnetic Interference and noise.	Fast Ethernet Gigabit Ethernet
	Category 6	10 Gbps	Advantages • shielded • faster than UTP • less susceptible to noise and interference	Gigabit Ethernet, 10 G Ethernet (SSM) widely used in data Centers
SSTP	Category 7	10 Gbps	Disadvantages • Expensive • Greater installation effort	Gigabit Ethernet, 10 G Ethernet (100 m)



Coaxial  
cableRG-6  
RG-59  
RG-1110-100  
Mbps

## Advantages

- High bandwidth
- Immune to interference
- Low loss
- Versatile

Speed of signal is soon Television network High speed internet connections

## Disadvantage

- Limited distance
- Costly
- Size is bulky

fibre single mode  
optics mode  
cable Multi mode

100 Gbps

## Advantage

- High speed
- High bandwidth
- High security
- Long distance

Maximum distance of fibre optics

## Disadvantage

- Expensive
- Requires skilled installers

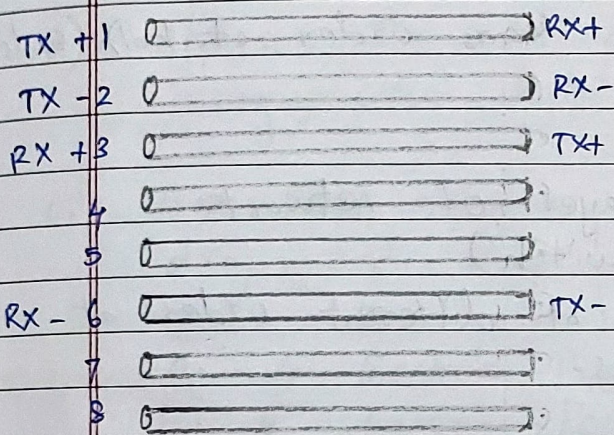
Results:

~~This study of different types of network cables was done and observed successfully.~~

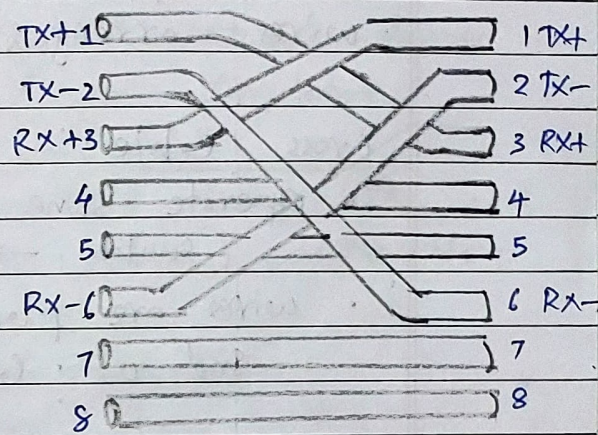


## b) Make Your Own Ethernet : Cross-Over Cable / Straight cable

Straight thru cable



X-over cable



Difference between crossover cable and straight cable.

Tools and parts needed:

- Ethernet cabling: CAT6 is certified for gigabit support, but CAT5 cabling works as well, just over shorter distances.
- A crimping tool. This is an all-in-one networking tool shaped to push down the pins in the plug and strip and cut the shielding off the cables.
- Two RJ45 plugs.
- Optional two plug shields.



Student Observation:1. Straight Cable:

• Operate different layers of network  
(Computer → switch)

• wires arranged in same order at both ends.

Cross cable:

• Operate same layer of network  
(Switch → switch)

• wires are placed at different order at end of cables.

2. CrossOver Cable.3. Straight Cable4. UTP: Category 3, 5, etc.

5. Making a twisted pair cable involves arranging wires with a specific sequence. For a straight cable, both ends use the same sequence, while a cross cable uses different sequence on each end.

Challenges:

• Correct wire placement  
• Proper crimping

Result:

Thus The study of different types of network cables was done and observed successfully.

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