

## Assignment A1 Part A

Aim: To setup a wired LAN using layer 2 switch and then IP switch with minimum 4 computers.

Pre-requisites:

Knowledge of components such as ethernet card cable type connections, topologies

Theory:

Types of LAN:

1. A LAN is a computer network that interconnects computers within a range as a residence, school, laboratory, university or campus.
2. By contrast, a wide area network not only covers a larger geographic area but also generally involves links telecommunication circuits or internet links.
3. Ethernet and Wi-Fi are two most common transmission technologies in use for LANs.

Ethernet LAN:

Ethernet is the most popular physical layer LAN technology in use today.

It defines the number of conductors that are required for the connection.

A standard ethernet network can transmit upto 10 Mbps data

It is popular because it strikes a good balance between speed, cost of ease of installation.

### Fast Ethernet:

The fast ethernet (IEEE 802.3u) has been established for networks that need higher transmission speeds.

Speed is upto 10Mbps to 100 Mbps

Fast ethernet provides faster throughput for videos, multimedia graphics, error detection & correction.

3 types are-

100 BASE - TX for use with level 1 UTP.

100 BASE - FX for use with fibre optic cable.

100 BASE - T4 for use with level 3 UTP.

### GigaBit Ethernet -

1. It was developed to meet the need for faster communications network with applications such as multimedia NOIP also known as "gigabit-ethernet-over-copper" or 100 BaseT.
2. It is defined in IEEE 802.3.
3. Existing ethernet LANs with 10 and 100 Mbps cards can be fixed into a gigabit ethernet backbone to interconnect high performance switches, routers.

## Steps for setting up LAN:

1. Installation of ethernet card in machine.
2. Crimping of ethernet cable
3. Make straight cable in order to perform star topology network to connect 2 different types of components.
4. Make cross cable in order to form star topology network to connect 2 similar types of components.  
Eg: PC to PC or router to router.

## Conclusion:

Thus, we have successfully set the wired LAN using switches and also done IP switching.