Experiment No. (5)

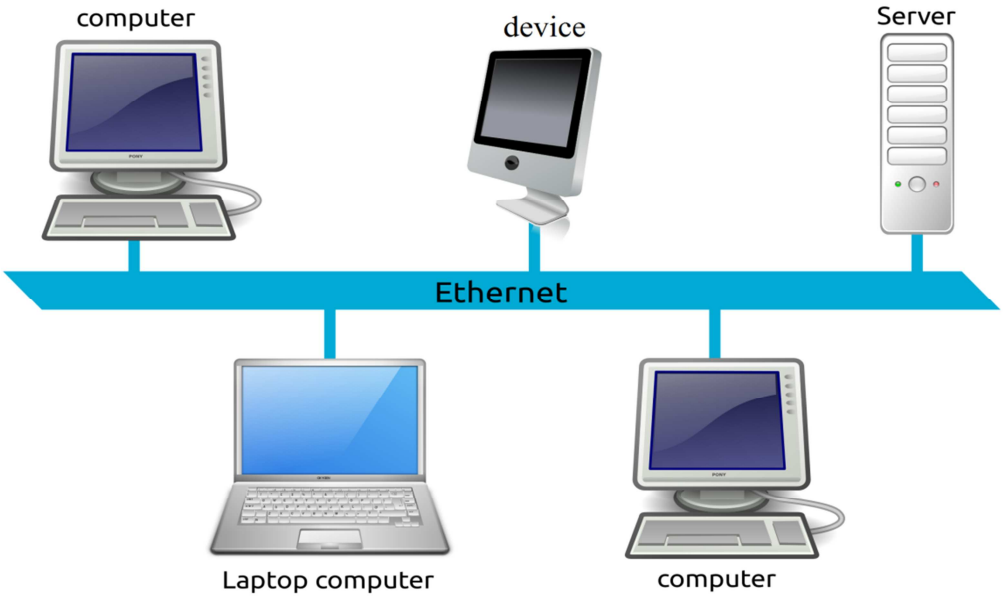
Building LAN Network using Hub

Object:

Build a LAN network using Ethernet cable

Theory:

LAN is a computer network that connects a relatively small area (a single building or group of buildings). Most LANs connect workstations and computers to each other. Each computer (also known as a "node"), has its own processing unit and executes its own programs; however, it can also access data and devices anywhere on the LAN.



Component:

1. Two or more computers/Laptops. (Example: 5 Computers).

2. Two or more NIC (Network Interface Card). In this case 5 NICs for 5 computers.
3. LAN cable (UTP cables with the desired length with RJ 45).
4. Eight port Hub.

Procedure:

1. Install the NIC into the PCMCIA slot of the PC's mother board. NIC is a hardware that interfaces between the computer and the network. The NIC has RJ 45 type port.
2. Take the desired length of 5 LAN cables and terminate both the ends with a RJ 45 type connector.
3. Now, connect one end of each of 5 cables to the computer and the other end to the Hub.
4. Now, The physical network is ready
5. Assign IP address, Subnet Mask to every PC.
6. To verify the IP address and Subnet Mask assignment in each computer, go to command prompt and type **CD:\>ipconfig /all**
7. To check the connectivity between PCs, go to command prompt and type CD:\>**ping <destination ip address>**
8. In return to the ping, the computer receives a reply back as an acknowledgement, thus the LAN connectivity is UP.

Discussion:

1. What is the difference between a physical design and a logical design?
2. What is the difference between Fast Ethernet and regular Ethernet?
3. List the advantages and disadvantages of local area networks.
4. What are the primary differences between baseband technology and broadband technology?