KANNUR UNIVERSITY

Information Technology Education Centre
Thalassery Campus, Palayad-670661

MASTER OF COMPUTER APPLICATION

SEMINAR REPORT
ON

"LAN CONFIGURATION"

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SUBMITTED BY

ADITHYA K
(Reg. No, B9GMCA2205)

KANNUR UNIVERSITY

Information Technology Education Centre
Thalassery Campus, Palayad-670661

CERTIFICATE

This is to certify that this seminar report entitled "**LAN CONFIGURATION**" is a bonafide work successfully done by **ADITHYA K,** with Reg. No. **B9GMCA2205** fourth semester in partial fulfillment for the award of MCA Degree from Kannur University during the period **2019-2022**.

Place: Palayad

Date:

Seminar Coordinator **Assistant Director**

ACKNOWLEDGMENT

First of all, I express my sincere gratitude to the Almighty for his solemn presence throughout the seminar study. I would like to extend my heartfelt gratitude to the teachers and co-students of Information Technology department for their constructive support and cooperation at each and every juncture of the seminar study on "LAN CONFIGURATION". They helped and encouraged me in every possible way. The knowledge acquired during the presentation of the seminar report would definitely help me in my future ventures.

I would like to express my sincere gratitude to thank all the teachers of our Department for their help in various aspects during the seminar.

ADITHYA K

ABSTRACT

We implemented two local area network(LAN)projects in our introductory data communications and networking course. The first project required students to develop a LAN from scratch for a small imaginary organization. The second project required student groups to analyze a LAN for a real world small organization. By allowing students to apply what they learn in class to real world situations, the project bridge the gap between technical concepts and business applications .

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INTRODUCTION

What is LAN?

- A local area network is a private network that connects computers and devices within a limited area like a residence , an office , a building or a campus; usually within the same building.
- On a small scale , LAN's are used to connect personal computers to printers. Home wifi networks and small business n/w's are common examples of LAN's.
- Most LAN's connect to the internet at a central point : a router
- Home LAN's often use a single router , while LAN's in larger spaces may additionally use network switches or routers for more efficient packet delivery to the right devices.
- LAN's almost always use Ethernet ,wifi or both inorder to connect devices within the network.
- Ethernet is a protocol for physical network connections that requires the use of Ethernet cables. Wifi is a protocol for connecting to a network via radiowaves.
- A variety of devices can connect to LAN's , including servers , desktop computers , laptop, printers and even game consoles.
- The simplest internet connected LAN's required only a router and a way for computing devices to connect to the router, such as via Ethernet cables or a wifi hotspot.
- LAN's without an internet connection need a switch for exchanging data.

FUNCTIONS OF LAN

- Information exchange
- File serving:- A large storage disk drive act as a central storage repository.
- Print serving:- providing the authorization to access a particular printer, accept and queue print jobs- provide a user access to the print queue to perform administrative duties.
- Remote execution

FEATURES OF LAN

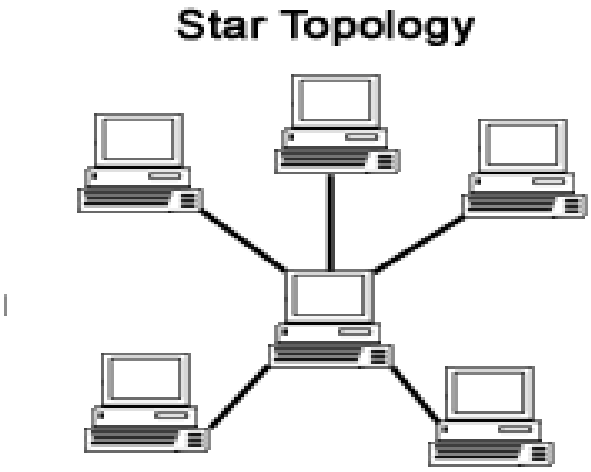
- The local area network is generally owned by one department or unit.
- It is easy to build , maintain, and expand , and the system flexibility is high .Because the geographical coverage is small , only in a relatively independent local area within the joint ,such as a centralized building.
- It uses the special laid transmission media for networking , delivering high data transfer rate (10 mbs-10 Gbs).
- Communication delay is short , high reliability.
- LAN can support variety of transmission media.

TOPOLOGY

- The LAN's are usually distributed over a limited geographical area of the network system , generally involving the geographical range of only a few kilometers .LAN specialization is very strong , with a more stable and standardized topology.
- The common LAN topologies are:

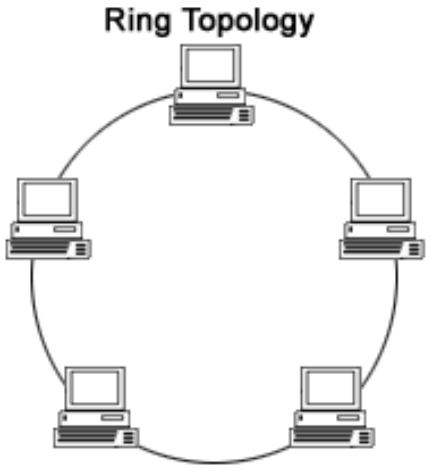
1. Star topology

- It is a topology for a local area network in which all nodes are individually connected to a central connection point , like a hub or a switch.
- A star takes more cable than a bus , but the benefit is that if a cable fails , only one node will be brought down.
- It is most popular on LAN networks as they are inexpensive and easy to install.
- In star topology , addition , deletion and moving of the devices are easy.



2.Ring topology

In this topology , every device has exactly 2 neighboring devices for communication purpose, it is called ring topology as its formation is like a ring. Here every computer is connected to another computer ,then the last node is combined with first one.This topology uses token to pass information from one computer to another , and all the messages travel through a ring in the same direction.It offers equal access to all the computers of the networks



3.Bus topology

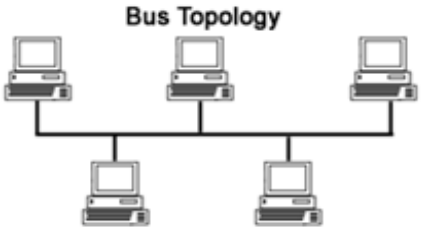
It uses a single cable which connects all the included nodes.

The main cable act as a spine for the entire network.

One of the computers in the network act as the computer server. when it has 2 endpoints , it is also known as a linear bus topology.

Cost of the cable is very less as compared to other topology , so it is widely used to build small networks.

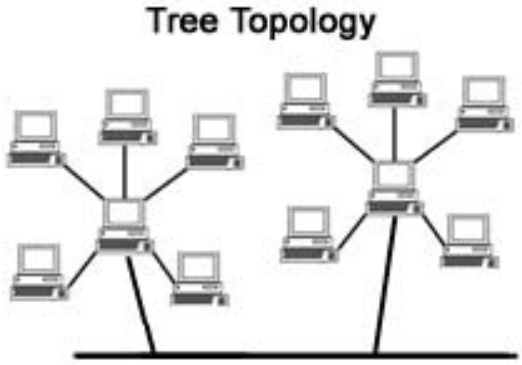
In the case if the common cable fails , then the entire system will crash down

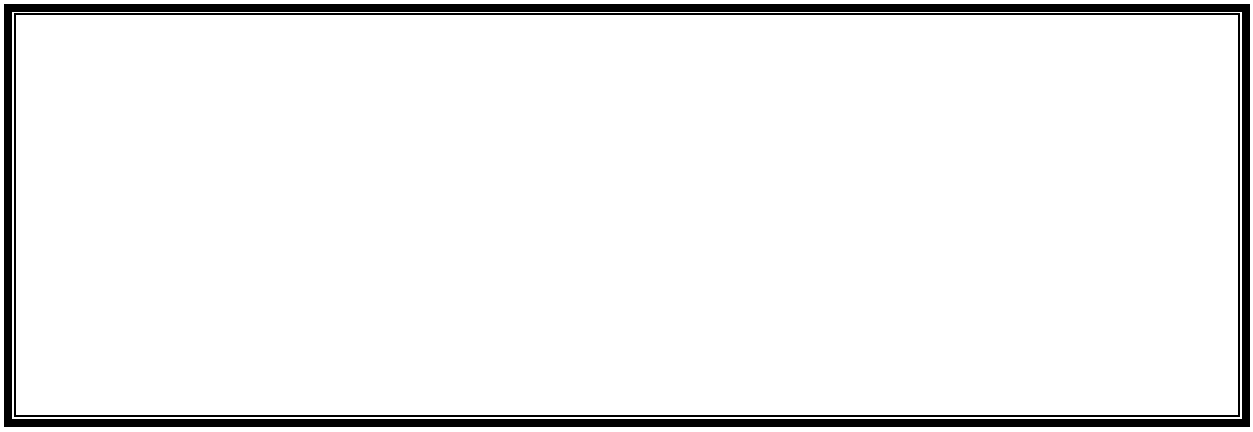


4.Tree topology

It have a root node, and all other nodes are connected which form a hierarchy , so it is also known as hierarchical topology. This topology integrates various star topologies together in a single bus , so it is known as a star bus topology.

Tree topology is a very common network which is similar to a bus and star topology. Failure of one node will never effects the rest of the network. If the hub or concentrator fails , attached nodes are also disabled.

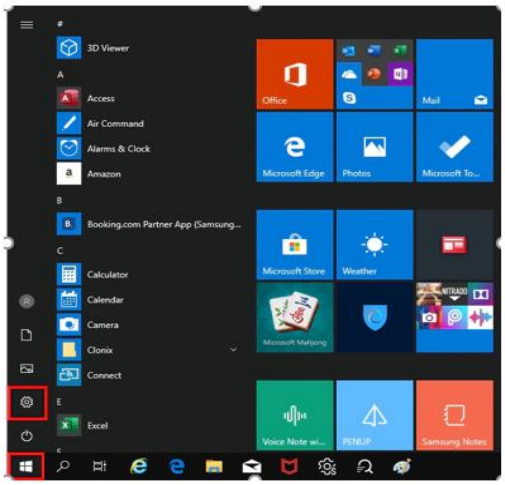




CONFIGURE THE N/W INTERFACE IN WINDOWS 10

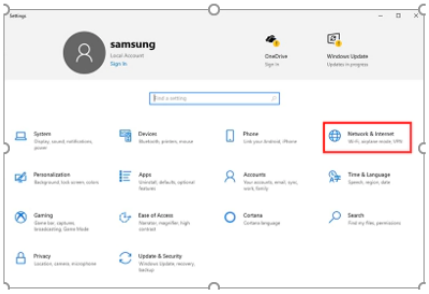
Step1:Connect a LAN cable to the pc's wired LAN port

Step2:



Step3:

3 Click **Network and Internet.**



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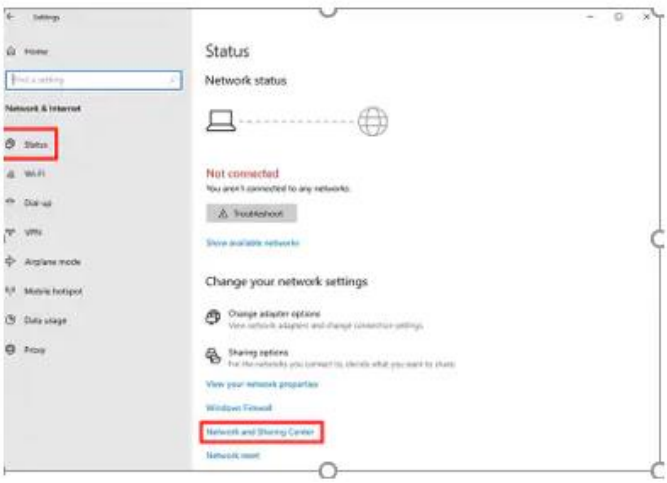
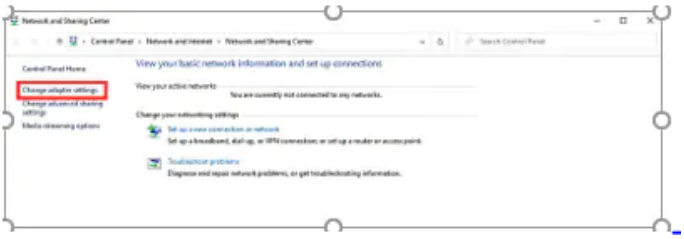
Step4:

4 In **Status,** click **Network and Sharing Center.**



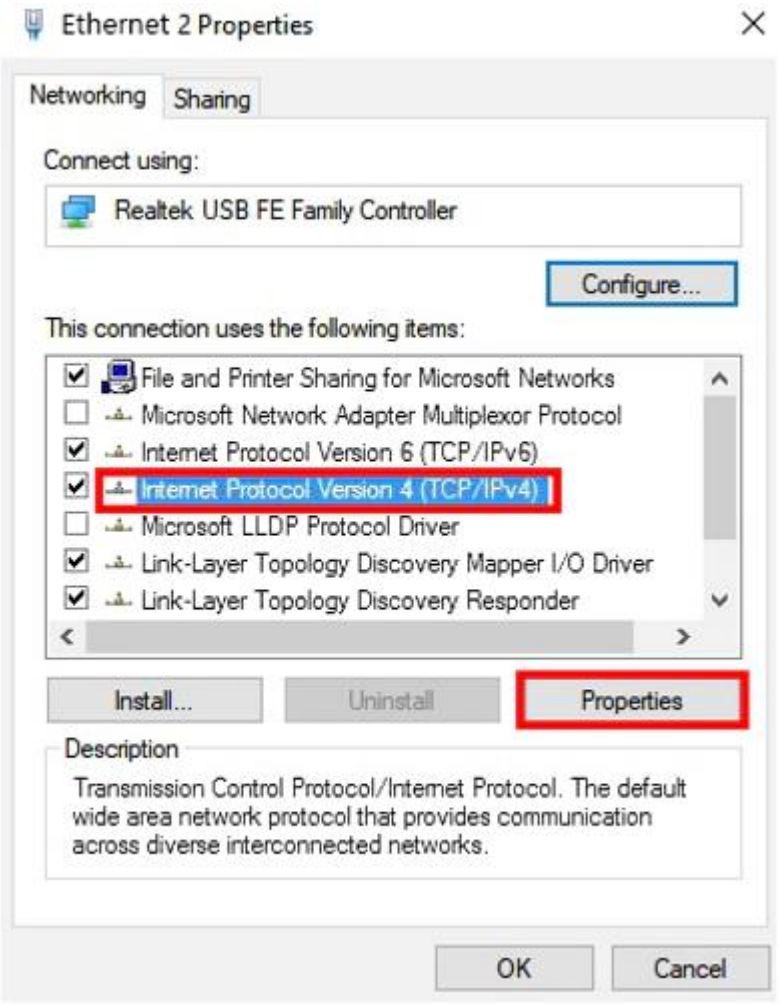
Step5:

5 Choose **Change adapter settings** at the upper left.

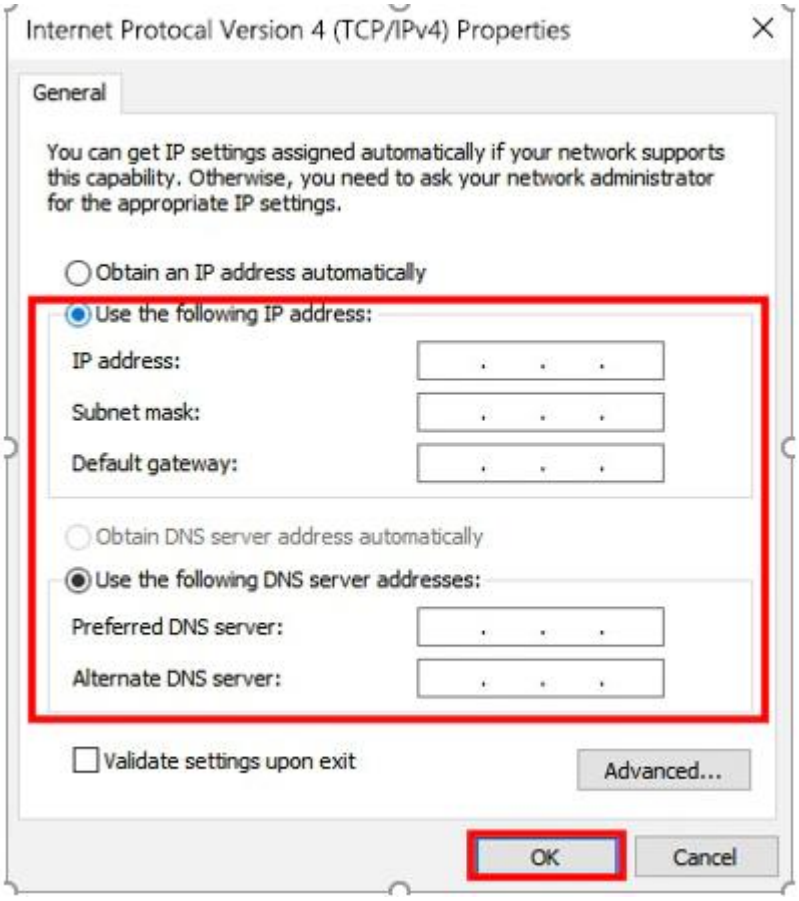


Step6:

Step7:



Step8:


Internet Protocal Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

CONFIGURE THE N/W INTERFACE IN LINUX SYSTEM

Step1:

Sudo nano/etc/ network/interfaces

Step2:

```
auto lo eth0
iface lo inet loopback
iface eth0 inet dynamic
```

Step 3:ifconfig

Step 4:

```
auto lo eth0
iface lo inet loopback
iface eth0 inet static
       address xxx.xxx.xxx.xxx(enter your ip here)
       netmask xxx.xxx.xxx.xxx
       gateway xxx.xxx.xxx.xxx(enter gateway ip here,usually the address of the router)
```

Step 5:

```
auto lo eth0
iface lo inet loopback
iface eth0 inet static
        address 192.168.1.100
        netmask 255.255.255.0
        gateway 192.168.1.1
```

Step 6:

Sudo/etc/init.d/network restart

GATEWAY INTERNET

It allows the computer programs , either on the same computer or on different computers to share information across the network through protocols.

In a communication network, a network node equipped for interfacing with another network that uses different protocols.The activities of a gateway are more complex than that of the router or switch as it communicates using more than one protocol. All the data routed incoming or outgoing must first exceed via and communicates with gateway in order to utilize the routing ways