WORKSHEET 1.1

Student Name: **UID:**
Branch: CSE **Section/Group:**
Semester: **Date of Performance:**
Subject Name: Computer Networks **Subject Code: 21CSH-256**

Aim: Study of different types of Network cables and practically implement the cross-wired cable and straight through cable using clamping tool.

Objective: To implement cross wire cabling through clamping tool.

S/W Requirement: - NA
H/W Requirement: -

Theory: -

RJ45 Pin # (END 1)	Wire Color	Diagram End #1	RJ45 Pin # (END 2)	Wire Color	Diagram End #2
1	White/Orange		1	White/Green	
2	Orange		2	Green	
3	White/Green		3	White/Orange	
4	Blue		4	White/Brown	
5	White/Blue		5	Brown	
6	Green		6	Orange	
7	White/Brown		7	Blue	
8	Brown		8	White/Blue	

Step 1: Strip the cable jacket about 1.5 inch down from the end.

Step 2: Spread the four pairs of twisted wire apart. For Car 5e, you can use the pull string to strip the jacket farther down if you need to, then cut the pull string. Cat 6 cables have a spine that will also need to be cut.

Step 3: Untwist the wire pairs and neatly align them in the T568B orientation. Be sure not to untwist them any farther down the cable than where the jacket begins; we want to leave as much of the cable twisted as possible.

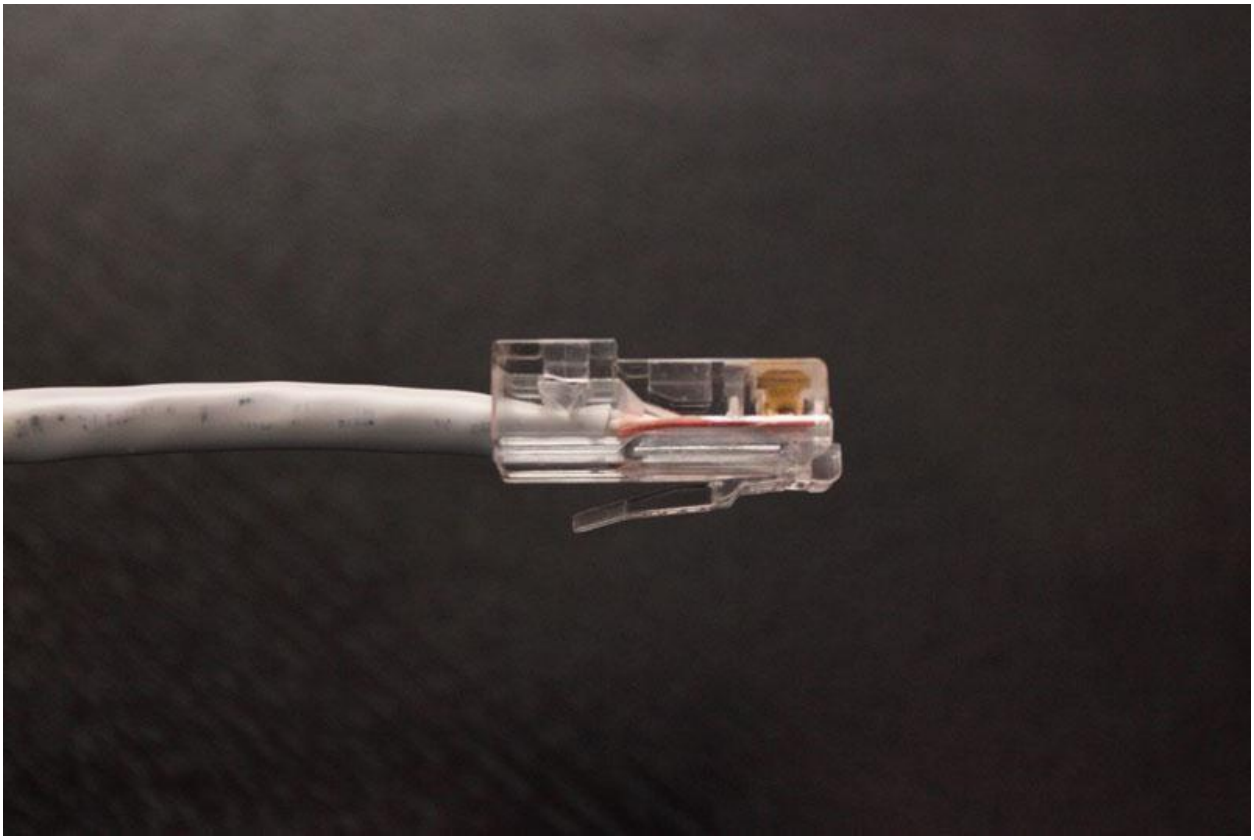
Step 4: Cut the wires as straight as possible, about 0.5 inch above the end of the jacket.

Step 5: Carefully insert the wires all the way into the modular connector, making sure that each wire passes through the appropriate guides inside the connector.

Step 6: Push the connector inside the crimping tool and squeeze the crimper all the way down.

Step 7: Repeat steps 1-6 for the end of the cable.

Step 8: To make sure you've successfully terminated each end of the cable, use a cable tester to test each pin. When you're all the done, the connectors should look like this:



Result: Cross and straight Cable prepared.

Worksheet-1.2

Student Name: Alasso **UID:21BCS**

Branch: BE-CSE **Section/Group:**

Semester:4 **Date of Performance:20-02-2023**

Subject Name: Computer Networks **Subject Code:21CSH-256**

Aim: Study the basic network command and Network configuration commands like ping,variations of ipconfig, tracert, nslookup, netstat, arp, rarp, hostname, pathping etc.

Software Requirements:

Command prompt

Theory :

ipconfig- ipconfig stands for Internet Protocol Configuration**.** This is a command-line application which displays all the current TCP/IP (Transmission Control Protocol/Internet Protocol) network configuration, refreshes the DHCP (Dynamic Host Configuration Protocol) and DNS (Domain Name Server). It also displays IP address, subnet mask, and default gateway for all adapters

ping- Packet Internet Groper command is used to check the network connectivity between host and server/host. This command takes as input the IP address or the URL and sends a data packet to the specified address with the message "PING" and get a response from the server/host this time is recorded which is called latency.

tracert-TRACERT diagnostic utility determines the route to a destination by sending Internet Control Message Protocol (ICMP) echo packets to the destination

nslookup- nslookup lets an Internet server administrator or any computer user enter a host name and find out the corresponding IP address or domain name system (DNS) record. The user can also enter a command for it to do a reverse DNS lookup and find the host name for an IP address that is specified.

netstat-This command displays active connections, ports on which the computer is listening, Ethernet statistics, the IP routing table, and IP statistics.

arp - arp stands for address To send IP packets, a computer needs two addresses. These addresses are the MAC address and the IP address. A MAC address is the physical or hardware address of the NIC. An IP address is the logical or software address of NIC. If a computer knows the IP address of the destination computer but it does not know the MAC address of the destination computer, it uses the ARP protocol to know the MAC address of the destination computer.

rarp -RARP is abbreviation of Reverse Address Resolution Protocol which is a protocol based on computer networking which is employed by a client computer to request its IP address from a gateway server's Address Resolution Protocol table or cache. The network administrator creates a table in gateway-router, which is used to map the MAC address to corresponding IP address.

hostname- hostname command displays the name of the current host system. Only users with root user authority can set the host name

pathping- This command sends multiple echo Request messages to each router between a source and destination, over a period of time, and then computes results based on the packets returned from each router

getmac-Getmac is a Windows command used to display the Media Access Control (MAC) addresses for each network adapter in the computer. These activities will show you how to use the getmac command to display MAC addresses.

Procedure:

Steps 1- Go to Search menu

Steps 2- Search for cmd

Step 3- Open the software a have your work

Results:

```
C:\Users\pavilion>ipconfig

Windows IP Configuration


Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . : cuchdit.in
   Link-local IPv6 Address . . . . . : fe80::eae6:9eb7:7958:fffc%11
   IPv4 Address. . . . . . . . . . . : 172.25.4.215
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Default Gateway . . . . . . . . . : 172.25.0.1

Ethernet adapter Bluetooth Network Connection 7:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
```

Fig 1-ipconfig

```
C:\Users\pavilion>ping cuims.in

Pinging cuims.in [172.19.2.100] with 32 bytes of data:
Reply from 172.19.2.100: bytes=32 time=22ms TTL=125
Reply from 172.19.2.100: bytes=32 time=3ms TTL=125
Reply from 172.19.2.100: bytes=32 time=4ms TTL=125
Reply from 172.19.2.100: bytes=32 time=22ms TTL=125

Ping statistics for 172.19.2.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 22ms, Average = 12ms

C:\Users\pavilion>
```

Fig 2-ping cuims.in

```
C:\Users\pavilion>tracert google.com

Tracing route to google.com [142.250.77.206]
over a maximum of 30 hops:

  1    14 ms    15 ms    13 ms  172.25.0.1
  2    17 ms     9 ms     7 ms  192.168.50.1
  3     9 ms     8 ms     8 ms  172.16.2.1
  4     *       66 ms    51 ms  static-145.148.249.49-tataidc.co.in [49.249.148.145]
  5    70 ms    50 ms    67 ms  10.124.251.97
  6    57 ms    45 ms    96 ms  10.43.147.42
  7    69 ms    92 ms    60 ms  72.14.196.97
  8    71 ms    51 ms    48 ms  74.125.244.193
  9    54 ms    41 ms    17 ms  74.125.37.63
 10    42 ms    42 ms    45 ms  del11s08-in-f14.1e100.net [142.250.77.206]

Trace complete.
```

Fig 3-tracert google.com

```
C:\Users\pavilion>nslookup
Default Server:  DC2K16.cuchdit.in
Address:  172.19.2.101

>
```

Fig 4-nslookup

```
C:\Users\pavilion>netstat -b
The requested operation requires elevation.

C:\Users\pavilion>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:55756        LAPTOP-6RAL1VVH:55757  ESTABLISHED
  TCP    127.0.0.1:55757        LAPTOP-6RAL1VVH:55756  ESTABLISHED
  TCP    127.0.0.1:55759        LAPTOP-6RAL1VVH:55760  ESTABLISHED
  TCP    127.0.0.1:55760        LAPTOP-6RAL1VVH:55759  ESTABLISHED
  TCP    172.25.4.215:49435     20.198.118.190:https   ESTABLISHED
  TCP    172.25.4.215:58866     13.76.153.29:https     ESTABLISHED
  TCP    172.25.4.215:58885     relay-bab3427a:https   ESTABLISHED
  TCP    172.25.4.215:58898     20.185.212.106:https   ESTABLISHED
  TCP    172.25.4.215:58902     sm-in-f188:https       ESTABLISHED
  TCP    172.25.4.215:58919     ec2-52-35-167-249:https  ESTABLISHED
  TCP    172.25.4.215:58953     20.198.118.190:https   ESTABLISHED
  TCP    172.25.4.215:59549     ec2-52-34-44-216:https  ESTABLISHED
  TCP    172.25.4.215:59620     1:https                TIME_WAIT
  TCP    172.25.4.215:60808     a23-3-70-27:https      CLOSE_WAIT
  TCP    172.25.4.215:60809     a23-3-70-27:https      CLOSE_WAIT
  TCP    172.25.4.215:60810     a23-3-70-27:https      CLOSE_WAIT
  TCP    172.25.4.215:60811     a23-3-70-27:https      CLOSE_WAIT
  TCP    172.25.4.215:60812     a23-3-70-27:https      CLOSE_WAIT
  TCP    172.25.4.215:60813     a23-3-70-27:https      CLOSE_WAIT
  TCP    172.25.4.215:61192     20.185.212.106:https   ESTABLISHED
  TCP    172.25.4.215:61294     whatsapp-cdn-shv-02-del1:https  ESTABLISHED
  TCP    172.25.4.215:61341     20.189.173.12:https    ESTABLISHED
  TCP    172.25.4.215:61419     server-18-164-212-66:https  ESTABLISHED
  TCP    172.25.4.215:61425     52.109.124.115:https   TIME_WAIT
  TCP    172.25.4.215:61426     20.44.10.122:https     TIME_WAIT
  TCP    172.25.4.215:61428     whatsapp-chatd-edge-shv-02-del1:http  TIME_WAIT
  TCP    172.25.4.215:61429     103.3.35.226:https     ESTABLISHED
  TCP    172.25.4.215:61430     103.3.34.98:https      ESTABLISHED
  TCP    172.25.4.215:61431     whatsapp-cdn-shv-02-del1:https  CLOSE_WAIT
  TCP    172.25.4.215:61433     whatsapp-cdn-shv-02-del1:https  ESTABLISHED
  TCP    172.25.4.215:61434     52.168.112.67:https    ESTABLISHED
  TCP    172.25.4.215:61435     51.132.193.104:https   ESTABLISHED
  TCP    172.25.4.215:61436     51.132.193.104:https   ESTABLISHED
  TCP    172.25.4.215:61437     51.132.193.104:https   ESTABLISHED
  TCP    172.25.4.215:61439     whatsapp-chatd-edge-shv-02-del1:http  TIME_WAIT
  TCP    172.25.4.215:61440     51.104.15.252:https    ESTABLISHED
  TCP    172.25.4.215:61441     20.50.80.209:https     ESTABLISHED
  TCP    172.25.4.215:61443     https-45-113-119-0:http  ESTABLISHED
  TCP    [::1]:1521             LAPTOP-6RAL1VVH:49673  ESTABLISHED
  TCP    [::1]:49673            LAPTOP-6RAL1VVH:1521   ESTABLISHED

C:\Users\pavilion>
```

Fig 5-netstat -b

```
C:\Users\pavilion>arp -a

Interface: 172.25.4.215 --- 0xb
  Internet Address      Physical Address      Type
  172.25.0.1            60-9c-9f-94-b5-84     dynamic
  172.25.15.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.102.18        01-00-5e-7f-66-12     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

C:\Users\pavilion>
```

Fig 6-arp -a

```
C:\Users\pavilion>hostname
LAPTOP-6RAL1VVH
```

Fig 7-tracert google.com

Fig 8-pathping youtube.com

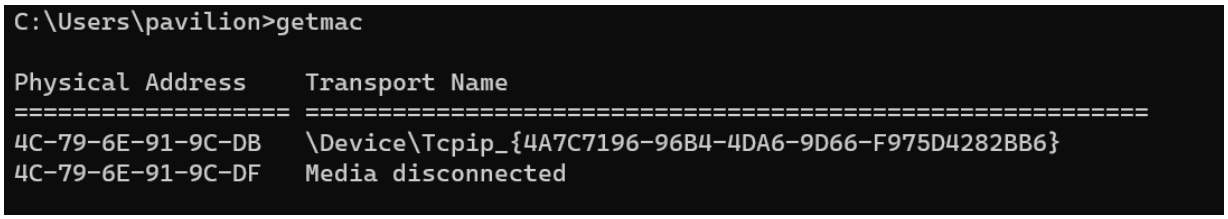


Fig 9-getmac

WORKSHEET 1.3

Student Name: Alasso **UID: 21BCS**
Branch: CSE **Section/Group: 21BCS**
Semester: 4th **Date of Performance: 24/02/23**
Subject: Computer Networks **Subject Code: 21CSH-256**

1. **Aim:**
   Configure and understand working of network devices Hub, Switch, Routers

2. **Software Requirements:**
   Packet Tracer

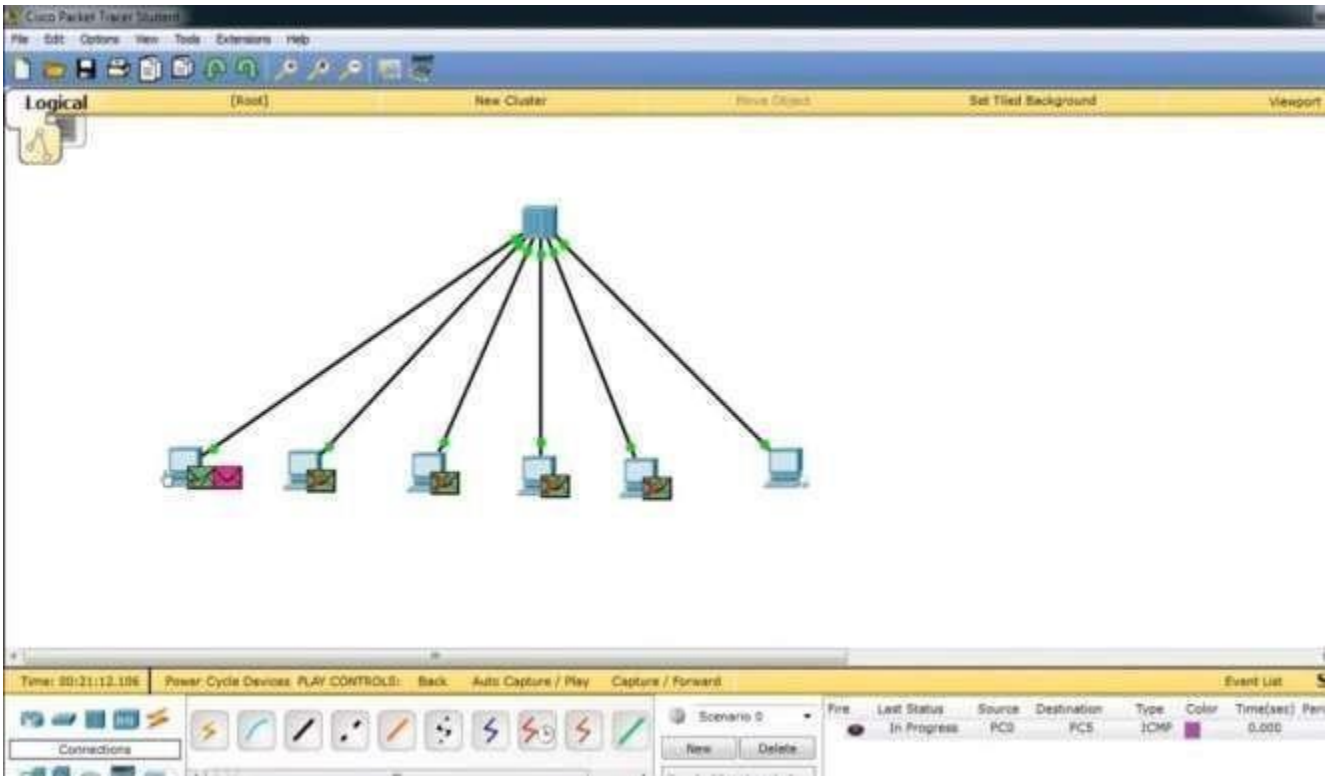
3. **Hardware Requirements:**
   - Processor – Any suitable Processor e.g., Celeron
   - Main Memory - 128MBRAM
   - Hard Disk – minimum 20 GB IDE Hard Disk
   - Removable Drives – 1.44MB
   - Floppy Disk Drive –52X IDE CD-ROM Drive
   - PS/2 HCL
   - Keyboard and Mouse

4. **Mouse Method: -**

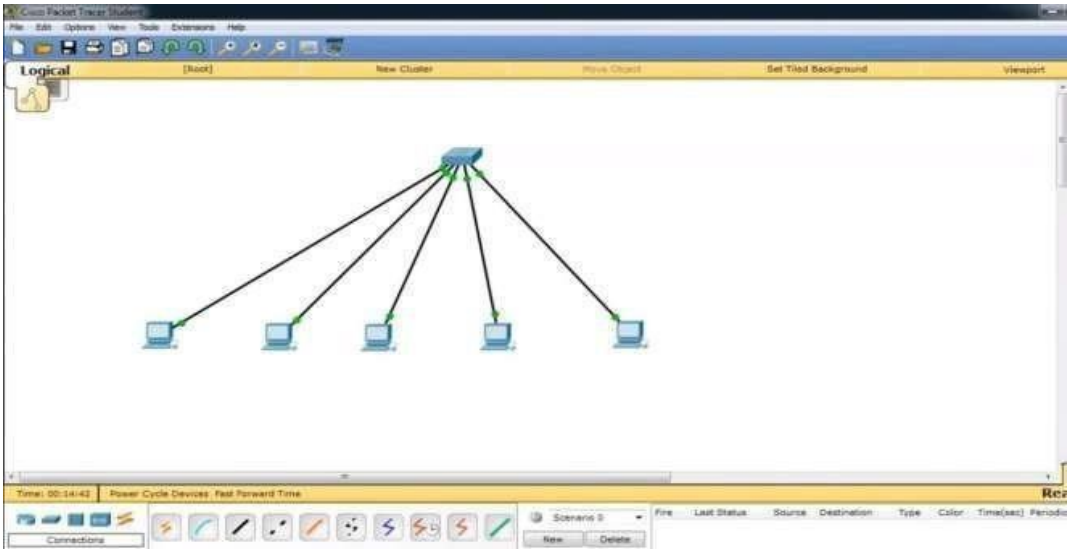
   - Attach required devices (Hub/Switch/Router) in the packet tracer software.
   - Assign IP address to devices.
   - Select source and destination and drop packet from source to destination.
   - Go to Simulation mode and click capture/Play.
   - Simulation will start and packet will only be accepted by destination.

5. Procedure:

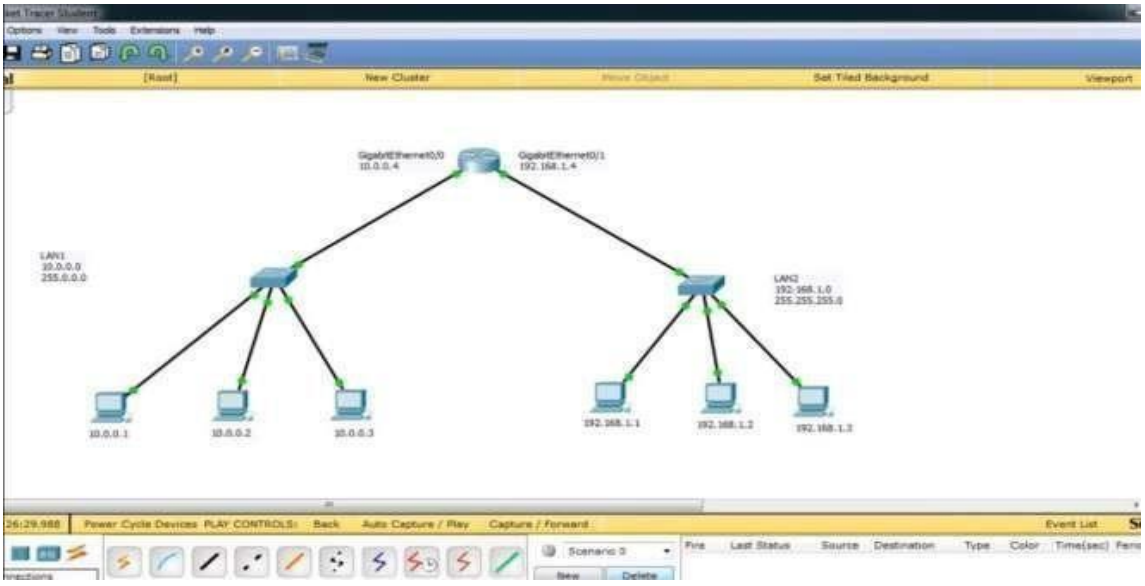
- Hub- A hub is basically a multiport repeater. A hub connects multiple wires comingfrom different branches, for example, the connector in star topology which connects different stations. Hubs cannot filter data, so data packets are sent to all connecteddevices. In other words, the collision domain of all hosts connected through Hub remains one. Also, they do not have the intelligence to find out the best path for data packets which leads to inefficiencies and wastage.



- Switch- A switch is a multiport bridge with a buffer and a design that can boost its efficiency (a large number of ports imply less traffic) and performance. A switch is a data link layer device. The switch can perform error checking before forwarding data,which makes it very efficient as it does not forward packets that have errors and forward good packets selectively to the correct port only. In other words, the switch divides the collision domain of hosts, but broadcast domain remains the same.



- Router- A router is a device that connects two or more packet-switched networksor subnetworks. It serves two primary functions: managing traffic between these networks by forwarding data packets to their intended IP addresses, and allowing multiple devices to use the same Internet connection.



RESULT: Students will understand functioning of various networking devices.

DEPARTMENT OF
COMPUTER SCIENCE &ENGINEERING

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WORKSHEET 2.1

Student Name: UID:

Branch: CSE Section/Group:

Semester: 4th Date of Performance:

Subject Name: Computer Networks Subject Code: 21CSH-256

Aim: Implement different network topologies like Star, Bus with the help of packet tracer.

Objective: - To simulate Star, Bus Topology.

S/W Requirement: - Packet Tracer

H/W Requirement: - hub, switch, Router

Theory and implementation-

Bus topology also known as line topology, is a type of network topology in which all devices in the network are connected by one central RJ-45 network cable or coaxial cable. The single cable, where all data is transmitted between devices, is referred to as the bus, backbone, or trunk

Advantages of Bus Topology-

- Works efficiently for small networks
- Easy and cost-effective to install and add or remove devices
- Doesn't require as much cabling as alternative topologies
- If one device fails, other devices are not impacted

Disadvantages of Bus Topology-

- If the cable is damaged, the entire network will fail or be split
- Difficult to troubleshoot problems
- Very slow and not ideal for larger networks
- Requires terminators at both ends of the cable to prevent bouncing signals that cause interference
- Adding more devices and more network traffic decreases the entire network's performance
- Low security due to all devices receiving the same signal from the source

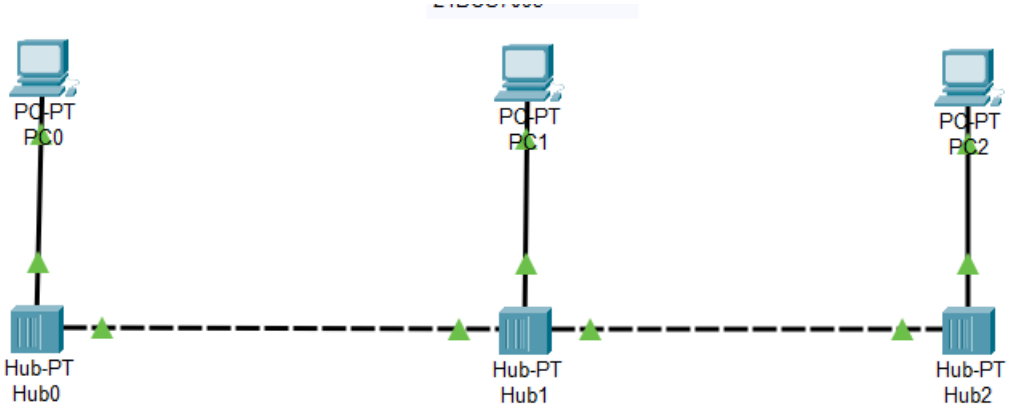


Fig.1
Bus Topology

Star topology is a type of network topology in which every device in the network is individually connected to a central node, known as the switch or hub. When represented visually, this topology resembles a star which gives it its name.

Advantages of Star Topology-

- Limits the impact of a single point of failure because each device is isolated by its relationship to the switch
- Adding or removing devices to the network is simple and doesn't disrupt the network
- High-performance as no data collisions can occur
- Fault detection is easy
- Each device only requires one port to connect to the switch

Disadvantages of Star Topology-

- Requires more cabling and is more expensive than some alternatives
- If the switch fails, all the connected devices are disabled
- The switch requires more resources and maintenance
- Performance is dependent on the switch

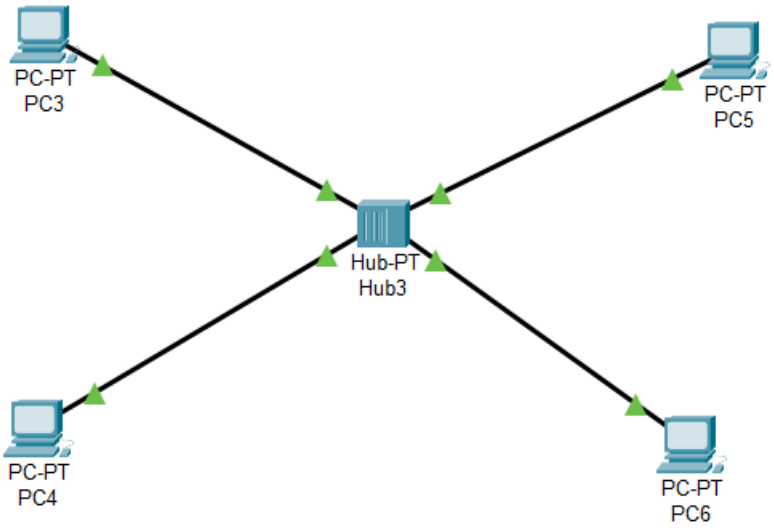


Fig.2
Star Topology

WORKSHEET 2.2

Student Name:	UID:
Branch: CSE	Section/Group:
Semester: 4th	Date of Performance: 20/03/2023
Subject Name: Computer Networks	Subject Code: 21CSH-256

Aim: Implement different network topologies like Ring, Mesh with the help of packet tracer.

Objective: - To simulate Ring, Mesh Topology.

S/W Requirement:- Packet Tracer

H/W Requirement :- hub , switch, Router

Theory and implementation-

Ring topology is a type of network topology in which each device is connected to two other devices on either side via an RJ-45 cable or coaxial cable. This forms a circular ring of connected devices which gives it its name.

Data is commonly transferred in one direction along the ring, known as a unidirectional ring. The data is forwarded from one device to the next, until it reaches the intended destination. In a bidirectional ring, data can travel in either direction.

Advantages of Ring Topology-

- Since data flows in one direction, the chance of a packet collision is reduced
- A network server is not needed to control network connectivity
- Devices can be added without impacting network performance
- Easy to identify and isolate single points of failure
- Better suited for high traffic environments than a bus topology

disadvantages of Ring Topology-

- All data travelling over the network must pass through each device on its way to its destination, which can reduce performance
- If one device fails, the entire network is impacted
- Can be difficult to architect the necessary cabling
- More expensive to implement than a bus topology

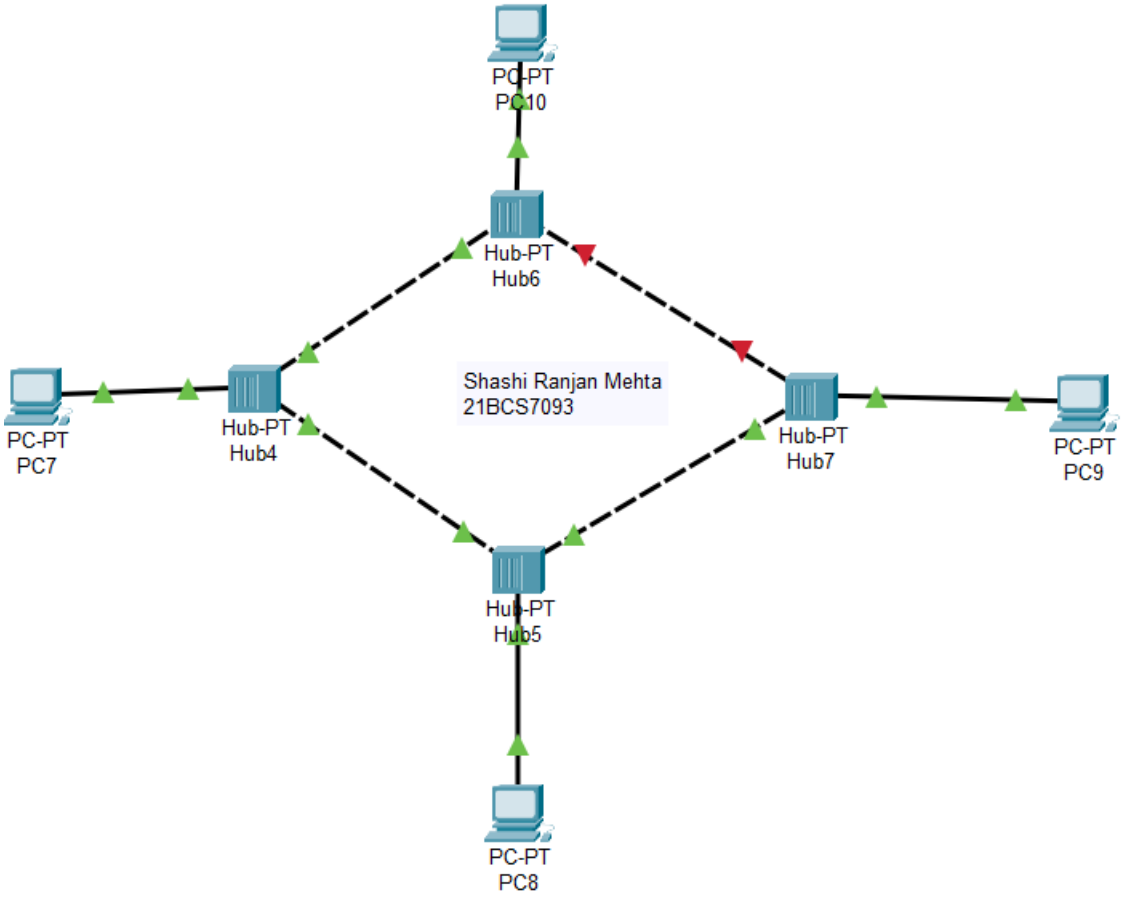


Fig.3
Ring Topology

Mesh topology is a type of network topology in which all devices in the network are interconnected. In a mesh topology, data can be transmitted by routing and flooding

Advantages of Mesh Topology-

- Multiple devices can transmit data at the same time, allowing for high amounts of traffic
- If one device fails, data transmission is not impacted in the rest of the network
- Adding devices to the network does not disrupt data transmission
- Troubleshooting is easier than with alternative topologies

Disadvantages of Mesh topology-

- Network installation and maintenance is time and resource intensive
- High power requirement due to all the devices needing to remain active all the time
- Requires a large amount of cables and ports
- The potential for a large amount of redundant connections increases costs and reduces efficiency

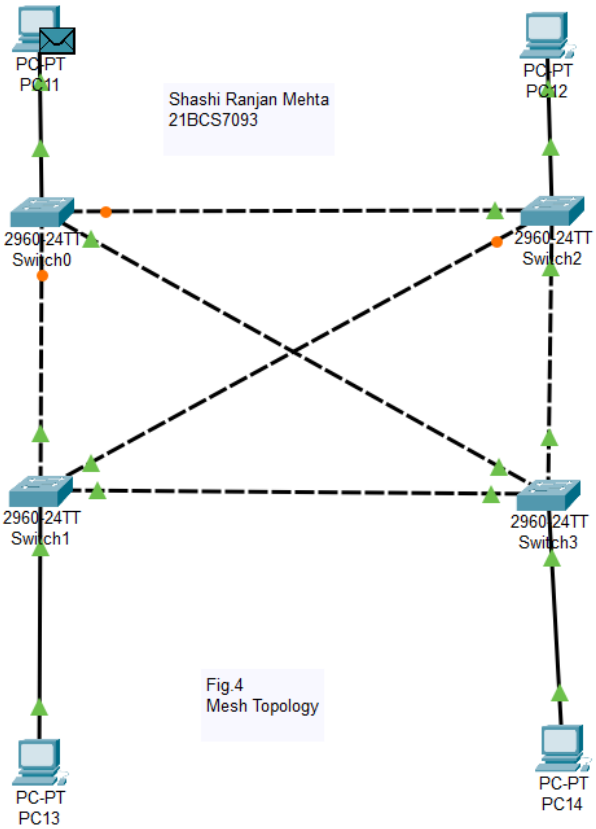


Fig.4
Mesh Topology

Experiment 2.3

Student Name: Alasso **UID: 21BCS**

Branch: CSE **Section/Group:**

Semester: 4th **Date of Performance: 17.03.2023**

Subject Name: Subject Code: 21CSH-256

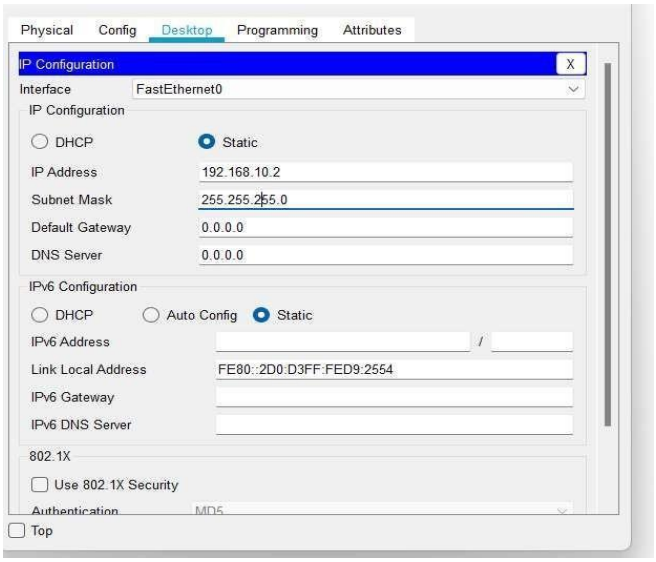
Aim: Configure a network using Distance Vector routing Protocol using Packet Tracer or NS2

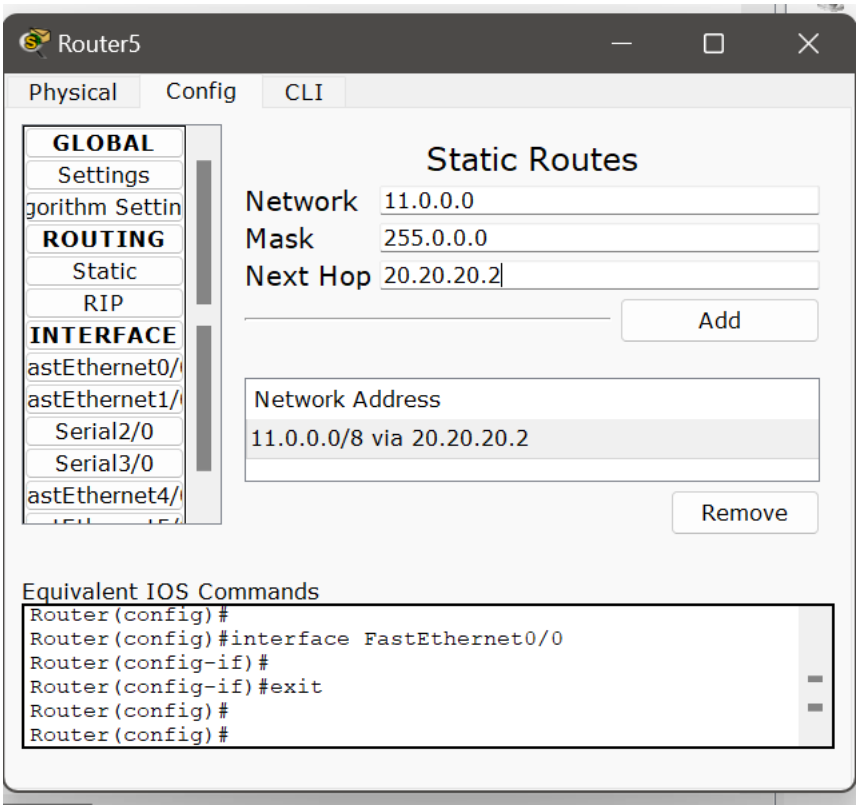
Theory: A router is a device that connects two or more packet-switched networks or subnetworks. It serves two primary functions: managing traffic between these networks by forwarding data packets to their intended IP addresses, and allowing multiple devices to use the same Internet connection. There are several types of routers, but most routers pass data between LANs (local area networks) and WANs (wide area networks). A LAN is a group of connected devices restricted to a specific geographic area. A LAN usually requires a single router.

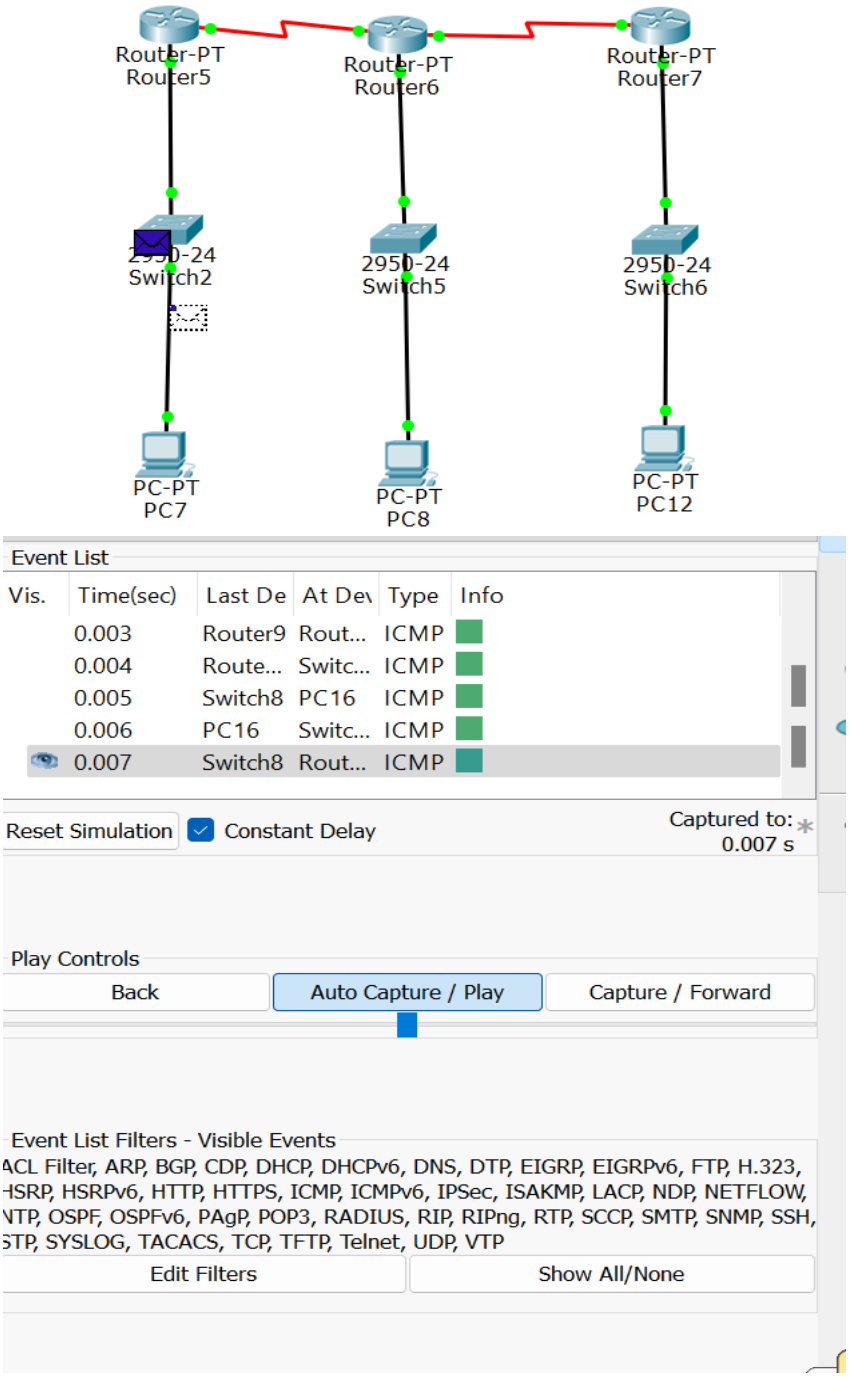
A WAN, by contrast, is a large network spread out over a vast geographic area. Large organizations and companies that operate in multiple locations across the country, for instance, will need separate LANs for each location, which then connect to the other LANs to form a WAN. Because a WAN is distributed over a large area, it often necessitates multiple routers and switches.

3. Screenshot of Outputs:

IP CONFIG: -


Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IP Address
192.168.10.2
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::2D0:D3FF:FED9:2554
IPv6 Gateway
IPv6 DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Top


Router5
Physical
Config
CLI
GLOBAL
Settings
gorithm Settin
ROUTING
Static
RIP
INTERFACE
astEthernet0/
astEthernet1/
Serial2/0
Serial3/0
astEthernet4/
Static Routes
Network
11.0.0.0
Mask
255.0.0.0
Next Hop
20.20.20.2
Add
Network Address
11.0.0.0/8 via 20.20.20.2
Remove
Equivalent IOS Commands
Router(config)#
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#



Learning Outcomes: -

1. I have learned the basic concepts of Routing.
2. I have learned how to implement the static routing.
3. Learnt How routing work in real world scenario.

Worksheet- 3.1

Student Name: ALASSO **Branch:** B.E. CSE

Date of Performance: 30/4/2023 **UID:** 21BCS

Section/Group: **Subject Code:** 21CSH-256

Subject Name: Computer Networks **Semester:** 4th

1. **Aim:** Sharing of resources with two connected nodes. Understanding FTP.

2. **Software required:** Cisco Packet Tracer.

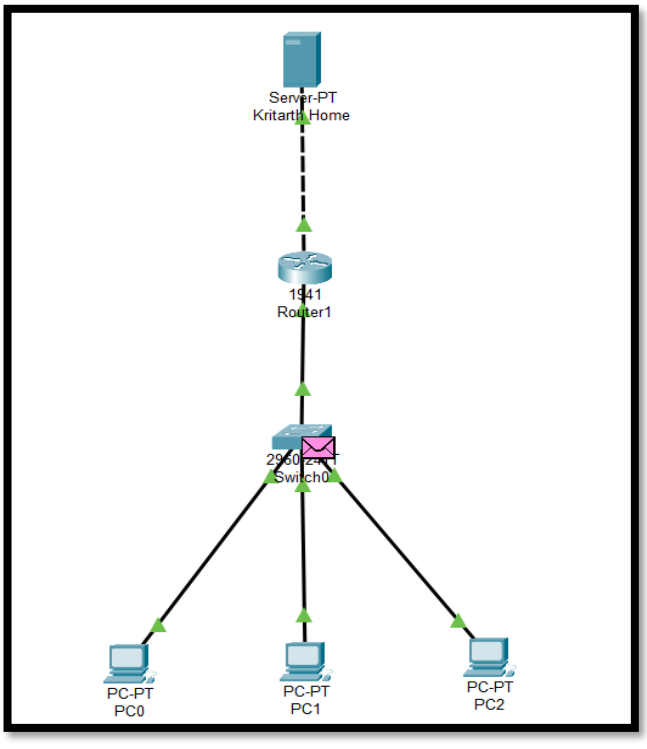
Procedure: -

- Attach PC, 1941 router & Server-PT in the packet tracer software.
- Use copper cross-over wires to connect router to router.
- Connect all the end devices to each other.
- Assign IP address to devices, Configure router as Network address
- Add text in text editor.
- Provide same Gateway IP to all the pc's.
- Use command prompt for sending and downloading file.
- Go to Simulation mode and click capture/Play.

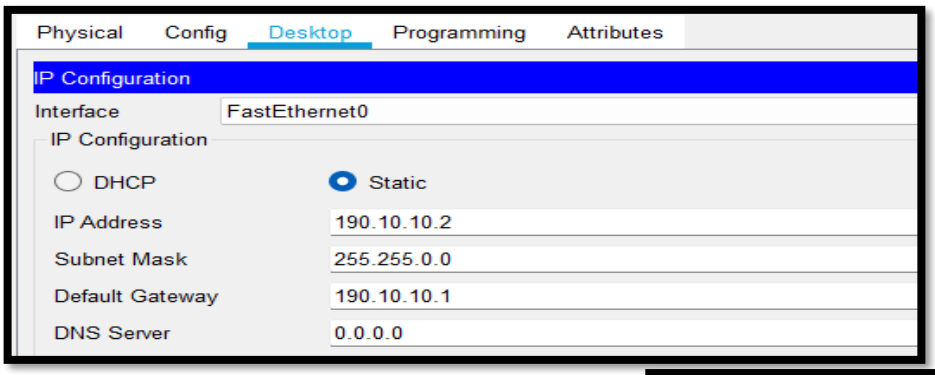
Theory: -

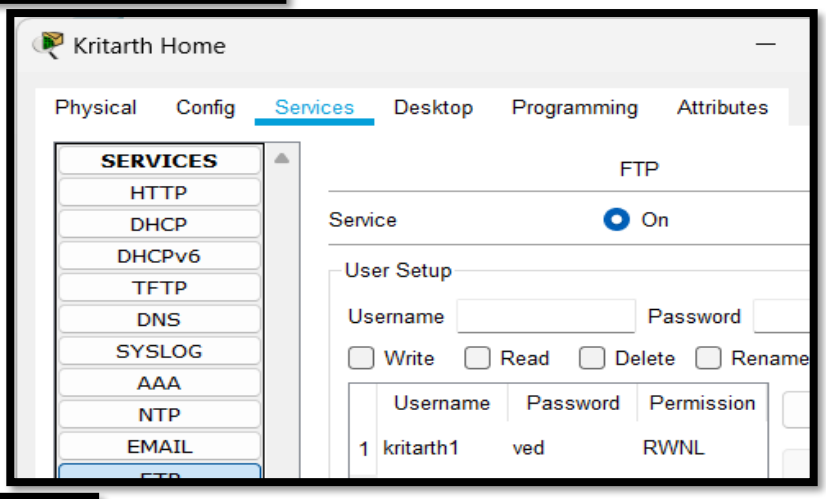
A). File Transfer Protocol (FTP): File Transfer Protocol (FTP) is an application layer protocol that moves files between local and remote file systems. It runs on top of TCP, like HTTP. To transfer a file, 2 TCP connections are used by FTP in parallel: control connection and data connection.

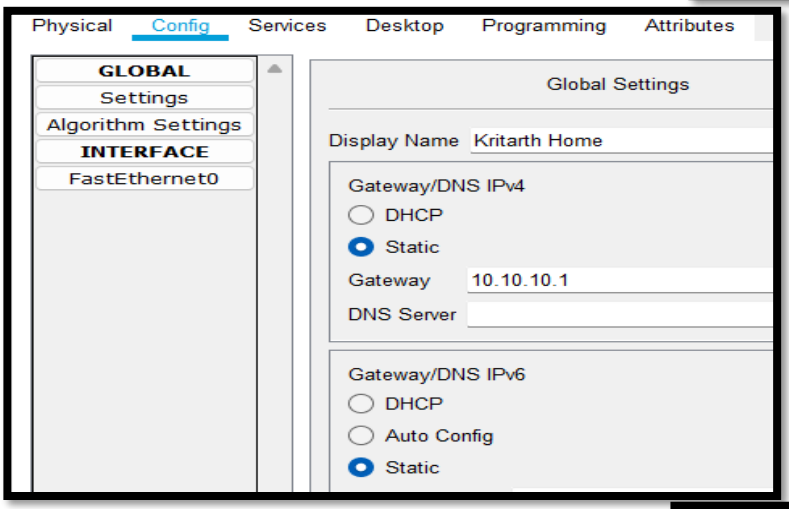
Input Screenshot:

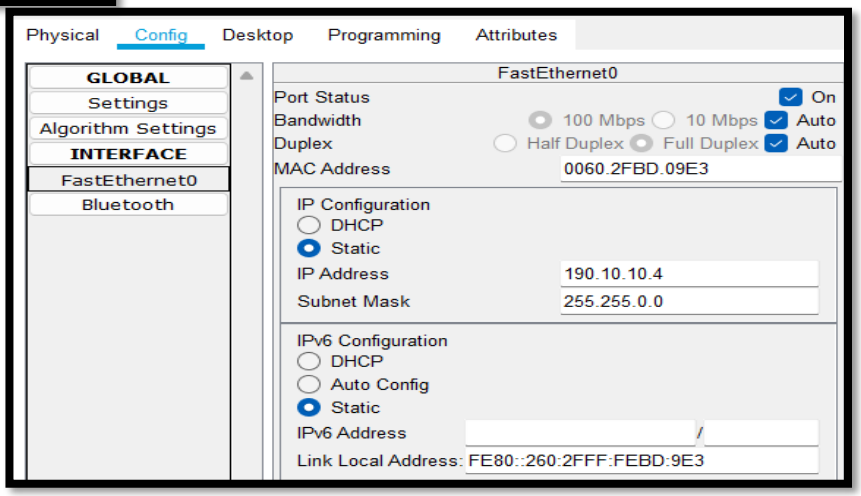


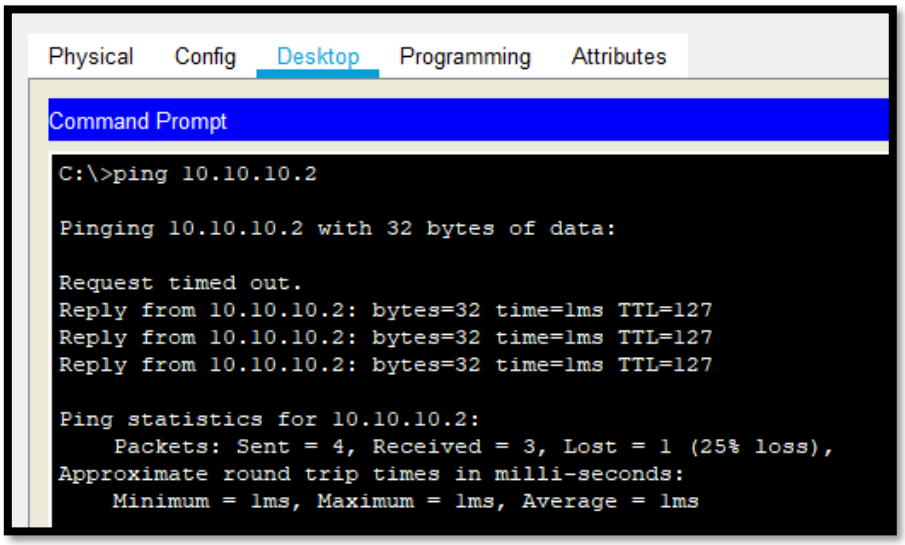
Discover. Learn. Empower.

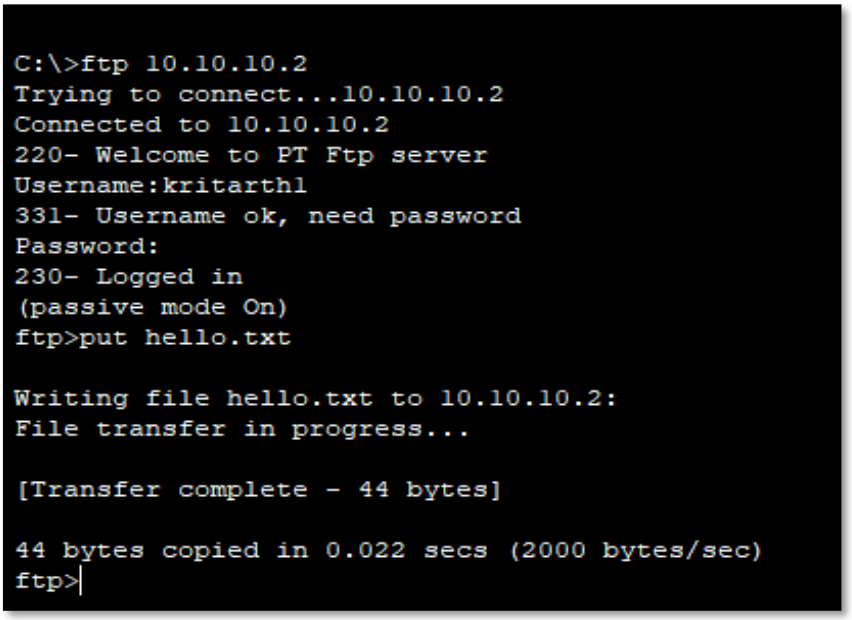


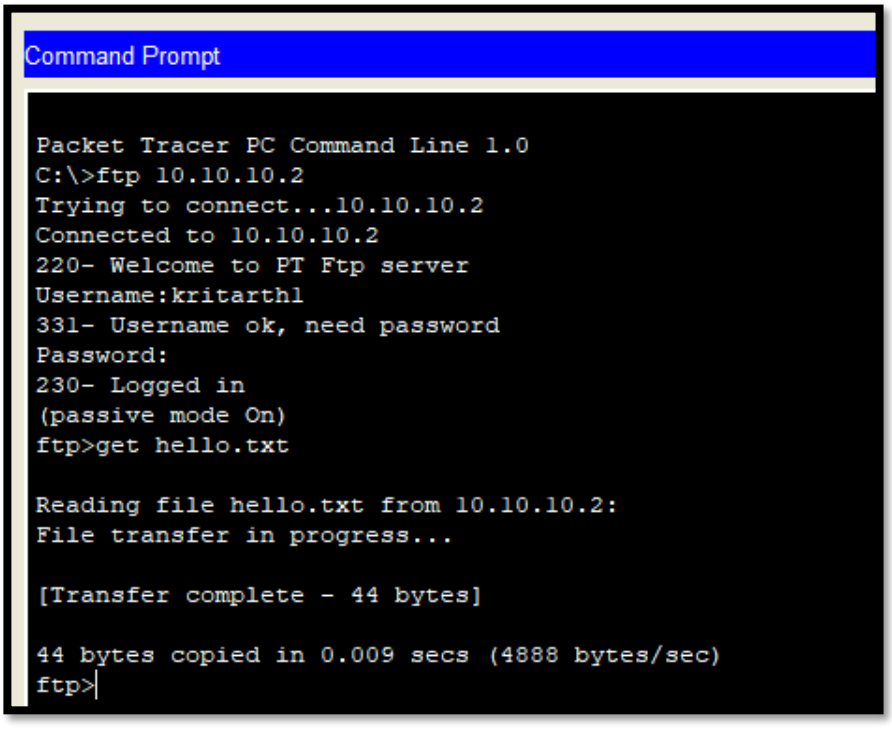




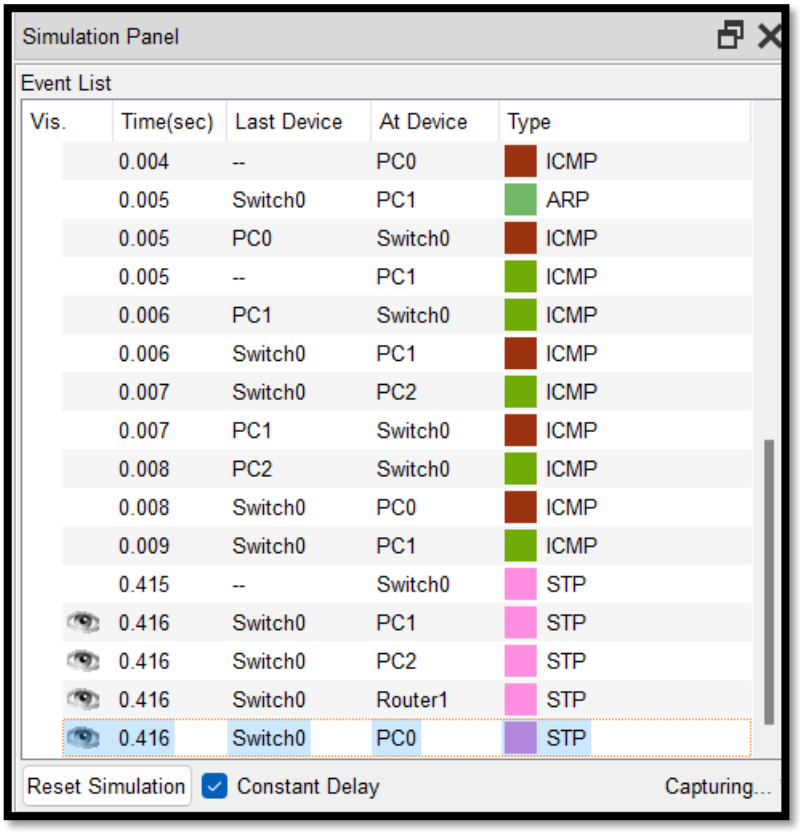


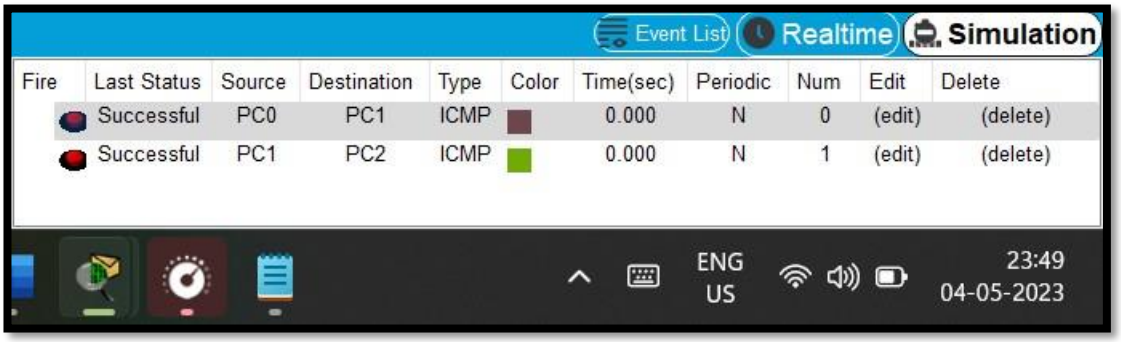

Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 10.10.10.2
Pinging 10.10.10.2 with 32 bytes of data:
Request timed out.
Reply from 10.10.10.2: bytes=32 time=1ms TTL=127
Reply from 10.10.10.2: bytes=32 time=1ms TTL=127
Reply from 10.10.10.2: bytes=32 time=1ms TTL=127
Ping statistics for 10.10.10.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 1ms, Average = 1ms


C:\>ftp 10.10.10.2
Trying to connect...10.10.10.2
Connected to 10.10.10.2
220- Welcome to PT Ftp server
Username:kritarthl
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>put hello.txt
Writing file hello.txt to 10.10.10.2:
File transfer in progress...
[Transfer complete - 44 bytes]
44 bytes copied in 0.022 secs (2000 bytes/sec)
ftp>


Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ftp 10.10.10.2
Trying to connect...10.10.10.2
Connected to 10.10.10.2
220- Welcome to PT Ftp server
Username:kritarthl
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get hello.txt
Reading file hello.txt from 10.10.10.2:
File transfer in progress...
[Transfer complete - 44 bytes]
44 bytes copied in 0.009 secs (4888 bytes/sec)
ftp>

Output Screenshot:





Learning Outcomes:

1. In this practical, I have learned the basic concepts of File Transfer Protocol (FTP)
2. I have learned how to implement the FTP.
3. Learnt how FTP work in real world scenario and how to send and download the files.

WORKSHEET 3.2

Student Name: ALASSO
Branch: CSE
Semester: 4th
Subject Name: Computer Networks

UID: 21BCS1380
Section/Group:602-A
Date of Performance: 24.4.23
Subject Code:21CSH-256

1. **Aim**: Configure DHCP server using Packet Tracer.

2. **Objective:** To Understand how DHCP works.

3. **S/W Requirement: -** Packet Tracer or NS2

4. **H/W Requirement: -**

- **Processor** – Any suitable Processor e.g. Celeron
- **Main Memory** - 128 MB RAM
- **Hard Disk** – minimum 20 GB IDE Hard Disk
- **Removable Drives**–1.44 MB Floppy Disk Drive

–52X IDE CD-ROM Drive

- **PS/2 HCL** Keyboard and Mouse

5. **Method: -**

1. Build the network topology.
2. On the router, configure *interface fa0/0* to act as the default gateway for our LAN.

```
Router>enable
Router#config terminal
Router(config)#int fa0/0
Router(config-if)#ip add 192.168.1.1 255.255.255.0
```

```
Router(config-if)#no shutdown
Router(config-if)#exit
```

3. Configure DHCP server on the Router. In the server we will define a **DHCP pool** of IP addressesto be assigned to hosts, a **Default gateway** for the LAN and a **DNS Server**.

```
Router(config)#
Router(config)#ip dhcp pool MY_LAN
Router(dhcp-config)#network 192.168.1.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#dns-server 192.168.1.10
```

We can add ip dhcp excluded-address command to our configuration so as to configure the router to exclude addresses 192.168.1.1 through 192.168.1.10 when assigning addresses to clients. The ip dhcp excluded-address command may be used to reserve addresses that are statically assigned to key hosts.

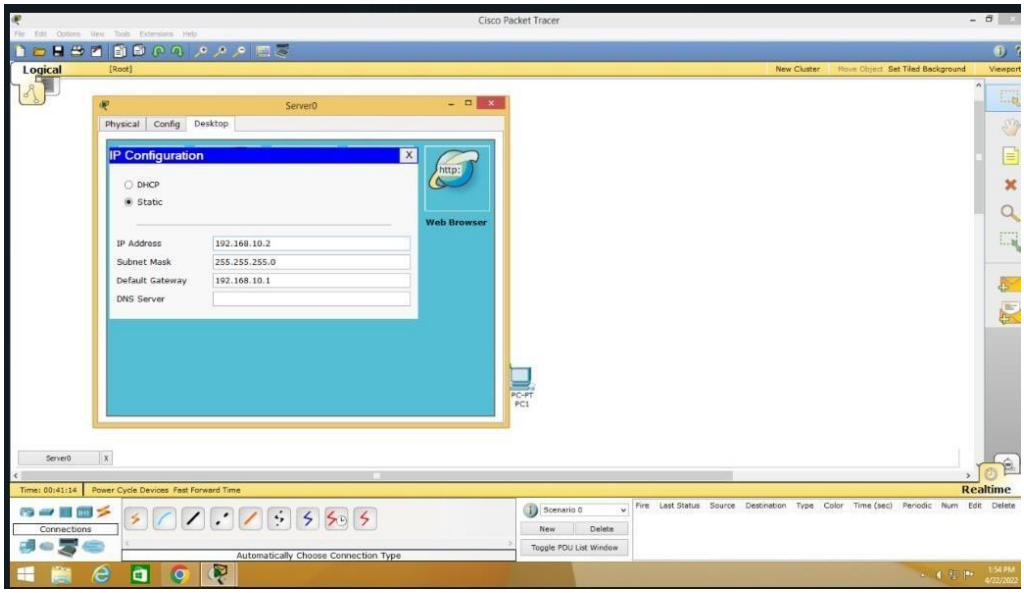
So add the above command under the **global configuration mode.**

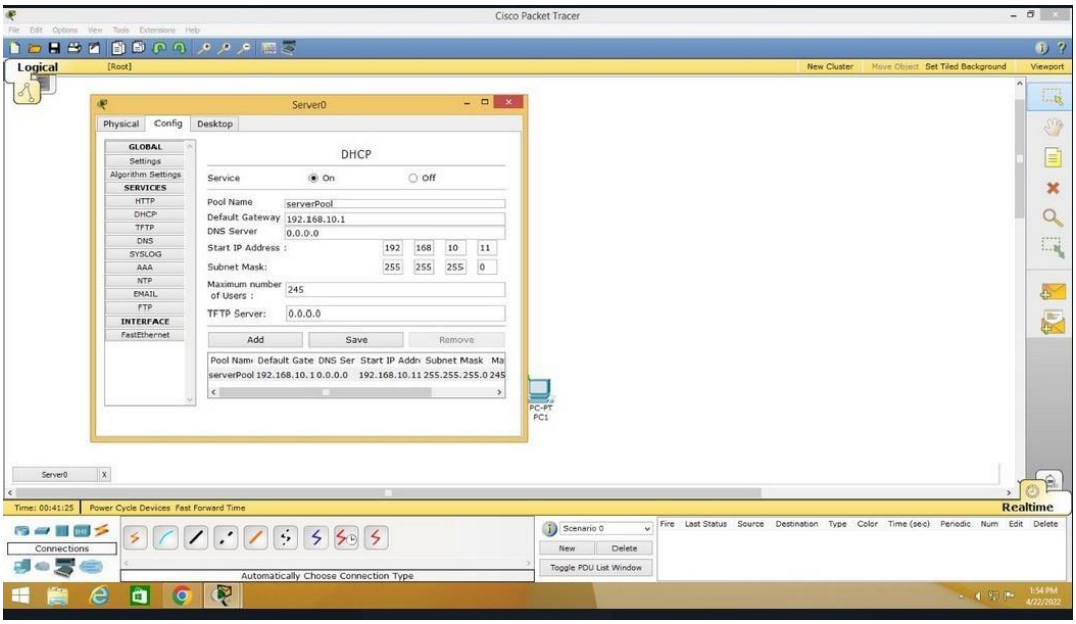
```
Router(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10
```

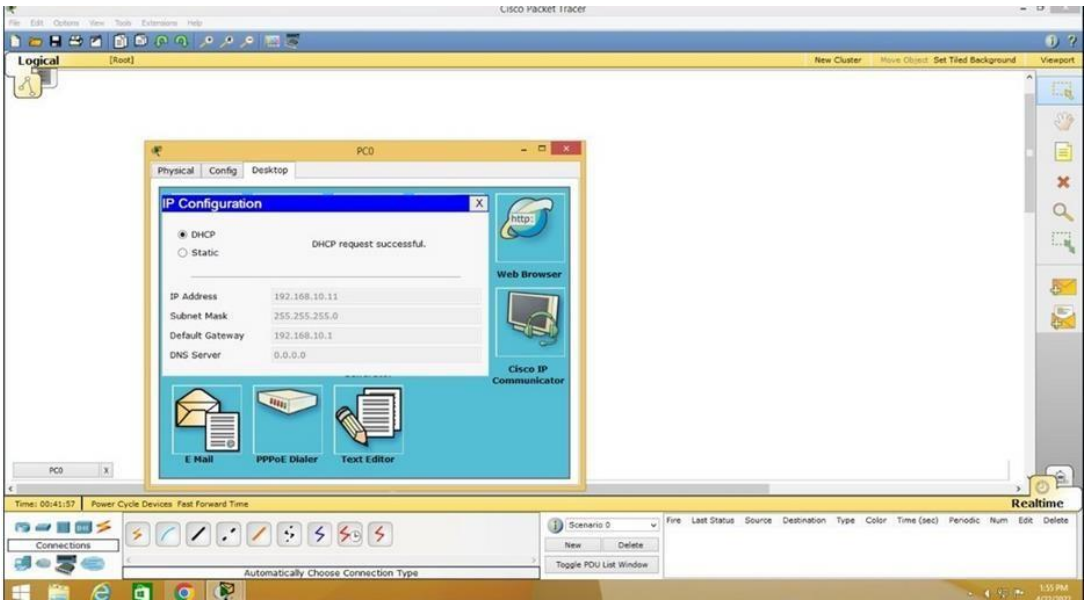
4. Now go to every PC and on their **IP configuration** tabs, enable **DHCP**. Every PC should beable to obtain an IP address, default gateway and DNS server, as defined in step 2.

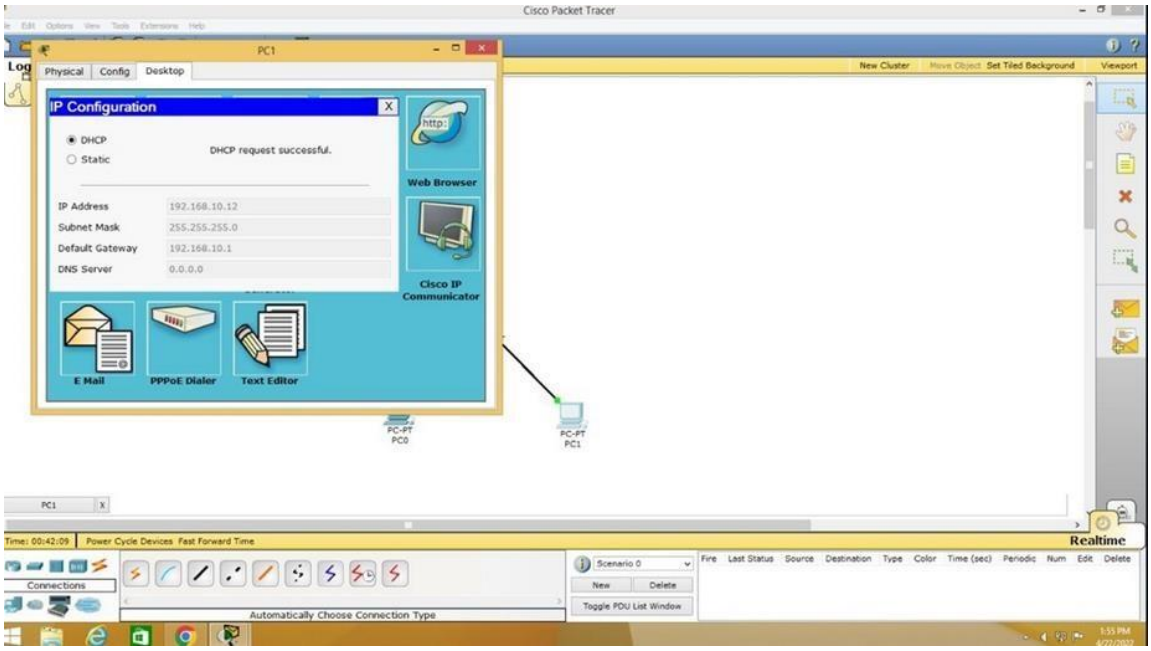
For example, to enable DHCP on PC1:

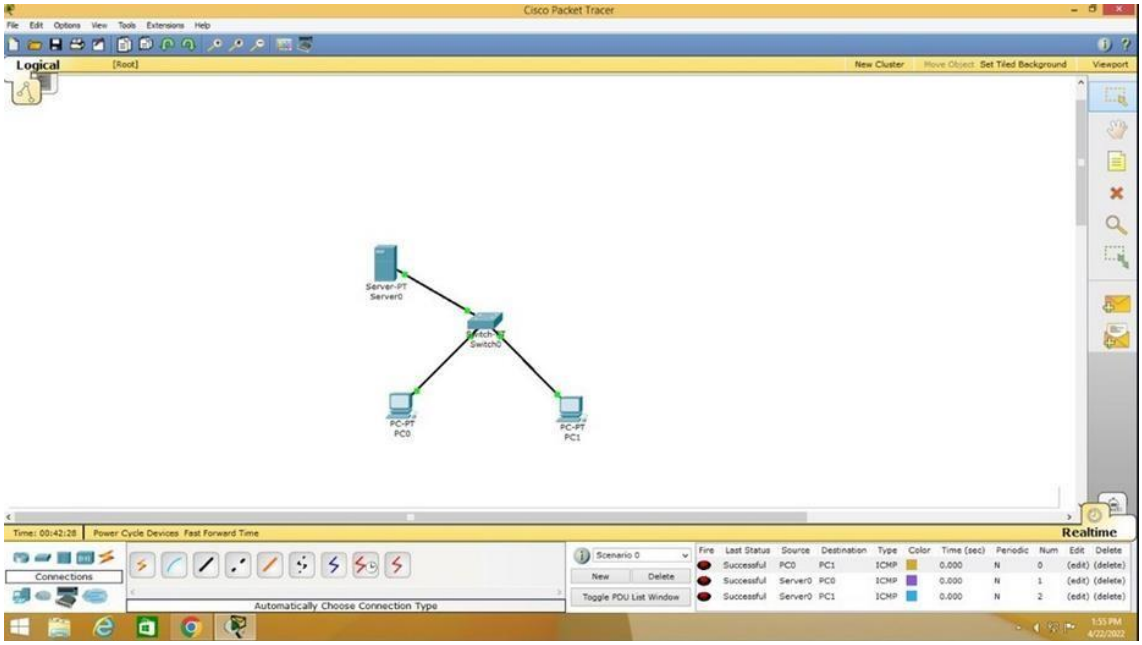
Click **PC1->Desktop->IP configuration.** Then enable DHCP.




Cisco Packet Tracer
Logical
Server0
Physical
Config
Desktop
DHCP
Service
On
Off
Pool Name
serverPool
Default Gateway
192.168.10.1
DNS Server
0.0.0.0
Start IP Address :
192
168
10
11
Subnet Mask:
255
255
255
0
Maximum number of Users :
245
TFTP Server:
0.0.0.0
Add
Save
Remove
Realtime


Logical
PC0
Physical
Config
Desktop
IP Configuration
DHCP
Static
DHCP request successful.
IP Address
192.168.10.11
Subnet Mask
255.255.255.0
Default Gateway
192.168.10.1
DNS Server
0.0.0.0
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor
Realtime





RESULT: Understood the concept of DHCP.