A dark blue vertical bar is on the left. A blue arrow points right from it, containing the date.

8/11/2024

# COMPUTER NETWORKS

1st Lab Report

Several thin, curved lines in shades of blue and grey sweep upwards from the bottom left corner.

Done by,

LOGA ABIRAMI .S  
RA2211003050060  
III-Year CSC – C Section  
SRMIST

# PART: 1 Introduction to Packet Tracer

Familiarizing with Different tools and components available:

## 1) Packet Tracer UI:

It allows you to stimulate real networks. It provides three main menus that you can use for the following:

- Add Devices and connect them via cables or wireless.
- Select, delete, inspect, label, and group components within your
- network.
- Manage your network.

Packet Tracer also provides a variety of tabs for device configuration including the following:

- Physical
- Config
- CLI
- Desktop
- Services

# PART: 2 PEER TO PEER COMMUNICATION SETUP:

Objective:

To demonstrate the Copper Cross-over cabling by designing a Peer-to-Peer Network.

Components:

Device – PC's – 2 Numbers, Copper Cross-Over Cable – 1 Number.

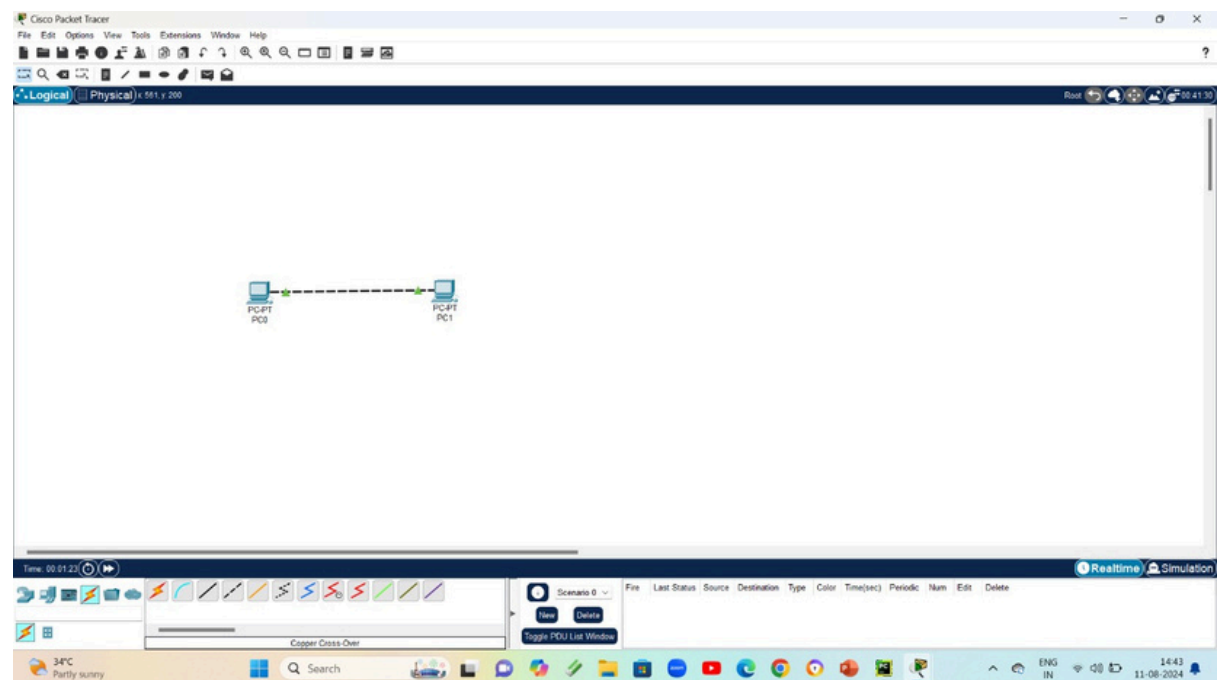
## Addressing:

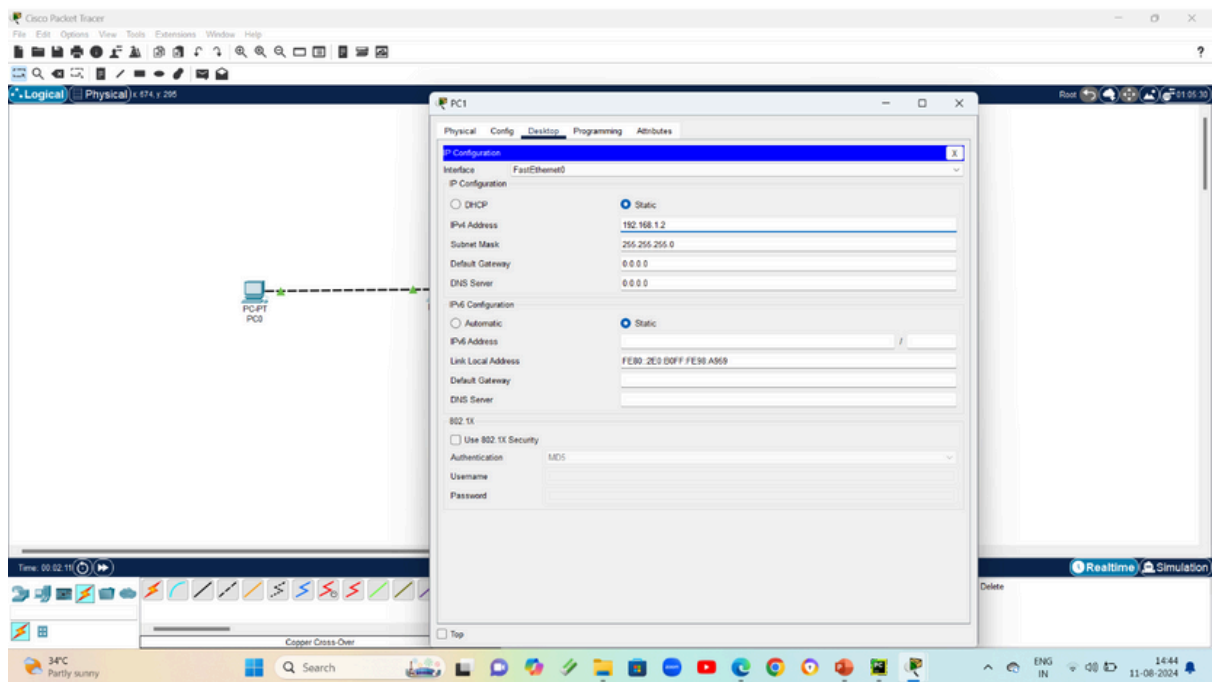
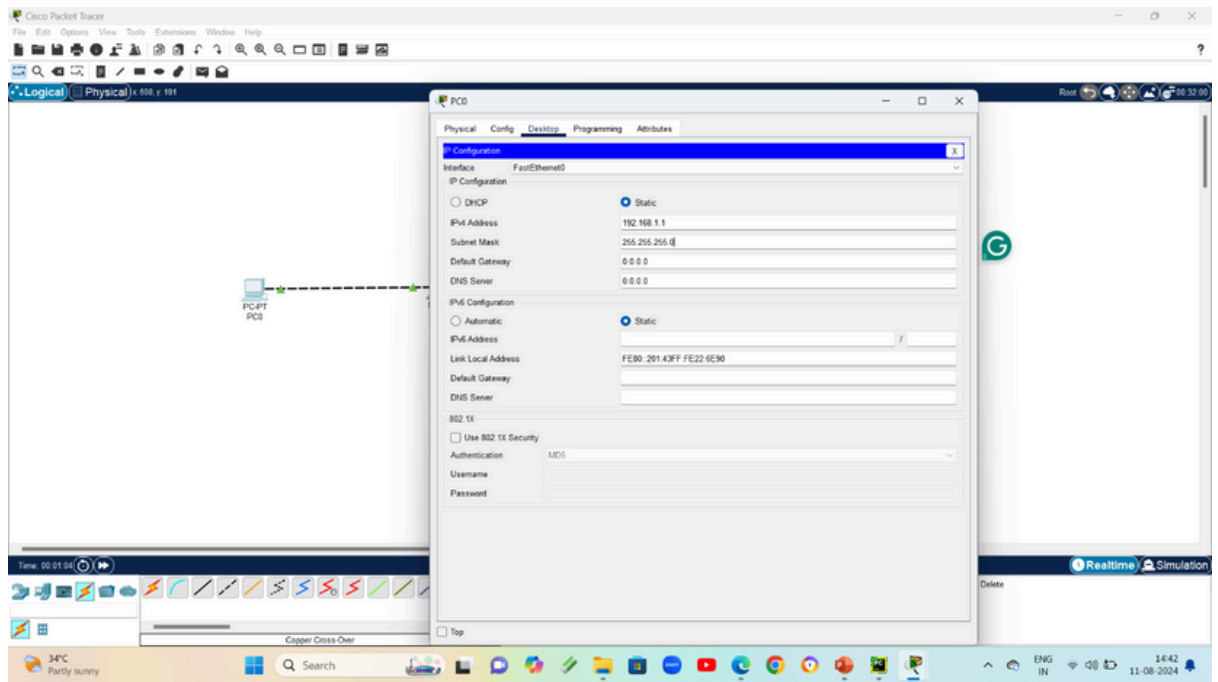
PC0: IP address: 192.168.1.1, Subnet Mask: 255.255.255.0  
PC1: IP address: 192.168.1.2, Subnet Mask: 255.255.255.0

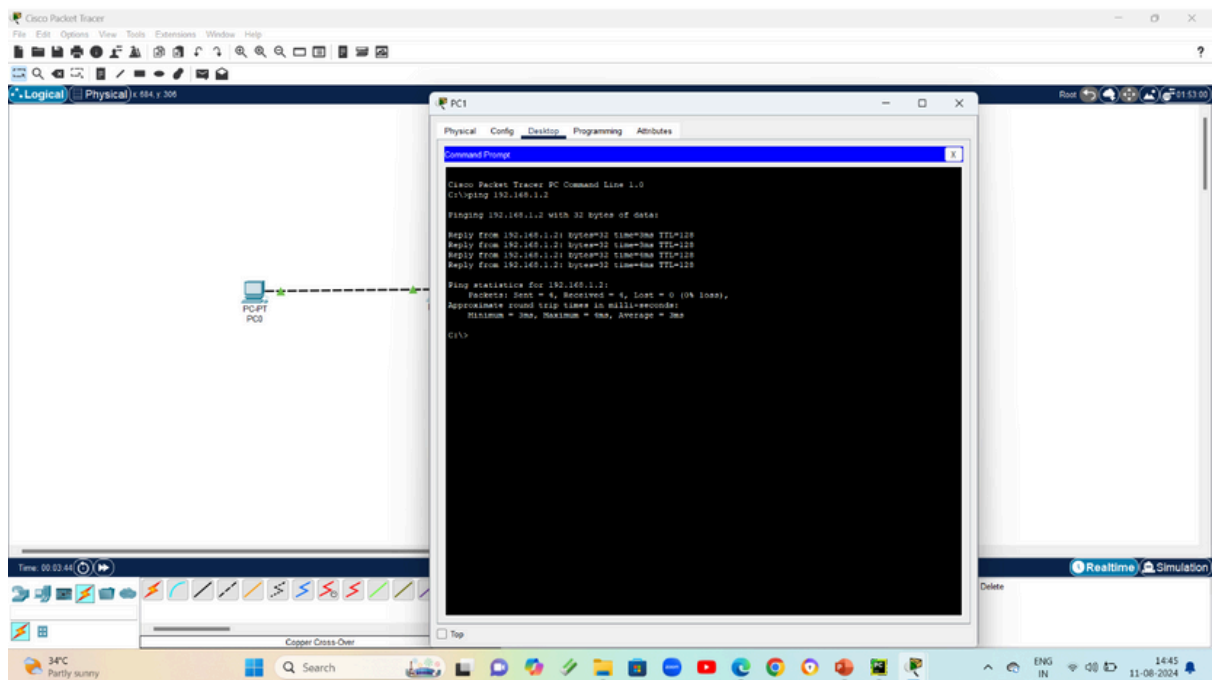
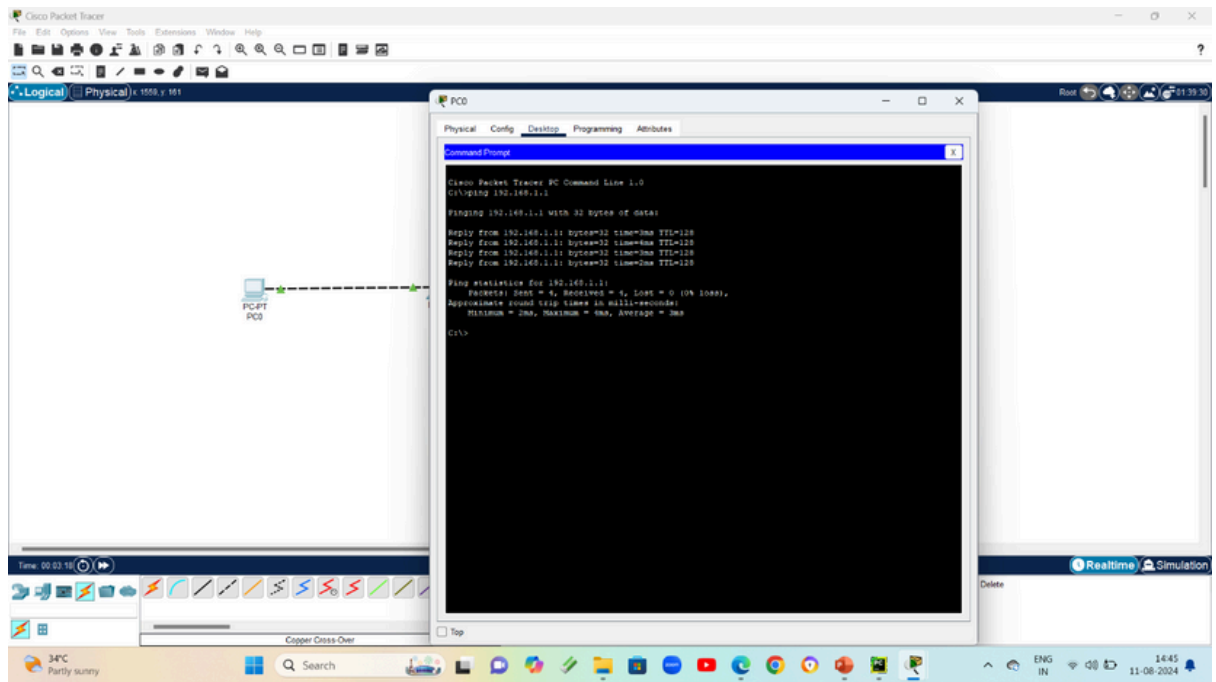
## Procedure:

- Open Packet Tracer and create a new network.
- Add two PCs to the workspace.
- Use a copper straight-through cable to connect the FastEthernet0 port of PC0 to the FastEthernet0 port of PC1.
- Assign IP addresses to both PCs:
  - o PC0: IP address: 192.168.1.1, Subnet Mask: 255.255.255.0
  - o PC1: IP address: 192.168.1.2, Subnet Mask: 255.255.255.0
- Open the command prompt on PC0 and ping PC1 using the command ping 192.168.1.2.

## Screenshots:







## PART 3: STUDY OF NETWORK CABLES AND COLOR CODES:

### Types of Network Cables:

#### 1. Twisted Pair Cables:

- ✓ Unshielded Twisted Pair (UTP): Commonly used for Ethernet cables; has no additional shielding, making it flexible and less expensive.
- ✓ Shielded Twisted Pair (STP): Includes an additional shielding to reduce electromagnetic interference; used in environments with a lot of interference.

## 2. Coaxial Cables:

- ✓ Used primarily in older networks and for cable television. It has a single copper conductor at its center.

## 3. Fiber Optic Cables:

- ✓ Transmit data as light signals through glass or plastic fibers, offering much higher speeds and distances compared to twisted pair cables.

## Ethernet Cable Categories:

### 1. Cat5:

- ✓ Supports up to 100 Mbps at 100 MHz.
- ✓ Mostly outdated but still found in some older installations.

### 2. Cat5e (Enhanced):

- ✓ Supports up to 1 Gbps at 100 MHz.
- ✓ Reduces interference and crosstalk compared to Cat5.

### 3. Cat6:

- ✓ Supports up to 10 Gbps at 250 MHz.
- ✓ Has tighter specifications and better performance than Cat5e, especially for longer distances.

### 4. Cat6a (Augmented):

- ✓ Supports up to 10 Gbps at 500 MHz.
- ✓ Better performance over longer distances than Cat6.

### 5. Cat7:

- ✓ Supports up to 10 Gbps at 600 MHz.
- ✓ Shielded and offers very high performance, suitable for data centers and environments with high interference.

Color Coding for Ethernet Cables: Ethernet cables often follow a color-coding standard to ensure consistent and reliable connections. The most common standard is TIA/EIA-568, which includes two wiring schemes: T568A and T568B. • T568A Wiring Scheme:

1. White/Green
2. Green
3. White/Orange
4. Blue
5. White/Blue
6. Orange
7. White/Brown
8. Brown

• T568B Wiring Scheme (more commonly used in the U.S.):

1. White/Orange
2. Orange
3. White/Green
4. Blue
5. White/Blue
6. Green
7. White/Brown
8. Brown

Notes:

- Straight-through cables are used to connect different types of devices, such as a computer to a switch or router.
- Crossover cables are used to connect similar devices, such as two computers directly.