Institute of Computer Technology

B. Tech Computer Science and Engineering

Sub: Computer Networks

Sem-V(CS)

Class:-A

Practical:1

Aim: To verify the role of Address Resolution Protocol (ARP) in a network of an organization.

Task 1:

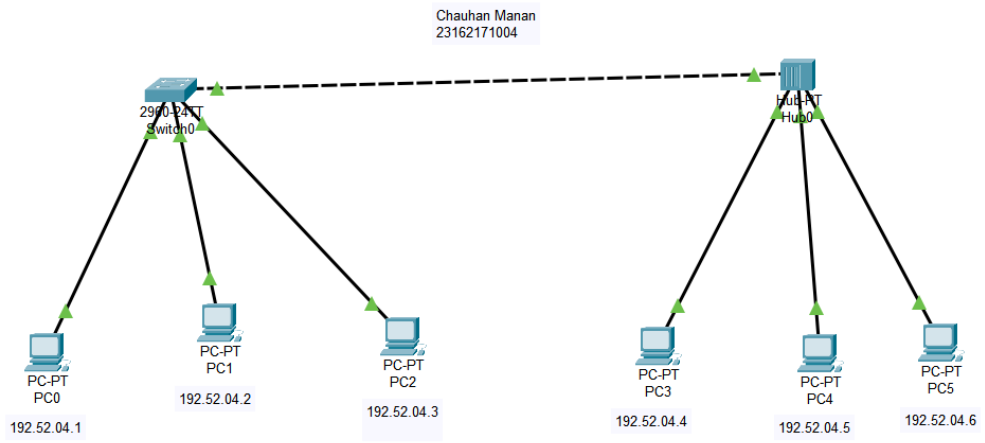
To compare working of HUB and SWITCH

Hub	**Switch**
Works on Physical Layer (Layer 1)	Works on Data Link Layer (Layer 2)
Broadcasts data to all devices	Sends data only to the intended device
Slower in performance	Faster and more efficient
Half-duplex communication	Full-duplex communication
Cannot learn MAC addresses	Learns and stores MAC addresses
One collision domain (more collisions)	Separate collision domain per port
Cheaper	More expensive

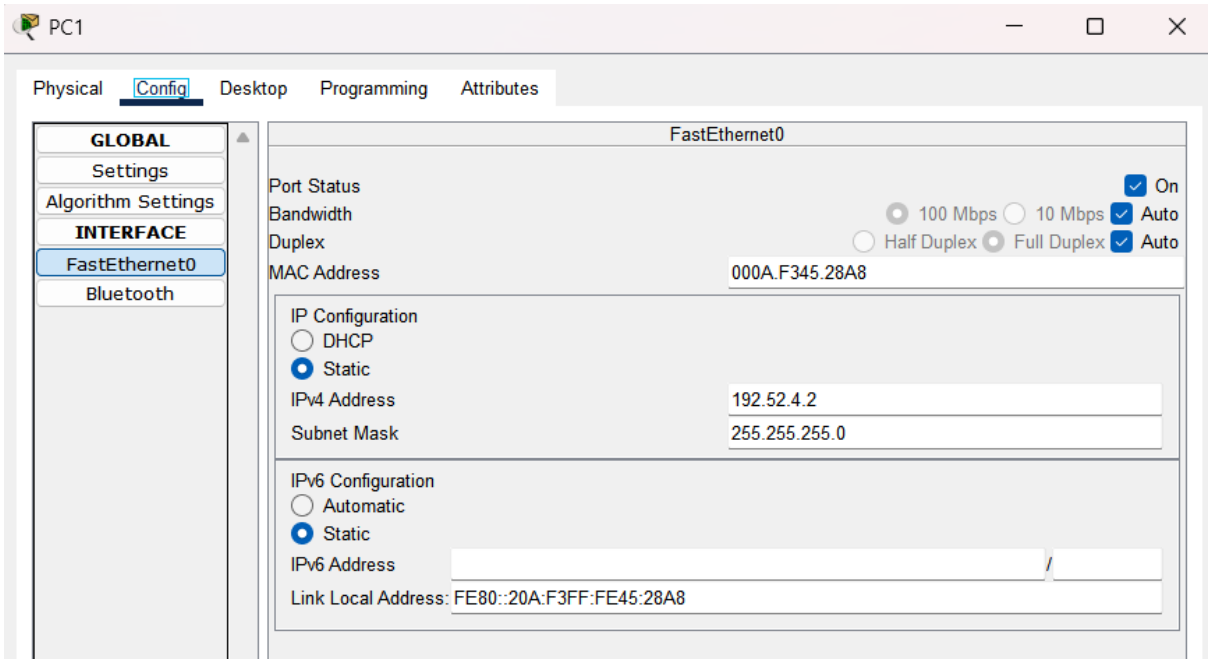
Task 2:

To verify the role of Address Resolution Protocol (ARP) in a network of an organization.

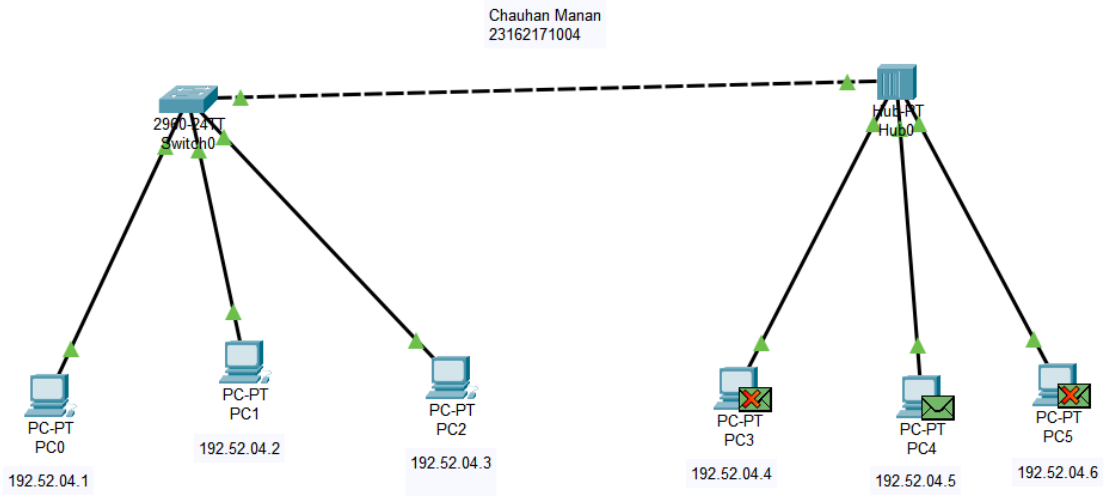
Network image



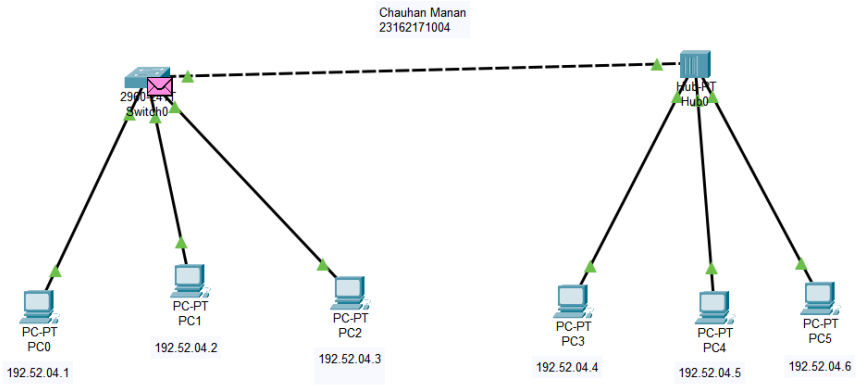
PC IP address



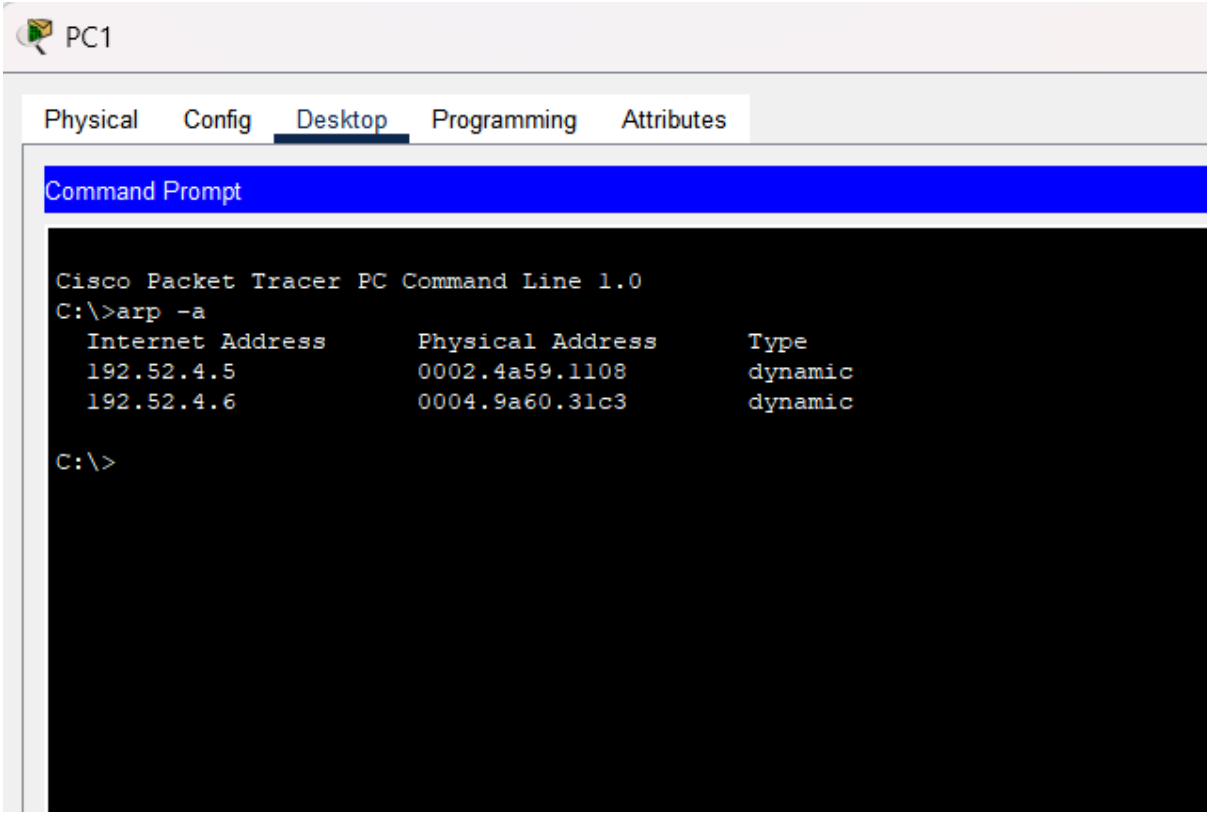
Broadcasting



Packet status (Successful)



ARP table in PC



MAC table in switch

```
Switch>show mac-address-table
          Mac Address Table
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Vlan    Mac Address       Type        Ports
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   1    0002.4a59.1108    DYNAMIC     Fa0/4
   1    0004.9a60.31c3    DYNAMIC     Fa0/4
   1    000a.f345.28a8    DYNAMIC     Fa0/2
   1    0060.4713.2583    DYNAMIC     Fa0/4
```

Conclusion:-

In this practical, we verified the working of ARP in a network. We observed how ARP helps in mapping IP address to MAC address during communication between two departments. Also, we compared hub and switch, and found that switch sends data to specific device while hub broadcasts to all.