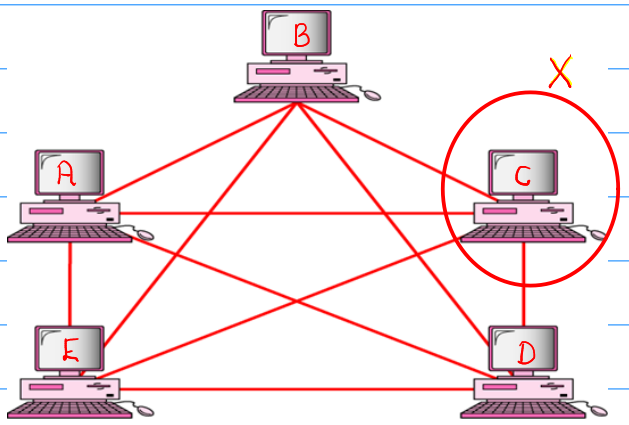
Day1

- terminologies
- need a network
-fundamental char of data communication- delivery,accuracy,timeless,jitter
-network criteria - performance,relibility,security
-transmission medium(media) - wired/wireless
- data flow direction - simplex,half duplex,full duplex
-switching - selection of best route
  - circuit switching
  - message switching
  - packet switching
-multiplexing - to oercome wastage of bandwidth
design of a network
MAC address - 6 bytes(48 bits)
frame format/packet

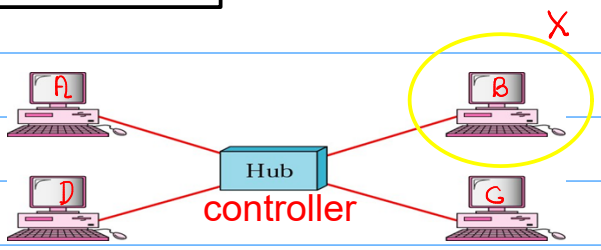
Topology

Mesh Topology



- point to point
- 5 machines(n)
- connections = n-1
  = (5-1)
  = 4 connections
- links = n(n-1)/2
- reliable and secured
- very costly

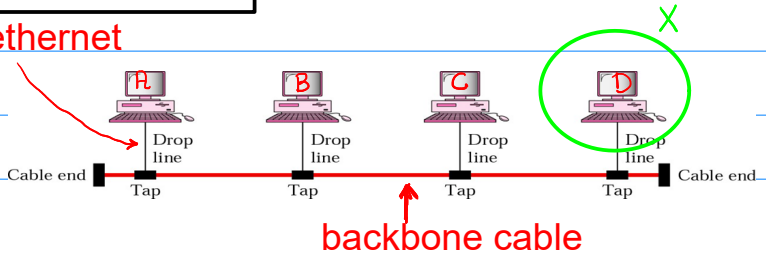
Star topology-



- point to point
- central controller
- central controller fails , entire network fails

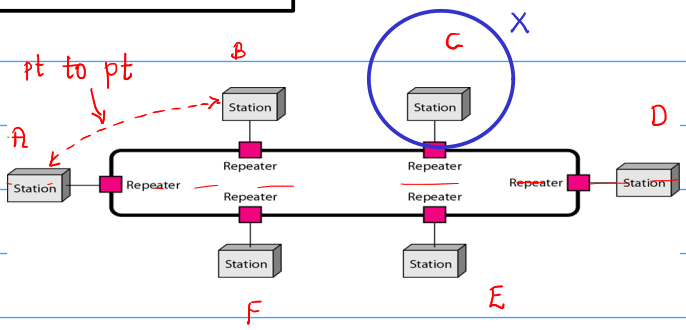
3. Bus topology-

LAN/ethernet



- multipoint
- if one device fails it does not affect the entire network
- backbone cable fails entire network fails

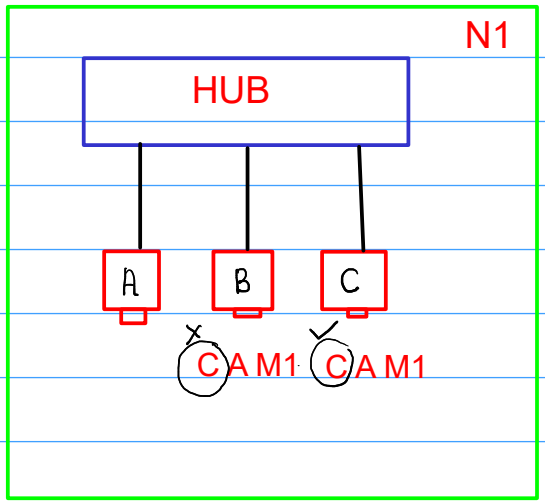
4. Ring topology-



- multipoint connection between devices and the backbone cable
- point to point connection between two devices
-undirectional
- clockwise direction
- if one device fails then the entire network fails

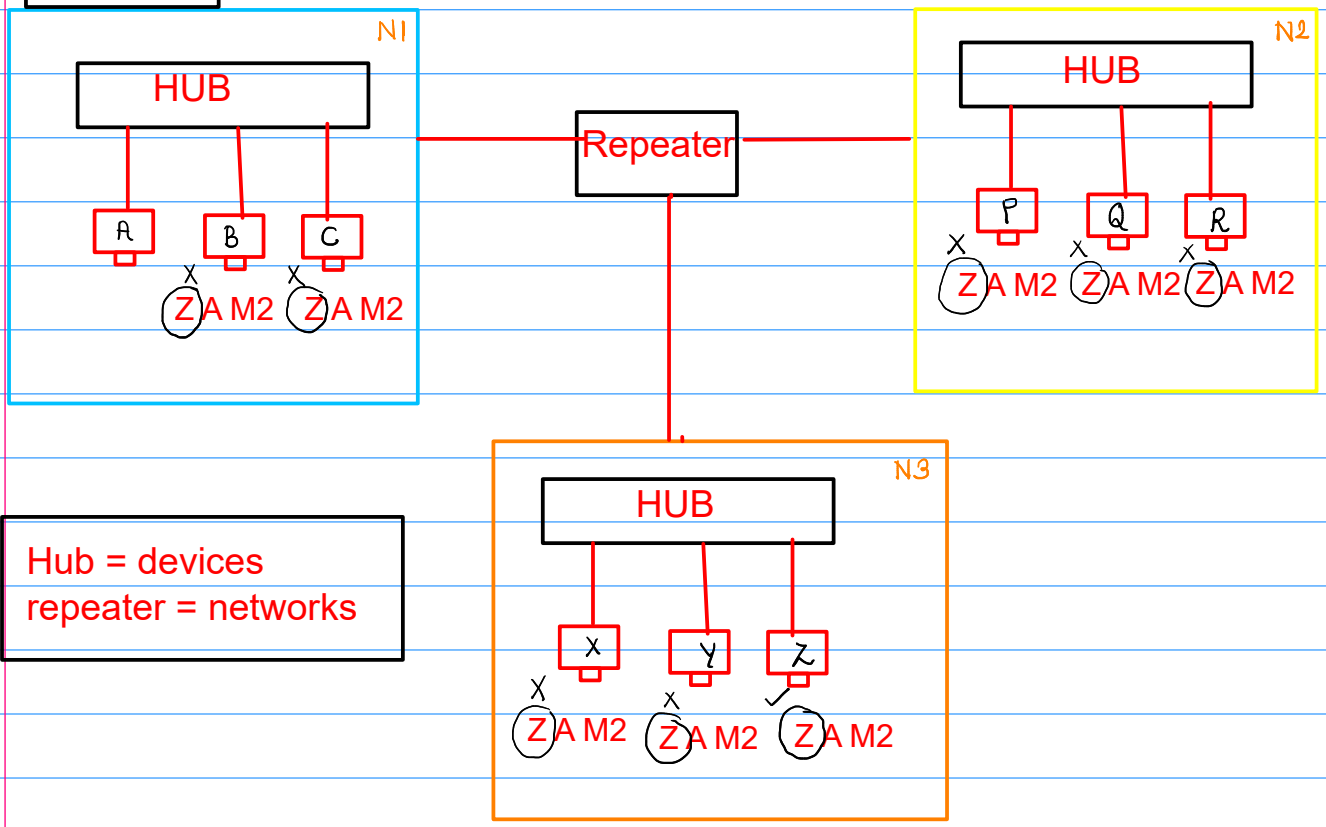
DEVICES

Hub-



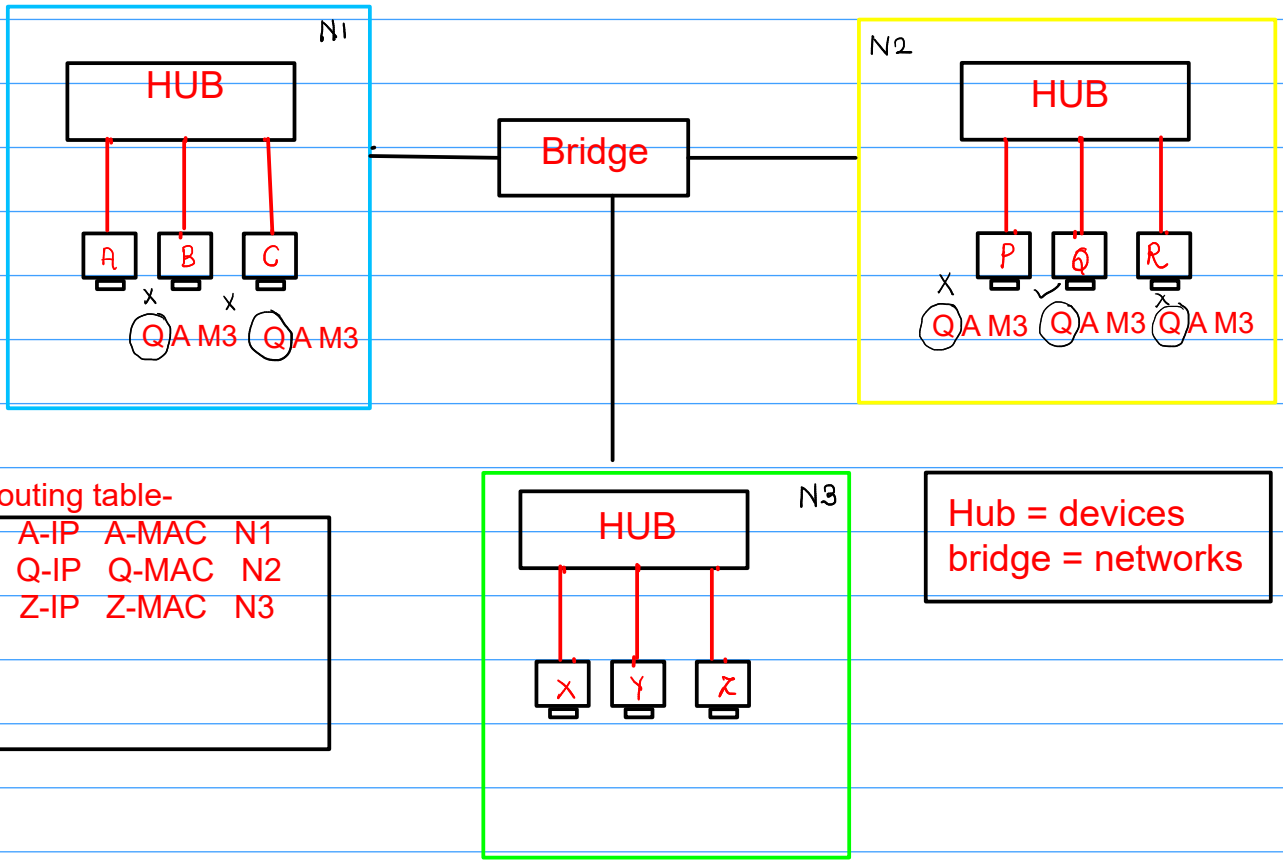
- hub = devices

Repeater-



Hub = devices
repeater = networks

Bridge-

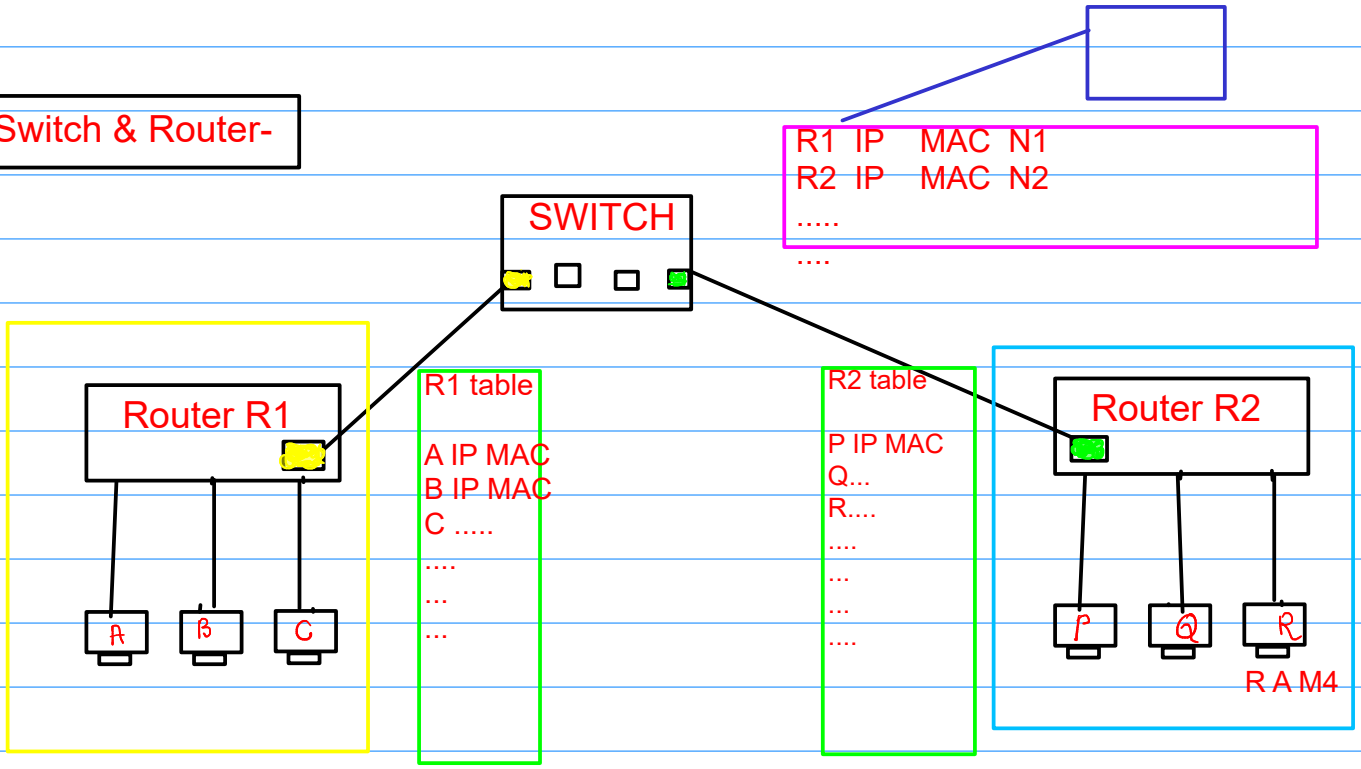


Routing table-

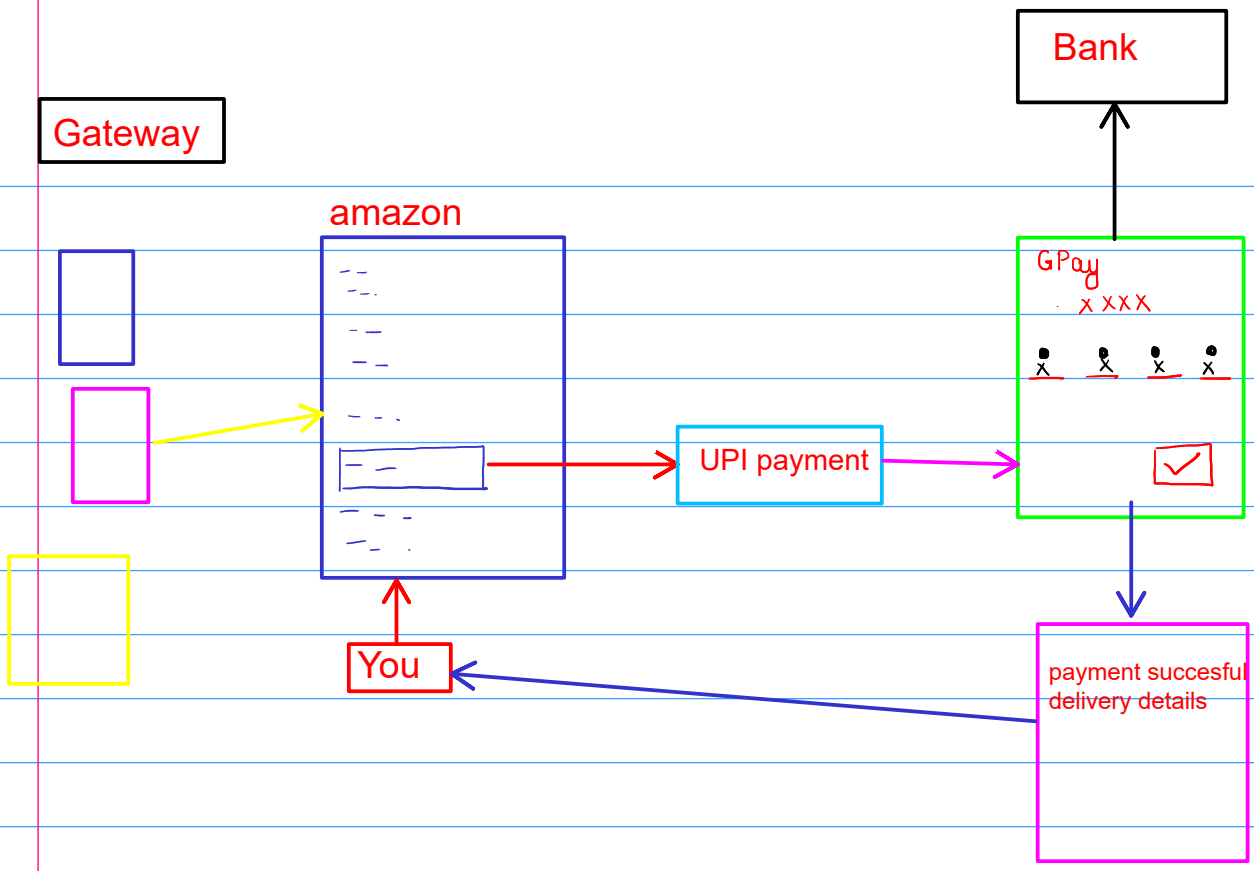
A	A-IP	A-MAC	N1
Q	Q-IP	Q-MAC	N2
Z	Z-IP	Z-MAC	N3
...			
...			
...			

Hub = devices
bridge = networks

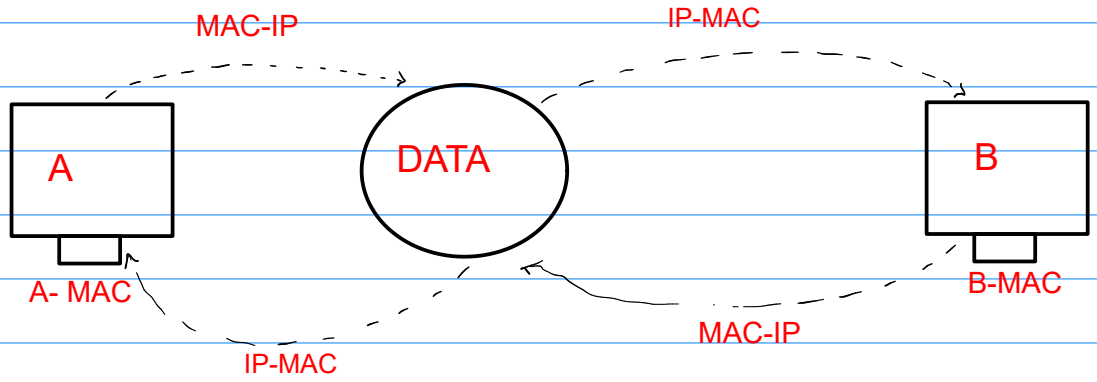
Switch & Router-



Router = devices
Switch = networks



ARP(Address Resolution Protocol)-



ARP - it is used to convert MAC address into IP address and IP address into MAC address

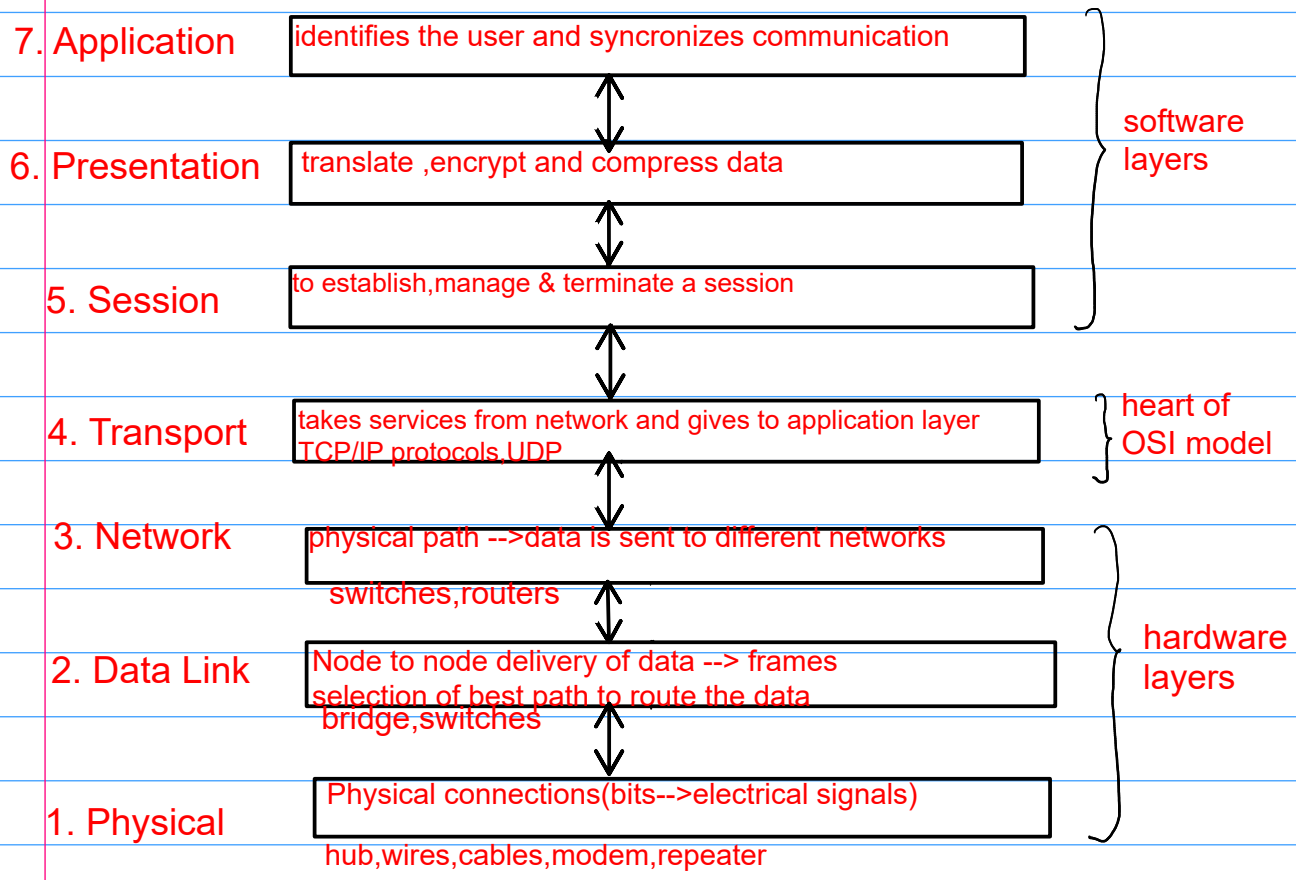
My machine(laptop) is having a MAC address will remain same at home or in office

IP address will be different at home and in office

MAC address = physical address

IP address = logical address

7 layers of OSI model -



TCP (Transmission Control Protocol)	UDP (User Datagram Protocol)
1. connection has to established (connection oriented)	1. connection less
2. Data quality is of high importance (ACK)	2. data quality is not much important
3. less speed compared to UDP	3. very high Speed
4. eg: email,file transfer	4. eg: online gaming