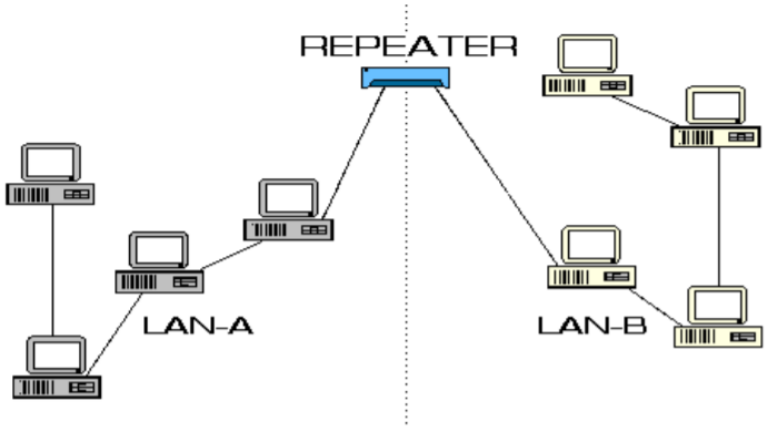
ASSIGNMENT-5

AIM: Study of different Network Devices in Detail:-

• Repeater • Hub • Switch • Bridge • Router • Gateway

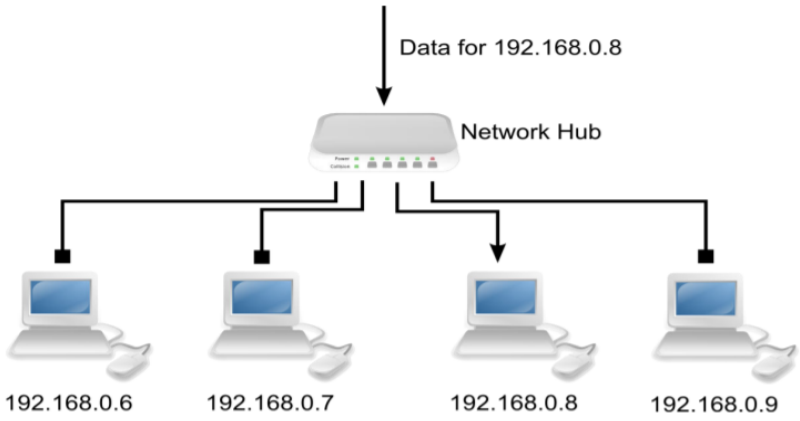
1. Repeater:-

- Functioning at Physical Layer.
- A repeater is an electronic device that receives a signal and retransmits it at a higher level and/or higher power, or onto the other side of an obstruction, so that the signal can cover longer distances.
- Repeater have two ports,so cannot be used to connect for more than two devices.



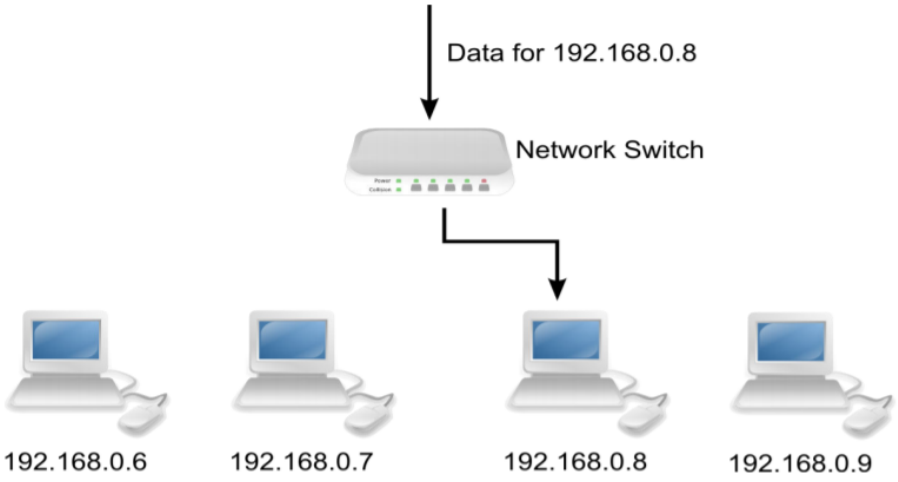
2. Hub:-

- An Ethernet hub, active hub, network hub, repeater hub, hub or concentrator is a device for connecting multiple twisted pair or fiber optic Ethernet devices together and making them act as a single network segment.
- Hubs work at the physical layer (layer 1) of the OSI model.
- This device is a form of multiport repeater.
- Repeater hubs also participate in collision detection, forwarding a jam signal to all ports if it detects a collision.



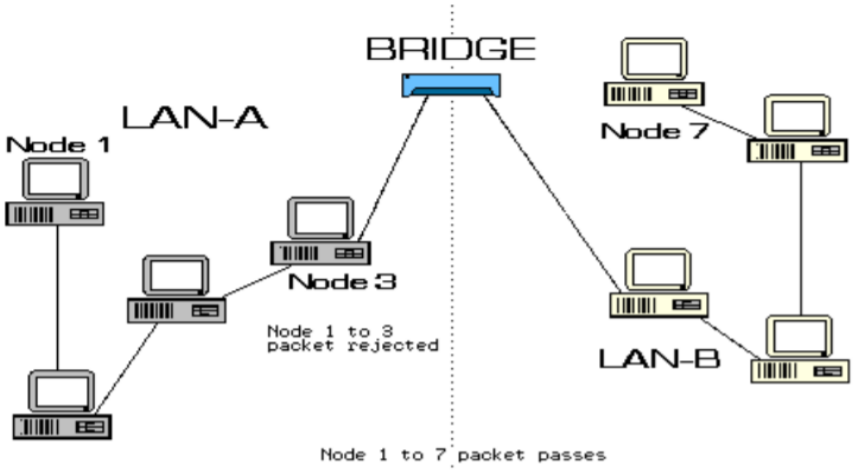
3. Switch:-

- A network switch or switching hub is a computer networking device that connects network segments.
- This term commonly refers to a network bridge that processes and routes data at the data link layer (layer 2) of the OSI model.
- Switches that additionally process data at the network layer (layer 3 and above) are often referred to as Layer 3 switches or multilayer switches.



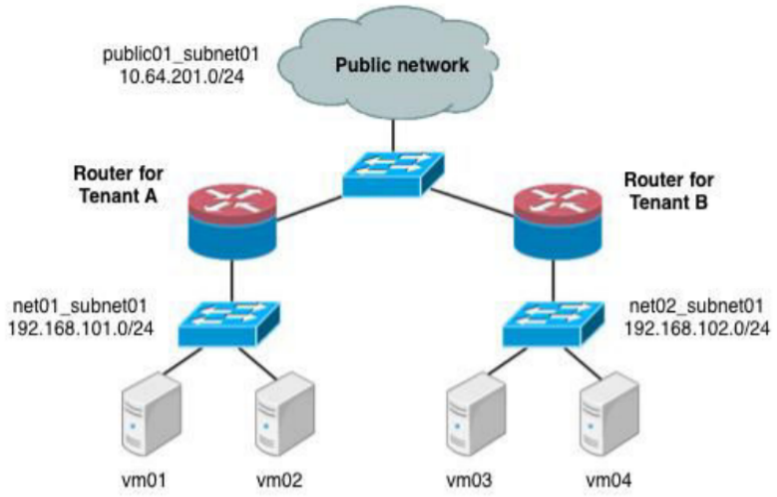
4. Bridge:-

- A network bridge connects multiple network segments at the data link layer (Layer 2) of the OSI model.
- A bridge and switch are very much alike; a switch being a bridge with numerous ports.
- Switch or Layer 2 switch is often used interchangeably with bridge.
- Bridges can analyze incoming data packets to determine if the bridge is able to send the given packet to another segment of the network.



5. Router:-

- A router is an electronic device that interconnects two or more computer networks, and selectively interchanges packets of data between them.
- Each data packet contains address information that a router can use to determine if the source and destination are on the same network, or if the data packet must be transferred from one network to another. Where multiple routers are used in a large collection of interconnected networks, the routers exchange information about target system addresses, so that each router can build up a table showing the preferred paths between any two systems on the interconnected networks.



6. Gate Way:-

- A gateway may contain devices such as protocol translators, impedance matching devices, rate converters, fault isolators, or signal translators as necessary to provide system interoperability.
- Connects two networks above the network layer of OSI model.
- Are capable of converting data frames and network protocols into the format needed by another network.