Practical 2

Objective : Study of Network Devices.

Thoery :   Network devices are the hardware components that enable communication and data transfer between devices on a computer network. They are essential for connecting computers, printers, servers, and other devices, allowing them to share resources.

Some common network devices are:

- **Hub**: A basic device that connects multiple devices in a network, but it simply broadcasts data to all connected devices, making it inefficient for larger networks.

- **Switch**: A more intelligent device than a hub, a switch learns the MAC addresses of connected devices and forwards data only to the intended recipient, improving network efficiency.

- **Router**: A device that connects different networks together, such as a local network to the internet. Routers determine the best path for data to travel between networks.

- **Bridge**: A device that connects two network segments together at the data link layer, forwarding data between them based on MAC addresses.

- **Gateway**: A device that connects networks using different protocols, translating data between them so that devices on different networks can communicate.

- **Repeater**: A device that amplifies a signal to extend its range, used to overcome signal degradation over long distances.

- **Modem**: A device that modulates and demodulates signals, converting digital data to analog signals for transmission over telephone or cable lines, and vice versa.

- **Network Interface Card (NIC):** A card installed in a computer that allows it to connect to a network. NICs can be wired or wireless.

- **Firewall**: A device or software that controls network traffic, blocking unauthorized access and protecting the network from security threats.