Experiment 2

Aim: Establishing a connection between a sever and PC.

Theory:

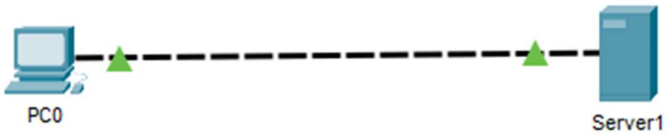
Ethernet Cable: The standard cable for connecting a PC to a server is an Ethernet cable. These cables come in different categories like Cat5e, Cat6, Cat6a, and Cat8, each offering varying speeds and performance levels. They use an RJ45 connector, which is common for network connections.

PC (Personal Computer): It **f**unctions as the client in a network, requesting services or resources from the server. Every PC has a unique IP address within the same network as the server, which can be either dynamic (assigned by DHCP) or static.

Server: It provides resources or services to the client (PC), such as hosting websites, managing files, or running applications. It has typically has a static IP address to ensure consistent accessibility by clients, along with appropriate network settings like subnet mask and default gateway.

These components work together to create a stable network connection, enabling communication and data transfer between the PC and the server.

Diagram:



Result: Successfully established a connection between a PC and a Server.

Experiment 3

Aim: Establishing a hub connection in star network.

Theory:

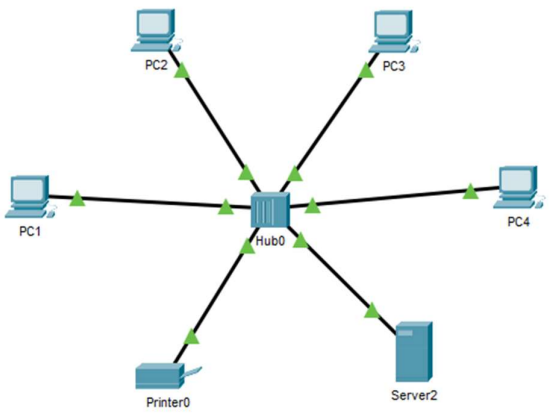
A star topology is a widely used network configuration where all devices are connected to a central hub or switch. This central device acts as the main conduit for data transmission, managing and controlling the flow of information between the connected devices.

The primary advantage of a star topology is its ease of management; troubleshooting and maintenance are simplified due to the centralized nature of the network. Additionally, it offers scalability, allowing new devices to be added without disrupting the existing network. Fault isolation is another benefit, as a failure in one connection does not affect the rest of the network.

However, the central hub represents a single point of failure; if it goes down, the entire network is affected. The setup also tends to be more costly due to the amount of cabling required.

In the provided image, the star topology is illustrated with a hub labeled “Hub0” at the center, connected to four computers (PC1, PC2, PC3, PC4), a printer (Printer0), and a server (Server2). Each device is linked to the hub via Fast Ethernet connections, ensuring that all communication is routed through the central hub. This setup exemplifies the typical structure and functionality of a star network.

Diagram



Result: Successfully established a star topology of network.