DCN   LAB

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EXPERIMENT 1

INTRODUCTION TO NETWORKING CONCEPTS

<u>Task 1</u> Write a report on different topologies that are used in networks in the space provided below. Compare them with each other and describe the fundamental differences.

- **<u>Bus Topology</u>**: All devices are connected to a single shared cable called backbone.
  Difference A single point of failure brings down the entire network.

- **<u>Ring Topology</u>**: Each device connects to two other devices, forming a circle.
  Difference entire network fails if the ring is broken.

- **<u>Star Topology</u>**: All devices connect to central hub/switch.
  Difference A single device failure cannot affect the whole hub.

- **<u>Mesh Topology</u>**: Every node is connected to every other node like spider web.
  Difference it is most reliable, but it requires extensive cabling making it costly and complex.

- **<u>Hybrid Topology</u>**: Mix (Combination) of two or more topologies.
  Difference It is highly flexible, but very complex to manage.

- **<u>Tree Topology</u>**: Combination of bus and star.
  Difference It is more stable than a simple bus or star, but the central bus remains a single point of failure

Task 2 Write the types of networks in the space given below. Discuss them with the help of examples.

Types of Networks

1. **Personal Area Network**:
   It is the network for connecting personal devices in short range.
   Example -> Connecting smartphone to Bluetooth.

2. **Local Area Network**:
   It connects through a common communication path, contained with limited area.
   Example -> A network in school or office.

3. **Metropolitan Area Network**:
   It connects computer over a geographical distance through a shared communications over a city.
   Example -> A cable TV network providing service to all people in a city.

4. **Wide Area Network**:
   WAN covers large geographical area, such as entire world.
   Example -> The cooperate office connecting from one county to another.