WIFI TRANING MODULE 1 ASSESSMENT SOLUTION

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10. List down the Wi-Fi topologies and use cases of each one.

Wi-Fi Topologies & Their Use Cases

1. Infrastructure Mode
    - Description: Devices connect to a central Access Point (AP) for communication.
    - Use Case: Homes, offices, public Wi-Fi in malls, airports, and hotels.
2. Ad-Hoc Mode (Peer-to-Peer)
    - Description: Devices connect directly without an AP, forming a temporary network.
    - Use Case: Emergency communication, gaming, file sharing, military applications.
3. Mesh Network
    - Description: Multiple APs (nodes) interconnect to provide seamless coverage.
    - Use Case: Smart homes, large buildings, IoT applications, city-wide public Wi-Fi.
4. Wireless Distribution System (WDS)
    - Description: APs connect wirelessly to extend network range without Ethernet cables.
    - Use Case: Schools, universities, warehouses, corporate buildings.
5. Hotspot Mode (Tethering)
    - Description: A mobile phone or router acts as a Wi-Fi hotspot for sharing internet.
    - Use Case: Mobile networks, personal internet sharing, travel Wi-Fi.
6. Wi-Fi Bridging (Point-to-Point / Multipoint)
    - Description: Wireless bridges connect remote locations without physical cables.
    - Use Case: Long-distance wireless links, ISPs, industrial networks.
7. Repeater/Extender Mode
    - Description: A device amplifies and retransmits an existing Wi-Fi signal.

- Use Case: Eliminating dead zones in homes, offices, and large buildings.

8. Star Topology
    - Description: All devices connect to a single AP (hub-and-spoke model).
    - Use Case: Home Wi-Fi networks, small offices, centralized communication setups.
9. Hybrid Topology
    - Description: Combination of infrastructure, mesh, and WDS for better coverage.
    - Use Case: Large corporate offices, hospitals, multi-building campuses.
10. Roaming Wi-Fi (Seamless Handoff)

- Description: Devices switch between APs without losing connectivity.
- Use Case: Enterprise networks, airports, hotels, smart city Wi-Fi.