INTRO TO
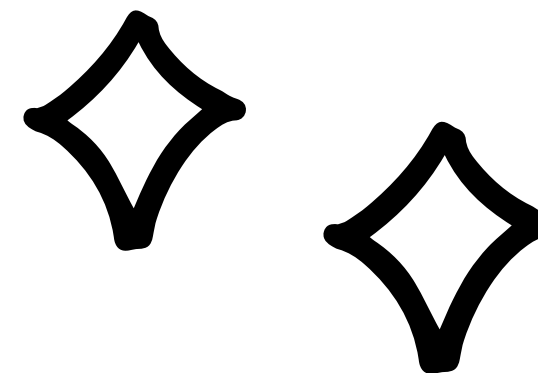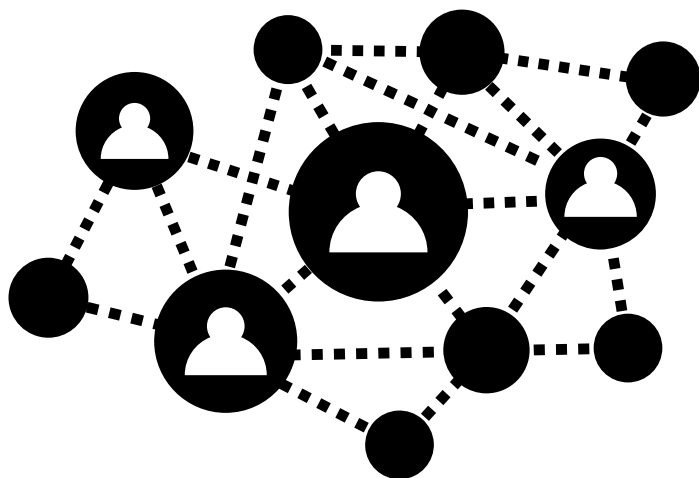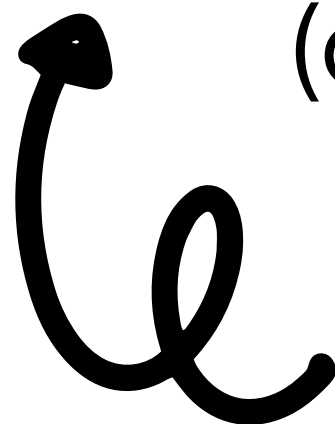
NETWORKING

Proyecto Realizado por Pau Ripoll

WHAT IS A COMPUTER NETWORK?

A collection of interconnected devices, (computers, servers, routers, and switches) that are linked together.

TYPES OF NETWORKS:

- - LAN (Local Area Network): A network in a small area like an office or home.
- - WAN (Wide Area Network): Connects networks over long distances, like the internet.
- - MAN (Metropolitan Area Network): Covers a city or large area, bigger than a LAN, smaller than a WAN.
- - Wireless Networks: Use Wi-Fi or mobile technologies to connect devices without physical cables.

NETWORK TOPOLOGIES

- - Bus: Devices connected in a single line.

- - Star: Devices connected to a central hub or switch.

- - Ring: Devices connected in a circular loop.

- - Mesh: Devices are interconnected with multiple paths for data
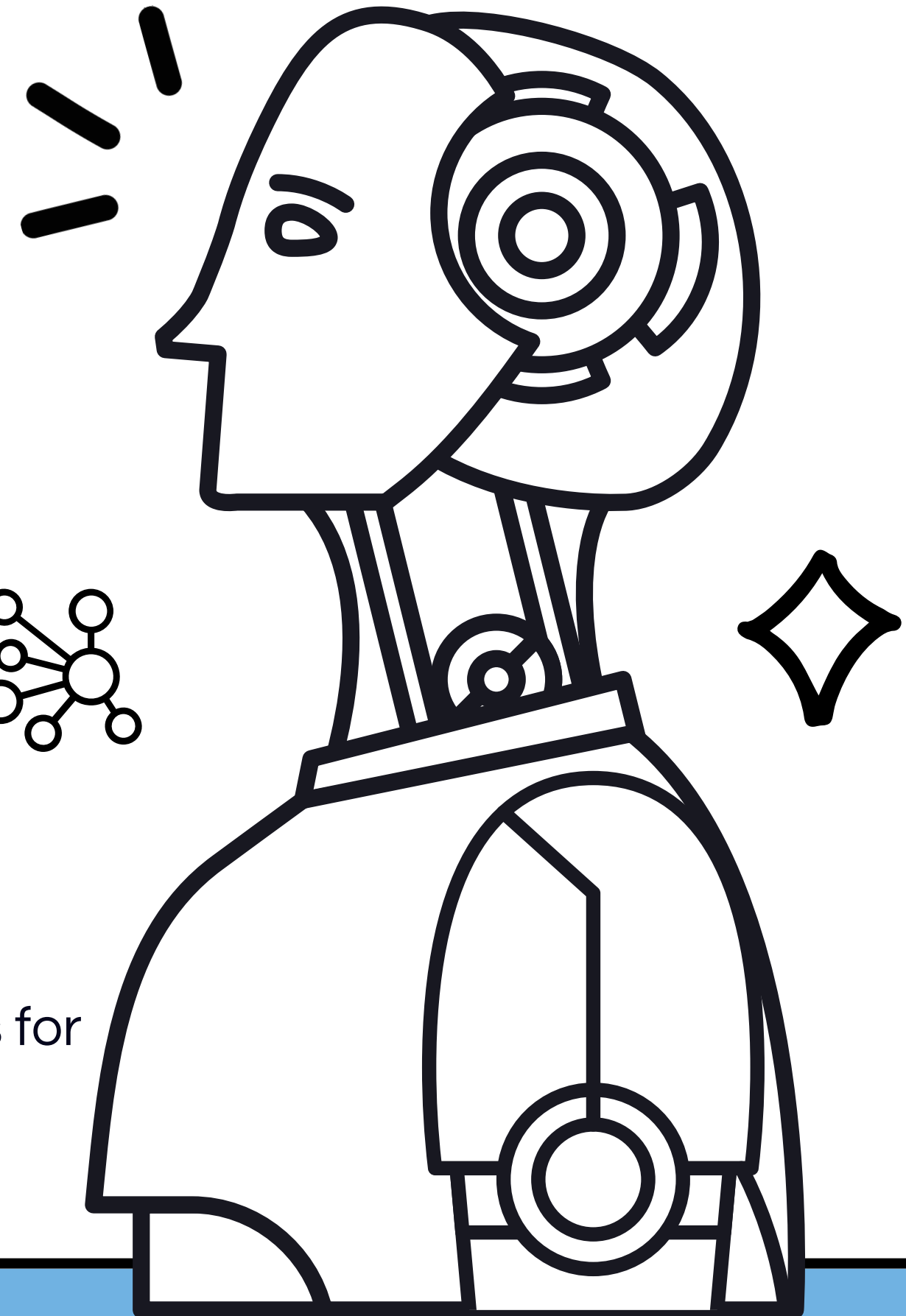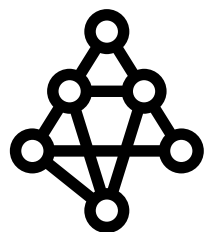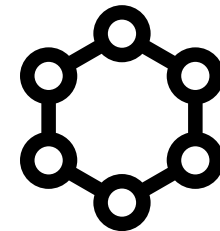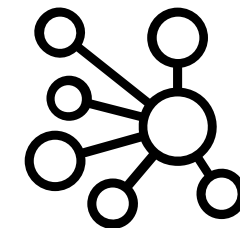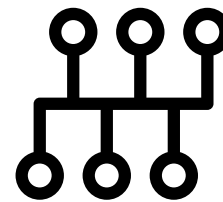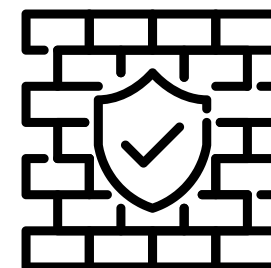
NETWORK DEVICES

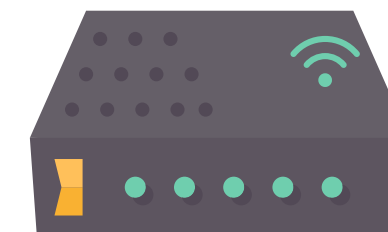- - Router: Connects different networks and directs data traffic.

- - Switch: Connects devices within a network.
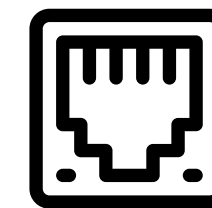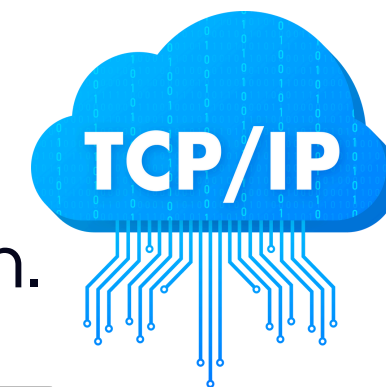
- - Firewall: Filters traffic and protects the network.

- - Modem: Converts digital and analog signals for internet access

NETWORK PROTOCOLS

- TCP/IP: The foundation of internet communication.

- Ethernet: Used for wired connections.

- Wi-Fi: Wireless networking standard.

- DNS: Translates domain names into IP addresses.

NETWORK SECURITY

- Authentication: Verifying the identity of users or devices before granting access to the network.

- - Encryption: Encoding data to prevent unauthorized access and ensure secure transmission.

- - Firewalls: Implementing security policies to filter and control network traffic.

- - Intrusion Detection and Prevention Systems (IDPS): Monitoring network traffic for suspicious activity and preventing unauthorized access.

NETWORK SERVICES
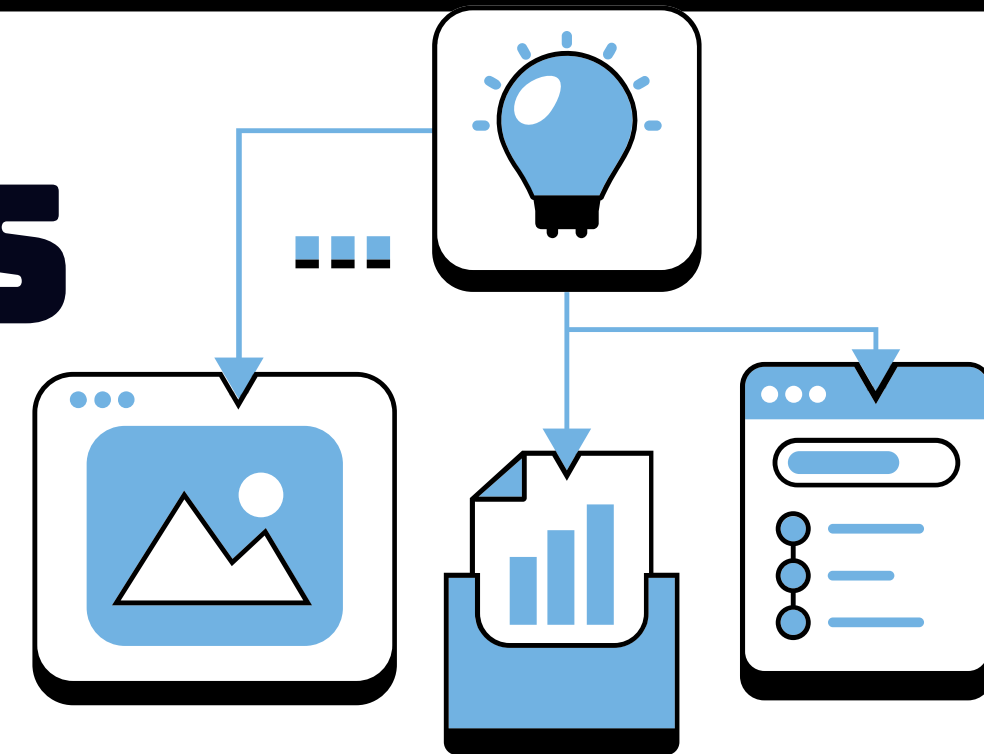
- - File Sharing: Allowing users to access and share files across the network.

- - Printing Services: Enabling network-connected printers to be used by multiple users

- . - Email Services: Facilitating the exchange of electronic messages over the network.

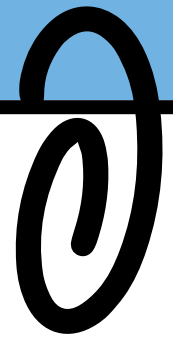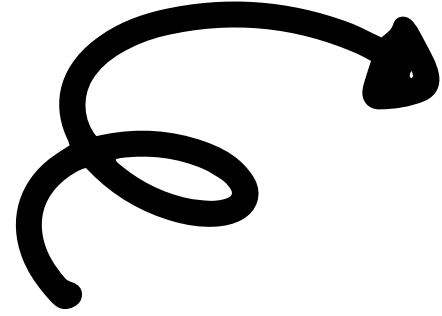- - Web Services: Hosting websites and enabling access to webpages over the internet
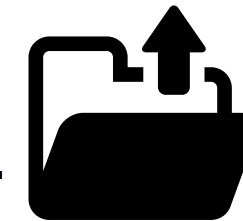
COMMON NETWORK ISSUES & SOLUTIONS
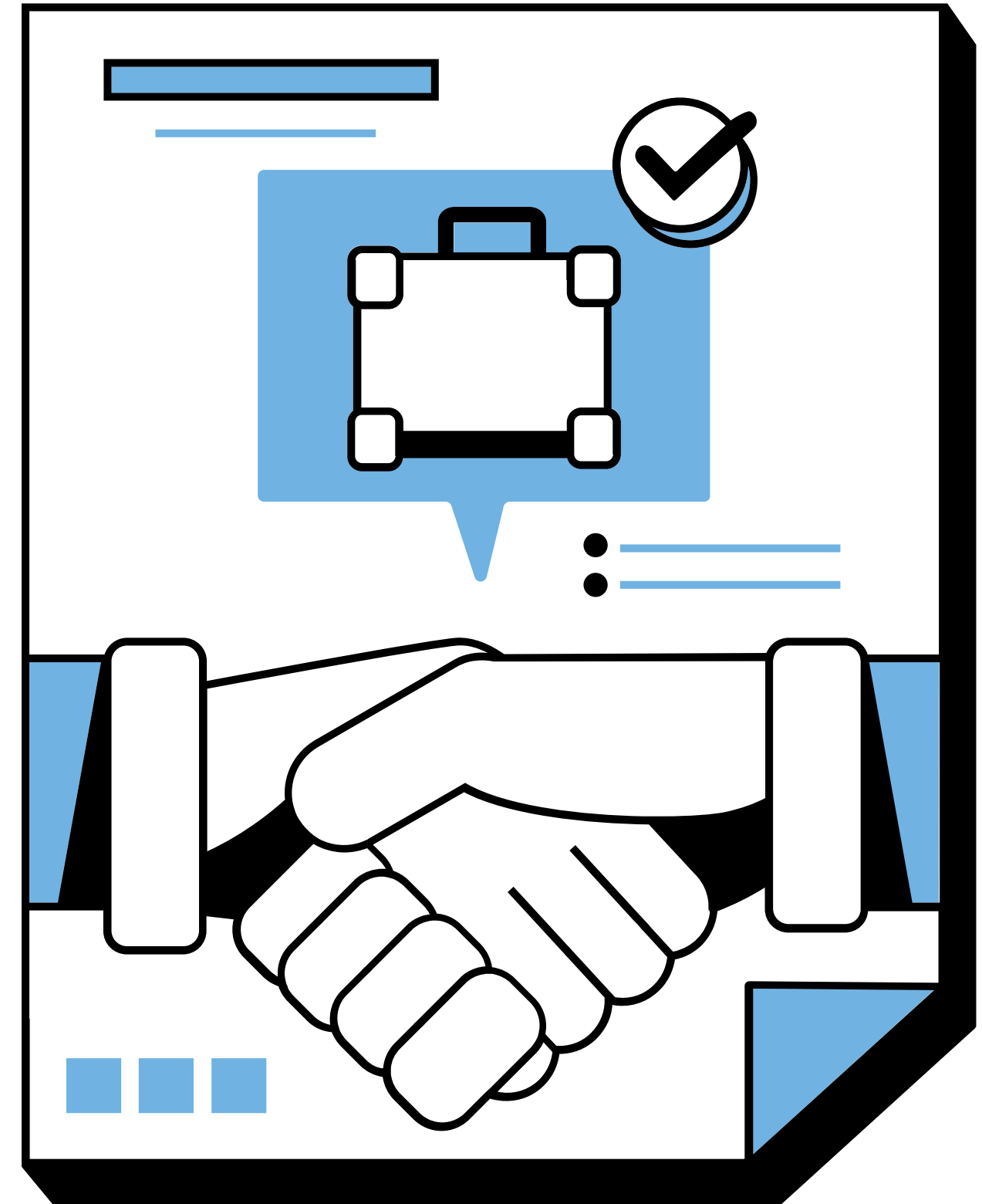
UNABLE TO CONNECT TO THE INTERNET

- Problem: Device shows Wi-Fi signal but won't connect. Solution:
- - Move device closer to the router.
- - Update the network card drivers.
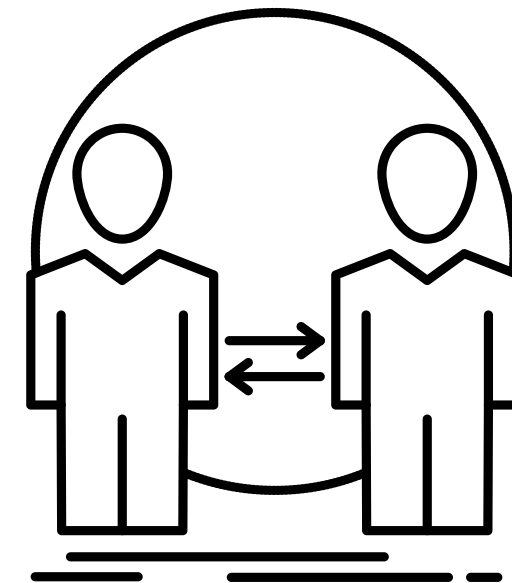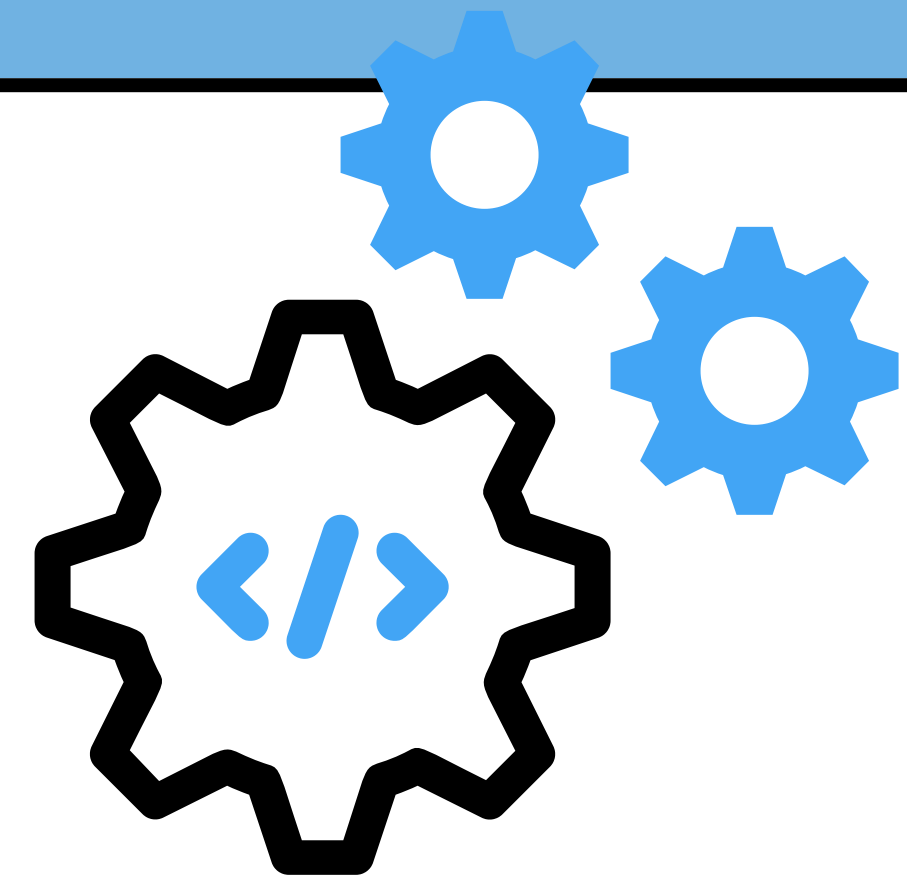- - Replace hardware if issue persists

DUPLICATED IP ADDRESS

1. Problem: "IP address already in use" error. Causes: Static IP conflicts, DHCP errors, ISP issues.

   Solution:

- - For dynamic IP: Use ipconfig/renew.

- - For static IP: Manually assign a new IP.

- - On Mac: Use 'Renew DHCP Lease' in network settings.
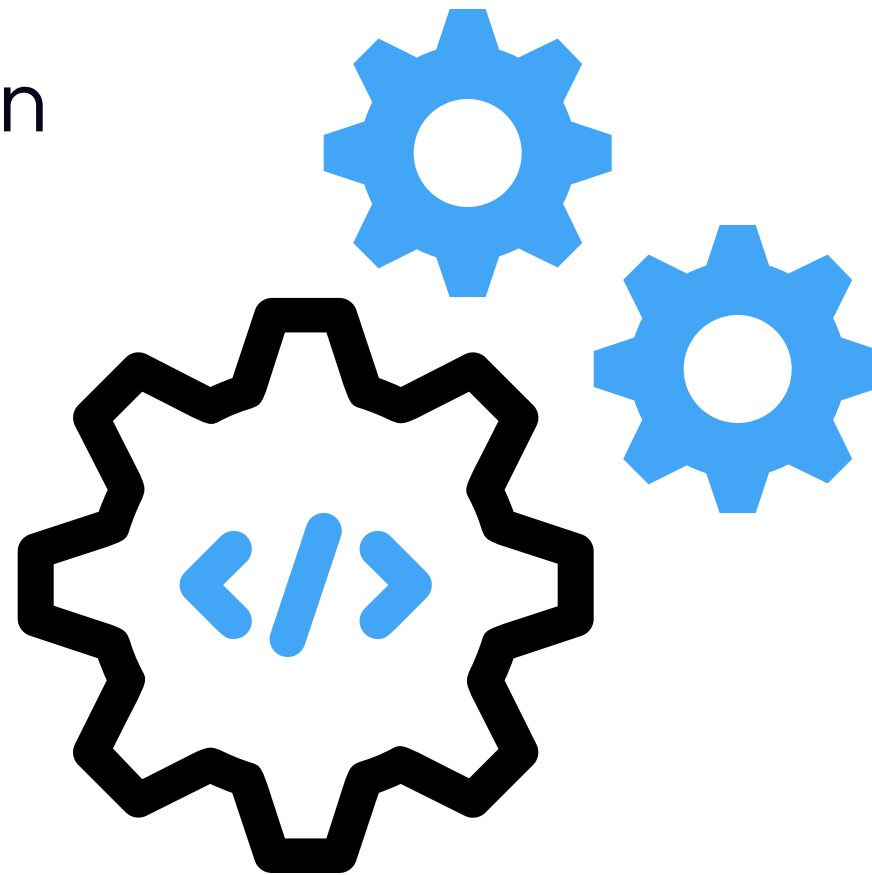
IP ADDRESS EXHAUSTION

Problem: Device cannot get an IP from the DHCP server. Solution:
- - Check network adapter and ensure DHCP is enabled.
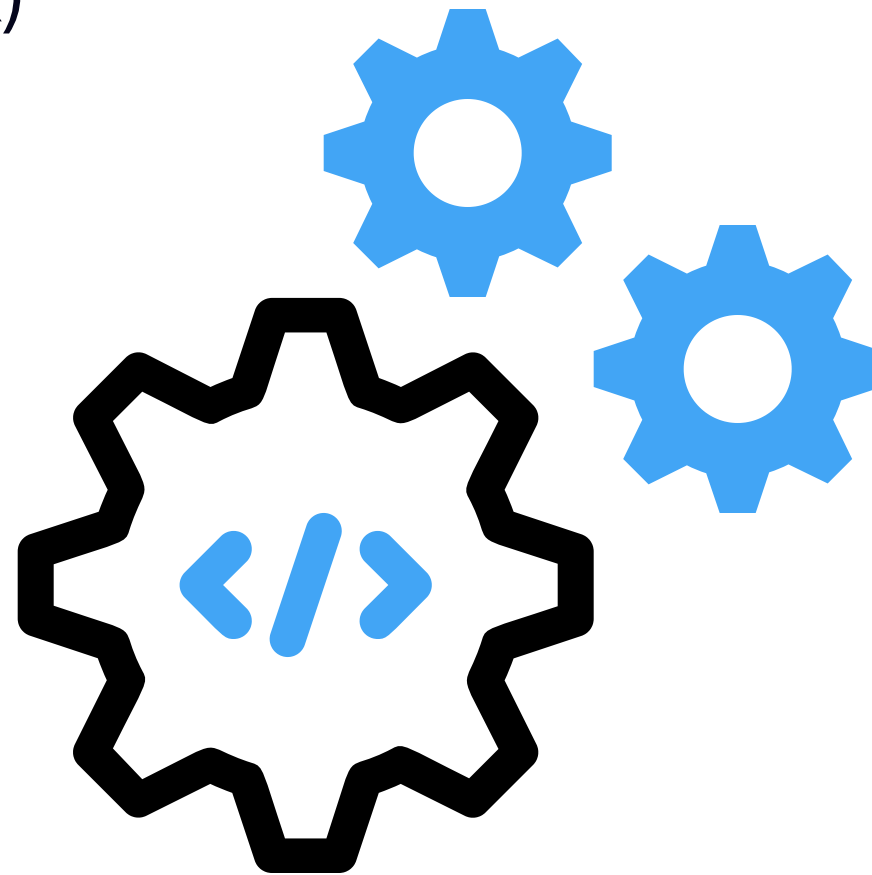- - Verify VLAN and DHCP server functionality.

QUESTION #1

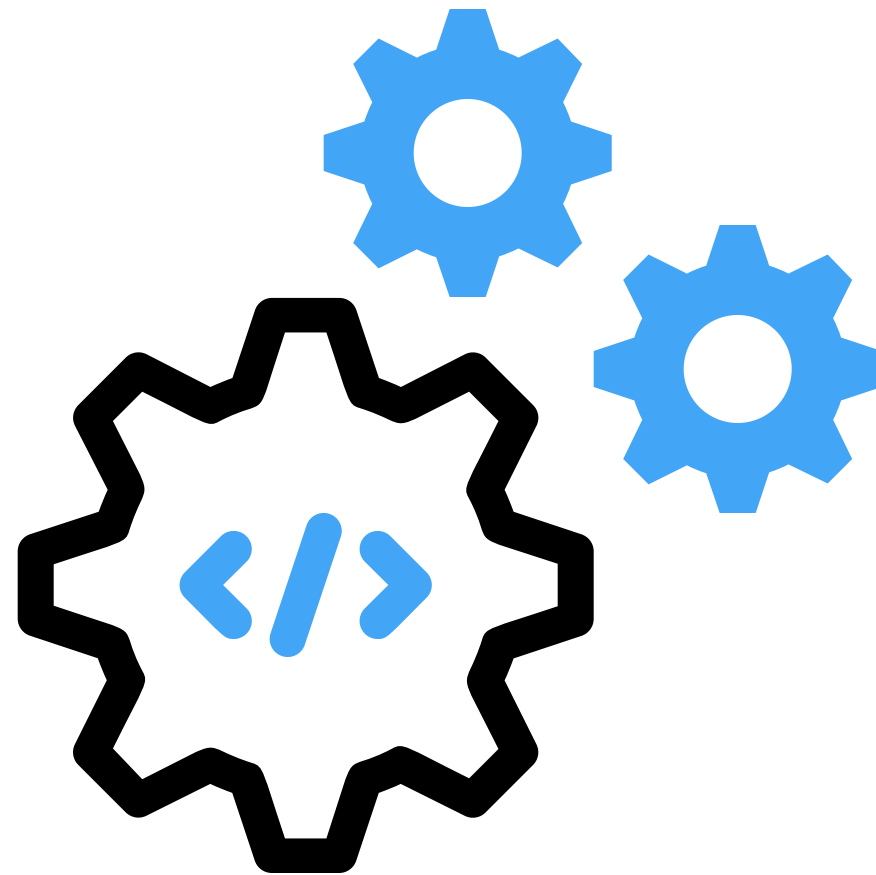Which type of topology covers a small area like an office or a home?

ANSWER:

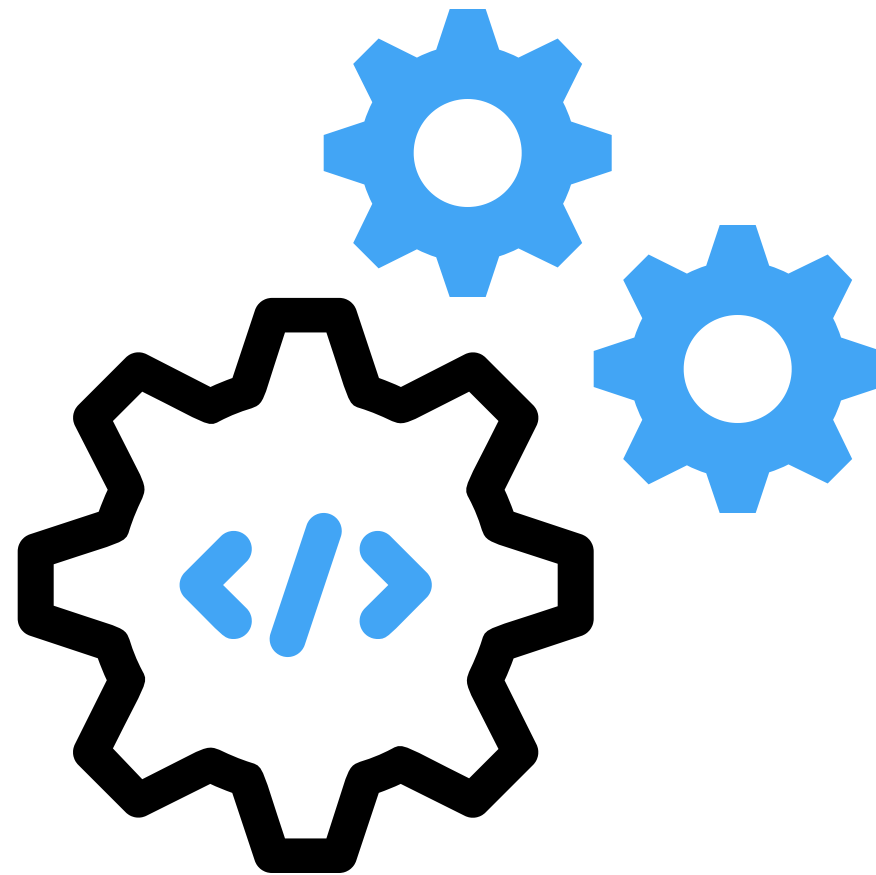LAN (Local Area Network)

QUESTION #2

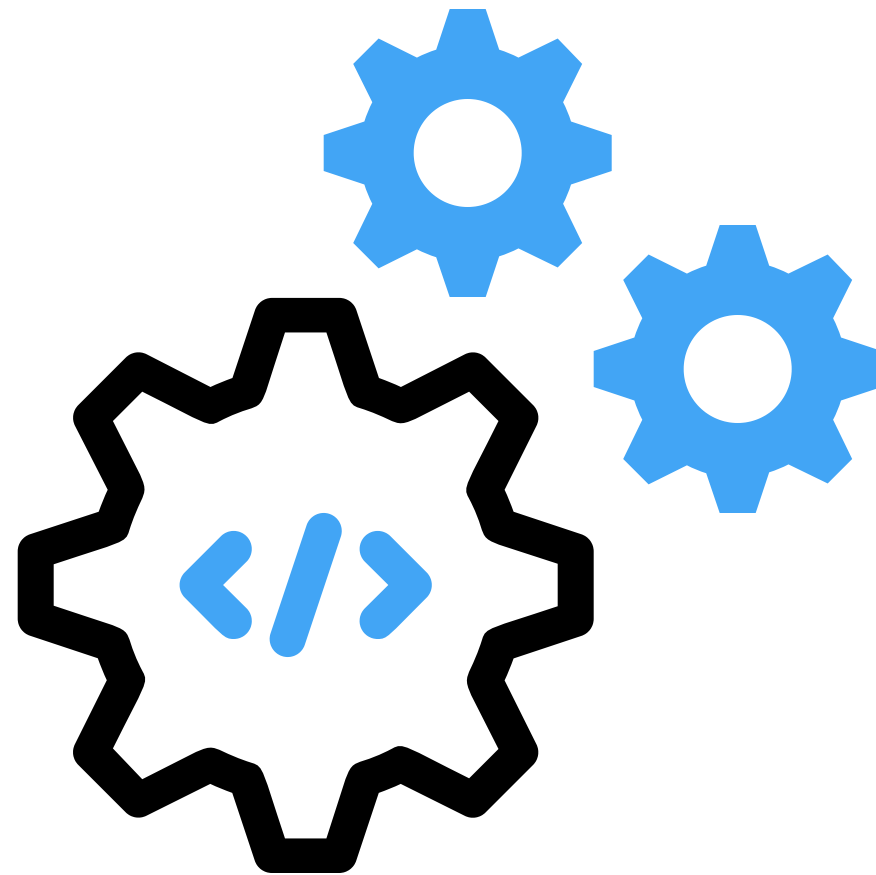Which network topology consists of a central hub or switch acting as the only gateway?
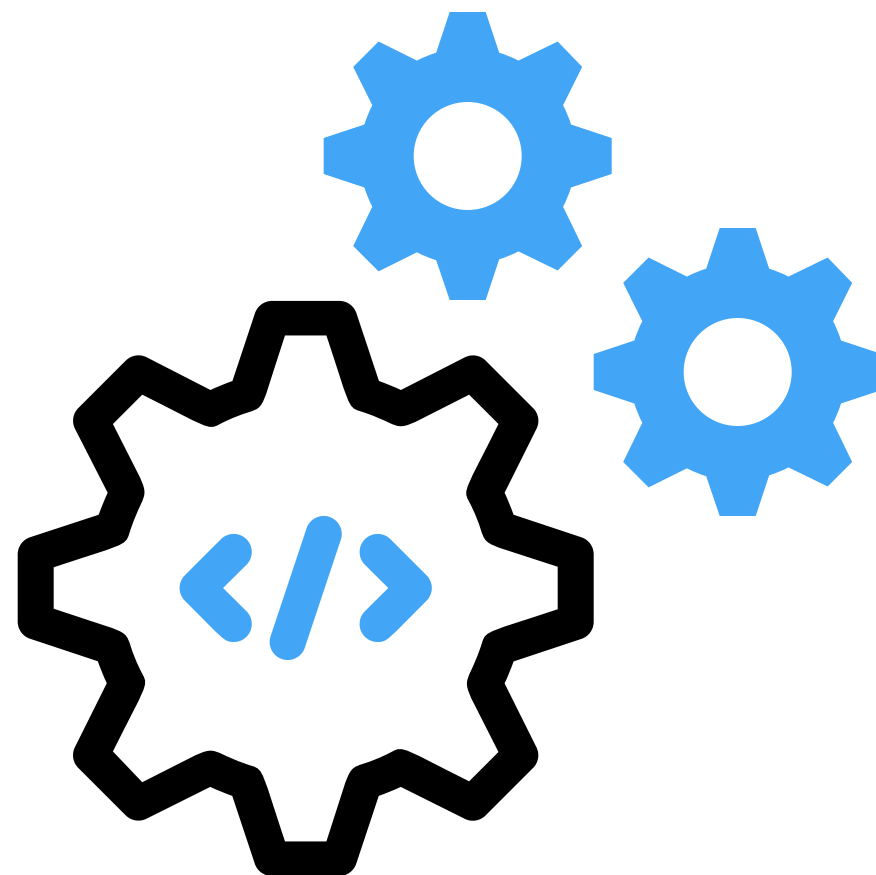
ANSWER

Star topology

QUESTION #3

A network device that filters traffic and protects the network is a...?
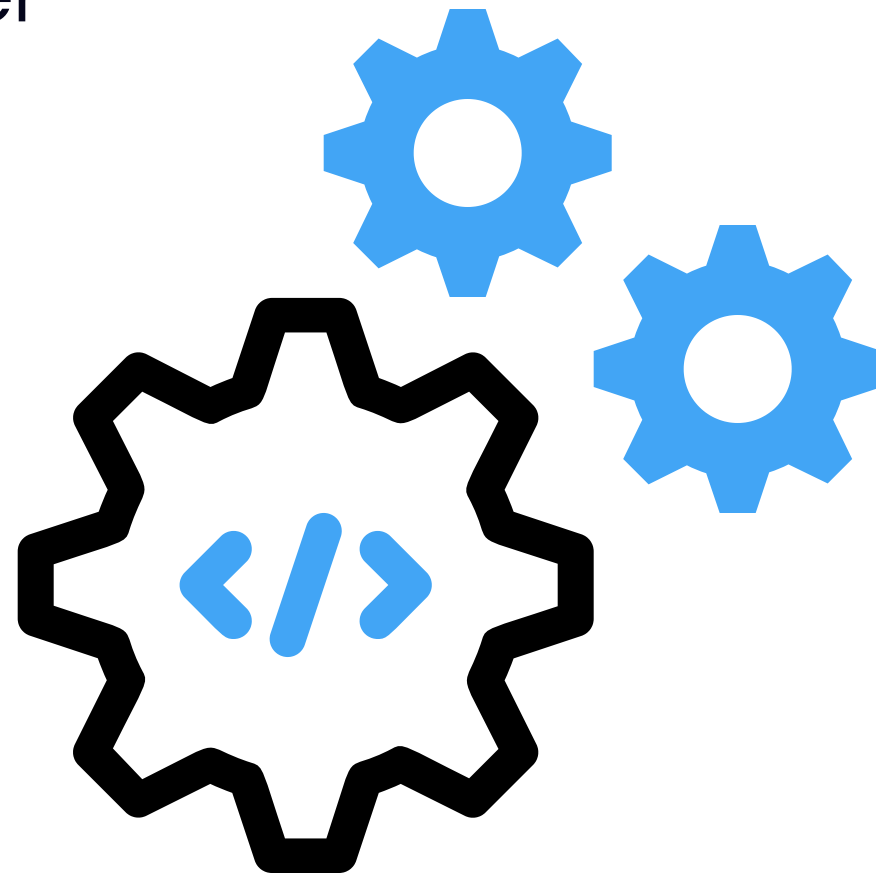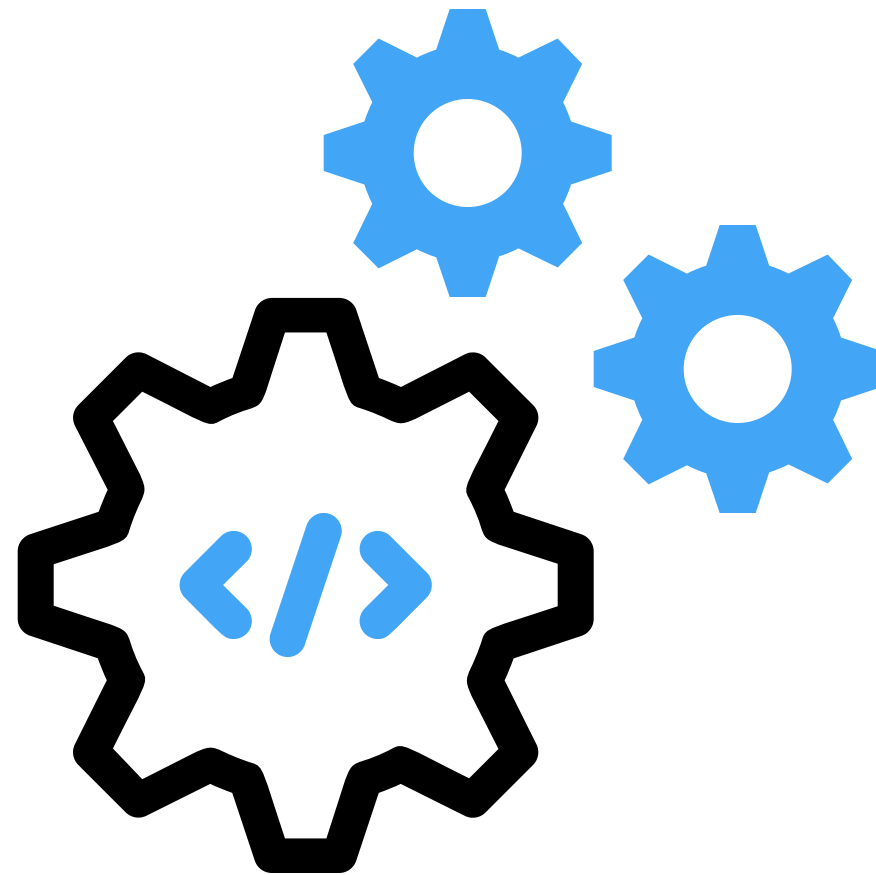
ANSWER

Firewall

QUESTION #4

You open up your browser and enter the web address "gutenberg.org" on it. Which internet protocol is in charge of directing you to the site's proper IP address?
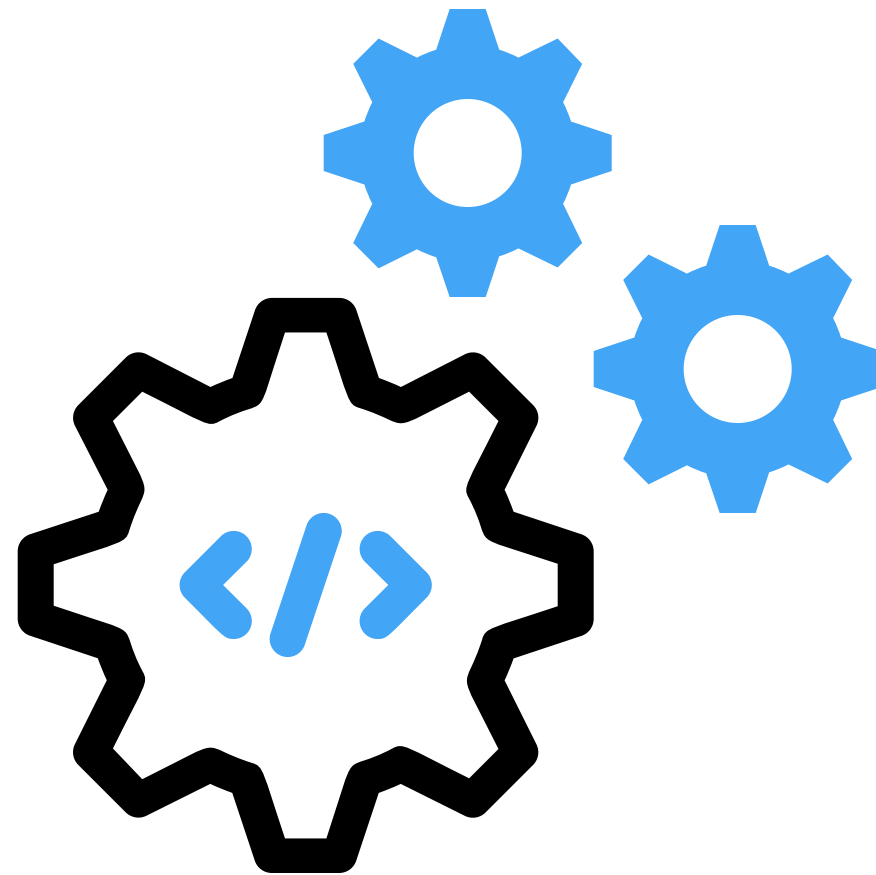
ANSWER
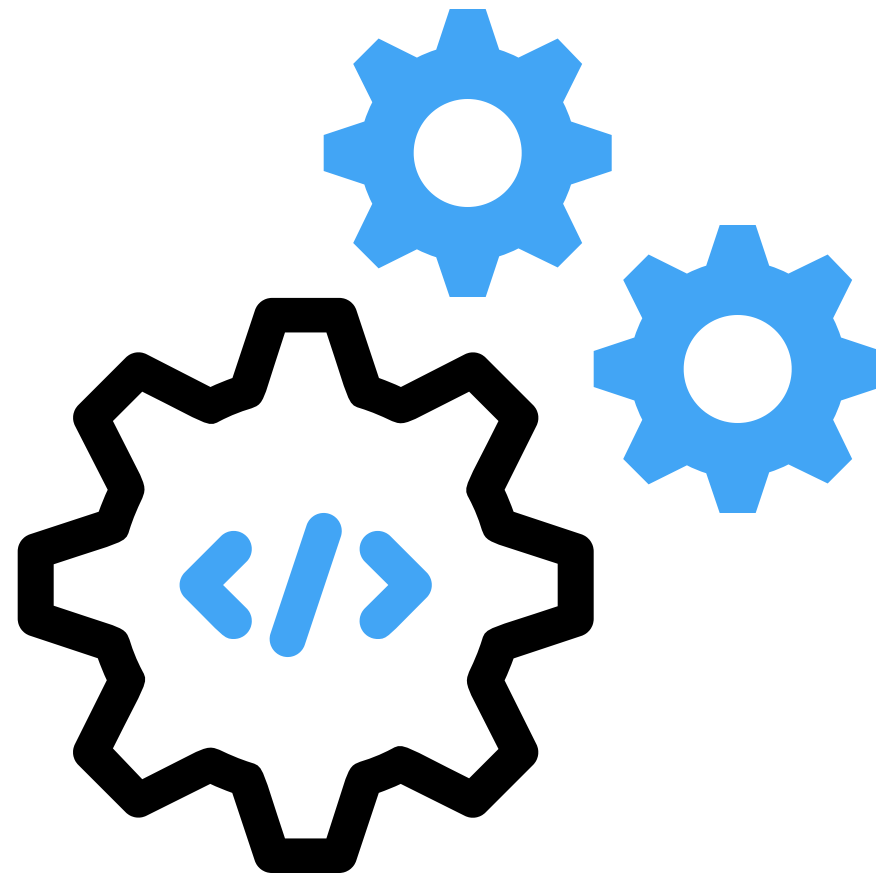
DNS (Domain Name System/Service)

QUESTION #5

What is a computer network?

ANSWER

A computer network is a
collection of devices that
are linked or connected.

THANK

SEE YOU

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