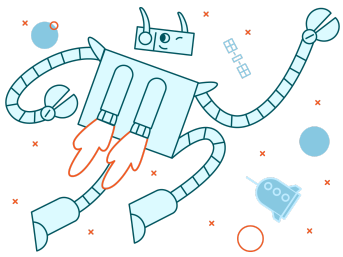
Livin' on a Network 🎸🌐



In this exercise, you will use the `traceroute` and `ipconfig` commands to discover the path your computer takes to reach www.google.com and explore your local network configuration.

You will then create a simple network diagram to visualize the route your data takes from your computer to Google's servers.

Background and reminders

- A network diagram is a visual representation of the components and connections in a network. It helps you understand how devices are interconnected and how data flows between them.
- `traceroute` (or `tracert` on Windows) is a command-line tool that displays the route and measures the delay of packets across an IP network. It shows the path your data takes to reach its destination, listing all the routers it passes through.
- `ipconfig` is a command-line tool that displays the current configuration of your computer's network interfaces, including the IP address, subnet mask, and default gateway.
- A default gateway is the IP address of the router that your device uses to access the internet or other networks outside your local network. When your computer wants to communicate with a device on another network, it sends the data to the default gateway, which then forwards it to the appropriate network.

Tasks

Task 1: Traceroute to Google 🗺️

1. Open a command prompt or terminal on your computer.
2. Run the following command: `tracert www.google.com`.
3. Observe the output and identify the routers your packets pass through to reach www.google.com.
4. Draw a simple network diagram based on the traceroute output, including the following components:
    - Your computer
    - Your home/class router
    - The internet (represented as a cloud)
    - Google's router
    - www.google.com

Task 2: Local Network Configuration 🏠

1. Open a command prompt or terminal on your computer.
2. Run the following command: `ipconfig`.
3. In the output, find the following information:
    - Default gateway IP address
    - Subnet mask of your local network
4. Based on the subnet mask, calculate the IP range of your home network (in the format: "Lowest IP - Highest IP").

To submit

1. A network diagram (hand-drawn or digital) showing the path from your computer to www.google.com, as described in Task 1.
2. A text file containing the following information:
    - Default gateway IP address

- Subnet mask of your local network
- IP range of your home network