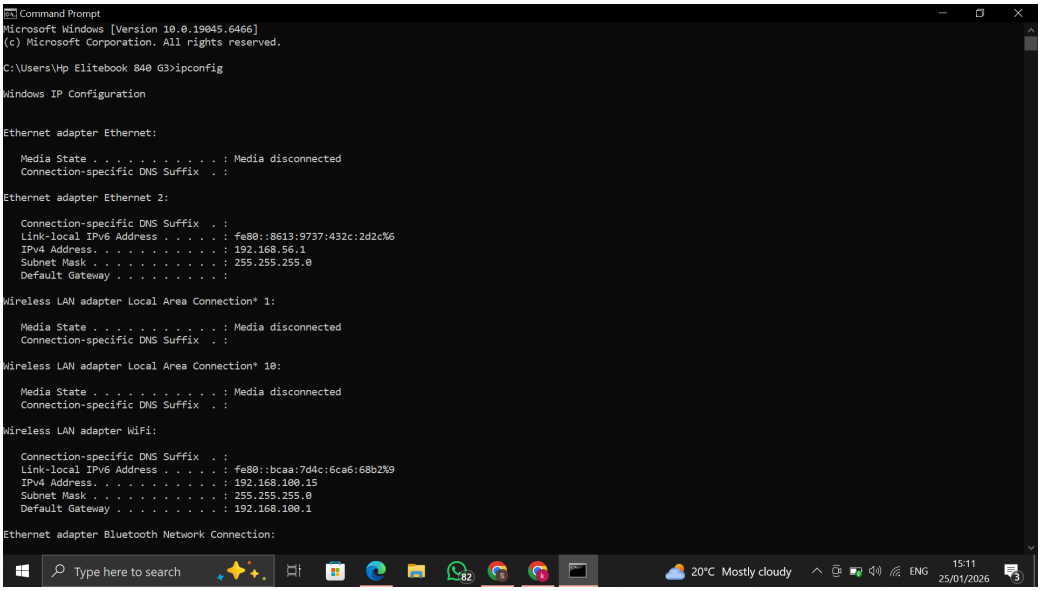
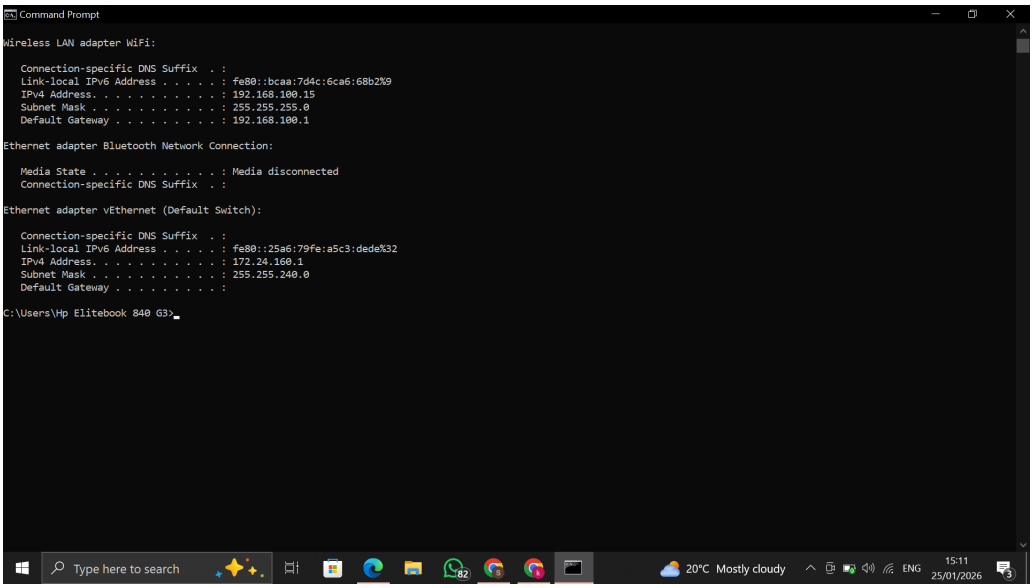
# Lab Tasks

(Attach screenshot of command prompt/terminal wherever required.)
(AI-generated answers are not acceptable. Make sure all responses are written in your own words.)

1) Find the IP address of the computer you are currently using.

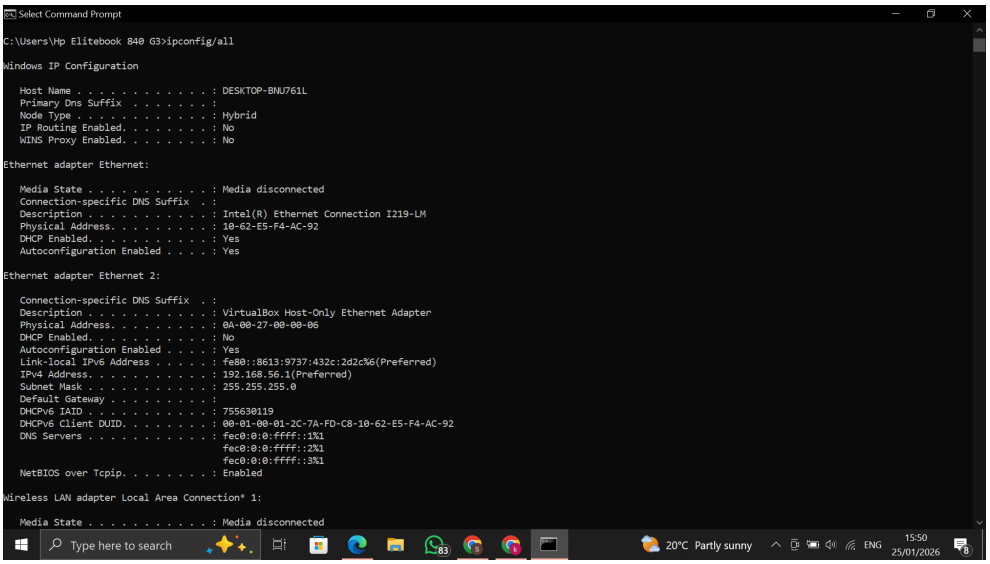
Command: _____ipconfig_____
IP Address: _____192.168.100.15_____

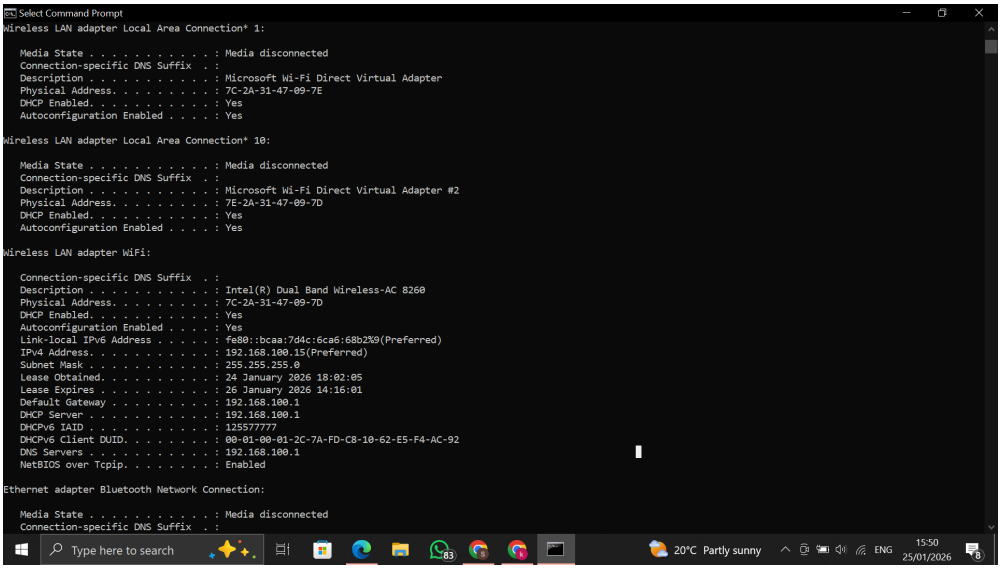


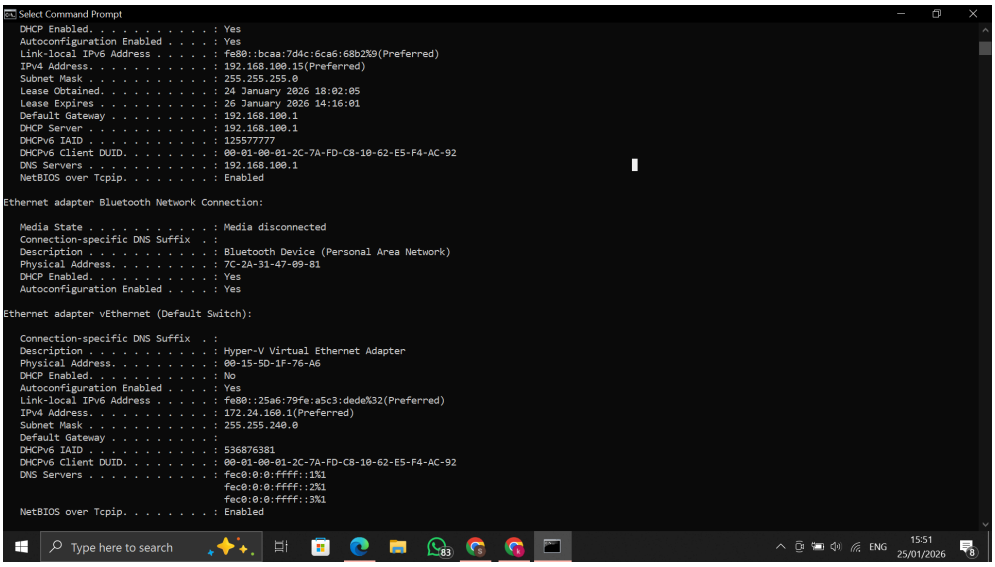



2) Find the IP address of the computer you are currently using, plus MAC address, the gateway, plus whether DHCP is turned on.

Command: _____ipconfig/all_____
IP Address: _____IP: 192.168.100.15, MAC: 7C-2A-31-47-09-7D,
Gateway: 192.168.100.1, DHCP: Enabled_____

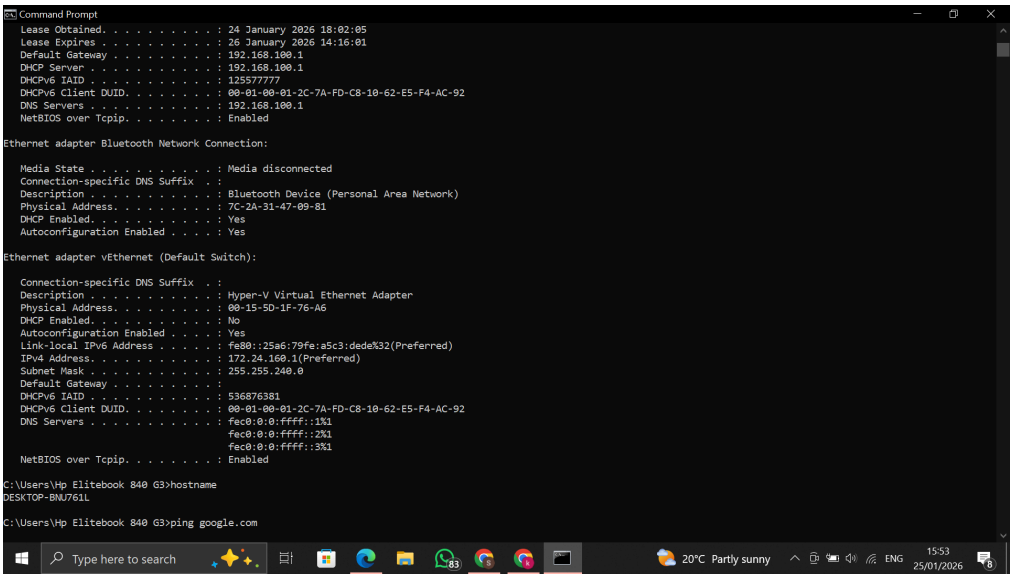





3) Display the host name of the computer.

Command: _____hostname_____
IP Address: _____DESKTOP-BNU761L_____

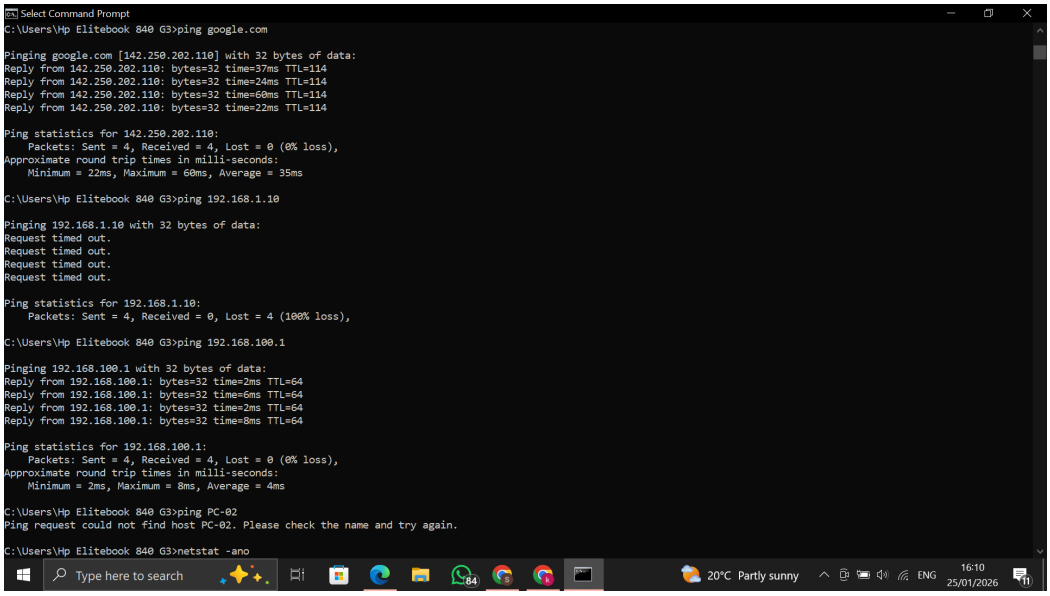



4) Check for basic IP connectivity between two computers by name and IP address. How can basic IP connectivity be checked? What are the reasons why there is no connectivity?

Command: _____ping <IP address> and ping <hostname>_____
Reason: _____The reasons for no connectivity may include:

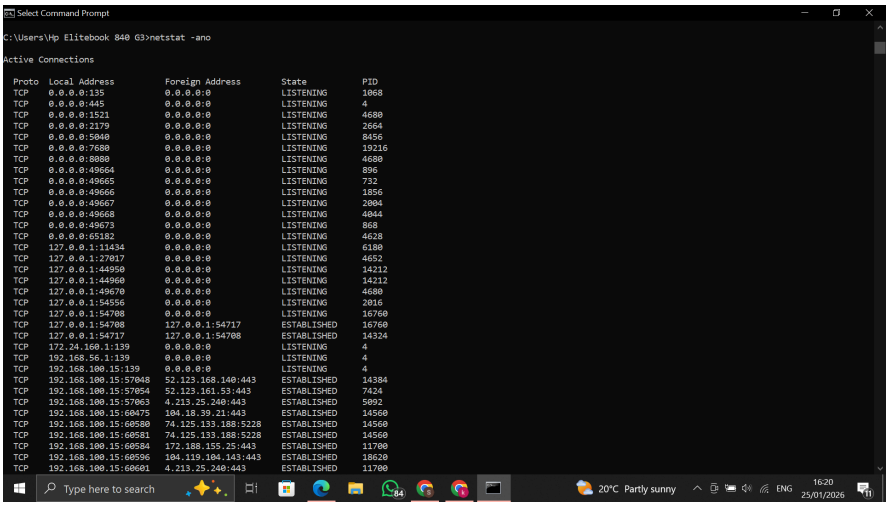
1. Host is not available on the network or does not exist
2. IP address is not correct

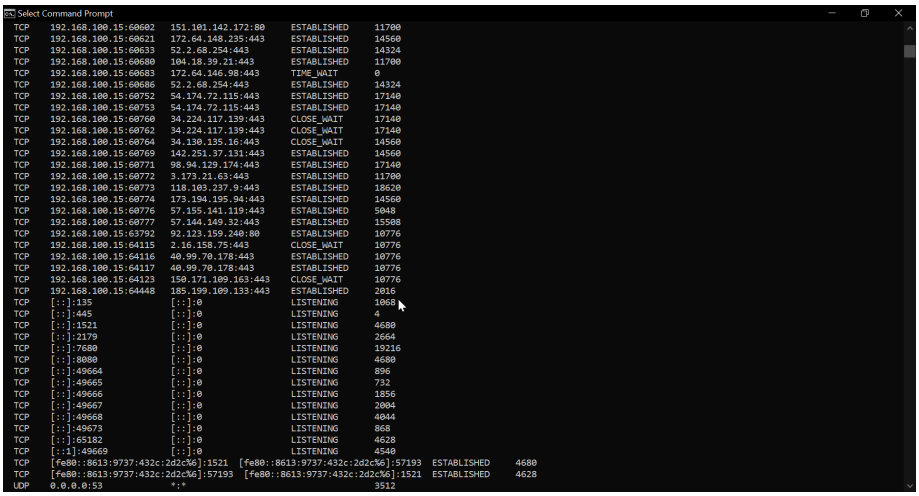
3. ICMP (Internet Control Message Protocol) fails, or is blocked by a firewall.
4. DNS (Domain Name System) server is unreachable or cannot resolve hostname
5. The device is powered of_____

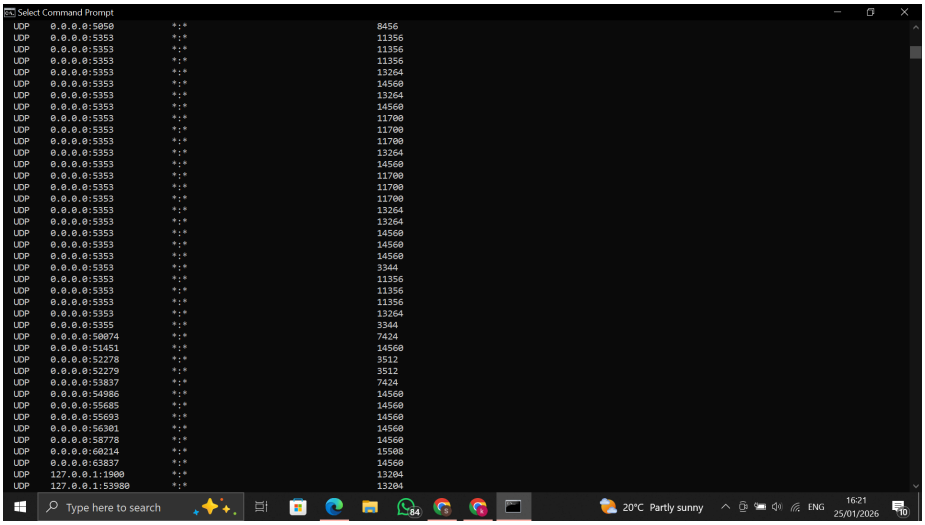


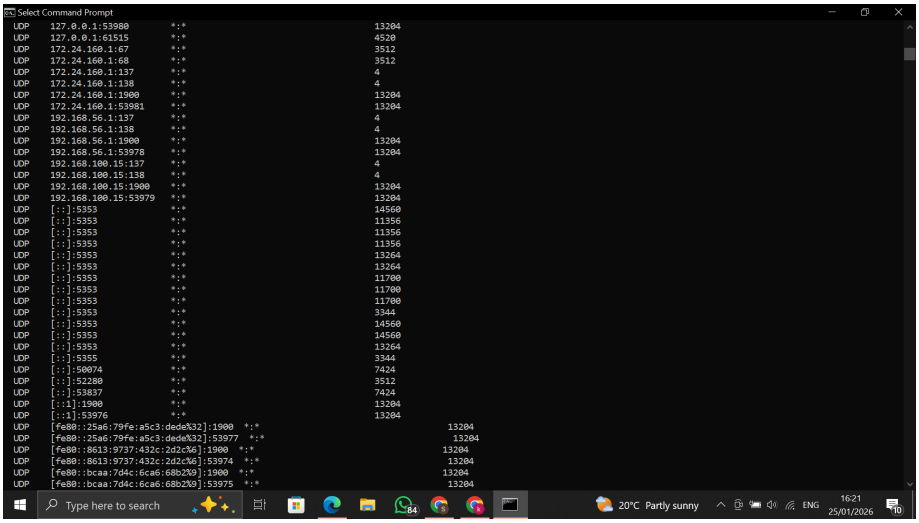

5) Find out which ports on your host are connected to applications. Connect the browser to some external web page before running the appropriate command.

Command: _____netstat -ano_____
Reason: _____netstat shows active network connections and -ano shows all connections, their address, and PID for each _____



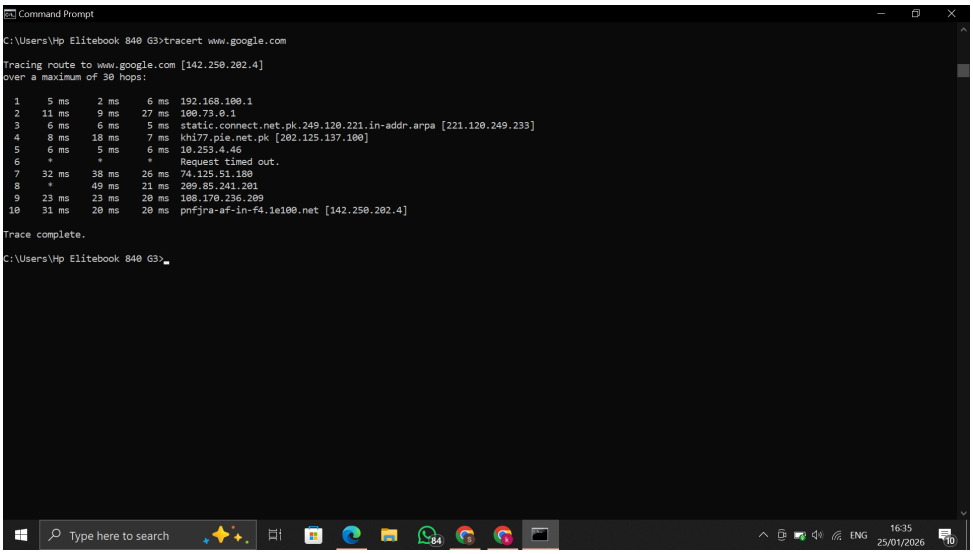

Select Command Prompt
TCP 192.168.100.15:60602 151.101.142.172:80 ESTABLISHED 11700
TCP 192.168.100.15:60621 172.64.148.235:443 ESTABLISHED 14560
TCP 192.168.100.15:60633 52.2.68.254:443 ESTABLISHED 14324
TCP 192.168.100.15:60680 104.18.39.21:443 ESTABLISHED 11700
TCP 192.168.100.15:60683 172.64.146.98:443 TIME_WAIT 0
TCP 192.168.100.15:60686 52.2.68.254:443 ESTABLISHED 14324
TCP 192.168.100.15:60752 54.174.72.115:443 ESTABLISHED 17140
TCP 192.168.100.15:60753 54.174.72.115:443 ESTABLISHED 17140
TCP 192.168.100.15:60760 34.224.117.139:443 CLOSE_WAIT 17140
TCP 192.168.100.15:60762 34.224.117.139:443 CLOSE_WAIT 17140
TCP 192.168.100.15:60764 34.130.135.16:443 CLOSE_WAIT 14560
TCP 192.168.100.15:60769 142.251.37.131:443 ESTABLISHED 14560
TCP 192.168.100.15:60771 98.94.129.174:443 ESTABLISHED 17140
TCP 192.168.100.15:60772 3.173.21.63:443 ESTABLISHED 11700
TCP 192.168.100.15:60773 118.103.237.9:443 ESTABLISHED 18620
TCP 192.168.100.15:60774 173.194.195.94:443 ESTABLISHED 14560
TCP 192.168.100.15:60776 57.155.141.119:443 ESTABLISHED 5048
TCP 192.168.100.15:60777 57.144.149.32:443 ESTABLISHED 15508
TCP 192.168.100.15:63792 92.123.159.240:80 ESTABLISHED 10776
TCP 192.168.100.15:64115 2.16.158.75:443 CLOSE_WAIT 10776
TCP 192.168.100.15:64116 40.99.70.178:443 ESTABLISHED 10776
TCP 192.168.100.15:64117 40.99.70.178:443 ESTABLISHED 10776
TCP 192.168.100.15:64123 150.171.109.163:443 CLOSE_WAIT 10776
TCP 192.168.100.15:64448 185.199.109.133:443 ESTABLISHED 2016
TCP [::]:135 [::]:0 LISTENING 1068
TCP [::]:445 [::]:0 LISTENING 4
TCP [::]:1521 [::]:0 LISTENING 4680
TCP [::]:2179 [::]:0 LISTENING 2664
TCP [::]:7680 [::]:0 LISTENING 19216
TCP [::]:8080 [::]:0 LISTENING 4680
TCP [::]:49664 [::]:0 LISTENING 896
TCP [::]:49665 [::]:0 LISTENING 732
TCP [::]:49666 [::]:0 LISTENING 1856
TCP [::]:49667 [::]:0 LISTENING 2004
TCP [::]:49668 [::]:0 LISTENING 4044
TCP [::]:49673 [::]:0 LISTENING 868
TCP [::]:65182 [::]:0 LISTENING 4628
TCP [::1]:49669 [::]:0 LISTENING 4540
TCP [fe80::8613:9737:432c:2d2c%6]:1521 [fe80::8613:9737:432c:2d2c%6]:57193 ESTABLISHED 4680
TCP [fe80::8613:9737:432c:2d2c%6]:57193 [fe80::8613:9737:432c:2d2c%6]:1521 ESTABLISHED 4628
UDP 0.0.0.0:53 *:* 3512


Select Command Prompt
UDP 0.0.0.0:5050 *:* 8456
UDP 0.0.0.0:5353 *:* 11356
UDP 0.0.0.0:5353 *:* 11356
UDP 0.0.0.0:5353 *:* 11356
UDP 0.0.0.0:5353 *:* 13264
UDP 0.0.0.0:5353 *:* 14560
UDP 0.0.0.0:5353 *:* 13264
UDP 0.0.0.0:5353 *:* 14560
UDP 0.0.0.0:5353 *:* 11700
UDP 0.0.0.0:5353 *:* 11700
UDP 0.0.0.0:5353 *:* 11700
UDP 0.0.0.0:5353 *:* 13264
UDP 0.0.0.0:5353 *:* 14560
UDP 0.0.0.0:5353 *:* 11700
UDP 0.0.0.0:5353 *:* 11700
UDP 0.0.0.0:5353 *:* 11700
UDP 0.0.0.0:5353 *:* 13264
UDP 0.0.0.0:5353 *:* 13264
UDP 0.0.0.0:5353 *:* 14560
UDP 0.0.0.0:5353 *:* 14560
UDP 0.0.0.0:5353 *:* 14560
UDP 0.0.0.0:5353 *:* 3344
UDP 0.0.0.0:5353 *:* 11356
UDP 0.0.0.0:5353 *:* 11356
UDP 0.0.0.0:5353 *:* 11356
UDP 0.0.0.0:5353 *:* 13264
UDP 0.0.0.0:5355 *:* 3344
UDP 0.0.0.0:50074 *:* 7424
UDP 0.0.0.0:51451 *:* 14560
UDP 0.0.0.0:52278 *:* 3512
UDP 0.0.0.0:52279 *:* 3512
UDP 0.0.0.0:53837 *:* 7424
UDP 0.0.0.0:54986 *:* 14560
UDP 0.0.0.0:55685 *:* 14560
UDP 0.0.0.0:55693 *:* 14560
UDP 0.0.0.0:56301 *:* 14560
UDP 0.0.0.0:58778 *:* 14560
UDP 0.0.0.0:60214 *:* 15508
UDP 0.0.0.0:63837 *:* 14560
UDP 127.0.0.1:1900 *:* 13204
UDP 127.0.0.1:53980 *:* 13204
Type here to search
20°C Partly sunny
ENG
16:21
25/01/2026


Select Command Prompt
UDP 127.0.0.1:53980 *:* 13204
UDP 127.0.0.1:61515 *:* 4520
UDP 172.24.160.1:67 *:* 3512
UDP 172.24.160.1:68 *:* 3512
UDP 172.24.160.1:137 *:* 4
UDP 172.24.160.1:138 *:* 4
UDP 172.24.160.1:1900 *:* 13204
UDP 172.24.160.1:53981 *:* 13204
UDP 192.168.56.1:137 *:* 4
UDP 192.168.56.1:138 *:* 4
UDP 192.168.56.1:1900 *:* 13204
UDP 192.168.56.1:53978 *:* 13204
UDP 192.168.100.15:137 *:* 4
UDP 192.168.100.15:138 *:* 4
UDP 192.168.100.15:1900 *:* 13204
UDP 192.168.100.15:53979 *:* 13204
UDP [::]:5353 *:* 14560
UDP [::]:5353 *:* 11356
UDP [::]:5353 *:* 11356
UDP [::]:5353 *:* 11356
UDP [::]:5353 *:* 13264
UDP [::]:5353 *:* 13264
UDP [::]:5353 *:* 11700
UDP [::]:5353 *:* 11700
UDP [::]:5353 *:* 11700
UDP [::]:5353 *:* 3344
UDP [::]:5353 *:* 14560
UDP [::]:5353 *:* 14560
UDP [::]:5353 *:* 13264
UDP [::]:5355 *:* 3344
UDP [::]:50074 *:* 7424
UDP [::]:52280 *:* 3512
UDP [::]:53837 *:* 7424
UDP [::1]:1900 *:* 13204
UDP [::1]:53976 *:* 13204
UDP [fe80::25a6:79fe:a5c3:dede%32]:1900 *:* 13204
UDP [fe80::25a6:79fe:a5c3:dede%32]:53977 *:* 13204
UDP [fe80::8613:9737:432c:2d2c%6]:1900 *:* 13204
UDP [fe80::8613:9737:432c:2d2c%6]:53974 *:* 13204
UDP [fe80::bcaa:7d4c:6ca6:68b2%9]:1900 *:* 13204
UDP [fe80::bcaa:7d4c:6ca6:68b2%9]:53975 *:* 13204
Type here to search
20°C Partly sunny
ENG
16:21
25/01/2026

6) Find the path of routers to www.google.com.What is its IP address? How many hops involved in the path?

Command: _____tracert www.google.com_____
Reason: ___IP: 142.250.202.4, 10 hops are involved in the path_____

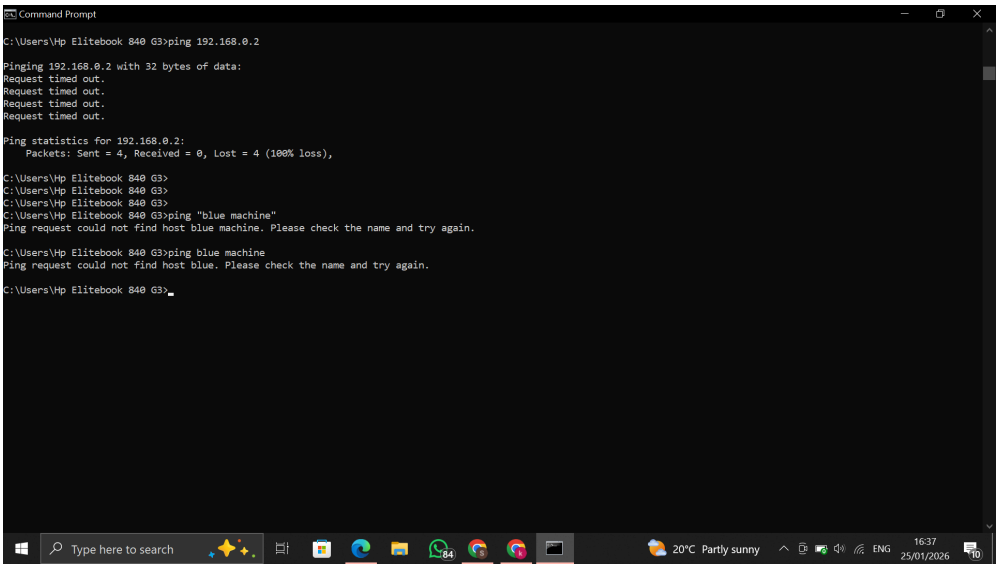



7) A ping to 192.168.0.2 works but a ping to the machine's name "blue machine" fails. What could be wrong?

Reason:_____

1. DNS is not working, or service is unavailable
2. The machine name (hostname) is not registered in DNS
3. Incorrect name
4. IP connectivity exists, but name resolution fails

_____




8) Which type of cable will you use to connect in a normal home installation?

Answer: _____For connectivity in a normal home installation, I think a straight-thru cable would be a better option as the installation of these cables is easier and simpler than crossover cable. Moreover, it also supports Auto-MDI/MDIX (automatically detects and adjusts transmit/receive pins) and can be used with modern devices without needing to identify the device type. _____

9) Can you connect a Switch to another Switch or a router to a PC using a straight-through cable? Explain your answer.

Answer:_____

Earlier crossover cables were needed in order to connect two similar devices like switch to switch, and straight through cables were not used for connecting similar devices. But now devices have auto-MDI/MDIX so devices automatically figure out how to send and receive signals.
So, straight through cables can be used for connecting a switch to another switch as well as a router to a PC.

For non auto-MDI/MDIX devices, straight through cables will connect a router to a PC but crossover cables will be required for connecting a Switch to another Switch.

_____

10) Write a brief report on your home network or any organizational network including topology, 1 page max).

Answer: _____

My home network will include a star topology, where many devices are connected to a router/central device. The router connects to the internet (ISP) through fiber.

Devices like laptops, mobile phones, PCs and tablets are connected using Wifi. The router assigns IP address automatically to all devices using DHCP (Dynamic Host Configuration Protocol) when it connects, and uses NAT (Network Address Translation) so multiple devices can share one public IP address on the internet.

This setup is easy to manage, cost-effective, and scalable, making it good for everyday activities like browsing, streaming, online classes, and gaming._____