Student name: Abilmukanova Ainuru
Group name: SCA-23B
Student ID: 238715057

0000
The fact that the PC can ping the router means it can reach it, so the local network is working
However, it cannot reach google.com.
This usually means there is a problem with DNS - in other words, DNS is not translating website names into IP addresses

0001
Problems:

1. unstable internet
2. losing connection
3. packets may arrive at the wrong device
   Reason:
4. someone manually set a static IP that was already in use
5. misconfigured network settings
6. DHCP accidentally gave the same IP to two devices

0002
Wi-Fi signal only shows that the device can talk to the router well

1. too many devices are using Wi-Fi
2. weak ISP connection

0003
It means the wireless connection is failing

1. broken Wi-Fi adapter
2. problem with security settings
3. the device is too far from the router

0004

1. the website is blocked
2. the server is down
3. the site’s SSL certificate is broken

0005

Connected means the router is connected to the device, but it does not mean it has internet

Causes:

1. problem with ISP
2. the router lost its WAN IP address
3. the internet plan or package expired and needs to be paid

0006

If everything works on other devices, then it’s a device-level problem

1. VPN is blocking some services
2. browser issues
3. antivirus blocking domains
4. wrong system time

0007

1. weak signal
2. Wi-Fi glitch
3. sleep mode
4. unstable Wi-Fi adapter

0008

1. Router’s WAN configuration is incorrect
2. ISP issues
3. broken cable
4. router blocks external traffic

0009

1. phone doesn’t hold charge and overheats
2. low frequency (weak signal or low performance)
3. too many apps running
4. software issues

0010

mac address - data link layer
it identifies a device inside the local network

ipv4 address - network layer
used to route packets between different networks

port 443 - transport layer
ports help tcp/udp find the correct service; 443 is for https

wi-fi signal - physical layer
it’s a radio signal that carries bits

ethernet frame - data link layer
uses mac addresses and works inside the lan

router - network layer
moves packets from one network to another

tcp handshake - transport layer
creates a reliable connection before sending data

collision domain -data link layer
shows where devices share the same medium and can collide

arp- data link layer
finds the mac address that matches an ip address

subnet mask - network layer
shows the network part and host part of an ip

default gateway - network layer
the router that sends traffic outside the local network

switch - data link layer
forwards frames to the correct device using mac addresses