**COMPUTER NETWORKS**

**CASE STUDY**

**Objective:**

The goal of this case study is for students to explore and understand key networking information available on their own smartphones. By using the Field Test Mode or other diagnostic tools on Android, iPhone, or Samsung devices, students will learn how to gather technical details about their phone’s network settings and performance

**Instructions:**

1. **Device Types Covered:**

○ **Android Devices (General)**

**2.**

**IMEI(International Mobile Equipment Identity):**

To simply define the term IMEI, it is a number given to mobile devices to identify them within the global telecommunications network.  it is of 15 digits. IMEI serves a important role in the processes of tracing stolen devices and implementing measures to obstruct their usage by individuals who have stolen them. We can see our mobiles IMEI number by typing \*#06#.

**MAC(Media Access Control address):**

The MAC address is used for identifying a device on a local network.It is used in the data link layer of OSI model (layer 2).and it is represented in hexadecimal format.it is a unique identifier assigned to network interfaces, such as the Wi-Fi or Ethernet interface the phone or computer.

**IP Address (Internet Protocol Address):**

An **IP address** is a unique identifier for a device on a network(a public or private internet network).It is used to route data between devices on different networks. There are two versions:

IPv4 (e.g., 192.168.1.1) and

IPv6 (e.g., 2001:0db8:85a3::8a2e:0370:7334).

**Network Operator/Brand (Name of the Cellular Provider):**

It is the company that provides cellular service to the phone. The operator assigns your SIM card and controls the cellular connection for voice, data, and other services.

Example: BSNL,Jio,Airtel…

**Network Type (4G LTE, 5G, etc.):**

It refers to the generation or technology used by cellular networks.The network types are:

2G(Basic voice and text service)

3G(Data services with moderate speeds)

4G(High-speed data services)

5G(fast data services with low latency and high capacity)

**Signal Strength:**

**It** refers to how well the device is connected to the cellular network. It is measured in dBm (decibel-milliwatts).

**Download/Upload Bandwidth:**

Bandwidth refers to the amount of data that can be transmitted over a network in a given period of time. Download bandwidth is the rate at which data can be downloaded to your device from the internet, while upload bandwidth is the rate at which data can be sent from your device. It is measured in Mbps (Megabits per second) or Gbps (Gigabits per second).

**Mobile Location Information:**

 LAC is a code assigned to a group of cell towers within a certain geographical area.

 CID identifies the specific cell tower (base station) your device is connected to.

these codes help determine your device’s rough location on the cellular network, but it’s less precise than GPS.

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