21CSC302J – Computer Networks

Case Study Assignment: Exploring Field Test Mode on Smartphones

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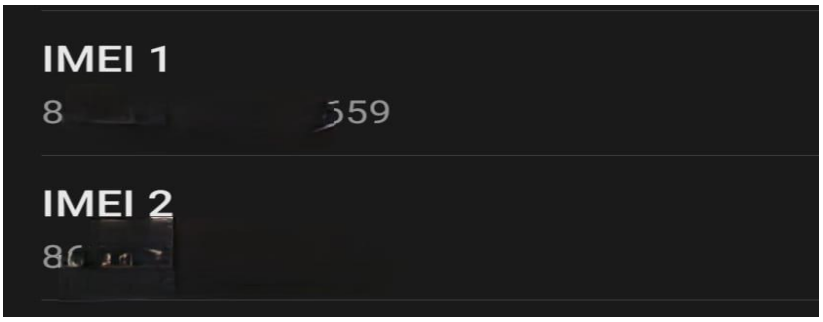
AIML-B

Exploring Field Test Mode on Smartphones

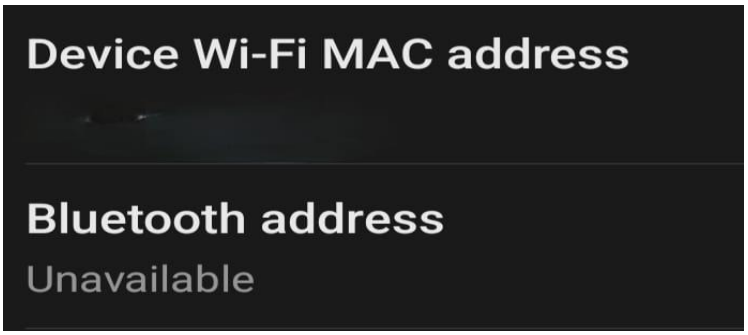
IMEI Number (International Mobile Equipment Identity)

- Mobile devices are assigned a unique 15-digit number known as the IMEI.Mobile networks can identify and track devices thanks to this code, which also enables security features like blocking lost or stolen phones from accessing the network.



MAC Address (Media Access Control address)

. A device's network interface card is uniquely identified by its Media Access Control Address (MAC Address), which is crucial for communication within local area networks, aids in device identification on networks like Ethernet or Wi-Fi, and is also a crucial component of security features like MAC filtering.



IP Address (Internet Protocol address)

- An IP Address, or Internet Protocol Address, functions as a distinct identifier for devices within a network, facilitating the routing of data among them.
- It acts as both a locational reference and a means of communication, permitting devices to establish connections across both local and global networks.

Network Operator/Brand (Name of the cellular provider)

• The name of the cellular service provider that provides network access for your device is referred to as the Network Operator or Brand.

• Depending on your area, they might be carriers such as Verizon, AT&T, Vodafone, or others.

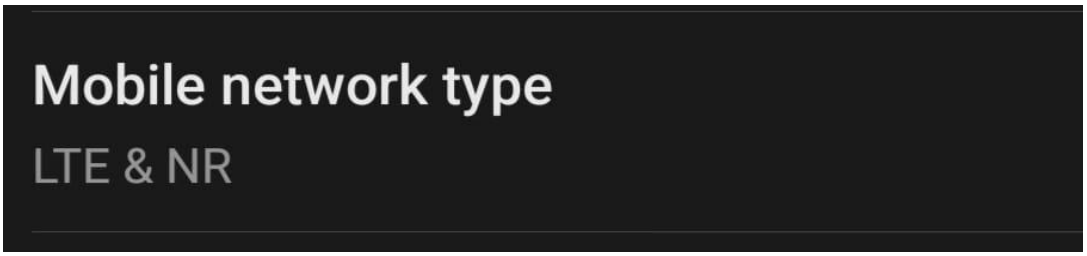
• The quality and accessibility of services like SMS, voice calls, and mobile data (4G, 5G, etc.) are decided by the network operator.

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

• Network Type: This describes the type of mobile network, such as 4G LTE or 5G, that your phone is connected to.

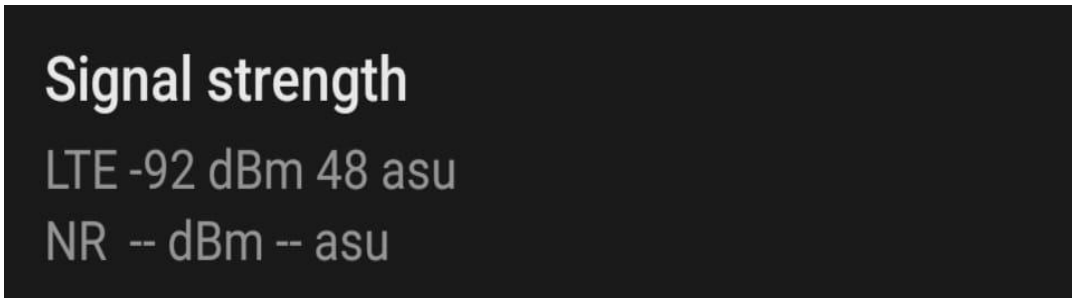
• This has an impact on the speed and dependability of your phone's internet connection.

•For instance, 4G LTE offers faster streaming and browsing rates than 3G and other outdated networks. In the meanwhile, 5G provides even quicker speeds and a more reliable connection, which is particularly helpful for online gaming and video watching.



Signal Strength (Measured in dBm)

- Signal Strength, measured in dBm (decibel-milliwatts), indicates how strong theconnection is between your phone and the nearest cell tower.
- The dBm scale is negative, with values closer to zero representing a stronger signal.For example, a signal strength of -50 dBm is excellent, while -100 dBm is weak.

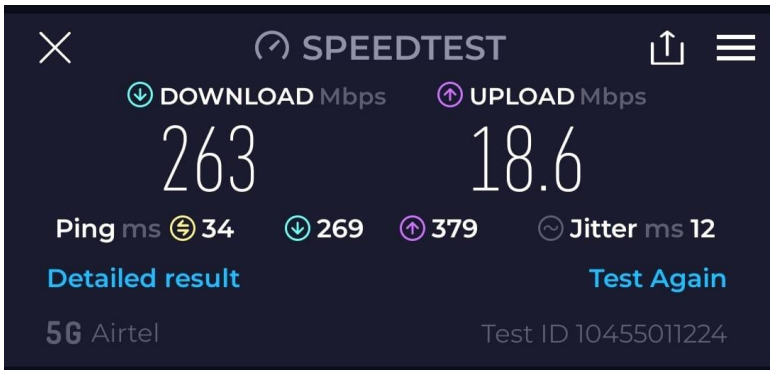


Download/Upload Bandwidth (Physical channel configuration and speed)

• Download and upload The speed at which your phone can upload data (such as sending a photo) or download data (such as streaming a video) is known as its bandwidth.

• It influences how quickly content loads on your device and is measured in Mbps (megabits per second).

• You can exchange files, stream videos, and browse the web more quickly with more bandwidth.



Mobile Location Information (LAC - Location Area Code and CID - Cell ID)

• Location Area Code (LAC): This code informs the network of the overall region or cluster of cell towers to which your phone is deployed. It functions similarly to the network's method of estimating your location so that calls and data are routed appropriately.

• Cell ID (CID): This is the unique ID of the cell tower that your phone is connecting to. It assists the network in identifying the tower that is supplying your signal.