Case Study Assignment: Exploring Field Test Mode on Smartphones

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. **Key Information to Collect:**
   - **IMEI Number** (International Mobile Equipment Identity)
   A unique identifier assigned to mobile devices,particularly Gsm and wcdma phones.

   - **MAC Address** (Media Access Control address)
   A unique identifier assigned to network interfaces for communications on the physical network segment.
   - **IP Address** (Internet Protocol address)
   A numerical label assigned to each device connected to a computer network that uses the internet protocol for communication.
   - **Network Operator/Brand** (Airtel) : Network operators and brands play a crucial role in the telecommunications landscape. A mobile network operator (MNO) offers services like voice calls, messaging, and data transfer through their network, earning revenue by charging customers.
   - **Network Type** (4G) :4G is the fourth generation of mobile telecommunications technology, succeeding 3G and preceding 5G. It represents a significant advancement in mobile network capabilities, offering faster data transfer rates, improved network reliability, and enhanced user experiences.
   - **Signal Strength** (Measured in dBm) : Signal strength is a critical factor in determining the quality of a mobile network connection. It refers to the power level of the radio signal received by a mobile device from a cell tower.
   - **Download/Upload Bandwidth** (Physical channel configuration and speed) :
   Bandwidth refers to the maximum rate of data transfer across a network path and is a critical factor in determining the performance of mobile networks. It is typically measured in megabits per second (Mbps) and can vary based on several factors, including physical channel configuration, network technology, and environmental conditions.

   Mobile Location Information (LAC - Location Area Code and CID - Cell ID)
   3. **Steps to Access Field Test Mode:**
   - **For Android Devices:**

- Open the phone dialer and enter *#*#4636#*#* to access the testing menu.
    - Navigate to **Phone Information** and **Wi-Fi Information** for relevant details.
    - Take screenshots of IMEI, signal strength, network type, etc.
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Phone info 1

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Current subID: 1
SubId of default data SIM: 1
IMSI: 404950974464661
Current network: airtel
Roaming: Not roaming
Data service: Connected
Data network type: LTE
Override network type: NONE
Voice service: In service
Voice network type: LTE
Signal strength -91 dBm   49 asu
DL bandwidth (kbps): 6397
UL bandwidth (kbps): 6397
LTE physical channel configuration: {{mConnectionStatus=Prim
aryServing,mCellBandwidth
DownlinkKhz=10000,mCel
lBandwidthUplinkKhz=0,m
NetworkType=LTE,mFreque
ncyRange=MID,mDownlinkCh
annelNumber=2147483647
,mUplinkChannelNumber=21
47483647,mContextIds=[0,
1],mPhysicalCellId=401,mB
and=0,mDownlinkFrequency=
0,mUplinkFrequency=0}}

Set preferred network type:

GSM/WCDMA/LTE (PRL)   ▼

Mobile radio power   ⬤

VoLTE provisioned   ⬤

Video calling provisioned   ⬤

Wi-Fi calling provisioned   ⬤

EAB/Presence provisioned   ⬤

Enable DSDS   ⬤

Set removable eSIM as default   ⬤

RUN PING TEST

Phone info 1

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RUN PING TEST

Ping hostname(www.google.com) IPv4:
Ping hostname(www.google.com) IPv6:
HTTP client test:

Data sent 112522 pkts, 18791679 bytes
Data received: 120282 pkts, 93510787 bytes
Number of PPP reset since boot:

Voice call status: Idle
Message waiting: false
Call redirect: false

Mobile info refresh rate:

Disabled ▼

All mobile measurement info:
LTE

SRV	MCC	MNC	TAC	CID	PCI	EARFCN	BW	RSRP	RSRQ	TA
R+N	404	94	55357	16448	401	390	10	-81	-10	3

OPERATOR PROVISIONING INFO

TRIGGER OPERATOR PROVISIONING

OEM-SPECIFIC INFO/SETTINGS

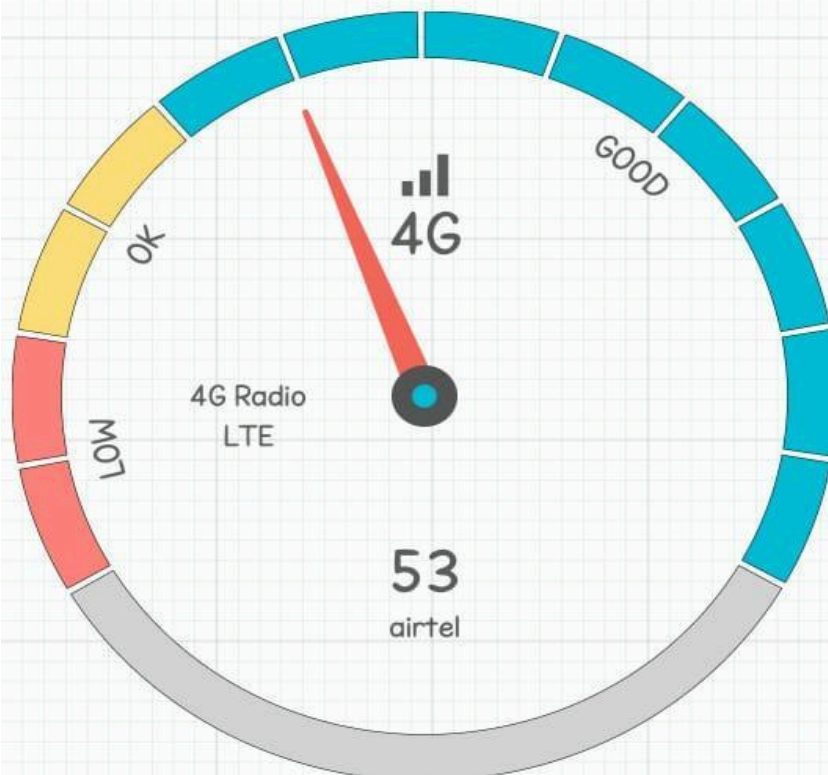SMSC: _____ UPDATE REFRESH

TOGGLE DNS CHECK   0.0.0.0 not allowed

Signal

dB

GOOD

OK

4G

4G Radio
LTE

LOW

53

airtel

WiFi

4G
SIM1

SIM2

Signal

Net

Chart

Premium