Forensic Research on IOS device

[1]Pawan Kumar, [2]Dr. Rajesh Yadav
[1]M. Tech Scholar, Department of C.F.I.S, G.I.T.A.M, Kablana, Jhajjar, MDU, Rohtak, Haryana,
[2]Associate Professor, Department of C.F.I.S & C.S.E, G.I.T.A.M, Kablana, Jhajjar, MDU, Rohtak, Haryana

Abstract

In this whole of this research, we discuss about IOS system. This help to able to learn the basic concept of IOS device and operating system.

In this paper you will be able to learn about hardware inspection.

This will help you to know the concept of business-related term like how the price should be affected.

This also will help you to get the answer of good question.

It also tells why the price of IOS based system is too high.

Why IOS devices are to prefer and why people say my dream mobile is iPhone.

Why IOS systems are too much secure.

This will help you to gain the knowledge of security, IOS application, IOS system.

Introduction to IOS

IOS (formerly **iPhone OS**) is a mobile operating system created and developed by Apple Inc. exclusively for its hardware. It is the operating system that presently powers many of the company's mobile devices, including the iPhone, iPad, and iPod Touch. It is the second most popular mobile operating system globally after Android.

Originally unveiled in 2007 for the iPhone, IOS has been extended to support other Apple devices such as the iPod Touch (September 2007) and the iPad (January 2010). As of March 2018, Apple's App Store contains more than 2.1 million IOS applications, 1 million of which are native for iPads.[9] These mobile apps have collectively been downloaded more than 130 billion times.

The IOS user interface is based upon direct manipulation, using multi-touch gestures. Interface control elements consist of sliders, switches, and buttons. Interaction with the OS includes gestures such as *swipe*, *tap*, *pinch*, and *reverse pinch*, all of which have specific definitions within the context of the IOS operating system and its multi-touch interface. Internal accelerometers are used by some applications to respond to shaking the device (one common result is the undo command) or rotating it in three dimensions (one common result is switching between portrait and landscape mode). Apple has been significantly praised for incorporating thorough accessibility functions into IOS, enabling users with vision and hearing disabilities to properly use its products.

Major versions of IOS are released annually. The current version, IOS 12, was released on September 17, 2018. It is available for all IOS devices with 64-bit processors; the iPhone 5S and later iPhone models, the iPad (2017), the iPad Air and later iPad Air models, all iPad Pro models, the iPad Mini 2 and later iPad Mini models, and the sixth-generation iPod Touch. On all recent IOS devices, IOS regularly checks on the availability of an update, and if one is available, will prompt the user to permit its automatic installation.

In this particular paper we will discuss about some fact and different types of IOS devices likely apple iPhone and its generation, iPad, mac book, IOS laptop, apple tv etc.

An IOS user gives an advanced level of enjoy the internet and speed performance. An IOS users are too much secure then Android or windows user, just because IOS deals with quality and security. Another good advantage of IOS they have their own software and hardware to. Unlikely to other company failure.

Advantage Key of IOS device

Security

Data processing speed

Hardware setup

Data handling

IOS Siri

Don't allow 3rd party app

Own processor

Own operating system

Fast

Good wireless connectivity newly is wireless charging.

Some historical background of IOS device/Apple: -

In this particular session I am telling about the born and upgradation of IOS device and its gadget.

HISTORY: -

In 2005, when Steve Jobs began planning the iPhone, he had a choice to either "shrink the Mac, which would be an epic feat of engineering, or enlarge the iPod". Jobs favored the former approach but pitted the Macintosh and iPod teams, led by Scott Forstall and Tony Fadell, respectively, against each other in an internal competition, with Forstall winning by creating the iPhone OS. The decision enabled the success of the iPhone as a platform for third-party developers: using a well-known desktop operating system as its basis allowed the many third-party Mac developers to write software for the iPhone with minimal

retraining. Forstall was also responsible for creating a software development kit for programmers to build iPhone apps, as well as an App Store within iTunes.

The operating system was unveiled with the iPhone at the Macworld Conference & Expo on January 9, 2007, and released in June of that year. At the time of its unveiling in January, Steve Jobs claimed: "iPhone runs OS X" and runs "desktop class applications", but at the time of the iPhone's release, the operating system was renamed "iPhone OS". Initially, third-party native applications were not supported. Jobs' reasoning was that developers could build web applications through the Safari web browser that "would behave like native apps on the iPhone". In October 2007, Apple announced that a native Software Development Kit (SDK) was under development and that they planned to put it "in developers' hands in February". On March 6, 2008, Apple held a press event, announcing the iPhone SDK.

The IOS App Store was opened on July 10, 2008 with an initial 500 applications available. This quickly grew to 3,000 in September 2008, 15,000 in January 2009, 50,000 in June 2009 100,000 in November 2009, 250,000 in August 2010, 650,000 in July 2012, 1 million in October 2013, 2 million in June 2016, and 2.2 million in January 2017. As of March 2016, 1 million apps are natively compatible with the iPad tablet computer. These apps have collectively been downloaded more than 130 billion times.[36] App intelligence firm Sensor Tower has estimated that the App Store will reach 5 million apps by the year 2020.

In September 2007, Apple announced the iPod Touch, a redesigned iPod based on the iPhone form factor. In January 2010, Apple announced the iPad, featuring a larger screen than the iPhone and iPod Touch, and designed for web browsing, media consumption, and reading.

In June 2010, Apple rebranded iPhone OS as "IOS". The trademark "IOS" had been used by Cisco for over a decade for its operating system, IOS, used on its routers. To avoid any potential lawsuit, Apple licensed the "IOS" trademark from Cisco.

In October 2016, Apple opened its first IOS Developer Academy in Naples inside University of Naples Federico II's new campus.

Software used in IOS devices

iPhone OS 1, iPhone OS 2, iPhone OS 3, IOS 4, IOS 5, IOS 6, IOS 7, IOS 8, IOS 9, IOS 10, IOS 11, and IOS 12

Platform usage as measured by the App Store on February 24, 2019.

IOS 12 (80%)

IOS 11 (12%)

IOS 10 and earlier (8%)

Apple provides major updates to the IOS operating system annually via iTunes and also, for IOS 5 and later, over-the-air. The latest version is IOS 12, released on September 17, 2018. It is available for iPhone 5S and later, iPad Air and later, iPad Pro, iPad Mini 2 and later, and sixth-generation iPod Touch.

Originally, iPod Touch users had to pay for system software updates. This was due to accounting rules making the device not a "subscription device" like iPhone or Apple TV, and significant enhancements to the device required payments. The requirement to pay to upgrade caused iPod Touch owners to stay away from updates.[54] However, in September 2009, a change in accounting rules won tentative approval, significantly affecting both Apple's earnings and stock price, and allowing iPod Touch updates to be delivered for free.

Some extra good key points

An IOS devices such as iPhone, iPad, they are used diff types of technology to communicate.

An IOS devices support GPRS

It also supports volte

It supports Bluetooth, WIFI, GPS.

It has their own store to download IOS app

IOS store.

iTunes, just like android it also has assistant called Siri.

Multi-tasking

Multitasking for IOS was first released in June 2010 along with the release of IOS 4. Only certain devices—iPhone 4, iPhone 3GS, and iPod Touch 3rd generation—were able to multitask. The iPad did not get multitasking until IOS 4.2.1 in November. Currently, multitasking is supported on iPhone 3GS+, iPod Touch 3rd generation+, and all iPad models.

Implementation of multitasking in IOS has been criticized for its approach, which limits the work that applications in the background can perform to a limited function set and requires application developers to add explicit support for it.

Before IOS 4, multitasking was limited to a selection of the applications Apple included on the device. Users could, however "jailbreak" their device in order to unofficially multitask. Starting with IOS 4, on third-generation and newer IOS devices, multitasking is supported through seven background APIs.

1. Background audio – application continues to run in the background as long as it is playing audio or video content
2. Voice over IP – application is suspended when a phone call is not in progress
3. Background location – application is notified of location changes
4. Push notifications
5. Local notifications – application schedules local notifications to be delivered at a predetermined time
6. Task completion – application asks the system for extra time to complete a given task
7. Fast app switching – application does not execute any code and may be removed from memory at any time

Features

1.) Notification Center

2.) Accessibility

3.) Switching app

4.) Game center.

Some major key points

Hardware

The main hardware platform for IOS is the ARM architecture. IOS 11 drops support for all IOS devices with 32-bit ARM processors as well as 32-bit applications, making IOS 64-bit only

Software

To developed IOS software means that to upgrade its app what we are using we required sdk (software development key)

There is also required x-code for upgrade the performance of device. And x-code only runs on MAC laptop not windows laptops.

Browsers

To access internet IOS have their own browser rather then google chrome they have safari app.

Jailbreaking

Kernel

The IOS kernel is the XNU kernel of Darwin. The original iPhone OS (1.0) up to iPhone OS 3.1.3 used Darwin 9.0.0d1. IOS 4 was based on Darwin 10. IOS 5 was based on Darwin 11. IOS 6 was based on Darwin 13. IOS 7 and IOS 8 are based on Darwin 14. IOS 9 is based on Darwin 15. IOS 10 is based on Darwin 16. IOS 11 is based on Darwin 17. IOS 12 is based on Darwin 18.

Secure enclave

Passcode

Touch id

iCloud

Non-portable memory use

Encryption

App security and App bypass

Two tier authentications

Different kind of IOS versions

***Initial** 1. IOS 1*

Version– Released on June 29, 2007

Final Version– Released on July 15, 2008

Support Ended– 2010

IOS 1 is the first release of Apple's mobile operating system. This version of IOS was the first iteration of the touch-centric mobile operating system. The pre-installed system features of this version included Camera, Calendar, Photos, Notes, Safari, Phone, Mail, iPod, videos, and music. This was the first version of the software compatible with the iPod touch.

New key features

- Music app

- Safari browser
- Multi-touch interface
- Visual voicemail

2. IOS 2

Initial Version– Released on July 11, 2008

Final Version– Released on January 27, 2009

Support Ended– 2011

IOS 2 version of IOS introduced the third-party applications and system features that are available to iPod and iPhone Touch. The system features of this version included Calendar, Text, Camera, Weather, Photos, YouTube, Camera, Stocks, Maps, Calculator, Notes, Clock, iTunes, App Store, Settings.

New key features

- Improved Maps App
- App Store

3. IOS 3

Initial Version– Released on June 11, 2010

Final Version– Released on 3.2.2 on August 11, 2010

Support Ended– 2012

IOS 3 introduced the spotlight and search indexing features that are designed to help the users to connect with specific information on their device. The system features of this version included iTunes, Text, Calendar, Weather, Camera, YouTube, Stocks, Calculator, Clock, Settings, Notes, Voice Memos, Maps, App Store.

New key features

- Recording Videos
- Spotlight Search
- Copy & Paste

4. IOS 4

Initial Version– Released on June 22, 2010

Final Version– Released on 4.3.5 on July 25, 2011

Support Ended– 2013

The IOS 4 was announced at the company's Worldwide Developers Conference on June 2010. IOS 4 version introduced folders on the home screen and increased the number of apps that can be displayed. The system features of this version are Spell check, Camera, Home screen, Mail, and Safari

New key features

- Multitasking
- FaceTime
- Airplay
- Air Print
- iBook's

- Personal Hotspot

5. IOS 5

Initial Version– Released on October 12, 2011

Final Version– Released on May 7, 2011

Support Ended– 2014

Apple responded to the growing trend of cloud computing by introducing new platforms and system features. IOS 5 revamped notifications, added temporary banners that appear at the top of the screen. The system features of this version are News stand, Siri, and Reminders.

New key features

- iMessage
- iCloud
- Wireless Syncing
- Notification Center

6. IOS 6

Initial Version– Released on September 19, 2012

Final Version– Released on February 21, 2014

Support Ended– 2015

IOS 6 version was first introduced by Siri and later surpassed by competitors and revolutionary technology. The system features of this version are Siri, Settings, and Facebook Integration.

New key features

- Passbook
- Apple maps
- Do Not Disturb

7. IOS 7

Initial Version– Released on September 18, 2013

Final Version– Released on June 30, 2014

Support Ended– 2016

IOS 7 version was completely designed for User Interface. The system features of this version are Airdrop, Design, Notification Center, Multitasking, Control Center, and Siri.

New key features

- Airdrop
- Touch Id
- Activation Lock
- CarPlay

8. IOS 8

Initial Version– Released on September 17, 2014

Final Version– Released on August 13, 2015

Support Ended– n/a

With the help of IOS 8 version, the consistency and stable operation returned to the operating system and became beneficial to users with UX system modification. The system features of this version are Spotlight, Continuity, Keyboard, Notifications, and Multitasking.

New key features

- Apple Pay
- iCloud Drive
- Handoff
- Family Sharing
- Third-party Keyboards
- Home Kit

9. IOS 9

Initial Version– Released on September 16, 2015

Final Version– Released on August 25, 2016

Support Ended– n/a

IOS mobile operating system brought few changes to both the interface and technical foundation of the IOS with stable, dependent and solid performance. Major improvements of IOS 9 version are delivered on older devices and other groundwork.

New key features

- Low Power Mode
- Night Shift
- Public Beta Program

10. IOS 10

Initial Version– Released on July 19, 2017

Final Version– Released on September 13, 2016

Support Ended– n/a

IOS 10 version incorporated changes to 3D Touch and the lock screen. The reviewers were impressed with the image recognition technology process of IOS 10 version. The system features of this version are Keyboard, Home screen, Notification Center, Settings, Universal Clipboard.

New key features

- iMessage apps
- Delete built-in apps

11. IOS 11

Initial Version– Released on September 19, 2017

Final Version– Released on May 29, 2018

Support Ended– n/a

IOS 11 developed customization and interoperability features in mobile operating system. The lock screen and notification center of this version are developed with the display option. The system features of this version are Siri, Control Center, Camera, Wallpapers, and Settings.

New key features

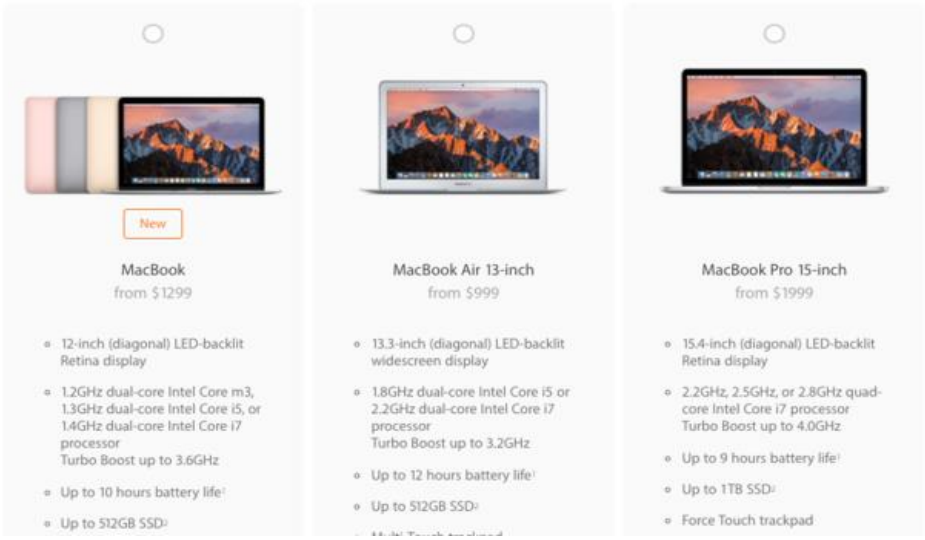
- Airplay 2
- Major enhancement on iPad
- Augmented Reality

IOS devices: _

iPhone series

1) **iPad**
2) **MacBook**

Picture of IOS gadgets




5.8" Super Retina display
Glass and stainless steel design
Face ID
12MP dual cameras with dual OIS
TrueDepth camera
A11 Bionic
Quad-LED True Tone flash
Slow Sync flash
Portrait mode (front and back)
Portrait Lighting
Animoji
LTE Advanced
Bluetooth 5.0
Stereo speakers
Water and dust resistant
Wireless charging
Fast-charge capable


Desktop
Select
ICELAND

							
	iPad	**iPad 2**	**iPad 3**	**iPad mini**	**iPad 4**	**iPad mini Retina**	**iPad Air**
Code Name	K48	K94	J1, J2	J65		J85	J72
Model Name	iPad 1,1	iPad 2,1	iPad 3,1	iPad 2,5	iPad 3,4		iPad 4,1
OS	iPhone OS 3,2	iOS OS 4,3	iOS 5,1	iOS 6	iOS 6	iOS 7	iOS 7
Screen Size	9.7-inch IPS LED 1024x768 @ 132 ppi	9.7-inch IPS LED 1024x768 @ 132 ppi	9.7-inch IPS LED 2048x1536 @ 264 ppi	7.9-inch IPS LED 1024x768 @ 163 ppi	9.7-inch IPS LED 2048x1536 @ 264 ppi	7.9-inch IPS LED 2048x1536 @ 326 ppi	9.7-inch IPS LED 2048x1536 @ 264 ppi
System-on-chip	Apple A4	Apple A5	Apple A5X	Apple A5	Apple A6X	64-bit Apple A7, M7 motion c-processor	64-bit Apple A7, M7 motion c-processor
CPU	800MHz ARM Cortex A8	1GHz dual-core ARM Cortex A9	1GHz dual-core ARM Cortex A9	1GHz dual-core ARM Cortex A9	1.4GHz dual-core Swift ARM v7s	Dual-core Cyclone (ARM v8)	Dual-core Cyclone (ARM v8)
GPU	PowerVR SGX535	PowerVR dual-core SGX543MP2	PowerVR quad-core SGX543MP4	PowerVR dual-core SGX543MP2	PowerVR quad-core SGX554MP4	PowerVR Series 6	PowerVR Series 6
Coprocessor	None	None	None	None	None	M7 Motion	M7 Motion
RAM	256MB	512MB	1GB	512MB	1GB	TBD	TBD
Storage	16GB/32GB/64GB	16GB/32GB/64GB	16GB/32GB/64GB	16GB/32GB/64GB	16GB/32GB/64GB/ 128GB	16GB/32GB/64GB/ 128GB	16GB/32GB/64GB/ 128GB
Top Data Speed	HSPA	HSPA	LTE	LTE	LTE	LTE	LTE
SIM	Micro	Micro	Micro	Nano	Micro	Nano	Nano
Rear Camera	None	1.3mo/720p	5mp, 1080p	5mp, 1080p	5mp, 1080p	5mp, 1080p	5mp, 1080p
Front Camera	None	0.3mp/VGA	0.3pm/VGA	1.2mp, 720p	1.2mp, 720p	1.2mp, 720p	1.2mp, 720p
Bluetooth	Bluetooth 2.1 + EDR	Bluetooth 2.1 + EDR	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0
WiFi	802.11 a/b/g/n	802.11 a/b/g/n	802.11 a/b/g/n	802.11 a/b/g/n	802.11 a/b/g/n	802.11 a/b/g/n MIMO	802.11 a/b/g/n MIMO
GPS	aGPS	aGPS	aGPS, GLONASS	aGPS, GLONASS	aGPS, GLONASS	aGPS, GLONASS	aGPS, GLONASS
Sensors	Accelerometer, proximity, compass	Accelerometer, proximity, compass, gyroscope	Accelerometer, proximity, compass, gyroscope	Accelerometer, proximity, compass, gyroscope	Accelerometer, proximity, compass, gyroscope	Accelerometer, proximity, compass, gyroscope	Accelerometer, proximity, compass, gyroscope
Speakers	Mono	Mono	Mono	Stereo	Mono	Stereo	Stereo
Connector	30-pin Dock	30-pin Dock	30-pin Dock	Lightning	Lightning	Lightning	Lightning
Size	9.56x7.47x0.53	9.5x7.31x0.34 inches	9.5x7.31x0.37 inches	7.87x5.3x0.28 inches	9.5x7.31x0.37 inches	7.87x5.3x0.29 inches	9.4x6.6x0.29 inches
Weight	1.5 lbs	1.33 lbs	1.44 lbs	0.68 lbs	1.44 lbs	0.73 lbs	1 lbs
Battery	25 watt hour	25 watt hour	42.5 watt hour	16.3 watt hour	42.5 watt hour	23.8 watt hour	32.4 watt hour
Colors	Black	Black/White	Black/White	Slate/Silver	Black/White	Space gray/Silver	Space gray/Silver
Price	Wi-Fi $499, $599, $699, Data $629, $729, $829	Wi-Fi $499, $599, $699, Data $629, $729, $829	Wi-Fi $499, $599, $699, Data $629, $729, $829	Wi-Fi $329, $429, $529, Data $459, $559, $659	Wi-Fi $499, $599, $699, Data $629, $729, $829	Wi-Fi $399, $499, $599, $699, Data $529, $629, $729, $829	Wi-Fi $499, $599, $699, $799 Data $629, $729, $829, $929
Release Date	2010-04-03	2011-03-11	2012-03-16	2012-11-02	2012-11-02	2013-11	2013-11-01

Visual Inspection of IOS gadgets

- p3: **Device Identification:** Added iPhone 6s and 6s Plus.
- p3-4: **Model Numbers and Configuration Codes:** Added iPhone 6s and 6s Plus.
- p9-10: **iPhone 6s Hardware Overview:** Added section.
- p11-12: **iPhone 6s Plus Hardware Overview:** Added section.
- p13: **Liquid Contact Indicators (LCIs):** Added iPhone 6s and 6s Plus.

Visual/Mechanical Inspection

Apple provides service for iPhone products with defects in materials and workmanship under the iPhone warranty or applicable consumer law. This document helps you to identify conditions that affect whether Apple covers service.

Note: This document applies only to iPhone 6, 6 Plus, 6s, and 6s Plus.

Apple warrants iPhone against defects in materials and workmanship, when used normally in accordance with Apple's published guidelines, for a period of ONE (1) YEAR globally (except for Turkey where the period is TWO (2) YEARS) from the date of original retail purchase by the end-user purchaser. The iPhone warranty covers failures caused solely by manufacturing defects, regardless of accidental damage. The warranty does not apply to cosmetic damage, including but not limited to scratches, dents, and broken plastic on ports or to defects caused by normal wear and tear or otherwise due to the normal aging of the device.

Benefits under the manufacturer's warranty are in addition to rights provided by consumer law. For details, refer to http://www.apple.com/legal/warranty/statutoryrights.html

Purpose of the Visual/Mechanical Inspection

The Visual/Mechanical Inspection (VMI) will help you to determine whether a user's described issue with the iPhone was caused by a defect in materials and workmanship, accidental damage, or an unauthorized modification, and then determine which service type to use. Defects in materials and workmanship are eligible for service under Apple's Limited Warranty or applicable consumer law. Some forms of accidental damage may be eligible for service under an AppleCare Protection Plan or AppleCare+ (where available), or for out-of-warranty service at a cost to the user.

Service Eligibility

- **Eligible Damage (Returnable Damage):** Damage caused by defects in materials or workmanship and some forms of accidental damage; for example, liquid contact. See Guidelines for Damage Classification and Reference Photos (page 16) for examples of damage that is eligible for service under Apple's limited warranty, AppleCare Protection Plan, AppleCare+ (where available), or applicable consumer law, or for out-of-warranty service at a cost to the user.
- **Ineligible Damage (Nonreturnable Damage):** Severe or catastrophic damage caused by accident, abuse, disassembly, or unauthorized service or modification is ineligible for service under Apple's Limited Warranty or for out of warranty service. See Guidelines for Damage Classification and Reference Photos (page 16) for examples of damage that is ineligible for service. Devices with this type of damage should be returned to the user unrepaired.

Note: Catastrophic damage may be covered for AppleCare+ users in certain countries. Refer to article OP691: Coverage eligibility for products covered by AppleCare+ for more information.

For iPhones that will not turn on, perform a micro-inspection on the device. Refer to article OP672: Identifying unauthorized

modifications.

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Device Identification

A valid device identifier, such as the International Mobile Equipment Identifier (IMEI), Mobile Equipment Identifier (MEID), or Apple serial number, is required to provide service for iPhone.

iPhone 6 and 6 Plus

Identifiers:

• IMEI/MEID engraving (on the back housing of the device)
• Apple serial number (accessible via AST 2, iTunes, or Serial Number Reader software)
• IMEI/MEID (obtained by dialing *#06# on the phone keypad)

Note: Do not retrieve the IMEI/MEID or serial number using Settings > General > About.

If there is any mismatch among the identifiers, then the device is ineligible for service. If the serial number and IMEI/MEID are not accessible via software or the device does not turn on, then the IMEI/MEID engraving must be used to provide service.

iPhone 6s and 6s Plus

Identifiers:

• Apple serial number (accessible via AST 2, iTunes, or Serial Number Reader software)
• IMEI/MEID (obtained by dialing *#06# on the phone keypad)

If there is any mismatch between the Apple serial number and the IMEI/MEID obtained by dialing *#06# on the phone keypad, then the device is ineligible for service. If the serial number and IMEI/MEID are not accessible via software, the device does not turn on, or if the serial number is not found using the serial number reader, then refer to the iPhone same unit repair process in GSX.

If any of the following conditions are present, then the device is ineligible for service:

• A device's IMEI/MEID engraving is missing (iPhone 6 and 6 Plus only)
• A device has been purposefully defaced or has falsified identification

When entering a serial number to begin service, verify that the color, size, and model of the device match the serial number. The last four characters of the serial number is the unique configuration code of the iPhone. This code identifies the size, color, and model of an iPhone. If there is a mismatch between the configuration code and the device's color, size, or model, then the device has been modified and is considered ineligible for service.

Model Numbers and Configuration Codes

IPhone6	A1549 MM	A1586 A1589 MM-TD
iPhone 6 128GB Space Gray 128GB Silver 128GB Gold 64GB Space Gray 64GB Silver 64GB Gold 16GB Space Gray 16GB Silver 16GB Gold	G5MK G5ML G5MM G5MG G5MH G5MJ G5MC G5MD G5MF	G5MW G5MY G5N0 G5MR G5MT G5MV G5MN G5MP G5MQ

iPhone 6 Hardware Overview

This section offers diagrams of external and internal views of the device. It provides a guide to external and internal inspection and gives an overview of the components in each device.

All functional components must be present, and the same as those originally contained within the iPhone, for a device to be eligible for service under Apple's warranty.

External Inspection

• Display
• insight camera
• FaceTime camera • Headset jack • Home button/Touch ID sensor
• Receiver • Stripped security screws (near the Lightning connector)

Unauthorized modifications alter the device's functionality or capability. A device with damage caused by counterfeit parts, third-party parts, or unauthorized modifications is ineligible for service.

Internal Inspection

1 Battery 8 Display connections on logic board 15 Multi-Touch connector
2 Battery adhesive tab 9 Home button/Touch ID sensor connector 16 Display connector
3 Vibe 10 Logic board 17 Receiver
4 Headphone jack 11 Logic board serial number/SIM reader cover 18 Home button/Touch ID sensor flex
5 Microphone 12 Battery cowling 19 Home button/Touch ID sensor assembly
6 Lightning connector 13 Speaker
7 Camera 14 Camera/receiver/ALS connector
For detailed information about iPhone 6 component locations, search GSX for the **iPhone 6 Service Guide.**
Unauthorized modifications alter a device's functionality or capability. A device with damage caused by unauthorized modifications are ineligible for service. Unauthorized modifications include counterfeit parts, third-party parts, missing components on the logic board, or missing components on flexes. If the battery adhesive tab is not present, then the device is ineligible for service.

• Battery
• Battery adhesive tab
• Battery connector
• Headset jack • Logic board serial number • SIM reader cover
(nonremovable) • Visible flexes
• insight camera • Microphone • Speaker
• Logic board • Receiver • Vibe
If any of the issues below are found, then investigate further for unauthorized modifications or corrosion.
• Missing screws or cowlings! • Missing internal LCIs! • Damaged battery tab
• Disconnected cables! • Stickers or other unusual markings
If no signs of unauthorized modifications or corrosion are found, then replace any missing screws or cowlings, reconnect cables, and continue testing.
Damage Caused by Liquid Contact or Contamination
Liquid Contact Indicators (LCIs)
iPhone 6, 6 Plus, 6s, and 6s Plus are equipped with one externally visible LCI (viewable through the SIM slot and labeled 2 in the images below) to help you determine whether the iPhone has come into contact with liquid. When an LCI comes into contact with liquid, a red color may fill the white area.
If the external LCI is not white, is missing, or cannot be seen, then open the device to check the internal LCI and

check for other signs of contamination or corrosion. iPhone 6, 6 Plus, 6s, and 6s Plus have one internal LCI (labeled 1 in the images below).

Note: A flashlight, magnifying glass, or otoscope may be needed to view LCIs.

Check for clear signs that the iPhone has been in contact with liquid, such as liquid behind the display or corrosion on the Lightning connector. If clear signs of liquid damage exist, then deny warranty coverage and offer out-of-warranty service.

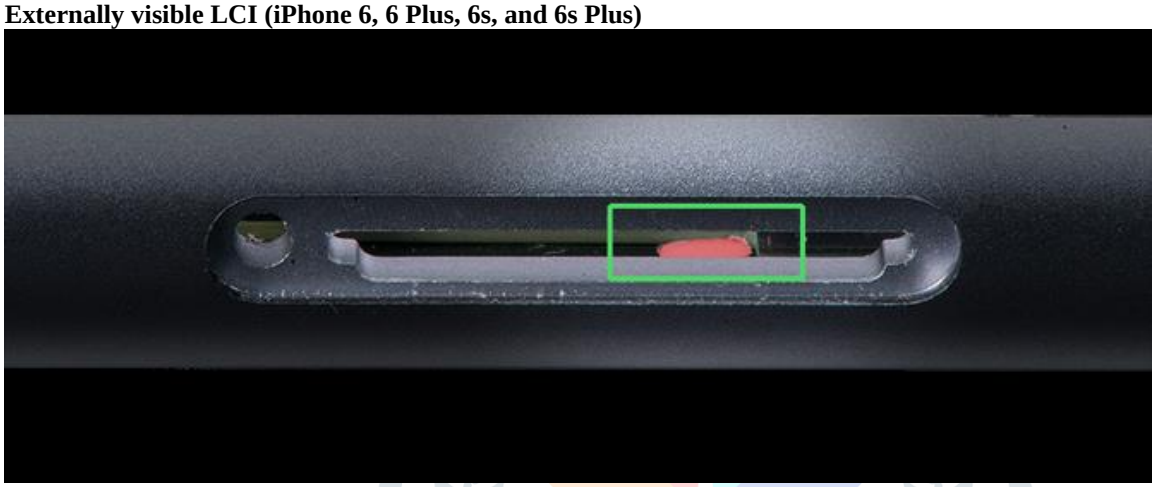
Ask the user if the iPhone has been in contact with liquid, and if so, whether the failure occurred at that time or soon after exposure. If the user confirms a correlation between liquid contact and failure, then deny warranty coverage and offer out of-warranty service.

If the user disputes whether an iPhone with a triggered external LCI has been damaged by liquid contact and there are no external signs of damage from corrosion:

- Open the device as described in the Service Guide and look for internal corrosion or a triggered internal LCI. If there is corrosion or at least one fully red (triggered) internal LCI, then deny warranty coverage and offer out-of-warranty service.
- A triggered or missing external LCI alone does not place a device out of warranty. If there is no sign of corrosion, no liquid is present, and internal triggers have not been activated, then proceed with eligible warranty service.

iPhone 6 iPhone 6 Plus iPhone 6s iPhone 6s Plus

Externally visible LCI (iPhone 6, 6 Plus, 6s, and 6s Plus)



Internal (#1) and externally visible (#2) LCIs

Debris or Corrosion

Use a lighted otoscope to inspect for contamination that may be causing functional issues with the:

• Headset jack! • Lightning connector! • Speaker grille! • Receiver/microphone mesh
Use an anti-static brush to remove lint or other debris from the ports before testing. Inspect for corrosion, lint, or other foreign materials in the headset jack, Lightning connector, speaker grille, receiver mesh, and microphone mesh that could cause a functional issue. Corrosion or other contamination could prevent proper connections. Damage caused by material or foreign objects in the ports, which is not caused by defects in materials and workmanship, is NOT covered under the iPhone warranty. This type of damage may be eligible for out-of-warranty service.
If a device is exposed to water or other liquids, then corrosion — an irreversible deterioration or degradation of materials —may result. Corrosion damage requires out-of-warranty service unless the user is seeking service for any of the damages that are considered eligible for warranty service (see page 16). However, liquid damage that results in a complete failure of the product or requires the replacement of a whole unit is only eligible for out-of-warranty service (returnable damage).
Important: Do not replace components in devices that have a triggered internal LCI or corrosion damage.

Swollen Battery

Enclosure Wear Characteristics

Chips and pitting

The warranty does not apply to cosmetic damage, including but not limited to scratches, dents, and broken plastic on ports, or to defects caused by normal wear and tear or otherwise due to the normal aging of the device. If no hardware issue is present and cosmetic damage is the only reported issue, then deny a repair or replacement.

Gouges
"Brightening" Chips and pitting
Housing dents
Scratches and scuffs
Unauthorized Modifications
Unauthorized modifications alter a device's functionality or capability. A device with damage caused by counterfeit parts, third-party parts, or unauthorized modifications is ineligible for service.
All service claims that are denied due to unauthorized modifications must be clearly recorded in the service history.
Display Modification

If the display turns on, then this test is not necessary. Remove any screen protector, if present. Illuminate the display with an LED flashlight positioned at least one foot (30 cm) from the display. The reflection on the display should have color bands or refractive color banding as shown on the left. If the reflection looks like the image on the right, then the device is ineligible for service.
Note: This test checks for a specific display modification. This test does not determine whether the display was made by Apple or by a third party. Continue with the Visual/Mechanical Inspection to determine coverage eligibility.
Eligible for Service Ineligible for Service
Guidelines for Damage Classification and Reference Photos The chart below outlines the service eligibility of different types of damage.

Foreign material that cannot be removed, including
broken headphones and other accessories,
bent pins, broken plastic, or a bent bezel.
Disassembled
unit or missing
parts
To receive service, the
unit must have all
functional parts listed
on pages 5-12 and
must be assembled.
Counterfeit parts; damage caused by counterfeit parts,
third-party parts, or unauthorized modifications
Including damage caused by aftermarket displays, mismatched components,
or other non-Apple installed parts.
Damage caused by unauthorized modifications, including inoperability or
malfunction due to installation of unauthorized software, is ineligible for
warranty or out-of-warranty service.
Catastrophic damage*

Includes units that are destroyed or forcibly
separated into multiple pieces.
Ineligible for Service (Nonreturnable Damage): If the damage for which the user is seeking service is described below, then the device is ineligible for service. Return the device to the user.
* Devices suffering catastrophic damage (including separation into multiple pieces) may be covered for AppleCare+ customers.

Research and Conclusion
It's clear to see that IOS device and its operating system both of them deals with security.
So according to whole of the data I research on the following concept like
Hardware
Software
That influence on IOS devices.
I also study about diff types of security and their threat which effect on any kind on IOS system (iPhone, iPad, MacBook).
I also research on why IOS system are to secure and why they are too expensive while other system is low in price.

In Developing
IOS app developer and designer are use only mac book or IOS based system to compile and run code.
They used only x-code app which is only work on IOS device.
So, it's clear to see the cost of IOS based system is too high in price so minimum person are use x-code and min people know about that code this says there is minimum chances to hack device.
That's why I called IOS and their app are to secure.

IOS system deals with quality and assured.
They implement their system as a NON-REMOVABLE port.
Like they provide non-removable Battery.
There is no such a port of storage (memory card).

An IOS operating system deals with security.

IOS app only avail on IOS store just like android.
IOS can't install app and can't gave permission to 3rd party apps.
IOS also provide double authentication.

IOS system have their own browser (safari), own store (iPhone store), iTunes.

The main and important thing for apple and IOS they is lord. Means they doesn't depend on other organization like other android companies, they have own hardware but not an own software like android.
Means that in business term they are shareholders, that means
If the price or share of hardware cost of gadgets/software is down than automatically effect on other.

iCloud
its help to get data back means a wireless data backup.
Basically, it's just cloud storage that help to stored data and provide into backup.
Requirement: _
IOS system IOS browser
That means we are to secure by using IOS system.

So, in Hardware
IOS doesn't help to store any kind of other media or storage device.
Own operating system.
Own hardware.

So, in Software
IOS have own software and operating system.
IOS have IOS cloud.
. To create an IOS app or to development we **require: _**
. IOS system to code editor like x-code support only in IOS devices.
. IOS device require.
. And its app is published only on IOS app store.
IOS does not support 3rd party app.
IOS support scan file and app to use it.

So, my research gave me my answer of following questions.
Hence the all about concept of IOS system says: -
Why the price of IOS community is too high?
Reason for more security in IOS devices.

Some advanced and new features in IOS 11
Apple introduce every year with a new gadget and new iPhone.
Like in 2018 iPhone 10, iPhone x.
This year iPhone introduce iPhone11.

Features: -
Full screen display.
A good volte connection means internet is quite too much good.
Great performance on battery and good battery life.
Advancement wireless battery sharing and wireless charging.

Devices of IOS
iPhone
iPad
MacBook
iTunes
IOS earphone and headset.

So, these device and app gave us to more easy and comfortable life.

Bibliography/reference list
In my research on IOS and IOS device I have used some resource and references that help me to research and analyze the concept of IOS device and its security, price, code, app etc.

Some of good references are givens by following: -

1) History of IOS device and its date and time and some data is provided me by using Wikipedia.
2) To gain some advance knowledge of cloud and security I am also use Wikipedia for analyze the concept of security.
3) To get the knowledge of hardware like its model and some inspection I use some pictures from google and hardware of IOS device and my lab with my friend.
4) Software knowledge and IOS app development and code knowledge references is geeksforgreeks.
5) I also reference an inspection guide from apple store.
6) Google help me to understand IOS system.
7) Some good website helps me lot.