

UNIT-5

What is the iOS?



iOS is an abbreviation for the **iPhone operating system**. iOS is the operating system that runs on many of Apple's mobile devices, including the iPhone and iPod Touch. It is the world's second most popular mobile OS, trailing only Android. It is the basis for three other Apple operating systems: **iPadOS**, **tvOS**, and **watchOS**. It is a part of proprietary software. Some are open source under the **Apple Public Source License** and other licenses.

The iOS os was first released in **2007** for the first-generation iPhone and has since been updated to support more Apple devices, including the iPod Touch and iPad. Apple's App Store had **over 2.1 million** iOS apps as of **March 2018**, with 1 million unique to iPads. **Over 130 billion** times, these mobile applications have been downloaded.

Apple releases a new major version of iOS every year. On **September 20, 2021**, the current stable version, **iOS 15**, was released to the public.

Features of iOS 14

In June 2020, Apple introduced the latest version of its mobile operating system, i.e., iOS 14, which was officially released on September 16. Apple has made many updates in iOS 14, which makes it the biggest update to date. Many improvements come with iOS 14, like home screen design changes, Siri improvements, updates to the existing applications, etc. Also, the users get multiple tweaks that are used to streamline the iOS interface. However, in this article, we will discuss the features of iOS 14 in detail.

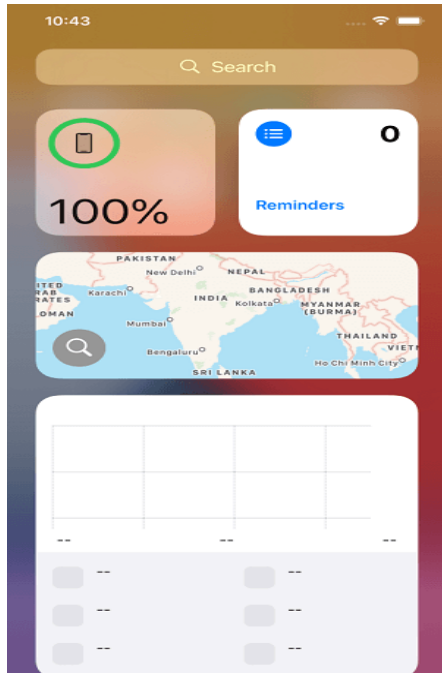
Features

There are the following features included in iOS 14.

Home Screen Resign

Apple has introduced a new design for the home screen, which provides more customization. The users can hide entire pages of applications. Also, it provides a new app library that contains everything that is installed and displays the users at a glance.

Multiple new widgets get placed on a new home screen design, which can be edited to add more or remove some of them.



Widgets

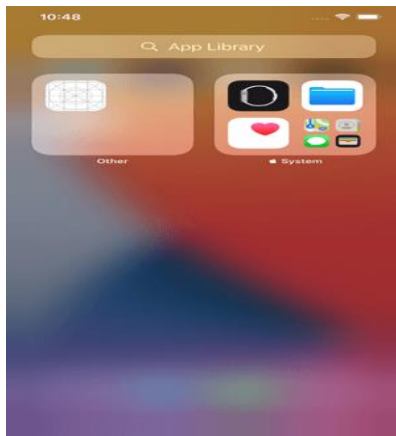
The widgets have also been redesigned to look more beautiful and contain more data. The iOS 14 has widgets for default apps like Weather, Clock, Calendar, Maps, Fitness, Photos, Reminders, Stocks, Music, TV, Tips, etc. We can place such widgets on the home screen to have the required information at a glance. We can also alter the size of the widgets to make them small, medium, or larger.

However, we can create a stack of up to 10 widgets to utilize the most space on the home screen. In the widget gallery, we can even select the smart stack of the widgets based on the device intelligence to surface the right widget at the right time. For example, the weather app can be seen in the morning, calendar events during the day, Apple maps in the evening, etc. The developer can also create their widgets, which can be placed on the home screen and shown to the user at the right time.

We can edit the home screen and add the widgets from the widget gallery by long-pressing the home screen. The widget gallery shows the widget suggestions based on the user's activity.

App Library

App Library can be accessed by swiping to the end of the home screen pages. It organizes all the apps into one simple and easy-to-navigate view. It suggests the apps to the user based on the user's activity. It also categorizes all of the apps into a sorted order such as Social, Entertainment, etc. We can also search through the app library using the search bar at the top of the App Library. The apps we download from the app store can be found in the App Library, making it easy to get them.



Compact UI

IOS 14 has given a more compact UI, which allows users to do multi-tasking. When the users receive a phone call, it is shown as a banner instead of the entire screen. It facilitates the user to keep track of what is being done, and calls can't interrupt the user's flow. Users can swipe up the banner to dismiss the call, swipe down it to extend to the phone application to have more options, and tap it to answer the call. Apple has also introduced a developer API so that the apps like skype can support compact incoming calls. It has also improved the face time calls, which are now shown as the banner instead of taking over the entire screen.

Apple has also provided the picture-in-picture feature, i.e., now the users can do video calls along with checking the mail or finding some time for watching a TV show. Also, users can resize the picture-in-picture window for a bigger or smaller screen. Users can

also drag the picture-in-picture window to any corner of the screen. However, the picture-in-picture window can be minimized to have full access to the in-use app.

Search

Apple has also improved the search functionality. Now, the most relevant results are shown right at the top, making it easier to find what the user needs. Search suggestions also appear below the search bar when we start typing into it. iOS 14 also provides a quick launcher, which quickly launches an application by just typing a few characters and tapping go. Searching through the web has also become easier now. The user needs to type something and select the appropriate result from the website and web-search suggestions displayed at the top.

Messages

We can pin our favorite conversations at the top of the conversation list for easier access. If the group conversation is pinned, then we can also see the recent participants around the pin when they send any message to the group. We can have up to nine pinned conversation on an account synced over iOS, iPadOS, and macOS. We can also enable smart notifications in a group chat so that the user is notified only in the case when it is mentioned. We can reply directly to a message in a group conversation. Now, we can set the photo, memoji, or emoji for a group conversation for all the participants.

Memoji

There are 11 hairstyles available for the memoji. We can customize our memoji with the man bun, top knot, and many more. We can also customize our memoji by changing the headwear styles. There are 19 such styles to show off the hobby or profession, including cyclist helmet, nurse cap and many more. Three new memoji stickers can be shared with friends. We can also customize our look with six new-age options to look according to our age.

Maps

Various features are added to maps now, including routes cyclists along cycle lanes, paths, or roads. Apple makes it easy to navigate by offering custom cycling voice

assistance. The user can preview the elevation of the ride, also the traffic along the route. Map also provides recommendations for the best places to visit in the city. Guides provide users the suggestions for the best places to eat, shop, or explore in the city. Guides can also be saved, which helps us to get them back later. Maps have also become smarter to support electric vehicles. It shows charging stops along the route. It also calculates the charging time while evaluating ETA. Maps show the congestion zones in the city to help reduce the traffic. Maps also detect the speed cameras and red-light cameras along the route.

Translation

Translation has become smarter in iOS 14. The split-screen is shown in landscape mode, which shows the text from both sides of a conversion. The user can provide the input via the microphone, and the language detection transcribes the original and translated text on both sides of the screen. Users can also translate their voice from one language to another even without an active internet connection for the downloaded languages. The users don't need to download separate keyboards since all languages have their keyboards included the translated text. Users can also save translations in the favorites tab to access them later. Translate supports the combination of 11 languages, i.e., English (US and UK), Spanish, Chinese, Japanese, Korean, Russian, German, French, Italian, Portuguese, and Arabic.

Siri Improvements

In iOS 14, Siri has also been improved with a new compact design. It allows us to refer to information on the screen and launch further. When we start any request, Siri pops up at the bottom of the screen whereas, the information comes on the top as a notification. There is also a major knowledge upgrade in Siri with 20X more facts now. With Siri, we don't need to browse the web now; it can provide answers to a broader set of questions. Now, we can also send audio messages with iOS and Carplay. We can also ask Siri for cycling directions. While driving, we can ask Siri to share the ETA of the route with a contact. There is also a major update in the set of languages that Siri can translate. Now, Siri can translate over 65 language pairs. Siri's voice is also approved to sound more natural with advanced text-to-speech technology.

Safari

In iOS 14, Safari can translate entire web pages. There is a translate icon displayed in the address field of safari, which can be used to translate a web page into a set of languages that include English, Spanish, Simplified Chinese, French, German, Russian, or Brazilian

Portuguese. Safari provides the option to access the privacy report that shows the cross-site trackers blocked in the safari by the intelligent tracking system. Safari also has the edge over android's chrome in terms of performance with a high-speed JavaScript engine. Safari also monitors the saved passwords to keep an eye upon the passwords that can also be involved in the data breach.

In this article, we have covered the features of all new iOS 14. However, there is a large set of features that have been given with iOS 14. We recommend all the developers to read about the features to develop applications according to new features.

2. Why is iOS better than Android?

We can't deny that Android is the most used platform worldwide. However, there are various reasons that recommend that iOS phones perform better than Android. Apple has shown how Software and hardware complement each other with the recent releases of iPhones, i.e., iPhone 12, iPhone 11, iPhone 11 pro max, iPhone XR, etc.

Apple has also worked seamlessly on other gadgets like Macs, Apple Watch, and Apple TV. It not only provides a device; it provides a closed ecosystem where Software and hardware are built to perform at best. In this article, we will discuss the facts to explain why [iOS](#) is better than Android.

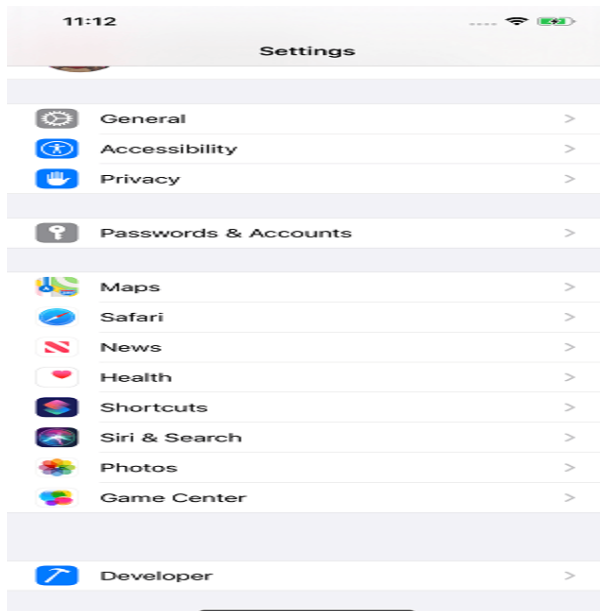
Following are the reasons why iOS beats [Android](#).

1. Software and Hardware Integration

Apple's iOS is a closed ecosystem, which means that Apple manufactures both Operating systems and hardware and no other company uses either of them to integrate with their services. It gives Apple an edge over Android to provide a better synchronization between hardware and software. On the other hand, in the case of Android, the hardware is built by the brands like Qualcomm and MediaTek (not Google), and also, the Operating system has to be generic for all the devices and brands. Nowadays, brands also make their flavor, which runs on top of Android.

2. Easy to use

It is very easy to use the iPhones since iOS doesn't provide a lot of customization to the user interface, making the new adopters easier to understand. It adds simplicity to the UI, which makes the users habitual of the interface. It doesn't provide multiple options so that the user doesn't get confused while using iPhones. On the other hand, Android provides many options to tweak and change the way the user interface looks. Look into the following image for the iPhone 11 settings app.



3. Regular Updates

Apple is known for its better update timeline since the updates roll in the same date for every device. All the devices get updated on the same date without any discrimination. On the other hand, the android smartphone makers schedule updates according to their priorities and don't sync with Google. This might be because most of the brand gets their flavors to the current android version, which are being tweaked for the next update.

4. Security and Encryption

Apple's iOS and iPhones are built in a way that no one can get into it without the user's permission. The memory on the iPhone is encrypted so that one can't hack the device and read the confidential data. On iPhone X, the fingerprint id and the Face Id are stored directly into the phone instead of the cloud server. The iPhones cannot be easily jailbroken, and if so, we can configure the iOS applications to not be used within a

jailbroken device. On the other hand, the Android can be easily rooted and hacked. Android lacks in terms of security.

5. Lack of Choices

There is a lot of confusion when selecting a better phone from a variety of Android smartphones. iPhone doesn't have many varieties like Android, but we can't go wrong while purchasing an iPhone since only two to three models are launched every year. Also, the fact that iPhones differ only in screen sizes, storage space, and camera modules. On the other hand, many specifications have to look into, which are enough to confuse a buyer.

6. 3D Touch

Apple provides the users to give 3D touch inputs, which enables micro menu options. The iOS devices are configured to sense the pressure sensitivity on the screen and enable different input options based on the same. Different iOS applications have also adopted this functionality. On the other hand, the Android struggles to provide such a variety of 3D touch. However, it provides a long-press option, but it is not as responsive as 3D touch in iOS.

7. Absence of Bloatware

Apple comes with no unnecessary bloatware, which makes it worth its money. It also provides the option to remove certain pre-installed applications. On the other hand, we can remove the bloatware only if we root the device. ***((Bloatware is unwanted and potentially harmful software preloaded onto new devices. Also known as potentially unwanted applications (PUAs))***

8. App Store Restrictions

An iOS application has to go through various checks before its release on the App store. No one can crack paid applications on the App store. Apple follows very safe and quality policies to review applications that are submitted on Appstore Connect. The submitted iOS app has to be responsive and follows the standards of Apple while it appears on the screen so that we can get only quality apps on the iPhone device. Apple has also worked upon the review speed, and any iOS application gets live on the App store only within a single working day (if not rejected in review).

INTRODUCTION TO OBJECTIVE-C

Objective C

If we talk about iOS development, there are two possibilities:

1. Objective-C
2. Swift

Here, we compare both languages and see what are the differences between them? What are the advantages and disadvantages of both and which one is better to deploy your project?

Objective C

Objective C is a programming language created by the Stepstone Company in the early 1980s. It was released to the public in 1988. It was licensed by NeXT Computer, Inc. to develop the NeXTStep frameworks and finally acquired by Apple. It became the standard for many years for iOS apps development.

Objective C was influenced by two languages i.e. C and Smalltalk and this is the reason why it has a complicated syntax. Objective-C uses dynamic typing and message passing.

Advantages (Pros) of Objective C

- Objective C is well tested language because it has existed from many years. There is a lot of code written in Objective C. It has many well-documented, third-party frameworks.
- Objective C is compatible to C and C++ programming language. As Objective C is a superset of C thus, the code of C and C++ runs smoothly on this.
- Objective C is stable. You don't need to spend money on migrating if you have developed your app on Objective C.

Disadvantages (Cons) of Objective C

- Objective C is hard to learn because its syntax is complicated. It is different from many other popular programming languages that's way Swift is preferred over it.
- A lower number of developers are interested to learn Swift because it is hard to learn.
- Objective C is not as secure as Swift. An app developed with Objective C is more prone to hack than Swift.

Swift

Swift is relatively a new language. Apple started to work on Swift in 2010 and it is first released to public in 2014. It has become open source in 2015. Swift follows the features of modern programming languages so, it is easier to learn.

Advantages (Pros) of Swift

- Swift is safe. Swift has some features like generics, optional, type inference which make its apps less prone to errors.
- Apple is fully focused on Swift development so, it has a bright future.
- Swift is one of the most preferred programming languages while Objective C is a degrading one.
- Apps development in Swift is faster than in Objective C.

Disadvantages (Cons) of Swift

- The only one disadvantage of Swift app development is that it is not stable. You may get its upcoming versions and app changes and migration is not an easy task.

DIFFERENCE BETWEEN C AND OBJECTIVE-C

1. Syntactically speaking, Objective C is an extension of the popular C programming language. This means knowing C will definitely help you learn Objective C. One of the key differences between Objective C and C is that Objective C has an object-oriented class system not present in C.

2.Objective C is object oriented programming where as, C is procedural programming. Objective C incorporates classes, whereas as C doesn't. Objective C allows for division of problems subproblems and submodules that can be developed and tested individually.