1. Introduction

Modern technology transformed the basic phones into smartphones that they are much closer to handheld computers which give you features like listening music, sending emails, watching movies, playing games and much more including face-to-face video calls. The operating system is responsible for determining the functions and features available on phone devices, such as keyboards, synchronization with applications, email, text messaging and more. *OS stands for Operating System.* The operating system is software on a mobile phone that manages the way different programs use its hardware. The mobile OS will also determine which third-party applications (mobile apps) can be used on your device.

2. Types of Mobile Operating System and Their Manufacturers

The aforementioned technological advancements have resulted in a variety of different competing mobile operating system solutions on the market driven by different actors. Some of these actors include Google’s Android, Apples’ iOS, BlackBerry OS, Microsoft’s Windows Phone, Nokia’s Symbian, RIM’s Samsung’s Bada, Hewlett-Packard’s webOS, and embedded Linux. Look at this chart, it shows some useful insights that explain how different mobile operating systems are getting popularity and acquiring market for the period of Jan 2011 to Jan 2017.
3. Most Popular Operating System for Mobile Phones

The operating system on a mobile phone (phones, tablets, smartwatches, or other mobile devices) is the very basic software which allows your phone to operate. It brings together the hardware chips and components inside your phone so they all work in conjunction with each other. The operating system provides all of the basic functionality of the phone. To choice of operating system has a massive impact on the look and feel of your phone and the applications that it’s able to run. The following sub-sections review four of the most popular mobile operating systems.

3.1. Apples’ iOS

iOS was introduced in 29th June 2007 when the first iPhone was developed. iOS is a mobile operating system developed by Apple and distributed exclusively for Apple hardware. It is the operating system that powers iPhone, iPad, iPod Touch, and Apple TV. Apple has still not allowed any other manufacturer to lay hands on its operating system. iOS is made up of four abstraction layers: Core OS, Core Services, Media, and Cocoa Touch. Apple has more concentrated on the performance along with appearance. This is the reason that the basic appearance of iOS is almost the same as it was in 2007. Overall it is very user-friendly and is one of the mobile best operating systems in the world.

3.2. BlackBerry OS

BlackBerry OS is developed by Research in Motion (RIM) for their BlackBerry smart phones and tablet devices. BlackBerry OS 1.0 debuted in January 1999 as part of BlackBerry’s pager/email devices. One of the main strengths of BlackBerry devices is their ability to handle corporate email. BlackBerry OS supports the Java Mobile Information Device Profile (MIDP) and the Wireless Application Profile (WAP). BlackBerry OS originally supported applications written in C++. On the other hand, Blackberry is much different from other operating systems. The interface style, as well as the Smartphone design, is also different having a trackball for moving on the menu. Like Apple, Blackberry OS is a close source OS and is not available for any other manufacturer. Some of the
smartphones operating on Blackberry OS are *Blackberry Bold, Blackberry Curve, Blackberry Torch* and *Blackberry 8520*.

### 3.3. Microsoft’s Windows Phone

Windows Phone is a proprietary smartphone operating system *developed by Microsoft*. First released in 2010, Windows Phone is a fairly new operating system and hence has fewer users than iOS and Android. Various hardware manufacturers including HTC, Samsung, LG, and Nokia are developing Windows Phone devices. This Windows OS has its own unique GUI - called as tiles-based user interface - that makes them more stylish as compared with their competitors. *Even it has polished design and functionality, most of the users find it bit complicated and more compact to operate it.* Microsoft worked hard on the user interface which is shown by live resizable tiles design - that helps the user, for example, to read live scores and to display more information directly through app-tiles icons without opening any app. *It’s obvious, as the OS built-up derived from Microsoft family, this OS provides the best support to view, edit and create office documents.* Many mobile phone manufacturers are now beginning to ship smartphones with Windows Phone – examples *include Nokia’s Lumia range, Samsung Omnia 7, LG Optimus 7 and HTC Titan*.

### 3.4. Android OS

Android OS for mobile devices is developed by the *Open Handset Alliance*, which is *led by Google*. Google unveiled the Android distribution in *November 2007*. Most of the Android core is released *under the open source* Apache License but a large amount of software on Android devices (such as such as Play Store, Google Search, Google Play Services, Google Music) are proprietary and licensed. As of 2011, Android has the largest installed base of any mobile OS and as of 2013, its devices also sell more than Windows, iOS and Mac OS devices combined. As of July 2013 the Google Play store has had over 1 million Android apps published, and over 50 billion apps downloaded. A developer survey conducted between April and May 2013 found that 71% of mobile developers develop for Android.
Android uses a Linux kernel with higher-level APIs written in C and applications are normally programmed in Java and run with the Dalvik virtual machine (DVM). This combination brings up some secure features, like efficient shared memory management, preemptive multitasking, Unix user identifiers (UIDs) and file permissions with the type safe concept of Java. The Android platform contains the following layers: Linux Kernel, Android Runtime, Libraries and Application Framework. Every Android application runs in a separate process under a unique UID with distinct permissions, which means that applications can typically not read or write each other’s data or code. The kernel sandboxes applications from each, so that resource and data must be share explicitly. To make a resource share between applications possible, the permissions which are required must be declare statically at the time the application is installed. The Android system prompts the user for consent at this time; a mechanism for granting permission dynamically at runtime is not possible and would lead to an increase of security transparency.

Good Luck

Regards