Comparative Study of Different Mobile Operating Systems

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ABSTRACT:
In the present scenario, mobile technology is a technology which is increasing at a fast pace. This advancement in mobile technology has impacted everyone's life. Nowadays various mobile technologies as well as mobile phones compete in the market. It has reduced the burden of work of a human being in some way or the other. In this paper we will discuss about the various mobile technologies along with the different mobile phones available in the market and the difference between them.

INTRODUCTION:
One of the most widely used technologies today is mobile technology. It includes several or we can say all forms of portable technology like laptops, palmtops, cell phones, personal digital assistants, wireless card payment terminals, global positioning systems. This technology is radically increasing around the world day by day. This can be clearly seen in our day to day life as a poor man also either posses a mobile phone or has access to it. It has transformed the way of doing business. Previously people use to go to banks or offices to do their task but now they can easily do it from mobile phone. It can be seen that in the past few years the wireless technologies is highly developed. Along with the exponential improvement in performance & capacity of wireless communications systems, the information can be easily accessed using mobile devices.

In order to improve their infrastructure and rolling out data coverage, the mobile networks are spending a large amount. The continuous advances in mobile technology is impacting everyone's life. The users are getting benefitted from the advances in mobile technology. This is clearly visible in our day to day life. Previously, in order to mail important documents one has to deliver it from door to door but with the advancement in mobile technology one can easily sent it in few minutes in the form of soft copy. As a boon, the use of smart phones & tablets has transformed communications, entertainment. The advances in mobile technology is affecting various other fields also like it is playing a vital role in health care systems. As an example, if a person owns a business then he is free to extend his business rather than confining it to a particular area.

This can be seen from the previous year that with the increasing number of years the generations of mobile is also increasing. The generation of a mobile phone is represented by 'G'. From 1946 to 1980, 0G i.e. the zero generation prevailed. This included early mobile

phones which were very expensive and it could only be used in cars, trucks and briefcases. It had a voice call feature only. After 0G next generation came which is 1G i.e. first generation. In this generation cellphones were analog devices which functions on AMPS/Datatac technology. Its features were voice calls with limited data which was somewhat higher than the previous generation. As the time passed the next digital generation came into existence which is the 2G i.e. the second generation cellular network. Its features were somewhat enhanced than the previous generations. It had voice, sms and circuit switched data features. The technologies which prevailed during this period were GSM, iDEN, EDGE,GPRS, CDMA, TDMA and HSCSD. Out of the above technologies some belong to the 2.5G standards family. In order to intoduce new features and technologies, the next generation was introduced i.e. 3G. It had superior features like broadband data, voice and streaming video. Though this technology was not fully implemented. It came into light from 2004 which included technologies like W-CDMA, 1Xev-DO. To add up some new features in the previous version of the generation, 4G was introduced. This generation had high speed broadband for data and visual centric information which is capable of transmitting data at 100mbps while moving and 1Gbs while standing still.

On the basis of the advancement in mobile technology, the operating system on which these work can be defined below along with the comparison between them:

Symbian OS: This operating system which is based on original PDAs from Psion is produced by the software development & licensing company named as "Symbian Ltd". It was established in June 1998. The native language of the Symbian OS is C++ and therefore this is known as its primary programming language. It has the largest installed base. This operating system is used in Nokia mobiles. From the point of view of software development, it must possess the right SDK and the Integrated Development Environment (IDE) tool of our choice. An IDE generally possess a source editor, compiler and/or interpreter and debugger and is a software application which allows the computer programmer to develop software for a certain platform. The IDE required for symbian OS is either Carbide C++, Code Warrior or Visual C++. In this the programmer is free to use any programming language.

Android OS : This is a software platform and operating system for mobile devices which is based on Linux kernel and is developed by google but later on by Open Handset Alliance (OHA) . Its native language is Java which is the officially supported language. In this applications can be written in other languages also but later on it is compiled to ARM native code.   This   Operating   System   is   used   in   Samsung,   HTC   mobiles.

iPhone OS (iOS) : This strong but expensive operating system is developed by Apple whose native language is C. It is also used in iPad, iPhone and iPod touch.

BlackBerry OS :This operating system is developed by Research In Motion for its BlackBerry line of smartphone hand held devices. It provides multitasking & supports specialized input devices that have been adopted by RIM for use in its handhelds especially the trackballs, trackwheel, trackpad and touchscreens. This operating system is designed only in C++ and it supports many languages like US English,UK English, French, etc.

Windows Phone 7: It is also known as Windows Mobile operating system. It is developed by Microsoft that was used in smartphones and mobile devices, but is being currently phased out to specialized markets. The current and last version is "Windows Mobile 6.5". It is based on the Windows CE 5.2 kernel. It is programmed in C++ language.

On the basis of the above discussion about the various mobile operating system, we can differentiate   between various mobile phones. Below in the discussion, in our paper, we will be considering iphone and other android mobile phones.
iPhone is the first smart phone which is a touch screen mobile phone, developed and supplied by Apple. It   has the ability to touch the tasks easily which in turn requires a computer to work on. Whereas Android is Google's Linux based mobile operating system that has powered many smart phones. It is just a software. Both of them have their unique applications store. The apple iphone has apple app store while android has got an android market.

1) If we compare the loading time between the iphone and android mobile phones then we can say that an iphone takes much less loading time as compared to the loading time taken by the android phones. And therefore, due to the several beneficial features of an iphone, it is more in demand and is more searched on internet in comparison to android phones.

2)There is a feature in Apple iphone wherein it alerts the user in case of any missed instances, but this feature forces the user to end up the task he is performing. Whereas the google android phone has a drag and drop screen that also alerts the user of any occurrences but it allows him to continue his work.
3)It is easy to perform the necessary accessory maintenance in apple iphone since it controls all of its hardware. While google's android is a simple platform that functions on different platforms, & does not allow for easy accessory support.

The features of some of the mobile platforms can be defined below as:

Vendor	Programming Language	Operating System	Application Store
Symbian Foundation	C++	Symbian OS	Nokia Ovi Store
Open Handset Alliance	Java	Android OS	Android Market
Apple	Objective -C	iPhone OS (iOS)	iPhone App Store
RIM	Java	BlackBerry OS	Blackberry App World
Microsoft	Visual C#/C++	Windows Phone	Windows mobile market Place

Fig: Features of some mobile platforms

Now we will discuss the difference between iphone and blackberry.

(i)In blackberry phone GPS feature is provided which enhances the feature of google maps especially for turn by turn directions.

(ii)The phone quality of Blackberry is better than the iphone's quality.

(iii)The iphone lacks basic cut & paste capabilities.

(iv)The apple has a superior user interface design despite of that blackberry possesses the keyboard shortcuts that makes navigation around applications easy.

(v)The blackberry has a unique feature for contacting people that makes contacting to people more easily.

After discussing the difference between an iphone and blackberry, we will discuss the difference between an iphone and symbian.

(i)In the case of frameworks & programming languages, symbian has a complex C++ variant and takes more time to master as compared to the iphone's objective C language.

(ii)The iphone's development tool is very proficient. It carries everything from an accurate simulator, visual debugging to a very nice profiling tools. And I case of symbian it just do not support the development tool.

(iii)In iphone, the Cocoa framework provides a lot of features for free. But for symbian this all will require explicitly extra code.

From the above discussion we can conclude that an iphone application can be written with much less code which in turn invites much less bugs, with more number of features.

CONCLUSION:

If we talk about today's mobile generation the mobile phone is the ideal technology. And ver the next few years, internet connected mobile computing devices will drop radically in price and will increase in functionality. Therefore, there will be clear winners and losers in the mobile app market. Apple and Android has appreciably started in the market. Critical to the success of this market's growth, and the success of mobile application stores, are the armies of software developers that create mobile apps. The most sophisticated competitors are

already creating or enabling the ecosystems that will allow access to content and applications across devices.

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