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Android Smartphone Development API

The Android Smartphone API

This paper is a review of the Android smartphone development application programming interface (API). The Android development environment consists of the API provided by the developers of the Android operating system. This API was created in order to assist programmers in developing new applications for smartphones utilizing the Android OS. The OS was developed by Google in 2005, is based on the Linux kernel, and focuses on an "Open Source" model. While the operating system is Linux-based, the Android smartphone API was made to be used with the Java coding language. The API is constantly being updated by the Google team in order to add more and more functionality when developing Android smartphone applications.

Other Smartphone Development APIs

Android is one of many different operating systems used in today's smartphone market. Other operating systems utilized with smartphones are iOS, Windows, and Blackberry. Apple's iPhone smartphones and iPad tablets all run iOS, while Windows and Blackberry smartphones run their respectable operating systems. Each of these operating systems has had a smartphone API developed for them to assist in application development. While each API has been developed differently for different coding languages, each one has similar basic functions and few differences overall. Also, each of these development APIs can be accessed completely free of charge.

How Does It Work?

The very basics of an API, when talking about programming, are class definitions. Classes are the foundation of object-oriented programming. They are blueprints for programmers to make instances of for their own uses. These classes contain their own functions and data that may be re-used later. These classes can build upon each other and divide into sub-classes. For example, there could be two classes called "Fruit" and "Banana". Banana would be a sub-class of fruit and have a function (related to some action in reality) called "Peel". Each instance of a banana could then be given various data members to identify it like "Length" or "Ripeness".

The Android smartphone development API creates an interface for smartphone application developers. The developers of the API have created a library of various class definitions that were built upon various Java APIs. These class definitions and the class methods that go along with them are all recognized by the Android OS being ran on the Android smartphones. This means that the phones can indirectly react to specific Java code through the API. The smartphones react by drawing graphics on the screen, creating buttons, finding wifi connections, and everything else the smartphone is capable of. When combining all of this source code and making it work with each other, the product is an Android application. Essentially, the API is source code that application developers build upon in order to make the smartphones react according to their will.

Building Blocks for Implementation

The Android SDK (Software Development Kit) is software providing application developers with all of the Android smartphone API versions and the AVD Manager (Android Virtual Device Manager). The AVD Manager is a separate software used to create, organize, and run virtual Android smartphone devices. These virtual smartphones can then be treated as real smartphones when running and debugging actual code using the API.

The Android smartphone development team has collaborated with different IDE developers in order to make it easier for application developers. There is only one Android smartphone API, but there are multiple IDEs that may be used with the API. Eclipse is the primary IDE used in working with Android smartphone applications and is the most popular choice for developers. Eclipse utilizes a plug-in (developed by the Android API team) that allows Android application developers to more easily begin developing and manage Android applications. This plug-in implements the Android SDK. This allows the application developer to write any Java code with the API and immediately debug the code on a virtual Android smartphone all in the Eclipse IDE without any outside help.