

## p. 176 – insert the following before “5. Useful Articles”

## 4A. Application Programming Interfaces

If user interfaces provide the means by which human beings can interact with computers and computer software, “application programming interfaces,” or APIs, provide the means by which different computer programs can interact with each other. For example, operating systems like Microsoft Windows 8 or Apple OS X Mountain Lion have a specified series of commands and a command syntax that application programs like Adobe Reader or Real Player can use to control the services that the operating systems provide. Saving a file to a hard drive may be a complicated task, involving an assessment of where the hard drive has free space, a division of the file up into multiple pieces to save it in different free sectors, and so on, but the operating system takes care of that complicated task. If a programmer who is writing an application program wants it to save some data to a computer’s hard drive at a defined point, however, the programmer only needs to know the appropriate way to invoke the operating system through its API – that is, to insert a command that will tell the operating system to save the data – and the operating system will do the rest.

Application programming interfaces can define, not only how applications interact with operating systems, but how one application can interact with another. With the growth of the Internet, APIs have proliferated, as creators of web-based applications have sought to make them available to other web-based applications. For example, Google has published an API for Google Maps that enables web developers to integrate Google Maps into their websites in complex and sophisticated ways. APIs facilitate in the creation of “mashups,” services that combine data, functionality, or presentation from two or more web-based applications.

Some companies make APIs freely available to all who wish to use them. For instance, Microsoft makes the API of its Windows operating systems available, because the availability of lots of Windows compatible applications makes it more likely that people will use Windows. Other API developers, however, limit access to their APIs. That leads to the question whether APIs are protected by copyright law.

In the first major case to address that question, *Oracle America, Inc. v. Google, Inc.*, 2012 WL 1964523 (N.D. Cal.), Judge William Alsup of the U.S. District Court for the Northern District of California held that the application programming interface associated with the Java programming language was uncopyrightable. The Java language and platform was first released by Sun Microsystems, Inc. in 1996; Oracle Corporation bought Sun in 2010 and renamed it Oracle America, Inc. In 2007, Google announced its

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To see a list of 100 mashups using Google maps (including one that enables you to find a free public bathroom anywhere in the world) [click here](#). To view the home page for the Google Maps API, which contains some links to interesting applications that have been built using it, [click here](#). To see a directory of hundreds of web-based APIs at Programmable Web, [click here](#); to see a list of popular mashups created using APIs, also at Programmable Web, [click here](#).

Android platform for mobile devices. The Android platform used Java and the Java API, without the permission of Sun or Oracle America.

Oracle America conceded that Google was free to write programs in Java – that the basic components of the computer language itself were not copyrightable. Over the years, however, Sun and others had written many programs in Java that implemented frequently-used functions. These programs are known as “methods.” For example, one such method – a very simple one – would compare two numbers and return the larger of them. Sun decided which of these methods would officially become part of the Java platform. It named each of the accepted methods, organized them into coherent packages, and released them as part of Java.

Someone writing a program in Java can now take advantage of these methods. Rather than writing code from scratch to perform every function needed, a programmer can simply “call” an existing method by inserting its name in a program in the proper context. All of the names of the methods that are an official part of Java, as organized into groups of “classes” and “packages,” together with the syntax for invoking them, constitute the Java application programming interface. (Properly speaking, the API does not include the pre-written methods themselves, but only the means of interacting with them.) As of 2008, Java had 166 packages containing over 600 classes and over 6000 individual methods. See *id.* at \*8.

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To see the application programming interface specification for Standard Edition 6 of the Java platform, [click here](#).  
To see the package index for the Android application programming interface, [click here](#).

When Google decided to use part of the Java API in its Android platform, it had programmers rewrite all of the methods themselves from scratch. However, it made sure that each method performed exactly the same function that it did as part of the original Java platform, and it copied the names of the methods and the way that they were organized into classes and packages. The issue in *Oracle America* was whether that copying amounted to infringement. The court held that it did not. First, held the court, the functions performed by the methods were not copyrightable: “[C]opyright law does not confer ownership over any and all ways to implement a function or specification, no matter how creative the copyrighted implementation or specification may be. The Act confers ownership only over the specific way in which the author wrote out his version.” *Id.* at \*24. A function could be protected, if at all, by patent law. Second, “[n]or can there be any copyright violation due to the *name* given to the method . . . , for under the law, names and short phrases cannot be copyrighted.” *Id.* at \*25.

The court acknowledged that “Oracle’s best argument . . . is that while no single name is copyrightable, Java’s overall system of organized names—covering 37 packages, with over six hundred classes, with over six thousand methods—is a “taxonomy” and, therefore, copyrightable under *American Dental Association v. Delta Dental Plans Association*, 126 F.3d 977 (7th Cir.1997).” Under the Java API, however, a method can be called only by naming the package and class in which the method is grouped. The court held, therefore, that “that while the overall scheme of file name organization resembles a taxonomy, it is *also* a command structure for a system or method of operation of the application programming interface,” *id.* at \*26, and is therefore uncopyrightable.