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July 18, 2014

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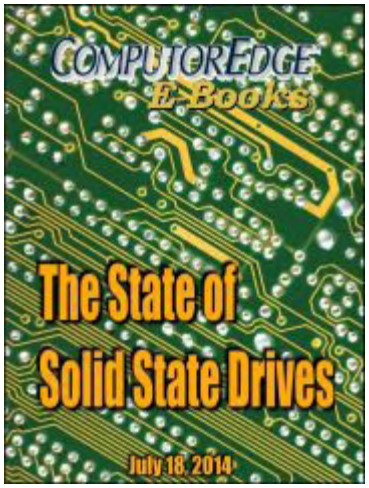

The State of Solid State Drives

Solid State Drives (SSD) are popular in smartphones and tablets, but is one right for your PC?

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by Digital Dave

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by Jack Dunning

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Digital Dave

“Digital Dave answers your tech questions.” by *Digital Dave*

Advice on Noisy Fans; Cannot Update or Upgrade to Windows 8.1; Internet Favorites in Internet Explorer and Google Chrome.

Advice on Noisy Fans

Dear Digital Dave,

The reader who wrote to you this week regarding a "Noisy Fan" is something I can furnish some advice on.

I volunteer my time to repair a school's laptops that the teachers use and whenever I get one with a hardware issue, the first thing I do is do is a Web Search with the make and model number—along with a simple sentence regarding the complaint. Why? More often than not others are going through the same issue and a wealth of knowledge is available as to a possible cure.

I've had many a "noisy fan" issue and in at least two cases of HP products, the problem affected so many laptops, the factory offered a repair for out of warranty devices. "Factory Lemons" are not restricted to cars. And the Manufacturer's sites also might reveal some helpful advice.

Regarding "Blowing Out the Cooling Fans" do not *use compressed air (like from a compressor or "Dust Off" can). Spinning the fan blades at this abnormally higher speed for only a few moments under high pressure can damage the bearing/mating surfaces of the fan shaft.*

I've found that using a thin wooden skewer or toothpick and threading it between the vent's grille and fan blade while performing this cleaning task will stop it from spinning while you blow out the accumulated dust.

Marc M
San Diego, CA

Dear Marc,

It's absolutely true that there is a vast amount of information on the Web. In fact, on many questions, the first thing I do is Google some of the key words in the problem to see how common the problem is. I don't really know as much as I pretend to know.

One thing that I should add about cooling fans is that some people think that leaving the cover off of a desktop PC will help to keep it cooler. This could have almost the opposite effect. Computer cases and fans are designed to create a certain air flow over the electronic components. If the cover is off, that flow will likely be interrupted causing less cooling rather than more. I'm not saying that it will necessarily cause a heat problem, but, except in rare situations, it's not likely to help.

Digital Dave

Cannot Update or Upgrade to Windows 8.1

Dear Digital Dave,

I have tried twice now to upgrade my HP laptop which originally came with Microsoft Windows 8 64-bit to Windows 8.1 64 bit. Whenever I use Chrome, Firefox, or Internet Explorer they all stop working. The interesting part is Internet Explorer only stops working on the desktop mode, if I go to Modern screen and click on Internet Explorer it works. I went to HP Web site and tried downloading the new drivers for my wireless network card and still the same thing.

I have to refresh the Laptop to remove Windows 8.1 and am stuck using Windows 8. I would like to update to Window 8.1 and eventually Windows 8.1 update 1. I think if I cannot find a solution to the problem I will just wait for Windows 9 and install it then and hope it works. I would have HP take remote control of my computer, but they cannot since Internet only works in Modern mode. Any suggestions or idea what might be going on and any help I would really appreciate. Thank you.

Mr. Carroll Ware
San Diego, CA

Dear Carroll,

Microsoft has recognized that many people are having problems upgrading to Windows 8.1, then Windows 8.1 Upgrade 1 and are planning a new upgrade fix in the near future (if it isn't already available). It sounds like you are getting the first upgrade installed, but losing access to the Internet through the regular network properties setup. You know the network card is working because you have Internet in the Modern interface. However, the settings for the network that you find through the Modern interface are not much help for resolving desktop

problems.

The fact that none of your desktop browsers work indicate that your network connection (not the software) is the problem. You might try opening the File Explorer (+E) and click Open Control Panel in the Computer tab. Next click "View network status and tasks" or "Network and Sharing Center." At the bottom of the screen is a link called "Troubleshoot problems." This troubleshooter will often solve connection problems.

If that doesn't get things working, then the "Change adapter settings" link in the left-hand navigation panel will open a list of your possible network connections. Right-click on the problem connection and select Properties from the menu. Scroll down the list of items in the listbox and select Internet Protocol Version 4 (TCP/IPv4). Click the Properties button and the Properties window will open.

The settings should be "Obtain an IP address automatically" and "Obtain DNS server address automatically." I don't know why, but merely unchecking and rechecking these options, then OK has fixed this problem for me a couple of times—although there are no guarantees. If you've been getting an error where the Web page is not found by the browsers, then try setting the DNS addresses to Preferred: 8.8.8.8 and Alternate: 8.8.4.4—Google DNS servers. (If the troubleshooter told you that you have a DNS problem, then this is where you make changes.)

If none of this helps and you roll back to Windows 8, then you may need to wait for the Microsoft fix. Check out this page "Why can't I find the update in the Store?. There you will find a link to "Windows 8.1 Update troubleshooter."

Microsoft says that they will be rolling out the fix for the upgrade this month. To see if you have it, check Windows Update (Control Panel => System and Security => Windows Update). Hopefully, this update will resolve the problems so many people are having. You may need to run this update first.

Digital Dave

Internet Favorites in Internet Explorer and Google Chrome

Dear Digital Dave,

I'm using Windows 7 with Internet Explorer. When I had Windows XP I could save the URL in Favorites. How to do same with Windows 7—also with Chrome?

Wm Tiep
Toledo, OH

Dear Wm,

All Favorites (also called Bookmarks) for Web sites are saved in the Web browsers. In the current version Internet Explorer Favorites can be opened by clicking the star in the upper right-hand corner (see Figure 1).

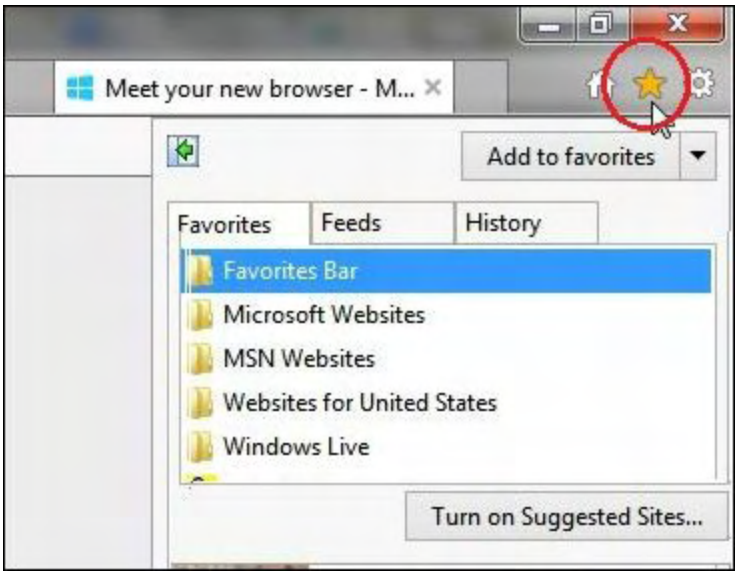

Figure 1. Favorites in Internet Explorer can be opened by clicking the star in the upper right-hand corner.

Also, if you press the ALT key in Internet Explorer, the main menu will pop open at the top of the window showing Favorites as one of the options.

For Google Chrome click "Other bookmarks" in the upper right-hand corner.

Figure 2. To open Bookmarks in Google Chrome, click "Other bookmarks" in the upper right-hand corner.

Then click the star at the right end of the address field to add URLs to the Bookmarks Bar or any folder.

You can also use AutoHotkey to create your own list of favorite Web sites that you can run from anywhere.

Digital Dave

A Look at Solid State Drives for PC

"Solid State Drives Are Faster, Lighter, Quieter, and Consume Less Power Than Hard Drives" by Jack Dunning

It was predicted years ago that Solid State Drives (SSD) would replace the traditional hard drive on PCs. Why haven't they?

A number of years ago people were predicting the quiet, fast Solid State Drive (SSD) would rapidly replace the hard drive in most computer systems. Yet, when looking at the PCs sitting on the shelves of electronics stores, very few of them sport an SSD. Most PCs are equipped with hard drives with huge capacities (750 gigabytes to one terabyte or more). There is no doubt the SSDs are faster and quieter, so why are they so slow to replace the workhorse hard drive? Let's take a closer look.

What is a Solid State Drive?

A Solid State Drive is flash memory configured to replace hard drive storage in a computer. They are even built with the same physical box shape (such as the Samsung Electronics 840 EVO-Series 250GB 2.5-Inch shown in Figure 1) making the swapping out of hard drives in computers easier. Since an SSD is all memory, there are no moving parts to slow down the transfer of data. Startup and read times are 100 times (or more) faster than a hard drive. The flash memory used in SSDs is essentially the same memory found in thumb drives and Secure Digital chips—although up to four times faster.

Figure 1. The Samsung Electronics 840 EVO-Series 250GB 2.5-Inch Solid State Drive.

No moving parts also means that SSDs are quiet with very low power consumption. They are less susceptible to damage from bumping and banging. SSDs are much lighter and (if not packaged as a hard drive replacement) can fit into a much smaller space than a hard drive. This accounts for their popularity in smartphones and tablet computers. If you own one of those mobile devices, then you are already using an SSD. When a tablet computer is advertised as having 32GB or 64GB capacity, it's referring to the size of the SSD.

Unlike the Random Access Memory (RAM) used by the computer's processor, flash memory is nonvolatile meaning it retains its data even when no power is supplied. This makes it a good medium for data storage. With all of its strengths it seem reasonable that eventually SSDs would replace hard drives. However, there are a few drawbacks to these memory drives which prevent them from becoming the ideal hard drive replacement.

The primary reason that SSDs have not replaced hard drives is price. A 250GB SSD drive may cost over $100 while the same capacity hard drive is about $30. But a one terabyte (1000GB) hard drive can be found for as little as $50 to $60. Although not quite as fast as the SSD, hard drives are dirt cheap by comparison. The first thing that people look at when buying a computer is price. That's a major factor in why the SSD drive is not standard equipment on PCs, but not the only reason.

Is a Solid State Drives Right for Your PC?

If you're happy with the current speed of your computer, then you probably don't need to get an SSD. Today's hard drives are pretty fast and the automatic prefetching of commonly used

programs into memory helps considerably. It would be nice to have the instant startup of an SSD and the quicker operating system access times, but in certain activities you won't notice the difference because it won't affect those aspects of computing.

For example, if most of your computing involves the Internet, then network bandwidth will be your bottleneck. If you're a writer, then you're probably the bottleneck, because the computer is sitting there waiting for you to think of something to type. Most of the time the computer sits idle with little to do. Even if you have processor intensive programs to run, once you load them into the computer's dynamic memory (RAM), you won't see much difference in operation. The SSD only helps in those situations that demand disk access. All other activity is handled in the computer's faster Random Access Memory (RAM).

However, if you want the speed and don't mind the price, then there is more that you want to know about SSDs.

What You Should Know About Solid State Drives

Solid State Drives cost about 50¢ per gigabyte while hard drives (1000GB or more) average around 5¢ per gigabyte. It is much more common to find high capacity hard drives (one terabyte or more) at a very reasonable price. That's why people who do buy an SSD often opt for a combination of an SSD for the operating systems and high use programs and a hard drive for data files. This spreads the load between the two—taking advantage of the speed of the SSD and the low cost for a high capacity hard drive.

To optimize performance, it is important to spread the load properly. The SSD should be the boot drive (C:) holding the operating system and most of the commonly used programs. This will provide for quick booting of the computer and rapid loading of programs.

Many people recommend keeping the Windows pagefile, which acts as backup RAM temporarily storing data such as loaded programs on the drive when not needed in RAM, on the SSD. Moving it to the hard drive can actually slow down the system per this Digital Dave question "Where is the Missing Data Space?" and the responding comment at the end of the column. However, this recommendation becomes controversial when you understand that an excess of writing to the SSD can shorten its useful life. The standard recommendation is keep activities that do a lot of disk writing off the SSD. Here's why.

Solid State Drive Life

Unlike a hard drive which can directly rewrite previously occupied space without first erasing data, the SSD memory must be cleared before writing new data. This would not be a problem except that every time a write or erasure occurs there is a slight degradation in the memory cell —also unlike a hard drive write. This is compounded by a process called write amplification

which actually increases the number of writes for each data change. That means that even though each cell of the flash memory may be rated for 10,000 writes, its actual life is considerably less. It is prudent to limit the number of writes as much as possible.

To deal with this issue, SSDs are designed to spread the load evenly over all the memory cells on the drive. No space is indefinitely left unused. It's been found that even static files will be moved occasionally to optimize the use of the space, thus lengthening the life of the drive. In spite of this known degradation in the memory cells, it is usually calculated that an SSD under normal usage should last five or six years.

The problem with the Windows pagefile is that once the RAM becomes full the processor will continuously move data from the RAM to the pagefile. If located on the SSD, the SSD will experience numerous writes. However, moving the pagefile to the hard drive, as was done by the person writing in to Digital Dave can cause a loss of some of the speed advantage of the SSD. The optimum answer may have two parts. First, when you want to speed up a computer add as much RAM as possible.

Independent of any SSD, the RAM will load and run programs until it starts to run out of space. It then loads the programs into the pagefile. Increasing the amount of RAM decreases the need for a pagefile and the associated reading and writing to the drive.

The second part of the solution may to disable the pagefile. This will eliminate the use of the SSD for the pagefile function and the many writes that come with it. Depending upon the amount of memory (RAM) in the computer, you will want to monitor its use. You do not want to run out of RAM because strange things can happen. That may mean loading fewer programs simultaneously and closing down unneeded applications more often.

Still others, such as Microsoft, say continue to use the pagefile and keep it on the SSD. Unless you have a small amount of RAM, the need to use the pagefile will be relatively rare and not have significant impact on the life of the drive. This is an issue that never comes up with a hard drive alone since the number of writes has little bearing on the life of the drive.

As noted, SSDs are designed to optimize their own life. The writing to the individual cells is redirected based upon the number of times they have been used (written and erased). If a certain area of the drive is getting too much activity, the offending actions will be moved—even if that means relocating a file that never changes. This optimization is designed to extend the life of the SSD by spreading the load around evenly. This SSD space management adds a comforting element for the owner, but the thought of the memory drive slowly deteriorating whenever you're using the computer is a little disconcerting—even if the drive lasts for many years.

Features to Disable with Solid State Drives

Since the goal is to minimize the number of writes to the SSD, other features such as hibernation, prefetching, and defragmentation should be disabled. Hibernation is where the current state of a system (all loaded programs) is saved to disk allowing the computer to go into a vegetative state. Every time hibernation occurs, there is a major write to the drive. Prefetching is the advance loading of programs in anticipation of their use. Since the SSD is so fast, there is little advantage to preloading programs.

You definitely do not want to defragment an SSD. Defragmentation is unnecessary since dispersed file fragments do not affect the speed of the SSD—no moving parts to slow things down. Hard drives need defragmentation because the read/write head jumping back and forth piecing together a scattered file can be time consuming. The only thing the defragmentation would do is add to the number of writes inflicted on the SSD. Turn it off for any SSD.

The writing of temporary files, caches and logs should be redirected to the hard drive. Also, redirect any search indexing to the hard drive. All of this presupposes that you will continue to have a hard drive in your system. If you run your system with only an SSD, then the best you can hope for is turning off features such as hibernation and defragmentation.

Solid State Drive Failure

Recent surveys show that SSDs fail less often than hard drives, but they do fail. A controller going out can make an SSD unreadable. If one does fail, unlike a hard drive, it is highly unlikely that you will recover any data. Also unlike many hard drives, the SSD doesn't give any warnings when it's getting ready to fail. It just stops working. Plus, it's been shown that SSDs are more susceptible to power failures than hard drives. As always, make sure you have a good backup system in place.

This may sound like a bunch of reasons not to get an SSD. I'm not saying that SSDs aren't good products—they are! It's just that a person needs to be aware that SSDs have not solved all of the problems that come with computers, while introducing a few of their own. It's quite possible that even if you don't make any of the recommended changes to how data is moved and saved (do make sure you turn off defragmentation), the SSD could last well past the life of the computer.

The Hybrid Drive

One innovation designed to take advantage of SSD and hard drive technology is the hybrid drive (such as the Seagate Momentus XT 750 GB 2.5 Inch Solid State Hybrid Drive shown in Figure 2). The Hybrid combines SSD memory with a hard drive in an attempt to offer the best of both worlds—the speed of the SSD and the low cost and capacity of a hard drive. From my perspective, a hybrid drive is really a hard drive with a little memory caching. It is certainly faster than a hard drive alone, but it is still unlikely to compete with an SSD.

Figure 2. The Seagate Momentus XT 750 GB 2.5 Inch Solid State Hybrid Drive.

The hybrid drive has a relatively small SSD (usually about 8GB). The drive itself has a program for managing the data movement. Programs most used are moved into the SSD portion of the drive. The remainder stays on the hard drive. Therefore, new activity is likely to be as slow on a hybrid drive as any other hard drive. Since, there is little (if any) user setup, this may be a good option for people who want some of the advantages of SSDs, while getting a lower price and higher capacity storage device.

The Future of Solid State Drives

While the PC workhorse, the hard drive, continues growing in capacity and lowering its price, the future may not be as rosy for the SSD. It seems that as the nonvolatile flash memory is pushed into ever smaller packages, the problems of errors and read/write latency become worse. To deal with these limitations, Samsung has recently released its 3D V-NAND SSD which adds capacity by stacking the cells vertically, but, not yet ready for consumers, this may be little more than a stopgap for larger capacity drives.

The SSD continues to be in high demand in smartphones and tablets, but the problems of increasing capacity for PCs won't be easily solved. It may be that new technology is needed to replace the current NAND flash memory.

> Emerging memory types under development like phase-change memory (PCM), RRAM (resistive random-access memory), and MRAM (magnetoresistive RAM) may show promise with faster speed and durability, but it will be many years until they are made in volume and are priced competitively to replace NAND flash storage.

Adding SSDs to PCs just hasn't caught on in the consumer market and the memory drive is not likely to replace the hard drive anytime soon.

> According to Filks [storage technologies director at research firm Gartner], SSDs will not replace spinning disks. "Everyone says SSDs will replace disks—maybe in about 15 to 20 years' time—but as SSD prices drop, so do those of disks. And SSD prices will never fall as far as disk because factories can't make enough. It means only the working data set needs to be on SSD, and that's about 5 to 15 percent of the total."

If you have a need for speed, then an SSD will certainly give it to you in certain areas. But if you're the average user, the decision is not a slam dunk. How valuable the drive will be to you depends ultimately on how you use your computer.

Jack is the publisher of ComputorEdge Magazine. He's been with the magazine since first issue on May 16, 1983. Back then, it was called The Byte Buyer. His Web site is www.computoredge.com. He can be reached at ceeditor@computoredge.com. Jack is now in the process of updating and compiling his hundreds of articles and columns into e-books. Currently available:

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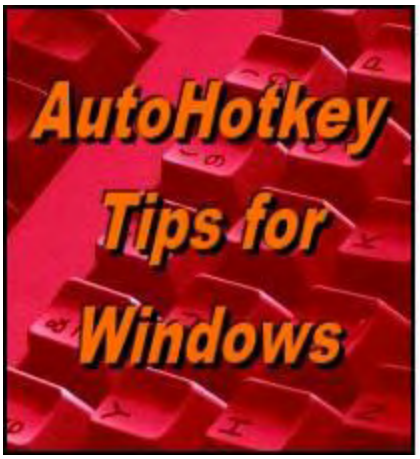

Yet, One More Reason to Use AutoHotkey Free Software!

How to Remove the ComputorEdge Navigation Menu--Permanently!

"There Is Now a Way to Eliminate the Navigation Pane on the Left Side of the ComputorEdge Web Page" by Jack Dunning

Fed up with the space dedicated to the navigation menu on the left side of this page? There is now an easy way for anyone to remove it. Plus a tip for automatically finding and clicking links on a Web page with AutoHotkey.

About a week ago, Ron Cerrato dropped me this note:

Thanks for the valuable AutoHotkey programs. I currently have about six of them starting up with Windows 8, some customized to my needs.

Speaking of automating programs, I'd like to automate an action to take when going to a specific Web site's homepage in IE. Specifically, in the case of ComputorEdge.com*, I'd like the browser to immediately go to the view I see after clicking "Close Nav Menu."*

Humm. The truth is that there are some things that you shouldn't need to do with AutoHotkey. From my perspective an option to eliminate the navigation menu on the left side to the *ComputorEdge* Web site is one of those things. While it is possible to use AutoHotkey for that function, it is not particularly easy—especially with the design of the *ComputorEdge* site. This is a problem for me to fix.

Years ago I added the "Close Nav Menu" link for people with narrow computer screens. Clicking the link immediately closes left-hand menu (see Figure 1), but every time you change to another issue, the link needs clicking again. I can see how that can get pretty annoying for people who like the feature, but I wasn't sympathetic enough to do anything about it. (If you're using a mobile device, you're probably wondering what I'm talking about. A while back I rewrote the Web software to eliminate the navigation menu pane for most mobile devices, so it won't appear for iPad, iPhones, Android devices, and most others.) When I saw Ron's

question I knew what I should do—fix the problem.

Figure 1. Clicking the "Close Nav Menu" link hides the navigation pane on the left side.

However, since it was an AutoHotkey question, I investigated that aspect of the problem first. I did find some clever strips for finding, clicking and following links on Web pages in Internet Explorer, but they didn't work particularly well for the *ComputorEdge* Web site. (More on those AutoHotkey techniques later in this column.)

Turning Off the Navigation Menu

I have relented and taken the time to install a more or less permanent option for eliminating (not merely hiding) the navigation menu on the left side of the screen. The best way to save these kinds of settings for Web pages is in a cookie. (If you have cookies turned off, then this won't work for your Web browser.)

The *ComputorEdge* Web site already saves a user's selected area (San Diego, Colorado,

National, etc.) in the cookie so adding more data was fairly simple. All I had to do was find the proper location in the code. You would think that it would be easy, but since I don't often make changes to the Web software, I had to familiarize myself with my original work. That's always a challenge since I'm not the best at documenting software. It is now done—mostly.

To turn off the navigation menu add the parameter *nonav=1* to the main *ComputorEdge* URL:

```
http://webserver.computoredge.com/online.mvc?nonav=1
```

Be sure to separate the parameter for the main URL with a question mark (?) as shown. After you press ENTER, the Web site will reload without the navigation bar. From then on (unless you delete your *ComputorEdge* cookie), the Web site should load without the navigation pane (see Figure 2).

Figure 2. After setting the "nonav=1" parameter, the navigation menu is no longer available.

Since it no longer serves a purpose, note that the "Close Nav Menu" link is also gone.

"But, what if I want the nav menu back?" "Too bad! You had your chance and now it's gone forever!" (Just kidding.)

I realize that some people (myself included) would like to be able to switch back and forth between the two modes. To bring back the navigation pane, add the parameter nav=1 to the *ComputorEdge* URL:

```
http://webserver.computoredge.com/online.mvc?nav=1
```

This reverses the process.

Since every browser keeps its own cookies, this process must be done for each one, but only once for a given state. Each will remain in its current state (with or without navigation pane) every time the site is loaded until another changed is applied.

I probably should add a button to toggle this mode on and off. That way people wouldn't need to remember the parameters to make the change. However, I need to ponder where I should put the button.

Find Links on Web Pages with AutoHotkey

My first shot at using AutoHotkey to click the "Close Nav Menu" link involved using Window Spy to determine where to click on the Web page (see Figure 3). Then, it would be a matter of issuing the Click command with those coordinates. However, this is problematic.

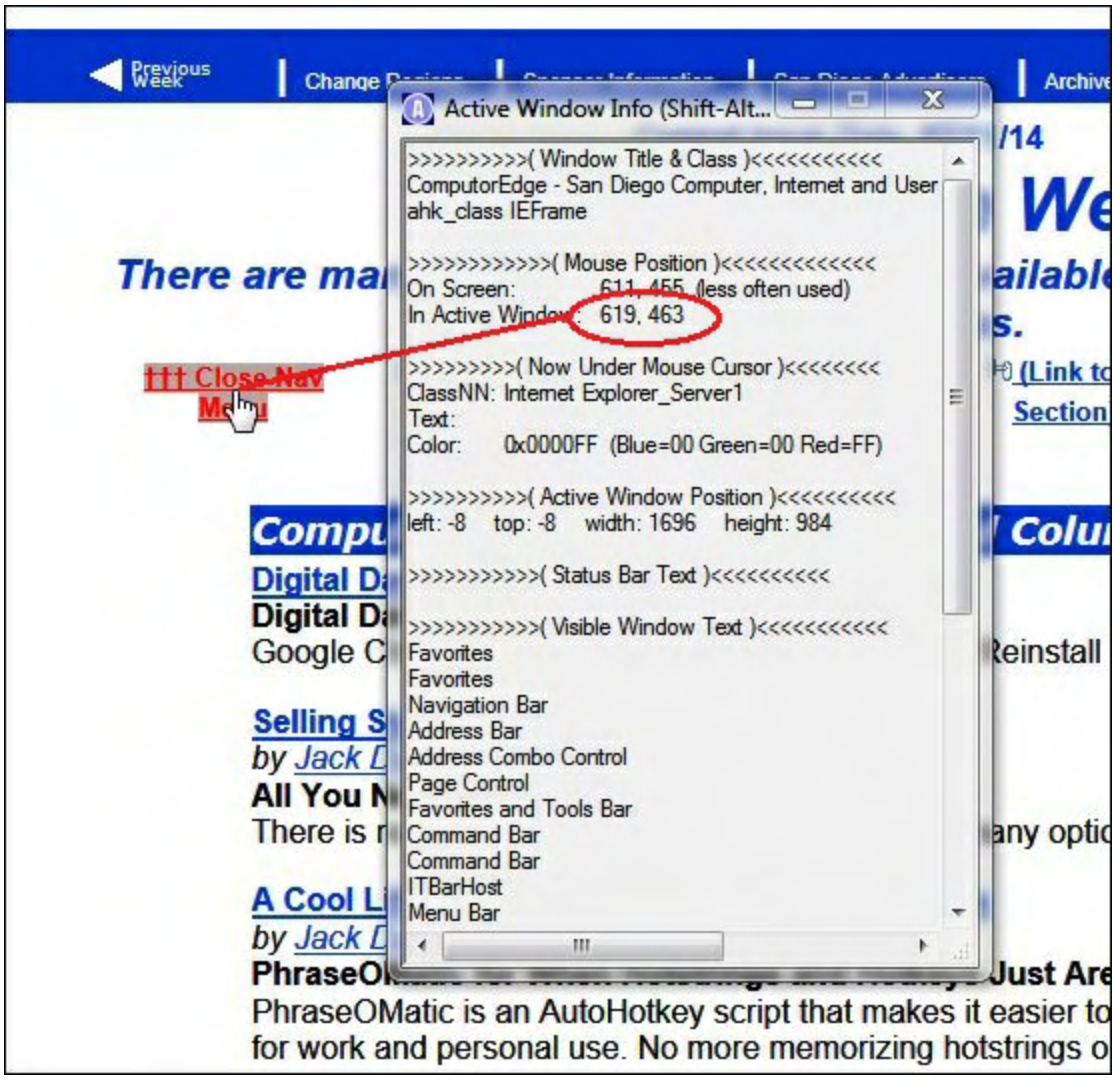

Figure 3. Window Spy gives the coordinates of any point within a window.

First of all, you will find that the coordinates within the active window vary based upon which browser is in use. Next, they may change within the same browser for different size windows. Plus, the size of your monitor can also cause a variance from computer to computer—especially in full screen mode. The *Click* command might work if you always use the same browser with the same size active window on the same computer. That's pretty limiting, but it can be done. There is a more consistent method for clicking links, but it only works with Internet Explorer.

The COM Object for Working with Web Pages

While the following is an advanced technique involving the Component Object Model (COM) object, it can be used by anyone who wants to search and click a link in a Web page. COM tends to be Microsoft specific which means that most software cannot be directly accessed through it. For example, the COM object code shown here will work with Internet Explorer, but not any other browser that I know of. It will also come in handy when working with Microsoft Office products such as Word, Excel, PowerPoint and Outlook. The commands vary and I don't yet have enough knowledge of how it all works to go too deep, but there is a sample AutoHotkey script which works well with Internet Explorer—depending upon the formatting of the Web page.

The following simple AutoHotkey script can be used to open a Web page in Internet Explorer, search the links for specific text, and click that link:

```
wb := ComObjCreate("InternetExplorer.Application")
wb.Visible := true
wb.Navigate("webserver.computoredge.com/online.mvc")
while wb.busy or wb.ReadyState != 4
    Sleep 0
Links := wb.Document.getElementsByTagName("a")
wb.Visible := true
Loop % Links.Length
    if InStr(Links[A_Index - 1].innerText, "Link to this section")
        Links[A_Index - 1].Click()
Return
```

In this case, I'm using the *ComputorEdge* Web page *webserver.computoredge.com/online.mvc* which opens the current issue. You can replace this with any other Web page URL. The search of the page is done in the *Loop* at the end of the snippet looking for the text *Link to this section*. Replace this text with the text in any link that you want to click in your target Web page.

The first line (*wb := ComObjCreate("InternetExplorer.Application")*) opens Internet Explorer, but nothing will be displayed unless the window is made visible with *wb.Visible := true*. The *wb.Navigate()* directs Internet Explorer to the proper URL. The next two lines

consists of code that force the script to wait (*Sleep 0*) in a *While* loop until the page is loaded *wb.busy or wb.ReadyState != 4*.

In the *Links := wb.Document.getElementsByTagName("a")* statement, the names of the links (designated by the <*a*> HTML tag) are collected. Then a *Loop* is used to search the tag names for the matching text (*Link to this section*). If a match is found, the link is clicked (*Links[A_Index - 1].Click()*).

Note that the *nonav=1* parameter must be run with the *ComputorEdge* Web page URL for this script to work. Otherwise the formatting associated with the navigation pane will interfere. If you want to be sure that the *ComputorEdge* page is properly formatted, add the *?nonoav=1* to the end of the URL in the script. Running it multiple times won't hurt.

If you want to revert back to the navigation pane format, then add:

```
wb.Navigate("webserver.computoredge.com/online.mvc?nav=1")
```

at the end of the script. You may need to add:

```
SendInput ^+{tab}
```

before the previous line if a new browser tab has opened. CTRL+SHIFT+TAB (^+{tab}) is the key combination for jumping back one tab in the browser:

```
    wb := ComObjCreate("InternetExplorer.Application")
    wb.Visible := true
    wb.Navigate("webserver.computoredge.com/online.mvc?nonav=1")
    while wb.busy or wb.ReadyState != 4
        Sleep 0
    Links := wb.Document.getElementsByTagName("a")
    wb.Visible := true
    Loop % Links.Length
        if InStr(Links[A_Index - 1].innerText, "Link to this section")
            Links[A_Index - 1].Click()
    SendInput ^+{tab}
    wb.Navigate("webserver.computoredge.com/online.mvc?nav=1")
Return
```

This is a simplistic look at the COM object which deserves much more attention than is found here. There are many powerful scripts which can be implemented with these special techniques. Various tutorials for the COM object can be found in the AutoHotkey forum. For more information check out the "COM Tutorial for Web Pages" and this "COM Object Reference."

* * *

New to AutoHotkey? See our Introduction to AutoHotkey! Or pickup the free e-book

AutoHotkey Tricks You Ought To Do With Windows! This e-book includes both those tips and the reference material (Table of Contents and indexes) from the other three AutoHotkey books. Pick up a copy free and share it with your friends.

Jack is the publisher of ComputorEdge Magazine. He's been with the magazine since first issue on May 16, 1983. Back then, it was called The Byte Buyer. His Web site is www.computoredge.com. He can be reached at ceeditor@computoredge.com. Jack is now in the process of updating and compiling his hundreds of articles and columns into e-books. Currently available:

Recently released is Jack's FREE AutoHotkey book, AutoHotkey Tricks You Ought to Do with Window, available exclusively at ComputorEdge E-Books in the EPUB for e-readers and tablets, MOBI for Kindle, and PDF for printing formats.

ComputorEdge E-books offering is his AutoHotkey Applications, an idea-generating intermediate level e-book about using the AutoHotkey Graphical User Interface (GUI) command to write practical pop-up apps for your Windows computer. (It's not as hard as it sounds.)

Hidden Windows Tools for Protecting, Problem Solving and Troubleshooting Windows 8, Windows 7, Windows Vista, and Windows XP Computers.

Jack's *A Beginner's Guide to AutoHotkey, Absolutely the Best Free Windows Utility Software Ever!: Create Power Tools for Windows XP, Windows Vista, Windows 7 and Windows 8* and *Digging Deeper Into AutoHotkey*.

Our second compilation of stupid *ComputorEdge* cartoons from 2011 and 2012 is now available at Amazon! *That Does Not Compute, Too! ComputorEdge Cartoons, Volume II: "Do You Like Windows 8 or Would You Prefer an Apple?"*

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Misunderstanding Windows 8: An Introduction, Orientation, and How-to for Windows 8 (Seventh Edition)!

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Getting Started with Windows 7: An Introduction, Orientation, and How-to for Using Windows 7,
Sticking with Windows XP—or Not? Why You Should or Why You Should Not Upgrade to Windows 7,
and *That Does Not Compute!*, brilliantly drawn cartoons by Jim Whiting for really stupid gags by Jack about computers and the people who use them.

Wally Wang's Apple Farm

"Online Education" by Wally Wang

Online Education; Skeuomorphism; Creating HTML5 with LiveCode; The Next Step in Visual Programming; Time Machine.

Higher education means training people with more specialized skills and knowledge. Unfortunately, education costs keep soaring while many students fail to graduate within four years and get buried in a mountain of student loan debt that keeps them financially crippled for years to come. What's the solution?

Pouring more money into any problem rarely solves that problem. The key to higher education involves lowering costs while improving accessibility. The idea that you absolutely must sit in a classroom in a certain location at a specific time to learn anything is such an antiquated concept that we might as well believe the only way to listen to music is to visit a concert hall and listen to an orchestra playing.

To improve efficiency, the answer always lies in eliminating the middleman. In the case of education, why not capture the lectures of the best teachers on video and then allow anyone to watch those videos over the Internet? That's the idea behind MOOCs or "Massive Open Online Courses."

Just download the iTunes U app and start watching video lectures from Stanford, Cambridge, or Cornell. If college level courses may be too advanced for you, the iTunes U app can also access K-12 school course materials.

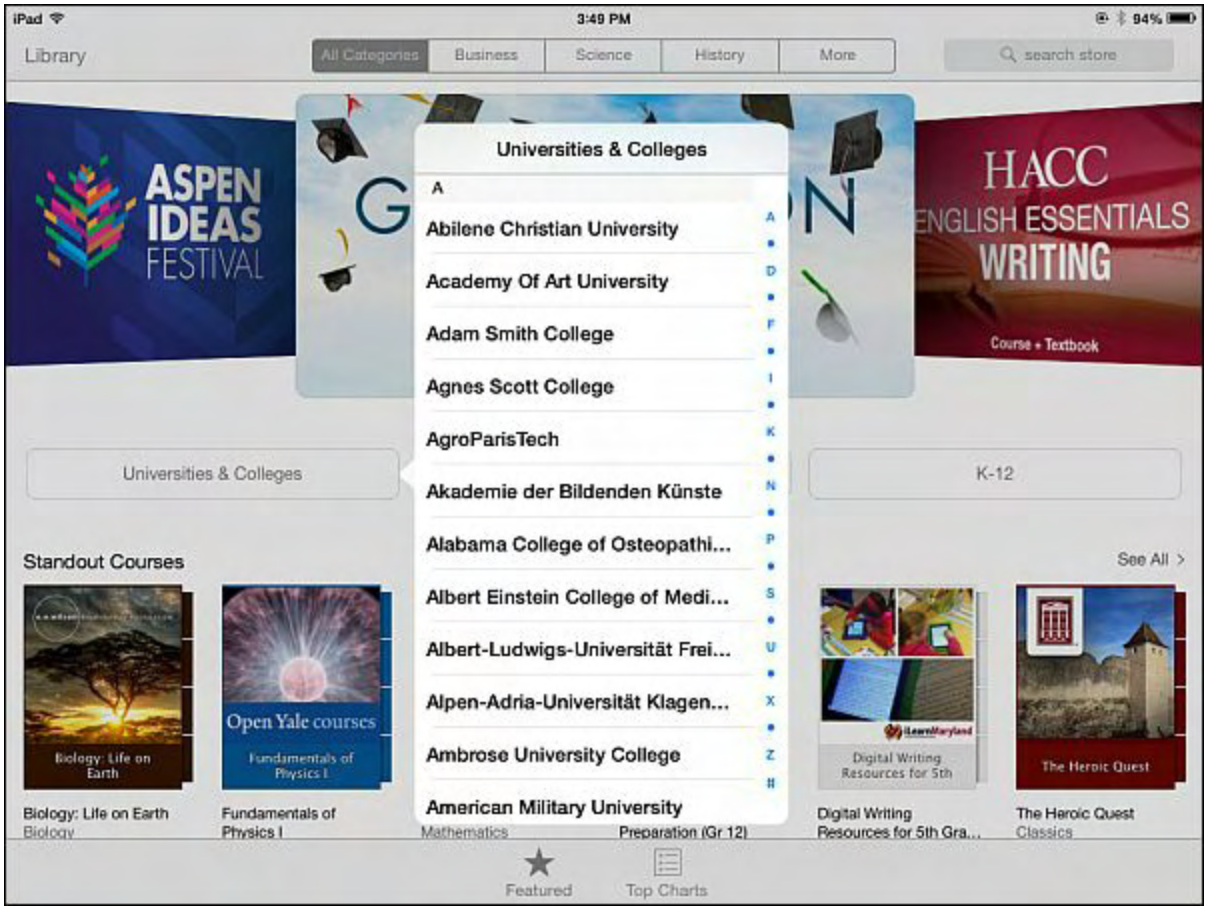


Figure 1. The iTunes U app can give you free access to college courses.

No matter what your current education level might be, you can use the iTunes U app on your iPad to get a free education in a variety of topics from math, history, and physics to more specialized topics like machine learning and creative writing. Now there's no excuse for not improving your education as long as you have Internet access and an iPhone/iPad running the iTunes U app.

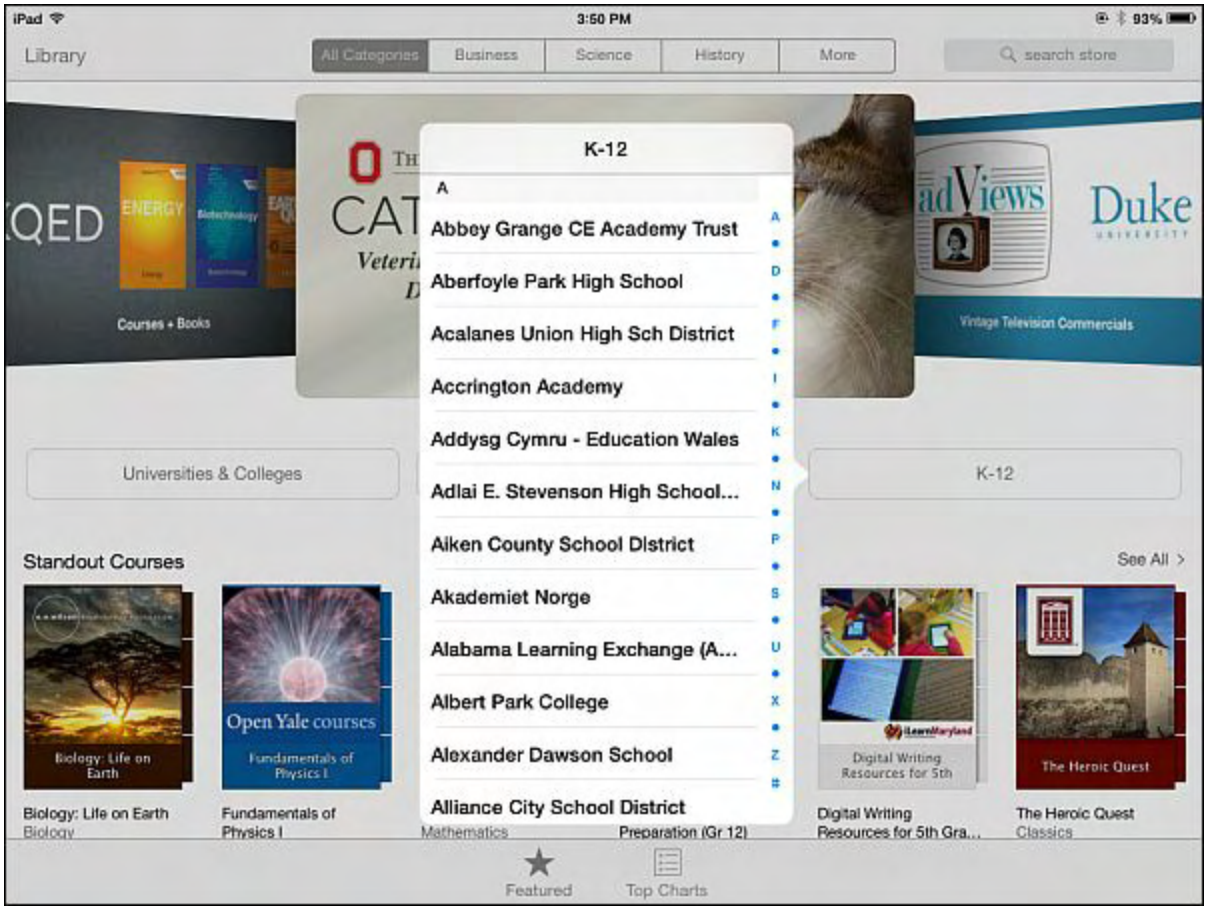


Figure 2. Besides college level material, iTunes U can also help K-12 students.

Of course if you don't buy an Apple device like a Macintosh, iPhone, or iPad, you won't be able to access this library of free college and K-12 course materials. That just gives you one more reason to get a Macintosh, iPhone, or iPad instead of a rival computer, smartphone, or tablet.

If you're interested in learning to program the Macintosh or iPhone/iPad, the best source of education comes from Apple's Worldwide Developer's Conferences (WWDC). If you aren't able to attend these conferences in person, just sign up as an Apple Developer ($99 per year) and visit Apple's Developer site to access videos from the past few conferences. You can watch streaming videos of educational conferences or download the videos so you can play them on your own device at a later time.

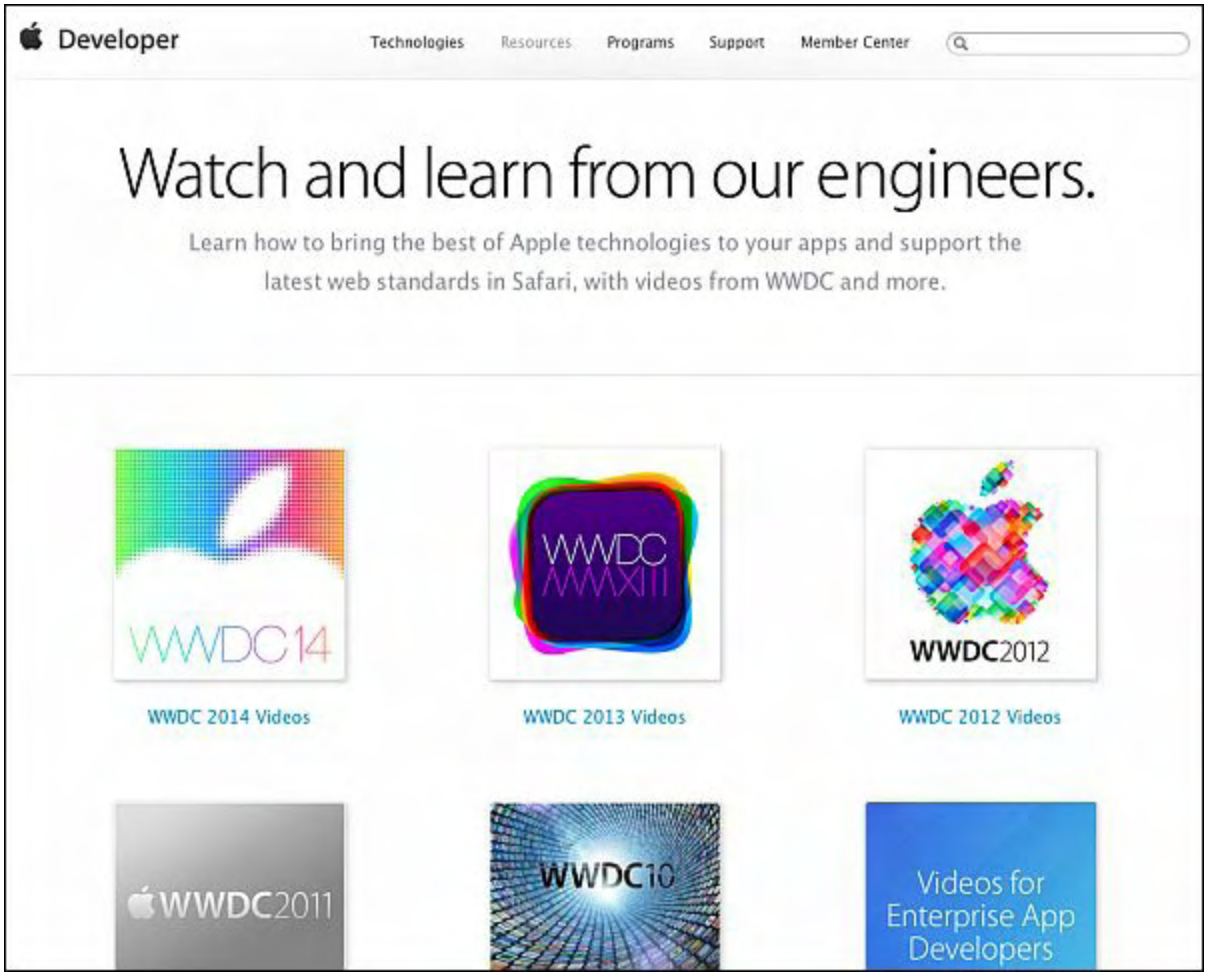
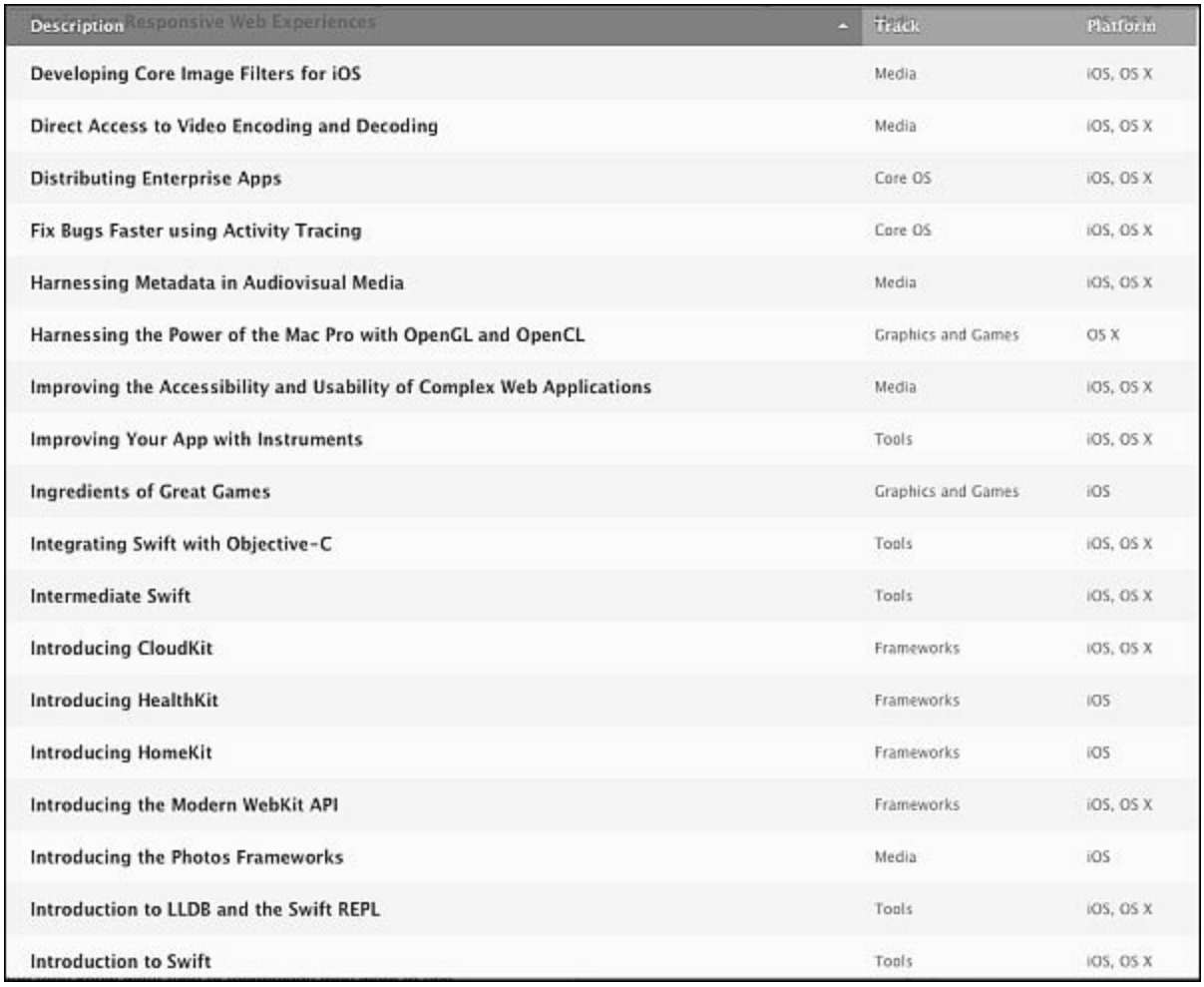


Figure 3. Apple provides videos of their conference sessions.

By watching the videos from Apple's 2014 WWDC, you can learn about their new Swift programming language, how to create iOS games, and how to use Apple's latest HealthKit and HomeKit software development frameworks. The HealthKit framework should be particularly interesting since you can see how Apple's rumored iWatch wearable computer can store and use health data such as blood pressure and oxygen saturation.

Of course, if HealthKit can store and manipulate data like oxygen saturation, the real question is how is it getting accurate oxygen saturation, blood glucose levels, and Vitamin D data? Making the user input this type of data would be inaccurate and error-prone, so it seems logical that a wearable computer of some kind will automatically grab this information and store it into HealthKit. Essentially, HealthKit will act as a standard database for storing and retrieving health data, which is something rivals can duplicate, but will have a much harder time getting the rest of the world to adopt without a similar wearable computer of their own.



Description	Track	Platform
Developing Core Image Filters for iOS	Media	iOS, OS X
Direct Access to Video Encoding and Decoding	Media	iOS, OS X
Distributing Enterprise Apps	Core OS	iOS, OS X
Fix Bugs Faster using Activity Tracing	Core OS	iOS, OS X
Harnessing Metadata in Audiovisual Media	Media	iOS, OS X
Harnessing the Power of the Mac Pro with OpenGL and OpenCL	Graphics and Games	OS X
Improving the Accessibility and Usability of Complex Web Applications	Media	iOS, OS X
Improving Your App with Instruments	Tools	iOS, OS X
Ingredients of Great Games	Graphics and Games	iOS
Integrating Swift with Objective-C	Tools	iOS, OS X
Intermediate Swift	Tools	iOS, OS X
Introducing CloudKit	Frameworks	iOS, OS X
Introducing HealthKit	Frameworks	iOS
Introducing HomeKit	Frameworks	iOS
Introducing the Modern WebKit API	Frameworks	iOS, OS X
Introducing the Photos Frameworks	Media	iOS
Introduction to LLDB and the Swift REPL	Tools	iOS, OS X
Introduction to Swift	Tools	iOS, OS X

Figure 4. Apple provides videos to teach programmers how to use their latest technology.

If you watch Apple's video on HomeKit, you can learn how Apple plans to let you control the different parts of your house through Siri. Instead of fiddling with cumbersome controls, Siri and HomeKit will let you speak to control the various accessories in your home such as turning on lights or locking doors.

When iOS 8 arrives this fall, you can expect to find iOS in your car (CarPlay), your home (HomeKit), and your body (HealthKit). It's clear that the future of iOS goes way beyond the iPhone and iPad, so be ready for smart cars and smart homes to create a whole new computing market seamlessly linked into the Macintosh, iPhone, and iPad.

With so many sources of education available, there's absolutely no reason why anyone should not be able to pursue their interests and expand their mind in whatever topic they wish to choose. Now the only ignorant people left will be either people who don't know about so many educational resources on the Internet or people who deliberately choose to ignore so many learning opportunities just because they don't want to learn anything new.

Skeuomorphism

When the iPhone and iPad first appeared, it used something called skeuomorphism, which is the idea of making user interfaces look like real-life objects. For example, the original iBooks app made e-book titles look as if they were books on an actual wooden shelf.

Figure 5. Skeuomorphism makes interfaces resemble real objects.

The problem with skeuomorphism is that it's a crutch designed to ease people's transition from the real world to the interface world of the computer. That's why Apple dumped skeuomorphism with iOS 7 because if you're constantly trying to mimic real objects, you'll always be limited by those real objects.

That's the reason why early TV shows and movies resembled stage plays because Hollywood wanted people to feel like they were seeing a different version of a stage play. Walk into any old movie theater and they more closely resemble concert halls with balconies and massive seating that used to rely on ushers to guide people to seats along with stopping halfway through a movie for an intermission, just like stage plays do.

Eventually as people got comfortable with movies, they relied less and less on the familiarity of stage plays to the point where we can now watch a full-length movie on an iPhone or iPad without going to a theater at all. Notice that movie theaters no longer resemble concert halls with balconies any more, but appear more customized for the movie-going experience?

In the world of user interfaces, skeuomorphism handicaps your interface because you're hampered by the limitations of the real-life objects. Even worse, the graphics needed to make user interfaces look like real objects are largely wasted in much the same way that ushers and intermission in movie theaters are a relic of the past. By dumping skeuomorphism, user interfaces can truly adapt the unique features of computers.

Today's generation of kids have never lived in a world where computers didn't exist. They don't know what it's like to use a rotary phone, or share a single phone line in a house without making a call outside of the home unless they can find a pay phone. For that generation that has rarely seen a record player or browsed through a book store, skeuomorphism makes little sense. That would be like Ford and Honda trying to make cars look like horse-drawn carriages.

So if you're wondering why today's user interfaces look less like real world objects, that's the reason why. Skeuomorphism is dead as the world moves towards seeing user interfaces as objects in themselves rather than as pale imitations of real life items. Expect this trend to continue to the point where tomorrow's user interfaces won't resemble anything close to what we're using today.

The big question is what will tomorrow's user interface look like? As a general rule, if it takes an entire book or class to teach someone how to use it, it's too complicated. The touchscreen interface of iOS is easy for even toddlers to understand. You point and tap at something on the screen. To do more complicated tasks, you have to learn gestures such as the pinch-and-zoom gesture that enlarges or shrinks an image on the screen, but learning the basic tap gesture is natural and easy to understand.

Most likely tomorrow's user interface will rely more on direct manipulation of items. In today's world, you have to point at something with a mouse and then point at a command to do something such as move or color that selected item. That means the user interface acts as an intermediary between the user and the desired result.

Eliminate this middle step and go straight to manipulating the object itself. Instead of a two-step process of selecting and then doing something, the trend is towards a simpler one-step process. You can see this process in the way maps work on a smartphone.

In the old days, a map would appear and you would have to find a slider control to shrink or enlarge the map. Nowadays you can just pinch on the map to enlarge or shrink it, which is much faster and more intuitive than finding and dragging a slider on the screen.

That's the future of tomorrow's user interfaces to make tasks simpler, not harder and more complicated with multiple steps needed to accomplish what you could previously do in fewer steps. Any user interface that makes tasks harder to complete with more steps is simply a bad design. Until people start recognizing and avoiding awful user interfaces, they'll continue settling for convoluted software that frustrates everyone.

Creating HTML5 with LiveCode

For anyone familiar with the early days of the Macintosh, they might remember when Apple gave away a free program called HyperCard. The main idea behind HyperCard was to let anyone create a database built of cards collected into a stack. Using a simple programming language called HyperTalk, you could create fairly sophisticated programs using HyperCard.

Apple killed HyperCard because they didn't know how to make money from it, not realizing that many people were buying a Macintosh specifically to run HyperCard. With the demise of HyperCard, several companies created HyperCard clones. One of the best HyperCard clones is LiveCode, which lets you create Windows, Linux, OS X, Android, and iOS programs.

If you're interested in creating Web-based apps using HTML5, LiveCode is now sponsoring a crowd-funding campaign to allow LiveCode to create HTML5 apps. The idea is to use LiveCode to create interactive apps, then convert them to run as HTML5/JavaScript files through a browser. That will broaden LiveCode's market while allowing people to use a single programming tool (LiveCode) to create apps for multiple platforms.

HyperCard created a revolution among non-programmers because it gave people a chance to create real programs without the complexity of ordinary programming languages like C or C++. LiveCode now promises to extend HyperCard's legacy by letting you create programs that can run on a browser, making LiveCode one of the most versatile programming tools on the market.

If you'd like to contribute to LiveCode's campaign to create HTML5 output, feel free to donate any amount you wish. The more you donate, the more rewards you'll get from LiveCode. If you've always wanted to learn programming but felt intimidated by conventional programming tools, LiveCode might be the solution you've been looking for all this time.

The Next Step in Visual Programming

In the old days of programming, you had to write code to create your user interface and make your program work. This essentially doubled your work and doubled the chances that your program wouldn't work right.

Then Microsoft introduced Visual Basic that made it easy to draw a user interface and connect BASIC code to the different parts of your user interface. This new paradigm, called rapid-application development (RAD) cut programming time in half while insuring a reliable user interface that followed user interface conventions.

Visual Basic changed the programming world. Then Microsoft complicated Visual Basic to make it more closely resemble C# while giving Visual Basic few advantages over C#, so most programmers simply abandoned Visual Basic and switched to C#. A handful of die-hard Visual

Basic programmers avoided the new version of Visual Basic and switched to Xojo instead, which has been dubbed "Visual Basic for the Mac."

Now Apple has introduced a new programming paradigm called Swift. Swift is a far simpler programming language than Objective-C, the previous programming language used to create OS X and iOS apps. Besides making programming easier with the Swift programming language, Apple also introduced a new feature called Playgrounds.

The whole idea behind Playground is that you can type Swift code and see the results immediately. On the simplest level, you can create variables and see how the variables might change in value as your program runs. On a more complicated level, your code can create graphics such as a game and you can see which lines of your Swift code run while it creates the graphics. Now if the graphics fail for some reason, you can see the exact line where that failure occurs.

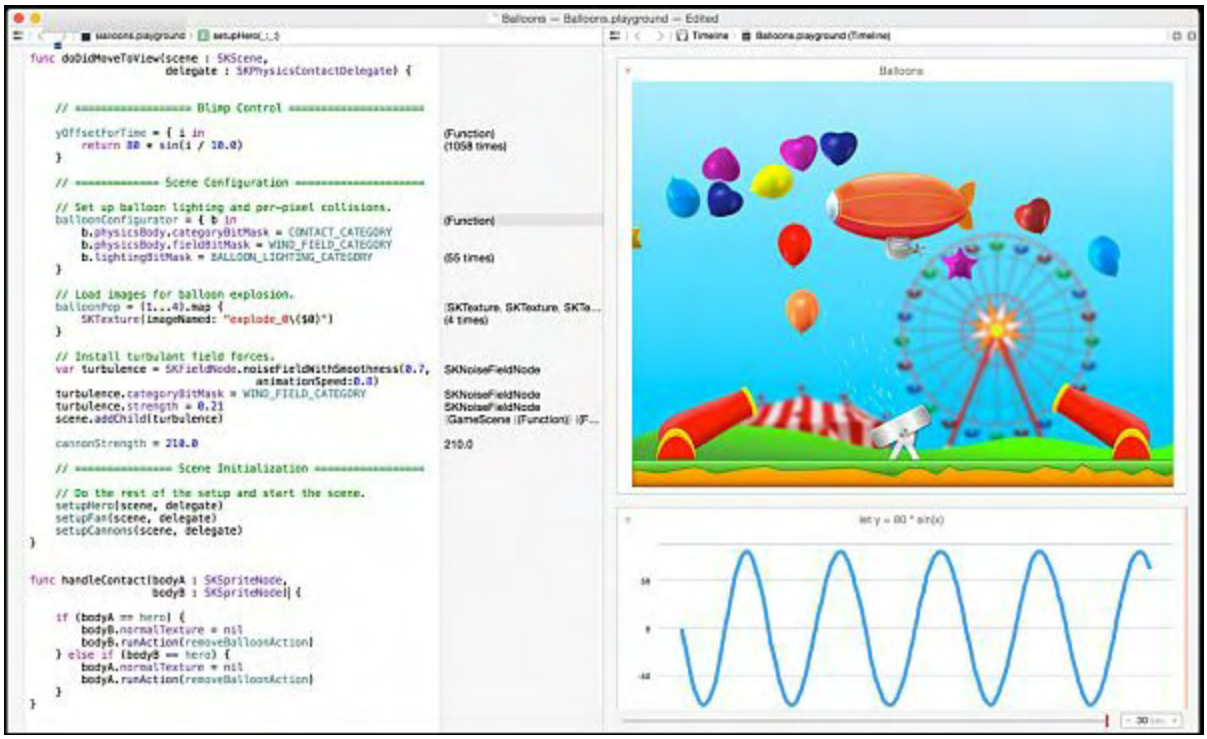


Figure 6. Playground lets you see your code run while seeing the output at the same time.

The combination of a simpler programming language (Swift) with an interactive programming environment (Playground) makes creating OS X and iOS apps far easier and fun. In the old days, you had to write code and then run your entire program to see if it worked right. If that proved too complicated, you had to create a small program and run it, then if it worked correctly, you'd have to copy that code and paste it into your main program.

With the new version of Xcode 6 (coming this fall), you can experiment in Playground to make sure your code works, then copy and paste that working code into your actual program, confident that your code works as intended.

For ordinary users, Swift and Playground might not seem like a big deal, but to programmers, Swift and Playground represent a revolutionary leap forward in programmer productivity. Swift and Playgrounds should increase the number of quality software people can write in less time. Now we just have to hope that people actually have good ideas for programs in the first place.

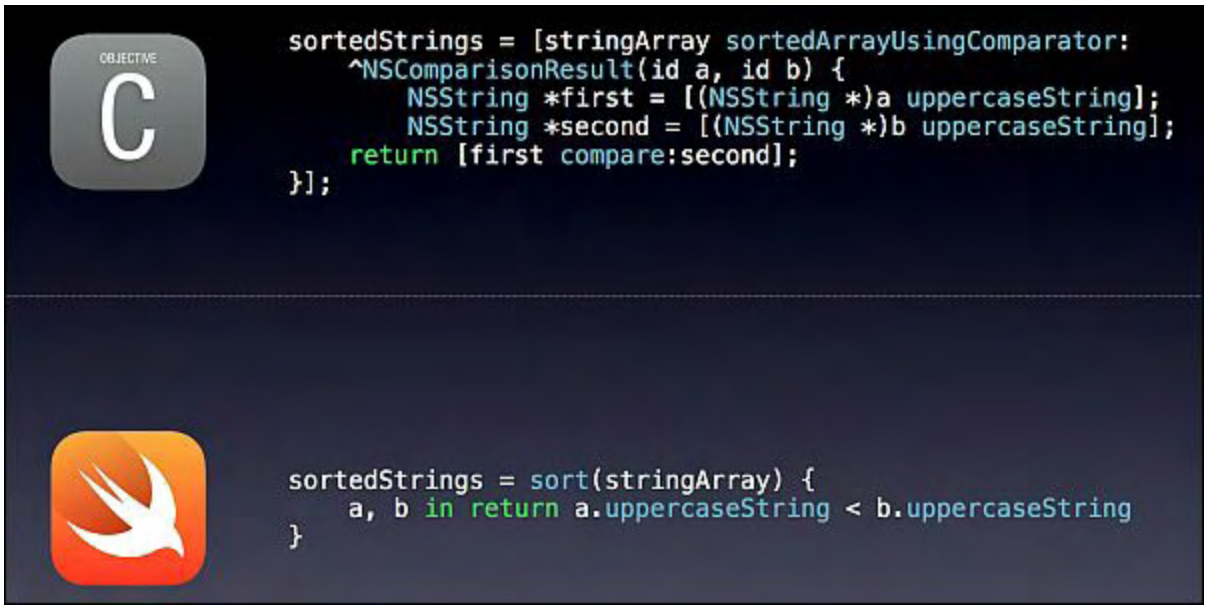


Figure 7. Swift's language is shorter, simpler, and cleaner than comparable Objective-C code.

* * *

Unless you use your Macintosh for playing games and Internet browsing, chances are good you create documents that you'd like to keep. If your hard disk should fail for any reason or your Macintosh gets stolen, you'll lose all your valuable data, even if that data has no value to anyone but yourself.

For that reason, every Macintosh owner should buy an external hard disk and use Time Machine to back up their internal hard disk automatically. For added protection, you should also back up your most crucial documents to an online cloud storage service like iCloud or DropBox. Time Machine can back up your entire Macintosh while an online cloud storage service can back up only your most critical documents.

For extra safety, consider using two external hard disks. Time Machine will then take turns backing up your entire Macintosh on both external hard disks. Now if one external hard disk should fail or get stolen, your second one will still contain your back ups. (Remember, all hard drives eventually fail.)

You can never have too many back ups of your critical data, so don't wait until you lose something important before you take the time and money to set up Time Machine or some other automatic back up system.

In the early days, before Wally became an Internationally renowned comedian, computer book writer, and generally cool guy, Wally Wang used to hang around The Byte Buyer dangling participles with Jack Dunning and go to the gym to pump iron with Dan Gookin.

Wally is responsible for the following books:

Microsoft Office 2013 For Dummies

Beginning Programming for Dummies

Beginning Programming All-in-One Reference for Dummies

Breaking Into Acting for Dummies with Larry Garrison

Strategic Entrepreneurism with Jon and Gerald Fisher

How to Live with a Cat (When You Really Don't Want To)

The Secrets of the Wall Street Stock Traders

Mac Programming For Absolute Beginners

Republican Fairy Tales (Children's Stories the 1% Tell About the Rest of Us)

The Zen of Effortless Selling with Moe Abdou

The 15-Minute Movie Method

Erotophobia (A novel)

Math for the Zombie Apocalypse

How to Write a Great Script with Final Draft 9

How to Write a Great Script with Fade In

The Elements of a Great Script: Star Wars

The Elements of a Great Script: Die Hard

The Element of a Great Script: Back to the Future

The Elements of a Great Script: Rocky

The Elements of a Great Script: It's a Wonderful Life

In his spare time, Wally likes blogging about movies and writing screenplays at his site "The 15 Minute Movie Method," finding interesting news stories about cats at his site "Cat Daily News," giving advice to authors who want to self-publish e-books at his site "The Electronic Author," and providing the type of advice he wishes someone would have told him when he was much younger at his personal Web site. Wally can be reached at *wally@computoredge.com* or you can follow him on Twitter @wallacewang_com.

Worldwide News & Product Reviews

"The latest in tech news and hot product reviews." by Charles Carr, News and Reviews Editor

Happy Birthday, App Store!; Online Petition Urges Samsung to Fix Violations at Chinese Supplier Factory; Samsung Galaxy Tab 3 Light 7.0; This Tiny Speaker Has Big Sound for Tiny Dough and That's...er...a Large Thing!

Happy Birthday, App Store!

In honor of the sixth birthday of Apple's App Store, the mobile attribution and analytics company Adjust.com has published a report on the typical "App Lifecycle." Highlights include:

• Currently, there are 1,252,777 apps available in the App Store, and as many as 60,000 apps are typically added every month

• Adjust predicts that 578K new apps will enter the App Store by the store's 7th birthday

• More than 21% of apps that entered the App Store are now "Dead" apps that no longer exist

• By category, book (27%), entertainment (25%) and utilities (25%) have the most dead apps

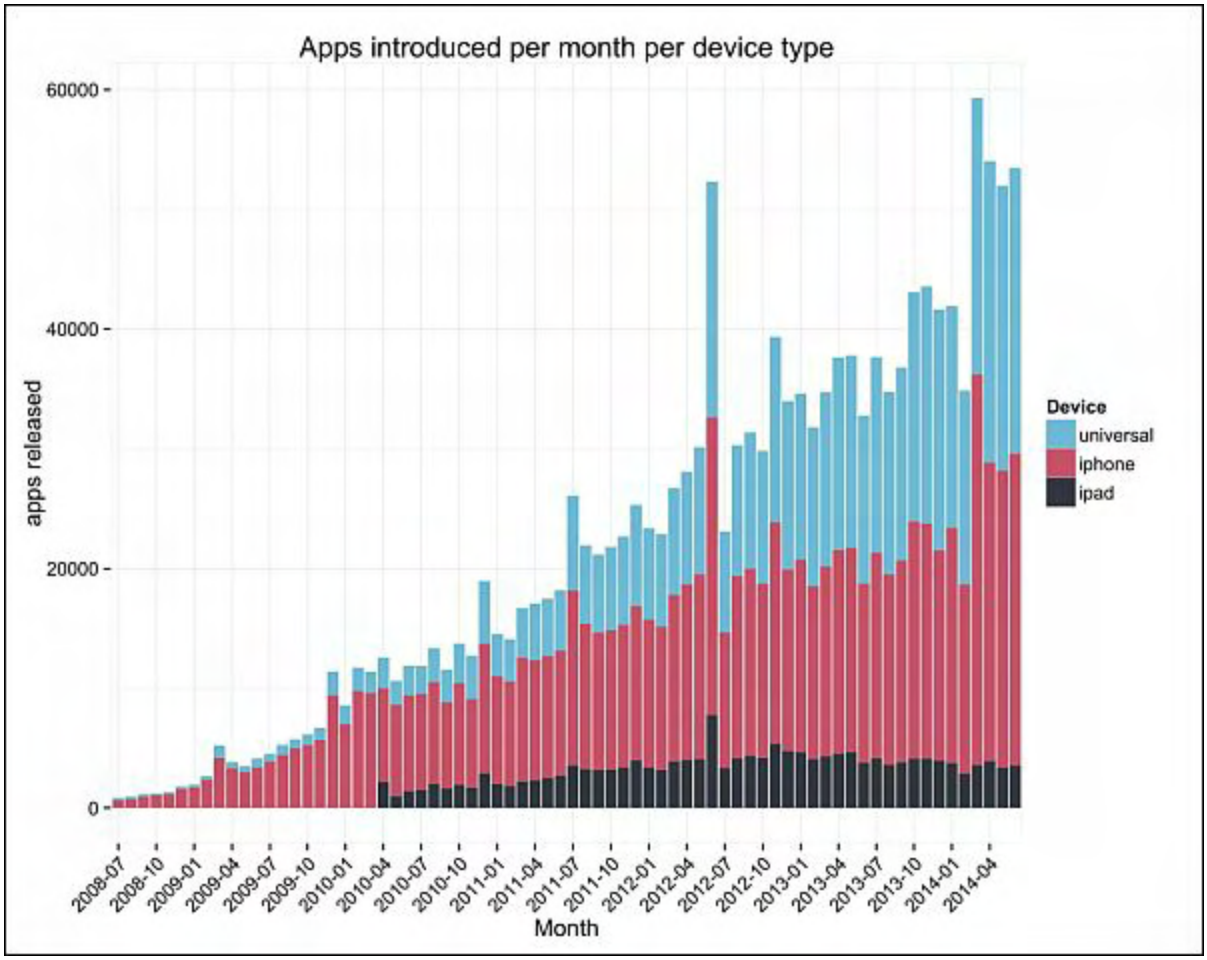
• Since the Apple App Store was born, over 1,601,413 total apps have been uploaded

• 80% of apps in the App Store are "Zombies" this month and did not noticeably rank

• Games are twice as likely to be pulled as apps in the general software category

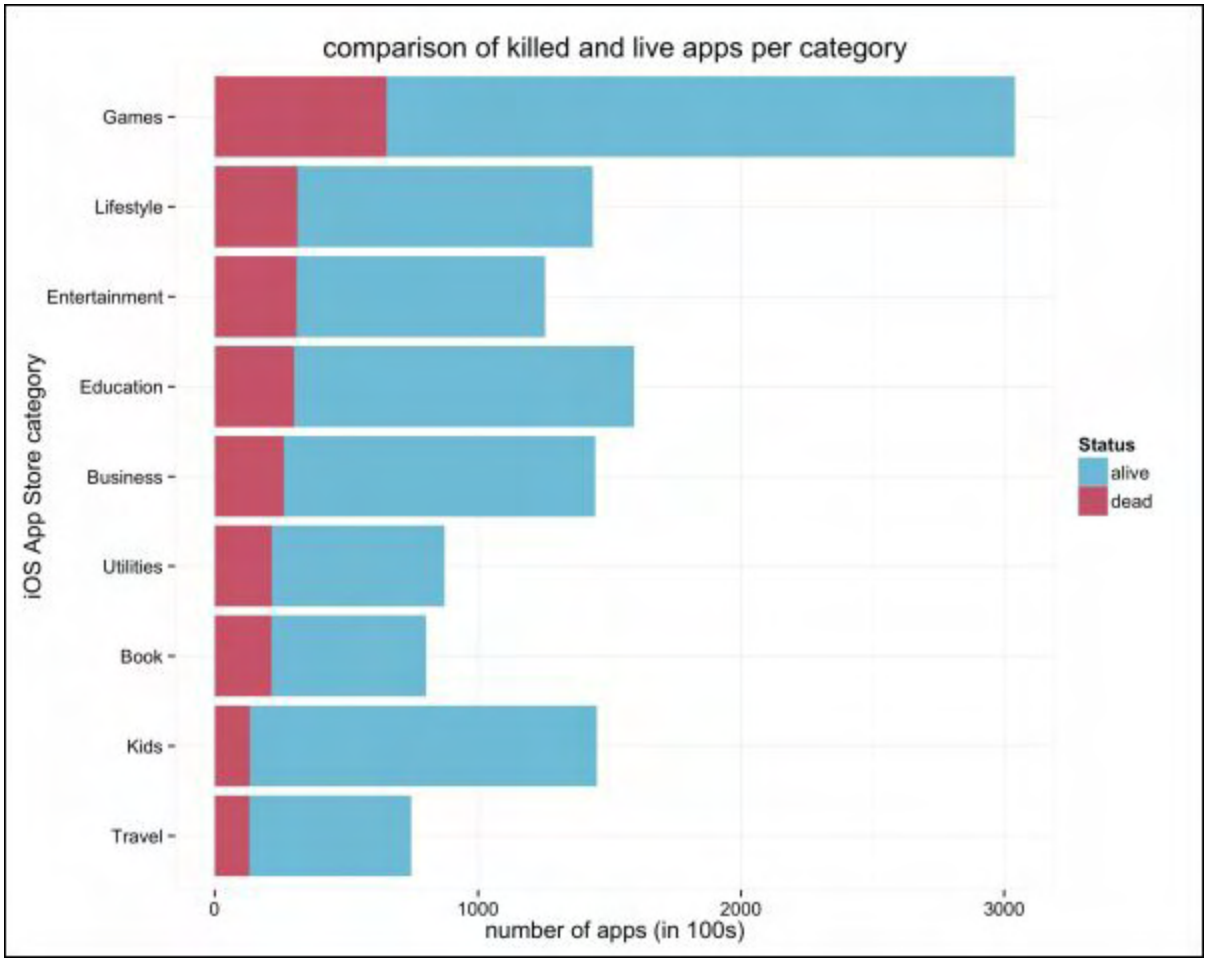
• Gameloft develops the most number of top-ranked apps in the App Store

"As the App Store and the apps within it mature, more than ever it becomes essential for marketers to look at new techniques to re-engage existing users and get ROI. The report that we've released today shows the development of the App Store and highlights the critical need for marketers to engage key audiences for ensuring the longevity and visibility of their app," said Christian Henschel, CEO and co-founder of Adjust.



Although, there was a significant increase in the number of iPhone apps released in March 2014, doubling that of the previous month. The number of iPad-only apps decreased over the past year, indicating increased simultaneous multi-platform launches.

In 2013, 453,902 new apps were released in the Apple App Store, exceeding Adjust's prediction of over 435 thousand new apps by 4 percent. Almost 15 percent of apps in the store were removed during the year, which Adjust labels as "Dead Apps," due to violating App Store terms and conditions or voluntarily pulled down by developers, leaving 396,341 available apps with a release date in 2013.



Since the Apple App Store was born, over 1,601,413 total apps have been uploaded. Of those apps, 350 thousand were pulled from the store, which means that more than one in five apps (21.8%) is no longer available.

By category, books (27%), entertainment (25%) and utilities (24.9%) have the highest percentage of Dead Apps, whereas games have the highest absolute number of Dead Apps (65,643 apps at 21.7%). Adjust reports that there was no correlation between app crash reviews or app ranking with being removed from the App Store.

In 2012, Adjust (known as adeven at the time) coined the term "Zombie App" to describe an app that does not attract enough measurable attention to regularly receive rankings in the Apple App Store top lists. The line between living and Zombie Apps was set conservatively—an app had to rank on any of the 39,171 App Store top lists on two out of three days over the month.

App discovery is still a primary issue for developers as the number of Zombie Apps has steadily increased, and last month only one fifth of apps were sufficiently visible.

There were 79.6% Zombies Apps in June 2014 (953,387 apps out of 1,197,087) compared

with 70.4% of 884,917 apps in June 2013 and 75.2% of 1,020,604 in December 2013.

Download the entire report here.

Online Petition Urges Samsung to Fix Violations at Chinese Supplier Factory

According to the nonprofit Green America, global electronics giant Samsung should immediately cease child labor abuses at its cell phone supplier factory in China. Green America representative Will Harwood notes:

The Green America petition comes in reaction to a report ... by the workers' rights watchdog organization China Labor Watch (CLW) ... in which underage workers were found to be working at Shinyang Electronic Co. Ltd. ...

Green America's latest petition adds to a growing global movement for more responsibly-made electronics. In the past few months, more than 20,000 individuals have signed Green America's petition to Apple calling on the company to "end smartphone sweatshops" by addressing worker health and safety risks.

"It's criminal for Samsung to profit at the expense of children," said Green America campaigns director Elizabeth O'Connell, "Samsung needs to take immediate action in this facility and others to ensure that children are removed from work and compensated appropriately. Additionally, Samsung must take action to address serious health and safety failings in its facilities."

In Samsung's most recent sustainability report the company said it inspected working conditions at 200 suppliers in 2013 and that "no instances of child labor were found." The violations found in CLW's report raise questions about the effectiveness and thoroughness of Samsung's self-monitoring. ...

Additional reports from Korea have indicated that more than 200 former Samsung workers suffer from grave illnesses, allegedly contracted while working in Samsung plants. Samsung is most popular cell phone manufacturer in the world. In 2013, Samsung sold an estimated 550 million phones worldwide, or nearly twice as many phones as the US population.

Workers in Samsung's facilities in China, Korea and elsewhere work long hours for little pay and often do not have adequate safety training or equipment to keep themselves safe on the job.

You can sign a petition at www.greenamerica.org.

Samsung Galaxy Tab 3 Light 7.0

Product: Galaxy Tab 3 Light 7.0
Manufacturer: Samsung
Web site: www.samsung.com
Price: $159.99

After two unsuccessful attempts at buying "low end" tablets that didn't stand the test of time, I decided it was time to move up to one that should. I chose the Samsung Galaxy Tab 3 Light 7.0 (also known as the SM-T110).

It has a TFT 7" touchscreen with 16M colors and a resolution of 620 x 1024 pixels (WSVGA) and runs a dual-core 1.2 GHz processor. It has 8GB of internal storage and 1GB of RAM. However, since it is running Android OS Ver 4.2.2 you can move many applications to your micro SD card which can be up to 32GB in size. This means you can really load it up with apps.

Along with the micro SD slot it has a micro USB slot and a 3.5mm stereo jack along with a built-in speaker.

The Multiwindow feature allows you to multitask, i.e., run more than one application at a time, which none of my earlier tablets allowed.

The 2.0 MP rear-facing camera will do stills and videos. Being rear-facing is a drawback as it makes using Skype difficult if you're not in front of a mirror! It has, of course, 802.11 b/g/n Wi-Fi, GPS capability, and it also supports Bluetooth ver 4.0.

One of the things I like most about the Tab 3 Light 7.0 is the 3600 mHa Li-ion battery which is advertised to last 9 hours browsing the Internet, 8 hours watching video, and 200 hours listening to music. All this and it weighs less than 11oz.

The price at Samsung is listed above but it can be found for less by shopping the Web. 3BTech.net had it on sale for around $130.

There is also an excellent YouTube video showing its pros and cons.

I finally found a "good one"!

Review contributed by Joe Nuvolini

This Tiny Speaker Has Big Sound for Tiny Dough and That's...er...a Large Thing!

Product: ZX120
Manufacturer: Kinivo
Web site: www.kinivo.com
Price: $20

No one expects anything special to come out of the crazy-teensy speakers most (all) smartphones have—which makes the surprisingly great sound that comes out of the Kinivo ZX120 mini-speaker all the more notable.

The ZX120 is Kinivo's second gen mini-speaker and it improves on the old model (ZX100) in pretty much every aspect: sound, size, battery life—even the length of the built-in cable.

One great aspect of the Kinivo ZX120 is that it's 360-degree audio source, so you can plop it down in the middle of whatever is going on for everyone to enjoy. A tip I discovered: If it's just you or if you want the sound to go in one specific direction, backstop it so the sound that would normally dissipate away from you is reflected your way.

The ZX120 has an expandable bass resonator (see pics) that produces unexpectedly great low-end sound. Just plug the built in cable into any device with a standard 3.5mm (1/8") audio jack.

On that note, you plug your phone's stereo jack into the Kinivo, but it comes out mono, of course. Which got me thinking: If you're good at messing with different cables and connectors, you could run a stereo cable out and split it into separate left and right signals and run two of these little guys. Should be awesome sound!

The battery is rechargeable, so simply plug it into your PC or USB wall outlet using the included USB charging cable. You can get up to 10 hours of continuous playback depending on whether you're playing AC/DC at full volume or Bach's Brandenburger Concertos sotto voce.

The ZX120 has a one-year warranty.

Charles Carr note: As we went to press we noticed that the ZX120 is not currently available on Amazon, but you can find it at lots of other sites, including eBay. We suspect that, considering the ZX120's popularity, there's an even newer model coming out pretty soon.

Review contributed by Geoff Friedsten

Multiple award-winning author Charles Carr has written more than two thousand newspaper articles, magazine stories, and columns for many publications including the San Diego Union Tribune, The Californian, The North County Times, Parent Magazine, ComputerScene, and ComputorEdge Magazine where he has been an editor for more than two decades. He is also a television producer/director with shows both currently airing and in production on Cox Cable and elsewhere.

In the 1990s, Charles wrote 3DHouse, a complete inside-and-out virtual reality tour of his family's log home in Southern California. One of the first virtual reality programs ever created, 3DHouse enjoyed tens of thousands of shareware downloads on all major portals. He also sold the rights to Radio Shack and Egghead Software. 3DHouse has since been featured in many books and articles about VR.

Carr has also been commissioned to write and/or directed many of his own stage plays. Several years ago, Carr and others looking for ways to help organizations struggling in difficult economic times, founded Art Animates Life (*www.artanimateslife.org*).

To date, Art Animates Life, a CA incorporated, federal non-profit, has raised tens-of-thousands of dollars for San Diego area disaster relief, an arts non-profit and municipal gallery, a community outreach center, and several struggling community theaters.

Several years ago Carr was commissioned to adapt and direct the beloved Dickens classic, A Christmas Carol. The play, titled "Mr. Scrooge & Mr. Dickens," has sold out So Cal theaters for the past several years. Six shows will take place Dec. 2013 to benefit the San Marcos Historical Society.

Another original play, "All the Time in the World," has been performed many times and garnered broad acclaim from audiences and critics alike. Carr is working on a brand new adaptation of the classic Hitchcock thriller, "The Lady Vanished," to be performed spring 2014.

Carr has won many writing accolades, including San Diego Press Club awards for Best Column Writing, Best Consumer Writing, and Best Arts and Entertainment. He has repeatedly taken top honors in San Diego Songwriter's Guild competitions for his original musical compositions.

Carr is also a noted producer, director, and videographer. Several of his documentaries can currently be seen on So Cal's Cox Cable. Since its inception he has produced the Fallbrook International Film Festival's red carpet event and panel discussions.

Charles receives dozens of requests each year to appear on Southern California television and radio stations to talk about important tech events. He also speaks from time-to-time to high schools and organizations about his eclectic life in the arts.

Learn more at *www.charlescarr.com*.

Editor's Letters: Tips and Thoughts from Readers

"Computer and Internet tips, plus comments on the articles and columns." by ComputorEdge Staff

"Directly Accessing Controls," "Leaving a Computer On All the Time," "Noisy Old HP Laptop"

Directly Accessing Controls

[Regarding the June 27 Automate Any Program in Windows column:]

Jack,

Is there a way to access the control directly? For instance if I wanted to select "save file as" from the menu, then click the mouse on the field where you would type the file name into the save as window, then type the name that you want to name the file as, and then hit enter to save.

Is there a way to just move the name into the control and save the file, effectively bypassing all the navigation and all the potential timing issues that may occur with the navigation?

-Paul Anthony, San Diego, CA

Hi, Paul,

The short answer is yes, if the program supports control names. In the example that I used most of the controls did not support individual names. However, the program you're using may—especially if you are using a Save *dialogue. The best way to determine if one exists is with Window Spy. Look for* ClassNN *in the* Now Under Mouse Cursor *section. When you hover over the field it should show something like* ClassNN: Edit1. *The name of the control might be* Edit1, Edit2, Edit3, *etc. In this situation you can use the* ControlFocus *command to move directly to the field, then use the* Send *command to input your filename. Next, you may see that the* Save *button is something such as* Button5, *but it may be as simple using* ControlClick, Save *to complete the action.*

None of this guarantees that you won't need to use the Sleep *command between some of these steps—especially if you're doing the paste of a variable or from the Clipboard. The problem is that certain windows and controls need to be available before AutoHotkey can do its work. There are various* Wait *type commands such as* WinWaitActive, *but I've found them to*

be inconsistent.

I address this subject in more detail in this column. It's a little more advanced than this week's topic, but deserves more attention.

Thanks,

-Jack Dunning

Leaving a Computer On All the Time

[Regarding the June 27 Digital Dave column:]

I built a rig about five years ago that I use for a Home Theater PC and it has been running constantly during that time and nothing has failed on it yet—except for one cooling fan.

-Marcus, Alabama

Noisy Old HP Laptop

[Regarding the July 4 Digital Dave column:]

The fan noise Paul describes could just be a worn out six-year-old fan. The fan is quiet until friction generates heat which expands the bushing causing the fan-shaft to vibrate in the hole.

-Phil, Pacific Beach, CA

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