Installing Java on Your Computer

Please read this document before viewing lecture 1.4. If you are using an Integrated Development Environment (IDE) like Eclipse, NetBeans, or DrJava, you may not have to complete step 3.
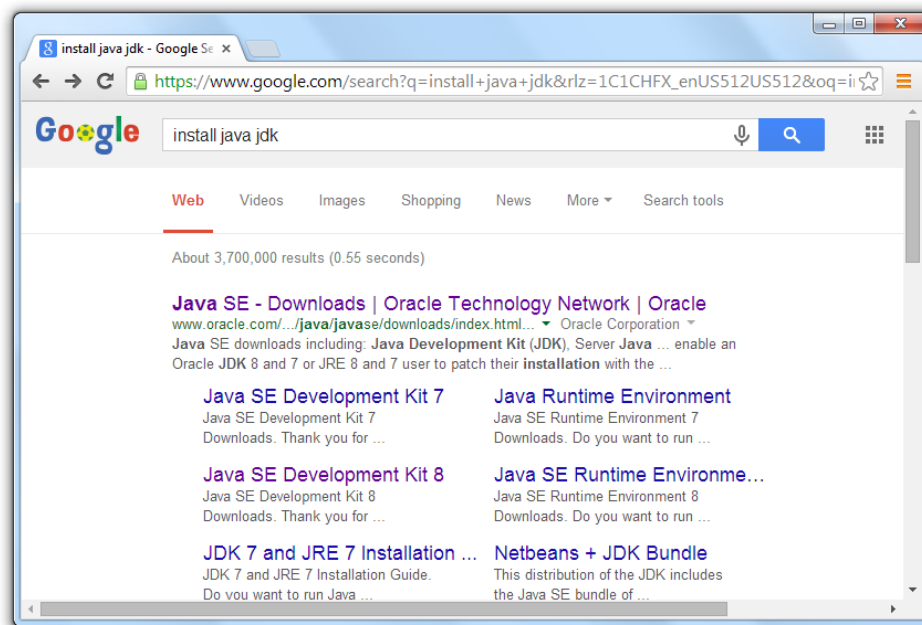
Also please note that if you are using a Mac, Java should already be installed on your computer, and it is not necessary to read this document. Mac users may want to consult the *Java Notes for Mac Users* document in the unit 1 course section for some helpful tips and links. These instructions only apply to computers running the Windows operating system.

There are four steps involved in installing Java on your computer:

1. Go to the Java download page on the Oracle website
2. Download and install the Java Development Kit (JDK) on your computer
3. Set your PATH variable
4. Create a directory (also called a folder) to keep your Java programs in
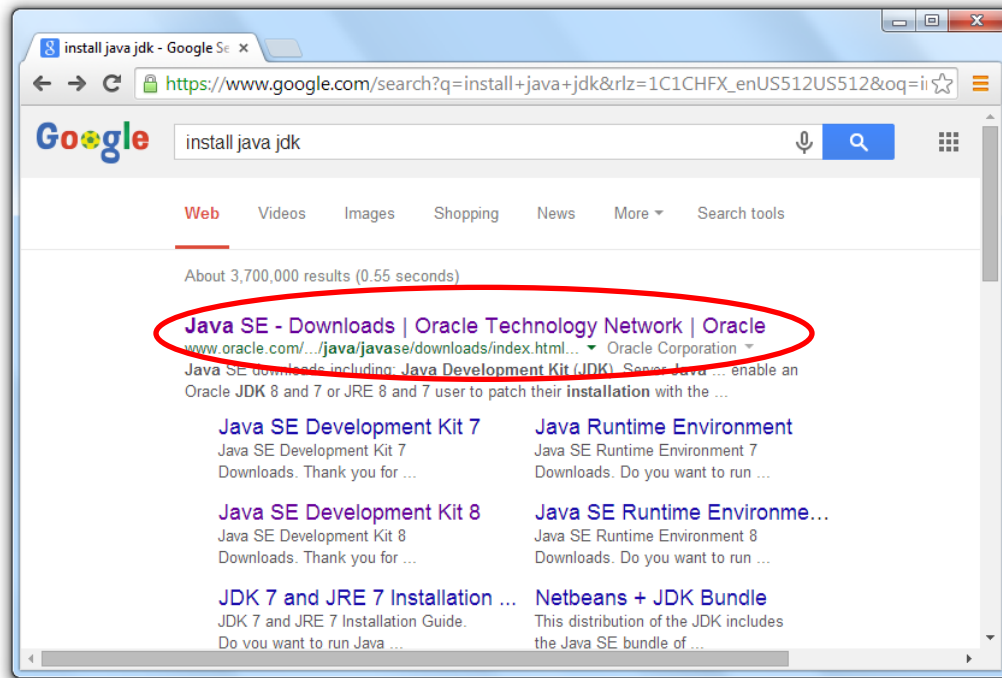
Go to the Java Download Page

The first step in installing the Java Software Development Kit (JDK) is to go to the download page and download the JDK to your computer. The address for this page can change over time, so it is best to search for it using the *download java jdk* keyword search phrase entered into your browser's address window or a search engine address window, as illustrated below:
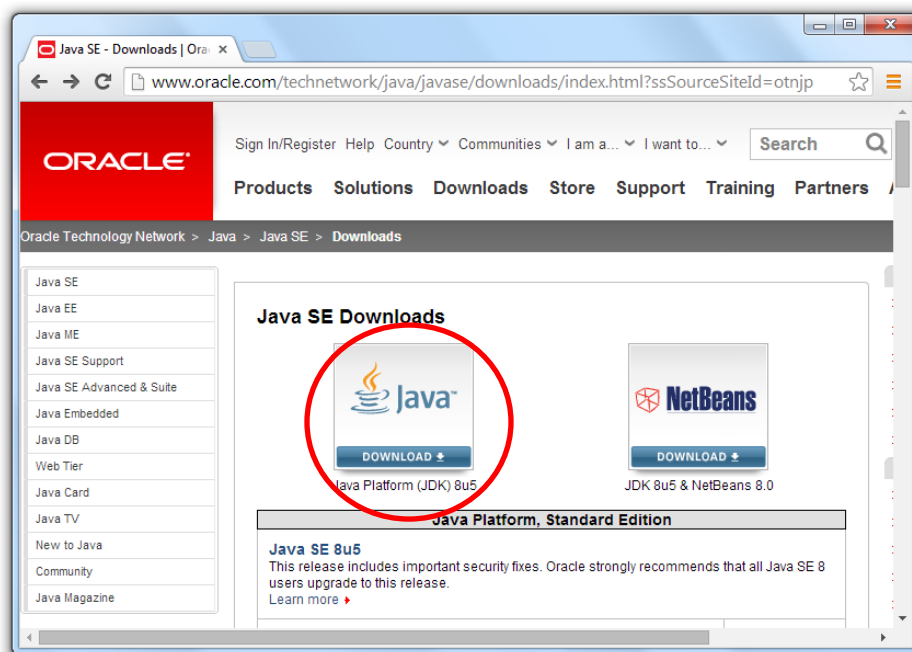

Please note that the results you see may be somewhat different than what is illustrated above, as different versions of Java are released or if different search engines are used, but you will be best off if you select a link from the *oracle.com* website.
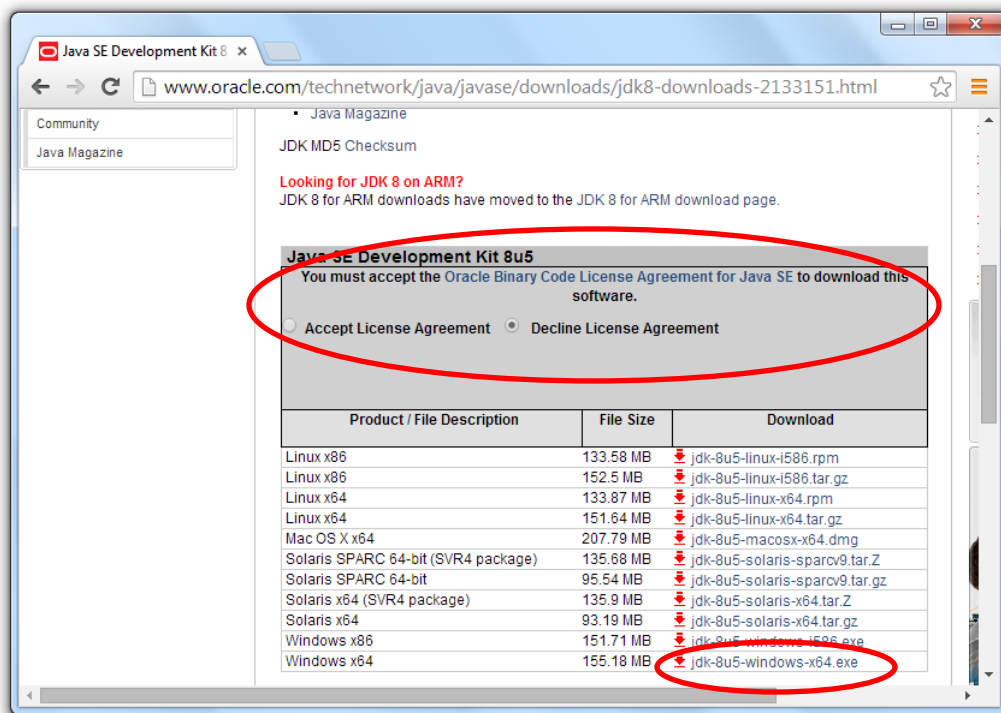
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In this example, I've selected the link circled in red as illustrated above.

Selecting the link will take you to a download page on the *www.oracle .com* website. There can be multiple links to the Java JDK shown on the page, but the most current version of the Java JDK is usually shown as a clickable button, circled in red below.

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Clicking on the download button will take you to another page where you can specify which operating system your computer uses and then begin the actual download process.

Download & Install the JDK on Your Computer

The first thing you should remember to do is to click on the option to "accept" the license agreement, indicated in red above. Note that the "decline" option is selected by default. If you do not accept the license agreement the download will not be completed.

Once you have accepted the license agreement you should download the version of Java that corresponds to your operating system. Java is available for a number of different operating systems and it is important to download the one that corresponds to your computer…or Java will not work correctly. To select the correct version, just click on the file name to the right of the downward arrow that corresponds to your operating system. My computer runs a 64-bit version of Windows, so I will click on the file name circled in red as illustrated above.
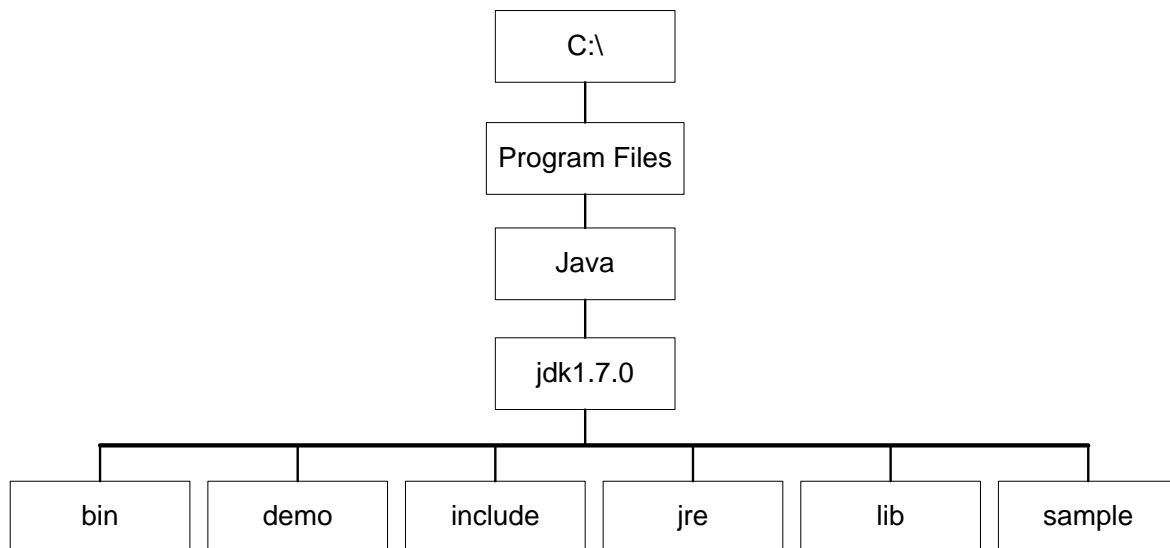
Clicking on the file name will begin the download process, and a single file will be downloaded to your computer and placed in your default download directory. Once the file has been downloaded, you can double click on it to begin the installation process…which should be self-explanatory. Just respond to the prompts and the Java installation should proceed smoothly.

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Set Your Path Variable

When the Java download and installation process is complete, you'll need to find out where Java has been installed on your computer's file system. Sometimes the download manager program will ask you to specify a directory to install Java in and sometimes it may not.

My copy of the JDK was installed in the *C:\Program Files\Java* directory on my computer's file system. Schematically, the file structure looks like this:

```
                              C:\
                               |
                        Program Files
                               |
                             Java
                               |
                           jdk1.7.0
        _____|_____|_____|_____
       |        |         |         |         |         |
      bin     demo     include      jre       lib     sample
```

Your copy of the JDK may be installed in a different location on your computer. You'll need to find out where, but once you do you can basically forget about it. To find out where the JDK has been installed, you can try looking in the *C:\Program Files\Java* directory. If Java has been installed there, you may see a different subdirectory in place of the *jdk1.7.0* subdirectory indicated above since it is likely you will be downloading a different version of Java. You may also see some lower subdirectories that are slightly different than those illustrated above…and that's okay. It's not necessary to know what's contained in these lower subdirectories, except that the Java compiler is located in the *bin* subdirectory and you'll need to work with that for the next step in the setup process.
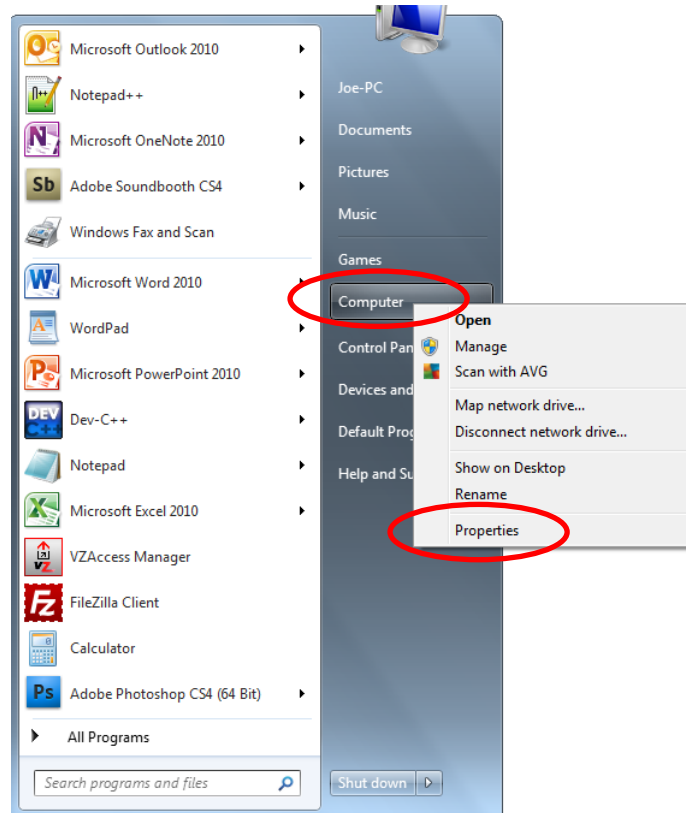
Another way to find out where Java has been installed on your computer is to go to the Windows Start menu and enter **jdk** in the search box.

Once you find out where Java is installed, write down the full path name to the subdirectory that the Java compiler is located in. In this example, the path name would be *C:\Program Files\Java\jdk1.7.0\bin*.

At this point, you must add the path name to the Java compiler to the Windows environment variable named *Path*. The *Path* variable contains a list of path names. When you give Windows a command from the command line, Windows goes through each path in the list of path names until it finds the subdirectory that your command lives in. In our case, we are telling Windows where to find the Java compiler, so that we can compile programs from the command line. Doing this is very easy.
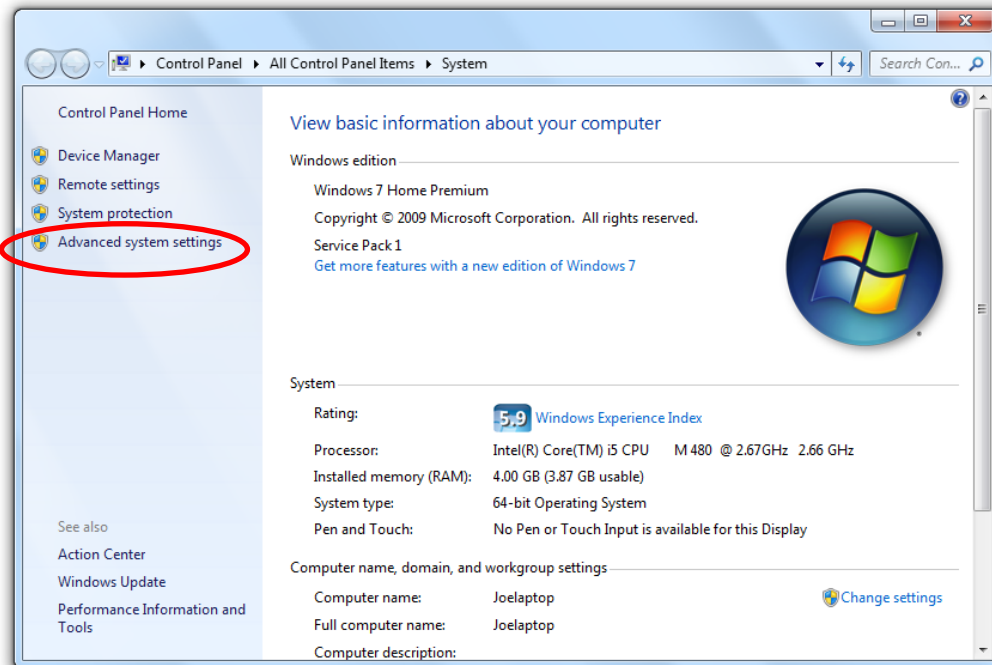
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Please note that I'm using the Windows 7 operating system to illustrate the installation process. Different versions of Windows may have a slightly different user interface, but should contain the same functionality.
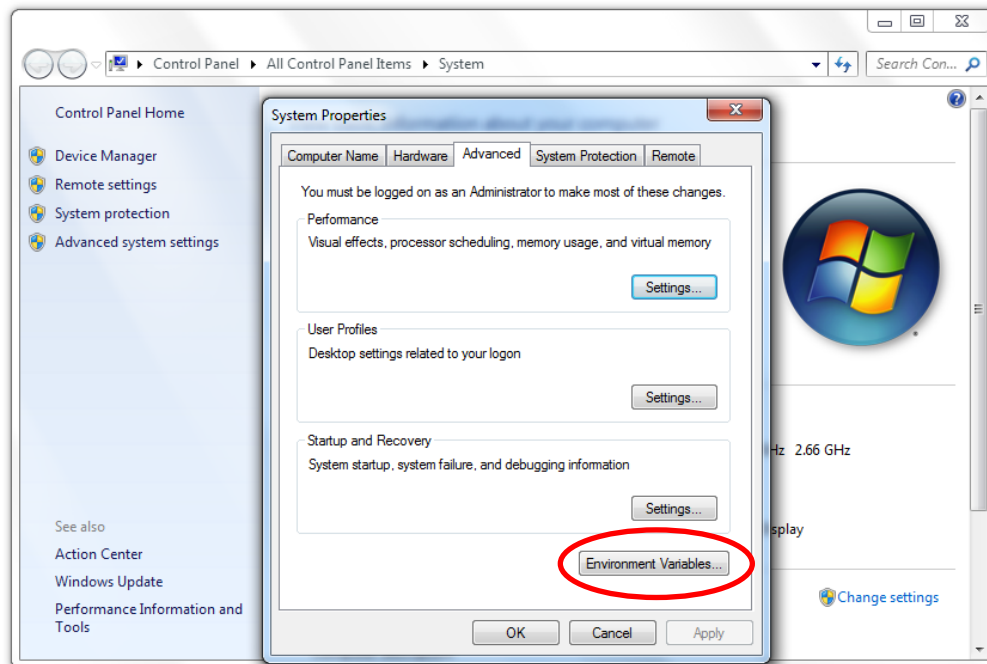

Bring up the Windows Start menu. Then, place your mouse over the *Computer* element and right-click. A small window will appear. Left-click on the *Properties* element and another window will appear, as illustrated below:
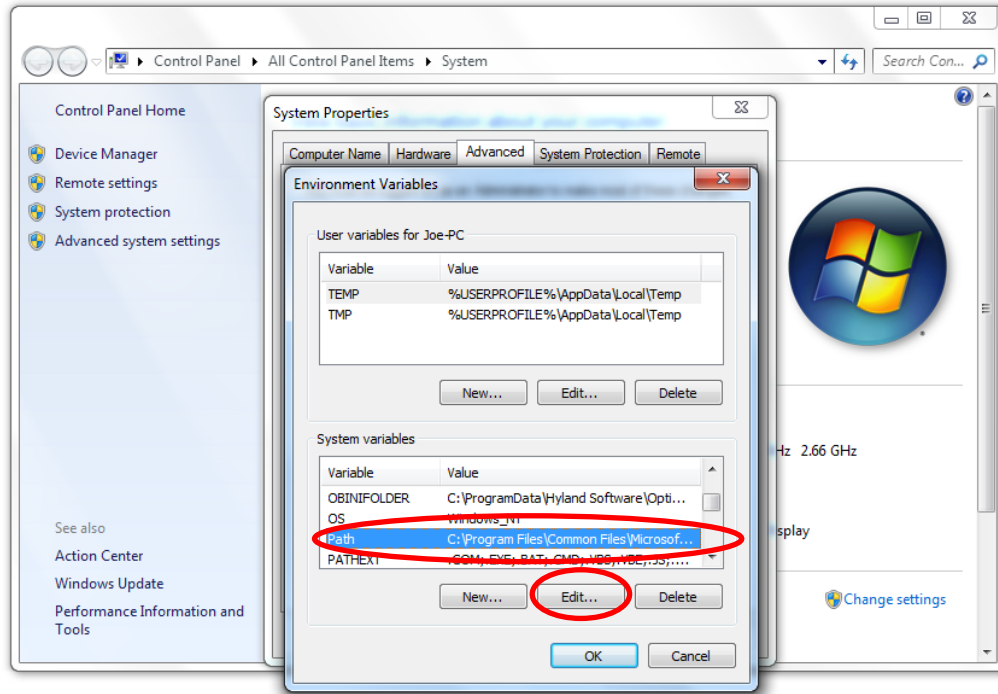
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Then, select *Advanced System Settings*, and another window will appear, as illustrated below:
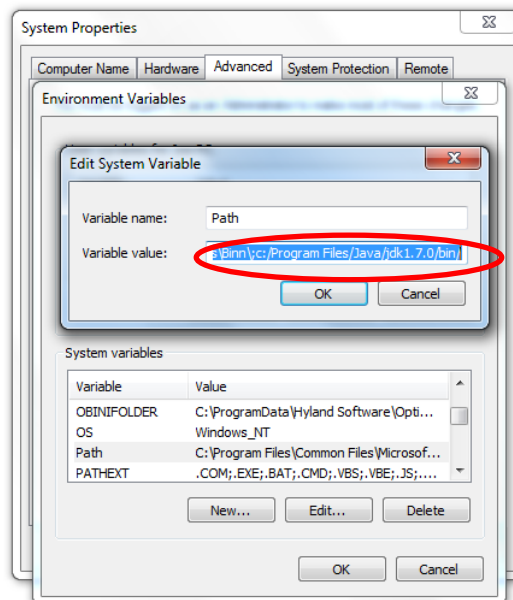

Then, click on the *Environment Variables* button and one more window will appear, as indicated below:

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Scroll down the *System Variables* window until you see the *Path* variable. Then, left-click on it, and press the *Edit…* button. Yet another window will appear, as indicated below:
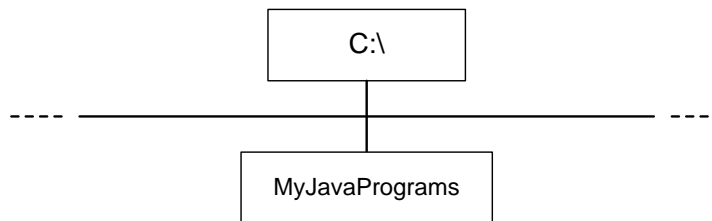

The cursor should be placed at the end of whatever path names this variable is set to. Type a semi-colon (;) followed by the full path name to the location of your Java compiler. That's it…you're almost ready to go…and you don't have to worry about where Java is installed any longer.
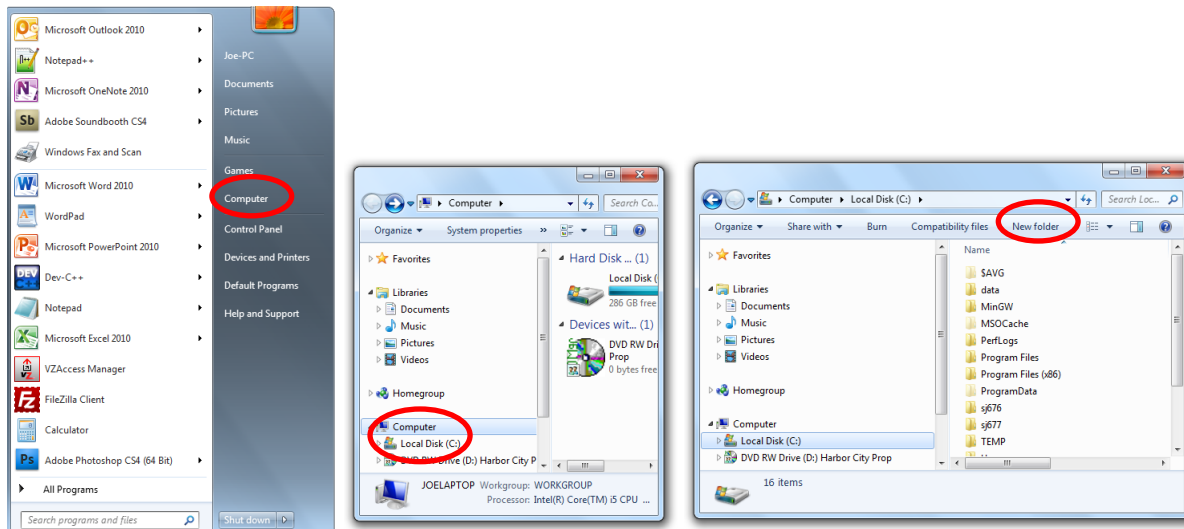
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Create a Subdirectory to Keep Your Java Programs In

The final thing you'll need to do is to create a directory, also called a folder, to keep your Java programs in. This directory can be anywhere on your computer's file system, and it will make it easier for you to locate and manage your programs.

```
                    ┌─────────────────┐
                    │       C:\       │
                    └─────────────────┘
                             │
    ---- ──────────────────────────────────────── ----
                             │
                    ┌─────────────────┐
                    │ MyJavaPrograms  │
                    └─────────────────┘
```

I'm going to keep my programs in a directory called *MyJavaPrograms* that is located under the root directory of the file system on my computer's hard disk.

The easiest way to create your directory is to go to the Windows *Start* menu, left-click on *Computer*, then click on the *Local Disk (C:)* element, then the *New Folder* element, as illustrated by the circled items below, and finally, type the name of your directory.

That's all there is to it. You are now ready to compile and run your first Java program. Please consult lecture 1.4 to learn how this is done.