Download and Install the Java Developer's Kit (JDK)

Java is a great language to learn---unfortunately, probably the most difficult aspect of learning Java is leaning how to install it and configure it so that you can get up and running. This article is intended to get you up and running, and to show you how to compile your first program. After that, I hope you buy my book , Learn to Program with Java, so that you can learn even more.

To install Java, you don't need to purchase a thing. You just need to get your hands on the Java Development Kit. In theory, you can purchase the Java Development Kit from Sun Microsystems--but you don't really need to do that---you can download it for free from their Website.

There are versions of Java that will run on virtually any PC---various versions of Windows, Unix, Linux, even the Macintosh. For the purposes of this article, I'll presume you're running Windows (as I am).

Find the Java Software Development Kit (SDK)

Right now, the latest and greatest version of Java available for download is 1.4.0. Start with this link to find out more about it

http://java.sun.com/j2se/1.4/

You can access the download page directly via this link

http://java.sun.com/j2se/1.4/download.html

From this page, to select the Windows Download, find the row that reads

Windows (all languages, including English)

and then select the download link for the SDK which should be the second column (don't select the SRE column--that's the runtime version of Java--you won't be able to do any development).

By the way, you can also download a full featured Documentation set from this download page also---towards the bottom of the page, you should see a reference to

J2SE 1.4 Documentation
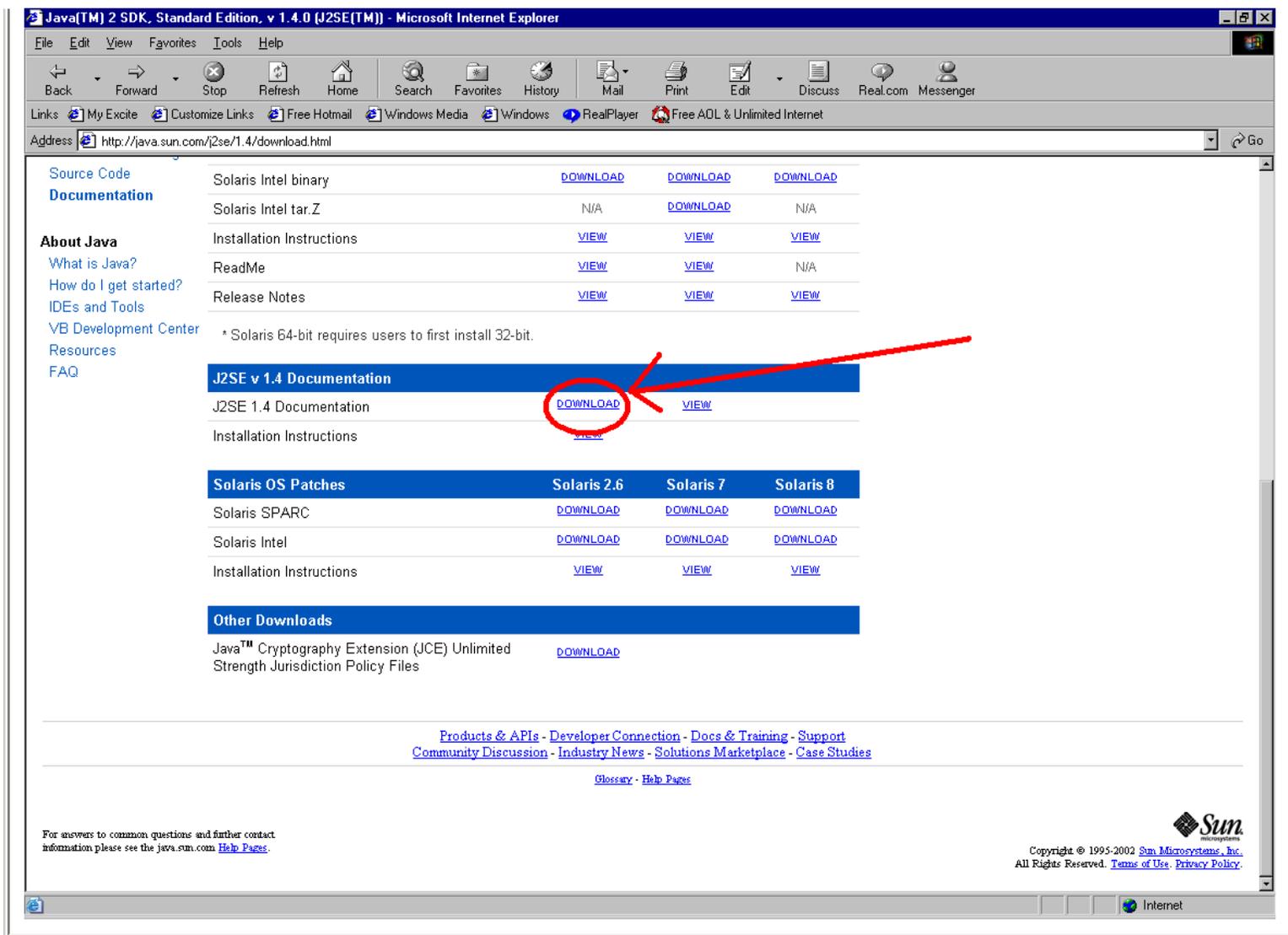
After you have installed and configured your Java SDK, then come back here and download an install the documentation.

Download the Java Software Development Kit (SDK)

Now that you've found the Java SDK, you'll need to download it. I must warn you that the download is very large, about **37,067,134** bytes (one reason to order the CD from Sun if you can figure out how to do it). Click on the download link and you should see this page

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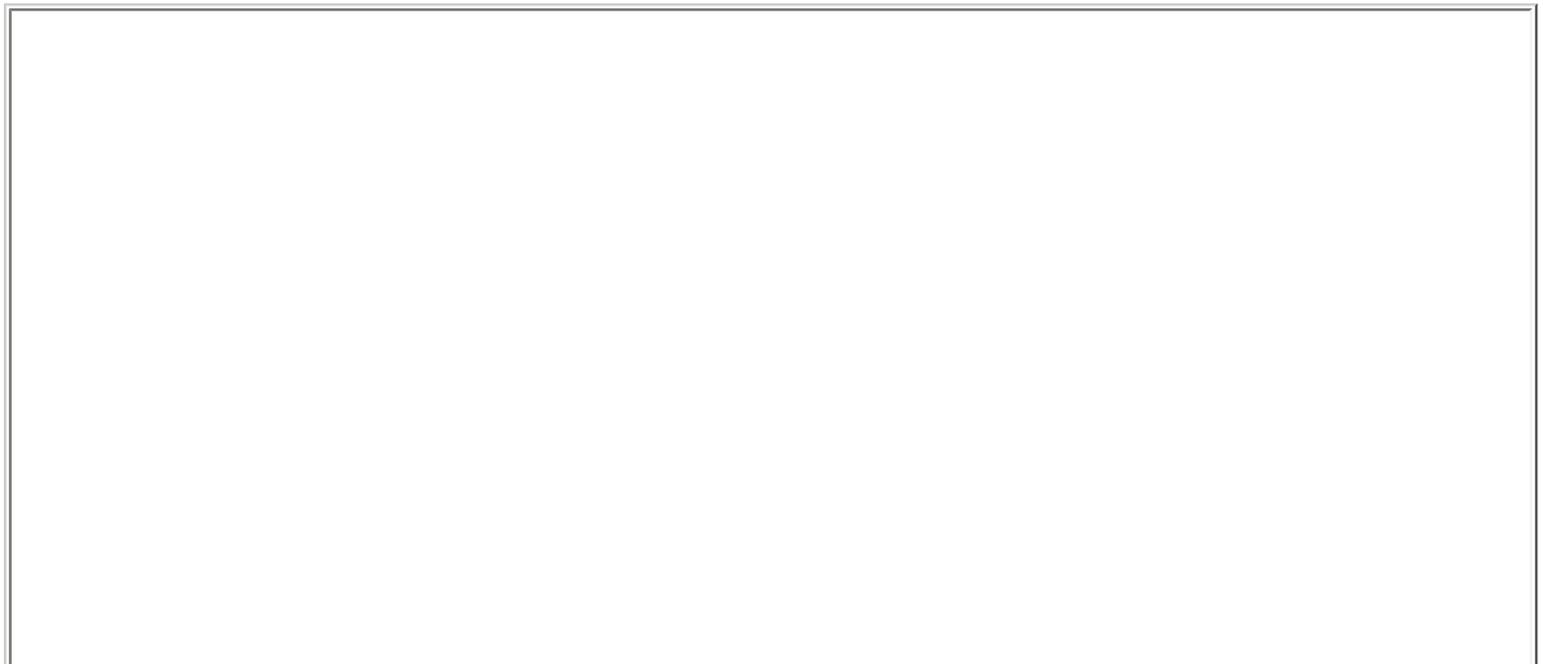Sun Microsystems, Inc.
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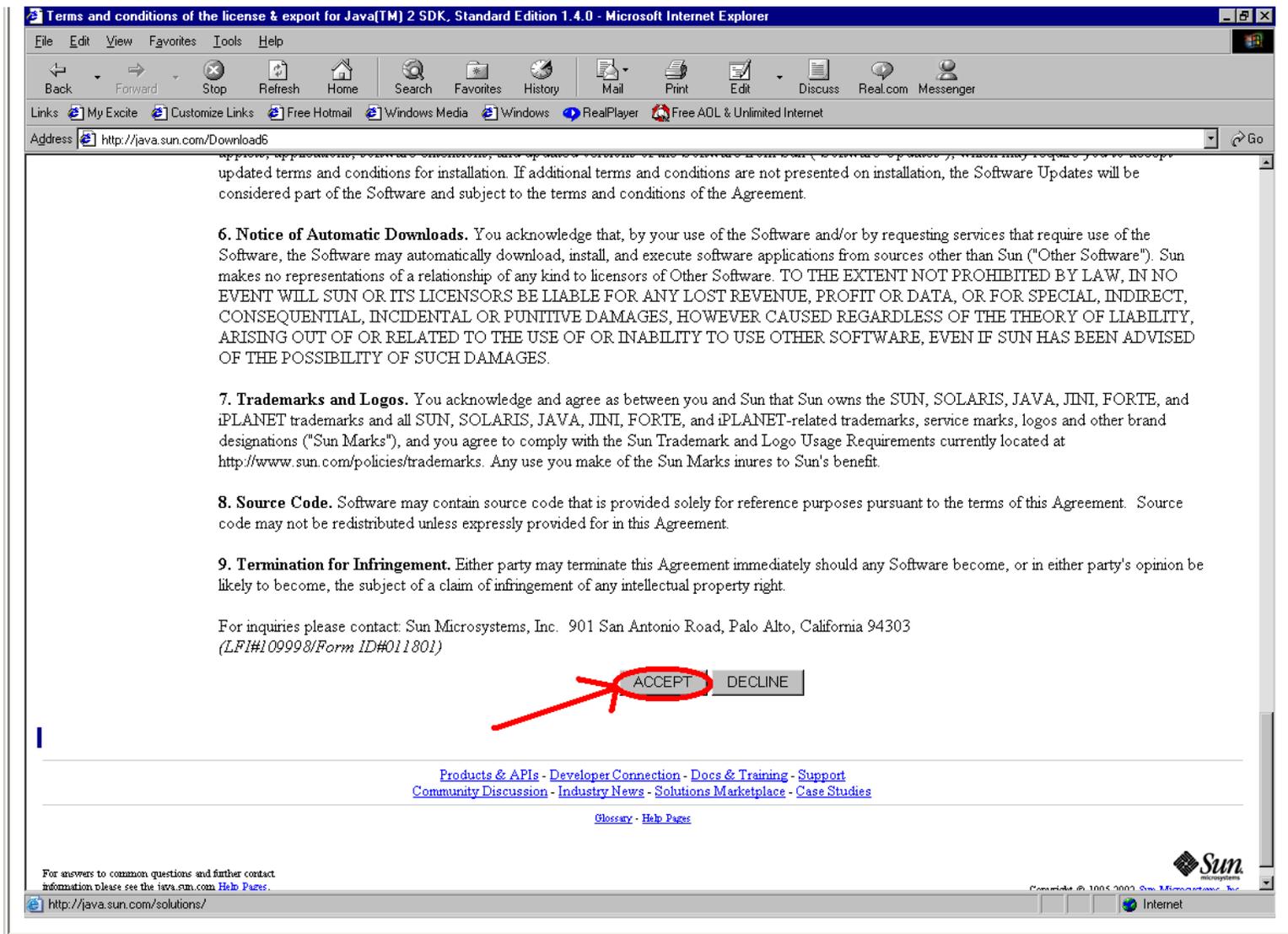
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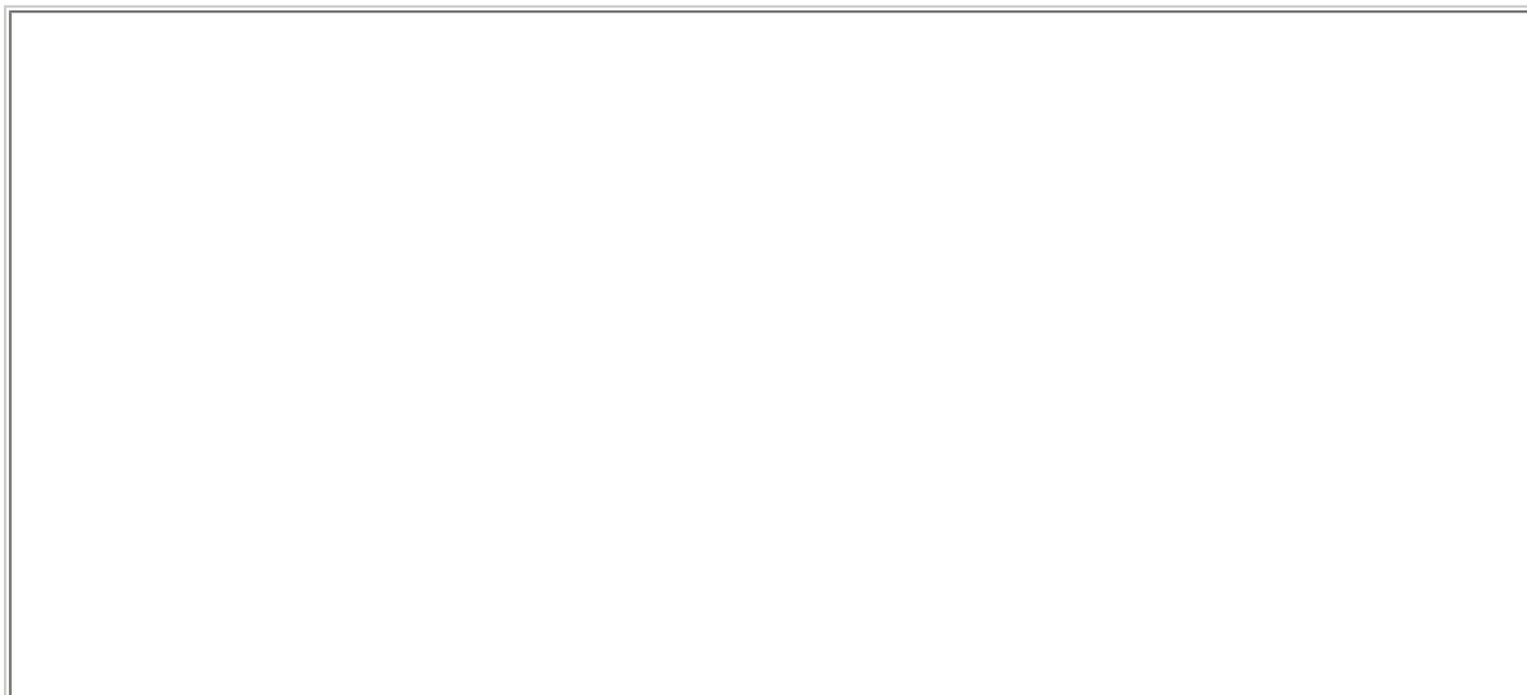
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After you click on the Accept button, you should see this window…

click on the link that says 'Download j2skd-1_4_1-win.exe. Depending upon your Internet browser, you'll be prompted in different ways to save the download file---I like to save my downloads in a folder called 'Downloads'---I saved mine in \DOWNLOADS\JDK 1.4.0.
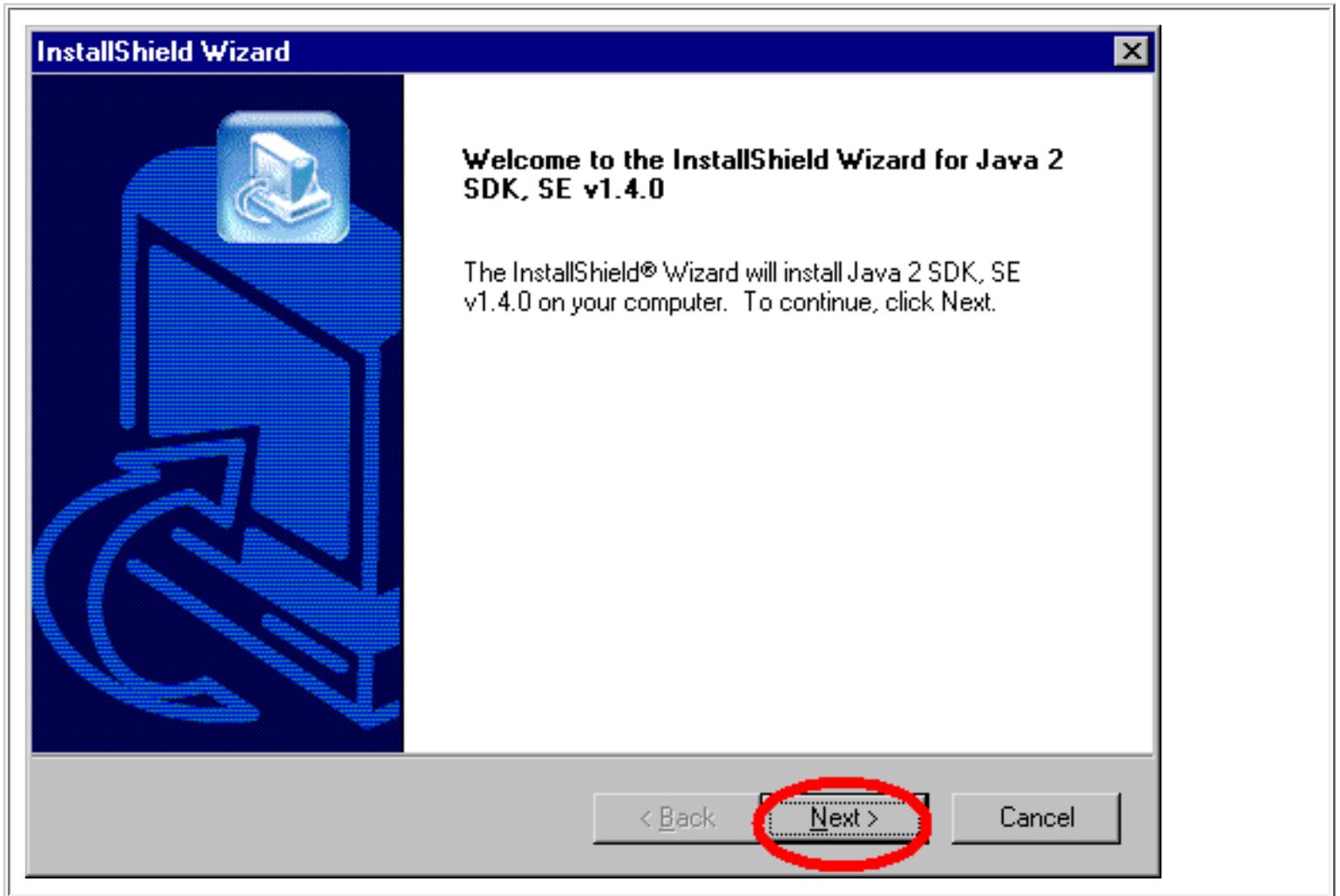
Depending upon the speed of your Internet connection, you can wait anywhere from 3 minutes to 24 hours for the file to be downloaded. Once it's downloaded, find it on your PC, and double click on it to begin your Java installation.
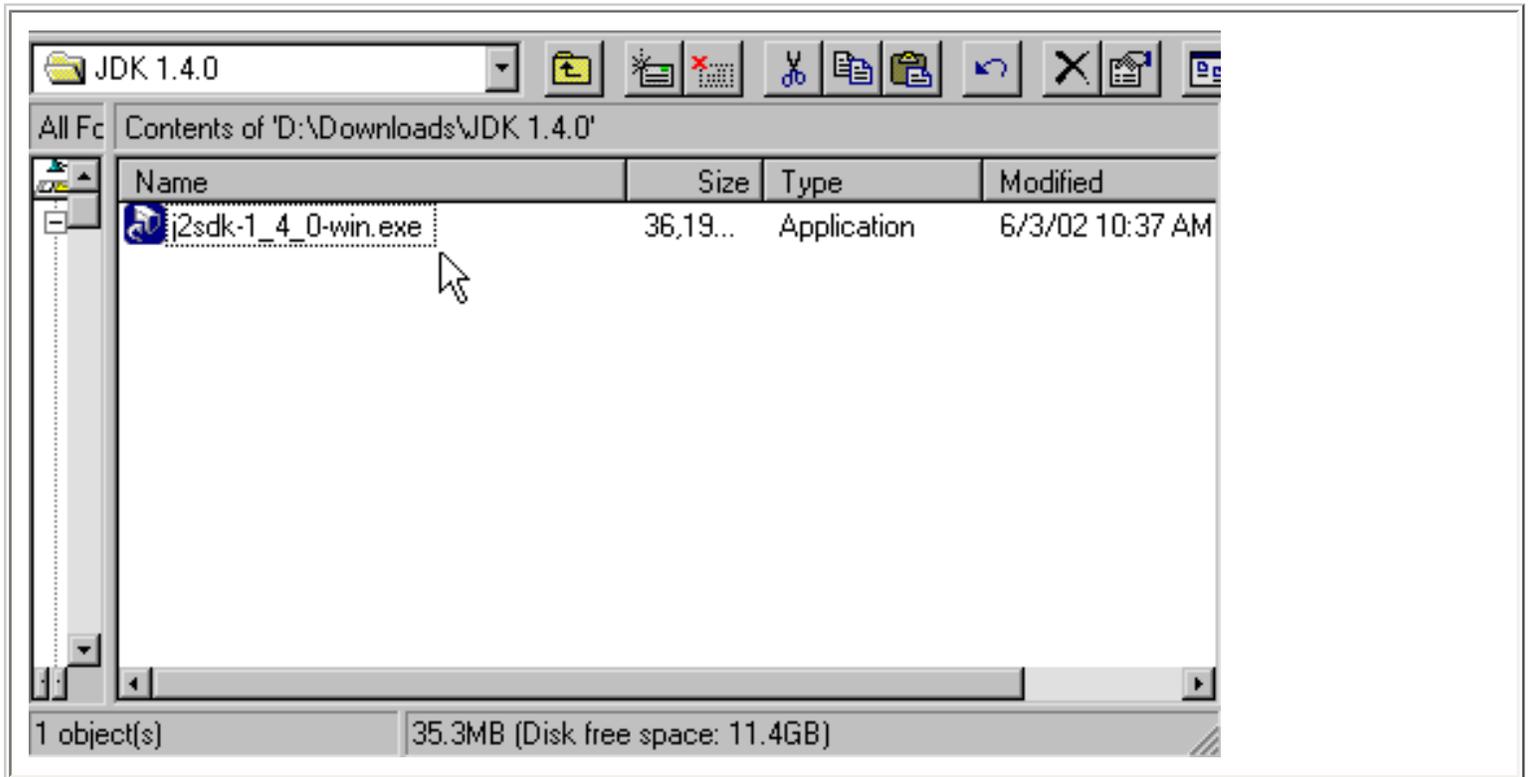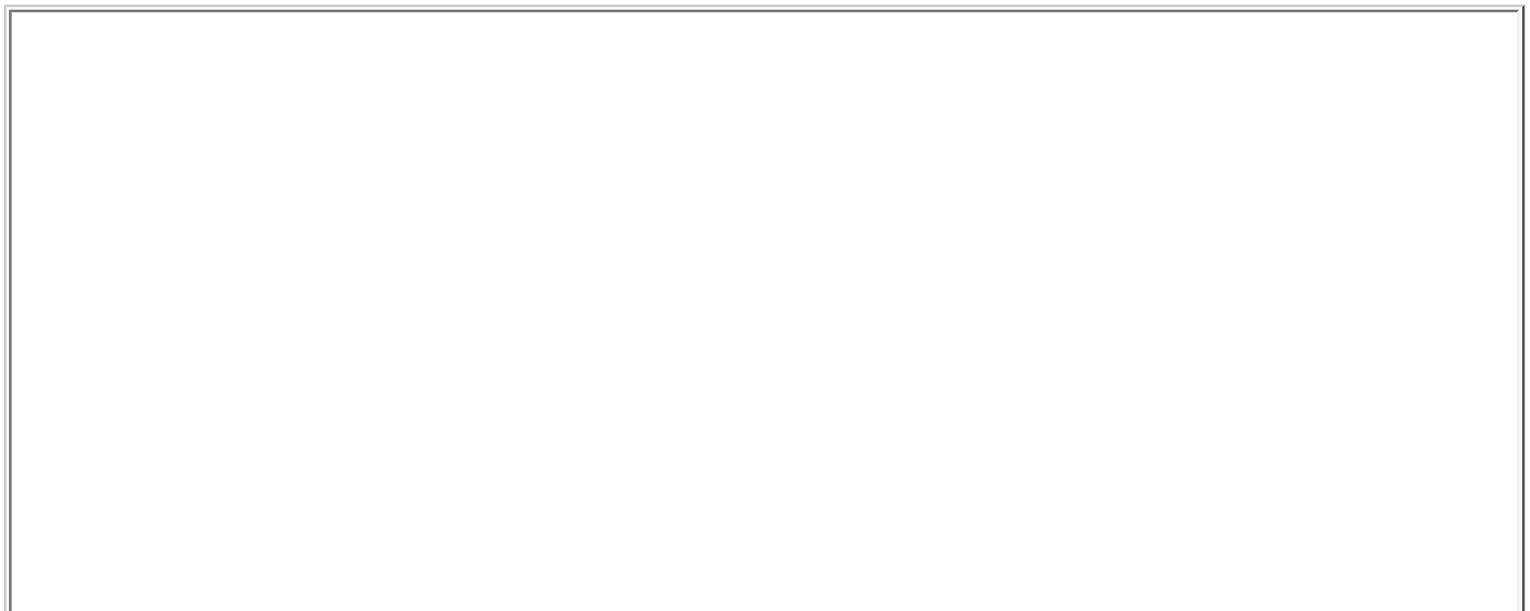
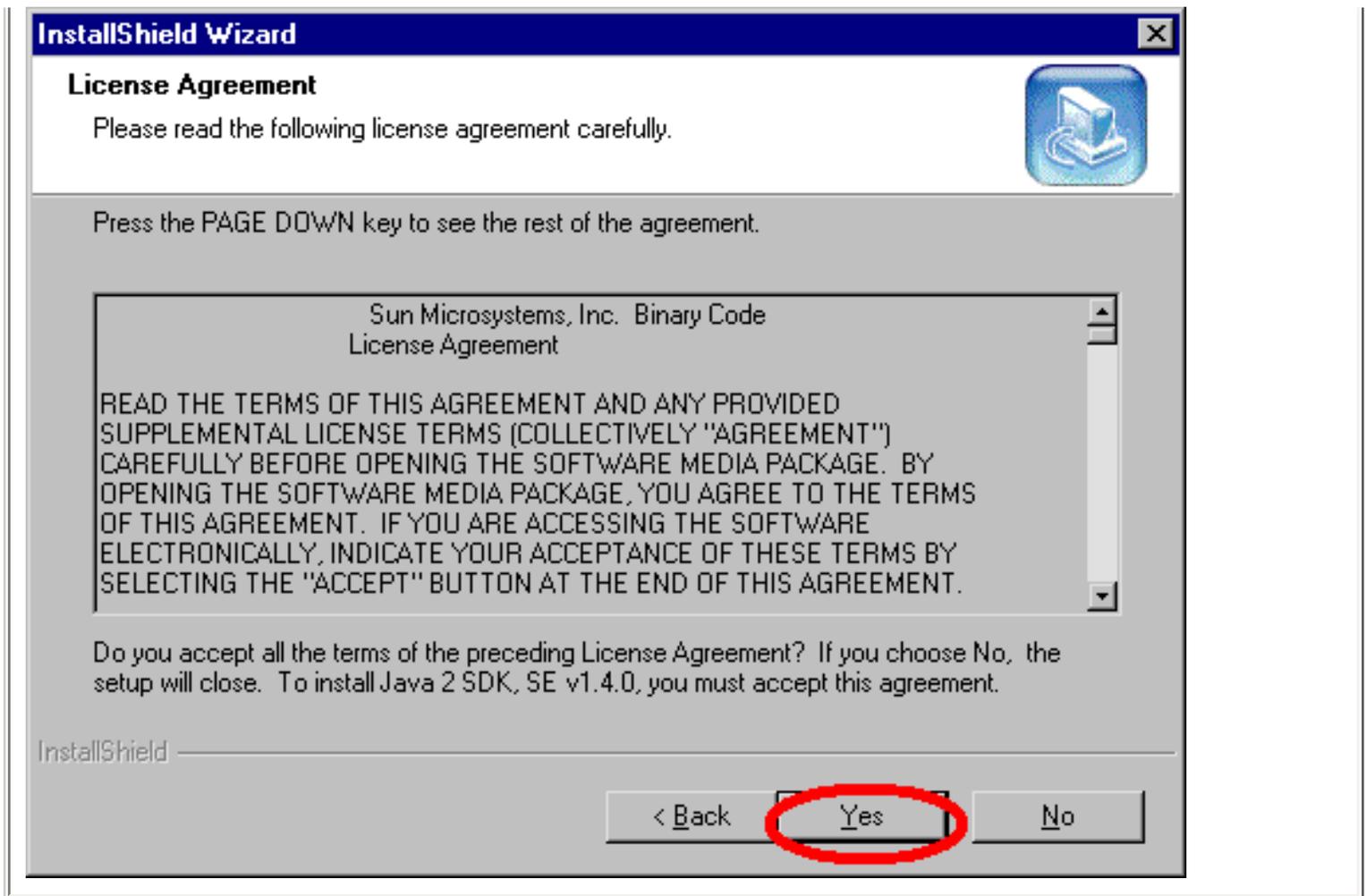You should now see this window, indicating that the installation process is beginning…
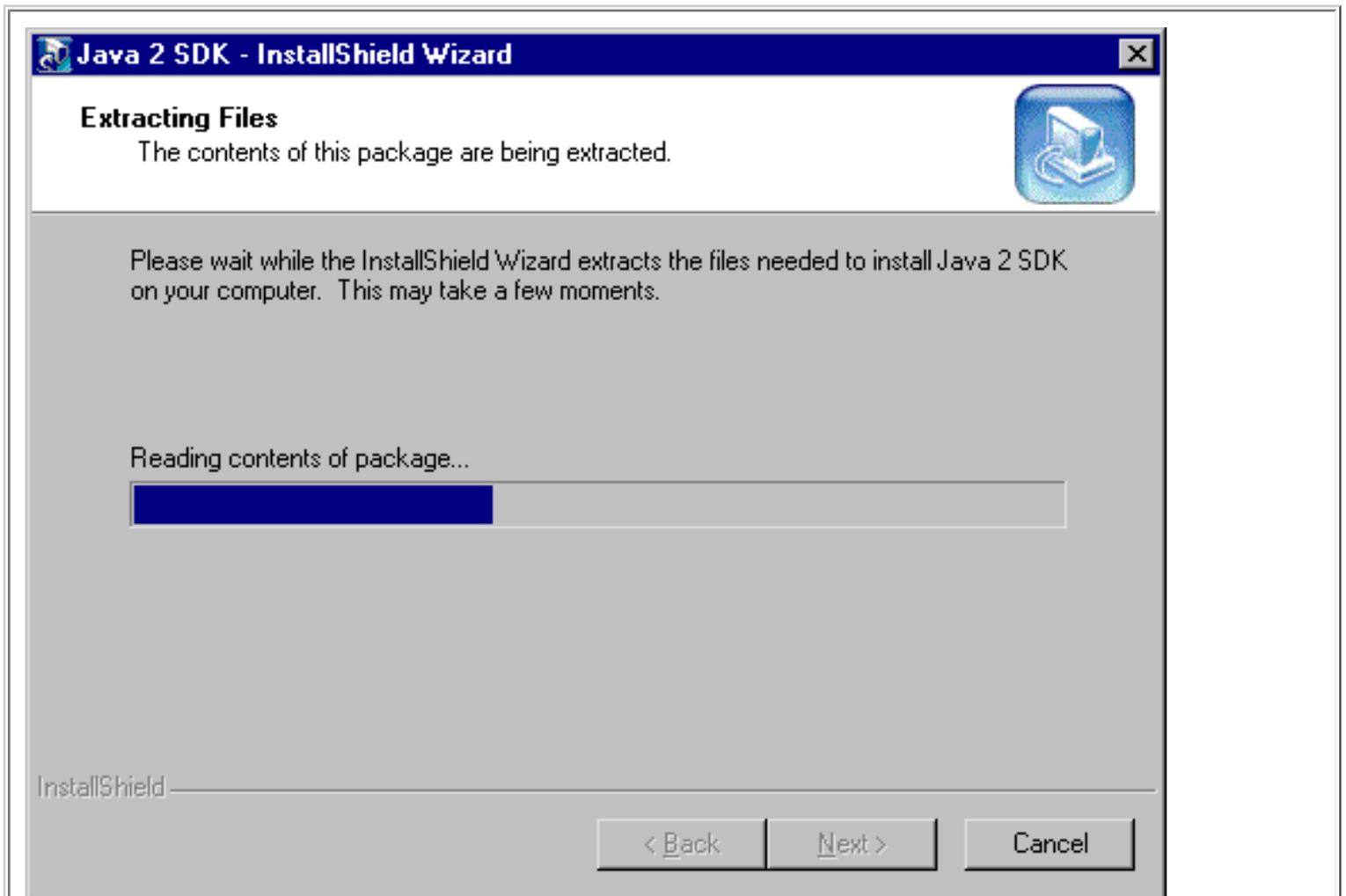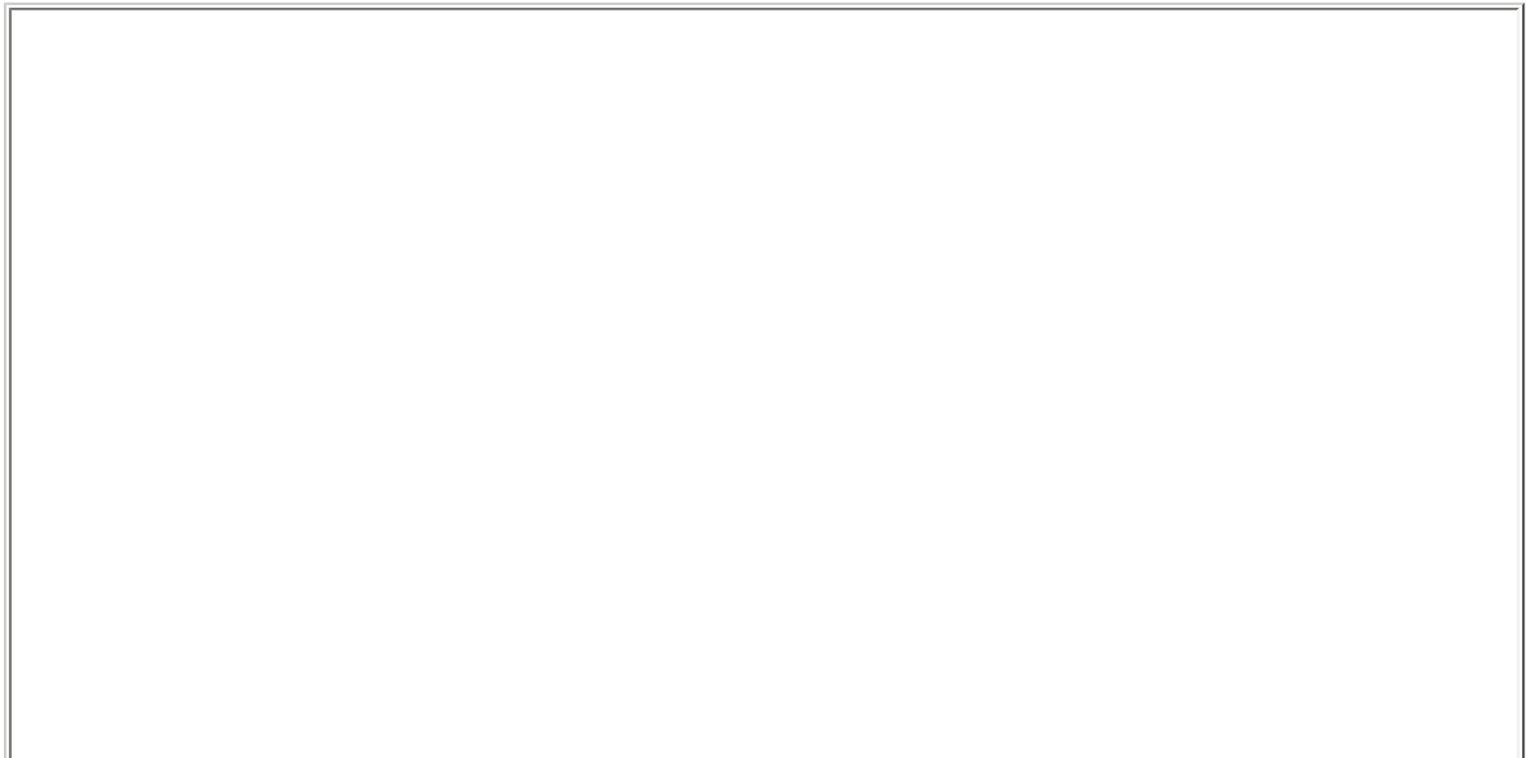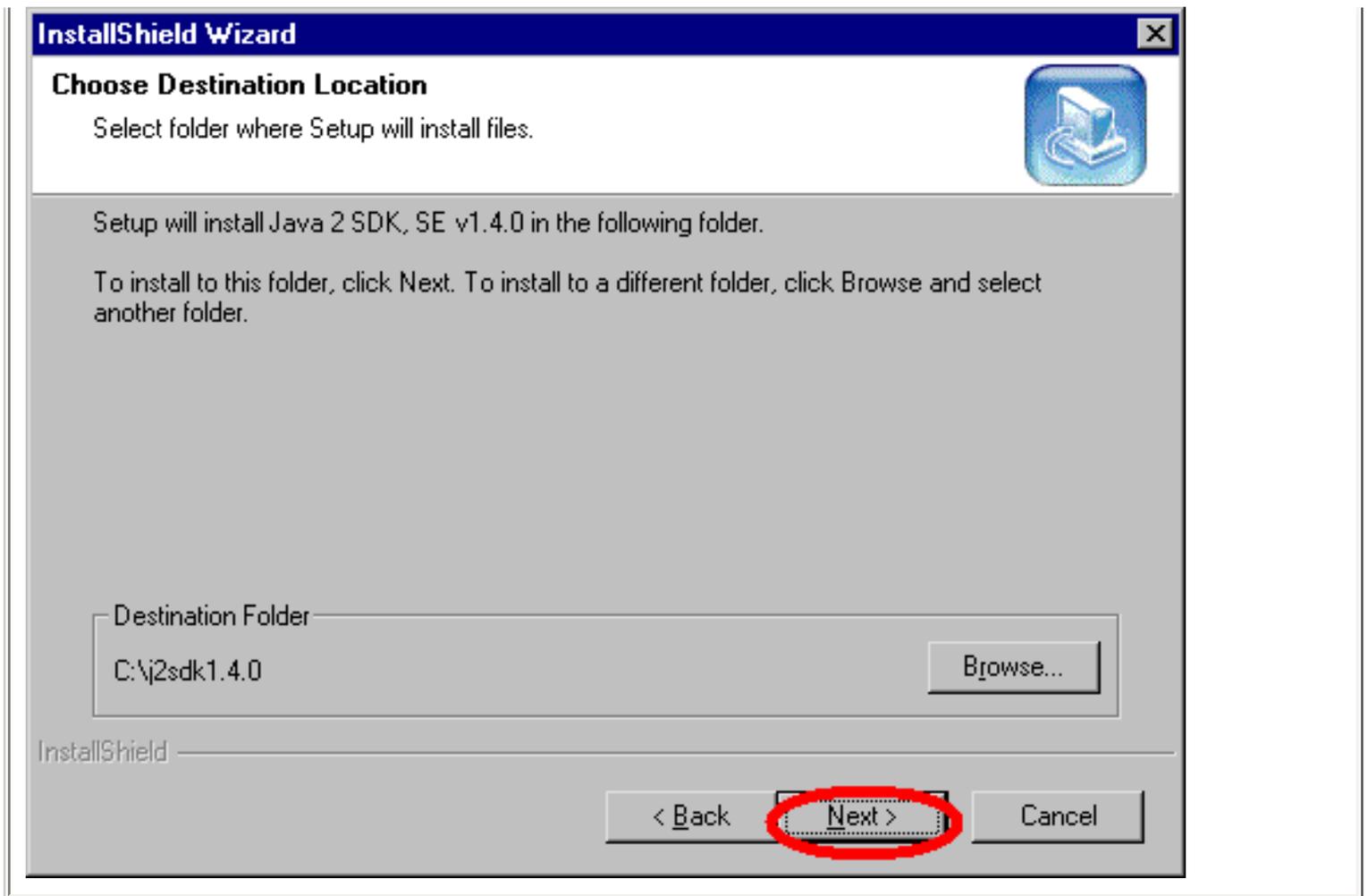
followed by this one…

Click on the next button read the agreement and click on the Yes button……

This window will appear, asking you where you wish to install Java--it's a GOOD IDEA to accept the default---things seem to go smoother that way. Click on the Next button to continue…

This window will appear, asking you where you wish to install Java--it's a GOOD IDEA to accept the default---things seem to go smoother that way. Click on the Next button to continue, and this window will appear, asking you which of the Java components you wish to install. Again, it's a good idea to select all of them. As you can see, it will take about 65 Megabytes of space to do the full install. Click on the Next button to continue.
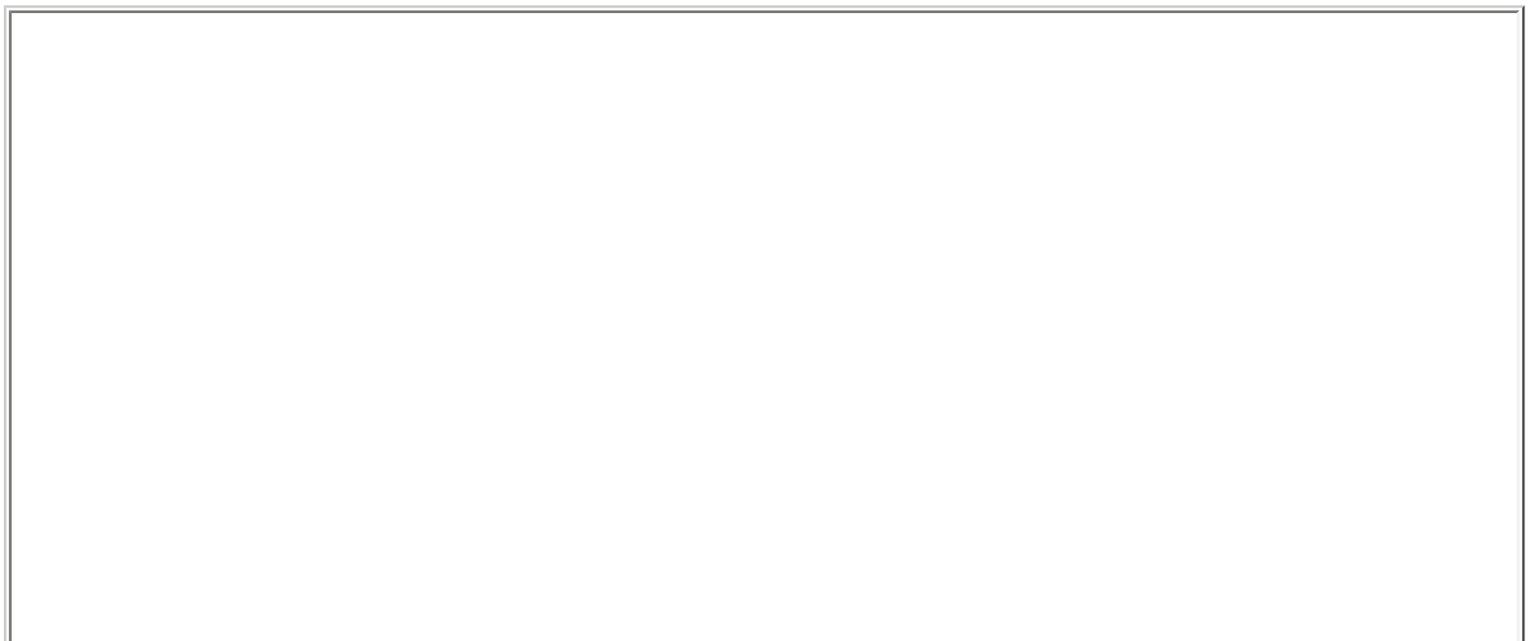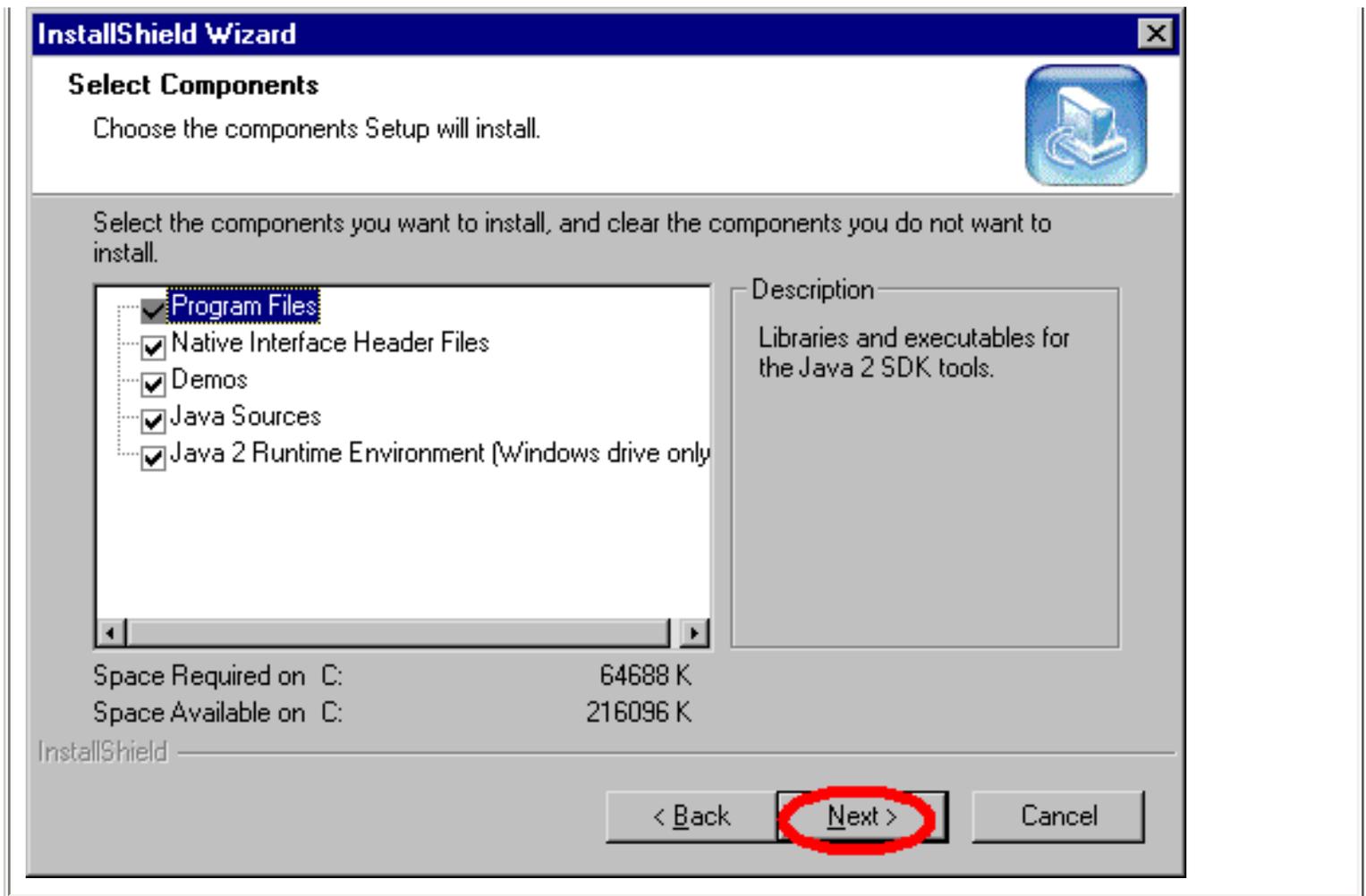
The next window displayed will vary according to the number and type of Web Browsers installed---as you can see, I have both Netscape and Internet Explorer installed--click on the Next button to continue…
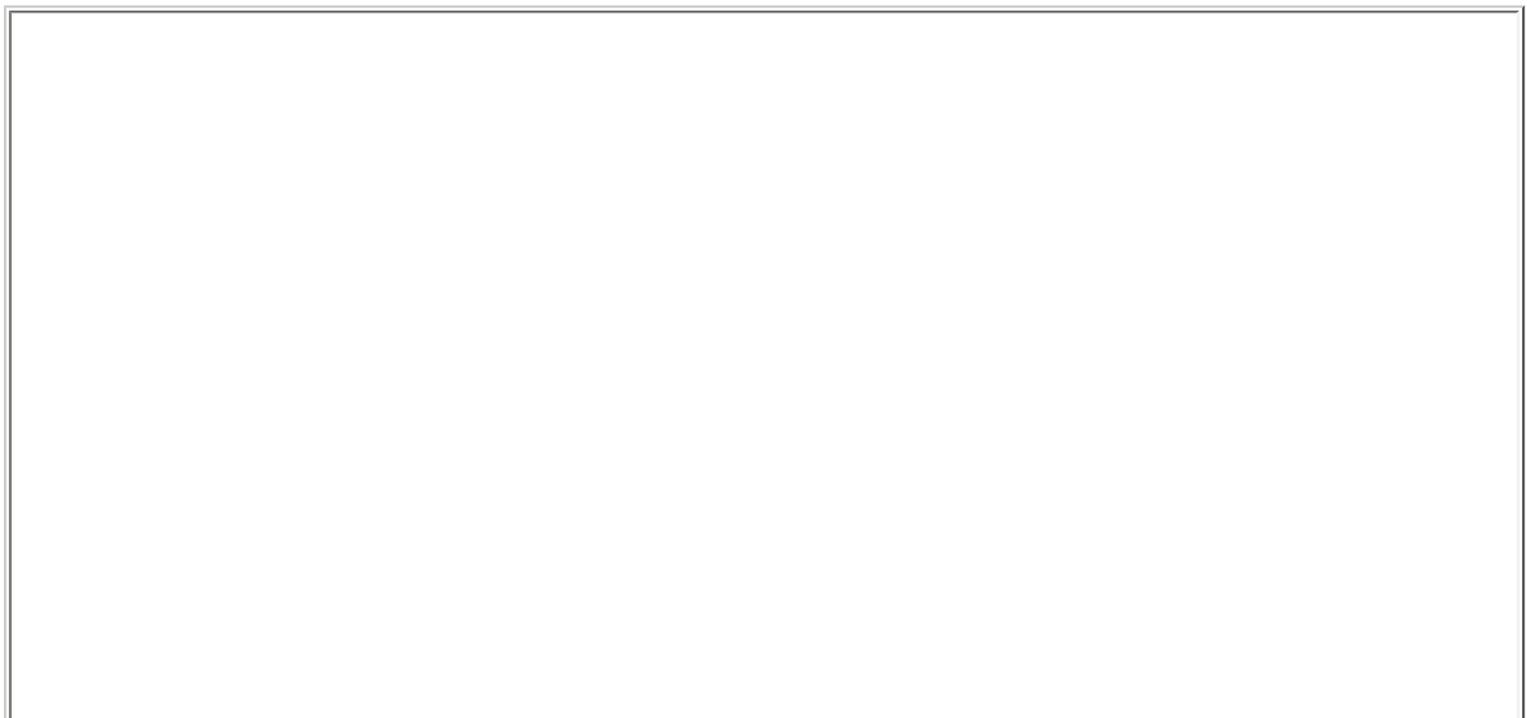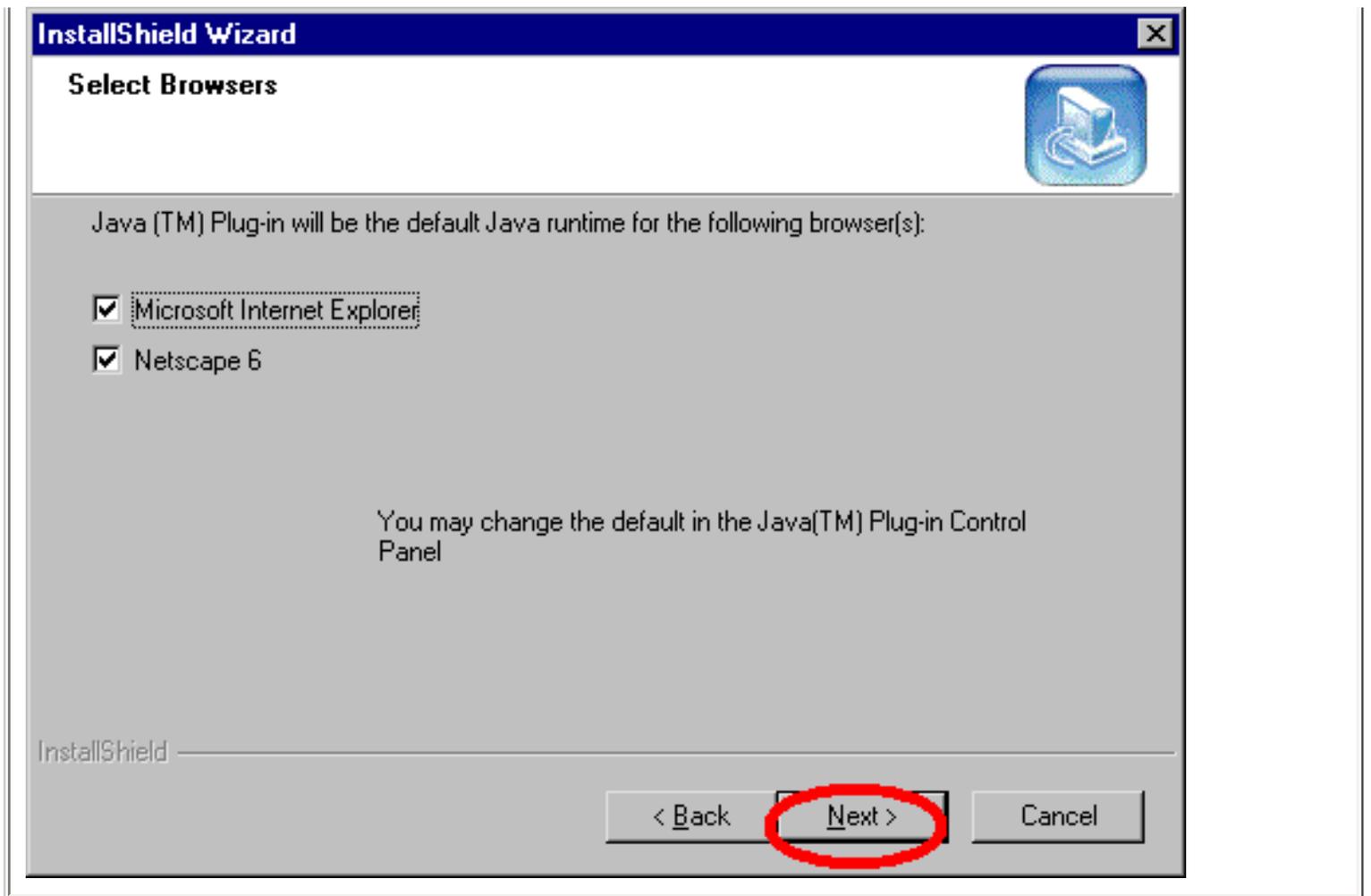
After clicking on the Next button, you should see this window indicating that the Setup is proceeding…
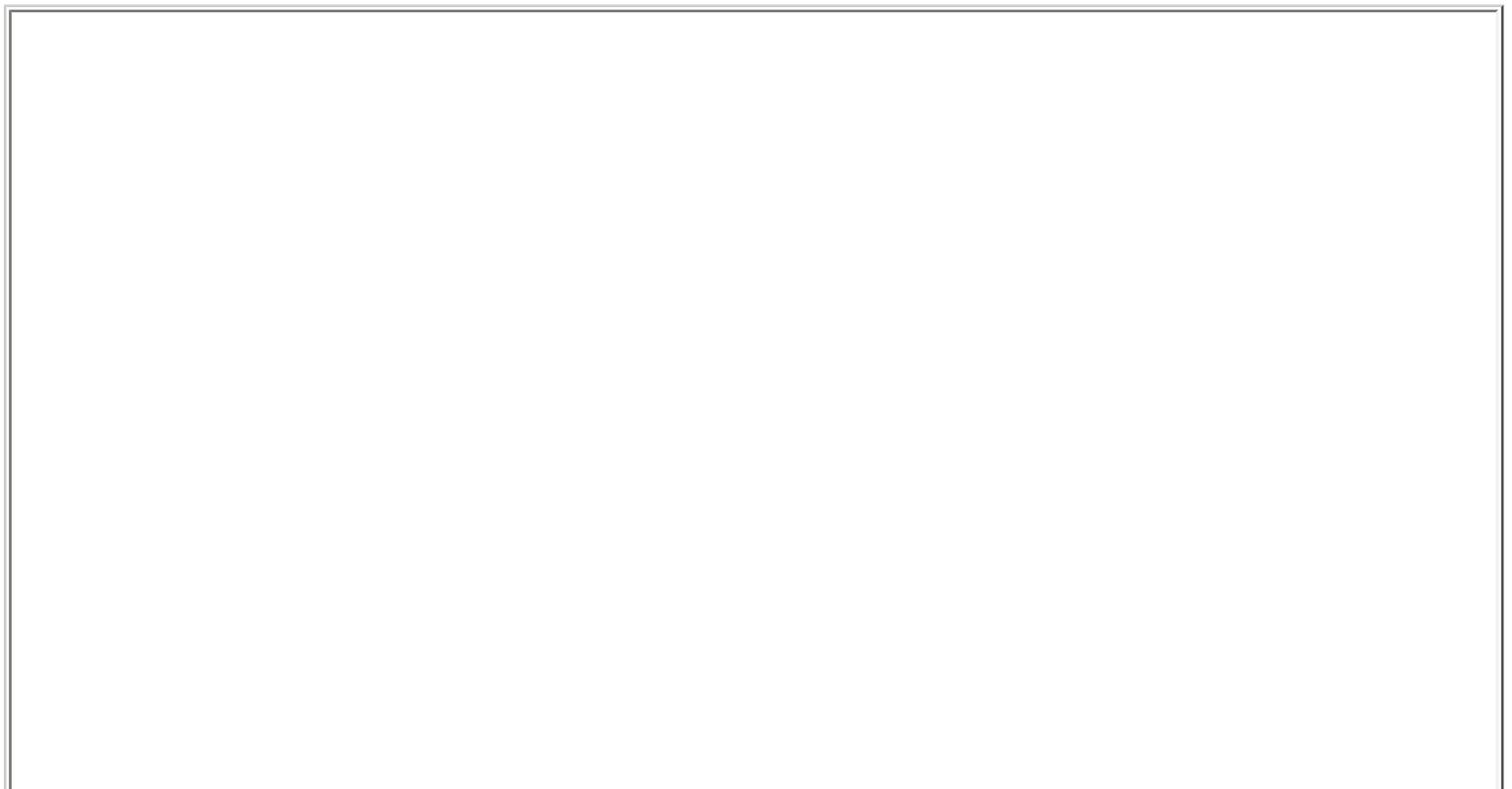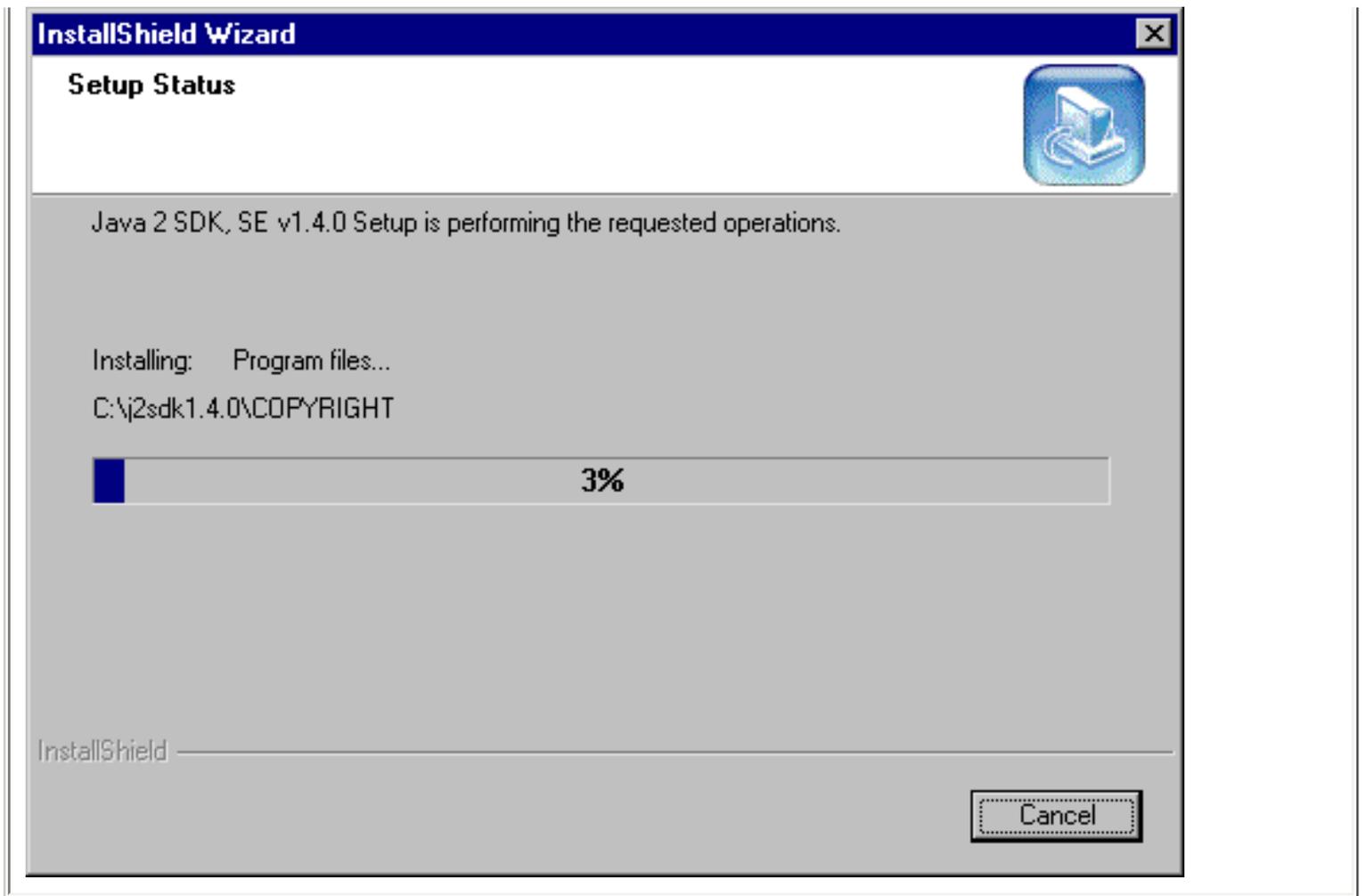
…and that the Java installation is proceeding…
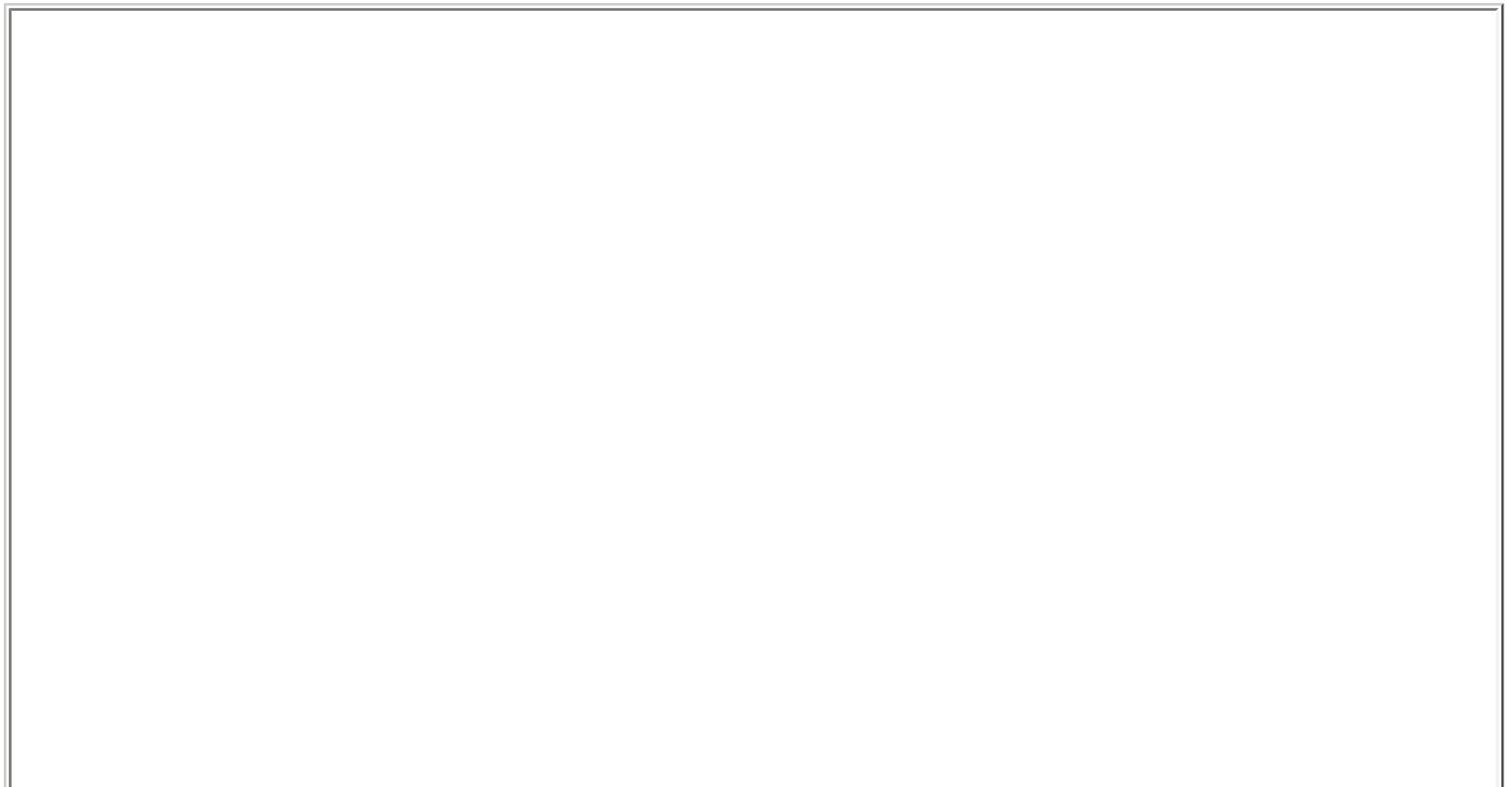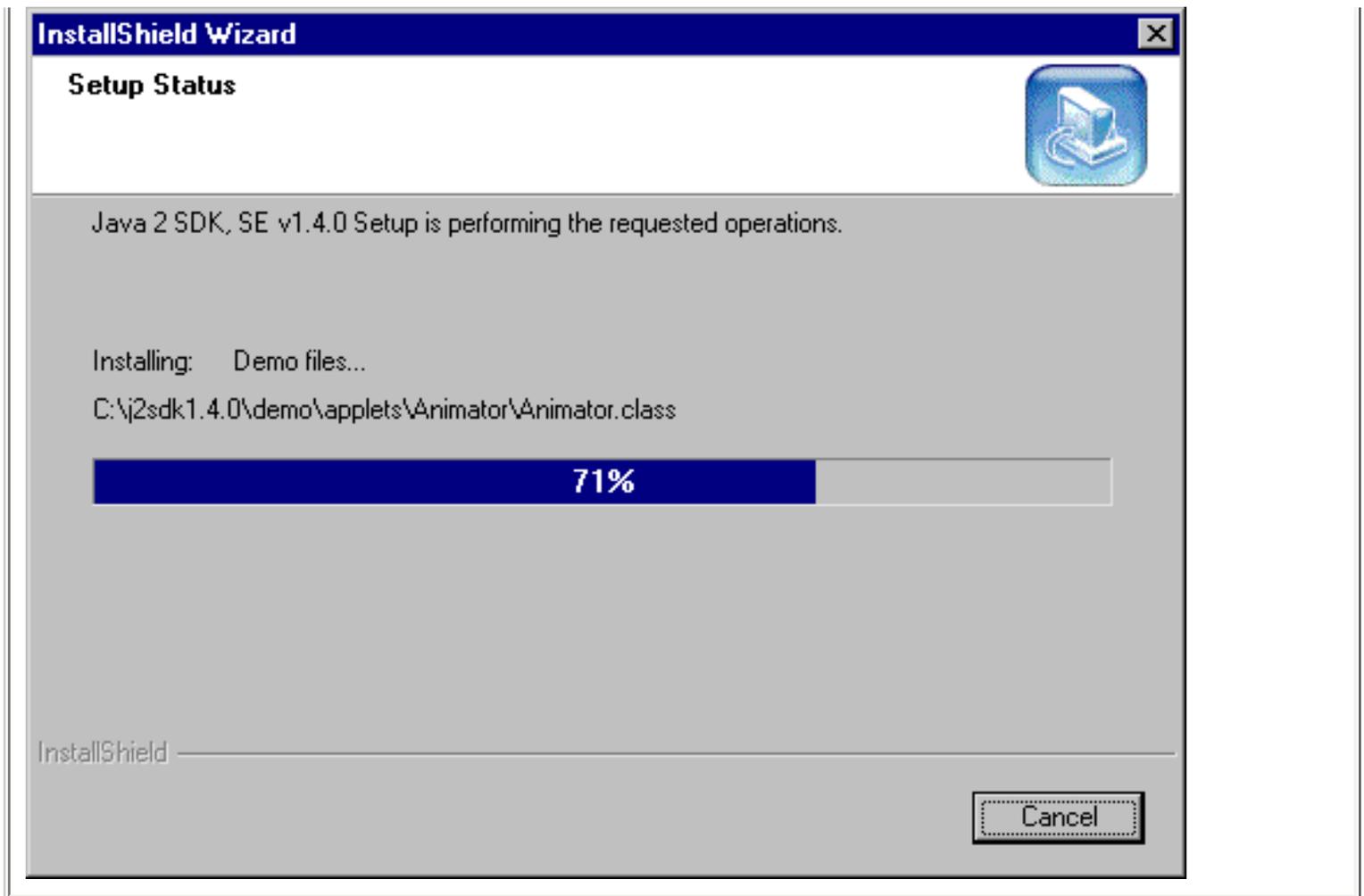
When the installation approaches 100%, you'll see this window indicating that the Runtime Environment is being setup

…followed by this window indicating the Runtime Environment setup was successful.
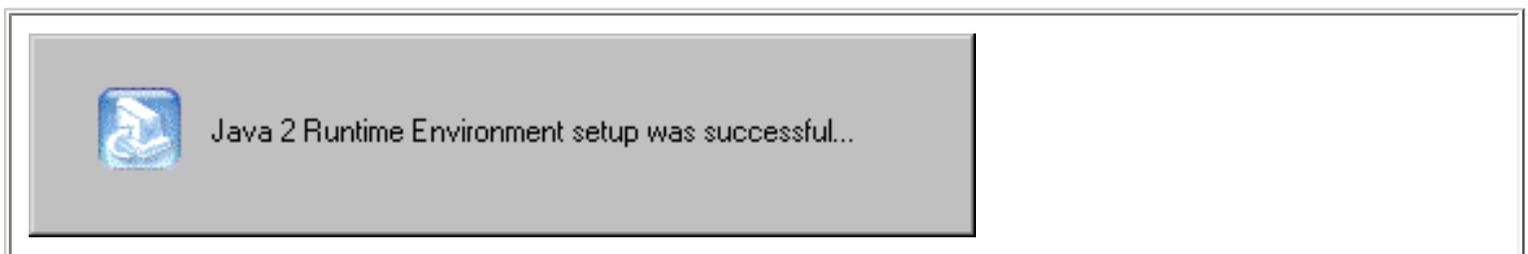
Finally, this window will indicate that Java has been successfully installed. Click on the Finish button.
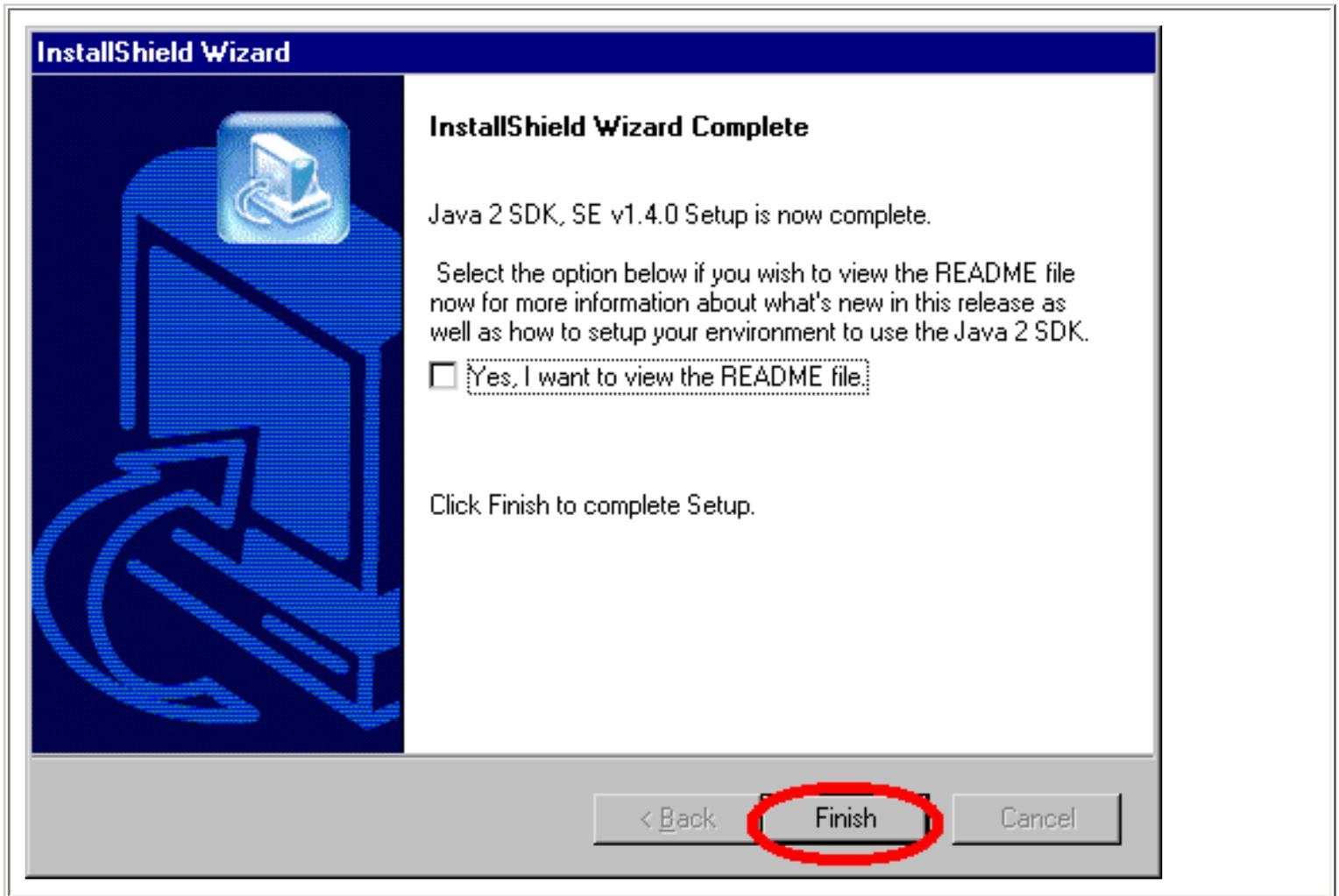
We're not quite done yet--the Path and ClassPath Variables

At this point, you might think it quite reasonable to begin writing and compiling your first Java program-- and with some effort we could do so, but our environment isn't quite set up perfectly yet. Although it seems quite reasonable that the Java installer will have properly prepared your PC to compile and run your program, unfortunately, you still have some work to do. Although at this point it is possible to compile and run a Java program, you would need to save your Java programs in the same folder into which the Java compiler has been installed---and this is a definite no-no. We want to be able to compile and execute our Java programs from anywhere on our PC--not just the Java folder itself. To do so means that we need to set up two environmental variables, the Path and ClassPath variables---how you set these up depends upon your Operating System.

In Windows NT, for instance, which is what I'm running now, you need to select the System icon in the Windows Control Panel
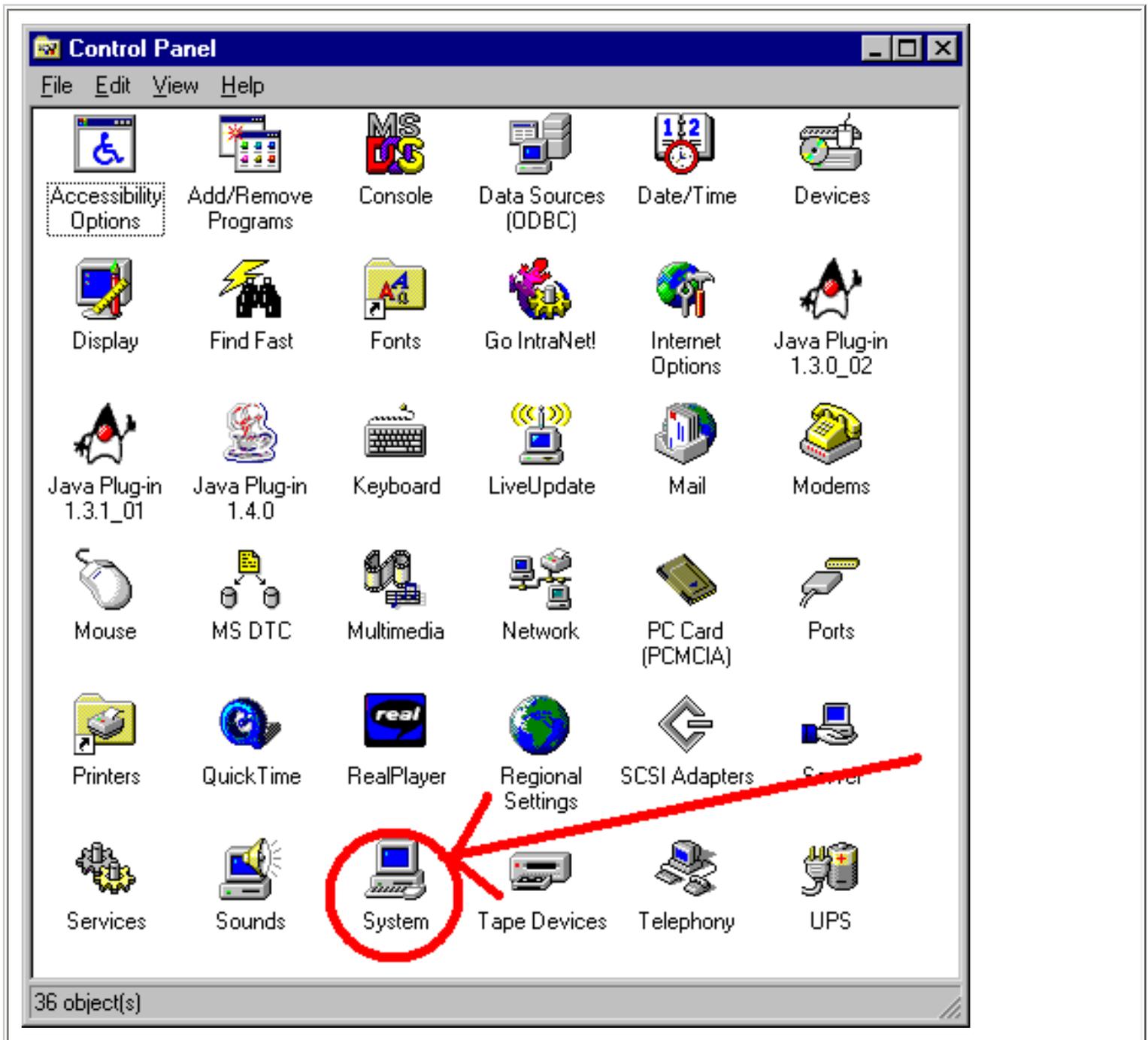
then select the Environment Tab
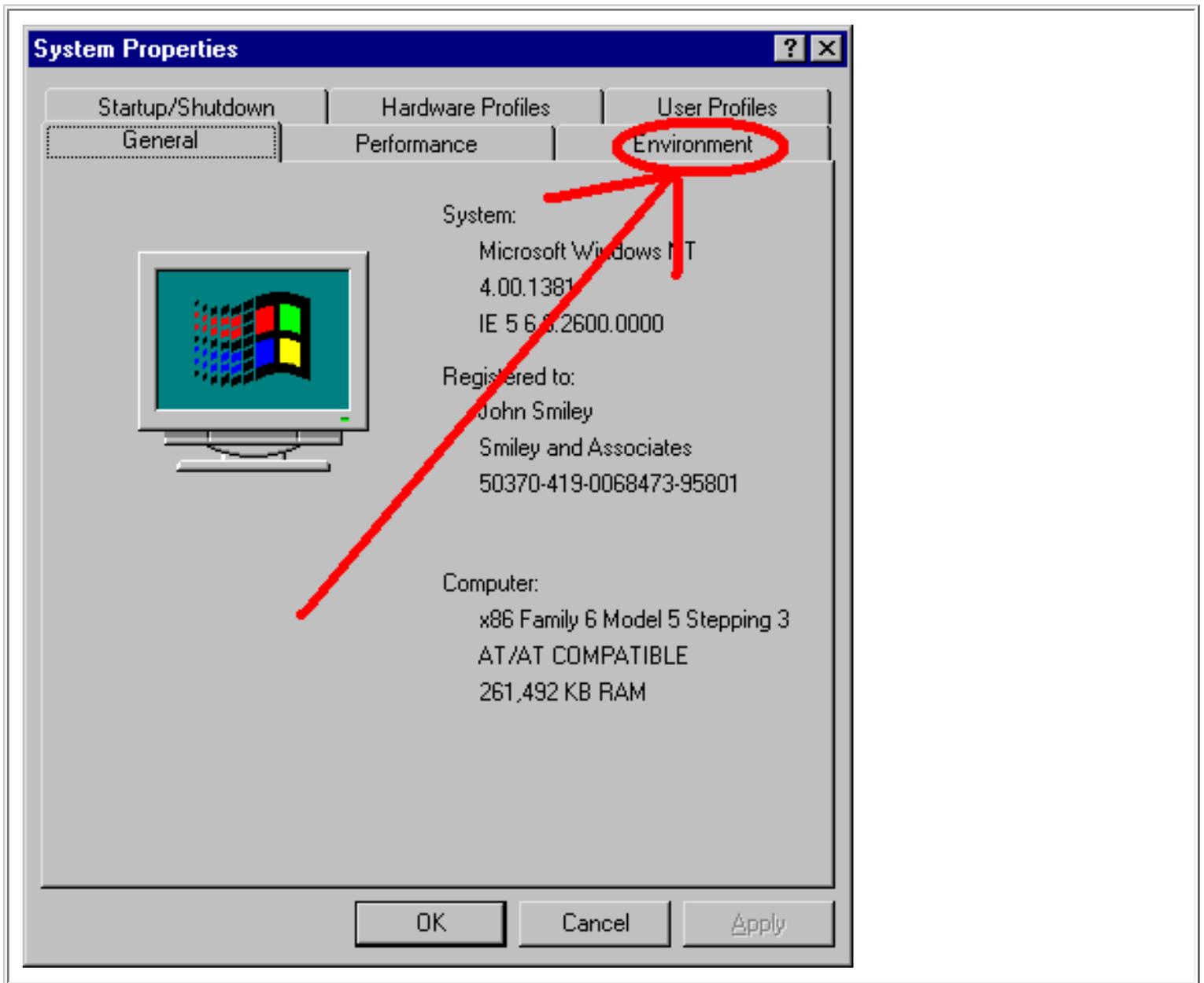
and then include the location of the 'bin' directory or folder of the installed Java SDK in the System Path environmental variable and also in the User Path environmental variable…
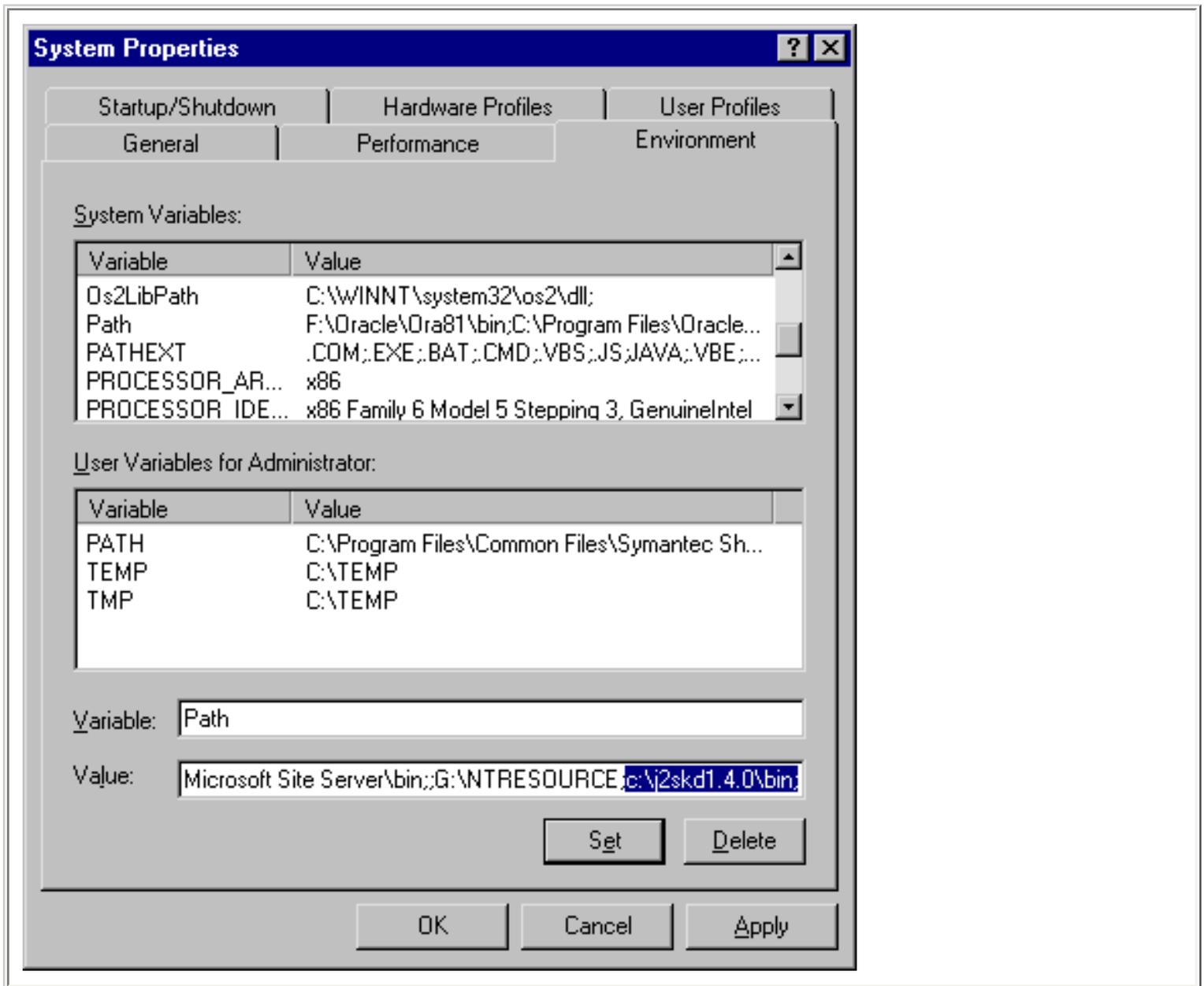
You'll then need to create a new environmental variable called ClassPath, which should have this value

.;..
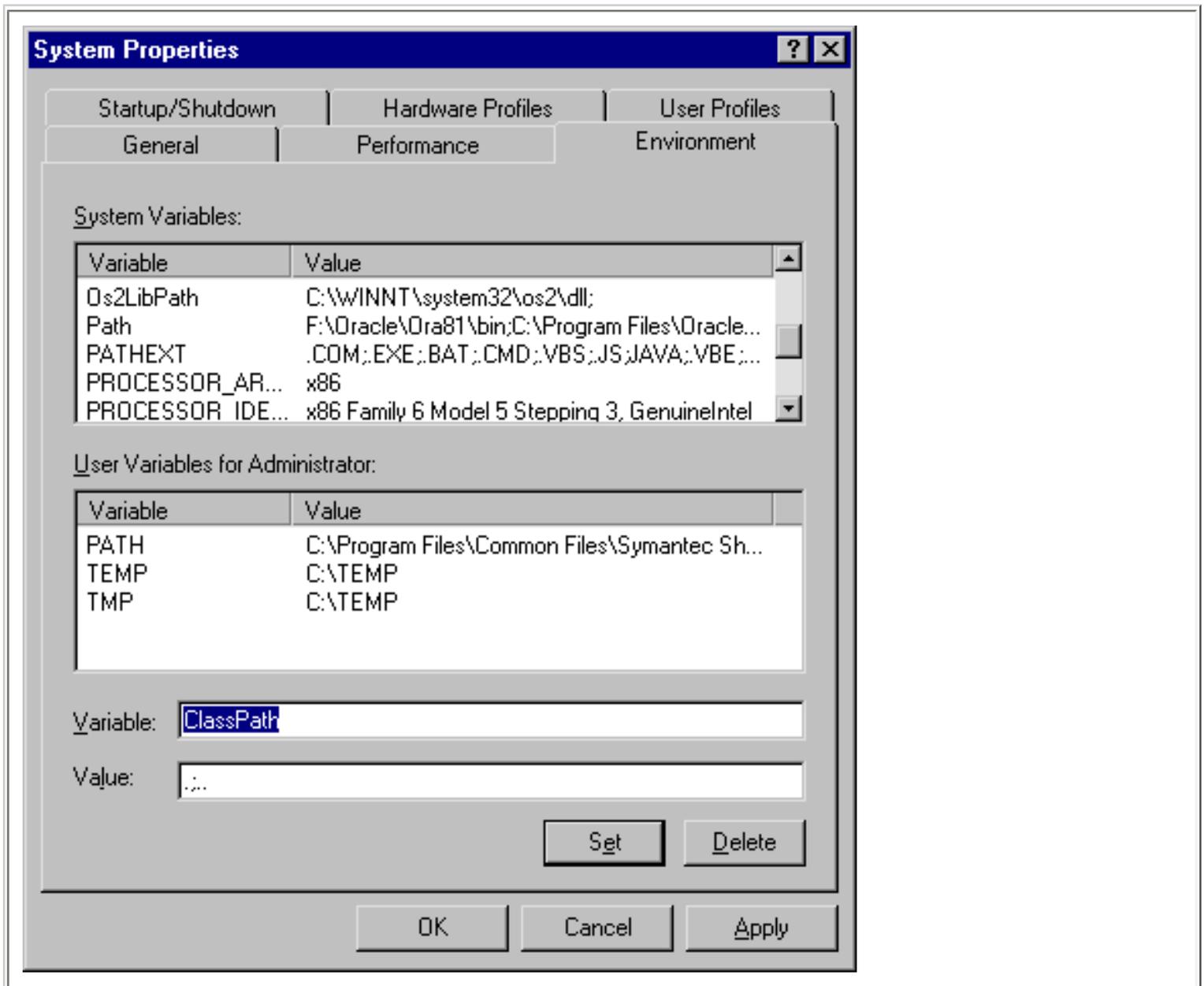
If you are running something besides Windows NT follow the directions below to update these variables…

Windows 95 or 98. You must carefully append the location of the JAVA SDK-C:\j2sdk1.4.0 \bin ---to the exiting Path in the the AUTOEXEC.BAT file.

Windows Me. Go to the Start Menu, then choose Programs, Accessories, System Tools and System Information. A window titled "Microsoft Help and Support" should appear. Select the **Tools** menu, and choose the *System Configuration Utility*. Go to the Environment tab where you can look for the PATH to edit. Append ;C:\j2sdk1.4.0\bin at the end of the path. Once you have changed and saved the value, you will be prompted for reboot.

Windows NT. Go to the Start Menu, then choose Settings, Control Panel and select System. Select the Environment tab and look for **User Variables** and **System Variables** for PATH. Then edit the value and append ;C:\j2sdk1.4.0\bin at the end.

Windows 2000. Go to the Start Menu, then choose Settings, Control Panel and select System. Select the Advanced tab and look for **User Variables** and **System Variables** for PATH. Then edit the value and append ;C:\j2sdk1.4.0\bin at the end.

Windows XP. Go to the Start Menu, then double click on System. In the System Control Panel select the Advanced tab and push the **Environment Variables** button. Now, you can look for the PATH to edit. Append ;C:\j2sdk1.4.0\bin at the end of the path. Once you have changed and saved the value, you will be prompted for reboot.

Verify the Path and ClassPath Variables

You should now verify that these two variables have been set up properly--if they have, you will be able to see them when you exit to a Command Prompt. To exit to a Command Prompt, click on the Start-Run button and enter

cmd

in the Open Textbox…
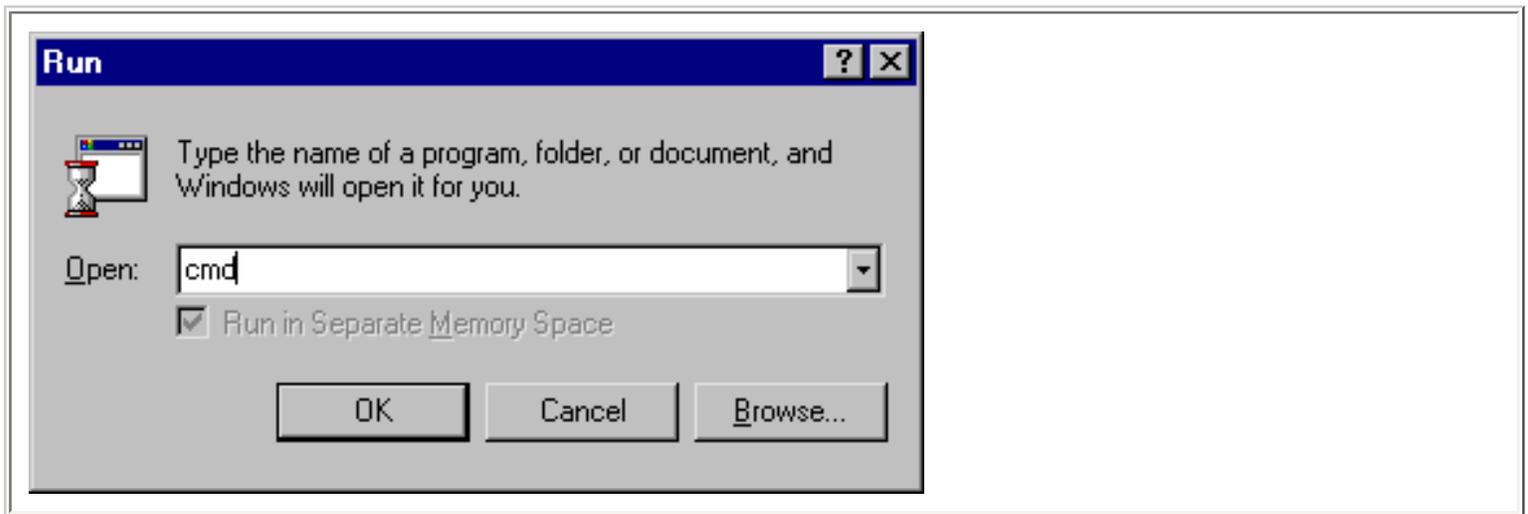
After you click on the OK button, you will see this window…

Type the word 'set' and you should see a screen similar to this one. You should see a reference to the 'bin' folder of the installed Java Development Kit, and you should also see a reference to the ClassPath variable…(if you wish, you can also type 'echo %path%' or 'echo %classpath%' to see only these variables)

```
MS C:\WINNT\System32\cmd.exe                          _ □ X

Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.

C:\>set
ClassPath=.;..
COMPUTERNAME=CC1012149-A
ComSpec=C:\WINNT\system32\cmd.exe
HOMEDRIVE=C:
HOMEPATH=\
INCLUDE=C:\Program Files\MTS\Include
LIB=C:\Program Files\MTS\Lib
LOGONSERVER=\\CC1012149-A
NTRESKIT=G:\NTRESOURCE
NUMBER_OF_PROCESSORS=1
OS=Windows_NT
Os2LibPath=C:\WINNT\system32\os2\dll;
Path=F:\Oracle\Ora81\bin;C:\Program Files\Oracle\jre\1.1.7\b
in;C:\WINNT\system32;C:\WINNT;f:\jdk1.2\bin;C:\Program Files
\MTS;C:\MSSQL7\BINN;C:\Microsoft Site Server\bin;;G:\NTRESOU
RCE;c:\j2sdk1.4.0\bin;C:\Program Files\Common Files\Symantec
 Shared;c:\borland\bcc55\bin;c:\j2sdk1.4.0\bin;
PATHEXT=.COM;.EXE;.BAT;.CMD;.VBS;.JS;JAVA;.VBE;.JSE;.WSF;.WS
H
PROCESSOR_ARCHITECTURE=x86
PROCESSOR_IDENTIFIER=x86 Family 6 Model 5 Stepping 3, Genuin
eIntel
PROCESSOR_LEVEL=6
PROCESSOR_REVISION=0503
PROMPT=$P$G
SystemDrive=C:
SystemRoot=C:\WINNT
TEMP=C:\TEMP
TMP=C:\TEMP
USERDOMAIN=SMILEY
USERNAME=Administrator
USERPROFILE=C:\WINNT\Profiles\Administrator
windir=C:\WINNT

C:\>_
```

If for some reason you don't see a ClassPath reference, or a correct reference to

C:\J2SDK1.4.0\bin

in your path, double check the steps you took above--you must have missed something somewhere.
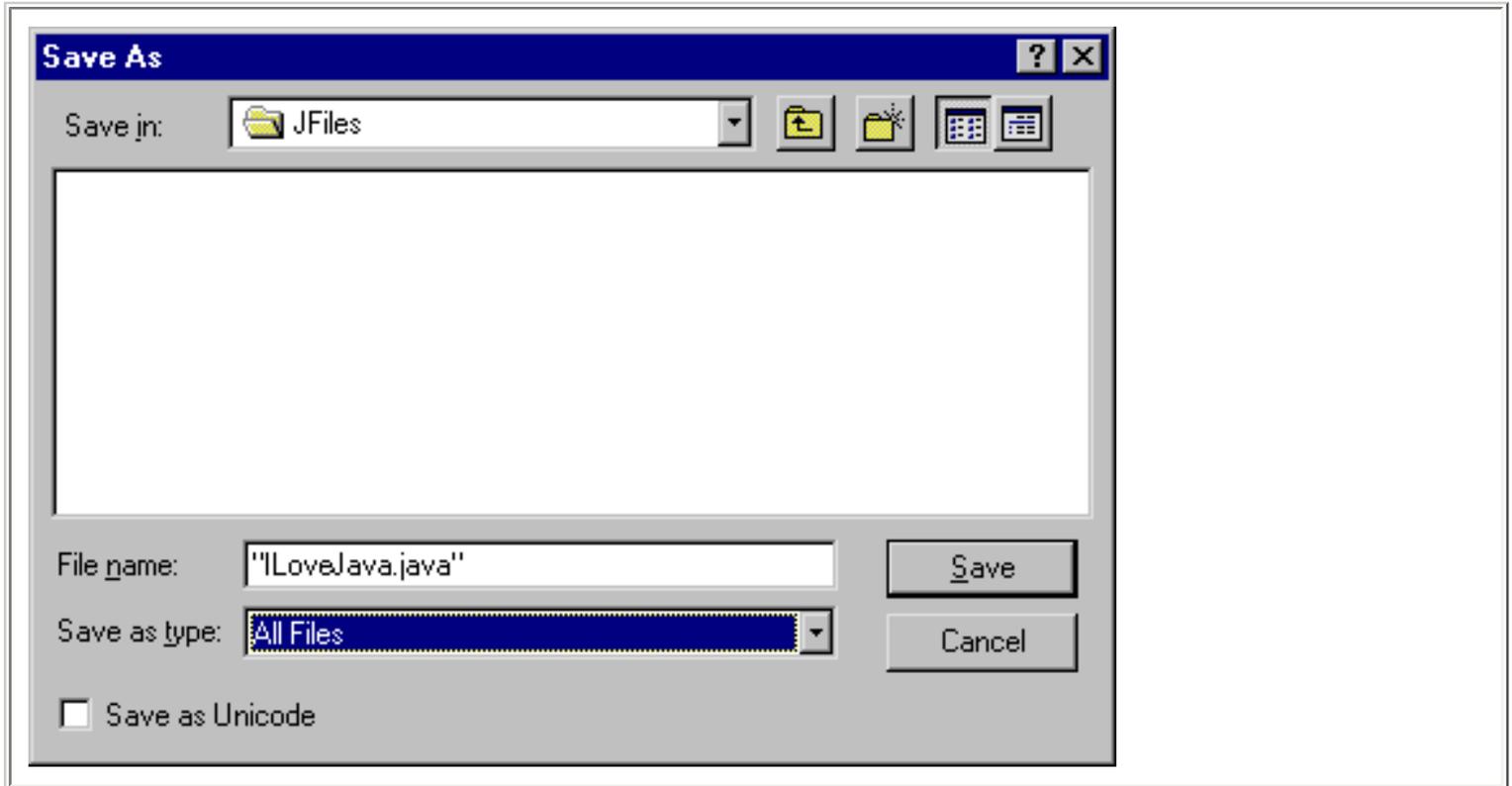
Write your first Java program

After having successfully installed the Java SDK, and set the environmental variables as described above, you shouldn't have to jump through any hoops to get the compiler to work.

Writing your first Java program is easy--start up Notepad and enter the following code…

```
class ILoveJava {
  public static void main(String[] arguments) {
  System.out.println("I love Java");
  }
}
```

Now save the program as "ILoveJava.java" (Java programs must end with a file name extension of .java. I recommend saving all of your Java programs in a folder called JFiles)

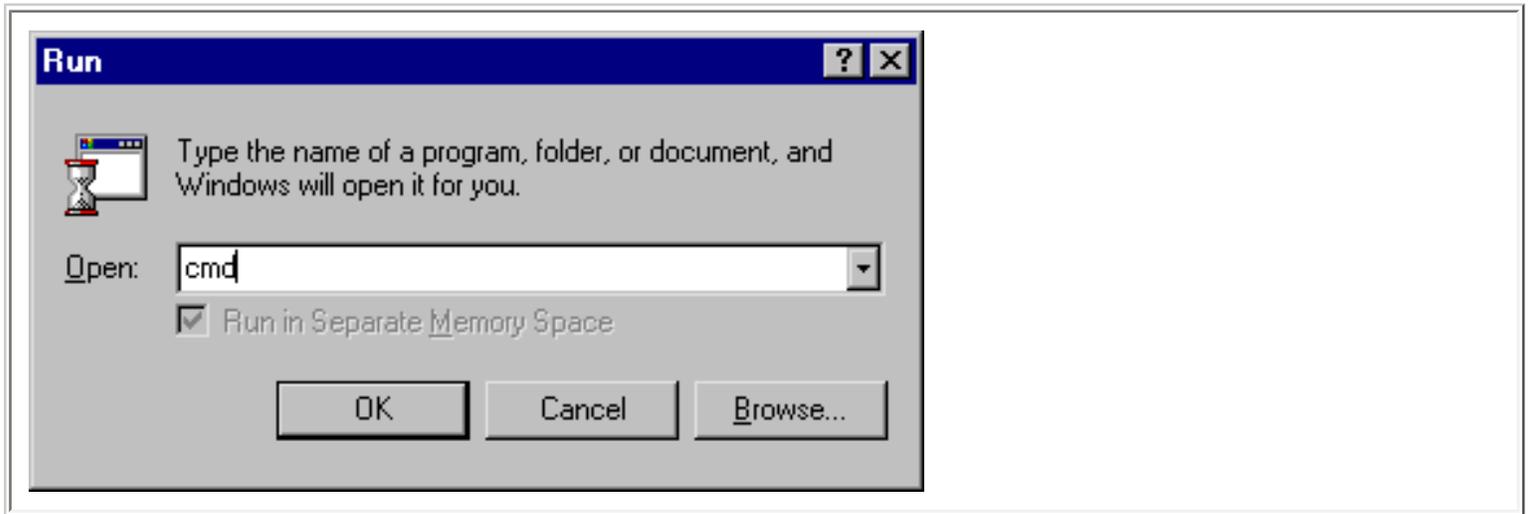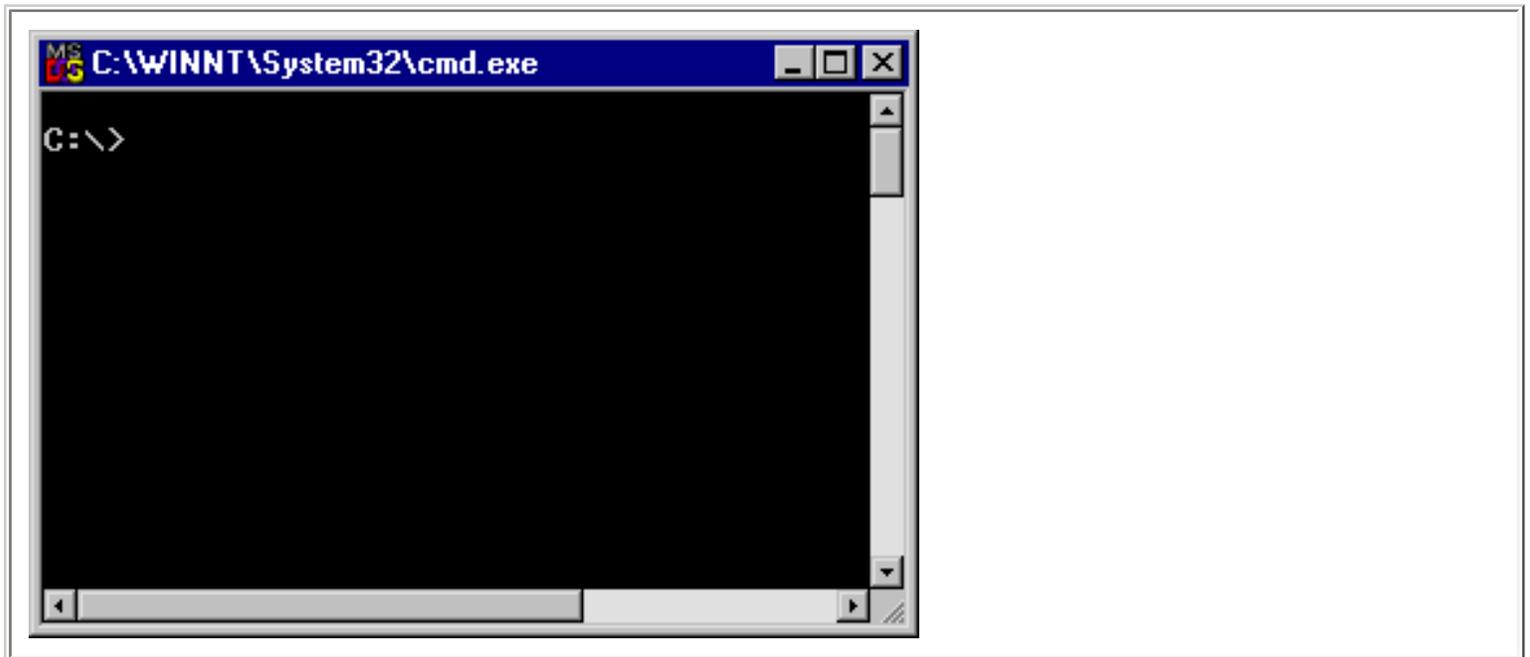## Compile your first Java program

Now that you've saved your Java program, compiling it is easy---but we will need to run the compiler from a Command Prompt. To do so, click on the Start-Run button and enter

cmd

in the Open Textbox…

After you click on the OK button, you will see this window…

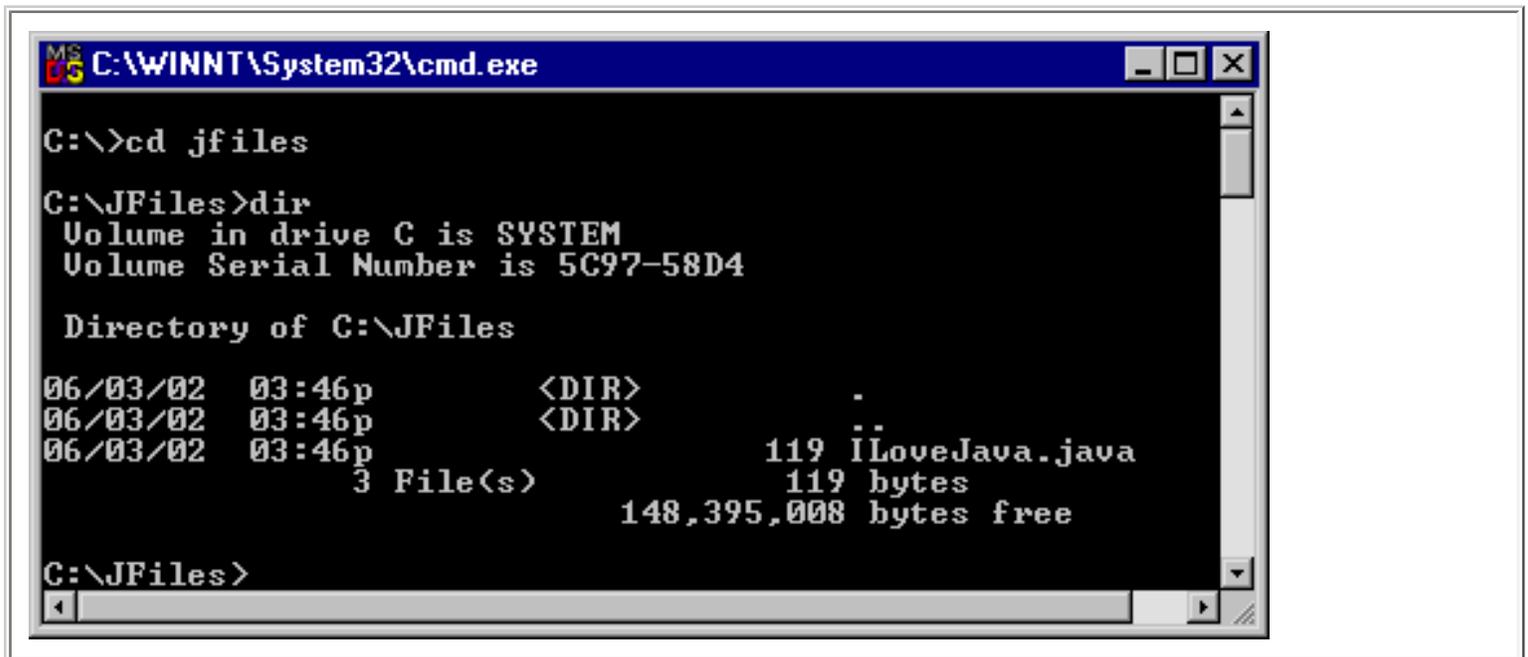which is the Command Prompt window. Type

cd \JFiles

to make your JFiles folder your current directory…

If you enter

dir

in the Command Prompt Window, you should see the Java program you just saved using Notepad.

Now it's time to compile your program using the Java compiler, javac. Enter

javac ILoveJava.java

at the command prompt…

The absence of any error messages is great--that means that Windows was able to find the Java compiler (javac.exe) and that your source code has no errors. If there was a problem with Windows finding the Java compiler, you would have seen this error message
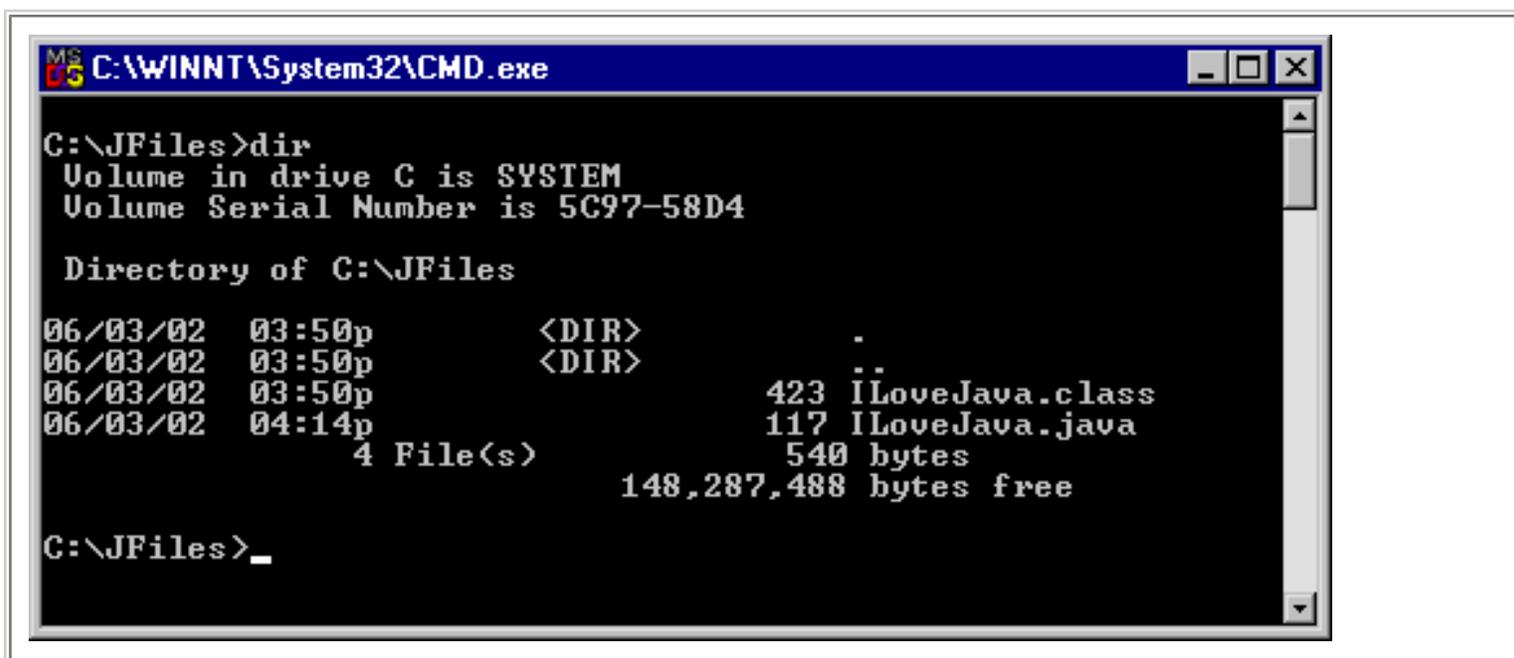

If that happens, verify once again that the location of the Java compiler is present in your Path variable. If you are getting so tense over this that you simple can't deal with it any longer, don't despair--rather than play around trying to set those variables, you can type these two statements at the command prompt

SET PATH=%PATH%;C:\J2SDK1.4.0\BIN;
SET CLASSPATH = .;..

```
C:\WINNT\System32\CMD.exe                    _ □ ✕

C:\>SET PATH=%PATH%;C:\J2SDK1.4.0\BIN;

C:\>SET CLASSPATH=.;..;

C:\>
```

As I said, the absence of any error messages is great news--use the 'Dir' command to verify that your Java source file has been compiled into something called a Java class file…

```
C:\WINNT\System32\CMD.exe                    _ □ ✕

C:\JFiles>dir
 Volume in drive C is SYSTEM
 Volume Serial Number is 5C97-58D4

 Directory of C:\JFiles

06/03/02   03:50p        <DIR>          .
06/03/02   03:50p        <DIR>          ..
06/03/02   03:50p                   423 ILoveJava.class
06/03/02   04:14p                   117 ILoveJava.java
               4 File(s)             540 bytes
                           148,287,488 bytes free

C:\JFiles>_
```

Execute your first Java program

Executing your program is easy--just type this at the Command Prompt…

java ILoveJava

You should see the phrase 'I love Java!' appear in the window.

Summary

I hope that this article will help you get started with Java.