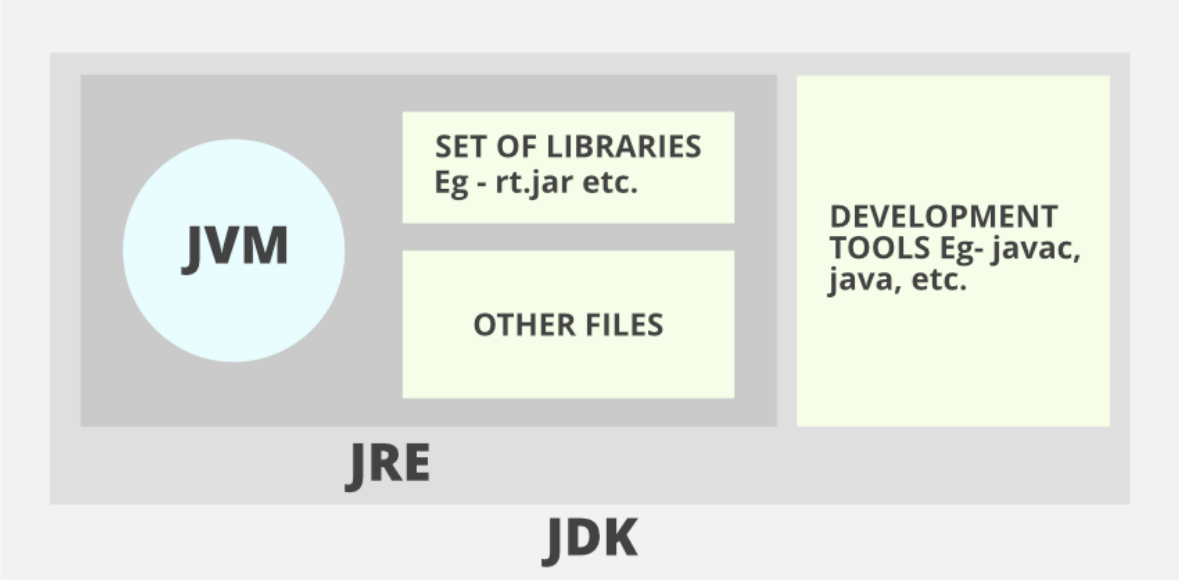
Setting up the environment in Java :-

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, etc. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of computer architecture. The latest version is Java 17. Below are the environment settings for both Linux and Windows. JVM, JRE, and JDK three are all platform-dependent because the configuration of each Operating System is different. But, Java is platform-independent. Few things must be clear before setting up the environment which can better be perceived from the below image provided as follows:



- JDK(Java Development Kit): JDK is intended for software developers and includes development tools such as the Java compiler, Javadoc, Jar, and a debugger.
- JRE(Java Runtime Environment): JRE contains the parts of the Java libraries required to run Java programs and is intended for end-users. JRE can be viewed as a subset of JDK.
- JVM: JVM (Java Virtual Machine) is an abstract machine. It is a specification that provides a runtime environment in which java bytecode can be executed. JVMs are available for many hardware and software platforms.

Now let us discuss the steps for setting up a Java environment with visual aids. Let's use the Windows operating system to illustrate visual aids.

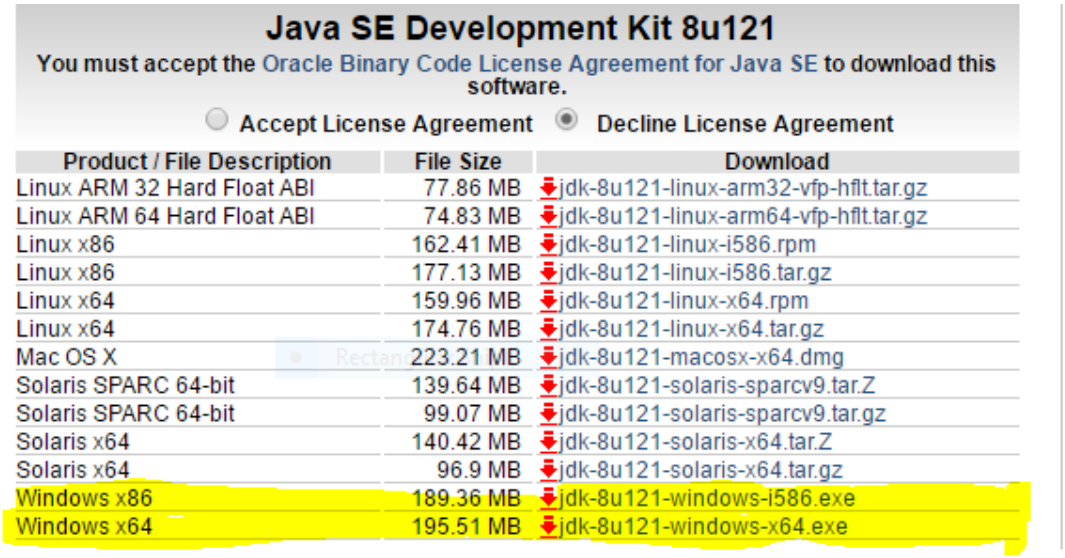
Steps: Here we will be proposing steps for three different operating systems as listed:

1. Windows operating system
2. Linux operating system
3. macOS operating system

A. Windows operating systems

Steps for setting the environment in Windows operation system are as follows:

Step 1: Java8 JDK is available at Download Java 8. Click the second last link for Windows(32 bit) and the last link for Windows(64 bit) as highlighted below.



Java SE Development Kit 8u121

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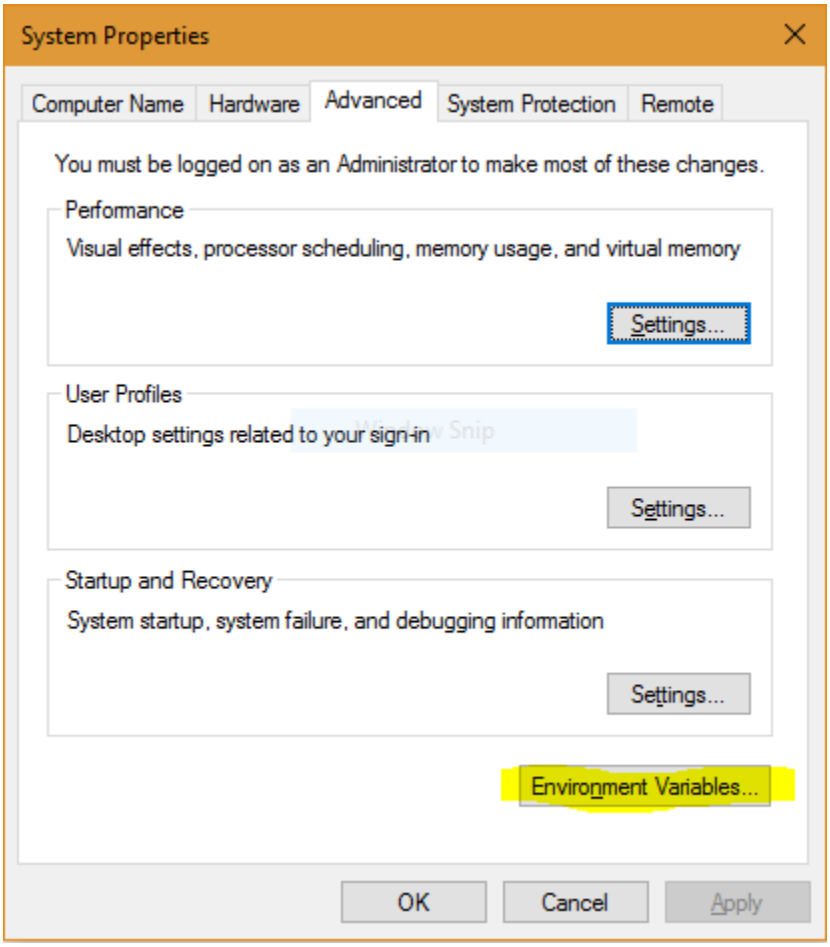
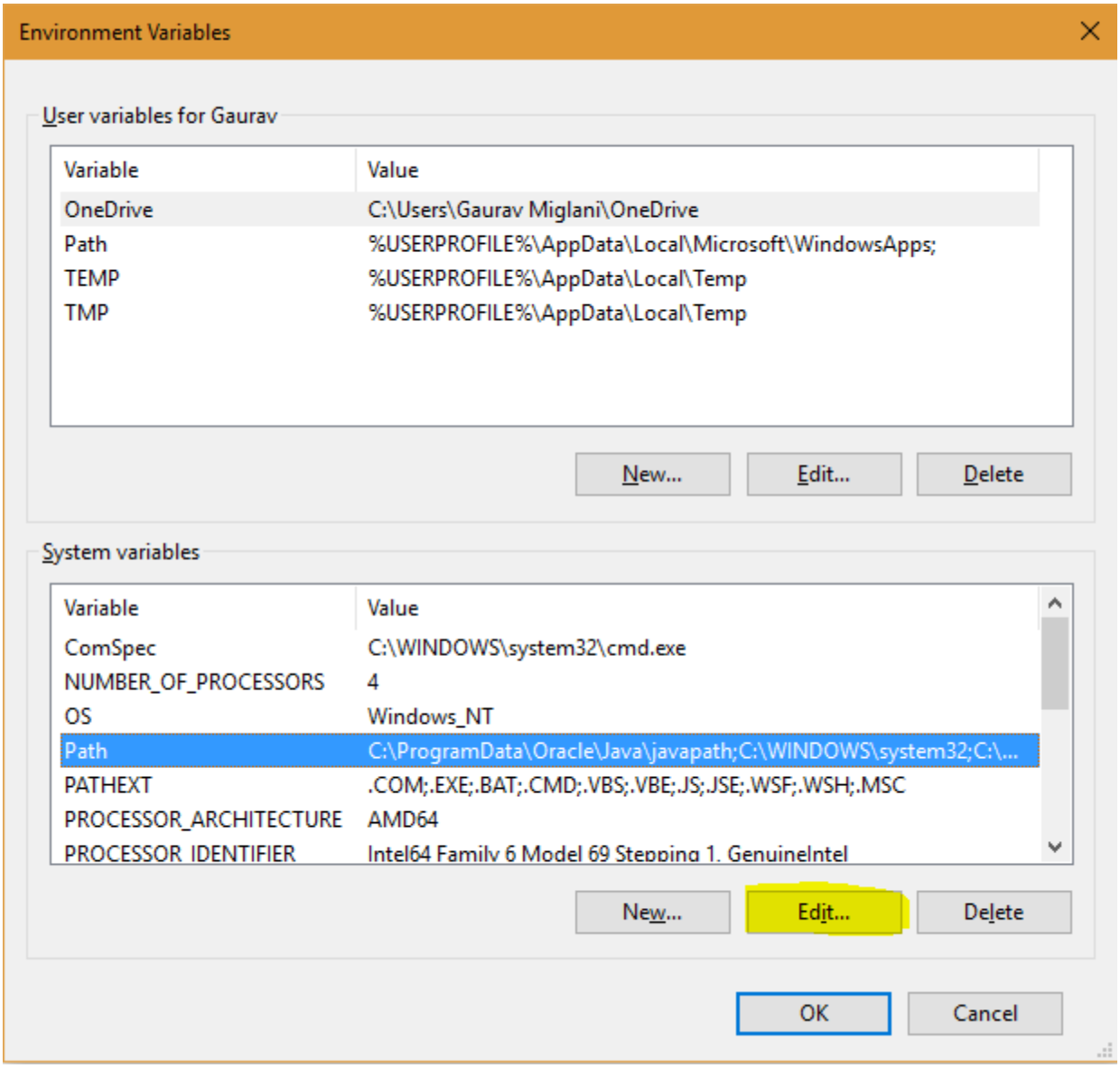
Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	77.86 MB	jdk-8u121-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	74.83 MB	jdk-8u121-linux-arm64-vfp-hflt.tar.gz
Linux x86	162.41 MB	jdk-8u121-linux-i586.rpm
Linux x86	177.13 MB	jdk-8u121-linux-i586.tar.gz
Linux x64	159.96 MB	jdk-8u121-linux-x64.rpm
Linux x64	174.76 MB	jdk-8u121-linux-x64.tar.gz
Mac OS X	223.21 MB	jdk-8u121-macosx-x64.dmg
Solaris SPARC 64-bit	139.64 MB	jdk-8u121-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	99.07 MB	jdk-8u121-solaris-sparcv9.tar.gz
Solaris x64	140.42 MB	jdk-8u121-solaris-x64.tar.Z
Solaris x64	96.9 MB	jdk-8u121-solaris-x64.tar.gz
Windows x86	189.36 MB	jdk-8u121-windows-i586.exe
Windows x64	195.51 MB	jdk-8u121-windows-x64.exe

Step 2: After download, run the .exe file and follow the instructions to install Java on your machine. Once you installed Java on your machine, you have to set up the environment variable.

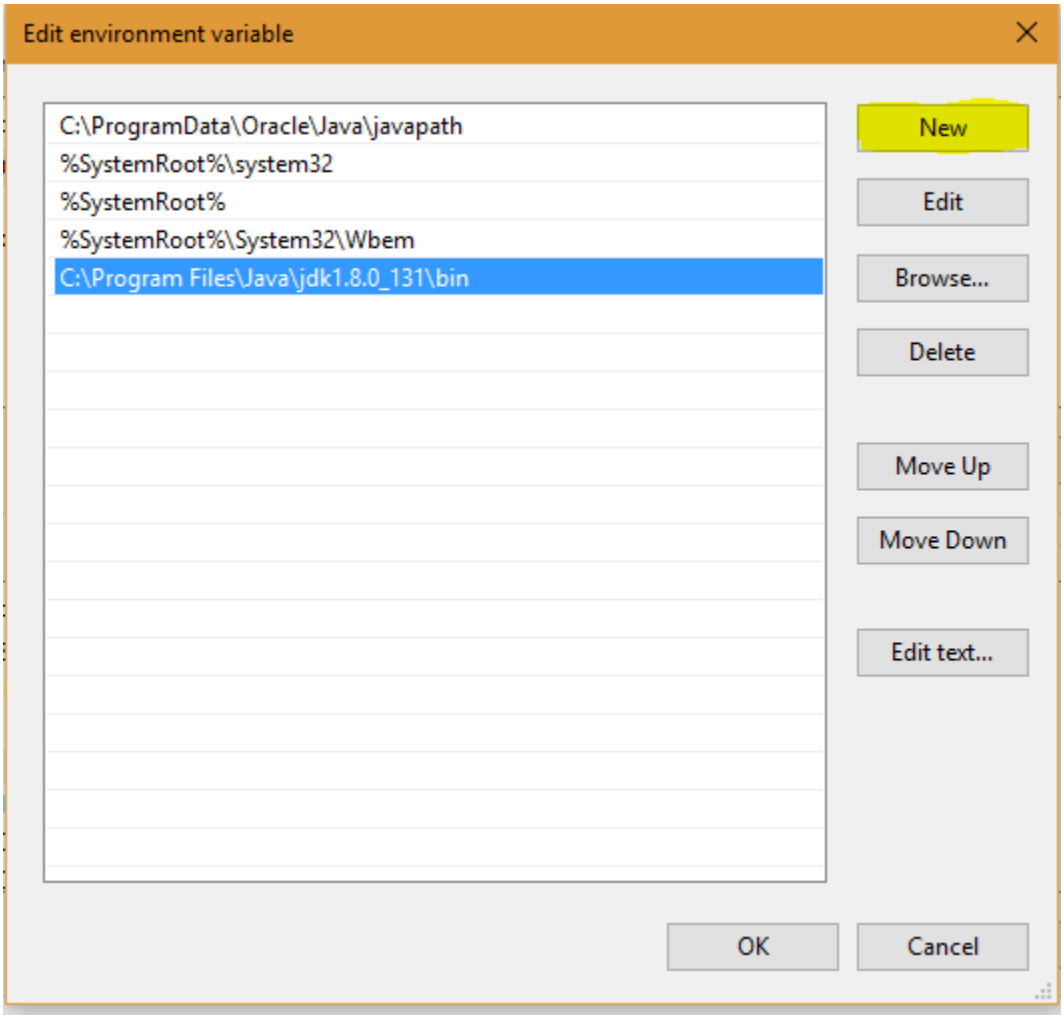
Step 3: Go to Control Panel -> System and Security -> System. Under the Advanced System Setting option click on Environment Variables as highlighted below.



Step 4: Now, you have to alter the “Path” variable under System variables so that it also contains the path to the Java environment. Select the “Path” variable and click on the Edit button as highlighted below.



Step 5: You will see a list of different paths, click on the New button, and then add the path where java is installed. By default, java is installed in “C:\Program Files\Java\jdk\bin” folder OR “C:\Program Files(x86)\Java\jdk\bin”. In case, you have installed java at any other location, then add that path.



Step 6: Click on OK, Save the settings, and you are done !! Now to check whether the installation is done correctly, open the command prompt and type javac -version. You will see that java is running on your machine.

Note: To make sure whether the compiler is set up, type javac in the command prompt. You will see a list related to javac.