JAVA Run Time Environment

JVM

- **Java Virtual machine (JVM)** is the virtual machine that runs the Java bytecodes. You get this bytecode by compiling the .java files into .class files. .class files contain the bytecodes understood by the JVM.

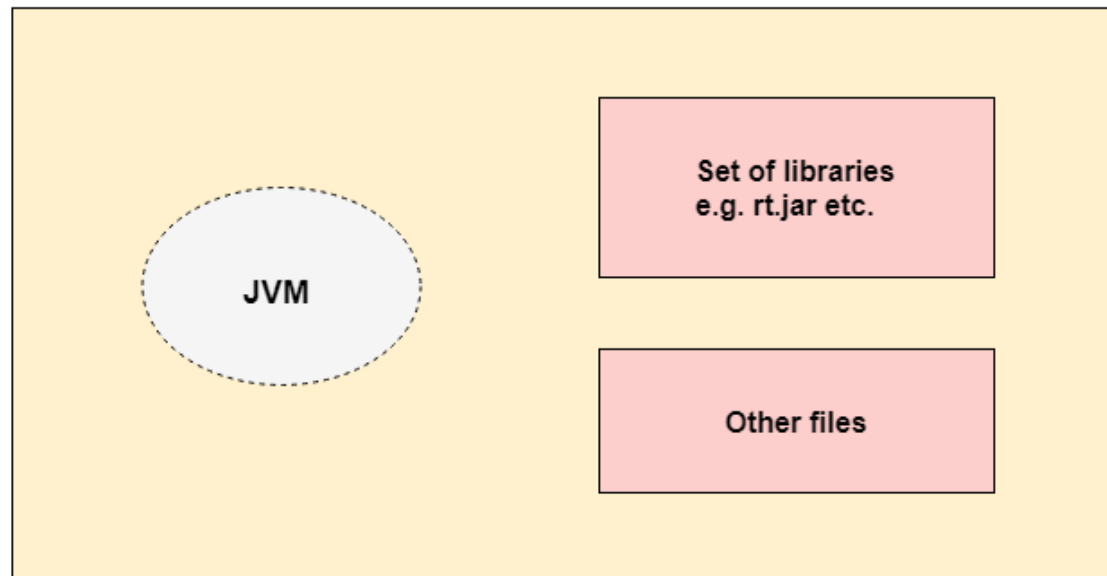- Provides a runtime environment in which Java bytecode can be executed.

The JVM performs the following main tasks:
- Loads code
- Verifies code
- Executes code
- Provides runtime environment

JRE

- **The Java Runtime Environment (JRE)** is a software package which bundles the libraries (jars) and the Java Virtual Machine, and other components to run applications written in the Java. JVM is just a part of JRE distributions.

- The Java Runtime Environment is a set of software tools which are used for developing Java applications.

JDK

- **JDK** is an acronym for **Java Development Kit**. The Java Development Kit (JDK) is a software development environment which is used to develop Java applications and applets.

- The JDK contains a private Java Virtual Machine (JVM) and a few other resources such as an interpreter/loader (java), a compiler (javac), an archiver (jar), a documentation generator (Javadoc), etc. to complete the development of a Java Application.

Local Environment Setup

- Setting Up the Path for Windows

- Assuming you have installed Java in c:\Program Files\java\jdk directory –

- Right-click on 'My Computer' and select 'Properties'.

- Click the 'Environment variables' button under the 'Advanced' tab.

- Now, alter the 'Path' variable so that it also contains the path to the Java executable.

- Example, if the path is currently set to 'C:\WINDOWS\SYSTEM32', then change your path to read 'C:\WINDOWS\SYSTEM32;c:\Program Files\java\jdk\bin'.

Local Environment Setup

- Environment variable PATH should be set to point to where the Java binaries have been installed. Refer to your shell documentation, if you have trouble doing this.

- Example, if you use bash as your shell, then you would add the following line to the end of your '.bashrc: export PATH = /path/to/java:$PATH'

Java Editors

- To write your Java programs, you will need a text editor. There are even more sophisticated IDEs available in the market. But for now, you can consider one of the following –

- Notepad – On Windows machine, you can use any simple text editor like Notepad (Recommended for this tutorial), TextPad.

- Netbeans – A Java IDE that is open-source and free which can be downloaded from https://www.netbeans.org/index.html.

- Eclipse – A Java IDE developed by the eclipse opensource community and can be downloaded from https://www.eclipse.org/. 19CS201