

Executables
and other
development
tools like
javac, javap,
java etc

Libraries
like rt.jar,
jce.jar

Other files
and folders

JVM

JRE

JDK

Language classes

ClassLoader

Heap

Method Area

PC Registers

JVM
Language
Stack

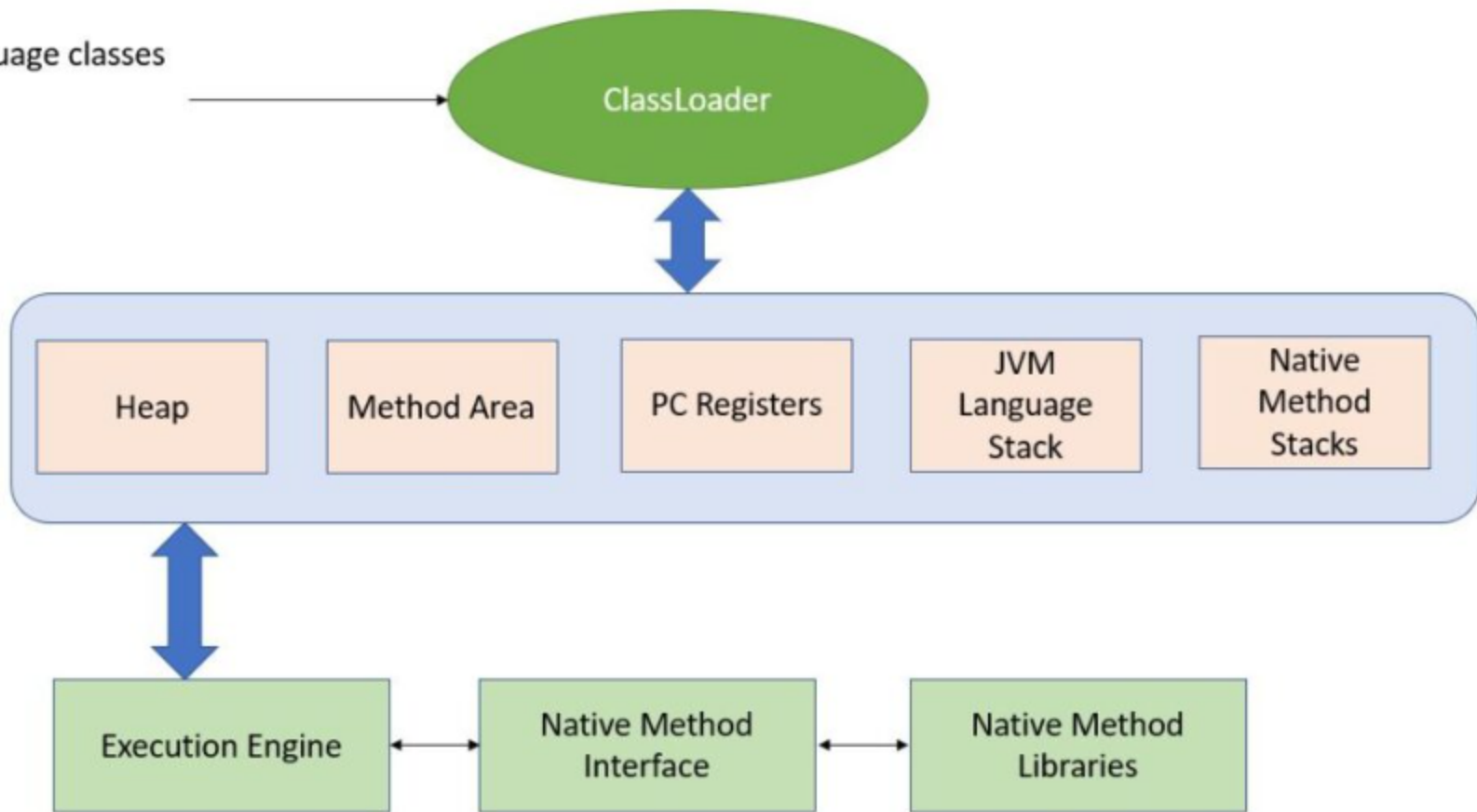
Native
Method
Stacks

Execution Engine

Native Method
Interface

Native Method
Libraries

JVM Architecture



JDK JRE JVM .

JDK is abbreviation for Java Development Kit. It is complete development kit that java developers need in order to write programs and run them. JDK consists of JRE and JVM.

JRE is an abbreviation for Java Runtime Environment. As the name suggests, this provides a runtime environment for java programs. Without JRE, a java program cannot be run on a machine. So, if you only want to run a java program you only need JRE. It's not mandatory to have a complete JDK.

JRE is the implementation of JVM (Java Virtual Machine). It has its own set of libraries and binaries. JRE is platform dependent. Which means for different Operating Systems, JRE implementation would be different.

JVM is Java Virtual Machine. It is an abstract machine that provides all the specifications which any implementation of JVM must adhere to. Unlike JRE, JVM is platform independent because it only provides specification and not the actual implementation. Some of the responsibilities that JVM specifies are:

- Loading of program code

- Verification and execution of code

- Define memory area

- Garbage collection

- Runtime environment

- Error reporting etc.