QUESTION

In your own words, what is the difference between JDK (Java Development Kit), JRE (Java Runtime Environment) and JVM(Java VIrtual Machine)?

JVM (Java Virtual Machine)

In my understanding, JVM (Java Virtual Machine) is considered to be like an abstract machine, since it does not exist physically. It is a specification that provides a runtime environment in which it is possible to run a Java bytecode. It can also run these programs which are written in other languages and that are compiled to Java bytecode.

Here are some main tasks that the JVM is used to perform:

- It loads code
- It verifies code
- It executes code
- And it provides runtime environment

JRE (Java Runtime Environment)

The JRE which is also written as Java RTE, in my understanding is a collection or set of software tools used for the development of Java applications. It is used to provide the runtime environment but also It is the implementation of JVM. It differs from the JVM, as it physically exists, and it also contains a set of libraries plus other files that JVM uses at runtime.

JDK(Java Development Kit)

The JDK which is an acronym for Java Development Kit, is simply a software development environment which is used to develop Java applications and other small applications, especially utility programs performing one or a few simple functions. It also physically exists and it contains JRE plus development tools.

The JDK contains a private Java Virtual Machine (JVM) and a few other resources such as an interpreter, a compiler, an archiver, a documentation generator, and more, used in order to complete a Java application development.

⇒ In a few words, JDK is a software development kit, while JRE is a package of software that allows Java programs to run, thus JVM is a bytecode execution environment.

Below are some other key differences:

- JDK is a software development kit whereas JRE is a software bundle that allows Java programs to run, whereas JVM is an environment for executing bytecode.
- The full form of JDK is Java Development Kit, while the full form of JRE is Java Runtime Environment, while the full form of JVM is Java Virtual Machine.
- JDK is platform dependent, JRE is also platform dependent, but JVM is platform independent.
- JDK contains tools for developing, debugging, etc. JRE contains class libraries and other supporting files, whereas software development tools are not included in JVM.
- JDK comes with the installer, on the other hand, JRE only contains the environment to execute source code whereas JVM bundled in both software JDK and JRE.

(Javapoint.com, 2021)

REFERENCES:

www.javatpoint.com. 2021. *Difference Between JDK, JRE And JVM - Javatpoint*. [online] Available at: <https://www.javatpoint.com/difference-between-jdk-jre-and-jvm> [Accessed 16 January 2021].