HW3

Q1. What are JDK, JRE and JVM? It should be in your own words and not more than two unambiguous sentences for each.

JDK: The Java Development Kit(JDK) is one of three core technology packages used in Java, along with the JVM and JRE. JDK is the core environment of JAVA. It allows developers to create Java programs that can be executed and run by the JVM and JRE.

JRE: Known as Java Runtime Environment, it is the on-disk part of ava that creates the JVM. JRE creates the JVM and ensures dependencies are available to your program.

JVM: Know as Java Virtual Machine. It is the Java platform component that executes your programs.

Q2. What is the relation between the three (JDK, JRE, JVM)? How is Java code executed in a Java program.

JDK is a software development kit whereas JRE is a software bundle that allows Java program to run, whereas JVM is an environment for executing bytecode. JDK is platform dependent, JRE is also platform dependent, but JVM is platform independent. In Java, programs are not compiled into executable files; they are compiled into bytecode, which the JVM (Java Virtual Machine) then executes at runtime. Java source code is compiled into bytecode when we use the “javac-” compiler. The bytecode gets saved on the disk with the file extension “.class”. When the program is to be run, the bytecode is converted. The result is machine code which is then fed to the memory and is executed.

Q3. With the help of the code for Hello World program in Java (you can copy code with citation), explain when this program needs JDK (and not JRE and JVM), JRE (and not JVM) and JVM.

Here is the code we have for our Helloworld

public class TestJava{

public static void main(String[] args){

System.out.println(" Hello World!");

}

}

Firstly, we need JDK so we can execute “public class” and “public static”, then we need JRE in order to run this program under our own environment. In the end we need JVM to compile our code into “.class” form in order to run our code under another environment.