Data Structure and Algorithm

1. Give a brief history of Java.

* James Gosling, Mike Sheridan, and Patrick Naughton initiated the Java language project in June 1991. Java was originally designed for interactive television, but it was too advanced for the digital cable television industry at the time. The language was initially called Oak after an oak tree that stood outside Gosling's office. Later the project went by the name Green and was finally renamed Java, from Java coffee. Gosling designed Java with a C/C++-style syntax that system and application programmers would find familiar.

1. How is Java platform independent?

* With Java, you can compile source code on Windows and the compiled code (byte code to be precise) can be executed (interpreted) on any platform running a JVM. So yes you need a JVM but the JVM can run any compiled code, the compiled code is platform independent.

1. Differentiate JDK, JRE and JVM.

* JVM (Java Virtual Machine): JVM is an abstract machine .A java program execution uses a combination of compilation and interpretation. Programs written in Java are compiled into machine language, but it is a machine language for a computer that is, virtual and doesn't really exist. This so-called "virtual" computer is known as the Java virtual machine (JVM). The machine language for the Java virtual machine is called Java byte code.

JDK (Java Development Kit): Java Development Kit (JDK) is a bundle of software components that is used to develop Java based applications. JDK is an implementation of either of Java SE, Java EE or Java ME. Usually, learners start from JDK implementation of Java SE to learn core Java features, which is also known as Java SDK. JDK includes the JRE, set of API classes, Java compiler, Web start and additional files needed to write Java applets and applications. Java Development Kit is a bundle of the following software components that are needed to develop Java based applications.

JRE (Java Runtime Environment): JRE is an implementation of the JVM which actually executes Java programs. It includes the JVM, core libraries and other additional components to run applications and applets written in Java. Java Runtime Environment is a must install on machine in order to execute pre compiled Java Programs. JRE is smaller than the JDK so it needs less disk space and it is so because JRE does not contain Java compiler and other software tools needed to develop Java programs.

1. Why the main method is declared static?

* This is necessary because main() is called by the JVM before any objects are made. Since it is static it can be directly invoked via the class. Similarly, we use static sometime for user defined methods so that we need not to make objects. Void indicates that the main() method being declared does not return a value.

1. Is java purely object-oriented?

* Java is not purely Object-Oriented because it supports Primitive data type such as int, byte, long... etc., to be used, which are not objects. Contrast with a pure OOP language like Smalltalk, where there are no primitive types, and boolean, int and methods are all objects.