

Assignment no 2

Q.1 what is difference betw JDK, JRE, & JVM

parameters

JDK

full form

The JDK is an abbreviation for Java Development Kit

definition

The JDK is a software development kit that develops application in Java. Along with JRE, The JDK also consists of various development tools (Java Debugger, JavaDoc, compiler etc.)

functionality

The JDK primarily assists in executing codes. It primarily functions in development.

platform dependency

The JDK is platform-dependent. It means that for every different platform you require a different JDK

JRE

JVM

The JRE is an abbreviation. The JVM is an abbreviation for Java Runtime Environment for Java virtual machine.

The JRE is an implementation of Java's binary type of software package that provides class libraries of Java, Java, and various other components for running the application written in Java programming.

JRE has a major responsibility for creating an environment for the execution of code.

The Java JVM is a platform-independent abstract machine that has three notations in the form of specs. This document describes the requirement of JVM.

JVM specifies all of the implementation. It is responsible for providing all of those implementations to the JRE.

JRE, just like JDK is also platform-dependent. It means that for every different platform, you require a different JRE

The JVM is platform independent. It means that you don't require a different JVM for every different platform.

Q.2 what is JIT compiler?

The Just-In-Time (JIT) compiler is an essential part of the JRE i.e. Java Runtime Environment, that is responsible for performance optimization of java based application at runtime. The compiler is one of the key aspects in deciding the performance of an application for both parties i.e. the end-user and the application developer.

Q.3 what is class loader?

— Class loader is the part of the Java Runtime environment (JRE)

class loader is of three types

1] Bootstrap class loader

2] Extension class loader

3] System class loader

when we compile the java code it generates .class file and .class file loaded into the JVM by using class loader. we have method

class.forName(method) inside this

method .class file will be loaded

using instance of the class &

instance of the class is responsible

for the execute all the byte code.

Q.4 Explain various memory Logical Partitions:

- In operating systems, Memory management is the function responsible for allocating and managing computer's main memory. Memory Management function keeps track of the status of each memory location, either allocated or free to ensure effective and efficient use of primary memory.

There are two memory management techniques : contiguous and non-contiguous in contiguous Technique, executing process must be loaded entirely in the main memory.

Contiguous Technique can be divided into :

1] Fixed (or static) partitioning

2] Variable (or dynamic) partitioning.

Q.5 What gives Java its "write once and run anywhere nature"?

- The bytecode - Java compiler converts the Java programs into the class file (Bytecode) which is the intermediate language between source code & machine code. This bytecode is not platform specific and can be executed on any computer.

Q.6 Explain History of java . who invented Java ?

- James Gosling, mike Sheridan, and patrick naughton initiated the java language project in june 1991 .The small team of sun engineers called Green team.
- Initially it was designed for small, embedded systems in electronic appliances like set-top boxes.
- Firstly , it was called "Green talk" by James Gosling . And the file extension was .gt.
- After that , it was called Oak and was developed as a part of Green project.
- Why Oak ? Oak is a symbol of strength and chosen as a national tree of many countries like the U.S.A , France , Germany , Romania etc.

- In 1995, Oak was renamed as "Java" because it was already a trademark by Oak Technologies.

Q.7 What was the original name of Java?
Why it was Renamed?

- The original name of Java was Oak. In 1995, Oak renamed as "Java" because it was already a trademark by Oak Technologies.

Q.8 List features of Java.

- Major Features of Java programming lang:-

- 1] Simple.
- 2] Object-oriented.
- 3] Platform independent.
- 4] Portable.
- 5] Robust.
- 6] Secure.
- 7] Interpreted.
- 8] Multi-threaded.

Q.9 List various DataTypes in Java.

- Primitive data types.

— Boolean Type

1] Boolean

— character Type

1] char

— Integer type

1] Byte

2] Short

3] Int

4] Long

— Float type

1] float

2] Double

- Non primitive data type.

1] Array

2] String

3] class

4] Interface

5] Enum.

Q.10 What is difference between

`System.out.print`

`System.out.println`

`System.err.print`

1] `System.out.print` -

`System.out.print` this statement will print the string on the same line.

2] `System.out.println` -

`System.out.println` this statement will print the string on the next line. It will work as a '`\n`'.

In java `System.out.println` will point to the standard out of the system you are using.

3] `System.err.print` -

`System.err.print` this statement will print to the standard error.

Q.11 How is java platform independent?

- Java is platform-independent because it uses a virtual machine. The java programming language and all API's are compiled into bytecodes. Bytecodes are effectively platform-independent. The virtual machine takes care of the differences between the bytecodes for the different platforms.

Q.12 what is bytecode & how is it different from machine code ?

- Java bytecode is the byte-code-structured instruction set of the Java virtual machine (JVM), a virtual machine that enables a computer to run program written in the Java programming language and several other programming languages.
- Bytecode & machinecode both of these are codes that act as a set of instructions that help machines/devices behave in a specified manner or perform certain operation/tasks. The primary difference between bytecode and machinecode is that bytecode is an intermediate code while the machine code is the final code that the CPU processes.

Q.13 what is difference betw JAR File & Runnable JAR File?

- In simple terms, the difference between JAR File & Runnable JAR File is that while a JAR File is a Java application which requires a command line to run, a runnable JAR file can be directly executed by double clicking it.

Q.14 what is difference between Runnable jar file & exe file?

- jar file is a combination of compiled Java classes. Executable jar file is also be combination of compiled java classes.
- An exe file is an executable file that can be executed in microsoft OS environment. Jar file is container of Java class files, including others resources related to the project. Jar file can be executed only if Java run time environment.

Q.15 How is C platform dependent language?

- C is a portable programming language because it is not tied to any hardware or system. We can say, it is a hardware independent language or platform independent language.
- The executable file that is generated at the end for running the C-program may depend on a platform.

Q.16 What is difference between path & class path?

- The main difference between Path & Classpath is that Path is set for Java tools in Java programs like Java and Javac, which are used to compile your code. Whereas classpath is used by system or application class loaders to locate and load compiled Java byte codes stored in the .class file.