**Assignment-1**

1.Difference between SDK and JDK?

Software development kit is a set of development tools that allow applications to be created for certain software packages or platforms.

Java development kit is an extension of SDK and is responsible for writing and running Java Programs.

2.What is runtime and compile time error?

Runtime errors are those that we encounter during the code execution during runtime whereas a compile time error refers to the errors that correspond to the semantics or syntax of the code and is caught during compilation time.

3. Space and Time complexity?

Space complexity of an algorithm quantifies the amount of space taken by and algorithm to run as a function of the length of the input.

Time complexity of an algorithm quantifies to the time taken by an algorithm to run as a function of the length of the input.

4.Different tools to compile Java code?

Some tools are: -

JDK

NetBeans

Eclipse

IntelliJ

Oracle JDeveloper

Junit

5.Which is better among Quick sort and Merge Sort?

Merge sort is more efficient and works faster than quick sort in case of larger array size or datasets. Quick sort is more efficient and works faster than merge sort in case of smaller array size or datasets.

6.Different datatypes in Java?

Some of the datatypes are: -

Int

Double

Long

Char

String

Byte

Boolean

Short

7.How is java portable?

Java programs are portable, which means that the same bytecode program can run on any computer system that has a Java interpreter. Also, a source program can be compiled into bytecodes on any computer that has a Java compiler.

8.Difference between Open Source and Closed Source?

With closed source software, the public is not given access to the source code, so they can't see or modify it in any way. But with open-source software, the source code is publicly available to anyone who wants it, and programmers can read or change that code if they desire.

9.Global and Local variable in Java?

A global variable exists in the program for the entire time the program is executed. It can be accessed throughout the program by all the functions present in the program.

A local variable is created when the function is executed, and once the execution is finished, the variable is destroyed.

10.Can we build an OS using Java?

In theory yes, but you'll still have to have some low-level assembly code to bootstrap the Java VM that will run on the machine, and also low-level code for accessing hardware drivers.

11.What is JVM and what if JVM in not present in the system?

A Java virtual machine is a virtual machine that enables a computer to run Java programs as well as programs written in other languages that are also compiled to Java bytecode.