JAVA 0/25/23

COMPONENTS OF JDK

Javac – compiler converts the source code to java bytecode.

Java – the loader of java apps

Javap – class file disassembler

Javadoc – document generator

Jar – java archiver helps manage jar files

Appletviewer – debugging of java applets without a web browser. )f5,f6,f7,f8)

JVM and its architecture

* Delegation hierarchy is used to load the class.

**JVM Memory:**

Method area : class data – static blocks, variables and references

Heap area : Object data, instance variables

Runtime stacks : t1-tn -method calls on local variables

PC registers

Registers

**Execution engine:**

* Interpreter : line by line interpretation of the code.
* Just in time comompiler(jit) : compiles the entire bytecode and converts it into native code, provides interpreter the native code whenever a a repeated method call occurs.
* Garbage collectors

**JDK, JRE, JVM :**

JDK : DEVELOP AND RUN

JRE : ONLY RUN( WITH LIBRARIES)

JVM : VIRTUAL ENVIRONEMTN FOR RUNNING THE APPLICATION.

**THE COMPONENTS OF JRE:**

1. Deployment technologies
2. User interface tools
3. Integration libraries
4. Base libraries
5. Lang and util libraries(collection frameworks)
6. Jvm

**JIT COMPILER:**

COMPILLE TIME : SOURCECODE.JAVA -> COMPILER ->BYTECODE

RUN TIME : BYTECODE-> JIT COMPILER -> NATIVE MACHINE CODE

* JVM : Managing system memory , provides transportable execution environment for java based applications.
* Has stack area, heap area.

JAVA IS PLATFORM INDEPENDENT:

JAVA -> JVM

JVM -> OS

**BASIC TECHNOLOGIES IN JAVA:**

1. Class
2. Object
3. Method

**Datatypes in Java:**

* Primitive datatypes
  + Boolean – **Boolean (true, false)**
  + Numeric
    - Character value – **char (0-255) –** 16bits for Unicode characters
    - Integer Value
      * Integer – **byte (-128,127) -8bits , short(-32,768-32,767) – 16b, int -32, long** -64
      * Floating point – **float-32 (upto 7 decim al digits), double-64(upto 16 decimal digits)**
* Non primitive datatypes
  + String , Array, Integer etc.

**Java Identifiers:**

* A-z, A-Z,0-9, $, \_ are allowed.
* Don’t start with a number.
* Case sensitive
* 4-15 is optimal length, however there’s no restriction for the length of the identifiers.
* Reserved words can’t be used. 53 reserved words are present.

**Java operators**

**Java variables**

Declare and initialize.