JAVA

Introduction: Java is a high-level programming language originally developed by Sun Microsystems and released in 1995. Java runs on a variety of platforms, such as Windows, Mac OS, and the various versions of UNIX.

The latest release of the Java Standard Edition is Java SE 8.2. With the advancement of Java and its widespread popularity, multiple configurations were built to suit various types of platforms. For example: J2EE for Enterprise Applications, J2ME for Mobile Applications.

The new J2 versions were renamed as Java SE, Java EE, and Java ME respectively. Java is guaranteed to be **Write Once, Run Anywhere.**

# Unit 1

Need of OOP’s:

Basically all programs are categorized into 2 type’s i.e.

1) *Structural* = Programs are divided into small self-contained functions.

Characteristics: Emphasis on code, functions, share global data, moves openly, transform data, top down approach.

2) *Object oriented* = Programs are divided into small entities called **objects**. Also it supports inheritance, encapsulation, abstraction, polymorphism, etc.

Characteristics: Emphasis on data, methods act on data, Data Structures are implement as object, methods & data are tied, data is hidden, methods communicate through objects, reusability, bottom up.

Java Buzz words:

There are 11 buzz words

* Simple
* Secure
* Portable
* Object Oriented
* Robust
* Multi-threaded
* Architecture neutral
* Interpreted
* High performance
* Distributed
* Dynamic

1. Simple: Java is easy to learn, write programs. Expressiveness is more in java. Most of the complex or confusing features in C++ are removed in java like pointers etc.
2. Secure: Java provides data security through encapsulation, also we can write applets in java which provides security. (An applet is nothing but a small program which can be downloaded from one computer to another automatically)
3. Portable: Applications written in java are portable in the sense that they can be executed on any kind of computer containing any CPU or any OS.

When an application is written in java is compiled it generates an intermediate code file called as “Byte code”.

1. Object Oriented: java follows object oriented model. Java was not designed to be source code compatible with any other language

So, it supports all the features of object oriented model like Encapsulation, Inheritance, Polymerization, Abstraction.

The object model in java is simple and easy to extend while simple types, such as integers are kept as high performance non objects.

5. Robust: A program or an application is said to be robust (reliable) when it is able to give some response in any kind of context. Java features help to make the program robust. Some of those features are: 1. Type checking 2. Exception handling.

6. Multi-threading: