Basics

04 March 2022 08:56

- **Java:** It is a *software platform* for building (using JDK) *cross-platform* applications and for safely executing these applications (using JRE) on their underlying system. The Java platform includes implementations for

1. **Java Virtual Machine** (JVM) - Each Java *class file* contains the binary representation of a single Java type and it includes the *meta-data* (machine readable description) of that type along with the *byte-codes* (machine neutral instruction) for its implemented methods. JVM manages execution of Java application on its target system by providing support for
   (a) **Loading** class files required by the application into the memory on demand.
   (b) **Executing** byte-codes of a method by first translating them into their equivalent but safe native machine instructions.

2. **Java Runtime Library** - It is a collection of packaged class files which enable a Java application to consume services offered by the following in a portable manner
   (a) **Runtime** which includes support for built-in data-types, reflection and native-method invocation.
   (b) **Platform** which includes support for multithreading, file i/o and network communication.

3. **Java Programming Language:** It is a high-level language designed specifically for coding applications which can be executed by the JVM. It has following important features
   (a) It offers C++ like but more consistent syntax based on a type-system consisting of eight *primitive value types* and support for implementing *user-defined reference types.*
   (b) It is primarily an object oriented language based on *common-root single class* inheritance model with added support for *generic* programming and *functional* programming.

Primitive Data Types

Data Type	Value	Helper Class	Format
boolean	true|false option	Boolean	%b

char	single (unicode) character	Character	%c
byte	8-bit signed integer	Byte	%d, %x
short	16-bit signed integer	Short	%d, %x
int	32-bit signed integer	Integer	%d, %x
long	64-bit signed integer	Long	%d, %x
float	32-bit single precision real	Float	%f
double	64-bit double precision real	Double	%f