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## Number System in Java

## **=> Number System :-**

-> We i.e. Human beings communicate in words, characters and numbers but computers communicate only in numbers.

-> The data or character that we provide to computer is converted into number (In java all characters have unique integer value known as ASCII)

-> Computer (Programming Languages) communicates only in numbers thus there are 4 number systems:-

1. Binary Numer System (Base 2)
2. Octal Number System (Base 8)
3. Decimal Number System (Base 10)
4. Hexa-Decimal Number System (Base 16)

-> Java supports all number systems but default is "Decimal Number System"

## 1. Binary Numer System (Base 2) :-

-> Alphabet : 0,1

-> Prefix : 0b or 0B

## 2. Octal Number System (Base 8) :-

-> Alphabet : 0,1,2,3,4,5,6,7

-> Prefix : 0 (zero)

## 3. Decimal Number System (Base 10) :-

-> Alphabet : 0,1,2,3,4,5,6,7,8,9

-> Prefix : does not have any prefix

## 4. Hexa-Decimal Number System (Base 16) :-

-> Alphabet : 0,1,2,3,4,5,6,7,8,9,A (10), B (11), C (12), D (13), E (14), F (15)

-> Prefix : 0x or 0X

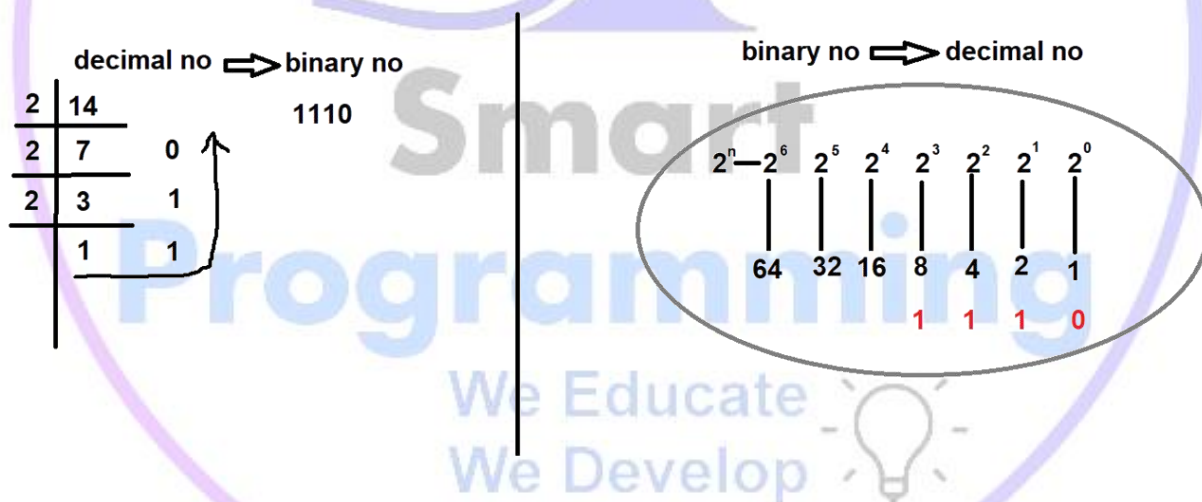
=> Conversion :-

1. If we want to convert Binary or Octal or Hexa-Decimal number system to Decimal number system

-> `Integer.parseInt( "no" , base );`

2. If we want to convert Decimal number system to Binary or Octal or Hexa-Decimal number system -

> `Integer.toXxxString( no );`



### Number System & Conversion in Java

	Binary Number System	Octal Number System	Decimal Number System	Hexa-Decimal Number System
Alphabet	0, 1	0,1,2,3,4,5,6,7	0,1,2,3,4,5,6,7,8,9	0,1,2,3,4,5,6,7,8,9, A,B,C,D,E,F
Prefix	0b or 0B	0	does not have prefix	0x or 0X

`Integer.parseInt( "no" , base );`

`Integer.toBinaryString( no );`  
`Integer.toOctalString( no );`  
`Integer.toHexString( no );`

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