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Chapter 6 : Operators in Java

(*) Java Operators are symbols that perform operations on variables & values. They are used to manipulate data of variables in expressions.

- Different types of operators in Java are as follows:

① Arithmetic Operators → *, +, -, /, %

② Assignment Operators → =, +=, -=, *=, /=

③ Relational Operators → ==, >, <, >=, <=, !=

④ Logical Operators → &&, ||, !

⑤ Bitwise Operators → &, |, ^, !

(*) Bitwise Operators Understanding →

① Bitwise OR (|) → It returns bit by bit OR of input values. If either of the bits is 1, it gives 1, else it shows 0.

⇒ Example →

a = 5 = 0101
b = 7 = 0111

Bitwise OR of 5 & 7

```
  0101
| 0111
------
  0111  → 7
```

(2) Bitwise AND (&) → It returns bit by bit AND of input values, If both bits are 1, it gives 1, else it shows 0

⇒ Example →

a = 5 = 0101
b = 7 = 0111

Bitwise AND of 5 & 7

```
  0101
& 0111
------
  0101  → 5
```

③ Bitwise XOR (^) → It returns bit by bit XOR of input values. If corresponding bits are different. It gives 1 else shows 0.

⇒ Example →

a = 5 = 0101

b = 7 = 0111

Bitwise XOR of 5 & 7

```
  0101
^ 0111
  ----
  0010  → 2
```

④ Bitwise Complement (~) → It returns 1's complement of input value. ie with all bits inverted that is 0 to 1 & 1 to 0

⇒ Example → a = 5 = 0101

8-bit representation of 5 = 00000101

Bitwise complement of 5

~ 00000101 → 11111010

⇓

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Then 2's complement of it → (-6)