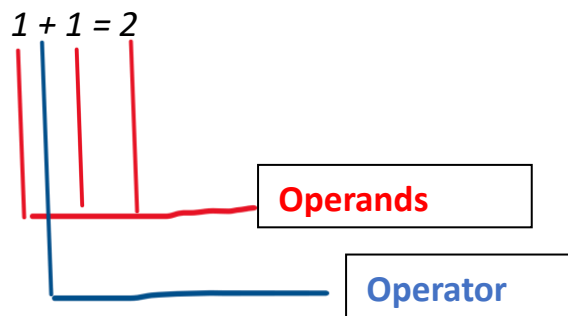# *Operators In Java*

- *Operators are predefined symbols to perform some tasks and operations.*
- *In Operator we have operands.*

1 + 1 = 2

Operands

Operator

Based on the no of operands there are three types of operators.

1. **Unary Operator -** *Accept only one operand.*
2. **Binary Operator –** *Accept exactly two operands.*
3. **Ternary Operator-** *Accept more than two operands.*

Classification of operators

1. Arithmetic operator
2. Assignment operator
3. Relational operator
4. Logical operator
5. Increment/Decrement operator
6. Conditional operator
7. Miscellaneous Operator

1. Arithmetic operator

❖ *Arithmetic operator is used to perform arithmetic and mathematical operations.*

❖ *The predefined symbols used in the arithmetic operator are-*

- *(+) addition*
- *(-) subtraction*
- *(*) multiplication*
- *(/) division -quotient*
- *(%) modules -Remainder*

2. Assignment operator

❖ *Assignment operator is used to assign a value to a variable*

The predefined symbols used in the arithmetic operator are-

- *=*

Ex   int age =20

❖ *the other operator of the assignment operator is to reduce the line of expression this is also known as **Compound assignment operator***

The predefined symbols used in the compound arithmetic operator are-

- *+=   a=a+b   a+=b*
- *-=   a=a-b   a-=b*
- **=   a=a*b   a*=b*

- /=   a=a/b   a/=b
- %=   a=a%b   a%=b

Re-initialization

It is a process of re-assign a value to a variable with a new value

   Variable name = updated value/new value

Ex   int age = 21;

   System.out.println(age)   => 21

    age =99;

   System.out.println(age)   => 99

** Note**

❖ *In Java, we can also compare the number with char values this can be done with the help of the ASCII value of each character*
❖ *char data type has the capability of storing an integer number as well as a decimal number*

3. Relational operator

- *A relational operator is used to check the relation between operants.*
- *In relational operator the o/p or result will always be in a Boolean format that is true or false.*
- *The predefined symbol used in relational operator.*

- <   *less than*
- >   *greater than*
- <=   *less equal*
- >=   *grater equal*
- ==   *double equal to { return true if both numbers are same otherwise it returns false}*
- !=   *Not equal to*

Ex   *int a = 5;*

   Int b=6;

   System.out.println(a==b)   => false

   Int c=97;

   Int d=A;

   System.out.println(c==d)   => true {because of Ascii value}

4. Logical operator

- ➢ *A logical operator is used to perform logical operations.*
- ➢ *To use logical operators we have to use relational operators.*
- ➢ *By using a logical operator the output will be in Boolean format.*
- ➢ *The predefined symbols used in logical operators –*

     ◆ *Logical and - &&*
     ◆ *Logical or - ||*
     ◆ *Logical not - !*

1. Logical And (&&)

Logical and says if both expressions are true then it returns true else it returns false.

Operation1	Operation2	Output
T	T	T
T	F	F
F	T	F
F	F	F

2. Logical or (||)

Logical or(||) says if any expressions are true then it returns true else it returns false.

Operation1	Operation2	Output
T	T	T
T	F	T
F	T	T
F	F	F

3. Logical not (!)

Logical not(!) says if an expression is true then it returns false if the expression is false then it returns true.

Operation1	O/p
T	F
F	T

5. Increment/Decrement Operator

➢ *In Java, increment means increasing the value by 1.*
➢ *In Java, decrement means decreasing the value by 1operators.*
➢ *By using a logical operator the output will be in Boolean format.*
➢ *The predefined symbols are used in increment (++) and decrement (--).*

** Rule of pre/post **

Post rules if - 1. *we reassign the expression with the same variable or a different variable*

Ex – *int a=1;*

    a= ++a-a+++--a+a++;

  a=1/2-2/3+3/2+2/1

 a=2-2+2+2 =0

2. *if we pass the expression inside a print or println statement.*

Post	Pre
Use the variable,increase, decrease the value by 1, and update the memory	Use the variable, increase,decrease the value by 1, and update the memory
Use the substitute value	*Use the increment/decrement value*

1. Increment operator

a) Post Increment (a++) => **after {int a=2**

a++

a=3

}

b) Pre Increment (++a) => **before {int a=2**

++a

a=3

}

2. Decrement operator

a) Post Decrement (a--) => **after {int a=2**

a--

a=1

}

b) Pre Decrement (--a) => **before {int a=3**

--a

a=2

}

6. Conditional Operator

❖ *A conditional operator is used to execute a conditional statement.*
❖ *If the condition is true then the first statement is executed if the condition is false then the second statement is executed.*

(Condition) ? Statement1 : Statement2 ;

Ex- int a =10;

Int b= 20;

(a<b)? "Hello Deepak": "Hello Shilpi"; {Output – Hello Deepak}