

OPERATORS

TODAY'S AGENDA

01. Input as String

02. Operators

- Relational operators
- Logical operators
- Unary operators
- Arithmetic operators
- Assignment operators

```
Scanner scn = new Scanner(System.in)
```

↓
variable
name

```
int n = scn.nextInt();
```

```
long l = scn.nextLong();
```

```
double d = scn.nextDouble();
```

```
boolean b = scn.nextBoolean();
```

String → sequence of characters

```
String str = "hello";
```

```
Scanner scn = new Scanner(System.in);
```

```
01. String str = scn.next(); ✓
```

```
02. String str2 = scn.nextLine(); ✓
```


Input = abc def → space

String str = scn.next()

Output → abc

String str2 = scn.nextLine();

Output → abc def

01. scn.next() → string till the first space

02. scn.nextLine() → complete string as input

Operators

01. Relational operators

→ ans will be boolean

int a , int b

a=300
b=100

a=400
b=800

01. a is less than b

$a < b$

False

$400 < 800$
True

02. a is greater than b

$a > b$

True

$400 > 800$
False

03. a is lesser than or equals to b

$a \leq b$

False

$400 \leq 800$
True

04. a is greater than or equals to b

$a \geq b$

True

$400 \geq 800$
False

05. a is equals to b

```
int a = 10;  
int b = 10;
```

```
boolean isEqual = (a == b);  
print(isEqual)
```

⇓
True

└─ (i) a double equals to b
 (ii) a equals equals to b
 ✓ (iii) a equals to b

06. a is not equals to b

```
int a = 70  
int b = 80
```

```
boolean var = (a != b);  
print(var)  
↓  
True
```

70 != 80

03) $a \leq b$
 $300 \leq 100$

$300 < 100$ OR
 $\underbrace{\hspace{1.5cm}}_{\text{False}}$

$300 \text{ equals to } 100$
 $\underbrace{\hspace{1.5cm}}_{\text{False}}$

04) $a \geq b$
 $300 \geq 100$

$300 > 100$ OR
 $\underbrace{\hspace{1.5cm}}_{\text{True}}$

$300 \text{ equals to } 100$
 $\underbrace{\hspace{1.5cm}}_{\text{False}}$

Logical operator / Boolean operator



Farhan

Pass the criteria

- 12th marks $\geq 75\%$
- jee marks \geq cutoff

AND

→ Both of the condn must be true to get admission into vious college

Wildlife
photography

Fail the criteria

- 12th marks $< 75\%$
- jee exam marks $<$ cutoff

OR

→ Either of the condn is true then he will be photographer

T/F AND T/F

T/F OR T/F

A	B	A and B A & B	A or B A B
True	True	True	True
True	False	False	True
False	True	False	True
False	False	False	False

Conclusion for
AND

→ Both of the conditions must be true to get result as True

→ Either of the condition is false then the result will be false

Conclusion for
OR

→ Atleast one of the condition must be true to get result as True

→ Both of the conditions are false then only the result will be False

01. $(15 < 20) \parallel (7 > 13)$
True \parallel False

\Downarrow
True

02. $(15 < 3) \&\& (12 < 6)$
False $\&\&$ False

\Downarrow
False

Q3. $(5 < 3) \text{ \& } ((6 > 10) \text{ || } (5 < 12))$

$\Rightarrow \text{False \& (False || True)}$

$\Rightarrow \text{False \& True}$

$\Rightarrow \text{False}$

Observation \rightarrow AND Operator

\downarrow
If the first result is false then
no need to check for the rest of
the part

$$Q \rightarrow (5 > 2) \quad || \quad ((2 < 3) \text{ \&\& } (7 > 13))$$

$$\text{True} \quad || \quad (\text{True} \text{ \&\& } \text{False})$$

$$\text{True} \quad || \quad \text{False}$$

\Rightarrow

True

$$Q \rightarrow (3 > 2 \text{ \&\& } 5 > 1) \quad || \quad (1 < 2 \text{ \&\& } 0 < 1)$$

Unary operator

→ `int a = 10;`
→ `a = a + 1;`
→ `println(a);`
→ `a = a + 1;`
→ `println(a)`
→ `a = a - 1;`
→ `println(a)`

} → `a++;`
→ `a++;`
→ `a--;`

Output

11

12

11

post increment & pre incremented

→ post increment

→ `int a = 10;`

→ `int y = a++;`

`print(a);`

`print(y);`

a 10

2nd line

→ First the value of a is being assigned to y
→ Second the value of a is modifying

// y = 10
// a = 11

Output

11

10

Preincrement operator

```
→ int a = 7;  
→ int y = ++a;  
  print (a);  
  print (y);
```

a = 7

2nd line → First → 'a' value is going to be modify
→ Second → 'y' will be having the new
value of a

Output

8
8

Detailed
Expression

Shortcut

$$a = a + x$$

$$a += x$$

$$a = a - x$$

$$a -= x$$

$$a = a * x$$

$$a *= x$$

$$a = a / x$$

↳ quotient

$$a /= x$$

$$a = a \% x$$

↳ remainder

$$a \% = x$$

Arithmetic operators = + , - , * , / , %

Assignment operators \Rightarrow += , -= , *= , /= , %= , =

Doubts

$a = a + S ;$ // incrementing the value of
a by S and assigning
the value back to a

$a += S$