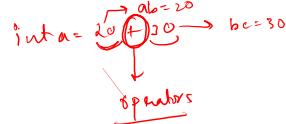


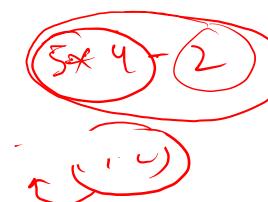
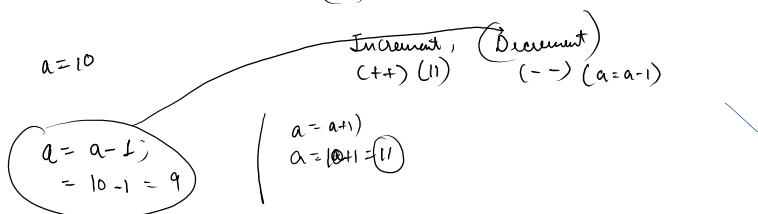
Java Operators

↳ are used to perform operations on variables and values.

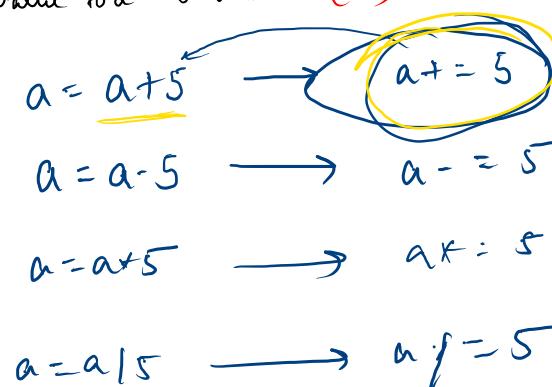
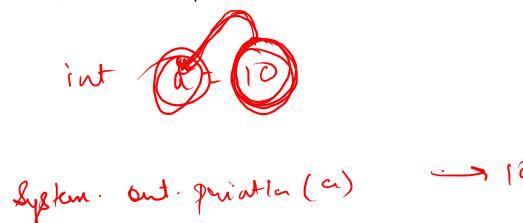


5 types of operators in Java.

- (1) Arithmetic operators → Addition, Subtraction, Multiplication, Division, Modulus
(+) (-) (*) (/) (%)



- (2) Assignment operator :- Used to assign a value to a variable. (=)

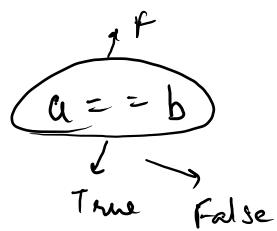


(3)

Comparison Operator → used to compare two values.

$= =$ → Equal to

Ex → $a = 5$
 $b = 6$
 $c = 5$.



~~\neq~~ → \neq → Not equal

Ex → $a \neq b \rightarrow \text{True.}$

Ex → $5 > 6 \rightarrow \text{False}$

$b > a \rightarrow \text{True.}$

~~$>$~~ → Greater than

Ex → $5 < 6 \rightarrow \text{True.}$

$a > b \rightarrow \text{false}$

$<$ → Less than

Ex → $5 > 5 \rightarrow \text{True.}$
 $a > b \rightarrow \text{False.}$

\geq → Greater than equal to

Ex → $a \leq c \rightarrow \text{True.}$

\leq → Less than equal to

$5 \leq 6 \rightarrow \text{True.}$

~~$a = 10$~~
~~↓~~
assign

④

Logical Operator → used to determine the logic b/w variables or values.

↳ (a) AND → &

↳ (b) OR → ||

↳ (c) NOT → !

(a) AND → True → All the conditions are true.

$$\text{Ex: } \begin{array}{l} a=5 \\ b=6 \\ c=7 \\ d=1 \end{array} \quad \begin{array}{l} a < b \\ 5 < 6 \\ \text{True} \end{array} \quad \begin{array}{l} \& \\ b < c \\ 6 < 7 \\ \text{True} \end{array} \quad \begin{array}{l} \& \\ c < d \\ 7 < 1 \\ \text{False} \end{array}$$

(T) ✓ (F)

↳ false

(b) OR → If anyone condition is true → true.

$$\text{Ex: } \begin{array}{l} a=5 \\ b=6 \\ c=7 \\ d=1 \end{array} \quad \begin{array}{l} a > b \\ 5 > 6 \\ \text{False} \end{array} \quad \begin{array}{l} b > c \\ 6 > 7 \\ \text{False} \end{array} \quad \begin{array}{l} c > d \\ 7 > 1 \\ \text{True} \end{array}$$

(F) (F) (T)

↳ True

(c) NOT → Reverse the output.

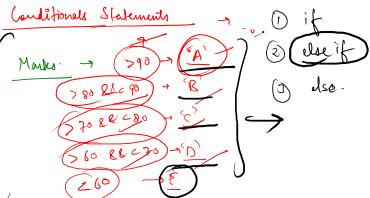
$$\downarrow \quad \neg(\text{!false}) = \text{True}$$

$$\downarrow \quad \neg(\text{!True}) = \text{False}$$

$x = 7$

- ① $x < 5 \text{ } \& \text{ } x < 10 \rightarrow \begin{matrix} T & & F \\ & \text{F} & \end{matrix} \rightarrow \text{False}$
- ② $x < 5 \text{ } || \text{ } x < 10 \rightarrow \begin{matrix} T & & T \\ & F & \end{matrix} \rightarrow \text{True}$
- * ③ $! (x > 5 \text{ } \& \text{ } x < 10) \rightarrow \begin{matrix} T & \& T \\ & \text{F} & \end{matrix} \rightarrow !(\text{True}) = \text{False}$
- ④ $! (x > 5 \text{ } || \text{ } x < 10) \rightarrow \begin{matrix} T & \& T \\ & \text{F} & \end{matrix} \rightarrow !(\text{False}) = \text{True}$
- ⑤ $\boxed{!(x < 10) \text{ } \& \text{ } !(x > 11)} \text{ } \& \text{ } (x > 7)$
- $(T < 10)$
- $!(\text{True}) \text{ } \& \text{ } !(\text{False}) \rightarrow \text{False}$
- $(\text{False} \text{ } \& \text{ } \text{True}) \rightarrow \text{False}$
- $!(\text{False}) \text{ } \& \text{ } \text{False} \rightarrow \text{True} \text{ } \& \text{ } \text{False} \rightarrow \boxed{\text{False}}$

Note → if, else → single time
else if → multiple time } One particular condition



(1) if → if my condition is true → then execute block.

$a = 10$
if ($a > 10$) { System.out.println ("Hello everyone"); }

O/P

Hello everyone →

General Syntax

if (condition) { execute | print something }

else → if all the expressions are false, then please execute me;
{ }

}

Ex → $a = 5$.

if ($a > 10$) { System.out.println ("Hello everyone"); }

else { System.out.println ("Bye everyone"); }

}

Syntax else

else { }

execute }
print

else if X

↳ if, else → one time.

if ($a > 10$) → Hello
if ($a > 9$) → Bye

Syntax else if

else if (cond){
execute / print
}

class

70

marks = 5

optional

```
public static void main(String[] args) {  
    Scanner scn=new Scanner(System.in);  
    int marks=scn.nextInt();  
  
    if(marks>=90){ (75 >= 90) → F  
        System.out.println("My Grade is A");  
    }  
    else if(marks>=80 && marks<90){ (75 <= 80 && 80 < 90) → T  
        System.out.println("My Grade is B");  
    }  
    else if(marks>=70 && marks<80){ - (75 >= 70 && 70 < 80) → T  
        System.out.println("My Grade is C");  
    }  
    else if(marks>=50 && marks<70){  
        System.out.println("My Grade is D");  
    }else {  
        System.out.println("My Grade is E");  
    }  
}
```

(75 <= 80 && 80 < 90) → T

(75 >= 70 && 70 < 80) → T

(My Grade is 'C')

{ if → if condition true → please execute me.
else if → if 'if' part is false, please check me if i'm true → execute me.
else → if both if & else if are false then please execute me. }

Java
programming