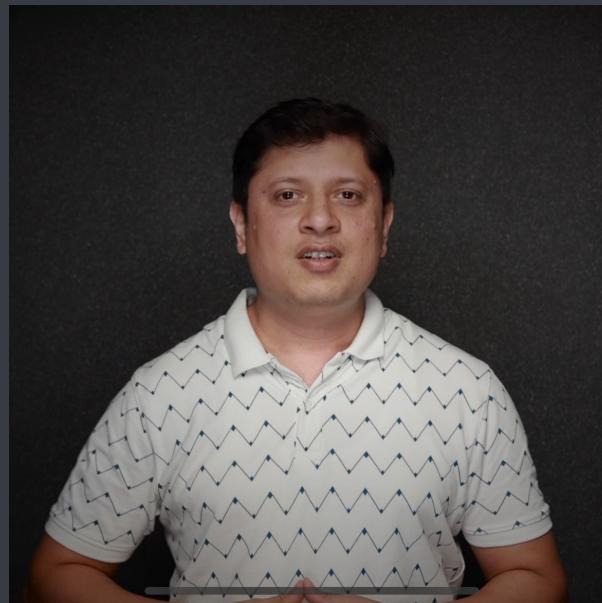


C Language

Operators in C Language



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Agenda

- ① Arithmetic Instruction
- ② Classification of operators
- ③ Unary operators
- ④ Arithmetic operators
- ⑤ Bitwise operators
- ⑥ Relational operators
- ⑦ Logical operators
- ⑧ Assignment operators

Arithmetic Instruction

An instruction which is used to manipulate data using operators, is known as Arithmetic Instruction.

Operands (data)

↙ ↓
3 + 4
↑
operator

3 + 4 * 5
3 + 20
23

Classification of Operators

- ① Unary operators +, -, ++, --, sizeof()
- ② Arithmetic operators *, /, %, +, -
- ③ Bitwise Operators &, |, ^, ~, >>, <<
- ④ Relational Operators <, >, <=, >=, ==, !=
- ⑤ Logical Operators !, &&, ||
- ⑥ Conditional Operator ?:
- ⑦ Assignment Operators =, +=, -=, *=, /=, %=

operands

- ① unary
- ② Binary
- ③ Ternary

Unary Operators

$+, -, ++, --$

$+3, -5$

Increment Operator $++$

`int x=5;`

$\frac{x}{786}$

$x+1$
 $x++$

$++x \uparrow$

$x++ \downarrow$

`printf("%d", x); 5`

$x++ \rightarrow$ post increment $\rightarrow x = x+1$

`printf("%d", x); 6`

$x++ \rightarrow$ pre increment

`printf("%d", x); 7`

Decrement Operator $--$

$x--;$ post decrement \downarrow $x = x-1$

$--x;$ pre decrement \uparrow

Find Output of the following program?

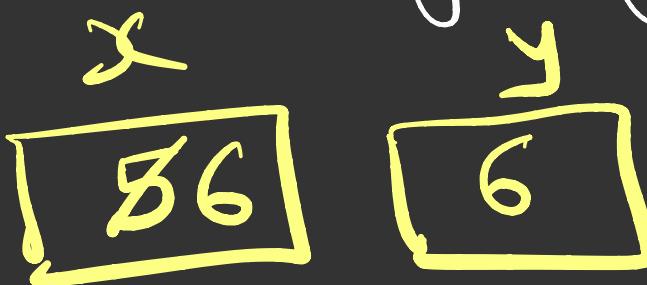
```
#include<stdio.h>
int main()
{
    int x=5, y;
    y=x++;
    printf("%d %d", x, y);
}
```



6 5

Find Output of the following program?

```
#include<stdio.h>
int main()
{
    int x=5, y;
    y=++x;
    printf("%d %d", x, y);
}
```



6 6

Unary Operators

sizeof()

- ① Data type ✓
- ② Variable ✓
- ③ Constant ✓

int x;

x = sizeof(float);

printf("%d", x); 4

x = sizeof(double);

printf("%d", x); 8

x = sizeof(char);

printf("%d", x); 1

```
int x, y;
float m;
char ch;
double d1;
```

```
8 x = sizeof(d1);
1 x = sizeof(ch);
4 x = sizeof(y);
4 x = sizeof(m);
```

```
4 x = sizeof(35);
8 x = sizeof(4.7);
4 x = sizeof('A');
```

Real constants are by default
double type
character constants are by default
of type int

Integer
constants are
by default of
type int
=