



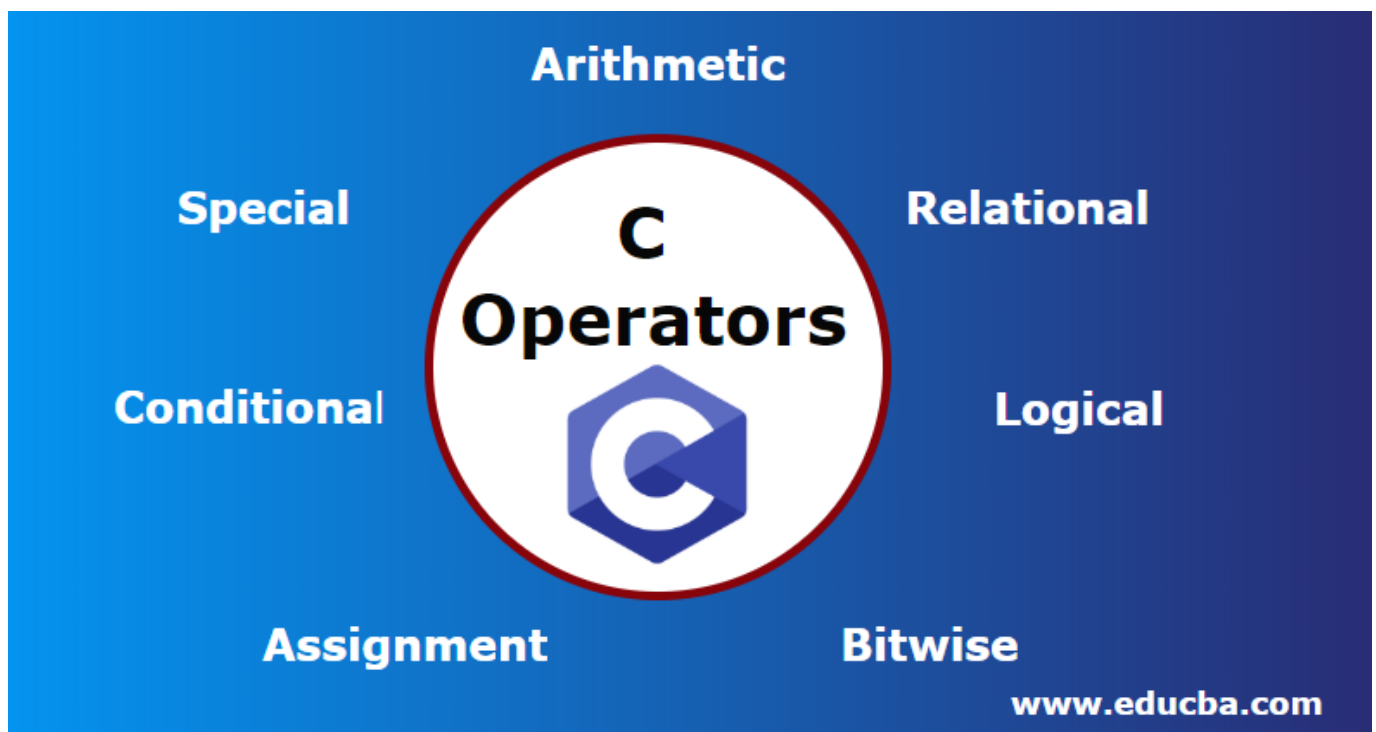
(<https://www.educba.com/software-development/>)



(<https://www.educba.com/pointer-arithmetic-in-c/>)



(<https://www.educba.com/arithmetic-operators-in-c/>)



What are operators in C?

Operators are symbols that help in performing operations of mathematical and logical nature.

The classification of C operators are as follows:

- Arithmetic
- Relational





[\(https://www.educba.com/software-development/\)](https://www.educba.com/software-development/)

- Special

1. Arithmetic Operators

These operators are responsible for performing arithmetic or mathematical operations like addition (+), subtraction (-), multiplication (*), division (/), the remainder of the division (%), increment (++), decrement (--).

Start Your Free Software Development Course

Web development, programming languages, Software testing & others

There are two types of arithmetic operators:

- **Unary Operators:** This type of operator works with a single value (operand) like ++ and --.
- **Binary Operators:** This type of operator works with two operands like +, -, *, /

Here is a tabular form of the number of arithmetic operators in C

(https://www.educba.com/arithmetic-operators-in-c/) with the functions they perform.





(<https://www.educba.com/software-development/>)

*	Multiply two values
/	Divide numerator by the denominator
%	Remainder of division
++	Increment operator – increases integer value by one.
—	Decrement operator – decreases integer value by one

Example: C Program using arithmetic operators

```
#include <stdio.h>
int main()
{
    int a = 12, b = 6, c;
    c = a + b;
    printf("a+b = %d \n", c);
    c = a - b;
    printf("a-b = %d \n", c);
    c = a * b;
    printf("a*b = %d \n", c);
    c = a / b;
    printf("a/b = %d \n", c);
    c = a % b;

    printf("Remainder when a divided by b = %d \n", c);
```





[\(https://www.educba.com/software-development/\)](https://www.educba.com/software-development/)

$$a+b = 18$$

$$a-b = 6$$

$$a*b = 72$$

$$a/b = 2$$

Remainder when a divided by b=0

2. Relational Operators

When we want to compare the values of two operands, then relational operators are used. If we want to check that is one operand is equal to or greater than other operands, then we use \geq operator.

The below table lists of the relational operators in C with their functions.



--	--	--	--



(<https://www.educba.com/software-development/>)

	Equal	
>	This will check if the operand on the left is greater than operand on the right	6 > 2 returns 1
<	This will check if the operand on the left is smaller than the right operand	6 < 2 returns 0
>=	This will check if the left operand is greater than or equal to the right operand	6 >= 2 returns 1
<=	This will check if operand on left is smaller than or equal to the right operand	6 <= 2 return 0

Example: C Program using logical operators

```
#include <stdio.h>

int main()
{
    int a = 7, b = 7, c = 10;
    printf("%d == %d = %d \n", a, b, a == b); // true
    printf("%d == %d = %d \n", a, c, a == c); // false
    printf("%d > %d = %d \n", a, b, a > b); //false
    printf("%d > %d = %d \n", a, c, a > c); //false
    printf("%d < %d = %d \n", a, b, a < b); //false
    printf("%d < %d = %d \n", a, c, a < c); //true

    printf("%d != %d = %d \n", a, b, a != b); //false
```





(<https://www.educba.com/software-development/>)

```
printf("%d <= %d = %d \n", a, c, a <= c); //true
return 0;
}
```



🔗 Popular Course in this category



C Programming Training (3 Courses, 5 Project)

3 Online Courses | 5 Hands-on Projects | 34+ Hours | Verifiable Certificate of Completion | Lifetime Access

★★★★★ 4.5 (8,589 ratings)

Course Price

\$79 ~~\$399~~

[View Course](https://www.educba.com/software-development/courses/c-programming-course/?btnz=edu-blg-inline-banner1)

(<https://www.educba.com/software-development/courses/c-programming-course/?btnz=edu-blg-inline-banner1>)

Related Courses

C++ Training (4 Courses, 5 Projects, 4 Quizzes) (<https://www.educba.com/software-development/courses/c-course/?btnz=edu-blg-inline-banner1>)

Java Training (40 Courses, 29 Projects, 4 Quizzes) (<https://www.educba.com/software-development/courses/java-course/?btnz=edu-blg-inline-banner1>)



Output:

7 == 7 = 1


$$7 \leq 10 = 1$$

Logical Operators are used for True or False results.

The table below lists out the logical operators used in C



Country	Entity	Entity ID (16-14-11-0)
---------	--------	------------------------



<https://www.educba.com/software-development/>

!	Logical NOT	(!a) is false
---	-------------	---------------

Example: C Program using logical operators.

```
#include <stdio.h>

int main()
{
    int a = 8, b = 8, c = 12, result;
    result = (a == b) && (c > b);
    printf("(a == b) && (c > b) equals to %d \n", result);
    result = (a == b) && (c < b);
    printf("(a == b) && (c < b) equals to %d \n", result);
    result = (a == b) || (c < b);
    printf("(a == b) || (c < b) equals to %d \n", result);
    result = (a != b) || (c < b);
    printf("(a != b) || (c < b) equals to %d \n", result);
    result = !(a != b);
    printf("!(a != b) equals to %d \n", result);
    result = !(a == b);
    printf("!(a == b) equals to %d \n", result);
    return 0;
}
```

Output :

(a == b) && (c > b) equals to 1





(<https://www.educba.com/software-development/>)

$(a != b) \parallel (c < b)$ equals to 0

$!(a != b)$ equals to 1

$!(a == b)$ equals to 0

5. Bitwise Operators

These operators are used for bit-level operations on the operands. The operators are converted first to bit-level, and then calculations are performed.

Operator	Function
&	Bitwise AND
	Bitwise OR
^	Bitwise exclusive OR
~	Bitwise complement
<<	Shift left
>>	Shift right

Example: C program for Bitwise AND





[\(https://www.educba.com/software-development/\)](https://www.educba.com/software-development/)

```
return 0;  
}
```

Output = 8

Explanation:

10 = 00001010 (In Binary)

8 = 00001000 (In Binary)

Bit Operation of 10 and 8

00001010 & 00001000 = 00001000 = 8 (In decimal)

6. Assignment Operators

These types of operators are used to assign a value to a variable.





(<https://www.educba.com/software-development/>)

+=	This will add the right operand to the left operand and assign the result to left	a+=b is same as a=a+b
-=	This will subtract the right operand from the left operand and assign the result to the left operand	a-=b is same as a=a-b
=	This will multiply the left operand with the right operand and assign the result to the left operand	a=b is same as a=a*b
/=	This will divide the left operand with the right operand and assign the result to the left operand	a/=b is same as a=a/b
%=	This will calculate modulus using two operands and assign the result to the left operand	a%=b is the same as a=a%b

7. Conditional Operators

Also known as Ternary Operator or ? : Operator. These are used for decision-making.

Syntax: Expression 1 ? Expression 2 : Expression 3

Here, ? Represents the IF condition.

8. Special Operators

Here are some special operators used in C





(<https://www.educba.com/software-development/>)

*	<p>This operator is used as a pointer to a variable.</p> <p>Example: * a where * is a pointer to the variable a.</p>
size of ()	<p>This operator gives the size of the variable.</p> <p>Example: The size of (char) will give us 1.</p>

Example: C program using a special operator

```
#include <stdio.h>
int main()
{
    int *ptr, q;
    q = 40;
    /* address of q is assigned to ptr */
    ptr = &q;
    /* display q's value using ptr variable */
    printf("%d", *ptr);
    return 0;
}
```



Output: 40

Recommended Articles



[\(https://www.educba.com/software-development/\)](https://www.educba.com/software-development/)

2. [List of C-Command \(https://www.educba.com/c-command/\)](https://www.educba.com/c-command/)
3. [Career in C Programming \(https://www.educba.com/career-in-c-programming/\)](https://www.educba.com/career-in-c-programming/)
4. [Bitwise Operators in JavaScript \(https://www.educba.com/bitwise-operators-in-javascript/\)](https://www.educba.com/bitwise-operators-in-javascript/)

C PROGRAMMING TRAINING (3 COURSES, 5 PROJECT)

- ☒ 3 Online Courses
- ☒ 5 Hands-on Projects
- ☒ 34+ Hours
- ☒ Verifiable Certificate of Completion
- ☒ Lifetime Access

Learn More

<https://www.educba.com/software-development/courses/c-programming-course/?btnz=edublginline-banner3>





[\(https://www.educba.com/software-development/\)](https://www.educba.com/software-development/)

source=footer)

Corporate Training (<https://www.educba.com/corporate/?source=footer>)

Certificate from Top Institutions (<https://www.educba.com/educbalive/?source=footer>)

Contact Us (<https://www.educba.com/contact-us/?source=footer>)

Verifiable Certificate (<https://www.educba.com/software-development/verifiable-certificate/?source=footer>)

Reviews (<https://www.educba.com/software-development/reviews/?source=footer>)

Terms and Conditions (<https://www.educba.com/terms-and-conditions/?source=footer>)

Privacy Policy (<https://www.educba.com/privacy-policy/?source=footer>)

Apps

iPhone & iPad (<https://itunes.apple.com/in/app/educba-learning-app/id1341654580?mt=8>)

Android (<https://play.google.com/store/apps/details?id=com.educba.www>)

Resources

Free Courses (<https://www.educba.com/software-development/free-courses/?source=footer>)

Java Tutorials (<https://www.educba.com/software-development/software-development-tutorials/java-tutorial/?source=footer>)

Python Tutorials (<https://www.educba.com/software-development/software-development-tutorials/python-tutorial/?source=footer>)

All Tutorials (<https://www.educba.com/software-development/software-development-tutorials/?source=footer>)





[\(https://www.educba.com/software-development/\)](https://www.educba.com/software-development/)

[development-course/?source=footer\)](https://www.educba.com/software-development/courses/python-certification-course/?source=footer)

Become a Python Developer (<https://www.educba.com/software-development/courses/python-certification-course/?source=footer>)

Java Course (<https://www.educba.com/software-development/courses/java-course/?source=footer>)

Become a Selenium Automation Tester (<https://www.educba.com/software-development/courses/selenium-training-certification/?source=footer>)

Become an IoT Developer (<https://www.educba.com/software-development/courses/iot-course/?source=footer>)

ASP.NET Course (<https://www.educba.com/software-development/courses/asp-net-course/?source=footer>)

VB.NET Course (<https://www.educba.com/software-development/courses/vb-net-course/?source=footer>)

PHP Course (<https://www.educba.com/software-development/courses/php-course/?source=footer>)

© 2020 - EDUCBA. ALL RIGHTS RESERVED. THE CERTIFICATION NAMES ARE THE TRADEMARKS OF THEIR RESPECTIVE OWNERS.

