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(https://www.educba.com/addressoperator-in-c/)



(https://www.educba.com/operatorsprecedence-in-c/)



# Introduction to Unary Operator in C

Unary Operator in C is used to produce a new value by acting upon a single operand. A operators are having equal precedence from right side to left side associativity. Unary minus(-), unary plus(+), prefix increment(++a) and decrement(-a), postfix increment(a++) and



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Given below are the types of unary operators:

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- 1. Unary minus(-)
- 2. Unary plus(+)
- 3. Increment(++)
  - Pre increment(++variable)
  - Post increment(variable++)
- 4. Decrement(-)
  - Pre decrement(-variable)
  - Post decrement(variable-)
- 5. Logical Negation(!)
- 6. Address Operator(&)
- 7. sizeof() Operator

# How does Unary Operators work in C?



Unary Operator in C works based on which type of operator we are applied on a variable, according to that it will perform its corresponding operation.



## Syntax:

```
int variable1= value;
int variable2= -value //value becomes negative
```

## **Example:**

```
//used to include basice c library files
#include <stdio.h>
//main method for run the C application
intmain()
{
//declaring variables
int a, unaryMinus;
//Asking user to enter any number
printf("Please enter any number \n");
//store the enter number in the int variable
scanf("%d",&a);
//unary minus operation performed, negative number becomes
positive and positive number becomes negative
unaryMinus=-(a);
//displaying output
printf("Unary minus operation of %d is = %d ",a, unaryMinus);
return 0;
```



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214

Unary minus operation of 214 is = -214

Please enter any number -214 Unary minus operation of -214 is = 214

# 2. Unary plus(+)

Unary plus changes the sign of the any negative argument. It will change negative number becomes positive and positive number becomes positive.

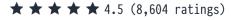
## Syntax:

int variable1= -value; int variable2= +value //negative value becomes positive



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## **Example:**

```
//used to include basice c library files
#include <stdio.h>
//main method for run the C application
intmain()
{
//declaring variables
int a, unaryPlus;
//Asking user to enter any number
printf("Please enter any number \n");
//store the enter number in the int variable
scanf("%d",&a);
//unary plus operation performed, negative number becomes positive
and positive number becomes positive only
unaryPlus=+(a);
//displaying output
printf("Unary plus operation of %d is =%d ",a, unaryPlus);
```



```
Please enter any number==>-412
Unary plus operation of -412 is =-412
```

```
Please enter any number==>412
Unary plus operation of 412 is =412
```

Note: Unary minus and plus is different from subtraction and addition operators, as subtraction and addition requires two operands.

# 3. Increment(++)

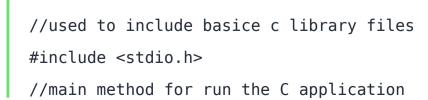
a. Pre increment(++variable)

It will increment variable value by 1 before assigning the value to the variable.

#### **Syntax:**

```
intvar=11;
int out=++var; //out becomes 12
```

## **Example:**







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```
//Asking user to enter any number
printf("Please enter any number \n");
//store the enter number in the int variable
scanf("%d",&a);
//take temp variable for showing actual number in output
int temp=a;
//increment value by 1 before assigning the value
pre_increment=++a;
//displaying output
printf("Pre increment operation of %d is =%d ",temp,
pre_increment);
return 0;
}
```

## **Output:**

```
Please enter any number
11
Pre increment operation of 11 is = 12
```

## b. Post increment(variable++)

It will increment variable value by 1 after assigning the value to the variable.

## Syntax:



```
intvar=11;
```



```
//used to include basice c library files
#include <stdio.h>
//main method for run the C application
intmain()
{
//declaring variables
int a, post increment;
//Asking user to enter any number
printf("Please enter any number \n");
//store the enter number in the int variable
scanf("%d",&a);
//take temp variable for showing actual number in output
int temp=a;
//increment value by 1 after assigning the value
post increment=a++;
//displaying output
printf("Post increment operation of %d is =%d ",temp,
post increment);
return 0;
}
```

## **Output:**

Please enter any number





It will decrement variable value by 1 before assigning the value to the variable.

## Syntax:

```
intvar=11;
int out=--var; //out becomes 10
```

## **Example:**

```
//used to include basice c library files
#include <stdio.h>
//main method for run the C application
intmain()
{
   //declaring variables
int a, pre_decrement;
   //Asking user to enter any number
printf("Please enter any number \n");
   //store the enter number in the int variable
scanf("%d",&a);
   //take temp variable for showing actual number in output
int temp=a;
   //decrement value by 1 before assigning the value
pre_decrement=--a;
```



```
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```

## **Output:**

```
Please enter any number
11
Pre decrement operation of 11 is = 10
```

## b. Post decrement(variable-)

It will decrement variable value by 1 after assigning the value to the variable.

## Syntax:

```
intvar=11;
int out=var--; //out becomes 11
```

# **Example:**

```
//used to include basice c library files
#include <stdio.h>
//main method for run the C application
intmain()
{
//declaring variables
int a, post_decrement;
```





```
development/)
//take temp variable for showing detact number in output
int temp=a;
//decrement value by 1 before assigning the value
post_decrement=a--;
//displaying output
printf("Post decrement operation of %d is =%d ",temp,
post_decrement);
return 0;
}
```

## **Output:**

```
Please enter any number
11
Post decrement operation of 11 is = 11
```

## 5. Logical Negation(!)

It is used to reverse the logical state of its operand like true become false and false becomes true vice versa.

## Syntax:







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```
#include <stdio.h>
#include <stdbool.h>
//main method for run the C application
intmain()
{
//declaring variables
bool a=false, negation;
//take temp variable for showing actual number in output
bool temp=a;
//negation operator
negation=!a;
//displaying output
//In C o means false and 1 means true
printf("Negation of %d is =%d ",temp, negation);
return 0;
}
```

#### Output:

Negation of 0 is = 1

## 6. Address Operator(&)

It will give the address of the variable. It is used to return the memory address of the arvariable. This is also called as pointers in C.

C. ....



## **Example:**

Code:

```
//used to include basice c library files
#include <stdio.h>
//main method for run the C application
intmain()
{
   //declaring variables
int a=12, address;
   //take temp variable for showing actual number in output
int temp=a;
   //address operator assigning to the variable
address=&a;
   //displaying output
printf("Address of %d is =%d ",temp, address);
return 0;
}
```

## **Output:**

```
Address of 12 is = 1277597876
```

## 7. sizeof() Operator

It will return the size of the variable in bytes. It always precedes its operand.





## **Example:**

Code:

```
//used to include basice c library files
#include <stdio.h>
//main method for run the C application
intmain()
{
   //declaring variables
int a=12, sizeof_value;
   //sizeof operator assigning to the variable
   sizeof_value=sizeof(a);
   //displaying output
   //it is inter so size either 2 or 4
   printf("size of of %d is =%d ",a, sizeof_value);
   return 0;
}
```

#### Output:

size of of 12 is = 4



## Conclusion



# **Recommended Articles**

This is a guide to Unary Operator in C. Here we discuss the introduction to unary operators, types and how does operators work with respective examples. You may also have a look at the following articles to learn more –

- 1. fputs in C (https://www.educba.com/fputs-in-c/)
- 2. C Literals (https://www.educba.com/c-literals/)
- 3. Arrays in C Programming (https://www.educba.com/arrays-in-c-programming/)
- 4. <u>C Programming Matrix Multiplication (https://www.educba.com/c-programming-matrix-multiplication/)</u>

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