Expressions and Operators - I

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OPERATORS

An operator is a symbol that operates on a value or a variable.

For example: + is an operator to perform addition.

C has a wide range of operators to perform various operations.

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ARITHMETIC OPERATORS

An arithmetic operator performs mathematical operations such as addition, subtraction, multiplication, division etc. on numerical values (constants and variables).

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ARITHMETIC OPERATORS

Operator	Meaning of Operator
+	addition or unary plus
-	subtraction or unary minus
*	multiplication
/	division
%	remainder after division (modulo division)

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INCREMENT AND DECREMENT OPERATORS

C programming has two operators increment ++ and decrement -- to change the value of an operand (constant or variable) by 1.

Increment ++ increases the value by 1 whereas decrement -- decreases the value by 1. These two operators are unary operators, meaning they only operate on a single operand.

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ASSIGNMENT OPERATORS

An assignment operator is used for assigning a value to a variable. The most common assignment operator is =

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ASSIGNMENT OPERATORS

Operator	Example	Same as
=	a = b	a = b
+=	a += b	a = a+b
-=	a -= b	a = a-b
*=	a *= b	a = a*b
/=	a /= b	a = a/b
%=	a %= b	a = a%b

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RELATIONAL OPERATORS

A relational operator checks the relationship between two operands. If the relation is true, it returns 1; if the relation is false, it returns value 0.

Relational operators are used in decision making and loops.

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RELATIONAL OPERATORS

Operator	Meaning of Operator	Example
==	Equal to	`5 == 3` is evaluated to 0
>	Greater than	`5 > 3` is evaluated to 1
<	Less than	`5 < 3` is evaluated to 0
!=	Not equal to	`5 != 3` is evaluated to 1
>=	Greater than or equal to	`5 >= 3` is evaluated to 1
<=	Less than or equal to	`5 <= 3` is evaluated to 0

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LOGICAL OPERATORS

An expression containing logical operator returns either 0 or 1 depending upon whether expression results true or false. Logical operators are commonly used in decision making in C programming.

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LOGICAL OPERATORS

Operator	Meaning	Example
&&	Logical AND. True only if all operands are true	If c = 5 and d = 2 then, expression `((c==5) && (d>5))` equals to 0.
||	Logical OR. True only if either one operand is true	If c = 5 and d = 2 then, expression `((c==5) || (d>5))` equals to 1.
!	Logical NOT. True only if the operand is 0	If c = 5 then, expression `!(c==5)` equals to 0.

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BITWISE OPERATORS

During computation, mathematical operations like: addition, subtraction, multiplication, division, etc. are converted to bit-level which makes processing faster and saves power.

Bitwise operators are used in C programming to perform bit-level operations.

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BITWISE OPERATORS

Operators	Meaning of operators
&	Bitwise AND
|	Bitwise OR
^	Bitwise exclusive OR
~	Bitwise complement
<<	Shift left
>>	Shift right

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COMMA OPERATOR

Comma operators are used to link related expressions together. For example:

```
int a, c = 5, d;
```

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THE SIZE OF OPERATOR

The size of is a unary operator that returns the size of data (constants, variables, array, structure, etc.).

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References Link:

- https://www.w3schools.com/c/c_operators.php
- https://www.simplilearn.com/tutorials/c-tutorial/c-operators

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THANK YOU

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