POSTGRESQL - OPERATORS

What is an Operator in PostgreSQL?

An operator is a reserved word or a character used primarily in a PostgreSQL statement's WHERE clause to perform operation(s), such as comparisons and arithmetic operations.

Operators are used to specify conditions in a PostgreSQL statement and to serve as conjunctions for multiple conditions in a statement.

- Arithmetic operators
- Comparison operators
- Logical operators
- Bitwise operators

PostgreSQL Arithmetic Operators:

Assume variable **a** holds 2 and variable **b** holds 3, then:

Show Examples

Operator	Description	Example
+	Addition - Adds values on either side of the operator	a + b will give 5
-	Subtraction - Subtracts right hand operand from left hand operand	a - b will give -1
*	Multiplication - Multiplies values on either side of the operator	a * b will give 6
/	Division - Divides left hand operand by right hand operand	b / a will give 1
%	Modulus - Divides left hand operand by right hand operand and returns remainder	b % a will give 1
^	Exponentiation - This gives the exponent value of the right hand operand	a ^ b will give 8
|/	square root	|/ 25.0 will give 5
||/	Cube root	||/ 27.0 will give 3
!/	factorial	5 ! will give 120
!!	factorial (prefix operator)	!! 5 will give 120

PostgreSQL Comparison Operators:

Assume variable a holds 10 and variable b holds 20, then:

Show Examples

Operator	Description	Example
=	Checks if the values of two operands are equal or not, if yes then condition becomes true.	(a = b) is not true.
!=	Checks if the values of two operands are equal or not, if values are not equal then condition becomes true.	(a != b) is true.
<>	Checks if the values of two operands are equal or not, if values are not equal then condition becomes true.	(a <> b) is true.
>	Checks if the value of left operand is greater than the value of right operand, if yes then condition becomes true.	(a > b) is not true.
<	Checks if the value of left operand is less than the value of right operand, if yes then condition becomes true.	(a < b) is true.
>=	Checks if the value of left operand is greater than or equal to the value of right operand, if yes then condition becomes true.	(a >= b) is not true.
<=	Checks if the value of left operand is less than or equal to the value of right operand, if yes then condition becomes true.	(a <= b) is true.

PostgreSQL Logical Operators:

Here is a list of all the logical operators available in PostgresSQL.

Show Examples

Operator	Description
AND	The AND operator allows the existence of multiple conditions in a PostgresSQL statement's WHERE clause.
NOT	The NOT operator reverses the meaning of the logical operator with which it is used. Eg. NOT EXISTS, NOT BETWEEN, NOT IN etc. **This is negate operator.**
OR	The OR operator is used to combine multiple conditions in a PostgresSQL statement's WHERE clause.

PostgreSQL Bit String Operators:

Bitwise operator works on bits and perform bit by bit operation. The truth table for & and | is as follows:

p	q	p & q	p | q
0	0	0	0
0	1	0	1
1	1	1	1
1	0	0	1

Assume if A = 60; and B = 13; now in binary format they will be as follows:

A = 0011 1100

B = 0000 1101

A&B = 0000 1100

A|B = 0011 1101

~A = 1100 0011

The Bitwise operators supported by PostgreSQL are listed in the following table. Assume variable A holds 60 and variable B holds 13 then:

Show Examples

Operator	Description	Example
&	Binary AND Operator copies a bit to the result if it exists in both operands.	(A & B) will give 12 which is 0000 1100
|	Binary OR Operator copies a bit if it exists in either operand.	(A | B) will give 61 which is 0011 1101
~	Binary Ones Complement Operator is unary and has the effect of 'flipping' bits.	(~A) will give -61 which is 1100 0011 in 2's complement form due to a signed binary number.
<<	Binary Left Shift Operator. The left operands value is moved left by the number of bits specified by the right operand.	A << 2 will give 240 which is 1111 0000
>>	Binary Right Shift Operator. The left operands value is moved right by the number of bits specified by the right operand.	A >> 2 will give 15 which is 0000 1111
#	bitwise XOR.	A # B will give 49 which is 0100 1001