

SQL NULL

COMS10012 Software Tools

Two meanings of NULL

1. NULL: missing value

(someone didn't provide their name, but they do have one)

2. NULL: not applicable

(car registration, for someone who doesn't have a car)

Logic

x	y	$x \wedge y$	$x \vee y$	$x \rightarrow y$	$\neg x$
0	0	0	0	1	1
0	1	0	1	1	1
1	0	0	1	0	0
1	1	1	1	1	0

Short-circuit evaluation

$$0 \wedge y = 0$$

$$1 \vee y = 1$$

These do not depend on the value of y .

3-valued logic

\wedge	0	1	NULL
0	0	0	?
1	0	1	?
NULL	?	?	?

3-valued logic

\wedge	0	1	NULL
0	0	0	0
1	0	1	NULL
NULL	0	NULL	NULL

NOT NULL

x	$\neg x$
0	1
1	0
NULL	NULL

NOT NULL = NULL (!)

Comparing to NULL

The following all evaluate to NULL:

NULL > x for all x

NULL = NULL also **NULL <> NULL**

x > 1 OR x <= 1 where x = NULL

WHERE only returns rows where the condition evaluates to 1. NULL is not 1.

IS [NOT] NULL

`<condition> ::= ...`
`| <item> IS [NOT] NULL`

x	x IS NULL	x IS NOT NULL
0	0	1
1	0	1
NULL	1	0

Working with NULLs

3 rules for working with NULLs:

1. Know if the value you're working with could be NULL.
2. If a column should not contain NULLs, declare it NOT NULL.
3. If something could be NULL, always consider the IS NULL case.