

LAB - NULL

In this lab, you will learn about `NULL` and three-valued logic in SQL Server. You will also learn how to use `IS NULL` and `IS NOT NULL` operators to test whether a value is `NULL` or not.

NULL and three-valued logic

In the database world, `NULL` is used to indicate the absence of any data value. For example, at the time of recording the customer information, the email may be unknown, so it is recorded as `NULL` in the database.

Normally, the result of a logical expression is `TRUE` or `FALSE`. However, when `NULL` is involved in the logical evaluation, the result is `UNKNOWN`. This is called a three-valued logic: `TRUE`, `FALSE`, and `UNKNOWN`.

The results of the following comparisons are `UNKNOWN`:

```
NULL = 0
NULL <> 0
NULL > 0
NULL = NULL
```

`NULL` is equal to nothing, even `NULL` is not equal to `NULL` because each `NULL` could be different.

IS NULL

See the following `customers` table

sales.customers	
* customer_id	
first_name	
last_name	
phone	
email	
street	
city	
state	
zip_code	

The following statement finds the customers who do not have phone number recorded in the `customers` table:

```

SELECT
    customer_id,
    first_name,
    last_name,
    phone
FROM
    sales.customers
WHERE
    phone = NULL
ORDER BY
    first_name,
    last_name;

```

The query returned an empty result set.

The `WHERE` clause returns rows that cause its predicate evaluates to `TRUE`. However, the following expression evaluates to `UNKNOWN`.

```
phone = NULL;
```

Therefore, you get an empty result set.

To test whether a value is `NULL` or not, you always use the `IS NULL` operator.

```

SELECT
    customer_id,
    first_name,
    last_name,
    phone
FROM
    sales.customers
WHERE
    phone IS NULL
ORDER BY
    first_name,
    last_name;
Code language: SQL (Structured Query Language) (sql)

```

customer_id	first_name	last_name	phone
338	Abbey	Pugh	NULL
75	Abby	Gamble	NULL
1224	Abram	Copeland	NULL
673	Adam	Henderson	NULL
1085	Adam	Thomton	NULL
195	Addie	Hahn	NULL
1261	Adelaida	Hancock	NULL

The query returned the customers who do not have the phone information.

As you may guess, to check if a value is not `NULL`, you can use the `IS NOT NULL` operator.

The following query returns customers who have phone information:

```
SELECT
    customer_id,
    first_name,
    last_name,
    phone
FROM
    sales.customers
WHERE
    phone IS NOT NULL
ORDER BY
    first_name,
    last_name;
```

customer_id	first_name	last_name	phone
1174	Aaron	Knapp	(914) 402-4335
771	Agnes	Sims	(716) 780-9901
697	Alane	Mccarty	(619) 377-8586
442	Alane	Munoz	(914) 706-7576
1282	Alexis	Mack	(845) 707-6088
640	Allison	Nolan	(845) 276-5729
701	Alysia	Nicholson	(805) 493-7311
619	Ana	Palmer	(657) 323-8684
528	Angele	Schroeder	(845) 804-6312
975	Annis	Sanchez	(424) 352-6275

In this lab, you have learned about `NULL`, three-valued logic, and how to test whether a value is `NULL` or not.