PostgreSQL Tutorial

Using pgAdmin4

by Feni Ismiati

Background and Objective

PostgreSQL that is managed via pgAdmin 4, does not have a built-in limit on how long data is stored in your database. But Google BigQuery is cloud-based services which might have data retention policies or limitations based on your billing or usage tier. PostgreSQL gives us control over data retention through its configuration, queries, and management.

In PostgreSQL, we can manage data retention manually, using SQL commands and procedures to archive or delete data as needed. This flexibility allows to keep data for as long as we want, assuming there is sufficient storage resources.

However, you are responsible for setting up and managing any data retention policies or practices that you need. This tutorial explain how to setting up the database in PostgreSQL via pgAdmin 4.

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Table of Content

So, here are a few steps to save your database in PostgreSQL through pgAdmin 4

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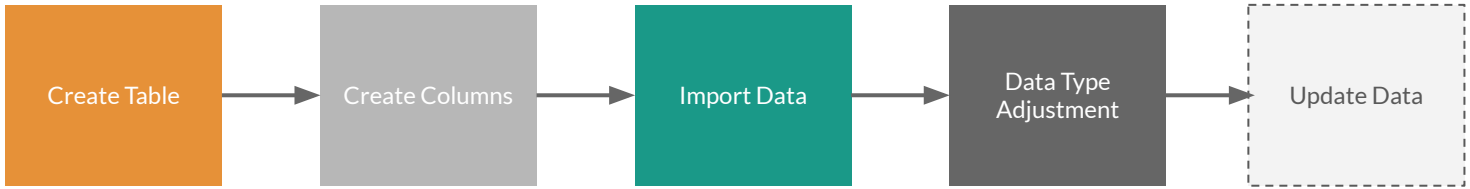
Flow Process



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Create Table & Columns

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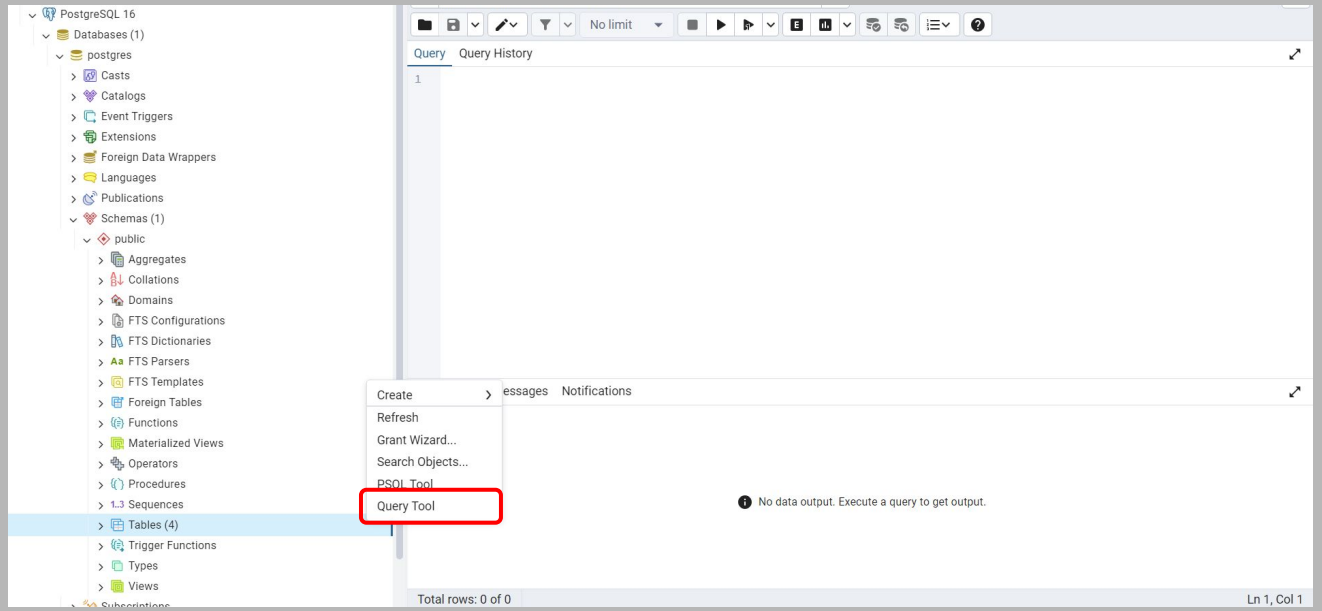

On the Tables section, click "Query Tool" to make the table and corresponding columns through SQL script

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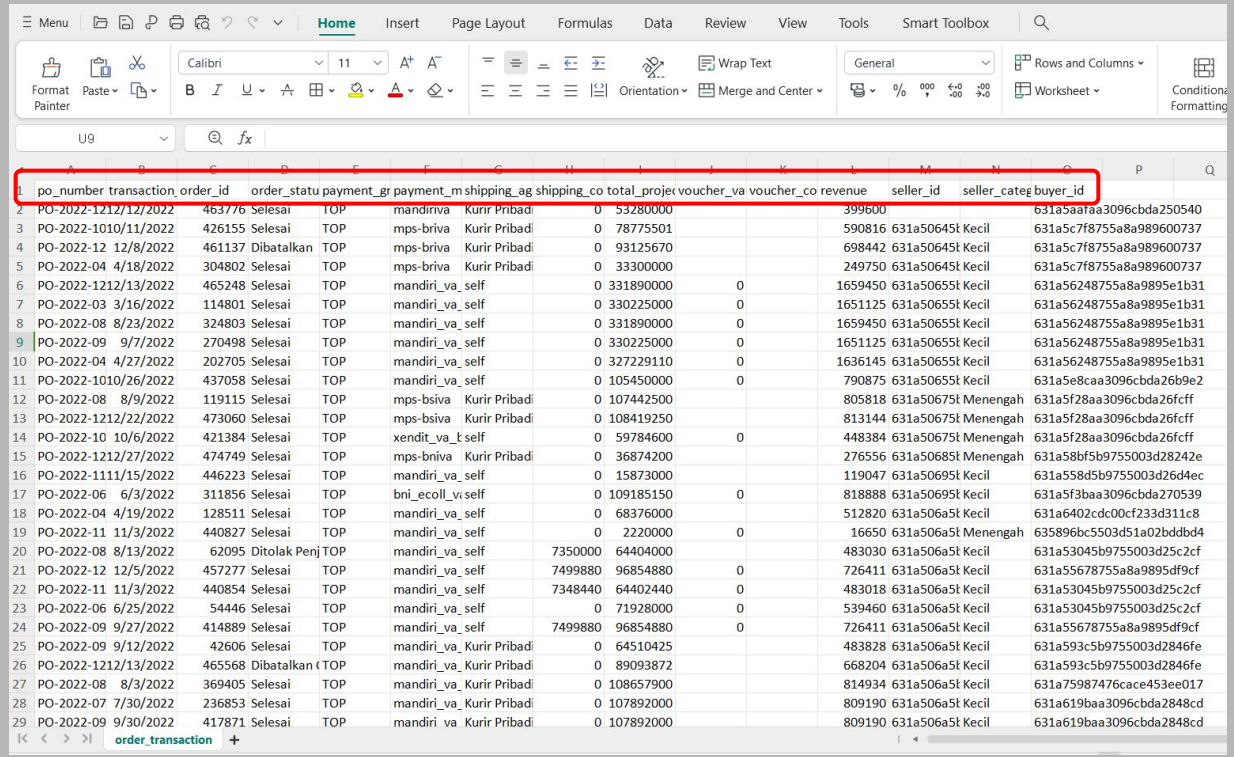

po_number	transaction_	order_id	order_statu	payment_gr	payment_m	shipping_ag	shipping_co	total_projec	voucher_va	voucher_co	revenue	seller_id	seller_categ	buyer_id
PO-2022-1212/12/2022		463776	Selesai	TOP	mandiriva	Kurir Pribadi	0	53280000			399600			631a5aafaa3096cbda250540
PO-2022-1010/11/2022		426155	Selesai	TOP	mps-briva	Kurir Pribadi	0	78775501			590816	631a50645t	Kecil	631a5c7f8755a8a989600737
PO-2022-12	12/8/2022	461137	Dibatalkan	TOP	mps-briva	Kurir Pribadi	0	93125670			698442	631a50645t	Kecil	631a5c7f8755a8a989600737
PO-2022-04	4/18/2022	304802	Selesai	TOP	mps-briva	Kurir Pribadi	0	33300000			249750	631a50645t	Kecil	631a5c7f8755a8a989600737
PO-2022-1212/13/2022		465248	Selesai	TOP	mandiri_va_	self	0	331890000	0		1659450	631a50655t	Kecil	631a56248755a8a9895e1b31
PO-2022-03	3/16/2022	114801	Selesai	TOP	mandiri_va_	self	0	330225000	0		1651125	631a50655t	Kecil	631a56248755a8a9895e1b31
PO-2022-08	8/23/2022	324803	Selesai	TOP	mandiri_va_	self	0	331890000	0		1659450	631a50655t	Kecil	631a56248755a8a9895e1b31
PO-2022-09	9/7/2022	270498	Selesai	TOP	mandiri_va_	self	0	330225000	0		1651125	631a50655t	Kecil	631a56248755a8a9895e1b31
PO-2022-04	4/27/2022	202705	Selesai	TOP	mandiri_va_	self	0	327229110	0		1636145	631a50655t	Kecil	631a56248755a8a9895e1b31
PO-2022-1010/26/2022		437058	Selesai	TOP	mandiri_va_	self	0	105450000	0		790875	631a50655t	Kecil	631a5e8caa3096cbda26b9e2
PO-2022-08	8/9/2022	119115	Selesai	TOP	mps-bsiva	Kurir Pribadi	0	107442500			805818	631a50675t	Menengah	631a5f28aa3096cbda26fcff
PO-2022-1212/22/2022		473060	Selesai	TOP	mps-bsiva	Kurir Pribadi	0	108419250			813144	631a50675t	Menengah	631a5f28aa3096cbda26fcff
PO-2022-10	10/6/2022	421384	Selesai	TOP	xendit_va_t	self	0	59784600	0		448384	631a50675t	Menengah	631a5f28aa3096cbda26fcff
PO-2022-1212/27/2022		474749	Selesai	TOP	mps-bniva	Kurir Pribadi	0	36874200			276556	631a50685t	Menengah	631a58bf5b9755003d28242e
PO-2022-1111/15/2022		446223	Selesai	TOP	mandiri_va_	self	0	15873000			119047	631a50695t	Kecil	631a558d5b9755003d26d4ec
PO-2022-06	6/3/2022	311856	Selesai	TOP	bni_ecoll_v	self	0	109185150	0		818888	631a50695t	Kecil	631a5f3baa3096cbda270539
PO-2022-04	4/19/2022	128511	Selesai	TOP	mandiri_va_	self	0	68376000			512820	631a506a5t	Kecil	631a6402cdc00cf233d311c8
PO-2022-11	11/3/2022	440827	Selesai	TOP	mandiri_va_	self	0	2220000	0		16650	631a506a5t	Menengah	635896bc5503d51a02bddbd4
PO-2022-08	8/13/2022	62095	Ditolak Penj	TOP	mandiri_va_	self	7350000	64404000			483030	631a506a5t	Kecil	631a53045b9755003d25c2cf
PO-2022-12	12/5/2022	457277	Selesai	TOP	mandiri_va_	self	7499880	96854880	0		726411	631a506a5t	Kecil	631a55678755a8a9895df9cf
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PO-2022-06	6/25/2022	54446	Selesai	TOP	mandiri_va_	self	0	71928000	0		539460	631a506a5t	Kecil	631a53045b9755003d25c2cf
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PO-2022-09	9/12/2022	42606	Selesai	TOP	mandiri_va_	Kurir Pribadi	0	64510425			483828	631a506a5t	Kecil	631a593c5b9755003d2846fe
PO-2022-1212/13/2022		465568	Dibatalkan (	TOP	mandiri_va_	Kurir Pribadi	0	89093872			668204	631a506a5t	Kecil	631a593c5b9755003d2846fe
PO-2022-08	8/3/2022	369405	Selesai	TOP	mandiri_va_	Kurir Pribadi	0	108657900			814934	631a506a5t	Kecil	631a75987476cace453ee017
PO-2022-07	7/30/2022	236853	Selesai	TOP	mandiri_va_	Kurir Pribadi	0	107892000			809190	631a506a5t	Kecil	631a619baa3096cbda2848cd
PO-2022-09	9/30/2022	417871	Selesai	TOP	mandiri_va_	Kurir Pribadi	0	107892000			809190	631a506a5t	Kecil	631a619baa3096cbda2848cd

Checking all the columns in the data to insert the column name in query, including the data type

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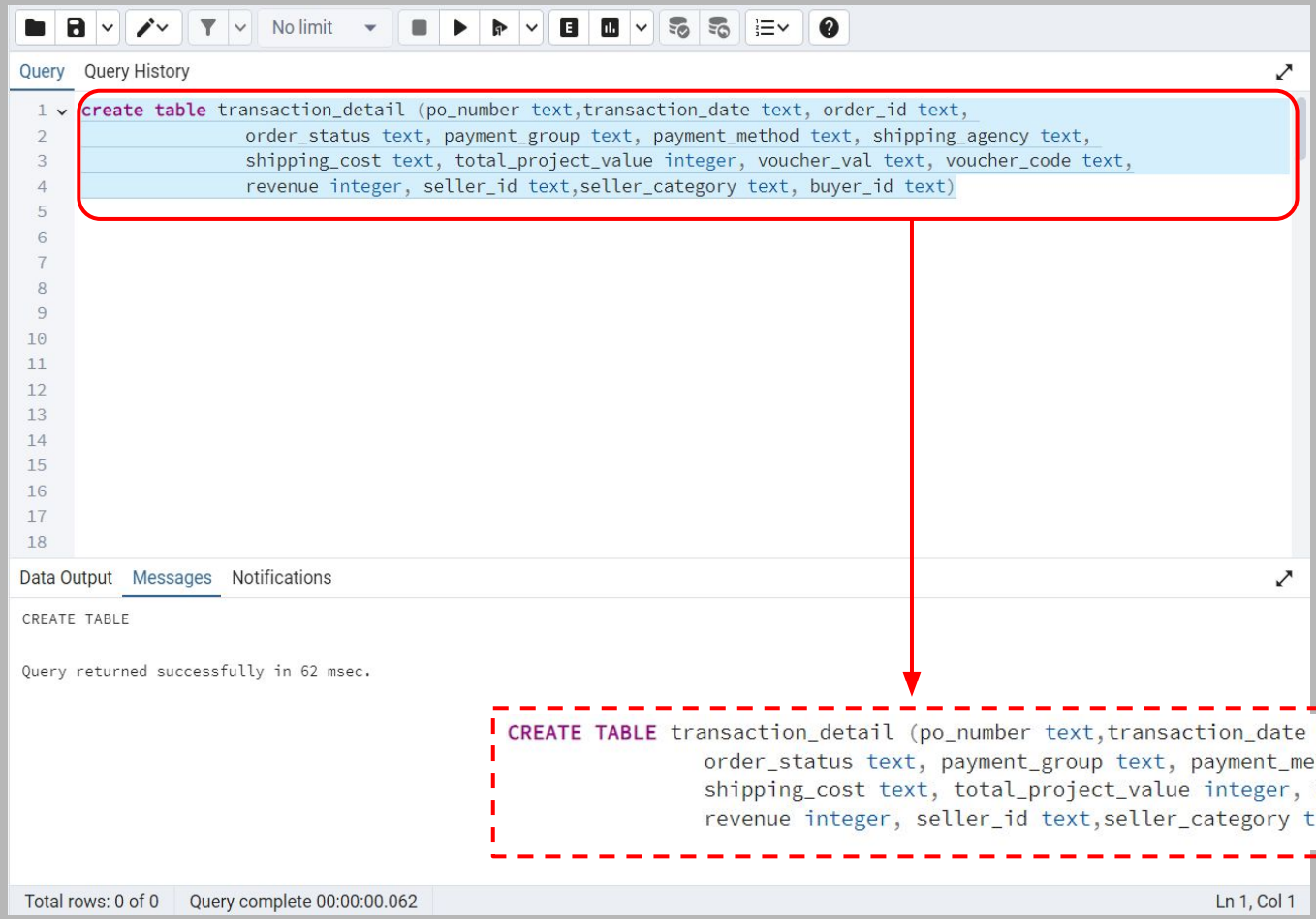

Copy and paste all the column name in query + the data type, then run the query

```
CREATE TABLE transaction_detail (po_number text,transaction_date text, order_id text,
                order_status text, payment_group text, payment_method text, shipping_agency text,
                shipping_cost text, total_project_value integer, voucher_val text, voucher_code text,
                revenue integer, seller_id text,seller_category text, buyer_id text)
```

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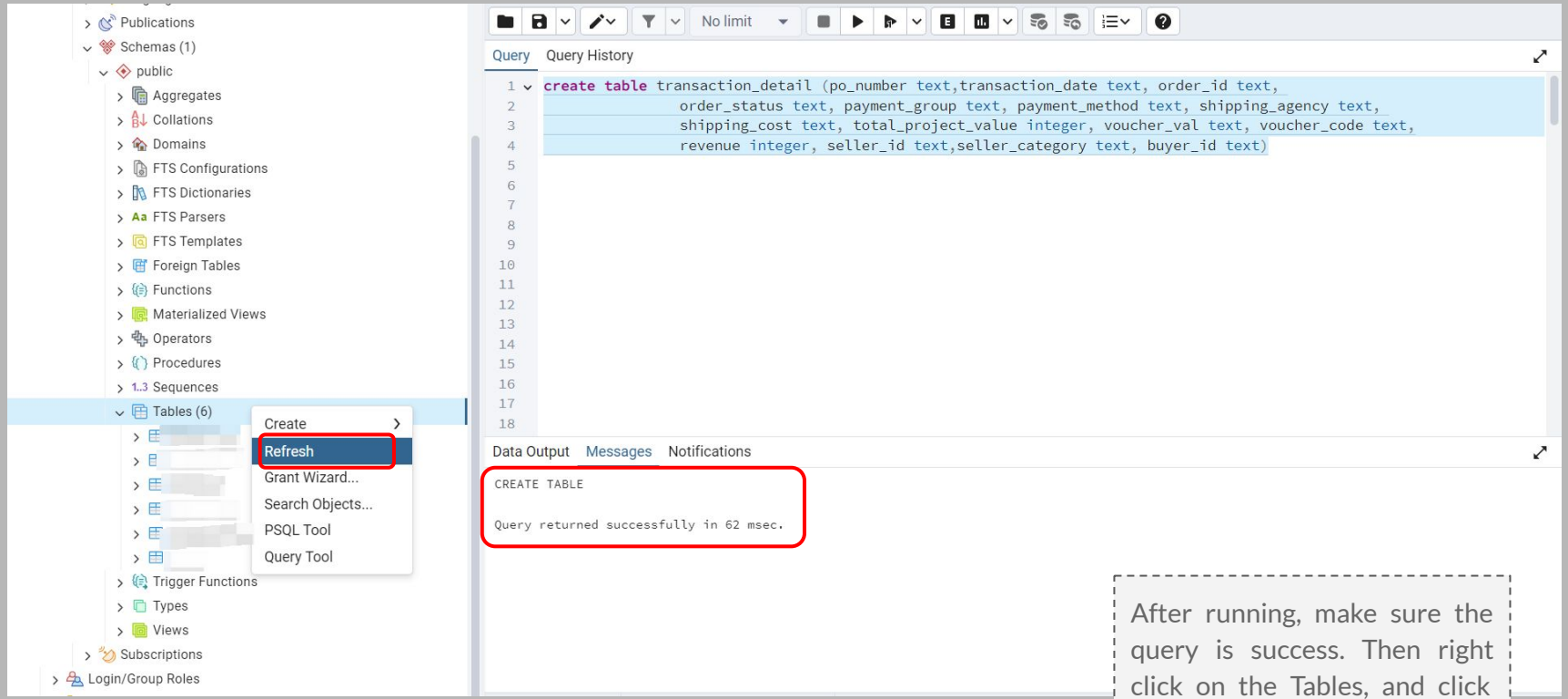

After running, make sure the query is success. Then right click on the Tables, and click “Refresh” to show the new table

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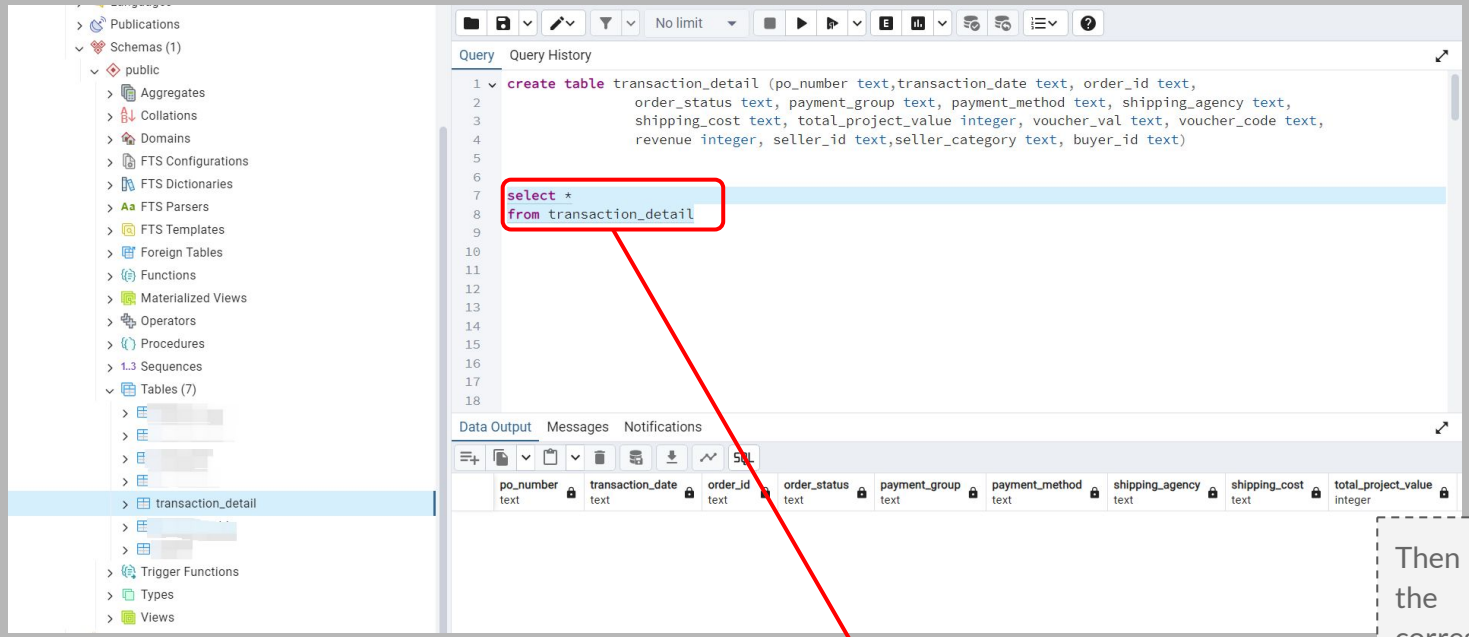
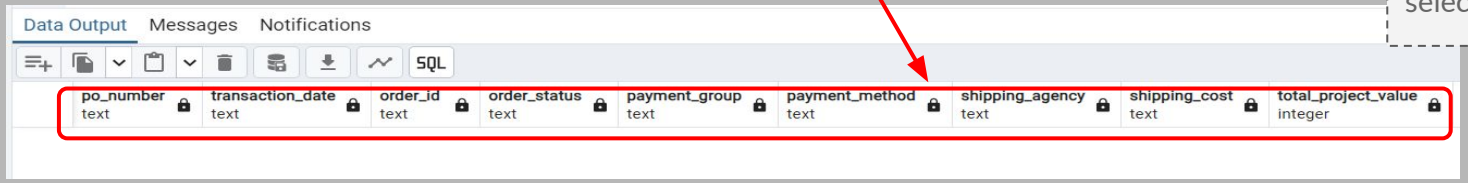


Then run the script to show all the columns in the corresponding table using select syntax



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Import Data

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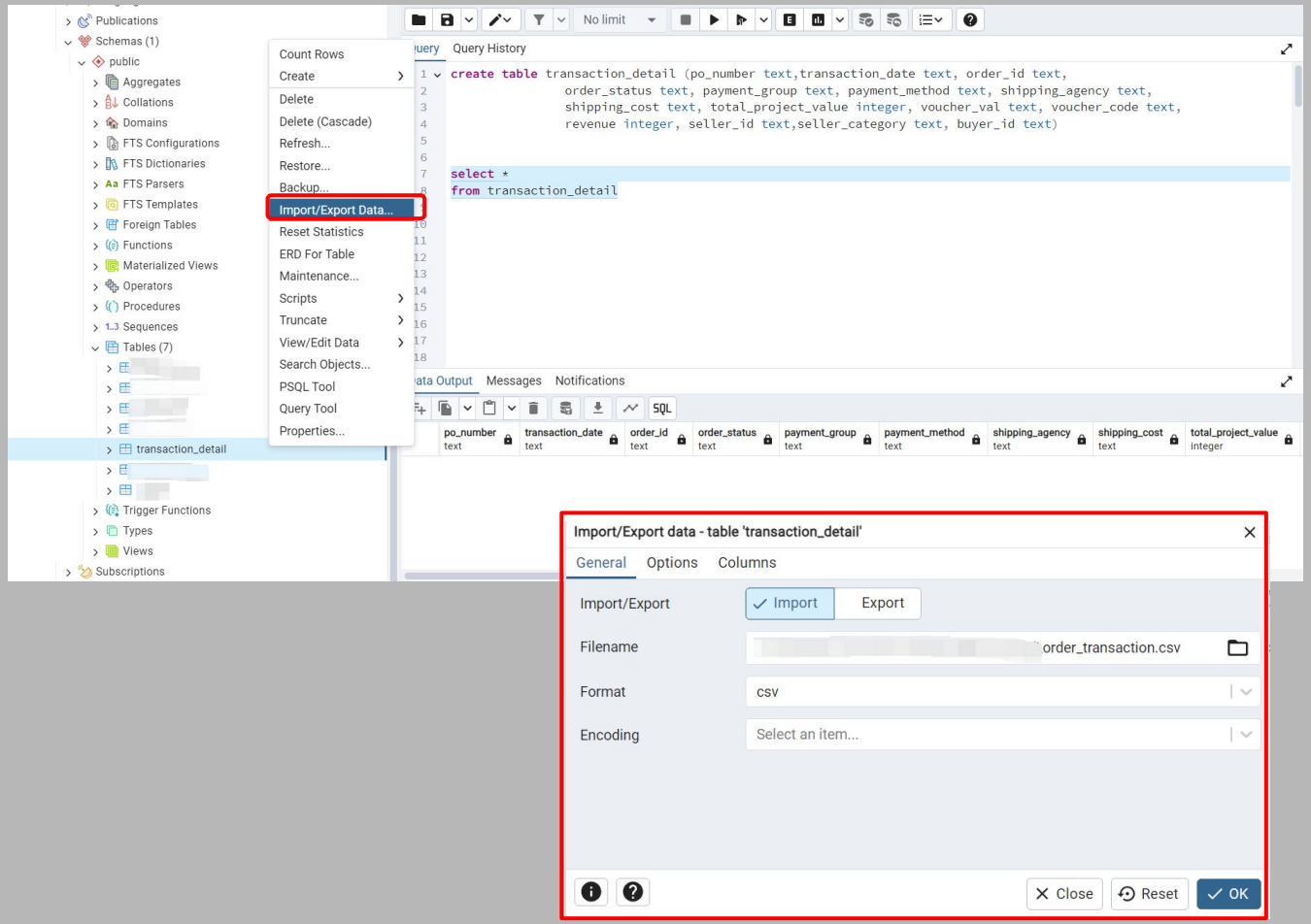

The create table syntax is only to create the table including the corresponding columns. After that, we still need to import dataset on the columns in csv format. So the step is click the **"Import/Export Data"** and import the csv file from your computer.

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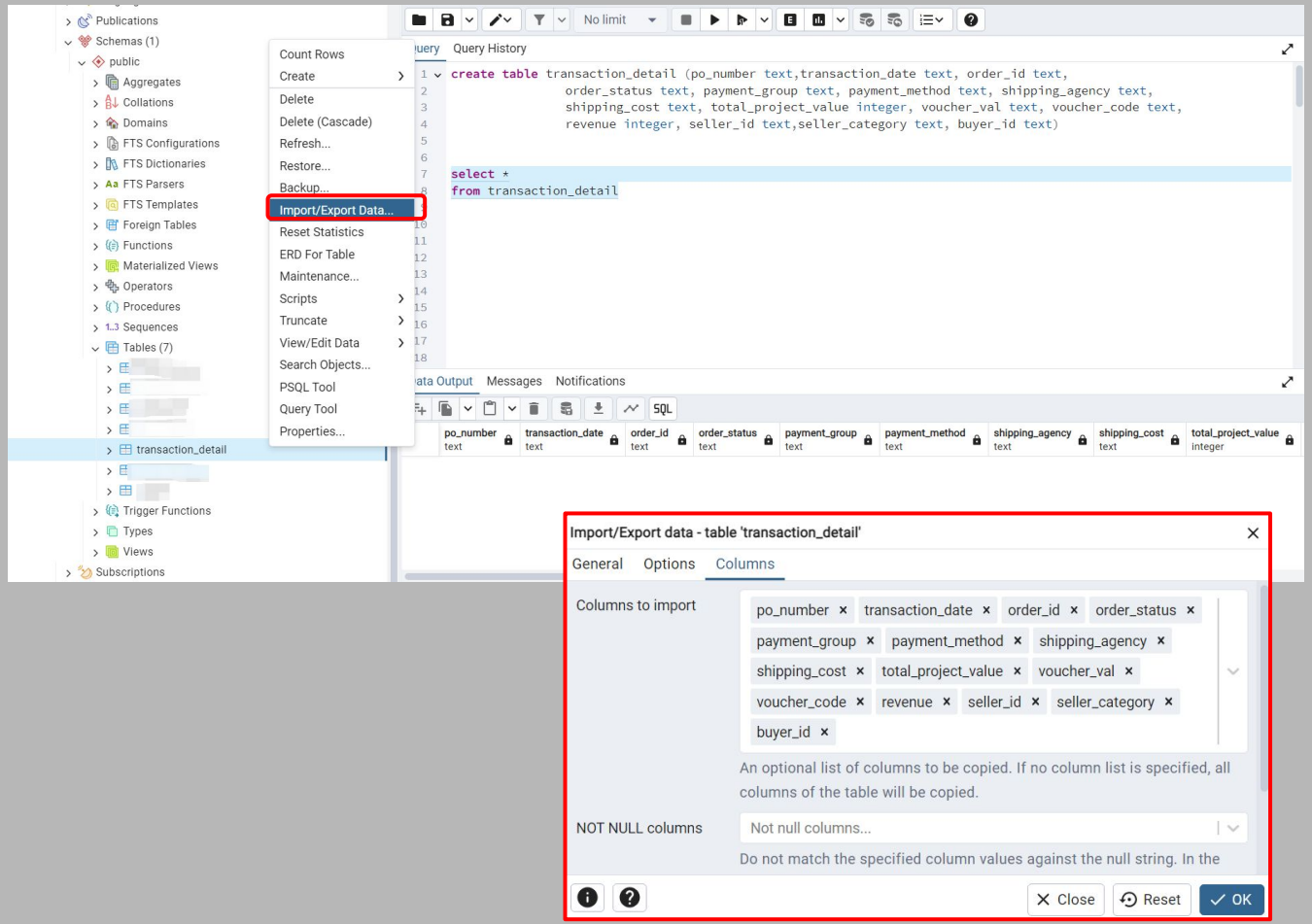

Before clicking “OK”, check the “Columns” section to ensure that all the columns needed are already match. Then click “OK”

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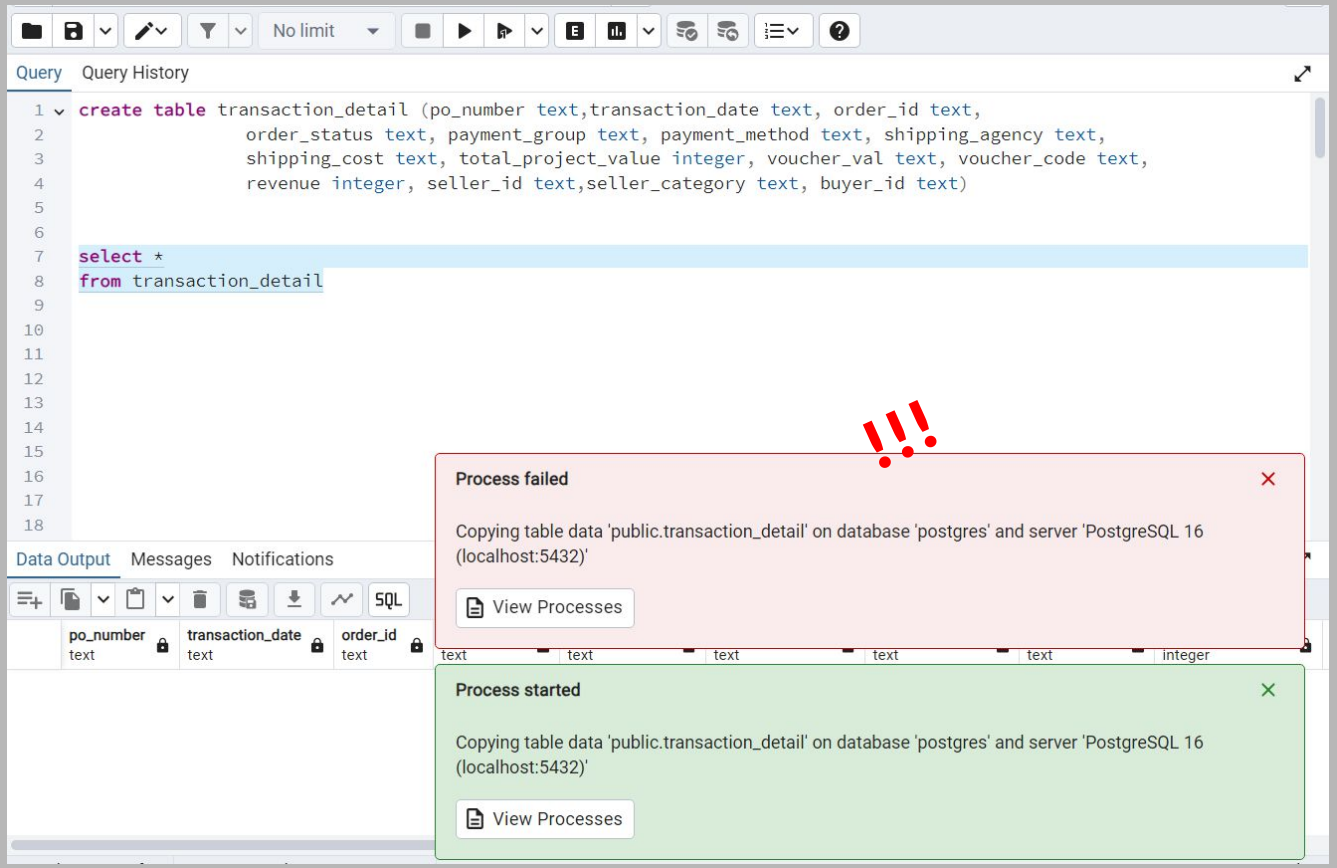

Check the process result, if the process failed, we should checking the reason by clicking **“View Processes”**

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Data Type Adjustment

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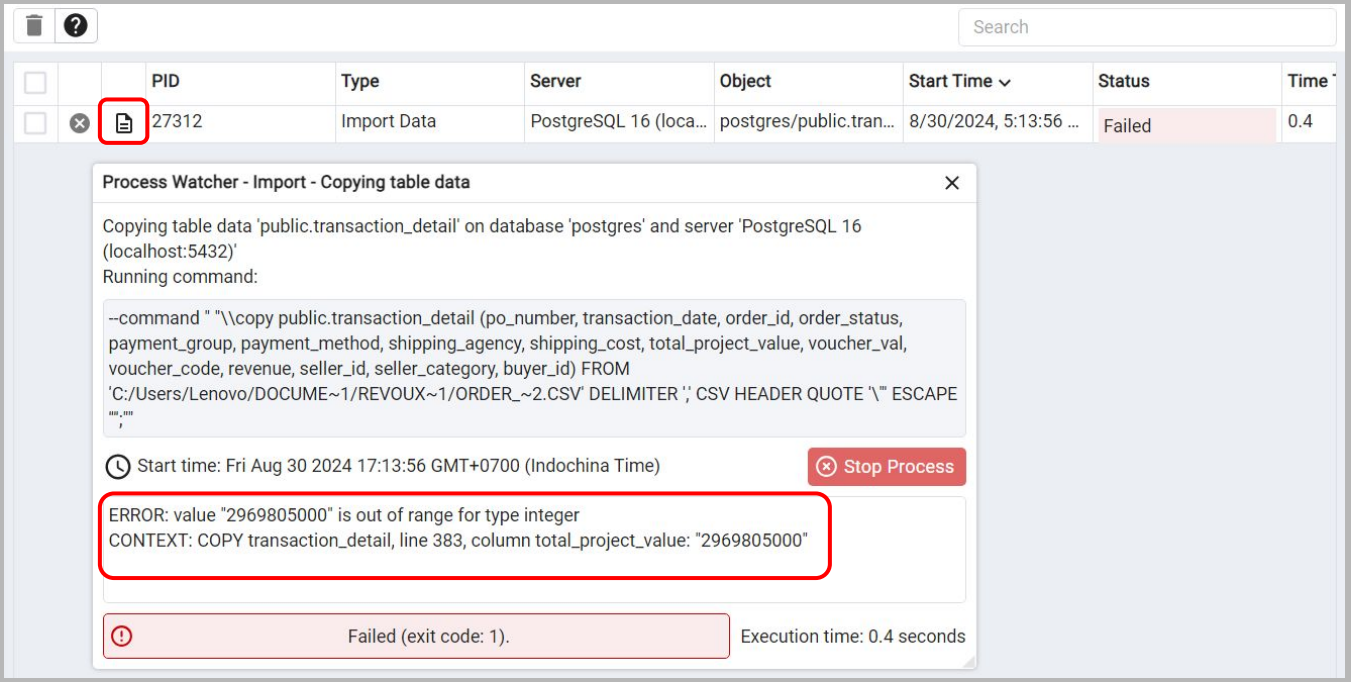

Click on the file icon to see the error details. In the error prompt it mentioned that the one value in the data 2,969,805,000 which is out of range for type integer

SOLUTION!

The “total_project_value” column needs to store larger values, we should change data type to **bigint**. Because **bigint** type can hold values from -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807.

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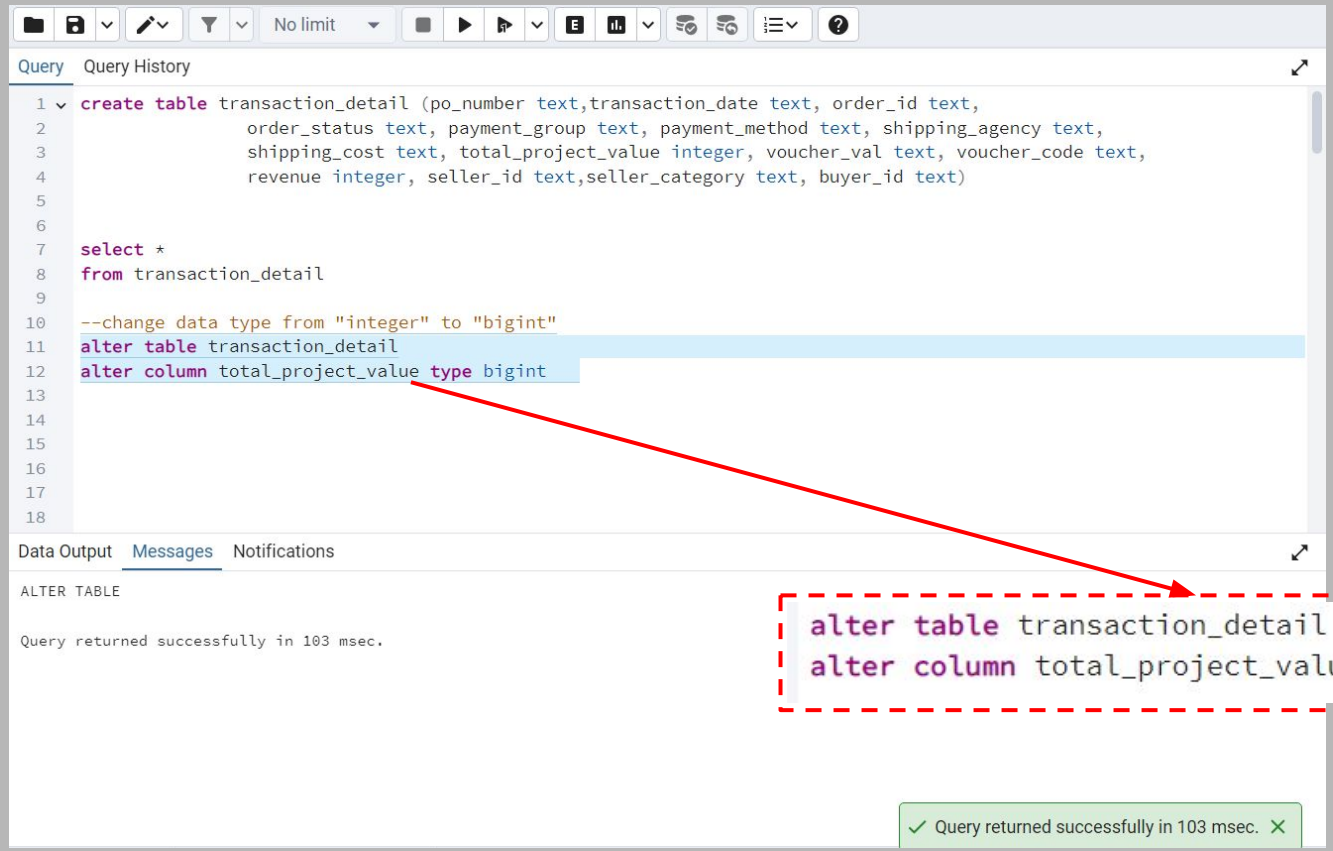

Run the script to change the data type from integer to bigint

```
alter table transaction_detail
alter column total_project_value type bigint
```

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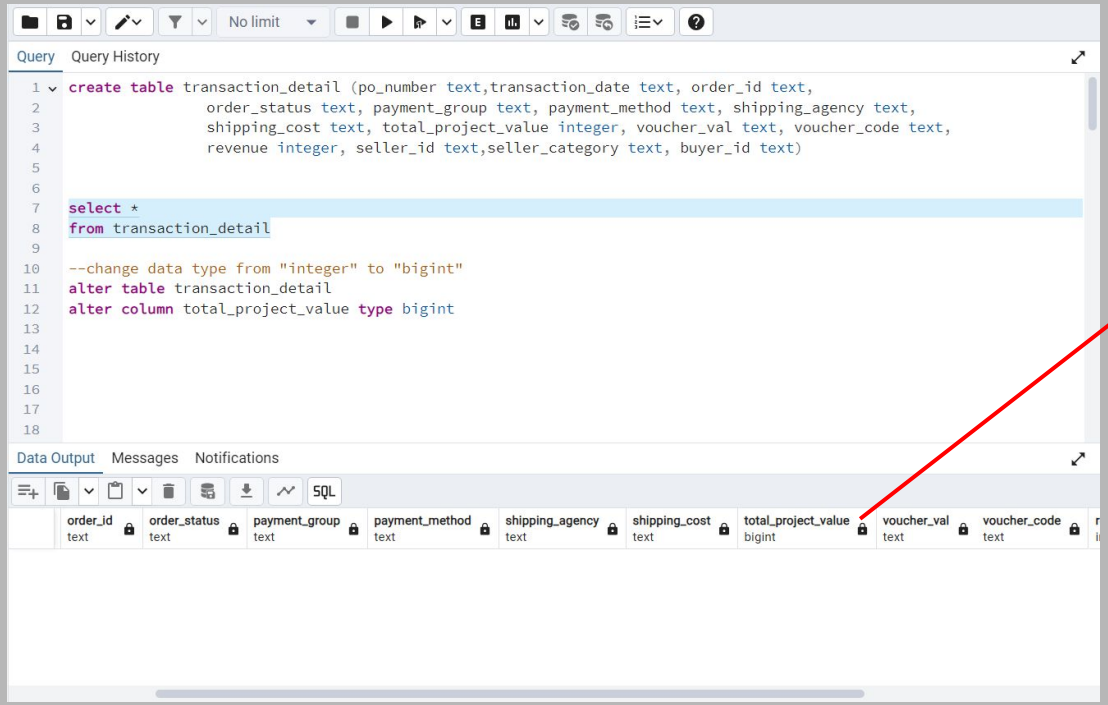
			PID	Type	Server	Object	Start Time	Status	Time
☐	⊗	📄	11832	Import Data	PostgreSQL 16 (loca...	postgres/public.tran...	8/30/2024, 5:37:40 ...	Finished	0.94
☐	⊗	📄	27312	Import Data	PostgreSQL 16 (loca...	postgres/public.tran...	8/30/2024, 5:13:56 ...	Failed	0.4



The “total_project_value” data type is already in **bigint** type

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Date Format Adjustment

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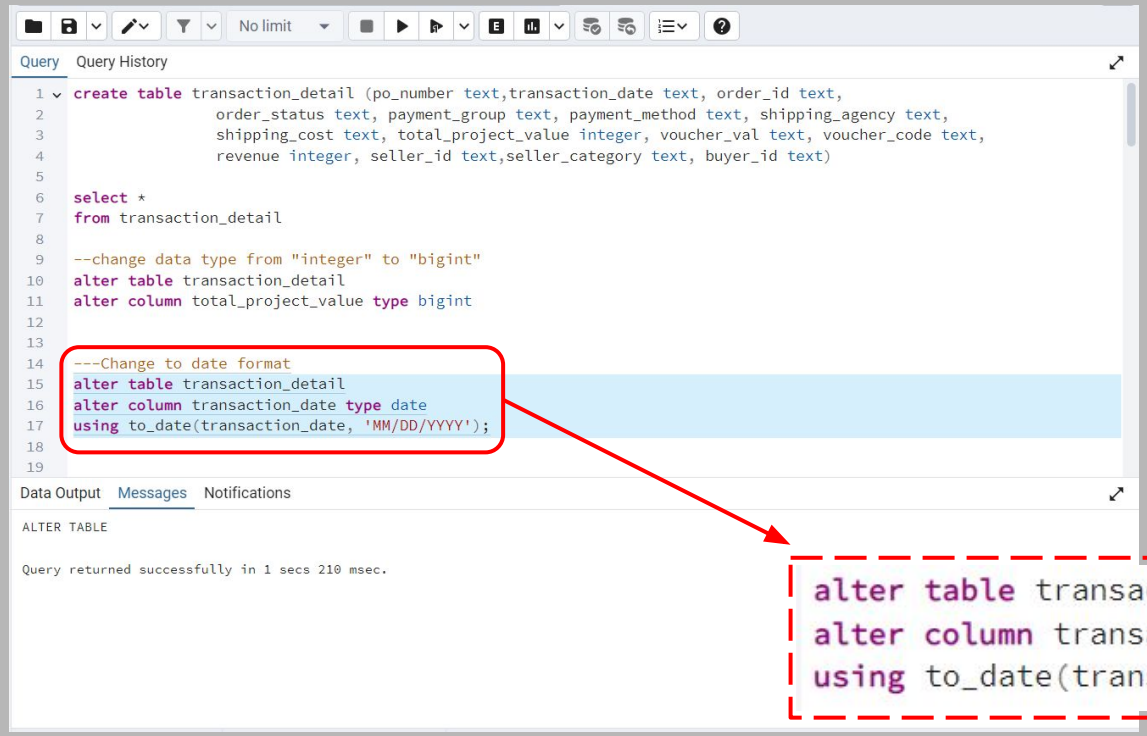
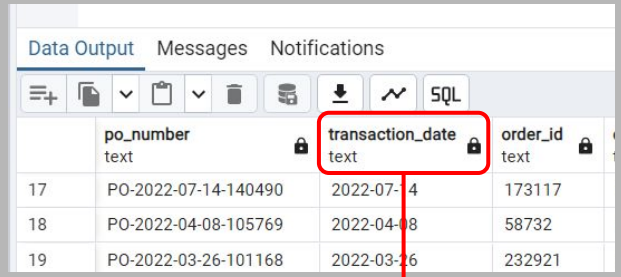
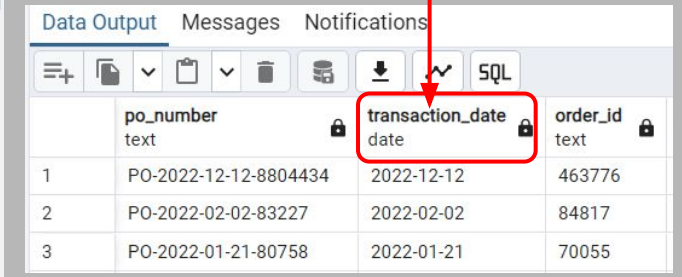
Change the data type from **“text”** to **“date”**. In this case, **“MM/DD/YYYY”** is used for format date








```
alter table transaction_detail
alter column transaction_date type date
using to_date(transaction_date, 'MM/DD/YYYY');
```

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Update Data

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There are 2 types of updating data:

1. **Add a new data records**

   Adding new data records in the existing columns by importing the CSV file into a temporary or staging table that has the same structure / columns as the main table

2. **Adjust the existing data**

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1. Add a new data records

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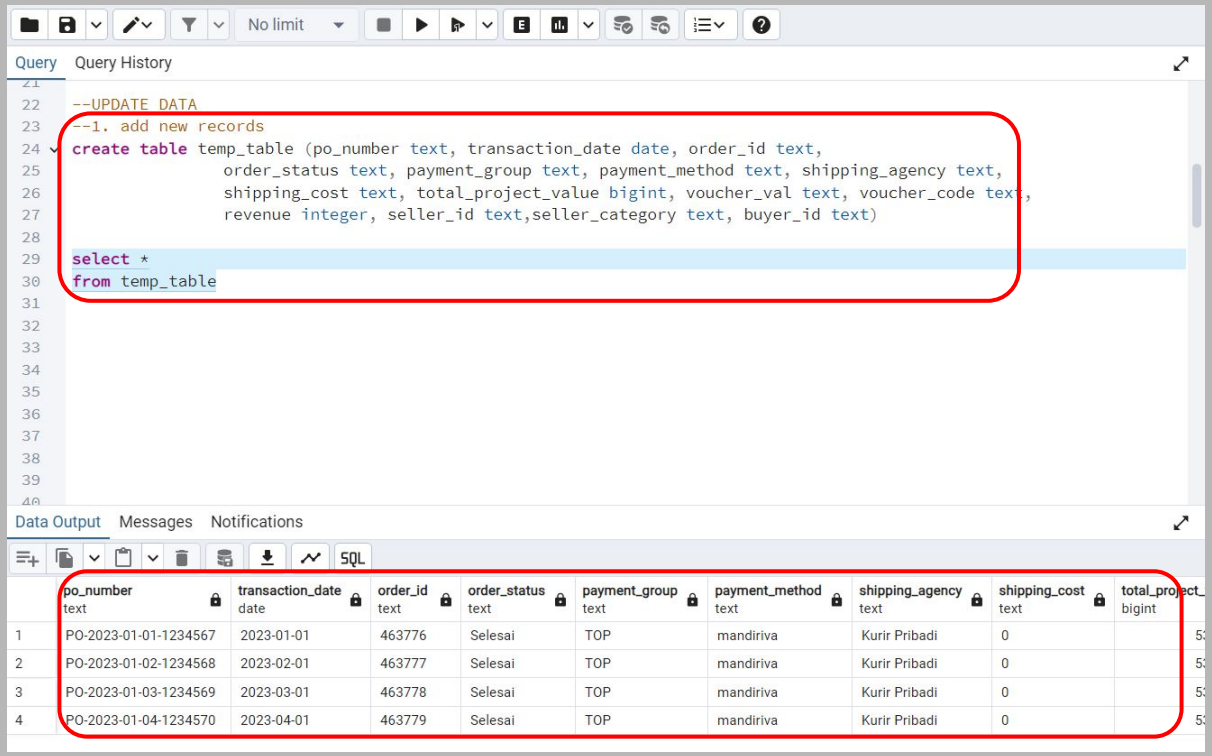

In this case, create new table which contains the new records is needed by using create table script. Create the table by naming temporary table “temp_table” from the csv file that you wanted to add to main table. **Please note that the structure or columns must be same with the main table**

Repeat the step by importing the data, until the data are shown in the temporary table

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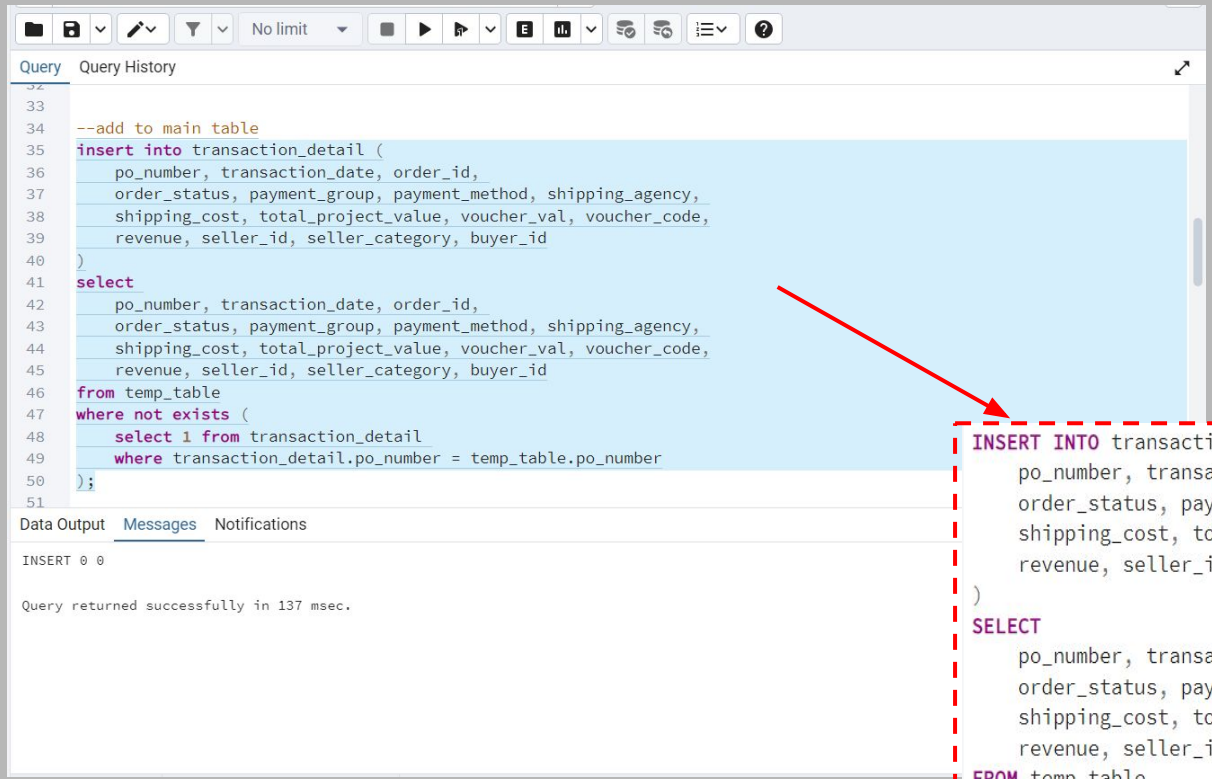

Update the main table using the data from the temporary table is depending on your needs, you might perform an "UPDATE", "INSERT", or "MERGE" operation. In this case, because we want to add new records to main table "transaction_detail", so we use "INSERT" operations.

```
INSERT INTO transaction_detail (
    po_number, transaction_date, order_id,
    order_status, payment_group, payment_method, shipping_agency,
    shipping_cost, total_project_value, voucher_val, voucher_code,
    revenue, seller_id, seller_category, buyer_id
)
SELECT
    po_number, transaction_date, order_id,
    order_status, payment_group, payment_method, shipping_agency,
    shipping_cost, total_project_value, voucher_val, voucher_code,
    revenue, seller_id, seller_category, buyer_id
FROM temp_table
WHERE NOT EXISTS (
    SELECT 1 FROM transaction_detail
    WHERE transaction_detail.po_number = temp_table.po_number
);
```

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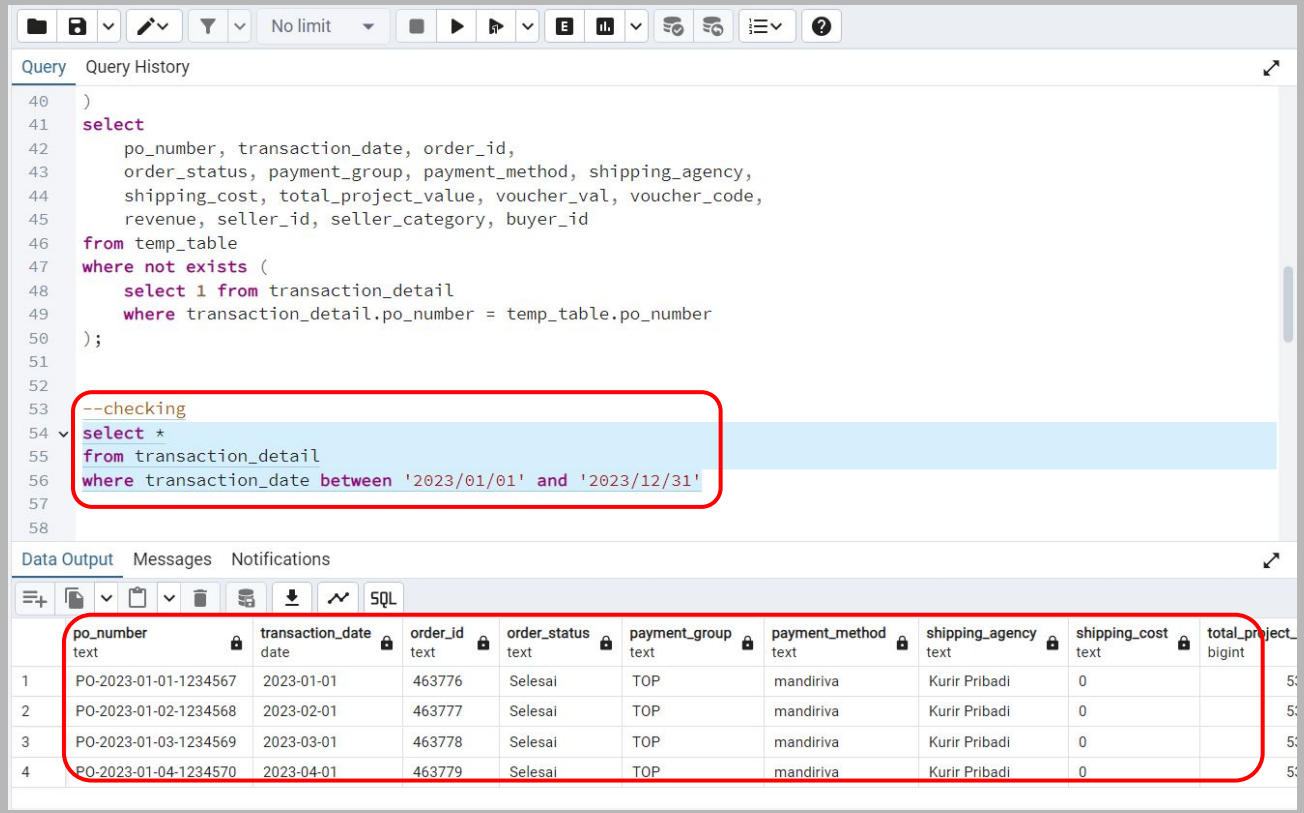

After the operation is success, checking the “transaction_detail” is needed to see whether the new records has already been added

As of the new records are the transaction date on 2023, then we will use the script “WHERE” the transaction date was made from January to December 2023

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2. Adjust the existing data

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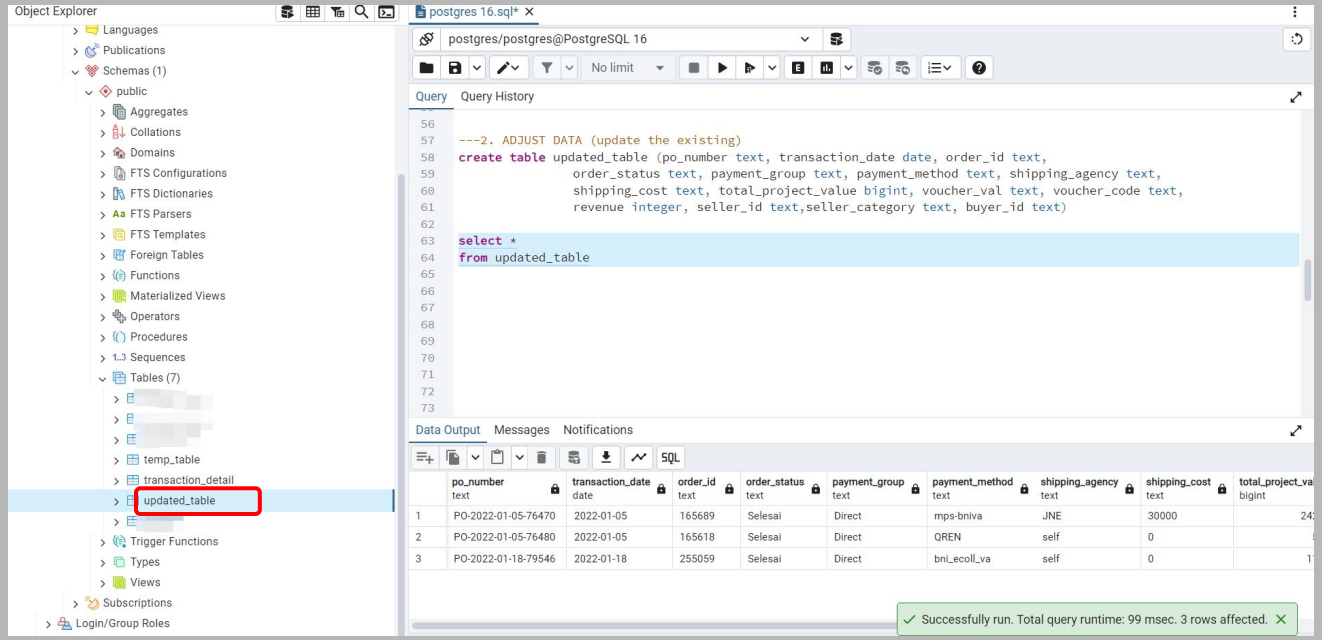

OBJECTIVE

In [redacted] trying update the data from **updated_table** to main table (**transaction_detail**) which contains the updated value in column **order_status** from "Permintaan Perubahan" to "Selesai" in January 2022.

The steps have similar process, first you need to create a new table and import the updated data

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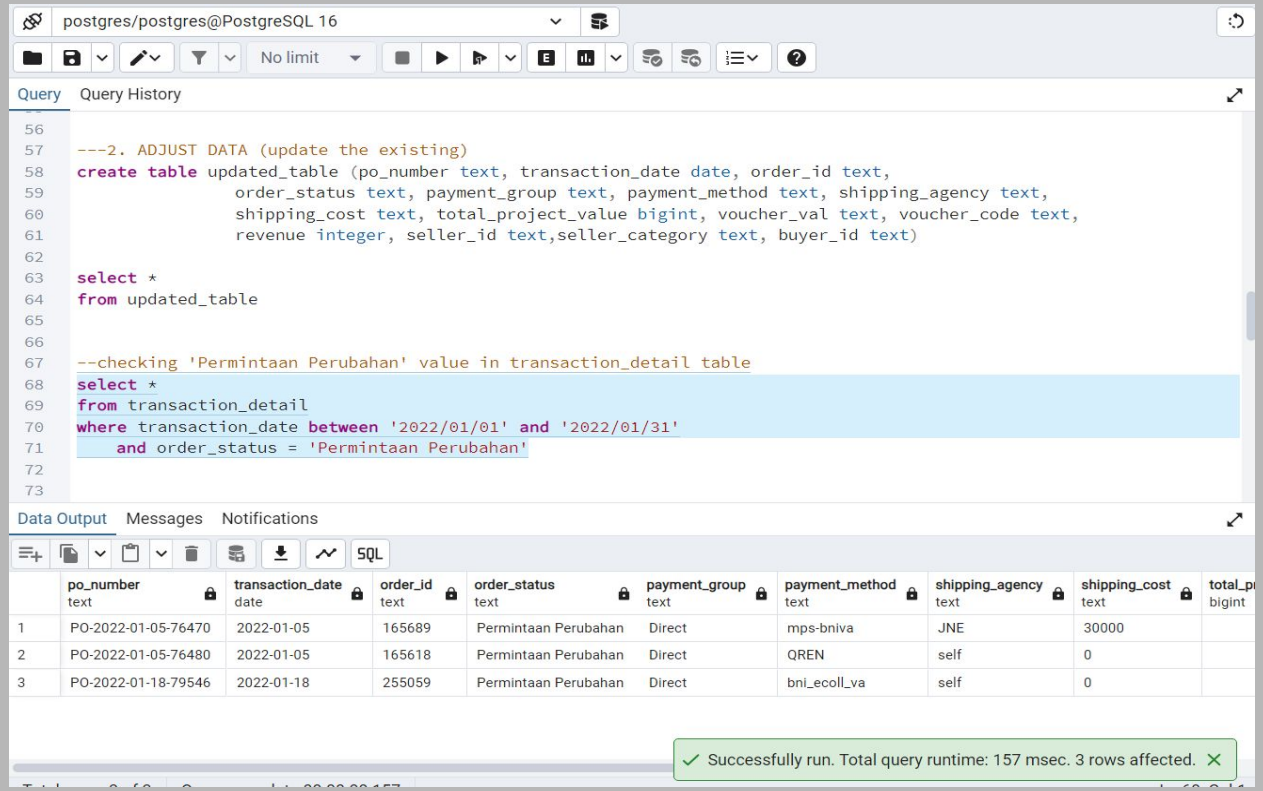

In main table “transaction_detail”, there are 3 values of ‘Permintaan Perubahan’ in order_status column, in January 2022

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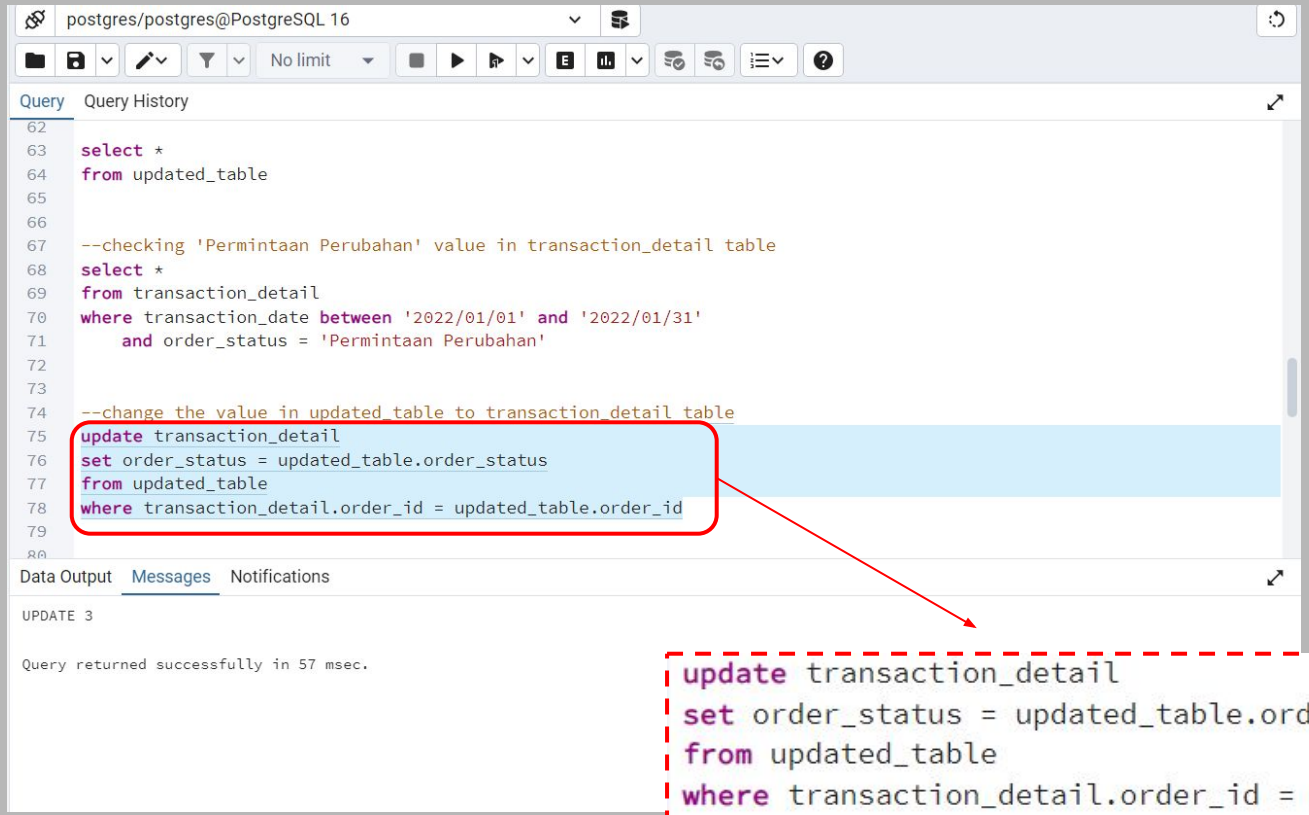

Update the value in updated_table to transaction detail, by running the following syntax

```
update transaction_detail
set order_status = updated_table.order_status
from updated_table
where transaction_detail.order_id = updated_table.order_id
```

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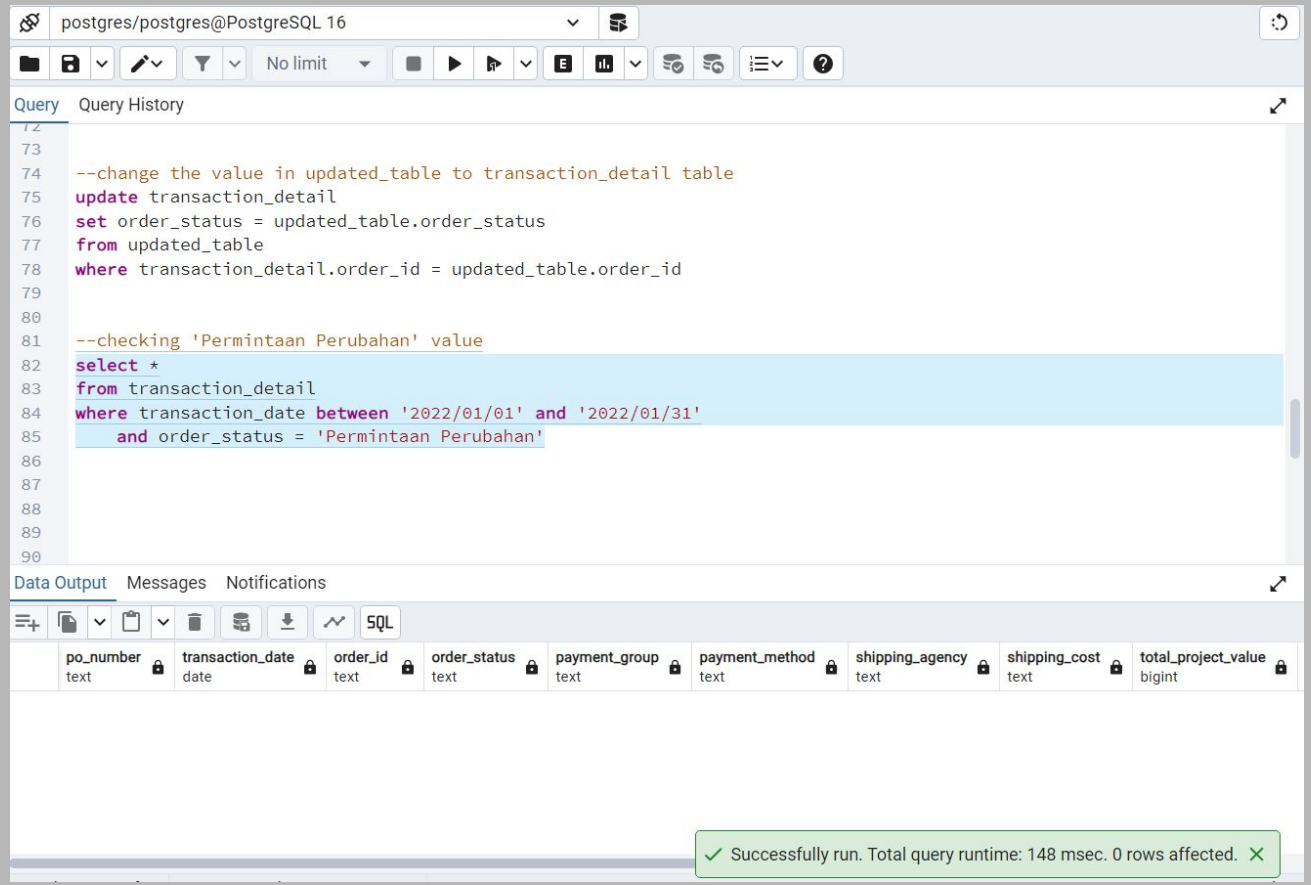

Run the syntax to check if there is still ‘Permintaan Perubahan’ value. The result shows that there is no value of ‘Permintaan Perubahan’ in the January 2022

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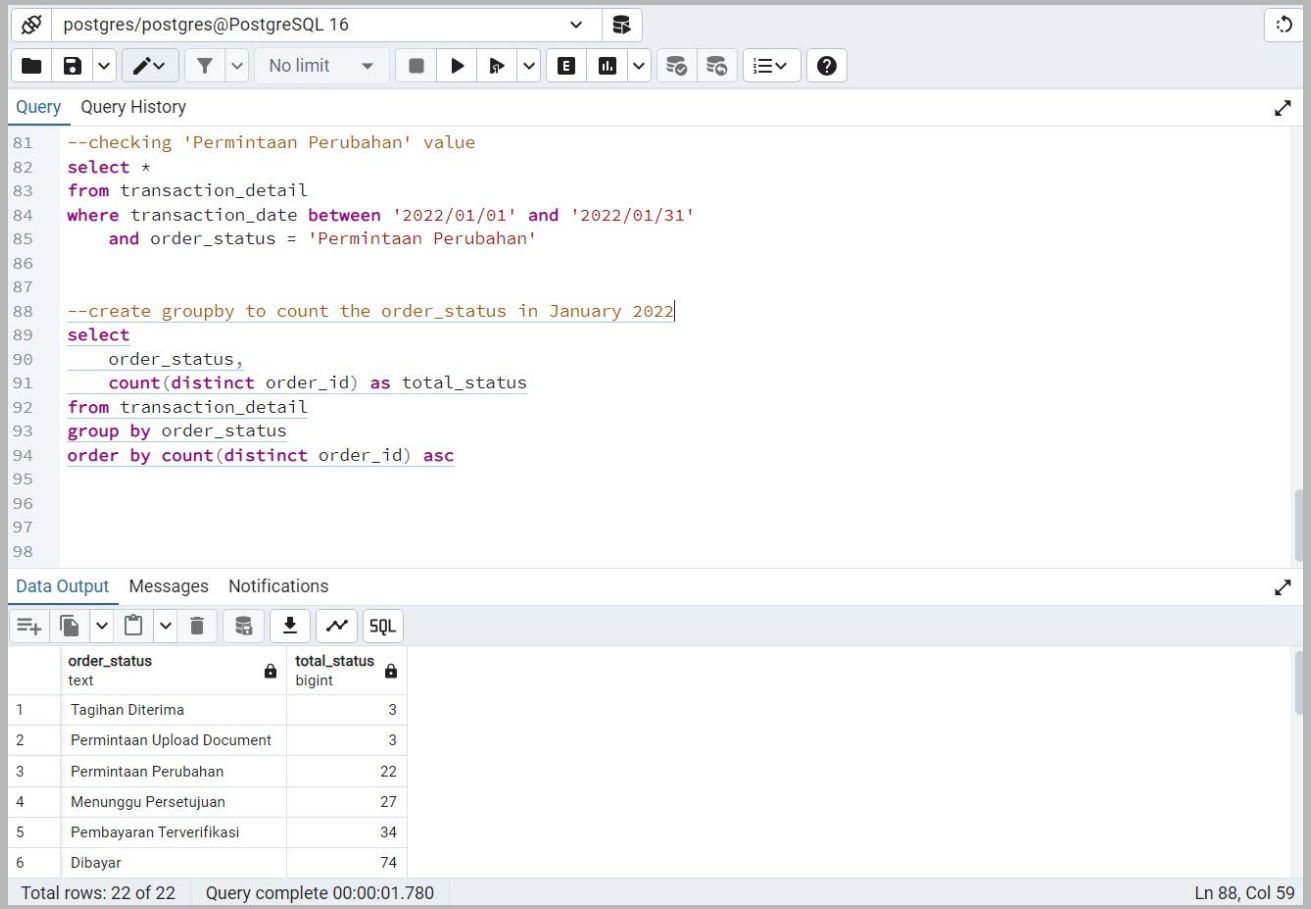

Double checking with group by function. The result shows that there is no 'Permintaan Perubahan' value in the order_status column. Sort by ascending value

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THANK YOU!

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