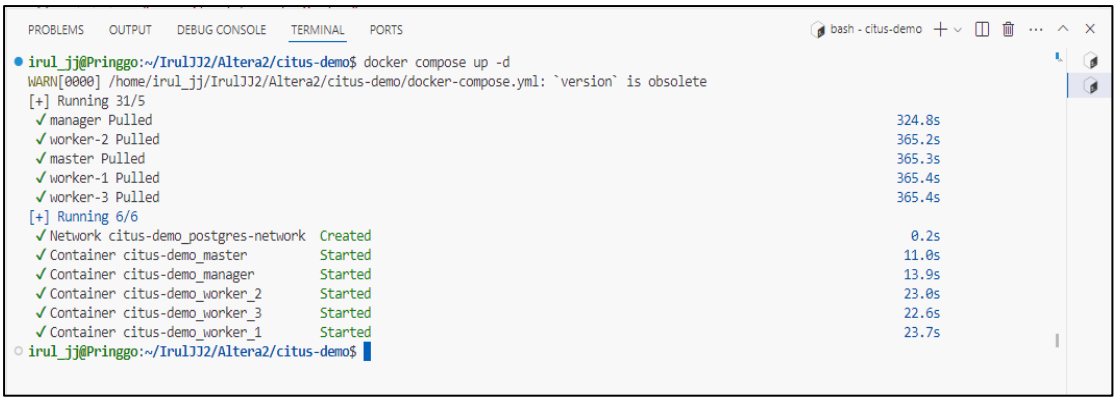
DATA WAREHOUSE

PART 2 – Columnar Database

TASK

1. Jalankan Citus di komputer lokal dengan menggunakan docker compose!
   Jawab:



2. Tuliskan perintah untuk membuat :
   Jawab:
   a. Tabel biasa
      Jawab:

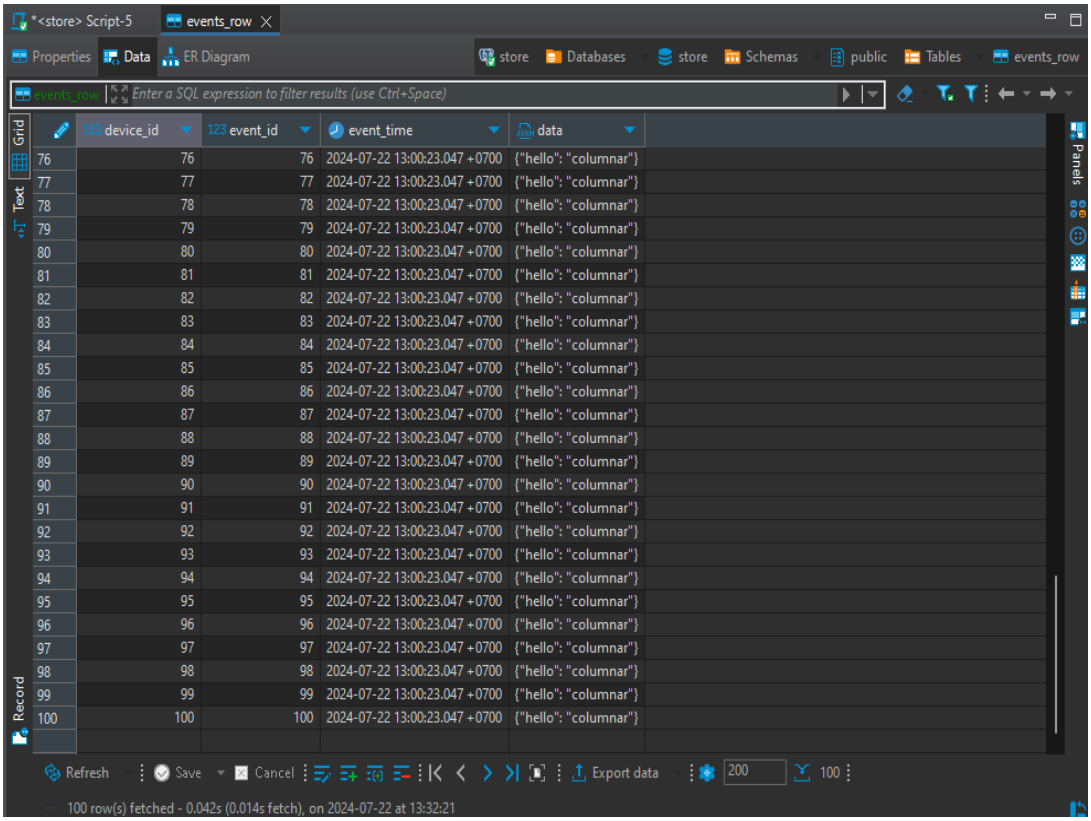
```
create table events_row as select * from events_columnar;
```

   b. Columnar tabel
      Jawab:

```
create table events_columnar (
    device_id bigint,
    event_id bigserial,
    evnet_time timestamptz default now (),
    data jsonb not null
)
using columnar;
```

3. Masukkan 100 baris data ke dalam tabel biasa dan tabel columnar!
   Jawab:
   a. Tabel biasa:

```
INSERT INTO events_row (device_id, event_id, event_time, data)
SELECT device_id, event_id, event_time, data FROM events_columnar;
```

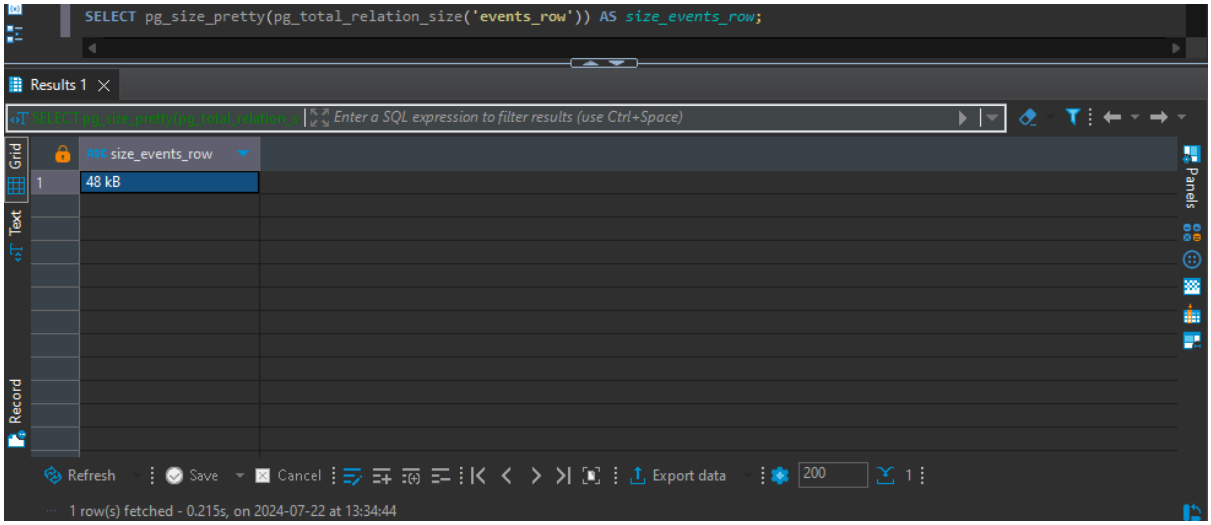


b. Tabel kolumnar:

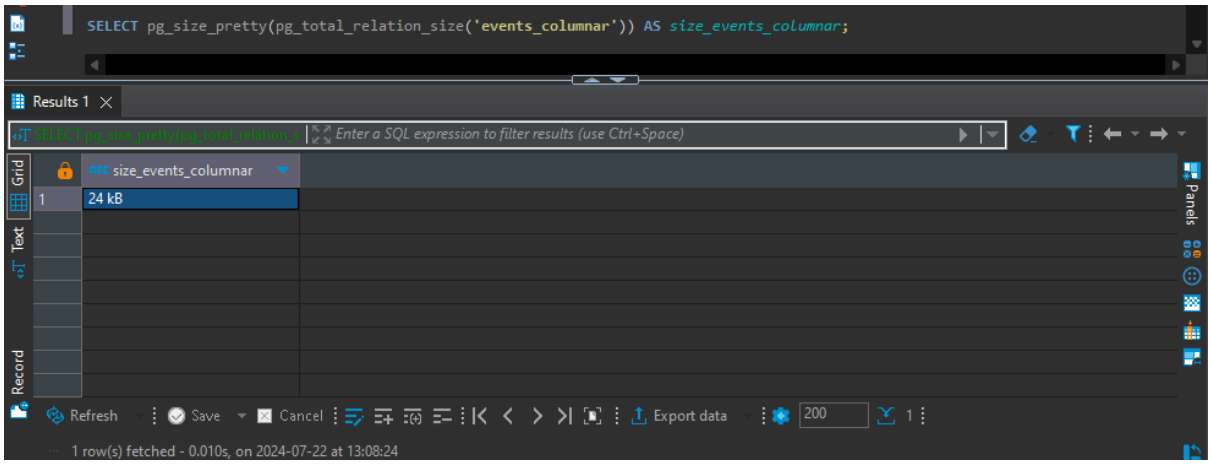
```
insert into events_columnar (device_id, data)
select d, '{"hello":"columnar"}' from generate_series(1,100) d;
```

	device_id	event_id	event_time	data
76	76	76	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
77	77	77	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
78	78	78	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
79	79	79	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
80	80	80	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
81	81	81	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
82	82	82	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
83	83	83	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
84	84	84	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
85	85	85	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
86	86	86	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
87	87	87	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
88	88	88	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
89	89	89	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
90	90	90	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
91	91	91	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
92	92	92	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
93	93	93	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
94	94	94	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
95	95	95	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
96	96	96	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
97	97	97	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
98	98	98	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
99	99	99	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}
100	100	100	2024-07-22 13:00:23.047 +0700	{"hello": "columnar"}

4. Tampilkan perbedaan ukuran antara tabel biasa dan tabel columnar!
   Jawab:
   Tabel biasa:



Tabel columnar:



5. Tuliskan kesimpulannya!

   Jawab: Kesimpulannya adalah tabel biasa memiliki ukurannya lebih banyak karena bertujuan untuk operasi write. Sementara tabel columnar ukurannya lebih kecil karena bertujuan untuk penyimpanan dan read sehingga kecepatannya lebih cepat dari tabel biasa.