

Kelas: DE-1

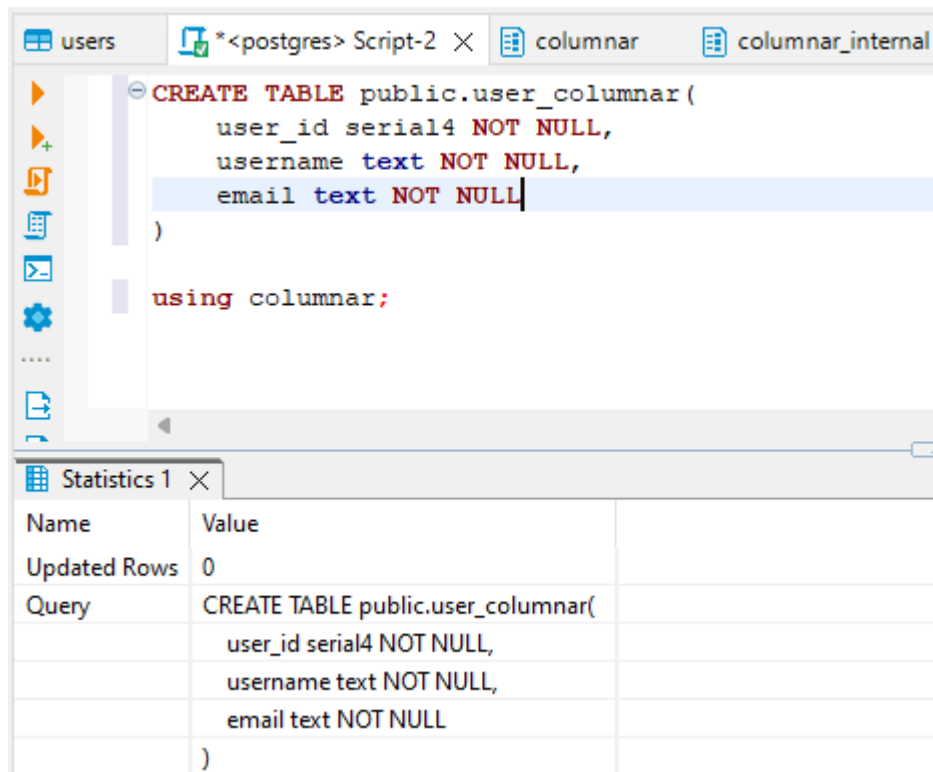
- ```
LENOVO@DESKTOP-Q0H2S3E MINGW64 ~/Documents/GitHub/citus-demo (main)
$ docker compose up -d
[+] Building 0.0s (0/0) docker:default
[+] Running 6/6
✔ Network citus-demo_postgres-network Created 0.2s
✔ Container citus-demo_master Started 0.4s
✔ Container citus-demo_manager Started 0.1s
✔ Container citus-demo_worker_2 Started 0.2s
✔ Container citus-demo_worker_3 Started 0.2s
✔ Container citus-demo_worker_1 Started 0.2s
```

- ```
CREATE TABLE users (  
    user_id SERIAL PRIMARY KEY,  
    username TEXT NOT NULL,  
    email TEXT NOT NULL UNIQUE  
);
```

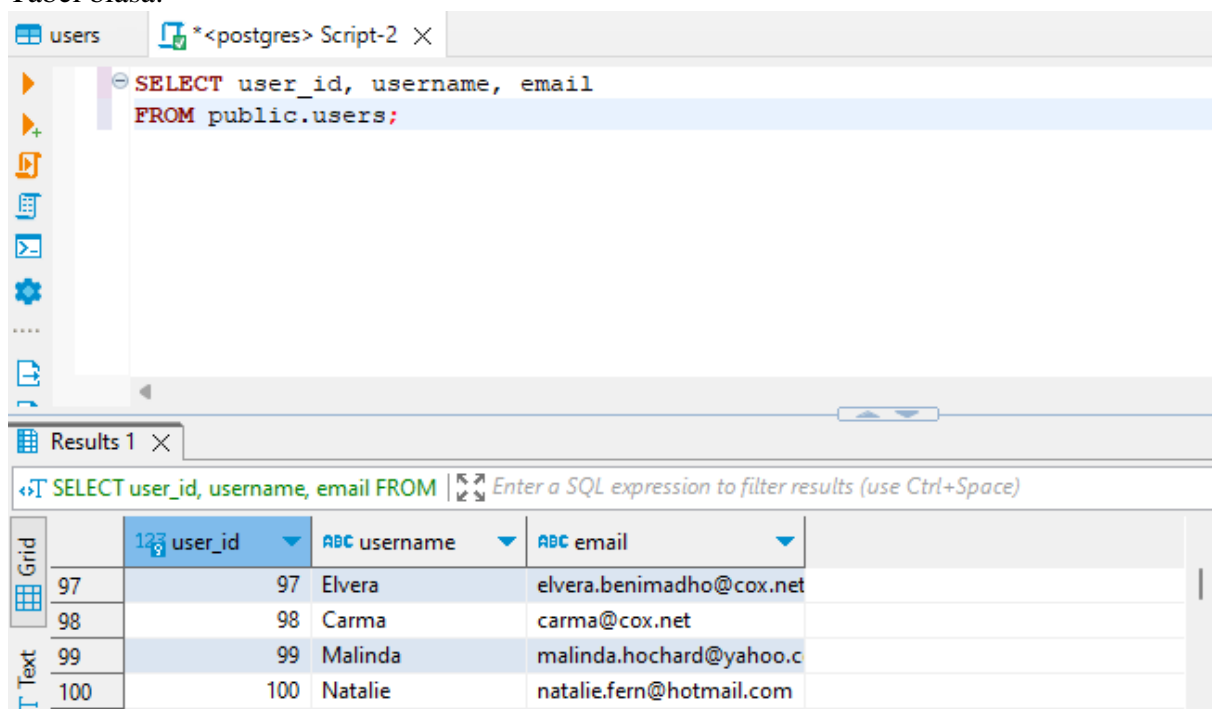
SQL Error [42P07]: ERROR: relation "users" already exists
Error position:

- ```
CREATE TABLE public.user_columnar(
 user_id serial4 NOT NULL,
 username text NOT NULL,
 email text NOT NULL,
)using columnar;
```

Output:



- Masukkan 100 baris data ke dalam tabel biasa dan tabel columnar!  
 Saya input menggunakan import dengan data yang sudah disimpan dalam format csv.  
 Tabel biasa:



Tabel columnar:

The screenshot shows a PostgreSQL client interface with a query window titled "Script-2". The query is:

```
select user_id, username, email
from public.user_columnar;
```

The results are displayed in a table with columns: user\_id, username, and email. The table contains 4 rows of data.

|     | 123 user_id | ABC username | ABC email                 |
|-----|-------------|--------------|---------------------------|
| 97  | 97          | Malinda      | malinda.hochard@yahoo.com |
| 98  | 98          | Natalie      | natalie.fern@hotmail.com  |
| 99  | 99          | Lisha        | lisha@centini.org         |
| 100 | 100         | Arlene       | arlene_klusman@gmail.com  |

The interface includes a toolbar with buttons for Refresh, Save, Cancel, and Export data.

4. Tampilkan perbedaan ukuran antara tabel biasa dan tabel columnar!

The screenshot shows a PostgreSQL client interface with a query window titled "Script-2". The query is:

```
select
pg_size_pretty(pg_total_relation_size('users')) as regular_size,
pg_size_pretty(pg_total_relation_size('user_columnar')) as columnar_size;
```

The results are displayed in a table with columns: regular\_size and columnar\_size. The table contains 1 row of data.

|   | ABC regular_size | ABC columnar_size |
|---|------------------|-------------------|
| 1 | 24 kB            | 64 kB             |

The interface includes a toolbar with buttons for Refresh, Save, Cancel, and Export data.

5. Tuliskan kesimpulannya!

Dapat dilihat dari screenshot output pada nomor 4 bahwa tabel columnar memiliki ukuran yang lebih besar disbanding tabel biasa. Hal ini dipengaruhi oleh organisasi data, teknik kompresi, tipe data, indexing, dan spesifik use case. Meskipun tabel columnar tampak lebih besar dalam penyimpanan mentah, tabel tersebut seringkali menawarkan manfaat yang lebih signifikan dalam hal kinerja query dan pemrosesan analitis.