

Nama: Reyhan Oktavian Putra

NIM: 123140202

Kelas: Sistem Informasi Geografis R

## Tugas 2

### Tugas Praktikum 2

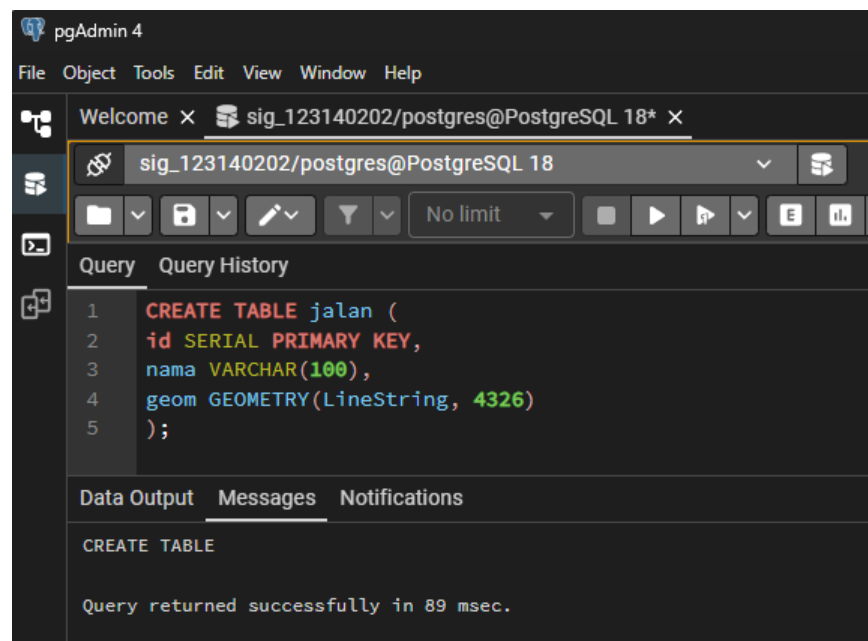
#### Deskripsi Tugas

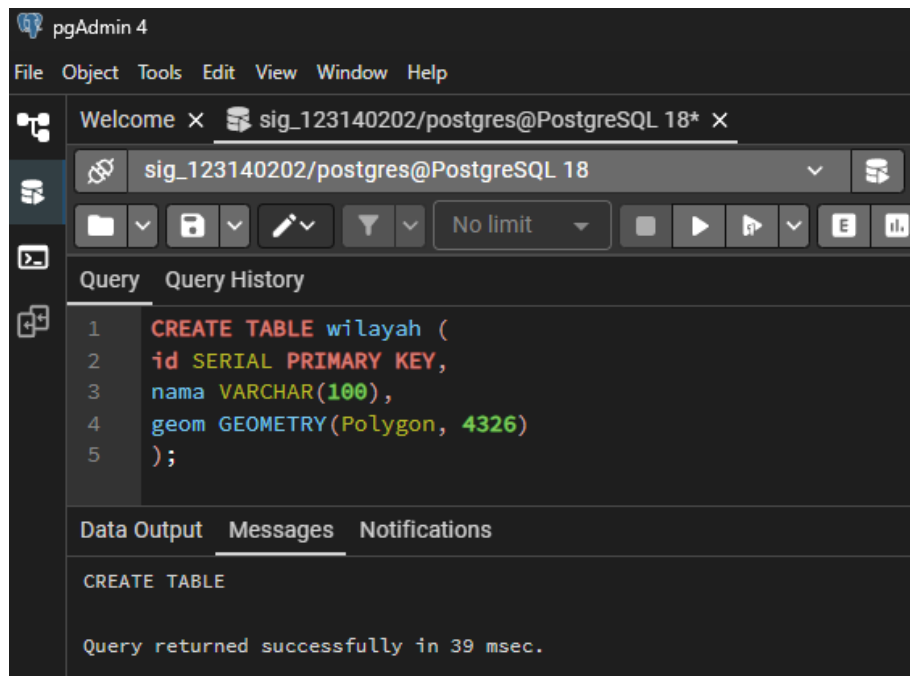
Lanjutkan database dari Praktikum 1. Tambahkan tabel untuk menyimpan data jalan (LineString) dan wilayah kelurahan (Polygon) di sekitar tempat tinggal Anda. Lakukan konversi format dan validasi data.

#### Ketentuan

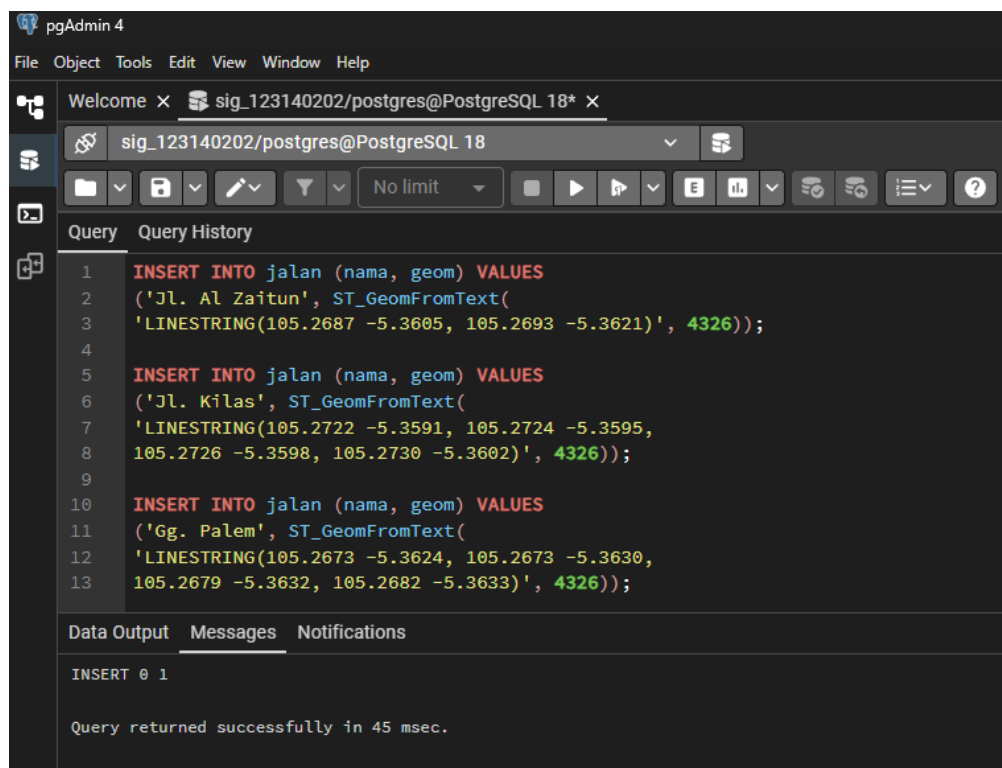
Buat tabel **jalan** dengan minimal 3 data LineString  
Buat tabel **wilayah** dengan minimal 2 data Polygon  
Screenshot hasil ST\_AsText(), ST\_AsGeoJSON(), dan ST\_IsValid()  
Tampilkan semua data di QGIS dengan layer berbeda

- Membuat table jalan dengan tipe LineString dan wilayah dengan tipe Polygon





- Membuat 3 data untuk jalan dan 2 data untuk wilayah



The screenshot shows the pgAdmin 4 interface with a query editor. The query contains two INSERT statements into a table named 'wilayah'. The first statement inserts a polygon geometry for 'Perumahan GMP' with coordinates (105.2697, -5.3585), (105.2714, -5.3594), (105.2729, -5.3618), (105.2693, -5.3626), and (105.2697, -5.3585). The second statement inserts a polygon geometry for 'Perumdam' with coordinates (105.2783, -5.3591), (105.2829, -5.3589), (105.2825, -5.3570), (105.2802, -5.3562), (105.2779, -5.3553), (105.2773, -5.3573), and (105.2783, -5.3591). Both statements specify SRID 4326. The Messages pane shows 'INSERT 0 1' and 'Query returned successfully in 35 msec.'

```
1 INSERT INTO wilayah (nama, geom) VALUES
2 ('Perumahan GMP', ST_GeomFromText(
3 'POLYGON((105.2697 -5.3585, 105.2714 -5.3594,
4 105.2729 -5.3618, 105.2693 -5.3626, 105.2697 -5.3585))', 4326));
5
6 INSERT INTO wilayah (nama, geom) VALUES
7 ('Perumdam', ST_GeomFromText(
8 'POLYGON((105.2783 -5.3591, 105.2829 -5.3589, 105.2825 -5.3570,
9 105.2802 -5.3562, 105.2779 -5.3553, 105.2773 -5.3573, 105.2783 -5.3591))', 4326));
```

INSERT 0 1

Query returned successfully in 35 msec.

- Konversi format ke wkt agar mudah dibaca manusia dengan ST\_AsText(), konversi dengan ST\_AsGeoJSON() untuk kalau mau mengirim data ke frontend.

The screenshot shows the pgAdmin 4 interface with a query editor. The query is a SELECT statement that converts geometry to WKT and GeoJSON, and extracts coordinates and SRID. The Messages pane shows 'SELECT 5 5'. Below the query editor, the Data Output pane displays a table with 5 rows and 5 columns: wkt, geojson, longitude, latitude, and srid.

```
1 SELECT
2 -- Geometry ke WKT
3 ST_AsText(geom) as wkt,
4 -- Geometry ke GeoJSON (untuk web)
5 ST_AsGeoJSON(geom) as geojson,
6 -- Ekstrak koordinat
7 ST_X(geom) as longitude,
8 ST_Y(geom) as latitude,
9 -- Cek SRID
10 ST_SRID(geom) as srid
11 FROM fasilitas_publik;
```

SELECT 5 5

	wkt text	geojson text	longitude double precision	latitude double precision	srid integer
1	POINT(105.2674 -5.3647)	{ "type": "Point", "coordinates": [105.2674, -5.3647] }	105.2674	-5.3647	4326
2	POINT(105.2688 -5.3627)	{ "type": "Point", "coordinates": [105.2688, -5.3627] }	105.2688	-5.3627	4326
3	POINT(105.27 -5.3613)	{ "type": "Point", "coordinates": [105.27, -5.3613] }	105.27	-5.3613	4326
4	POINT(105.2889 -5.3534)	{ "type": "Point", "coordinates": [105.2889, -5.3534] }	105.2889	-5.3534	4326
5	POINT(105.298 -5.3507)	{ "type": "Point", "coordinates": [105.298, -5.3507] }	105.298	-5.3507	4326

- Memvalidasi geometri dari jalan dan wilayah dengan ST\_IsValid()

The screenshot shows the pgAdmin 4 interface. The query editor contains the following SQL query:

```
1 SELECT
2   nama,
3   ST_IsValid(geom) as valid,
4   ST_IsSimple(geom) as simple,
5   GeometryType(geom) as tipe
6 FROM jalan;
```

The results are displayed in the Data Output tab as a table with 5 columns: nama, valid, simple, tipe, and an additional column for the geometry type. The data shows three rows of results.

	nama character varying (100)	valid boolean	simple boolean	tipe text	
1	Jl. Al Zaitun	true	true	LINESTRI...	
2	Jl. Kilas	true	true	LINESTRI...	
3	Gg. Palem	true	true	LINESTRI...	

pgAdmin 4

File Object Tools Edit View Window Help

Welcome × sig\_123140202/postgres@PostgreSQL 18\* ×

sig\_123140202/postgres@PostgreSQL 18

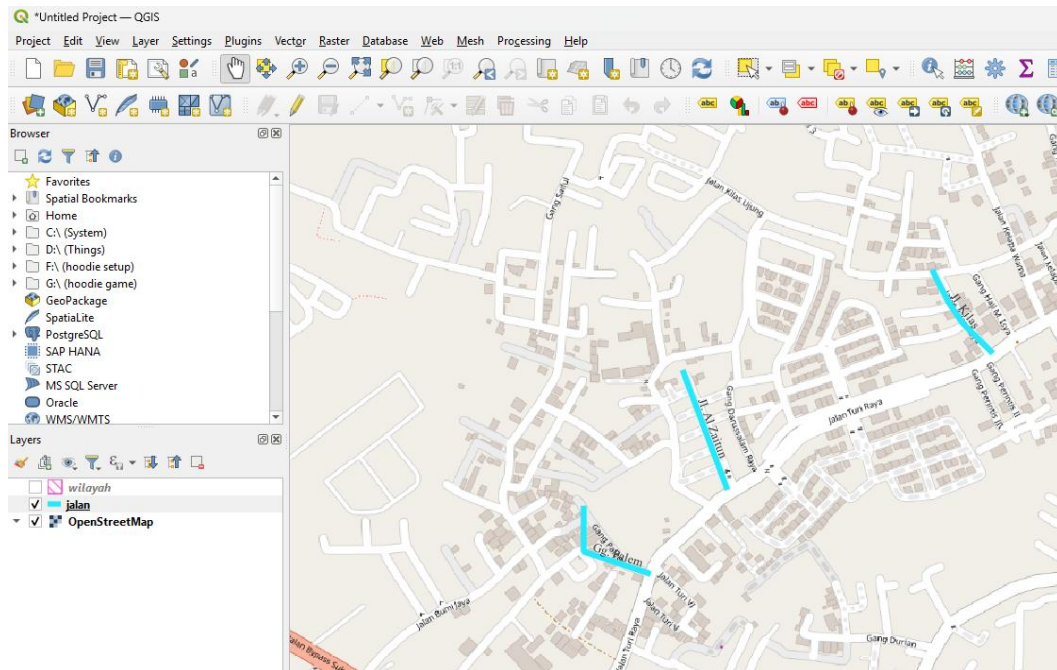
Query Query History

```
1 SELECT
2 nama,
3 ST_IsValid(geom) as valid,
4 ST_IsSimple(geom) as simple,
5 GeometryType(geom) as tipe
6 FROM wilayah;
```

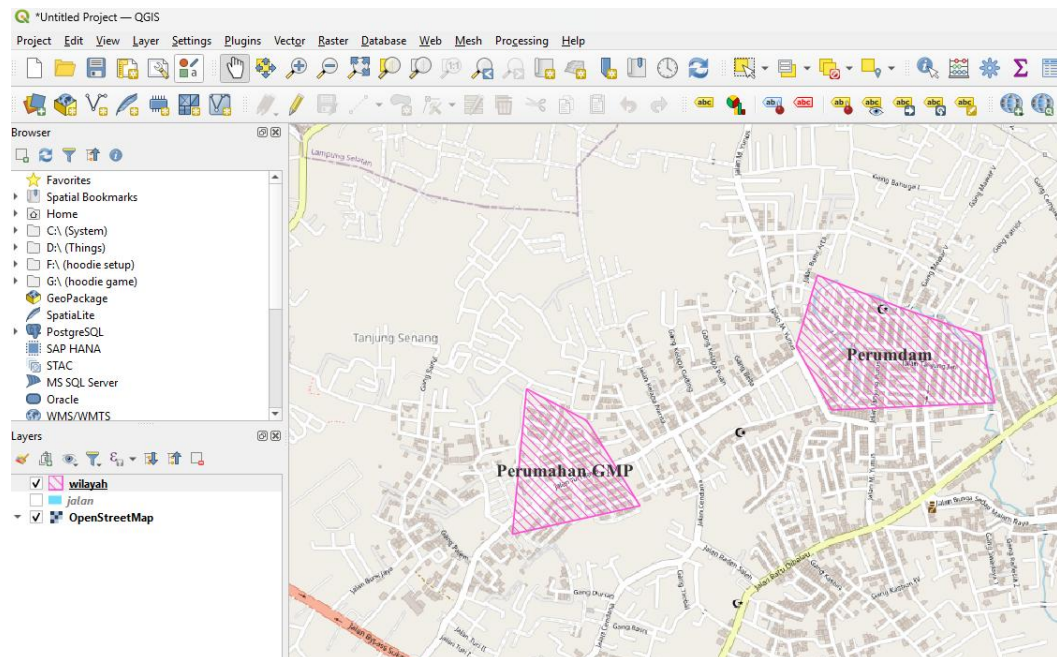
Data Output Messages Notifications

	nama character varying (100)	valid boolean	simple boolean	tipe text
1	Perumahan GMP	true	true	POLYG...
2	Perumdam	true	true	POLYG...

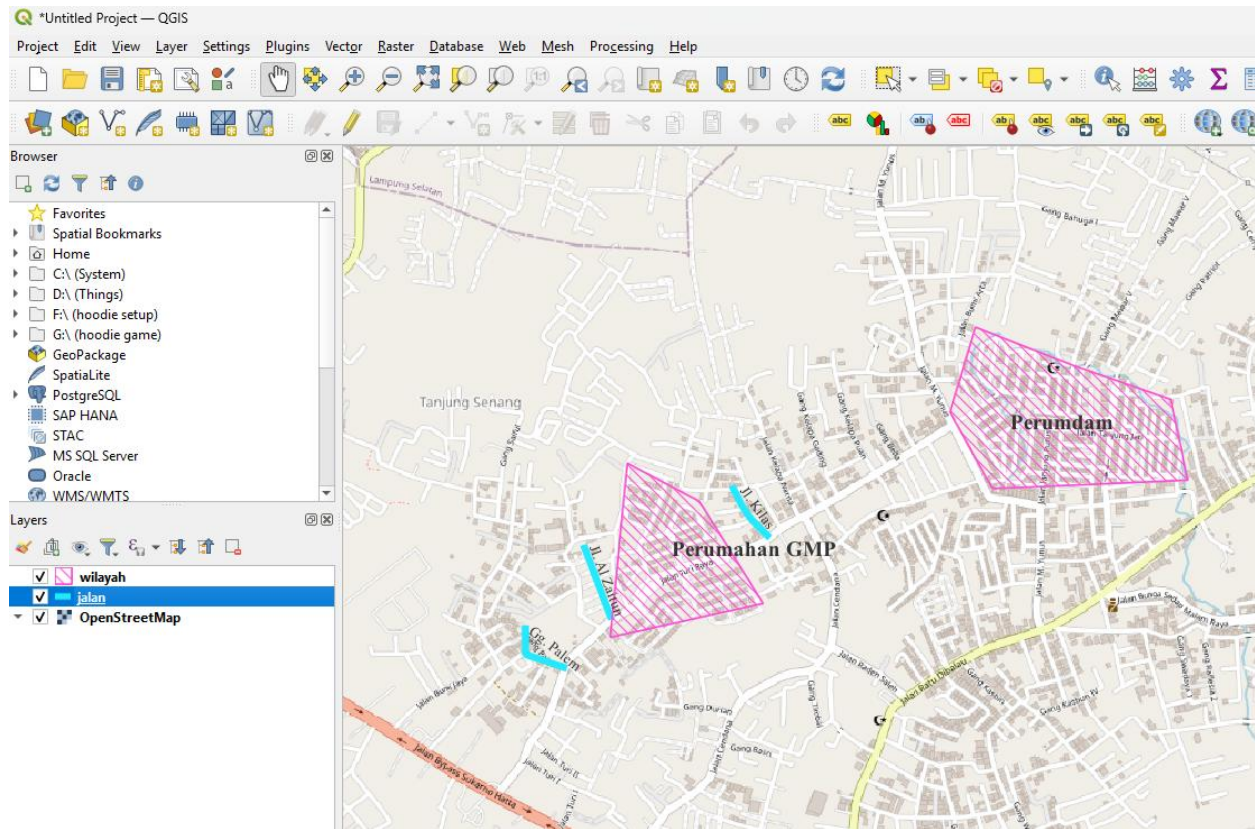
## Tampilan jalan di QGIS:



## Tampilan Wilayah di QGIS:



Tampilan kedua jalan dan wilayah:



Link Github: [https://github.com/Ondor-R/SIG\\_123140202/tree/main/Tugas\\_2](https://github.com/Ondor-R/SIG_123140202/tree/main/Tugas_2)