Terrastack Assignment

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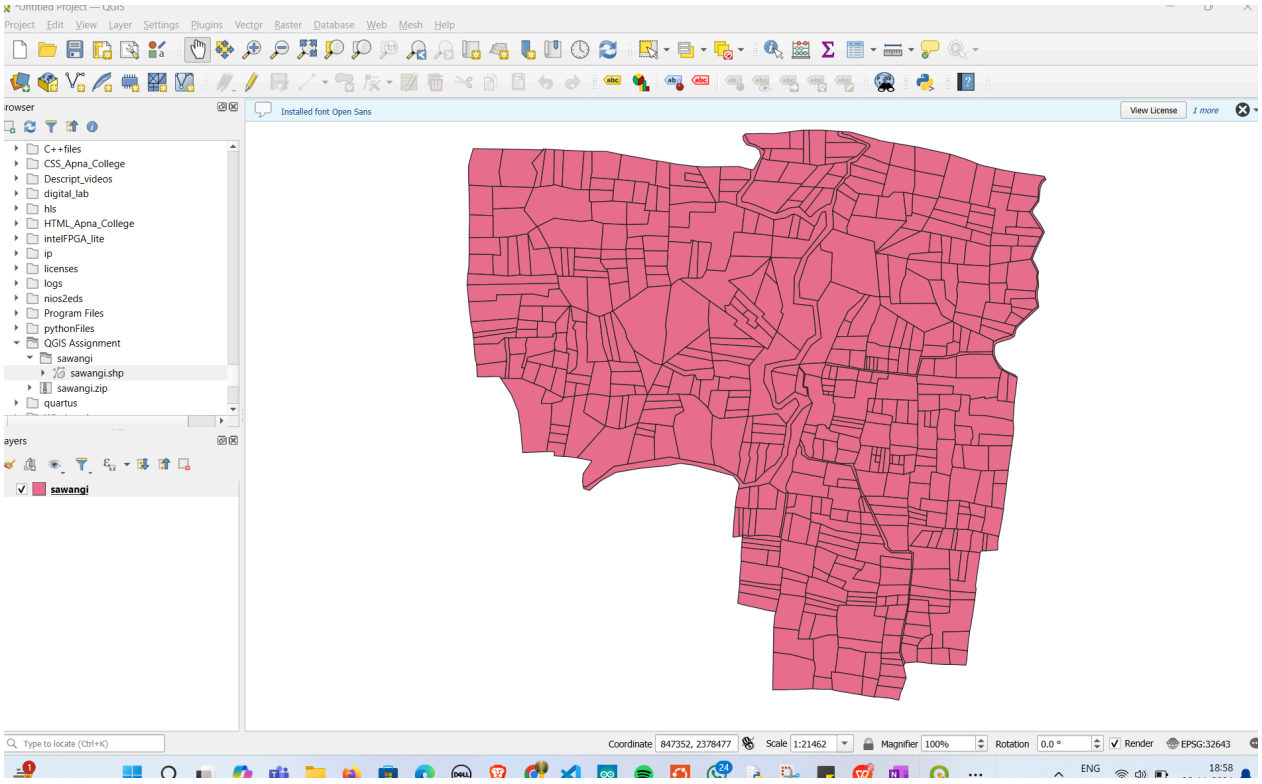
Form no. 23B3972

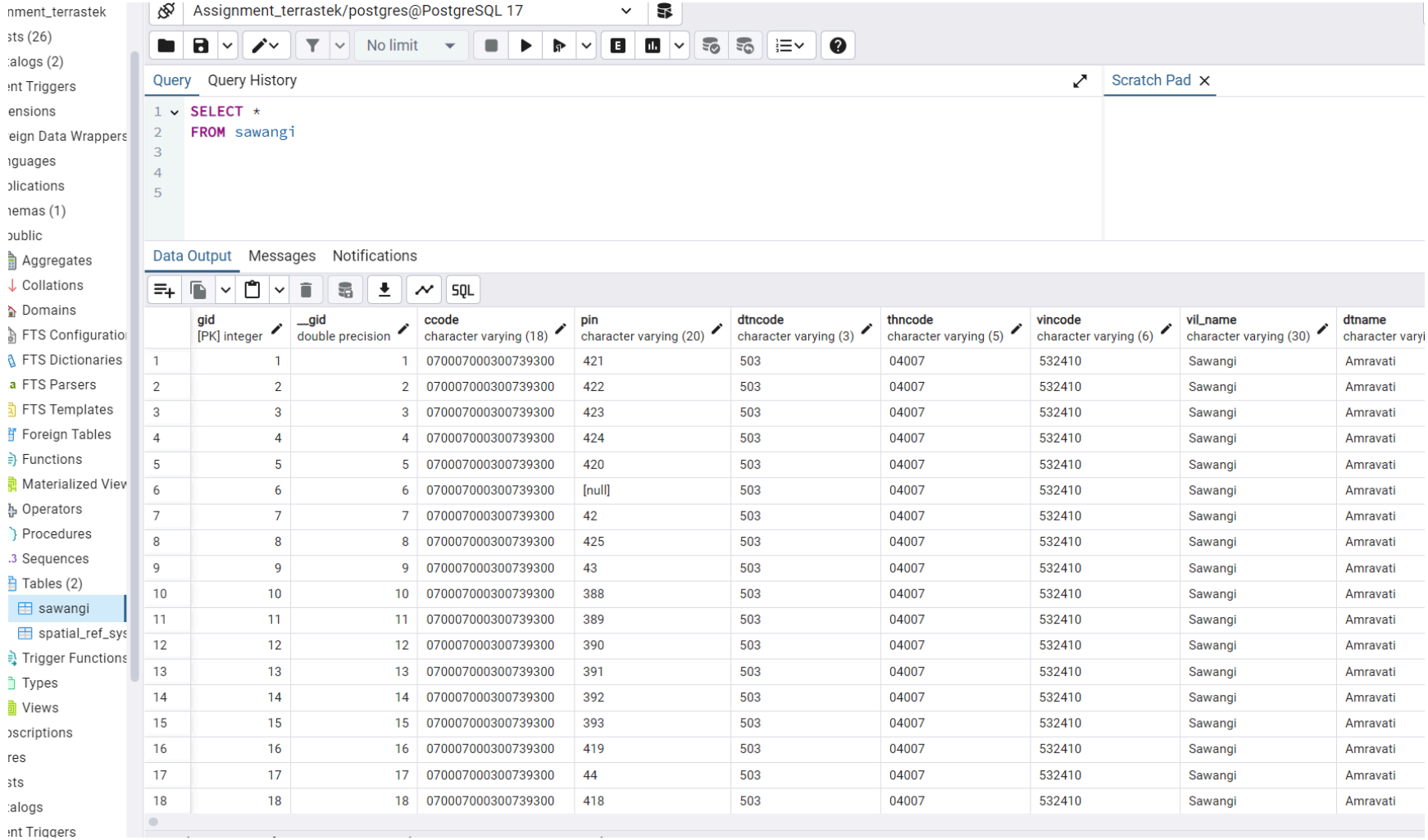
- I first downloaded and configured all the required tools and made a database system.

Part 1:



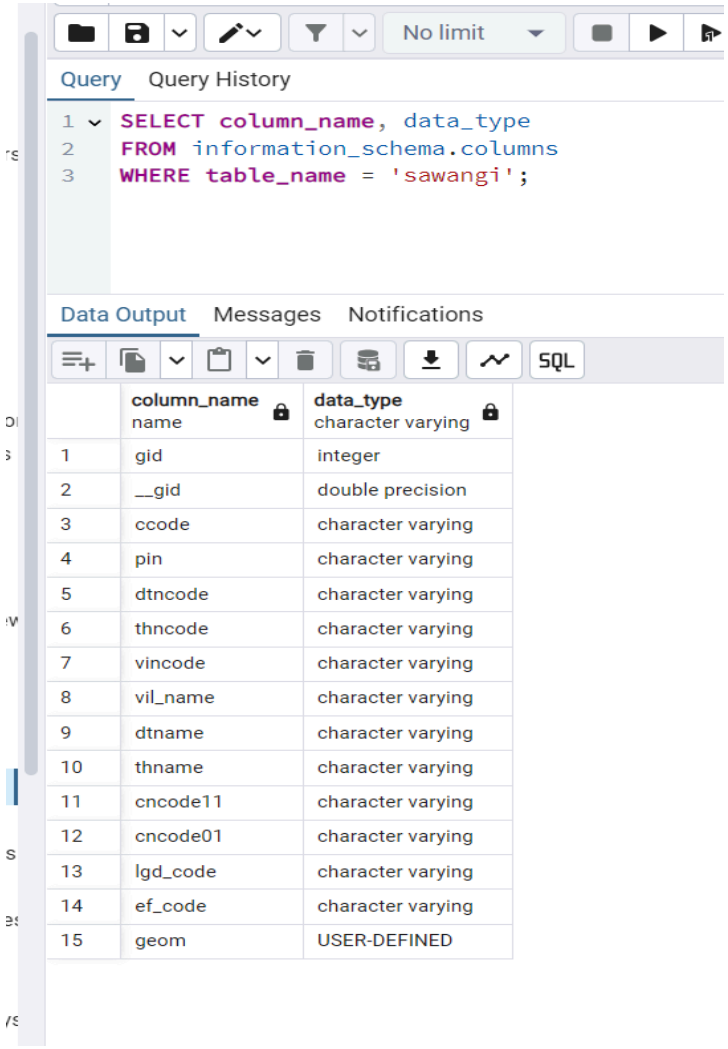
Part 2:

I have inserted the shp file in the postgres database and here is the table of sawangi.



	gid [PK] integer	_gid double precision	ccode character varying (18)	pin character varying (20)	dtncode character varying (3)	thncode character varying (5)	vincode character varying (6)	vil_name character varying (30)	dtname character varyi
1	1	1	070007000300739300	421	503	04007	532410	Sawangi	Amravati
2	2	2	070007000300739300	422	503	04007	532410	Sawangi	Amravati
3	3	3	070007000300739300	423	503	04007	532410	Sawangi	Amravati
4	4	4	070007000300739300	424	503	04007	532410	Sawangi	Amravati
5	5	5	070007000300739300	420	503	04007	532410	Sawangi	Amravati
6	6	6	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
7	7	7	070007000300739300	42	503	04007	532410	Sawangi	Amravati
8	8	8	070007000300739300	425	503	04007	532410	Sawangi	Amravati
9	9	9	070007000300739300	43	503	04007	532410	Sawangi	Amravati
10	10	10	070007000300739300	388	503	04007	532410	Sawangi	Amravati
11	11	11	070007000300739300	389	503	04007	532410	Sawangi	Amravati
12	12	12	070007000300739300	390	503	04007	532410	Sawangi	Amravati
13	13	13	070007000300739300	391	503	04007	532410	Sawangi	Amravati
14	14	14	070007000300739300	392	503	04007	532410	Sawangi	Amravati
15	15	15	070007000300739300	393	503	04007	532410	Sawangi	Amravati
16	16	16	070007000300739300	419	503	04007	532410	Sawangi	Amravati
17	17	17	070007000300739300	44	503	04007	532410	Sawangi	Amravati
18	18	18	070007000300739300	418	503	04007	532410	Sawangi	Amravati

- Here are the datatypes of each column of the table.



No limit

Query | Query History

```
1  SELECT column_name, data_type
2  FROM information_schema.columns
3  WHERE table_name = 'sawangi';
```

Data Output | Messages | Notifications

SQL

	column_name name	data_type character varying
1	gid	integer
2	__gid	double precision
3	ccode	character varying
4	pin	character varying
5	dtncode	character varying
6	thncode	character varying
7	vincode	character varying
8	vil_name	character varying
9	dtname	character varying
10	thname	character varying
11	cncode11	character varying
12	cncode01	character varying
13	lgd_code	character varying
14	ef_code	character varying
15	geom	USER-DEFINED

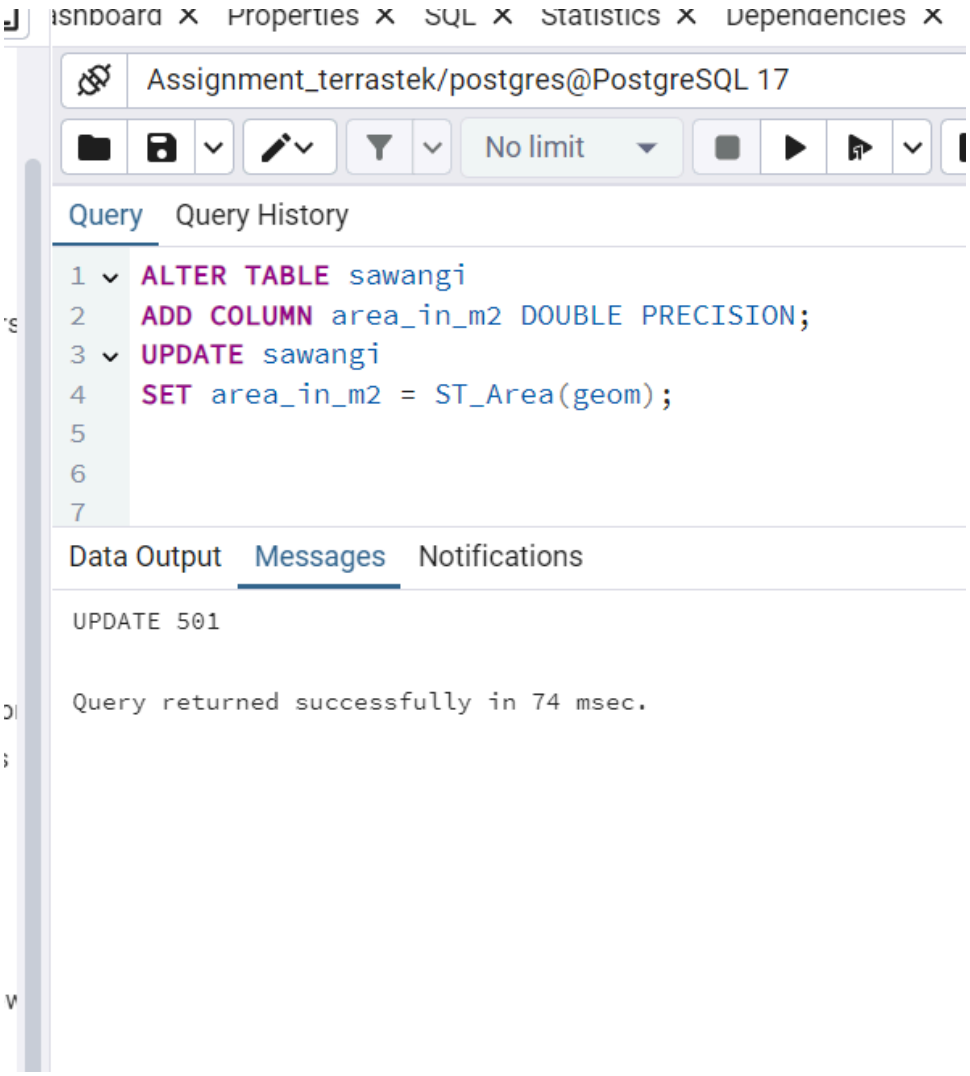
```
Server [localhost]:
Database [postgres]: Assignment_terrastek
Port [5432]:
Username [postgres]:
Password for user postgres:

psql (17.0)
WARNING: Console code page (437) differs from Windows code pa
         8-bit characters might not work correctly. See psql
         page "Notes for Windows users" for details.
Type "help" for help.

Assignment_terrastek=# \d sawangi
                                    Table "public.sawangi"
  Column   |           Type           | Collation | Nullable |
-----------+--------------------------+-----------+----------+
 gid       | integer                  |           | not null |
 __gid     | double precision         |           |          |
 ccode     | character varying(18)    |           |          |
 pin       | character varying(20)    |           |          |
 dtncode   | character varying(3)     |           |          |
 thncode   | character varying(5)     |           |          |
 vincode   | character varying(6)     |           |          |
 vil_name  | character varying(30)    |           |          |
 dtname    | character varying(254)   |           |          |
 thname    | character varying(254)   |           |          |
 cncode11  | character varying(6)     |           |          |
 cncode01  | character varying(8)     |           |          |
 lgd_code  | character varying(50)    |           |          |
 ef_code   | character varying(50)    |           |          |
 geom      | geometry(MultiPolygonZM) |           |          |
Indexes:
    "sawangi_pkey" PRIMARY KEY, btree (gid)
    "sawangi_geom_idx" gist (geom)
```

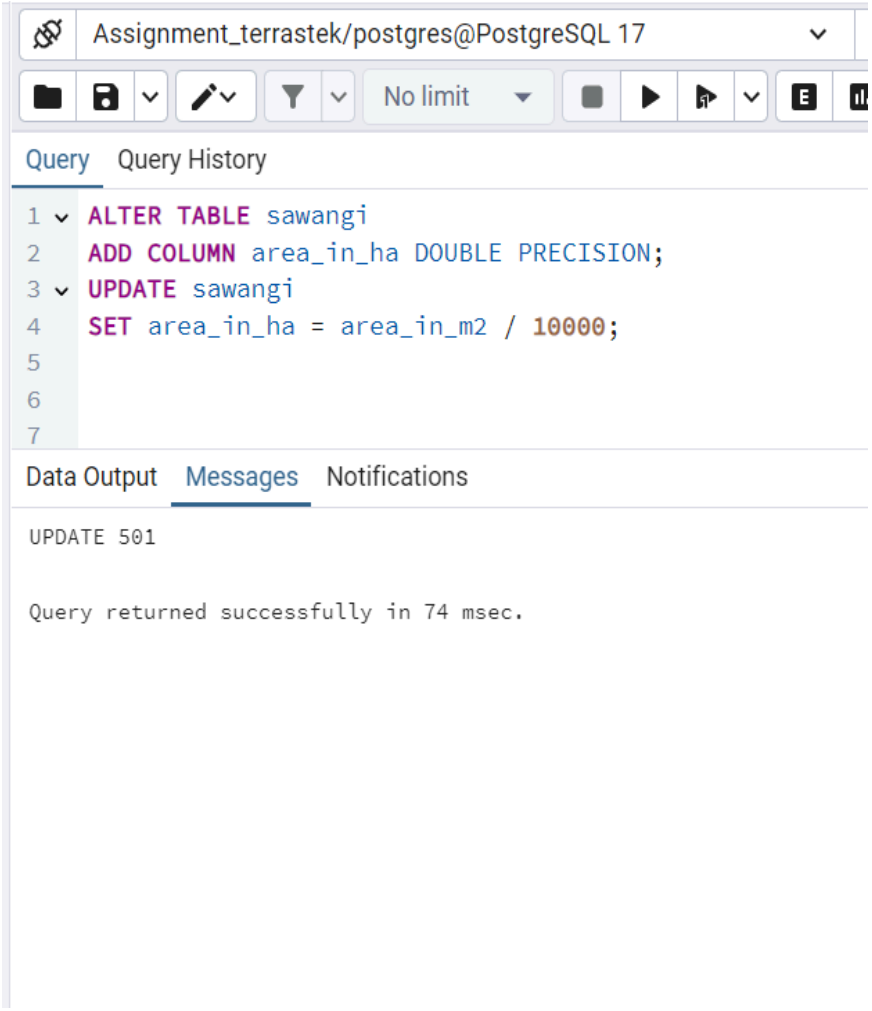
Part 3:

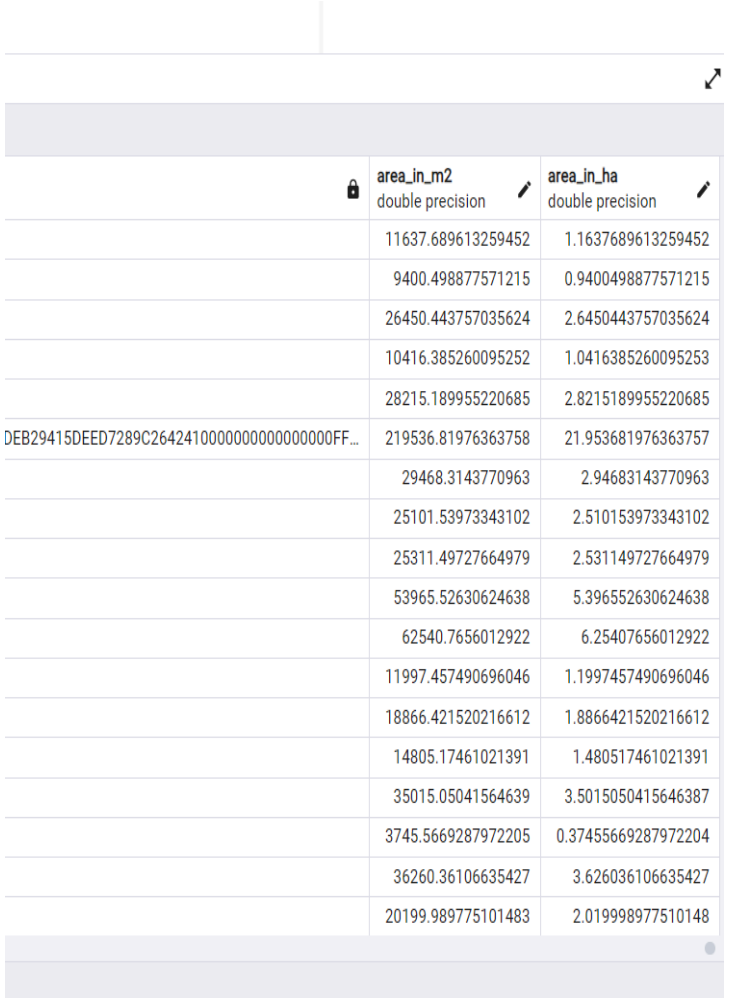
- To know the polygons that have an area greater than 5 ha, I added another column to the table of sawangi.shp.



	area_in_m2 double precision
	11637.689613259452
	9400.498877571215
	26450.443757035624
	10416.385260095252
	28215.189955220685
00000000FF…	219536.81976363758
	29468.3143770963
	25101.53973343102
	25311.49727664979
	53965.52630624638
	62540.7656012922
	11997.457490696046
	18866.421520216612
	14805.17461021391
	35015.05041564639
	3745.5669287972205
	36260.36106635427
	20199.989775101483

- The area that is shown in the previous page is in m^2. So I converted it into ha by dividing the values in the columns by 10000 by a query.





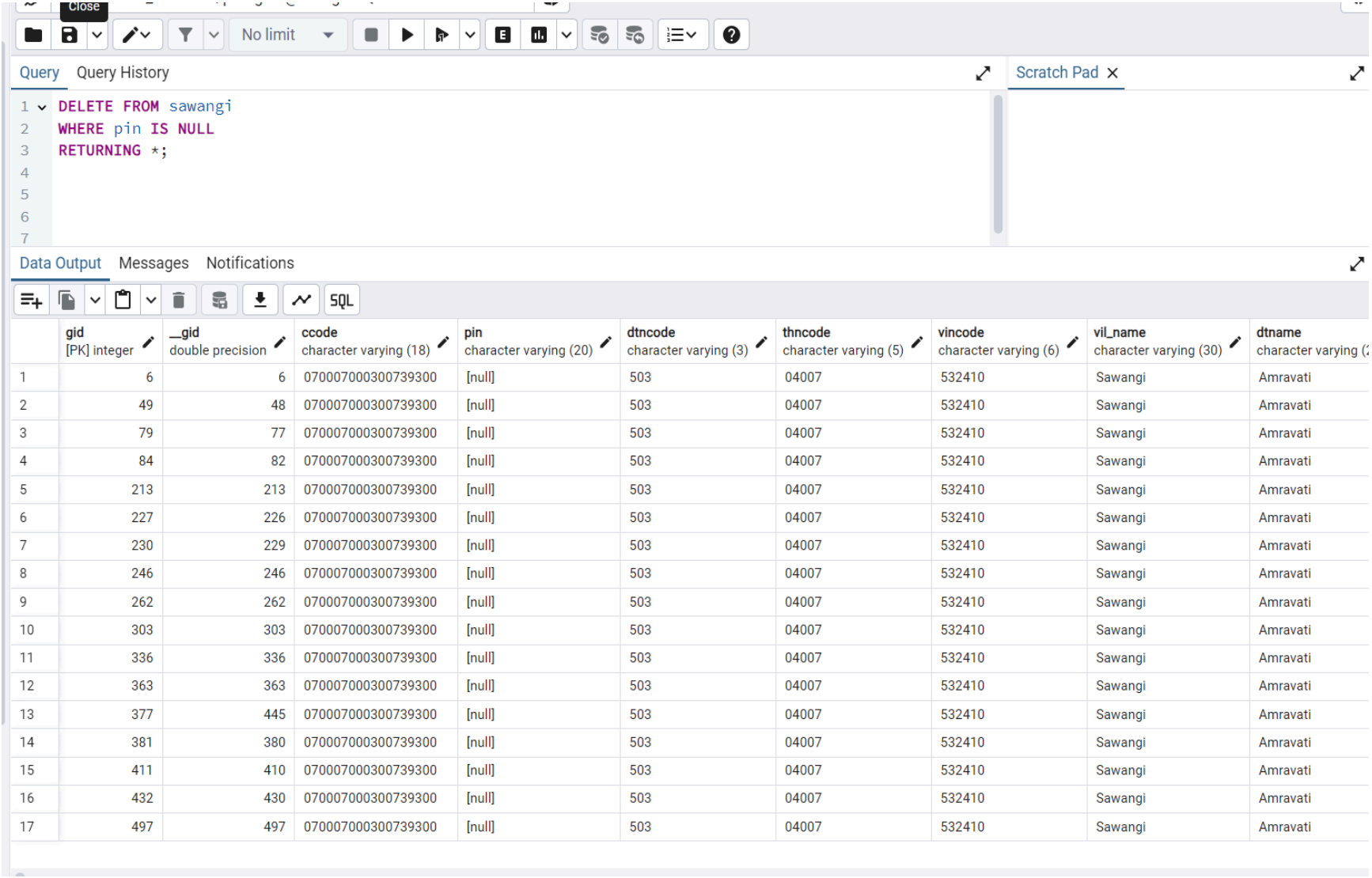
	area_in_m2 double precision	area_in_ha double precision
	11637.689613259452	1.1637689613259452
	9400.498877571215	0.9400498877571215
	26450.443757035624	2.6450443757035624
	10416.385260095252	1.0416385260095253
	28215.189955220685	2.8215189955220685
DEB29415DEED7289C264241000000000000000FF...	219536.81976363758	21.953681976363757
	29468.3143770963	2.94683143770963
	25101.53973343102	2.510153973343102
	25311.49727664979	2.531149727664979
	53965.52630624638	5.396552630624638
	62540.7656012922	6.25407656012922
	11997.457490696046	1.1997457490696046
	18866.421520216612	1.8866421520216612
	14805.17461021391	1.480517461021391
	35015.05041564639	3.5015050415646387
	3745.5669287972205	0.37455669287972204
	36260.36106635427	3.626036106635427
	20199.989775101483	2.019998977510148

- Then I run a query ”SELECT* from sawangi where area_in_ha>5” and found 30 polygons that have an area greater than 5 ha. Following are these polygons.

Data Output | Messages | Notifications

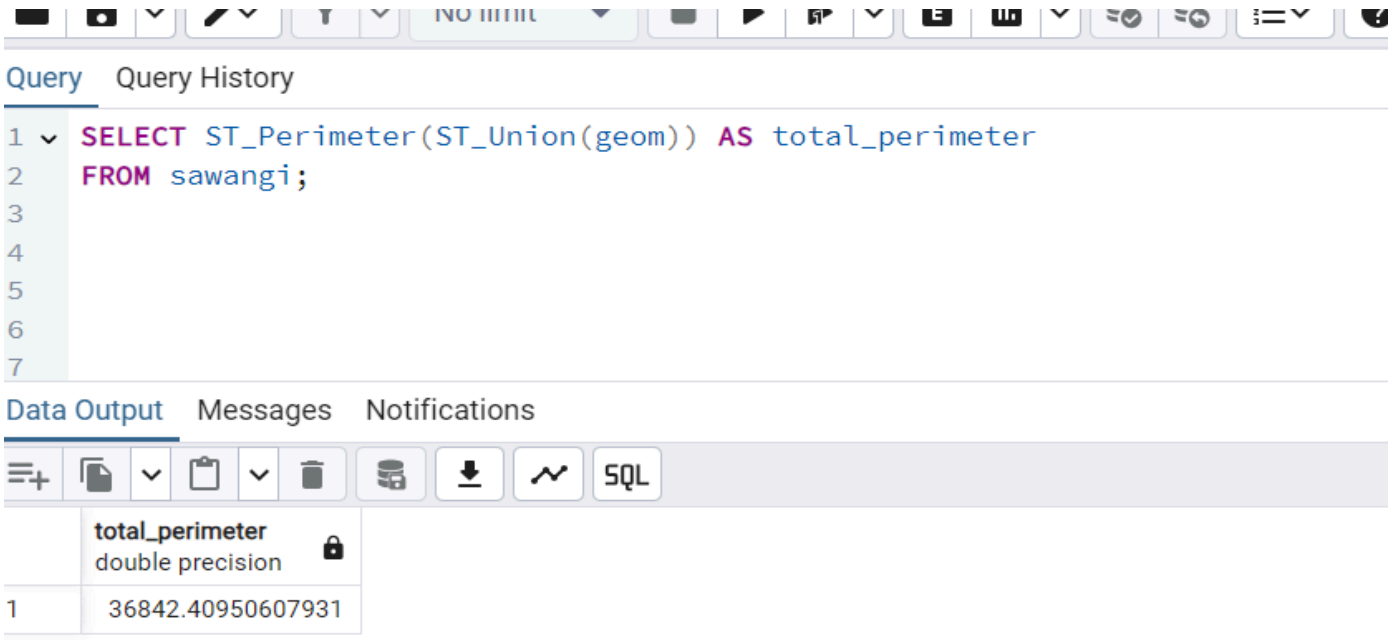
	gid [PK] integer	_gid double precision	ccode character varying (18)	pin character varying (20)	dtncode character varying (3)	thncode character varying (5)	vincode character varying (6)	vil_name character varying (30)	dtname character varying
1	6	6	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
2	10	10	070007000300739300	388	503	04007	532410	Sawangi	Amravati
3	11	11	070007000300739300	389	503	04007	532410	Sawangi	Amravati
4	23	23	070007000300739300	46	503	04007	532410	Sawangi	Amravati
5	47	46	070007000300739300	415	503	04007	532410	Sawangi	Amravati
6	50	49	070007000300739300	395	503	04007	532410	Sawangi	Amravati
7	75	73	070007000300739300	441	503	04007	532410	Sawangi	Amravati
8	90	88	070007000300739300	396	503	04007	532410	Sawangi	Amravati
9	91	89	070007000300739300	36	503	04007	532410	Sawangi	Amravati
10	98	96	070007000300739300	31	503	04007	532410	Sawangi	Amravati
11	118	117	070007000300739300	481	503	04007	532410	Sawangi	Amravati
12	131	131	070007000300739300	476	503	04007	532410	Sawangi	Amravati
13	137	137	070007000300739300	480	503	04007	532410	Sawangi	Amravati
14	152	152	070007000300739300	459	503	04007	532410	Sawangi	Amravati
15	155	154	070007000300739300	367	503	04007	532410	Sawangi	Amravati
16	157	156	070007000300739300	482	503	04007	532410	Sawangi	Amravati
17	158	157	070007000300739300	458	503	04007	532410	Sawangi	Amravati
18	163	162	070007000300739300	366	503	04007	532410	Sawangi	Amravati
19	168	167	070007000300739300	94	503	04007	532410	Sawangi	Amravati
20	205	205	070007000300739300	483	503	04007	532410	Sawangi	Amravati
21	263	263	070007000300739300	340	503	04007	532410	Sawangi	Amravati
22	268	268	070007000300739300	103	503	04007	532410	Sawangi	Amravati
23	286	285	070007000300739300	335	503	04007	532410	Sawangi	Amravati
24	288	287	070007000300739300	304	503	04007	532410	Sawangi	Amravati
25	296	295	070007000300739300	107	503	04007	532410	Sawangi	Amravati
26	312	312	070007000300739300	299	503	04007	532410	Sawangi	Amravati
27	316	316	070007000300739300	309	503	04007	532410	Sawangi	Amravati
28	469	469	070007000300739300	195	503	04007	532410	Sawangi	Amravati
29	471	471	070007000300739300	240	503	04007	532410	Sawangi	Amravati
30	492	492	070007000300739300	259	503	04007	532410	Sawangi	Amravati

- Then I need to delete polygons that have the value of pin column as null. I found 17 polygons have this. Here are they.



	gid [PK] integer	_gid double precision	ccode character varying (18)	pin character varying (20)	dtncode character varying (3)	thncode character varying (5)	vincode character varying (6)	vil_name character varying (30)	dtname character varying (2
1	6	6	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
2	49	48	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
3	79	77	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
4	84	82	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
5	213	213	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
6	227	226	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
7	230	229	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
8	246	246	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
9	262	262	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
10	303	303	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
11	336	336	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
12	363	363	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
13	377	445	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
14	381	380	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
15	411	410	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
16	432	430	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati
17	497	497	070007000300739300	[null]	503	04007	532410	Sawangi	Amravati

- Then I need to find the total perimeter of the village. So, I integrated all small polygons and find the area of whole village.



- The total perimeter came out to be 36842.409 m.