Nearest Grocery Store

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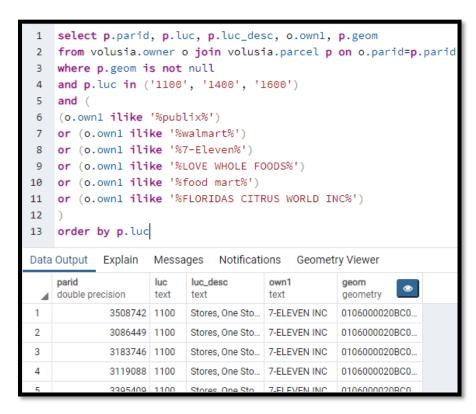
ERAU - CS540

Objectives

- Collecting Volusia groceries data.
- Calculating the nearest grocery distance for each parcel in Volusia county.
- Adding an attribute for the distance of the nearest grocery in the parcel table.
- Usage of a groceries distance dataset.

1. Collecting Groceries Dataset

- Groceries are not just listed under one LUC, but several LUCs, and not limited, of 1100 (Stores, One Story), 1400 (Supermarkets), and 1600 (Community Shopping Centers).
- Therefore, groceries were compiled depending on *Owner* attribute, *own1*, and by searching manually for all possible known groceries.
- The following where clause has shortened to conditions that get the equivalent result after searching for all possible groceries have compiled in this database.



1. Collecting Groceries Dataset

- Then extracted these records into a *Groceries* table.
- You can find these dataset in groceries_data.txt
- Note: This dataset does not include all actual groceries in the county.
 Thus, further data compiling and manual searching are needed for getting all actual groceries.

```
select p.parid, p.luc, p.luc_desc, o.own1, p.geom into volusia.groceries
from select * from volusia.owner o join volusia.parcel p on o.parid=p.parid
where p.geom is not null
and p.luc in ('l100', 'l400', 'l600')
and (
(o.own1 ilike '%publix%')
or (o.own1 ilike '%walmart%')
or (o.own1 ilike '%7-Eleven%')
or (o.own1 ilike '%LOVE WHOLE FOODS%')
or (o.own1 ilike '%food mart%')
or (o.own1 ilike '%FLORIDAS CITRUS WORLD INC%')
order by p.luc
```

2. Nearest Grocery Distance Calculation

- Groceries distance is measured in miles and calculated by this query.
- You can find these distance dataset in groceries_distance.txt

```
-- the closet grocery to a random parcel (divided by 5280 for distances in miles)

select p.parid, p.geom, p.luc, p.luc_desc, ST_Distance(p.geom, (select p2.geom

from volusia.parcel p2

where parid=3565215)

//5280 as groc_distance

from volusia.parcel p join volusia.groceries g on p.parid=g.parid

order by p.geom <-> (select p2.geom from volusia.parcel p2 where parid=3565215)

limit 1;
```

3. Adding Nearest Grocery Distance to Parcels

• Add a *groc_distance* column to the *parcel* table to store nearest grocery distance of all parcel.

```
1 -- add a column to the parcel table
2 alter table volusia.parcel add column groc_distance double precision;
```

3. Adding Nearest Grocery Distance to Parcels

• Then, update every *parcel* record to find the distance to closet grocery. This query works for one parcel at a time.

```
1 -- update to find distance from a parcel to its closet grocery
2 -- this works for one parcel at a time (divided by 5280 for distances in miles)
3 update volusia.parcel pl set groc_distance = ST_Distance(pl.geom, p2.geom)/5280
4 from volusia.parcel p2
5 where pl.parid=2004291 and p2.parid=2469498;
```

 Using a loop is needed to complete that for each parcel. Run the Python script, update_grocery_distances.py, to update all parcel records.

4. Usage of Groceries Distance Dataset

- For use the dataset in your database, run these queries
 load_groceries_distances_data.sql to create a temp table with parid
 and groc_distance, load the data into, and then update joined with
 parcel table based on parid.
- This is a sample of groceries_distance.txt in the zip file.

```
parid luc luc desc
                            own1
                    Stores, One Story
                                        7-ELEVEN INC
                                                        0106000020B0
                    Stores, One Story
                                                            0106000
                    Stores, One Story
                                       7-ELEVEN INC
                                                        0106000020B
                    Stores, One Story
                                       7-ELEVEN INC
                                                        0106000020BC
   2470381 1100
                    Stores, One Story
                                       FLORIDAS CITRUS WORLD INC
   3183746 1100
                    Stores, One Story
                                       7-ELEVEN INC
                                                        0106000020B0
   3473299 1100
                                                        0106000020B0
                    Stores, One Story
                                        7-ELEVEN INC
   3051696 1100
                    Stores, One Story
                                       7-ELEVEN INC
                                                        0106000020B0
10 7550539 1100
                                       7-ELEVEN INC
                                                        0106000020BC
                    Stores, One Story
                    Stores, One Story
  3821980 1100
                                                        0106000020BC
                                       7-ELEVEN INC
   3194829 1100
                    Stores, One Story
                                        PINKY JOYCE FOOD MART INC
   3300424 1100
                    Stores, One Story
                                        7-ELEVEN INC
                                                        0106000020B0
                    Stores, One Story
    3119088 1100
                                        7-ELEVEN INC
                                                        0106000020BC
    3245491 1100
                                                        0106000020B0
                    Stores, One Story
                                        7-ELEVEN INC
```