Querying CityGML Data

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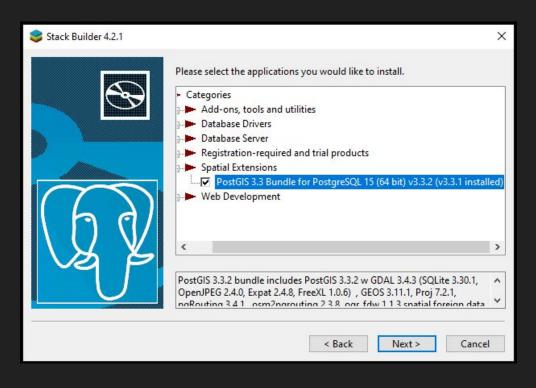
Motivation

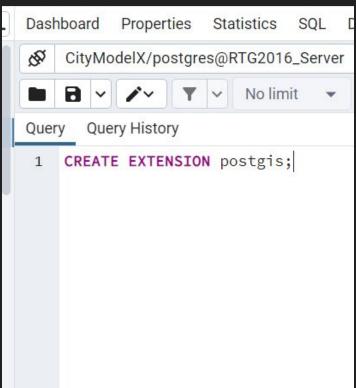
- Want to query City GML Data
- Come up with a process that anyone can replicate with clear instructions
 - Make shorter tutorial than the one currently available
- Learn about 3D Data & prior work

Process

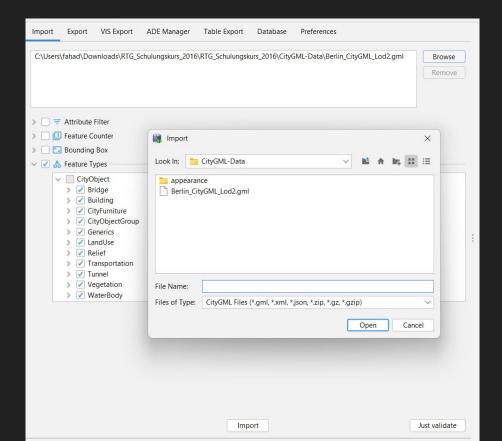
- 1. Set up PostGres, PostGis
 - a. Enable PostGis Extension into database
 - b. Connect to 3D City importer/exporter
- Load any GML Data into 3D City Importer
- 3. Validate data
 - a. Needs to be formatted correctly: file not corrupt, good structure
- 4. Import data into PostGres
 - Inspect tables and columns in the data to see what can be queried
- 5. Run queries in PostGres on the data

Set up PostGres, PostGis

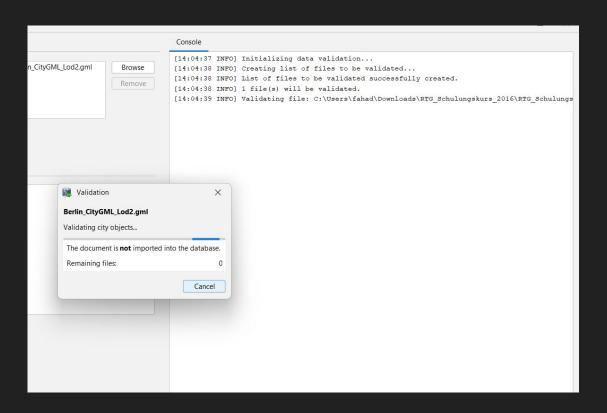




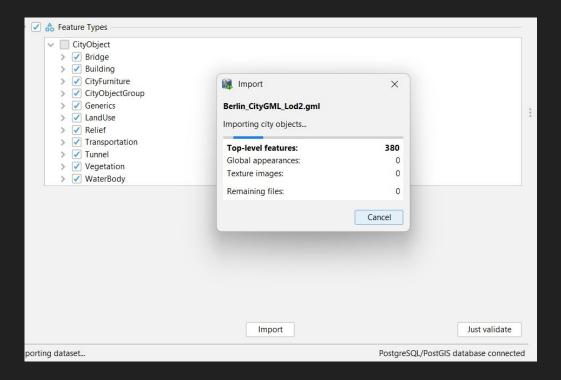
Load any CityGML data into database



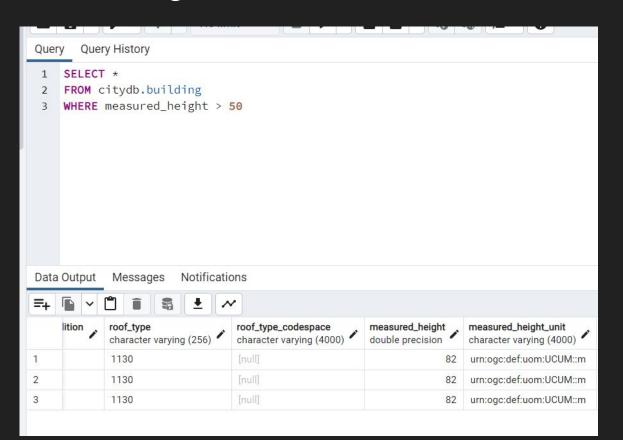
Validate Data



Import Data into PostGres



Run Postgres Queries



PostGIS API

→

Schemas (3) → ocitydb > Aggregates > A Collations → ♠ Domains > FTS Configurations > TS Dictionaries > Aa FTS Parsers > FTS Templates > Foreign Tables ▼ (a) Functions (144) {=} box2envelope(box box3d) (=) cleanup_appearances(only_global integer) {=} cleanup_schema() (=) cleanup_table(tab_name text) (=) del_address(integer[], caller integer) {=} del_address(pid integer) del_appearance(integer[], caller integer) (=) del_appearance(pid integer) (=) del_breakline_relief(integer[], caller integer) {=} del_breakline_relief(pid integer) del_bridge(integer[], caller integer) (=) del_bridge(pid integer) (=) del_bridge_constr_element(integer[], caller integer) (=) del_bridge_constr_element(pid integer) del_bridge_furniture(integer[], caller integer) del_bridge_furniture(pid integer) (=) del_bridge_installation(integer[], caller integer) (=) del_bridge_installation(pid integer) (=) del_bridge_opening(integer[], caller integer)

Results

```
Query Query History
1 SELECT *
   FROM citydb.building
    WHERE ST_Intersects(building, ST_MakeEnvelope(-74.006, 40.712, -73.992, 40.725, 4326))
   SELECT
     ST_Area(geom)/10000 AS hectares
   FROM bc_municipality
    WHERE name = 'PRINCE GEORGE';
10
    /*hectares
    ______
   32657.9103824927
  */
14
15
  SELECT
16
17
     name,
     ST_Area(geom)/10000 AS hectares
   FROM bc_municipality
   ORDER BY hectares DESC
   LIMIT 1;
22
23
                    hectares
   TUMBLER RIDGE | 155020.02556131
27 */
```

Conclusion

- Able to successfully connect to the 3D City Importer/Exporter
- Queried the CityGML data that we originally planned on using in proposal
- Acquainted with 3D data, databases
- Created an easy to follow up to date documentation for anyone who wants to get started with Postgres/PostGIS and GML datasets

Thank you for a great semester!

Any questions?