GEOG 575: Lab 7 – PostGIS Tutorial I: Spatial Query

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1. SELECT SUM(popn\_total)AS population

FROM nyc\_census\_blocks

WHERE boroname = 'Manhattan'

**1585873**

1. SELECT sum(popn\_nativ)\*100.0/(sum(popn\_total))AS percentage

from nyc\_census\_blocks

**0.703507949571329**

1. SELECT type, srid

FROM geometry\_columns

WHERE f\_table\_name = 'nyc\_streets' OR f\_table\_name = 'nyc\_subway\_stations'

**MULTILINESTRING, 26918**

**POINT, 26918**

1. SELECT ST\_AREA(geom)

FROM nyc\_neighborhoods

WHERE name = 'East Village'

**1632116.71718575**

1. SELECT SUM(ST\_Area(geom))/4047

FROM nyc\_census\_blocks

WHERE boroname = 'Brooklyn'

**44953.6688110616**

1. SELECT SUM(ST\_Length(geom))

FROM nyc\_streets

WHERE name = '5th Ave

**21797.5154329102**

1. SELECT ST\_GeometryType(geom), SUM(ST\_Length(geom)) as length

FROM nyc\_streets

WHERE name = 'Pelham St'

GROUP by geom

**ST\_MultiLineString, 50.3231495166023**

1. SELECT ST\_AsGML(geom)

FROM nyc\_subway\_stations

WHERE name = 'Broad St'

**<gml:Point srsName="EPSG:26918"><gml:coordinates>583571.905921312,4506714.34119218</gml:coordinates></gml:Point>**

SELECT ST\_AsKML(geom)

FROM nyc\_subway\_stations

WHERE name = 'Broad St'

**<Point><coordinates>-74.010671468873412,40.707104815587613</coordinates></Point>**

**KML coordinates are presented in decimal degree format while GML coordinates represent coordinates of geometry objects and can include additional information such as the coordinate reference system and metadata.**

1. SELECT name, ST\_NumGeometries(geom)

FROM nyc\_neighborhoods

WHERE name = 'Red Hook'

**Red Hook, 16**

1. SELECT type, SUM(ST\_Length(geom)) AS length

FROM nyc\_streets

WHERE type = 'residential'

GROUP by type

**residential, 8629870.33786606**

1. SELECT ST\_AsText(geom)

FROM nyc\_streets

WHERE name = 'Adlai Cir';

**MULTILINESTRING((570042.091206642 4488567.97609389,569955.629048514 4488593.91909435,569917.838118446 4488523.84925588,570019.761419395 4488491.94516951))**

1. SELECT name, boroname FROM nyc\_neighborhoods

WHERE ST\_Intersects(geom,ST\_GeomFromText('MULTILINESTRING((570042.091206642 4488567.97609389,569955.629048514 4488593.91909435,569917.838118446 4488523.84925588,570019.761419395 4488491.94516951))', 26918));

**Annandale, Staten Island**

1. SELECT name

FROM nyc\_streets

WHERE ST\_DWithin( geom, ST\_GeomFromText('MULTILINESTRING((570042.091206642 4488567.97609389,569955.629048514 4488593.91909435,569917.838118446 4488523.84925588,570019.761419395 4488491.94516951))', 26918),0.1);

**Adlai Cir, Bent St, Wilson Ave, Pompey Ave**

1. SELECT SUM(popn\_total)

FROM nyc\_census\_blocks

WHERE ST\_DWithin( geom, ST\_GeomFromText('MULTILINESTRING((570042.091206642 4488567.97609389,569955.629048514 4488593.91909435,569917.838118446 4488523.84925588,570019.761419395 4488491.94516951))', 26918),1000 );

**18864**

1. SELECT DISTINCT routes

FROM nyc\_subway\_stations AS subways

WHERE subways.routes LIKE 'A%

1. SELECT s.name, s.routes

FROM nyc\_subway\_stations AS s

INNER JOIN nyc\_neighborhoods AS n

ON ST\_Contains(n.geom, s.geom)

WHERE n.name = 'East Village';

**1st Ave, L**

**3rd Ave, L**

1. SELECT DISTINCT n.name, n.boroname

FROM nyc\_subway\_stations AS s

INNER JOIN nyc\_neighborhoods AS n

ON ST\_Contains(n.geom, s.geom)

WHERE strpos(s.routes,'A') > 0;

**Bedford-Stuyvesant, Brooklyn**

**Bushwick, Brooklyn**

**CentralPark, Manhattan**

**Downtown, Brooklyn**

**EastBrooklyn, Brooklyn**

**FinancialDistrict, Manhattan**

**GarmentDistrict, Manhattan**

**GreenwichVillage, Manhattan**

**Harlem, Manhattan**

**Inwood, Manhattan**

**TheRockaways, Queens**

**Tribeca, Manhattan**

**UpperWestSide, Manhattan**

**WashingtonHeights, Manhattan**

**WestVillage, Manhattan**

**Woodhaven-RichmondHill, Queens**

1. SELECT SUM(popn\_total)

FROM nyc\_neighborhoods AS n

INNER JOIN nyc\_census\_blocks AS c

ON ST\_Intersects(n.geom, c.geom)

WHERE n.name = 'Central Park';

**46600**

1. SELECT n.name, SUM (c.popn\_total) / (ST\_Area(n.geom) / 1000000.0) AS popn\_per\_sqkm

FROM nyc\_census\_blocks AS c INNER JOIN nyc\_neighborhoods AS n ON ST\_Intersects(c.geom, n.geom)

WHERE n.name IN ('Upper West Side','Upper East Side','Lower East Side')

GROUP BY n.name, n.geom

**Lower East Side, 36629.4647505188**

**Upper East Side, 48524.4877489857**

**Upper West Side, 40152.4896080024**

1. SELECT n.name, SUM (c.popn\_total) / (ST\_Area(n.geom) / 1000000.0) AS popn\_per\_sqkm

FROM nyc\_census\_blocks

AS c INNER JOIN nyc\_neighborhoods AS n

ON ST\_Intersects(c.geom, n.geom)

GROUP BY n.name, n.geom

ORDER BY popn\_per\_sqkm ASC

**Highest: North Sutton Area, 68435.1328377268**

SELECT n.name, SUM (c.popn\_total) / (ST\_Area(n.geom) / 1000000.0) AS popn\_per\_sqkm

FROM nyc\_census\_blocks

AS c INNER JOIN nyc\_neighborhoods AS n

ON ST\_Intersects(c.geom, n.geom)

GROUP BY n.name, n.geom

ORDER BY popn\_per\_sqkm ASC

**Lowest:**

**Flatbush, 0**

**Bayside , 0**

**Coney Island, 0**

**Steinway, 0**

**Red Hook, 0**

**Fresh Kills, 31.3810481406313**