Identification of zones with a high density of green areas in Santiago, Chile

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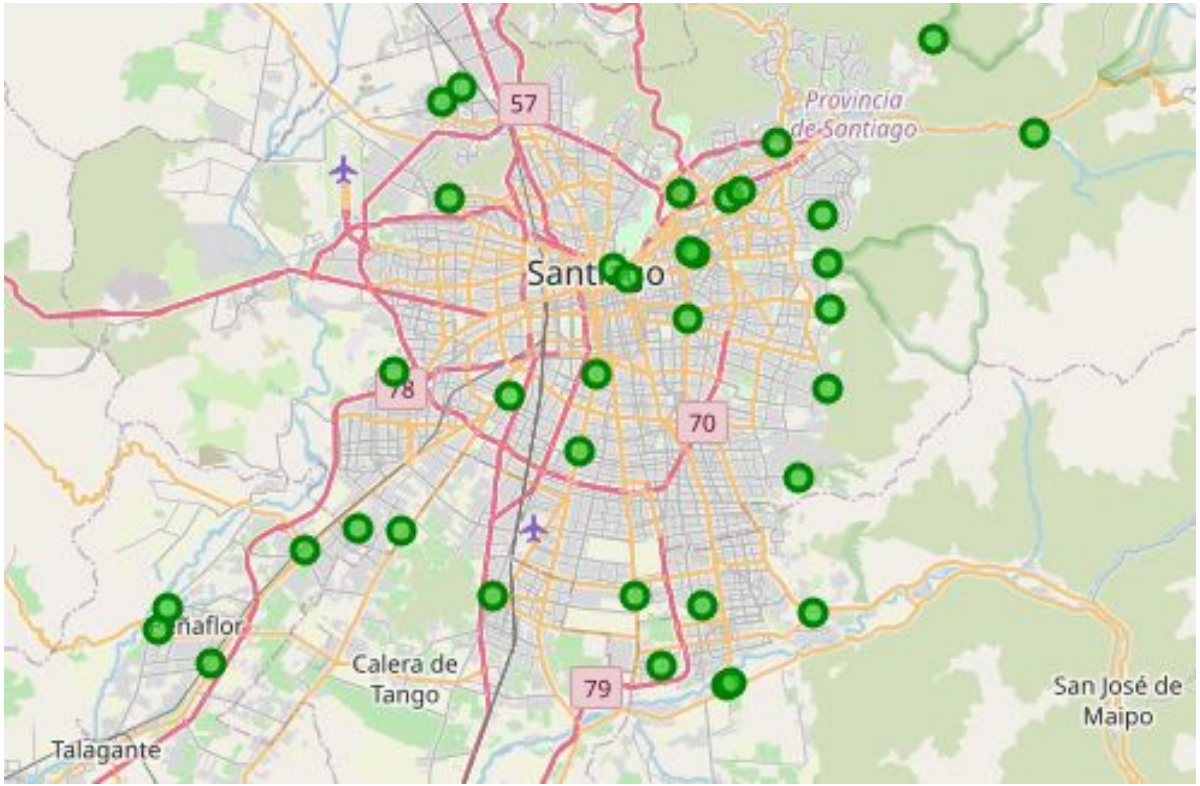
Identifying Green Areas (GAs) in Santiago

- Chile is among the countries with the highest obesity levels in the world
- In Santiago, the capital, lives about a third of the country's population
- The distribution of GAs in the city can be used for:
  - Develop plans that promote healthy lifestyle
  - Create new GAs in low-density areas.

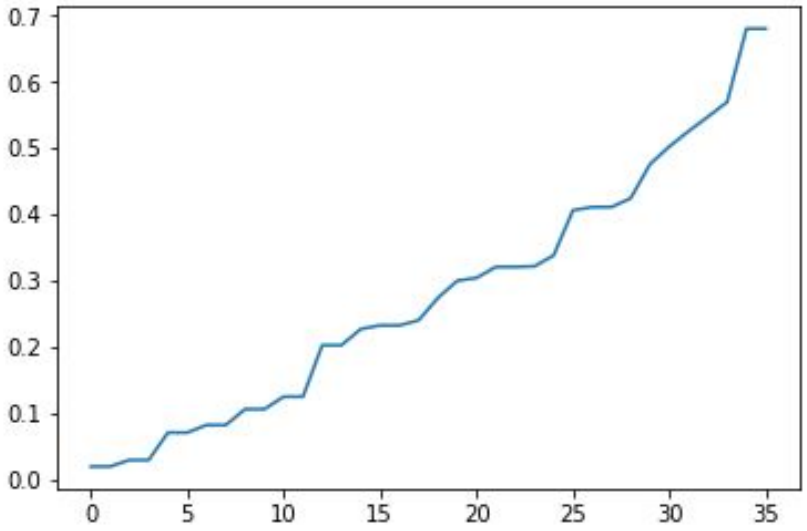
Data acquisition and cleaning

- List of communes that make up the Santiago Metropolitan Area were scrapped from "Comunas de Santiago de Chile"
- Longitude and Latitude of each commune
- List of all venues registered in Santiago obtained from the Foursquare API
- From the list of Venues we selected only those categorized as "Park", "Plaza" o "Garden"
- Any duplicate value were dropped
- The final result is a list of 37 GAs with their latitude and longitude coordinates

GAs location on Santiago

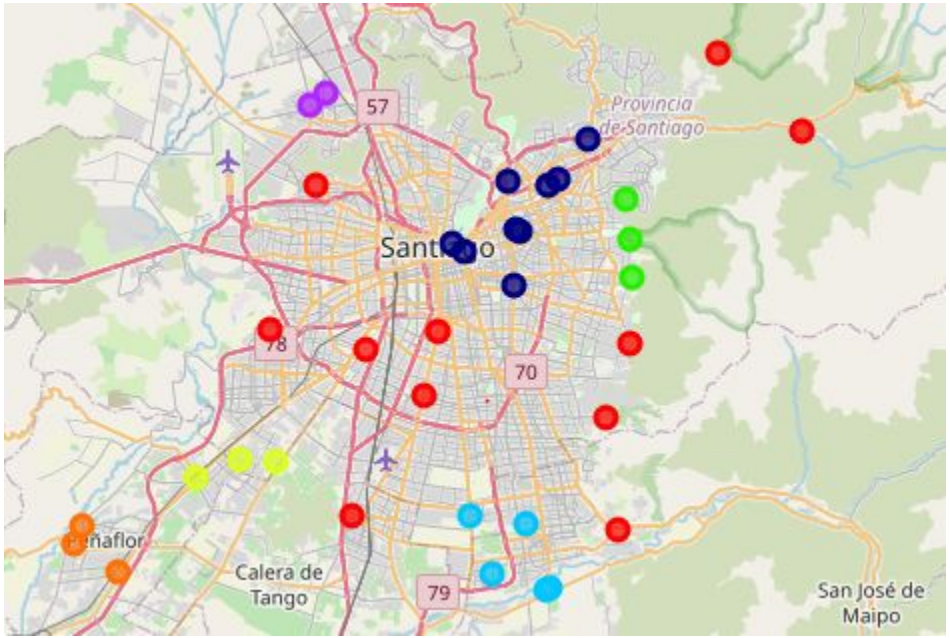


Optimal parameters for DBSCAN



- The minimum number of elements was set to 2
- Using the Nearest Neighbors Algorithm (NN) considering only 2 neighboring points, the optimal Epsilon value for DBSCAN is around 0.4

Results



Six clusters were obtained:

Cluster	Color	Location
1	Blue	Northeast
2	Light Blue	Southeast
3	Green	East
4	Yellow	Southwest
5	Orange	Southwest
6	Violet	Northwest

Discussion and conclusions

- The Northeastern part of the city contains the biggest cluster as expected
- We expected Clusters 2 and 3 to be more extensive
- We also expected a Cluster in the center of the city

- The peripheral communes have a high density of GAs, however, these are not well used, so these communes are good candidates for plans that promote the use of GAs.
- The communes of the center of the city present a low density of GAs, being good candidates for future plans for the construction of new GAs.