

## CAPSTONE PROJECT

### 1. Introduction

After losing her job, Macarena decided that the compensation money she will use in her venture: a sushi bar. It will be located in Santiago de Chile so you should investigate where is the best location.

#### **Business problem**

To open a sushi place, you must use the Foursquare information on the communes or localities of Santiago (Chile). Santiago has 52 different localities (communes) and our challenge is find the best one. For this we define our target audience:

- a. High schools
- b. Universities
- c. Offices

The above serves to ensure that we have enough customers and that we are not so close to other sushi places.

### 2. Data

To find the best location for our sushi place, we will use the following sources of information:

#### **From Wikipedia (tables)**

Locations [https://es.wikipedia.org/wiki/Anexo:Comunas\\_de\\_Chile\\_por\\_poblaci%C3%B3n](https://es.wikipedia.org/wiki/Anexo:Comunas_de_Chile_por_poblaci%C3%B3n)

Post Codes [https://es.wikipedia.org/wiki/Anexo:C%C3%B3digos\\_postales\\_de\\_Chile](https://es.wikipedia.org/wiki/Anexo:C%C3%B3digos_postales_de_Chile)

#### **From Files**

Geo Location (latitude, longitude for each locality)

<https://raw.githubusercontent.com/ssikam/My-Capstone-Project/master/chile%20geo%20public.csv>

#### **From Foursquare**

Venues Categories <https://developer.foursquare.com/docs/resources/categories>

Sushi - 4bf58dd8d48988d1d2941735

Highschool - 4bf58dd8d48988d13d941735

University - 4bf58dd8d48988d1ae941735

Office - 4d4b7105d754a06375d81259

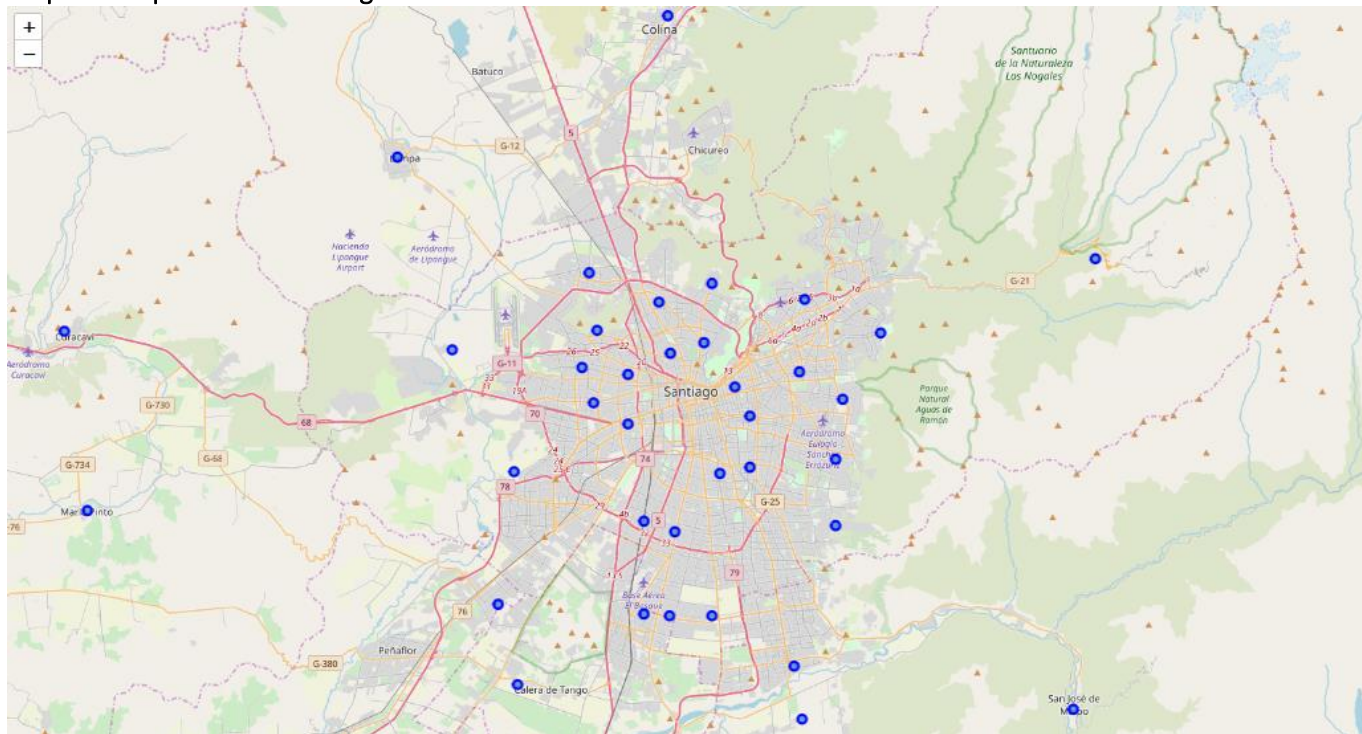
### 3. Metodology

- We import the different sources of information: Locations, postal codes, geographical location. There is a total of 346 locations in Chile.
- We select only the localities of the Metropolitan Region, that is, we use the "Metropolitan of Santiago" filter, leaving a total of 52 localities.
- Join all the bases, leaving a size of (52.4)
- For each location we look for the information of sushi restaurants, schools, universities and offices from Foursquare (venues)
- For each locality we group and count each one of the 4 categories
- We define weights for each category, depending on the recurrence that may have in our sushi bar

- Sushi restaurant: -1 points (the more restaurants there are in a sector, the less important to us)
- Schools: 1 point (they are good clients, but it depends on the money their parents give them)
- Universities: 2 points (they are good clients and with more economic independence than the students)
- Offices: 3 points (they are good clients and with their own resources)
- For each location we calculate a final score and order the resulting data from highest to lowest. The place with the highest score will be where we will put our sushi bar.

#### 4. Results

Map “Metropolitana de Santiago” Localities

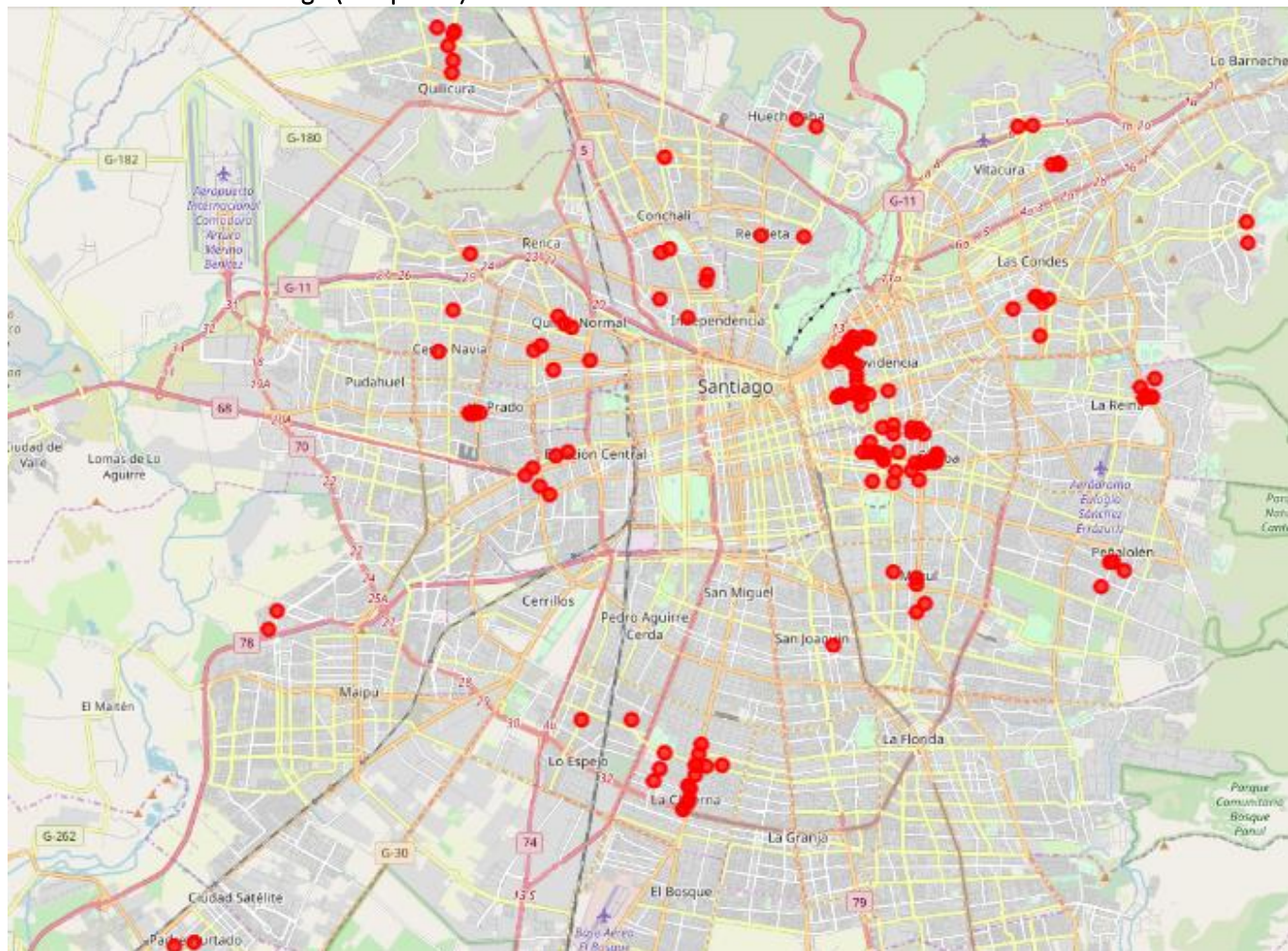


Geo Locations from “Metropolitana de Santiago” Localities

|    | Borough                   | Neighborhood | Lat     | Lon     |    | Borough                   | Neighborhood     | Lat     | Lon     |
|----|---------------------------|--------------|---------|---------|----|---------------------------|------------------|---------|---------|
| 0  | Metropolitana de Santiago | Puente Alto  | -33.616 | -70.570 | 13 | Metropolitana de Santiago | Renca            | -33.398 | -70.723 |
| 1  | Metropolitana de Santiago | Maipú        | -33.490 | -70.788 | 14 | Metropolitana de Santiago | Estación Central | -33.459 | -70.699 |
| 2  | Metropolitana de Santiago | Santiago     | -33.425 | -70.566 | 15 | Metropolitana de Santiago | Colina           | -33.194 | -70.668 |
| 3  | Metropolitana de Santiago | La Florida   | -33.525 | -70.538 | 16 | Metropolitana de Santiago | Providencia      | -33.435 | -70.616 |
| 4  | Metropolitana de Santiago | San Bernardo | -33.582 | -70.687 | 17 | Metropolitana de Santiago | Cerro Navia      | -33.422 | -70.735 |
| 5  | Metropolitana de Santiago | Las Condes   | -33.400 | -70.503 | 18 | Metropolitana de Santiago | Conchalí         | -33.380 | -70.675 |
| 6  | Metropolitana de Santiago | Peñalolén    | -33.482 | -70.538 | 19 | Metropolitana de Santiago | Melipilla        | -33.689 | -71.208 |
| 7  | Metropolitana de Santiago | Pudahuel     | -33.411 | -70.836 | 20 | Metropolitana de Santiago | La Granja        | -29.900 | -69.617 |
| 8  | Metropolitana de Santiago | Quilicura    | -33.361 | -70.729 | 21 | Metropolitana de Santiago | Macul            | -33.487 | -70.604 |
| 9  | Metropolitana de Santiago | Nuñoa        | -33.454 | -70.604 | 22 | Metropolitana de Santiago | Quinta Normal    | -33.427 | -70.699 |
| 10 | Metropolitana de Santiago | La Pintana   | -33.583 | -70.634 | 23 | Metropolitana de Santiago | San Miguel       | -36.818 | -71.966 |
| 11 | Metropolitana de Santiago | El Bosque    | -41.667 | -73.317 | 24 | Metropolitana de Santiago | Lo Barnechea     | -33.352 | -70.336 |
| 12 | Metropolitana de Santiago | Recoleta     | -33.406 | -70.640 | 25 | Metropolitana de Santiago | Lampa            | -33.286 | -70.878 |

|    | Borough                   | Neighborhood        | Lat     | Lon     |    | Borough                   | Neighborhood      | Lat     | Lon     |
|----|---------------------------|---------------------|---------|---------|----|---------------------------|-------------------|---------|---------|
| 26 | Metropolitana de Santiago | Pedro Aguirre Cerda | -33.583 | -70.667 | 39 | Metropolitana de Santiago | Talagante         | -33.667 | -70.931 |
| 27 | Metropolitana de Santiago | Independencia       | -33.413 | -70.666 | 40 | Metropolitana de Santiago | Paine             | -33.812 | -70.723 |
| 28 | Metropolitana de Santiago | Lo Espejo           | -33.522 | -70.687 | 41 | Metropolitana de Santiago | Padre Hurtado     | -33.576 | -70.800 |
| 29 | Metropolitana de Santiago | Huechuraba          | -33.368 | -70.634 | 42 | Metropolitana de Santiago | Isla de Maipo     | -33.754 | -70.886 |
| 30 | Metropolitana de Santiago | Buín                | -33.728 | -70.739 | 43 | Metropolitana de Santiago | El Monte          | -33.684 | -71.017 |
| 31 | Metropolitana de Santiago | Lo Prado            | -33.445 | -70.726 | 44 | Metropolitana de Santiago | Curacavi          | -33.399 | -71.137 |
| 32 | Metropolitana de Santiago | San Joaquín         | -33.491 | -70.628 | 45 | Metropolitana de Santiago | Pirque            | -33.650 | -70.564 |
| 33 | Metropolitana de Santiago | La Reina            | -33.443 | -70.532 | 46 | Metropolitana de Santiago | Calera de Tango   | -33.628 | -70.785 |
| 34 | Metropolitana de Santiago | Peñalolén           | -36.233 | -72.333 | 47 | Metropolitana de Santiago | Tiltil            | -33.085 | -70.925 |
| 35 | Metropolitana de Santiago | La Cisterna         | -33.529 | -70.663 | 48 | Metropolitana de Santiago | San José de Maipo | -33.644 | -70.353 |
| 36 | Metropolitana de Santiago | Vitacura            | -33.378 | -70.562 | 49 | Metropolitana de Santiago | Maria Pinto       | -33.515 | -71.119 |
| 37 | Metropolitana de Santiago | San Ramón           | -25.351 | -70.447 | 50 | Metropolitana de Santiago | San Pedro         | -33.900 | -71.467 |
| 38 | Metropolitana de Santiago | Cerrillos           | -34.533 | -71.683 | 51 | Metropolitana de Santiago | Allhué            | -34.033 | -71.100 |

### Sushi Restaurants in Santiago (184 places)



High Schools in Santiago (137 places)

Universities in Santiago (138 places)

Offices in Santiago (1654 places!!)



Grouping by category (show the first 5 results)

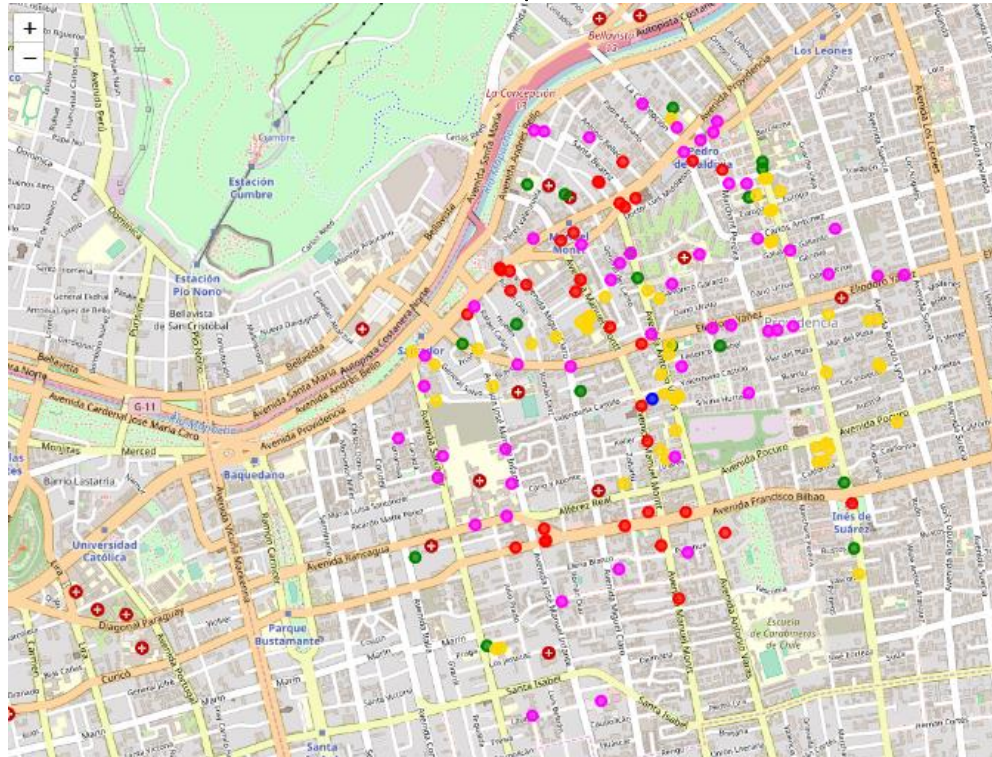
|   | Borough                   | Localidad    | Lat     | Lon     | Sushi | High Schools | Universities | Offices |
|---|---------------------------|--------------|---------|---------|-------|--------------|--------------|---------|
| 0 | Metropolitana de Santiago | Puente Alto  | -33.616 | -70.570 | 5.0   | 4.0          | 0.0          | 46.0    |
| 1 | Metropolitana de Santiago | Maipú        | -33.490 | -70.788 | 2.0   | 1.0          | 0.0          | 16.0    |
| 2 | Metropolitana de Santiago | Santiago     | -33.425 | -70.566 | 6.0   | 9.0          | 4.0          | 49.0    |
| 3 | Metropolitana de Santiago | La Florida   | -33.525 | -70.538 | 0.0   | 0.0          | 0.0          | 18.0    |
| 4 | Metropolitana de Santiago | San Bernardo | -33.582 | -70.687 | 3.0   | 6.0          | 0.0          | 49.0    |

We calculate the final score

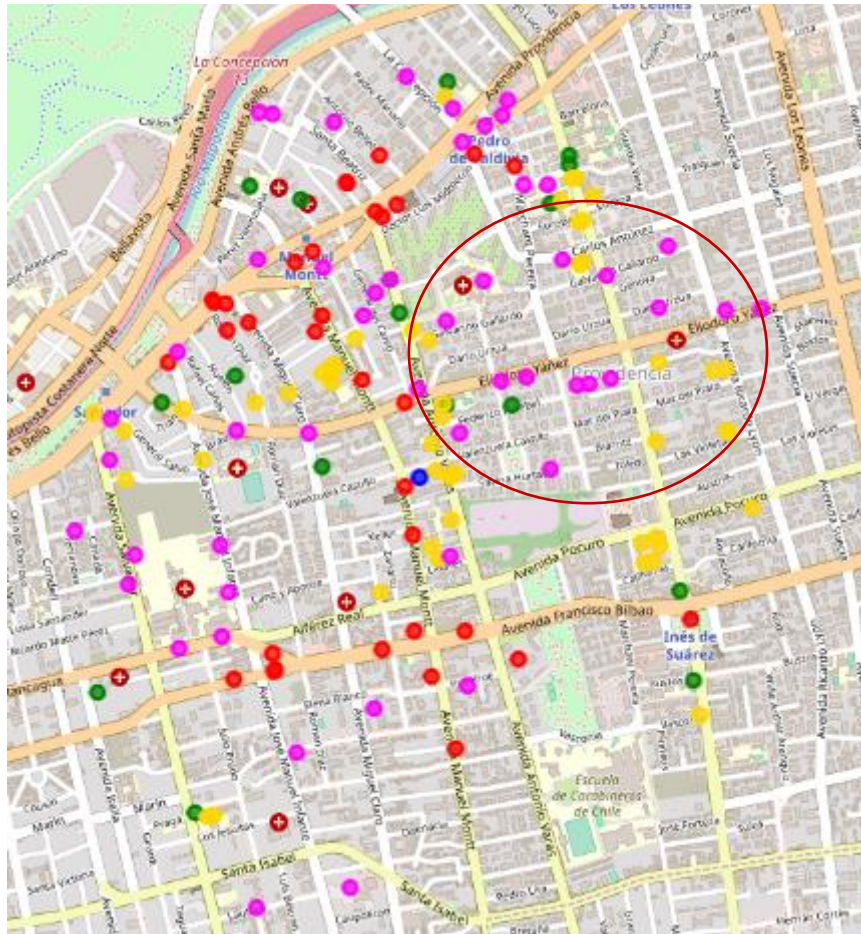
|    | Localidad        | Score |    | Localidad           | Score |    | Localidad         | Score |    | Localidad       | Score |
|----|------------------|-------|----|---------------------|-------|----|-------------------|-------|----|-----------------|-------|
| 16 | Providencia      | 234.0 | 26 | Pedro Aguirre Cerda | 149.0 | 17 | Cerro Navia       | 140.0 | 41 | Padre Hurtado   | 27.0  |
| 5  | Las Condes       | 215.0 | 18 | Conchalí            | 148.0 | 30 | Buín              | 139.0 | 46 | Calera de Tango | 24.0  |
| 32 | San Joaquín      | 179.0 | 28 | Lo Espejo           | 148.0 | 0  | Puente Alto       | 137.0 | 40 | Paine           | 21.0  |
| 2  | Santiago         | 158.0 | 33 | La Reina            | 148.0 | 13 | Renca             | 132.0 | 7  | Pudahuel        | 12.0  |
| 9  | Nuñoa            | 158.0 | 10 | La Pintana          | 146.0 | 15 | Colina            | 128.0 | 50 | San Pedro       | 6.0   |
| 12 | Recoleta         | 156.0 | 19 | Melipilla           | 146.0 | 48 | San José de Maipo | 83.0  | 45 | Pirque          | 3.0   |
| 14 | Estación Central | 152.0 | 39 | Talagante           | 145.0 | 3  | La Florida        | 54.0  | 20 | La Granja       | 3.0   |
| 44 | Curacaví         | 152.0 | 35 | La Cisterna         | 145.0 | 47 | Tiltil            | 51.0  | 24 | Lo Barnechea    | 0.0   |
| 25 | Lampa            | 152.0 | 31 | Lo Prado            | 144.0 | 1  | Maipú             | 47.0  | 38 | Cerrillos       | 0.0   |
| 21 | Macul            | 151.0 | 29 | Huechuraba          | 144.0 | 42 | Isla de Maipo     | 33.0  | 37 | San Ramón       | 0.0   |
| 27 | Independencia    | 151.0 | 36 | Vitacura            | 144.0 | 49 | Maria Pinto       | 33.0  | 11 | El Bosque       | 0.0   |
| 6  | Peñalolén        | 151.0 | 8  | Quilicura           | 143.0 | 43 | El Monte          | 33.0  | 34 | Peñaflor        | 0.0   |
| 4  | San Bernardo     | 150.0 | 22 | Quinta Normal       | 143.0 | 51 | Alhué             | 33.0  | 23 | San Miguel      | 0.0   |

The locality with best score is “Providencia” with 234 pts.

With this result we maximize the number of potential customers who will visit our sushi bar.



## 5. Discussion



- The red dots are the competition. If we review the places in depth, our sushi bar should be located where the yellow, green and fuchsia dots are concentrated.
- We can see that the best location then is on Elidoro Yáñez street.
- To improve the analysis, we can add more competitors, for example, night bars.