

# Top 5 districts of Lima city that has great opportunity to open a new hamburger restaurant.

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## 1. Introduction

### 1.1 Background

Speaking of local habits, Peruvians are the second consumers who eat most outside of their home during the week, with 42% of respondents in favor, surpassed only by Brazilians (51%). For convenience and practicality, respondents via online, affirm that they are in need of seeking varied offers that meet their nutritional needs, at the indicated time, hence 29% of Peruvians surveyed affirm eating out of home 2 or 3 times per month, placing the country as one of those who carry out this practice more frequently, since they no longer reserve food outside for special occasions, it is a way of life.

When choosing the place they want to go, the survey shows that Peruvians frequently attend formal restaurants (51%) and that lunch is the food they prefer to eat outside the home, with 70% of respondents to please, followed by dinner (51%) and finally breakfast (10%).

### 1.2 Problem

Peruvian people love to eat hamburgers at night. So as a part of this project, I will list and visualize all districts of Lima city that has great opportunity to open a new hamburger restaurant. That data might contribute to determining the top 5 districts in order to open a hamburger restaurant.

## 2. Data acquisition and cleaning

### 2.1 Data sources

To find the data of the all districts in Lima city I had to scraped the page [https://es.wikipedia.org/wiki/Lima\\_Metropolitana](https://es.wikipedia.org/wiki/Lima_Metropolitana) in order to extract the relevant information as a postal code, district, poblacion. To do this I had to used BeautifulSoup library for web scraping.

### 2.2 Data cleaning

Data scraped from URL source were use to generate a one table, but there were several problems at the time to get the coordinates of each district. The names of the districts of Lima were also from other districts of other countries so it generated confusion coordinates so to solve this problem. I had to put the prefix Lima to all districts in order to obtain more accuracy coordinates of Lima city.

### 2.2 Feature selection

After data cleaning, there were 50 districts and 5 features in the data.

	Ubicación	Distrito	Poblacion	Latitude	Longitude
0	070701	Lima, Callao	426 649	-12.003654	-77.119244
1	070702	Lima, Bellavista	78 489	-12.059736	-77.111161
2	070703	Lima, Carmen de La Legua	43 156	-12.039379	-77.090561
3	070704	Lima, La Perla	64 111	-12.071343	-77.117564
4	070705	Lima, La Punta	3955	-12.070896	-77.162264

Then I used folium map to create a map of all district of Lima city Peru.



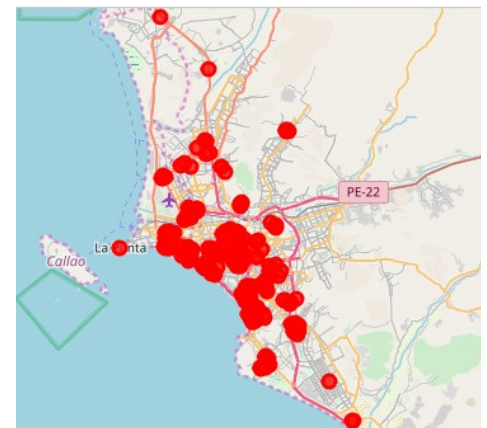
Next, I started utilizing the Foursquare API to explore the neighborhoods and segment them. Defining my Foursquare Credentials and Version, and could obtain some categories near to Lima districts.

	name	categories	lat	Ing
0	Pista 15 AIJCH	Airport	-12.007407	-77.120126
1	Servicios Generales Ivam	Business Service	-12.000775	-77.117696
2	Av. Faucett y Av. Santa Callao	Bus Stop	-12.000741	-77.116580

### 3. Methodology

As described above, we need to know the districts with the best consumers of hamburger restaurants so for that I analyzed all the hamburger restaurants registered in Foursquare in order to know which district has more hamburger restaurant.

	Localidad	Localidad Latitude	Localidad Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Lima, San Borja	-12.096452	-76.995690	Bembos	-12.096483	-77.002567	Burger Joint
1	Lima, San Borja	-12.096452	-76.995690	McArthur	-12.090125	-76.996221	Burger Joint
2	Lima, San Borja	-12.096452	-76.995690	Bembos	-12.097452	-76.990219	Burger Joint
3	Lima, San Borja	-12.096452	-76.995690	Crispy Gourmet	-12.091875	-77.003195	Burger Joint
4	Lima, San Borja	-12.096452	-76.995690	El Lomito	-12.098696	-77.001828	Burger Joint
5	Lima, San Borja	-12.096452	-76.995690	Kims	-12.102424	-76.994224	Burger Joint
6	Lima, San Borja	-12.096452	-76.995690	Sandwich Campeón	-12.102774	-77.001286	Burger Joint
7	Lima, Pachacámac	-12.250682	-76.906646	D'Paso	-12.255553	-76.913192	Burger Joint
8	Lima, Pachacámac	-12.250682	-76.906646	Chicharronería mamacona	-12.255152	-76.913327	Burger Joint
9	Lima, San Miguel	-12.078656	-77.095283	Milonga's Sandwichs	-12.077772	-77.096356	Burger Joint
10	Lima, San Miguel	-12.078656	-77.095283	Sanguchoñ Campesino	-12.078061	-77.092043	Burger Joint



Also I analyzed all the schools near to each district

	Localidad	Localidad Latitude	Localidad Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Lima, San Borja	-12.096452	-76.995690	Liceo Naval Almirante Guise	-12.095656	-76.999398	High School
1	Lima, San Miguel	-12.078656	-77.095283	Colegio Claretiano	-12.073374	-77.087876	School
2	Lima, San Miguel	-12.078656	-77.095283	MAAC	-12.073663	-77.100830	High School
3	Lima, San Miguel	-12.078656	-77.095283	Colegio Militar Leoncio Prado	-12.069256	-77.094389	High School
4	Lima, Rímac	-12.020304	-77.035463	colegio Nuestra Señora De La Consolación	-12.026545	-77.031580	High School
5	Lima, La Victoria	-12.073358	-77.016417	Colegio Parroquial San Ricardo	-12.072142	-77.022876	High School
6	Lima, La Victoria	-12.073358	-77.016417	Colegio Isabel La Católica	-12.070306	-77.023952	High School
7	Lima, La Victoria	-12.073358	-77.016417	COLEGIO 1111 - JOSE ANTONIO ENCINAS	-12.066202	-77.011607	High School
8	Lima, La Victoria	-12.073358	-77.016417	Nido Santa Maria	-12.076940	-77.010596	High School
9	Lima, La Victoria	-12.073358	-77.016417	high MR	-12.068783	-77.020297	High School
10	Lima, La Victoria	-12.073358	-77.016417	IEP Nuestra Señora de Cocharcas	-12.063397	-77.015283	High School



Also I analyzed all the universities near to each district

	Localidad	Localidad Latitude	Localidad Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Lima, San Borja	-12.096452	-76.995690	Entrenamiento MikroTik RouterOS by MKE Solutio...	-12.094538	-76.997903	University
1	Lima, San Borja	-12.096452	-76.995690	UPC - Escuela de Postgrado Sede San Borja	-12.095189	-76.998843	University
2	Lima, San Borja	-12.096452	-76.995690	EPE - Universidad Peruana de Ciencias Aplicada...	-12.095442	-76.999104	College Academic Building
3	Lima, San Miguel	-12.078656	-77.095283	Universidad Peruana de Ciencias Aplicadas - UPC	-12.076773	-77.093552	University
4	Lima, San Miguel	-12.078656	-77.095283	Universidad nacional del callao	-12.073245	-77.088157	University
5	Lima, San Miguel	-12.078656	-77.095283	Búnker NG, sede Maranga	-12.072247	-77.097340	University
6	Lima, San Miguel	-12.078656	-77.095283	Pabellón A - UPC Villa	-12.079104	-77.086201	University
7	Lima, La Victoria	-12.073358	-77.016417	I.E. Sagrada Familia	-12.066906	-77.021165	University
8	Lima, La Molina	-12.090177	-76.922338	Clinica Odontologica - USMP	-12.089297	-76.930656	University
9	Lima, Lima	-12.062107	-77.036526	Universidad Peruana de las Americas	-12.063070	-77.038343	University
10	Lima, Lima	-12.062107	-77.036526	Torres Tecnologicas - UTP	-12.066230	-77.036974	College Academic Building



And finally I analyzed all the company offices near to each district

	Localidad	Localidad Latitude	Localidad Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Lima, San Borja	-12.096452	-76.99569	Centro Naval - Sede San Borja	-12.097401	-76.996091	Event Space
1	Lima, San Borja	-12.096452	-76.99569	Liceo Naval Almirante Guise	-12.095656	-76.999398	High School
2	Lima, San Borja	-12.096452	-76.99569	RENIEC	-12.088055	-77.001373	Government Building
3	Lima, San Borja	-12.096452	-76.99569	Torre Del Arte	-12.090663	-77.004488	Office
4	Lima, San Borja	-12.096452	-76.99569	Dental Kahn	-12.089430	-76.989741	Dentist's Office
5	Lima, San Borja	-12.096452	-76.99569	Anqa - Centro Odontológico	-12.098874	-77.001920	Dentist's Office
6	Lima, San Borja	-12.096452	-76.99569	Consultorios Odontológicos Dr. Manuel Niquén	-12.098545	-76.999708	Dentist's Office
7	Lima, San Borja	-12.096452	-76.99569	Von Der Memblin	-12.105172	-77.001735	Veterinarian
8	Lima, San Borja	-12.096452	-76.99569	SUNARP	-12.103669	-77.001368	Government Building
9	Lima, San Borja	-12.096452	-76.99569	Centro de Salud San Borja	-12.101833	-76.993536	Doctor's Office
10	Lima, San Borja	-12.096452	-76.99569	Clinica Quintanilla	-12.096387	-77.005686	Hospital



I did it for the purpose of know how many potential customers exist in each district. I was summarized in number in the following table

	Ubicación	Localidad	Poblacion	Latitude	Longitudo	Burger	High Schools	Universities	Offices
36	150130	Lima, San Borja	114 688	-12.096452	-76.995690	7.0	1.0	3.0	50.0
28	150122	Lima, Pachacámac	131 037	-12.250682	-76.906646	2.0	0.0	0.0	8.0
42	150136	Lima, San Miguel	138 226	-12.078656	-77.095283	16.0	3.0	4.0	50.0
44	150138	Lima, Santa María del Mar	1638	-12.401403	-76.775465	0.0	0.0	0.0	11.0
34	150128	Lima, Rímac	167 617	-12.020304	-77.035463	4.0	1.0	0.0	49.0

to them put some weight on each column created, for example

# negative weight, because the person wants to open a burger joint and thus wants to avoid concurrence as much as possible

weight\_burger = -1

# positive weight, because high school students are good customers

weight\_schools = 1

# positive weight, because uni students are good customers

weight\_uni = 1.5

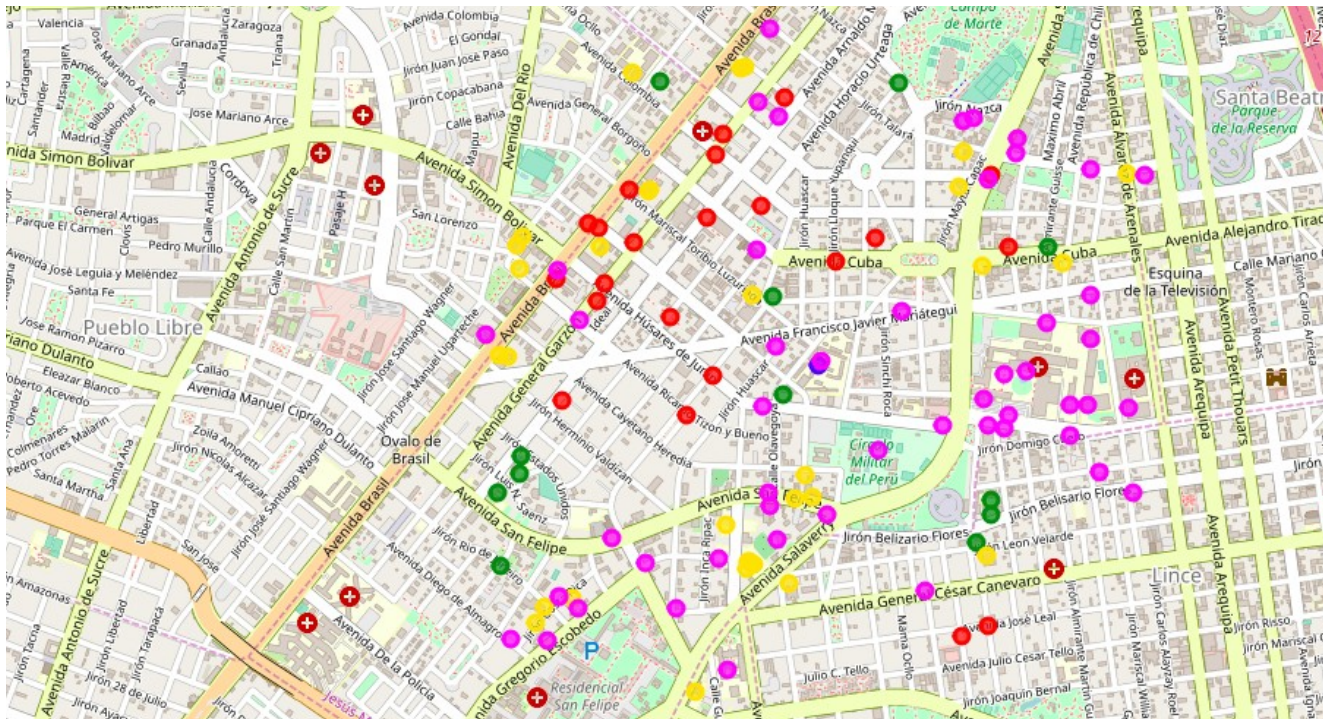
# positive weight because employees are even better customers

weight\_offices = 2

### 3. Results

	Localidad	Score
19	Lima, Jesús María	138.0
7	Lima, Lima	131.0
30	Lima, Pueblo Libre	115.0
11	Lima, Breña	115.0
46	Lima, Santiago de Surco	111.5
27	Lima, Miraflores	107.0
22	Lima, Lince	106.0
47	Lima, Surquillo	100.0
4	Lima, La Punta	99.5
36	Lima, San Borja	98.5
26	Lima, Magdalena del Mar	95.0
34	Lima, Rímac	95.0
15	Lima, Chorrillos	93.5
3	Lima, La Perla	93.5
21	Lima, La Victoria	93.5
42	Lima, San Miguel	93.0
1	Lima, Bellavista	93.0
17	Lima, El Agustino	92.0
23	Lima, Los Olivos	91.0
0	Lima, Callao	91.0
2	Lima, Carmen de La Legua	91.0
39	Lima, San Juan de Miraflores	90.0
45	Lima, Santa Rosa	84.0
18	Lima, Independencia	81.0
18	Lima, Independencia	81.0
10	Lima, Barranco	81.0
20	Lima, La Molina	79.5
5	Lima, Mi Perú	76.0
41	Lima, San Martín de Porres	60.0
48	Lima, Villa El Salvador	45.0
16	Lima, Comas	44.0
38	Lima, San Juan de Lurigancho	44.0
31	Lima, Puente Piedra	30.0
32	Lima, Punta Hermosa	27.0
44	Lima, Santa María del Mar	22.0
33	Lima, Punta Negra	19.0
28	Lima, Pachacámac	14.0
49	Lima, Villa María del Triunfo	12.0
29	Lima, Pucusana	12.0
6	Lima, Ventanilla	12.0
9	Lima, Ate	10.0
40	Lima, San Luis	2.0
37	Lima, San Isidro	2.0
43	Lima, Santa Anita	2.0
14	Lima, Chaclacayo	0.0
12	Lima, Carabayllo	0.0
35	Lima, San Bartolo	0.0
8	Lima, Ancón	0.0
24	Lima, Lurigancho	0.0
25	Lima, Lurín	0.0

In the above table we noticed that Jesus Maria district has the greatest score with 138, so this district is the best option for open a new hamburger restaurant. This is the map with all the categories in Jesus Maria



## 4. Conclusion

After analyzed all the district in Lima, I can conclude that Jesus Maria district has more potential client to buy hamburger. So is the best option.

The top 5 district are:

- 1.Jesus Maria
- 2.Lima
- 3.Breña
- 4.Pueblo Libre
- 5.Surco