

Introduction

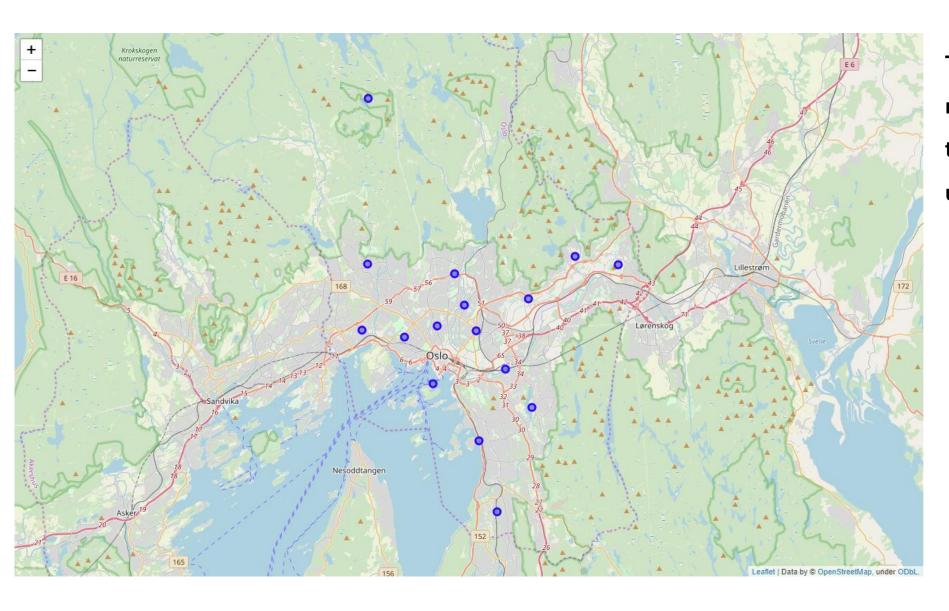
- My client, who is a very great chef and an intelligent businessman. He already owes a restaurant in Oslo city center serving amazing food.
- His goal is to find better locations to expand his business into a chain restaurant within Oslo commune.

Methodology and Data

- Information of Oslo boroughs and population can be obtained from 'citypopulation.de' to judge the location with the topmost populated boroughs.
- After the topmost populated boroughs have been identified, Foursquare will be
 utilized to find the venues within the 1000-meter radius around the center of
 each borough. These venues could be like cinemas or centers (shopping or
 fitness) or public parks or famous tourist attractions etc,. These should be the
 priorities to choose locations for restaurants. Because it will increase the
 visibility and attract more customers to the potential restaurants.

Methodology and Data

- After choosing the potential locations, I will use Geo-location data from Foursquare to see if there are public transportations around the locations. Because Oslo is a green city and there are many people who use public transportation here.
- Utilizing Foursquare to find out other restaurants, shopping events, nightlife events etc., in the 500-meter radius to find out what kinds of businesses are in the area and if there will any potential for restaurant concept
- Map with geo-location data will be generated with potential locations to be presented to the client.



The locations of different neighborhoods in Oslo on the map generated by utilizing the folium package

	Population	latitude	longitude
Neighborhood			
Frogner	58897	59.922224	10.706649
Gamle Oslo	55683	59.899237	10.734767
Grünerløkka	60844	59.925471	10.777421

The list of different neighborhoods of Oslo shorten according to client's requirements that he only interests in the neighborhood with more than 55000 people

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Frogner	Italian Restaurant	Playground	Asian Restaurant	Wine Shop	Movie Theater	Park	Art Museum	Sandwich Place	Scandinavian Restaurant	Sculpture Garden
1	Gamle Oslo	Scandinavian Restaurant	Castle	Italian Restaurant	Seafood Restaurant	Bathing Area	Café	Other Nightlife	History Museum	Gourmet Shop	Asian Restaurant
2	Grünerløkka	Café	Yoga Studio	Gym / Fitness Center	Sushi Restaurant	Botanical Garden	Park	Cocktail Bar	Dog Run	Gourmet Shop	Asian Restaurant

The top 10 most common venues were identifed by Foursquare for each neighborhood.

Venue Category	Venue Longitude	Venue Latitude	Venue	Neighborhood Longitude	Neighborhood Latitude	Neighborhood
Movie Theater	10.709292	59.917495	Gimle Kino	10.706649	59.922224	Frogner
Castle	10.736754	59.906683	Akershus Festning (Akershus festning)	10.734767	59,899237	Gamle Oslo
Café	10.761000	59.925457	Oslovelo	10.777421	59.925471	Grünerløkka

- 1. Frogner area has a "Movie theater" which is in the top 5 most common venues in this area, while all the top venues above it are mainly restaurants.
- 2. Gamle Oslo has the "Castle" as a famous tourist attraction which is in the top 2 most common venue in this area with the top 1 is a scandanavian restaurant.
- 3. Grünerløkka has a famous coffee shop "Oslovelo" which is top 1 most common venues in this area. Others in the list are restaurants and one tourist attraction and one public park. However these are seasonal. So, we will not have many people visiting this all year round.
- 4. These three venues also fit in the requirement of the client. The list also shows us that there are many restaurants around these venues, which is showing a good sign for business. Therefore we will focus on these venue as the primary locations to open the restaurants.

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	category_ld
Gimle Kino	59.917495	10.709292	Frogner kirke (B)	59.917603	10.707590	Bus Stop
Gimle Kino	59.917495	10.709292	Skovveien (B)	59.915229	10.715638	Bus Stop
Gimle Kino	59.917495	10.709292	Lapsetorvet (B)	59.915226	10.717355	Bus Stop
Gimle Kino	59.917495	10.709292	Riddervolds plass (b)	59.918462	10.719029	Bus Stop
Akershus Festning (Akershus festning)	59.906683	10.736754	Kongens gate (B)	59.910858	10.742011	Bus Stop
Akershus Festning (Akershus festning)	59.906683	10.736754	Kvadraturen (B)	59.910661	10.743156	Bus Stop
Oslovelo	59.925457	10.761000	Sannergata (B)	59.928497	10.759698	Bus Stop
Oslovelo	59.925457	10.761000	Telthusbakken (B)	59.924611	10.750656	Bus Stop

Oslo is a green city. So, it is important that these locations should be easily accessed by public transportation. The Fousquare search showed that there are bus stops within 600-meter radius of these locations which is around 5-7 minute walking distance.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	category_ld
0	Gimle Kino	59.917495	10.709292	Bokbacka	59.917795	10.718433	Scandinavian Restaurant
1	Gimle Kino	59.917495	10.709292	Forest & Brown	59.916811	10.714630	Bar
2	Gimle Kino	59.917495	10.709292	F6 Cocktail Bar & Lounge	59.915716	10.716577	Cocktail Bar
3	Gimle Kino	59.917495	10.709292	San Francisco Bread Bowl	59.916364	10.715833	American Restaurant
4	Gimle Kino	59.917495	10.709292	Fru Burums	59.916009	10.716007	Bar
5	Gimle Kino	59.917495	10.709292	Champagneria	59.915261	10.717233	Champagne Bar
6	Gimle Kino	59.917495	10.709292	BAR Bygdøy Allé Restaurant	59.916412	10.711658	Nightclub
7	Gimle Kino	59.917495	10.709292	Lille Andys Pub	59.916684	10.713587	Sports Bar
8	Gimle Kino	59.917495	10.709292	Bar	59.916391	10.711525	Bar
9	Gimle Kino	59.917495	10.709292	Bygdøy Allé 3	59.914954	10.716959	Bar
10	Akershus Festning (Akershus festning)	59.906683	10.736754	The Dubliner Folk Pub	59.909823	10.740435	Pub
11	Akershus Festning (Akershus festning)	59.906683	10.736754	The Whisky Bar	59.909957	10.740860	Whisky Bar
12	Akershus Festning (Akershus festning)	59.906683	10.736754	Café Skansen	59.910320	10.738643	Bar
13	Akershus Festning (Akershus festning)	59.906683	10.736754	Vippa	59.901919	10.741334	Other Nightlife
14	Akershus Festning (Akershus festning)	59.906683	10.736754	Bruno's Proseccheria	59.910352	10.739681	Italian Restaurant
15	Akershus Festning (Akershus festning)	59.906683	10.736754	Naustet	59.906716	10.746678	Bar
16	Akershus Festning (Akershus festning)	59.906683	10.736754	The Mini Bottle Gallery	59.909663	10.743212	Art Gallery
17	Akershus Festning (Akershus festning)	59.906683	10.736754	Gamle Raadhus	59.909998	10.740284	Scandinavian Restaurant
18	Akershus Festning (Akershus festning)	59.906683	10.736754	Kullt	59.911180	10.735850	Bar
19	Akershus Festning (Akershus festning)	59.906683	10.736754	The Dirty Cow	59.911107	10.741435	Bar
20	Oslovelo	59.925457	10.761000	Grünerløkka Brygghus	59.925018	10.759250	Pub
21	Oslovelo	59.925457	10.761000	Bar Boca	59.925247	10.759195	Bar
22	Oslovelo	59.925457	10.761000	Bass Oslo	59.927646	10.759204	Bar
23	Oslovelo	59.925457	10.761000	Aku Aku	59.924783	10.759210	Cocktail Bar
24	Oslovelo	59.925457	10.761000	Meyers	59.926925	10.759038	Bar
25	Oslovelo	59.925457	10.761000	Liebling	59.927271	10.756797	Café
26	Oslovelo	59.925457	10.761000	Parkteatret	59.923403	10.758397	Performing Arts Venue
27	Oslovelo	59.925457	10.761000	Grünerløkka Brygghus Brewery	59.924676	10.762719	Brewery
28	Oslovelo	59.925457	10.761000	Illegal Burger	59.922715	10.757588	Burger Joint
29	Oslovelo	59.925457	10.761000	Stolen Café & Bar	59.924219	10.762824	Bar

To attract more customer. These locations should be located within hot areas where there are many nighlife events. The Fousquare search with venue category «nightlife» has showed there are many hot nightlife spots within the 600-meter radius of these locations.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	category_ld
0	Gimle Kino	59.917495	10.709292	Feinschmecker	59.918456	10.708131	Scandinavian Restaurant
1	Gimle Kino	59.917495	10.709292	W. B. Samson	59.918568	10.708996	Bakery
2	Gimle Kino	59.917495	10.709292	Sawan	59.918801	10.715841	Asian Restaurant
3	Gimle Kino	59.917495	10.709292	eckers	59.920020	10.707720	Sandwich Place
4	Gimle Kino	59.917495	10.709292	Jewel of India	59.915844	10.716844	Indian Restaurant
5	Gimle Kino	59.917495	10.709292	Galt	59.916580	10.713361	Restaurant
6	Gimle Kino	59.917495	10.709292	El Camino	59.916912	10.714733	Mexican Restaurant
7	Gimle Kino	59.917495	10.709292	Bokbacka	59.917795	10.718433	Scandinavian Restaurant
8	Gimle Kino	59.917495	10.709292	Pizza Da Mimmo	59.916366	10.716581	Pizza Place
9	Gimle Kino	59.917495	10.709292	Listen To Baljit	59.915130	10.717637	Indian Restaurant
10	Akershus Festning (Akershus festning)	59.906683	10.736754	Solsiden Restaurant	59.907454	10.734551	Seafood Restaurant
11	Akershus Festning (Akershus festning)	59.906683	10.736754	Festningen Restaurant	59.908461	10.735412	Restaurant
12	Akershus Festning (Akershus festning)	59.906683	10.736754	Gamle Logen	59.907171	10.741508	Scandinavian Restaurant
13	Akershus Festning (Akershus festning)	59.906683	10.736754	Skur 33 - Trattoria da mare	59.907751	10.733430	Italian Restaurant
14	Akershus Festning (Akershus festning)	59.906683	10.736754	Statholdergaarden	59.909497	10.743004	Restaurant
15	Akershus Festning (Akershus festning)	59.906683	10.736754	Sentralen Restaurant	59.911312	10.740274	Scandinavian Restaurant
16	Akershus Festning (Akershus festning)	59.906683	10.736754	Engebret Café	59.908753	10.741882	Café
17	Akershus Festning (Akershus festning)	59.906683	10.736754	Bruno's Proseccheria	59.910352	10.739681	Italian Restaurant
18	Akershus Festning (Akershus festning)	59.906683	10.736754	Brasserie Hansken	59.910390	10.739528	French Restaurant
19	Akershus Festning (Akershus festning)	59.906683	10.736754	Pipervika	59.911043	10.730686	Restaurant
20	Oslovelo	59.925457	10.761000	Oslovelo	59.925457	10.761000	Café
21	Oslovelo	59.925457	10.761000	Godt Brød	59.923942	10.759213	Bakery
22	Oslovelo	59.925457	10.761000	Vespa & Humla	59.924855	10.763279	Café
23	Oslovelo	59.925457	10.761000	Ostebutikken	59.926864	10.758968	French Restaurant
24	Oslovelo	59.925457	10.761000	Munchies	59.924223	10.759220	Burger Joint
25	Oslovelo	59.925457	10.761000	Focacceria	59.923632	10.757336	Italian Restaurant
26	Oslovelo	59.925457	10.761000	Liebling	59.927271	10.756797	Café
27	Oslovelo	59.925457	10.761000	Villa Paradiso	59.923484	10.757412	Italian Restaurant
28	Oslovelo	59.925457	10.761000	Bon Lio	59.922238	10.761378	Spanish Restaurant
29	Oslovelo	59.925457	10.761000	The Indus Fine Dining	59.925511	10.756917	Indian Restaurant

The Foursquare search with venue category "Food" also showed us that there are many restaurants around these venues, which is showing a good sign for business.

Therefore we will focus on these venue as the primary locations to open the restaurants.



The potential restaurants should be located within 600-meter radius of these three primary locations.

Conclusion

- Purpose of this project was to find suitable locations to open a chain-restaurants in Oslo. Our analysis has been able to narrow down to 3 neighborhoods (Frogner, Gamle Oslo, and Grunnerløka) and three potential locations in these boroughs (Gimle Kino, Arkehus Slott, and Oslovelo) with many hot venues (Transportation, food services and night life spots) within a 600-meter radius.
- Therefore, opening restaurants within this radius will be a good choice for business. However, the final decission on optimal restaurant locations will be made by stakeholders based on our results and other characteristics of each neighborhood.