




Valparaíso vs. Viña del Mar

Coursera Capstone Project



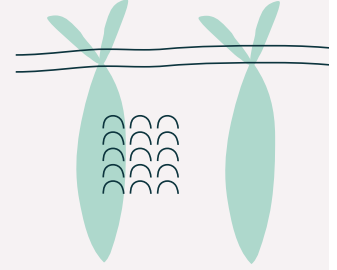
Objectives

- Gain insights about Viña del Mar and Valparaíso from Foursquare's data
 - Get information about which businesses are more common in a specific city
 - Get information about business opportunities for each city
 - Be able to tell my client what kind of business they should open, and in which city
- 

Viña del Mar

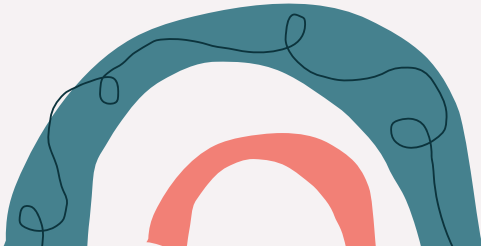
- Modern and touristic city
- Friendly with foreigners
- Very rich and has a lot of commerce
- Population: 324,836





Valparaíso

- Traditional and touristic city
- Not as friendly as Viña del Mar
- Has a lot of debt due to poor management
- Population: 284,630



Data obtained from FourSquare

```
In [49]: 1 dataframeFilteredVina.head(10)
```

Out[49]:

	name	categories	address	crossStreet	lat	lng	labeledLatLngs	distance	postalCode	cc	city
0	Frank Hostel	Hostel	Avenida Valparaíso	Elchevers	-33.024464	-71.554852	[[{"label": "display", "lat": -33.0244636735144...	262	2571511	CL	Viña del Mar
1	Purolivo	Gourmet Shop	Galería Somar	Loc. 6-9	-33.024226	-71.553209	[[{"label": "display", "lat": -33.0242261422981...	133	NaN	CL	Viña del Mar
2	Panzoni	Italian Restaurant	Paseo Cousiño 12	e/ Viana y Av. Valparaíso	-33.025731	-71.553494	[[{"label": "display", "lat": -33.0257310185489...	199	NaN	CL	Viña del Mar
3	Fuente de Soda Cevasco	Hot Dog Joint	Av. Valparaíso 700	NaN	-33.024952	-71.552865	[[{"label": "display", "lat": -33.0249521757472...	86	NaN	CL	Viña del Mar
4	Déjà Vu	Latin American Restaurant	Calle Viana 144, 2do. piso	Paseo Cousiño	-33.025785	-71.553563	[[{"label": "display", "lat": -33.0257852977384...	208	NaN	CL	Viña del Mar
5	Bogarín	Juice Bar	Av. Valparaíso 533	Quinta	-33.024535	-71.554497	[[{"label": "display", "lat": -33.0245345160844...	247	NaN	CL	Viña del Mar
6	La Nonna	Fast Food Restaurant	Quinta 255	NaN	-33.025106	-71.55416					
7	Quinta Vergara	Forest	NaN	NaN	-33.027990	-71.55242					
8	Hotel Pacifico	Hotel	2 Poniente 154	NaN	-33.020759	-71.55361					
9	Empanadas Royal	Diner	Traslaviña 138	NaN	-33.023503	-71.55820					

```
In [48]: 1 dataframeFilteredValpo.head(10)
```

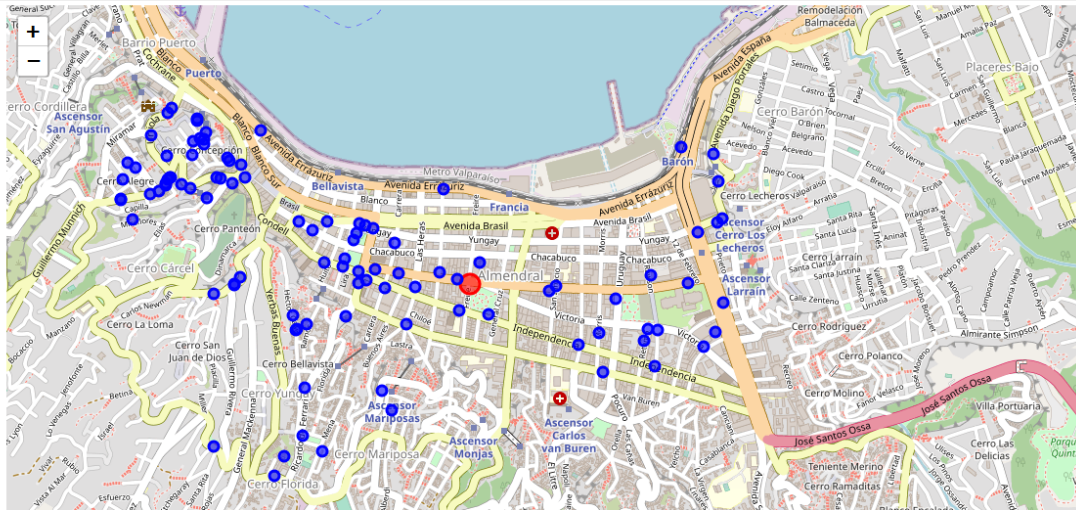
Out[48]:

	name	categories	address	lat	lng	labeledLatLngs	distance	cc	city
0	Sazón Nazca	Peruvian Restaurant	Rodríguez 473	-33.046749	-71.616066	[[{"label": "display", "lat": -33.0467493510948...	135	CL	Valparaíso
1	Habrakadabra Sabores	Pizza Place	Independencia 2089	-33.048186	-71.615182	[[{"label": "display", "lat": -33.048186...	117	CL	Valparaíso
2	La Riviera	Pizza Place	Pedro Montt 2405	-33.047278	-71.610947	[[{"label": "display", "lat": -33.0472778114022...	351	CL	Valparaíso
3	Bogarín	Sandwich Place	Plaza Victoria 1670	-33.046735	-71.619637	[[{"label": "display", "lat": -33.0467354163366...	462	CL	Valparaíso
4	Govindas	Vegetarian / Vegan Restaurant	General Cruz 539	-33.048297	-71.613903	[[{"label": "display", "lat": -33.0482972466697...	143	CL	Valparaíso
5	Hotzenplotz	German Restaurant	Hector Calvo 331	-33.048339	-71.622510	[[{"label": "display", "lat": -33.048339...	738	CL	Valparaíso
6	Sazón Nazca	Peruvian Restaurant	Edwards 636	-33.047146	-71.619604	[[{"label": "display", "lat": -33.0471459946967...	456	CL	Valparaíso
7	Café CasaPlan	Art Gallery	Brasil 1490	-33.044888	-71.620990	[[{"label": "display", "lat": -33.044888...	639	CL	Valparaíso
8	Museo de Historia Natural de Valparaíso	History Museum	Condell 1546	-33.046391	-71.621133	[[{"label": "display", "lat": -33.0463906513234...	605	CL	Valparaíso
9	Arte y Salero	Tapas Restaurant	Av. Pedro Montt 2382	-33.047448	-71.611258	[[{"label": "display", "lat": -33.047448205669...	323	CL	Valparaíso

Valparaíso Map

Valparaíso:

```
1 venuesMapValpo = folium.Map(location=[latitudeValpo,longitudeValpo],zoom_start=15)
2
3 folium.CircleMarker(
4     [latitudeValpo,longitudeValpo],
5     radius=10,
6     popup='Center of Valparaíso',
7     fill=True,
8     color='red',
9     fill_color='red',
10    fill_opacity=0.6).add_to(venuesMapValpo)
11
12 for lat, lng, label in zip(dataframeFilteredValpo.lat, dataframeFilteredValpo.lng, dataframeFilteredValpo.categories):
13     folium.CircleMarker([lat,lng],radius=5,fill=True,popup=label,color='blue',fill_color='blue',fill_opacity=0.6).add_to(venuesMapValpo)
14
15 display(venuesMapValpo)
```



Viña del Mar Map

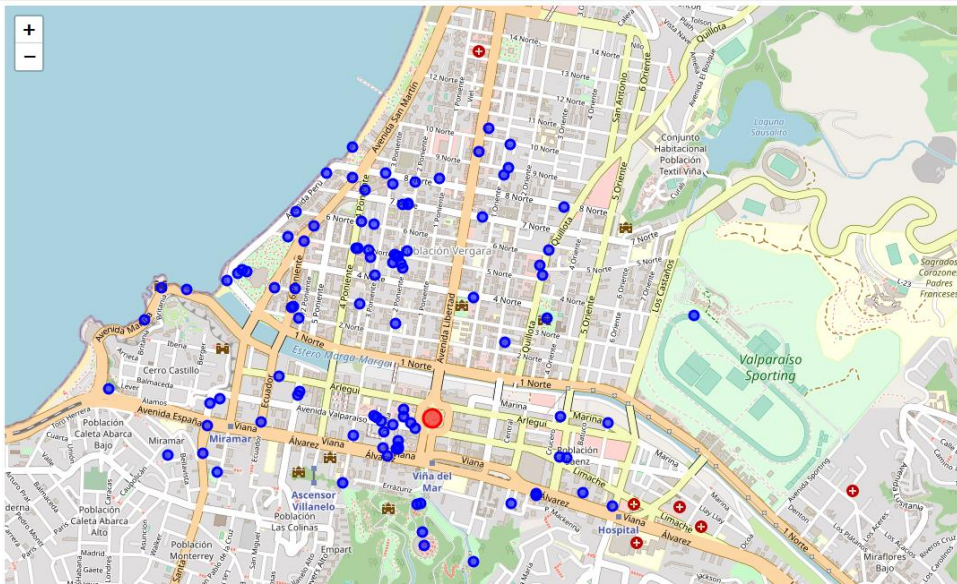
Viña del Mar:

```
In [82]: venuesMapVina = folium.Map(location=[latitudeVina,longitudeVina],zoom_start=15)

folium.CircleMarker(
    [latitudeVina,longitudeVina],
    radius=10,
    popup='Center of Viña del Mar',
    fill=True,
    color='red',
    fill_color='red',
    fill_opacity=0.6).add_to(venuesMapVina)

for lat, lng, label in zip(dataframeFilteredVina.lat, dataframeFilteredVina.lng, dataframeFilteredVina.categories):
    folium.CircleMarker([lat,lng],radius=5,fill=True,popup=label,color='blue',fill_color='blue',fill_opacity=0.6).add_to(venuesMapVina)

display(venuesMapVina)
```



Joining data together in a single dataframe

Joining data in a single call

```

Valparaiso and Viña del Mar:

In [184]: latitudeValpoVina = -33.037395
longitudeValpoVina = -71.584546

venuesMapValpoVina2 = folium.Map(location=[latitudeValpoVina,longitudeValpoVina],zoom_start=14)

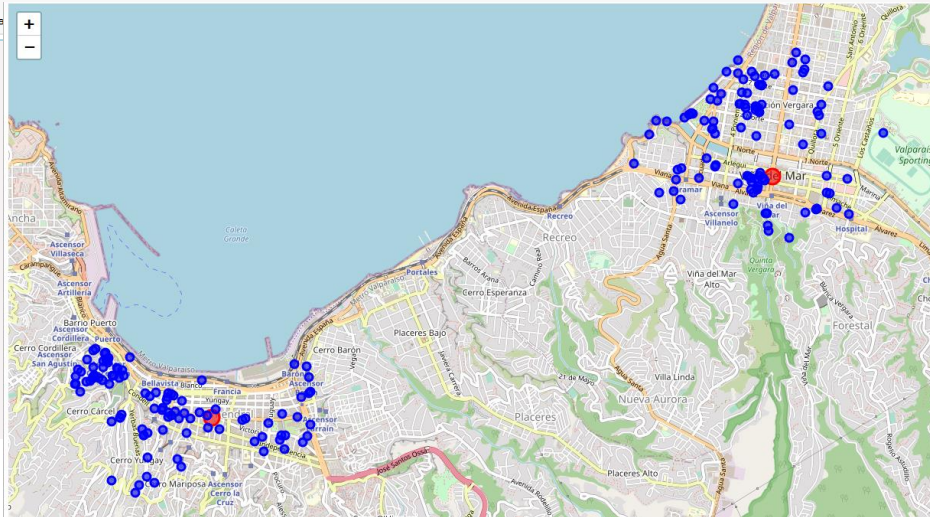
folium.CircleMarker(
    [latitudeVina,longitudeVina],
    radius=10,
    popup='Center of Viña del Mar',
    fill=True,
    color='red',
    fill_color='red',
    fill_opacity=0.6).add_to(venuesMapValpoVina2)

folium.CircleMarker(
    [latitudeValpo,longitudeValpo],
    radius=10,
    popup='Center of Valparaiso',
    fill=True,
    color='red',
    fill_color='red',
    fill_opacity=0.6).add_to(venuesMapValpoVina2)

for lat, lng, label in zip(dataframeValpoVina.lat, dataframeValpoVina.lng, dataframeValpoVina.categories):
    folium.CircleMarker([lat,lng],radius=5,fill=True,popup=label,color='blue',fill_color='blue',fill_opacity=0.6).add_to(venuesMapValpoVina2)

display(venuesMapValpoVina2)

```



Let's see what kind of venues each city has the most

```
In [135]: df = dataframeFilteredValpo.groupby('categories').count()  
df['id'].sort_values(ascending=False).head(10)
```

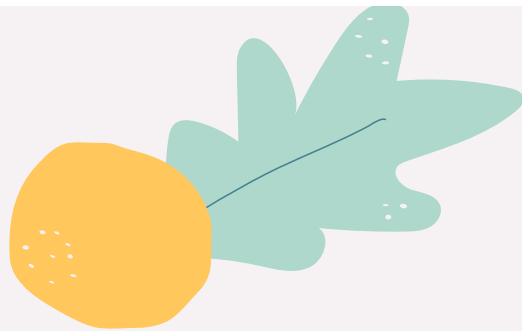
```
Out[135]: categories  
Restaurant      9  
Hotel            7  
Pizza Place     6  
Bar             4  
Café            4  
Bakery          3  
Dessert Shop    3  
Peruvian Restaurant 3  
Scenic Lookout  3  
Neighborhood    3  
Name: id, dtype: int64
```

```
In [141]: df = dataframeFilteredVina.groupby('categories').count()  
df['id'].sort_values(ascending=False).head(10)
```

```
Out[141]: categories  
Sushi Restaurant  7  
Coffee Shop      6  
Italian Restaurant 5  
Bed & Breakfast  5  
Hotel            5  
Ice Cream Shop   4  
Burger Joint     3  
Pizza Place      3  
Tea Room         3  
Dessert Shop     2  
Name: id, dtype: int64
```

Most common venue categories for each city





Out[193]:

	city	Art Gallery	Art Museum	Austrian Restaurant	Bagel Shop	Bakery	Bar	Beach	Bed & Breakfast	Beer Bar	...	Supermarket	Surf Spot	Sushi Restaurant	Tailor Shop	Tapas Restaurant	Tea Room	Thai Restaurant	Theater	Vegetarian / Vegan Restaurant	Yoga Studio
0	Valparaíso	0.022222	0.011111	0.000000	0.000000	0.033333	0.033333	0.000000	0.022222	0.000000	...	0.000000	0.0	0.011111	0.000000	0.011111	0.000000	0.011111	0.011111	0.022222	0.000000
1	Viña del Mar	0.000000	0.011494	0.011494	0.011494	0.000000	0.022989	0.011494	0.045977	0.011494	...	0.011494	0.0	0.080460	0.011494	0.011494	0.022989	0.000000	0.000000	0.000000	0.011494

2 rows × 90 columns

One-hot encoding helps us
find the frequency of
occurrence for each category

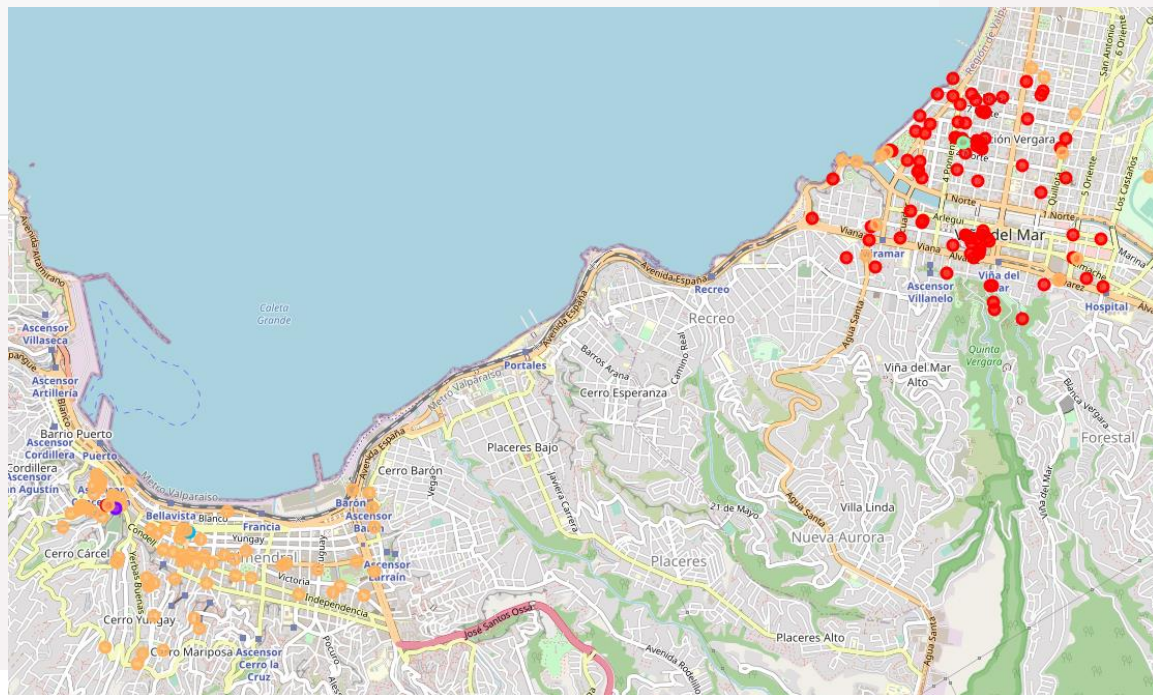


```
In [248]: map_clusters = folium.Map(location=[latitudeValpoVina,longitudeValpoVina],zoom_start=11)
x = np.arange(kclusters)
ys = [i + x + (i*x)**2 for i in range(kclusters)]
colors_array = cm.rainbow(np.linspace(0,1,len(ys)))
rainbow = [colors.rgb2hex(i) for i in colors_array]

markers_colors = []
for lat,lon,poi,cluster in zip(vinaValpoMerged3['lat'],vinaValpoMerged3['lng'],vinaValpoMerged3['name'],vinaValpoMerged3['Cluster Labels'].dropna()):
    label = folium.Popup(str(poi)+ ' Cluster ' + str(cluster), parse_html=True)
    cluster = int(cluster)
    folium.CircleMarker(
        [lat,lon],
        radius=5,
        popup=label,
        color=rainbow[cluster-1],
        fill=True,
        fill_color=rainbow[cluster-1],
        fill_opacity=0.7).add_to(map_clusters)

map_clusters
```

K-means clustering



Some insights



Valparaiso's venues are
very homogeneous



Viña del Mar has some
venues like Valparaíso

...but other kinds of venues are
really different



There are some outliers
that are very unique to
both cities



What the data tells us

- Both cities venues are mostly restaurants
 - Valparaiso is more boheme: it has bars and neighborhoods as more common categories.
 - Valparaiso venues are very different from Viña del Mar
 - Viña del Mar's top venue category is far from Valparaiso's top 10 categories: Sushi restaurant
- 

Conclusions

Suggestions for my client:

- Open a business in Valparaíso, make it something that is successful in Viña del Mar but is missing from Valparaíso.
- The business should be a sushi restaurant, because:
 - Sushi restaurants are missing from Valparaíso and are the most popular venue category in Viña del Mar
 - Being a coastal city, many varieties of fish are readily available
 - Restaurants are popular in Valparaíso
- Also, bars are successful in Valparaíso, so sell alcohol!!! Sake and beers are a great combination with sushi.

