

# Market analysis for a new restaurant chain in the near east

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## **A. Introduction**

### **A.1. Description & Discussion of the Background**

Izmir, in Turkey's most populous province, currently being the third largest city in the country. Its population consists of 4,367,251 inhabitants as of 2019. Izmir is a city on Turkey's Aegean coast. Known as Smyrna in antiquity, it was founded by the Greeks, taken over by the Romans and rebuilt by Alexander the Great before becoming part of the Ottoman Empire in the 15th century. Today, its expansive archaeological sites include the Roman Agora of Smyrna, now an open-air museum. The hilltop Kadifekale, or Velvet Castle, built during Alexander's reign, overlooks the city.

The city is split into 30 districts and 1'297 neighborhoods of these districts. The population density throughout the urban area is 364 persons per square kilometer. It is geographically located in the west of Turkey and the entire province is located in the Aegean Region.

The founders are trying to figure out where the best place for a new burger or pizza restaurant in the Izmir/Konak region could possibly be entailing abundant opportunities and high profit margins. Focusing mainly on the area of Konak, the dedicated team's strategy is to enter the market close to competitors with a penetration pricing strategy. Gradually gaining market share while continuously holding the first class service and 'client first' paradigm up.

In order to tackle this challenge, our data analytics team will create data frame for pizza- and for burger restaurants separately in a first step. Once this is set up, they are going to search for specific venue categories which is "burger" and "pizza". The team's plan is to make use of Foursquare in order to request all pizza- and burger restaurants within the region of Konak. Holistically visualizing all the burger and pizza restaurants will follow as a last step.

Thus, the final result will essentially be a map including a categories chart where the pizza and burger restaurants will be distributed.

## A.2. Data Description

### A.2.1 Data Sources

Most of the information such as latitude, longitude, categories and name of restaurant can be found through the use of the Foursquare API. In the following sections we will see how exactly we can make use of the Foursquare API in order to get the most common venues of Izmir.

### A.2.2. Data Cleaning

Data cleansing and preparation steps will include the following tweaks

- Identifying and handling missing values
- Data formatting
- Data normalization
- Data filtering

## B. Methodology

As a data repository, the team will mainly use GitHub since its open source. The following two extracts show the metadata components *name*, *categories*, *Latitude* and *Longitude* of the city including the respective first five entries of the data frame.

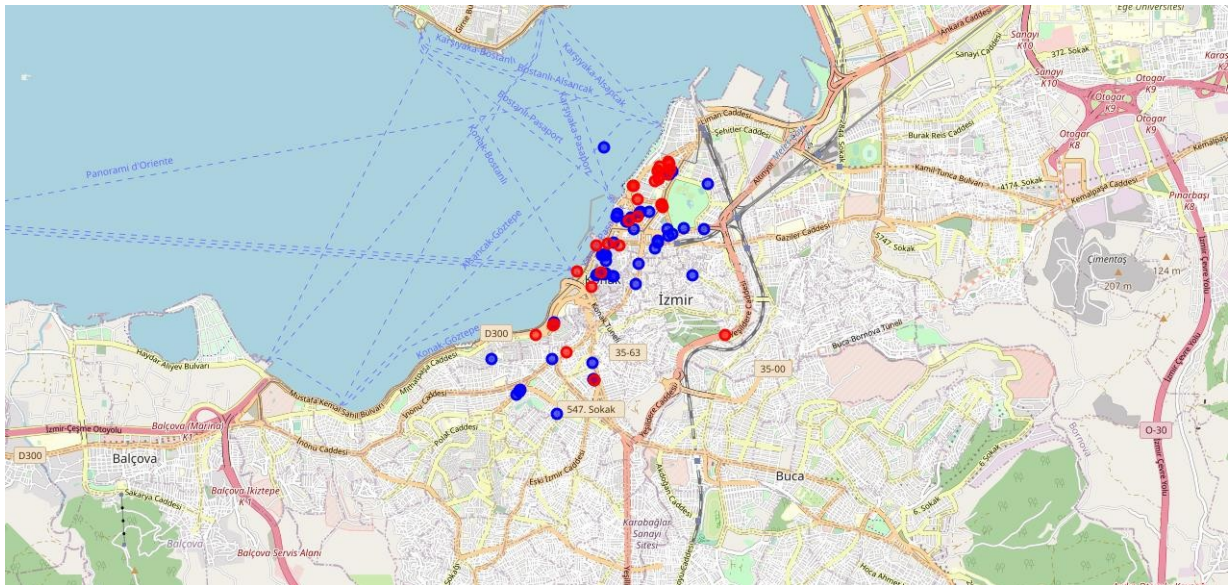
|   | name                  | categories  | lat       | lng       |
|---|-----------------------|-------------|-----------|-----------|
| 0 | Pizza Villa           | Pizza Place | 38.418143 | 27.130593 |
| 1 | Palmiye Döner & Pizza | Pizza Place | 38.422516 | 27.132295 |
| 2 | Tadım Pizza           | Pizza Place | 38.420868 | 27.130735 |
| 3 | Piu Pizza             | Pizza Place | 38.420827 | 27.130185 |
| 4 | Luciano Pizza & Döner | Café        | 38.420832 | 27.130486 |

*Fig.1 Data frame of pizza restaurants*

|   | name        | categories           | lat       | lng       |
|---|-------------|----------------------|-----------|-----------|
| 0 | Burger King | Fast Food Restaurant | 38.416406 | 27.128369 |
| 1 | Burger King | Fast Food Restaurant | 38.422126 | 27.129206 |
| 2 | Burger No 7 | Burger Joint         | 38.432755 | 27.142415 |
| 3 | Burger King | Fast Food Restaurant | 38.403354 | 27.128846 |
| 4 | Burger King | Fast Food Restaurant | 38.428603 | 27.136513 |

*Fig.2 Data frame of burger restaurants*

The team applied the Python Folium library to visualize all the geographic details of Izmir/Konak and its burger and pizza restaurants in a neat way. Latitudes and longitudes were used to compile the graph below:



*Fig.3 Coordinates of burger restaurants in "red" and pizza restaurants in "blue"*

Very obvious on the first look, most burger restaurants are located to west bank of Konak and most pizza restaurants are located more to the city center of Konak.

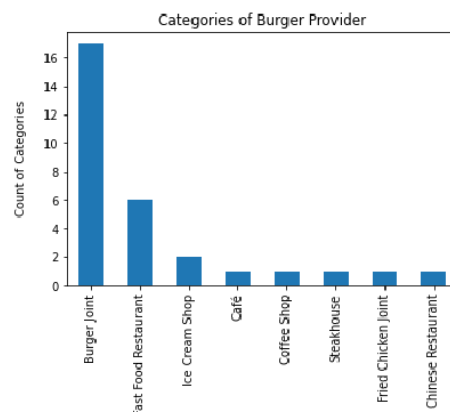
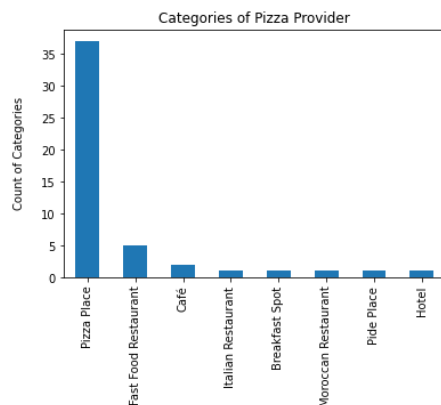
To visualize the categories or sub-types of restaurants that the dataset contains, the team used bar charts. This allowed them to understand the data better with a more granular insight.

|                      |    |
|----------------------|----|
| Pizza Place          | 37 |
| Fast Food Restaurant | 5  |
| Café                 | 2  |
| Italian Restaurant   | 1  |
| Breakfast Spot       | 1  |
| Monoccan Restaurant  | 1  |
| Pide Place           | 1  |
| Hotel                | 1  |

Name: categories, dtype: int64

|                      |    |
|----------------------|----|
| Burger Joint         | 17 |
| Fast Food Restaurant | 6  |
| Ice Cream Shop       | 2  |
| Café                 | 1  |
| Coffee Shop          | 1  |
| Steakhouse           | 1  |
| Fried Chicken Joint  | 1  |
| Chinese Restaurant   | 1  |

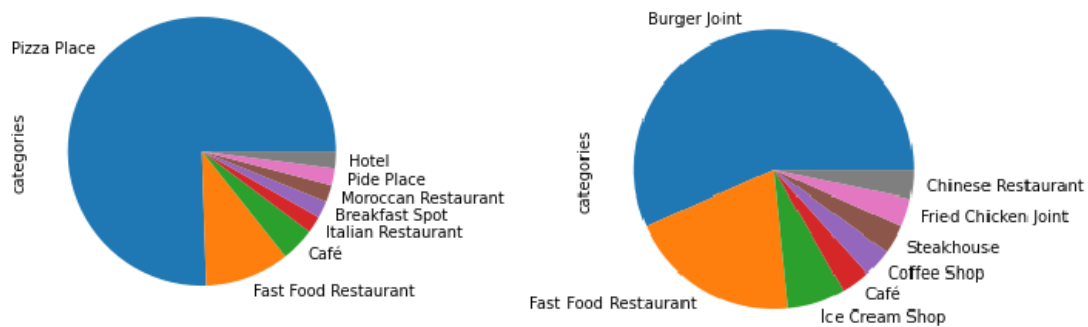
Name: categories, dtype: int64



*Fig.4 Categorical bar chart of pizza and burger restaurants*

In total, 29 burger restaurants and 49 pizza restaurants are located within the Konak region.

To put a different perspective on the bar chart dataset, see the pie charts below:



*Fig.5 Categorical pie chart of pizza and burger restaurants*

### C. Results

The team performed a deep dive analysis on the current situation of culinary offerings in Konak including the restaurant sub-types and geographical relationships between pizza- and burger restaurant locations.

As a result of the geographical data map we were able to decide which location will be best suited for our new and innovative restaurant chain.

Moreover, we are now also able to answer which restaurant category (burger or pizza) will have the greatest potential in such a tough market environment.

### D. Discussion

The quintessence is that there are currently 29 burger- and 49 pizza restaurants in total located within the Konak region. Thus, we can say that pizza restaurants appeal more to the Turkish taste and seem to be clearly the customer's first choice.

In addition, the pie- and bar charts further above convey the message that most of the pizza restaurants concentrate exclusively on the pizza business.

The team's strategy is to be a first mover in a new geographic market environment coupled with a discriminatory pricing strategy.

### F. Conclusion

To summarize, the most promising location for a first pizza restaurant is around the west bank of Konak. The region there is predominantly served by burger restaurants and the pizza market does still seem to be far from saturated.