

1.0 Introduction

1.1 Background

Riyadh (or Alriyadh) is the capital and largest city of Saudi Arabia. It is located in the middle of the Arabian Peninsula. Although it is in the middle of a harsh desert, it is the home of 8 million people and gets more than 5 million visitors every year. That made Riyadh, according to [Wikipidea](#), the forty-ninth most visited city in the world and the 6th in the Middle East, and it is the most-populous city in Saudi Arabia, 3rd most populous in the Middle East, and 38th most populous in Asia.

There are three main factors that play an important roles and might cause the emergence of food trucks businesses:

1. Riyadh is a large city and people rely heavily on commuting. In the morning to get to work and in the evening for entertainment. Each trip can take between 20 to 40 minutes.
2. Riyadh's population is young with an average of 33 years. Many of these youngsters prefer to start their business, or make an extra income.
3. Setting up a business, a restaurant for example, is expensive and might take months for it to start. Food truck business is considered under the Saudi commercial regulations a freelancer business, thus the cost of setting and running the business is close to none.

1.2 Business Problem

Khalid is thinking about starting a food truck business and he approached me to conduct an analysis of the market for him. He will use the report to answer the following questions:

1. What are the popular food truck sites?
2. What does the current market look like?
3. What are the available/recommended locations?

1.3 Data to be used

To be able to answer the previous questions, I will use the following data sources:

1. The Saudi Ministry of Municipal, Rural Affairs and Housing. The regulator of food trucks in Saudi: [balady](#) to get data about the number of licensed trucks and their locations.
2. Foursquare developer API, I will select the food truck category and plot their latitude and longitude.

1.4 Methodology

I will use the data to visualize the allocation of current food trucks around the city and compare that with the current attraction locations. Then, I will use the regulator data to determine vacancy and zones that food trucks are permitted to be in. Finally I will plot both outcomes to recommend where Khalid should locate his food truck.

2.0 Data & Methodology

2.1 Zones of Riyadh

Alriyadh consists of 17 districts and about 100 neighborhoods. For the purpose of this project, we will group these districts into four main categories that shared commons characteristics:

- Old Riyad: located in the southern part of Riyad, far from the expansion and the new attraction which are happening in the north of the city. This is the oldest part of Riyad. It is located near the old industrial and the main warehouses zones. The majority of the residents are labor workers. It is known for having a lower quality of infrastructure than the other zones. There are several plans to revive this zone but nothing has been announced at the moment.
- Eastren Riyad: It is eastren gate of Riyad, and located near the city airport and Althumama Park. Since, most of the visitors come from the Eastren Province through the north gate of the Riyad or from the Airport, this first district that receives them. Thus visitors will find most of the hotels and apartment hotels located in this zone. Furthermore, during the cool months of the year, Althumama desert comes to life. When a lot of Riyad people and visitors go there for camping or exploring the desert.
- Riyad CBD: located in the centre of Riyad, this is the business district where most Ministries, International Embassies, local and global businesses are located. It is the most crowded district.
- New Riyad: the new expansion is happening in the north. The Financial District is located in this part of the city. It is where new events and activities are happening during the year. This district generally has a good quality of infrastructure and services.



Figure 1: Map of Riyadh with the assigned districts

2.2 FourSquare API

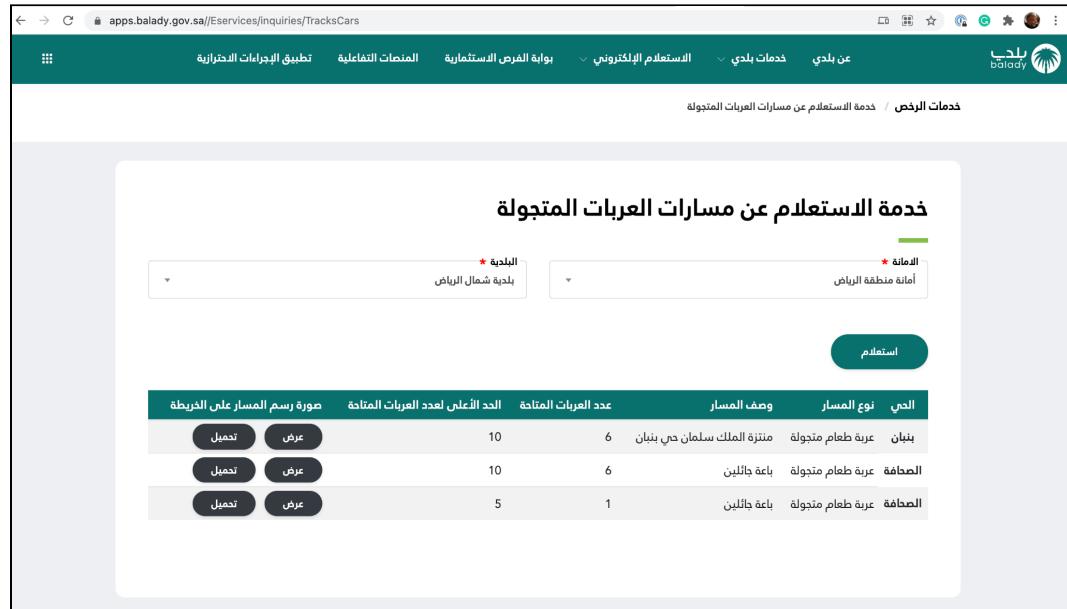
FourSquare is a restaurant location and tips sharing app. It has an API that allows researchers and software developers conduct and analysis and make use of the data. For this case, the data will be used to define the food trucks location around the city which in turn help define gaps or underserved zones.

Figure 2: Dataset extracted from FourSquare

Note: Although the data available is rich, it comes with two limitations: First, API limits the access to 50 unique food trucks. Second, the data is not updated and it was found that several food trucks are not listed in the database or physical restaurants and cafes are listed under the category food trucks. For the purpose of highlighting the methodology, the data was used in this study but it deems not reliable.

2.3 Balady Website

Balady is a government website (in Arabic) that has a list of permitted locations for food trucks. The website has no API, so data has to be extracted and cleaned manually.



The screenshot shows a web page titled "خدمة الاستعلام عن مسارات العربات المتجولة" (Service for querying food truck routes). It features two dropdown menus for selecting a city ("البلدية") and a neighborhood ("المقاطعة"). Below these is a large green button labeled "استعلام" (Query). A table displays the following data:

العنوان	نوع المسار	وصف المسار	الجدة	عدد العربات المتجولة	صورة رسم المسار على الخريطة
منتزه الملك سلمان حي بنزان	عربة طعام متعدلة	بنزان	6	10	
باعة جائلين	عربة طعام متعدلة	الصحفية	6	10	
باعة جائلين	عربة طعام متعدلة	الصحفية	1	5	

Figure 3: Balady food trucks enquiries page

After the data was collected in Google Sheets, a tool called [Geocode by Awesome Table](#) was used to assign latitude and longitude to each row. The data then was cleansed to ensure there are no duplicate or wrong assignments of location.



In [124]: avi_df.head()

Out[124]:

	Municipality	Dist	Address	Cap	Licensed	Available	Full Address	Latitude	Longitude
0	الشفاء	عكاظ	منتزه عكاظ	5	2	3	منتزه عكاظ حي عكاظ الرياض	24.525134	46.670098
1	الشفاء	بدر	طريق بن تيمية	4	2	2	طريق بن تيمية حي بدر الرياض	24.542688	46.692135
2	الشفاء	بدر	حي بدر	3	0	3	حي بدر حي بدر الرياض	24.550120	46.700257
3	الشفاء	الشفاء	طريق بن تيمية	5	1	4	طريق بن تيمية حي الشفاء الرياض	24.555617	46.701945
4			ممشى حي الدار البيضاء الدار البيضاء العزيزية	2	0	2	ممشى حي الدار البيضاء حي الدار البيضاء الرياض	24.562333	46.776440

In [125]: avi_df.shape

Out[125]: (52, 9)

Figure 4: Dataset extracted from Balady

The extracted data contains: list of locations with number of permitted food trucks in that location, number of trucks that have been licensed in the location, and the number of none claimed permits in that location.

3.0 Analysis & Findings

3.1 Food Trucks Outlets

The list of food trucks in Riyadh was extracted from FourSquare's API then plotted to the map of Riyadh. It is clear that most food trucks are positioned within New Riyadh and Riyadh CBD. There are some food trucks located in Eastern Riyadh. However it is noticeable that they are opened in the boundaries of the zone, closer to the other zones.

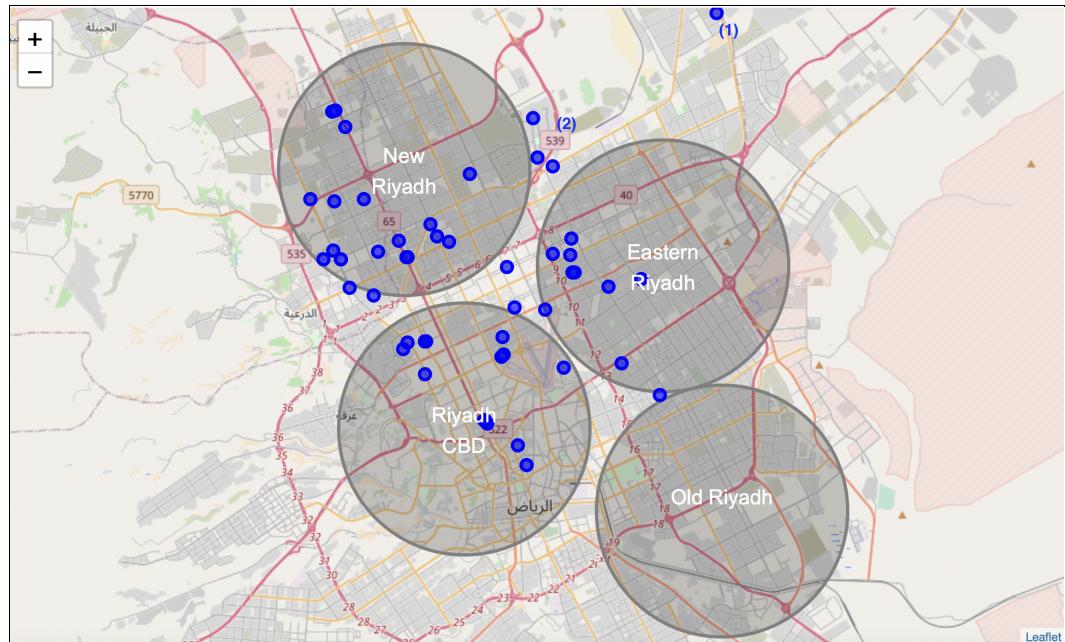


Figure 5: Map of Riyadh with existing food trucks positions.

There are outlier food trucks which are positioned outside of zones:

- **Marker (1):** is the location of AlThumama Desert. This area sees some activities throughout the year, but gets crowded in the cool months of the year.
- **Marker (2):** This is the location of Prince Noura University and King Abdullah University Hospital. Both are closed campuses with access granted only to students and faculty members.

When clustering Riyadh food trucks it is clear that there are three main clusters. New Riyadh Cluster, Riyadh CBD and Eastren and outliers clusters. This supports the argument that there are not enough food trucks in Eastren Riyadh and there are no Food trucks in Old Riyadh.

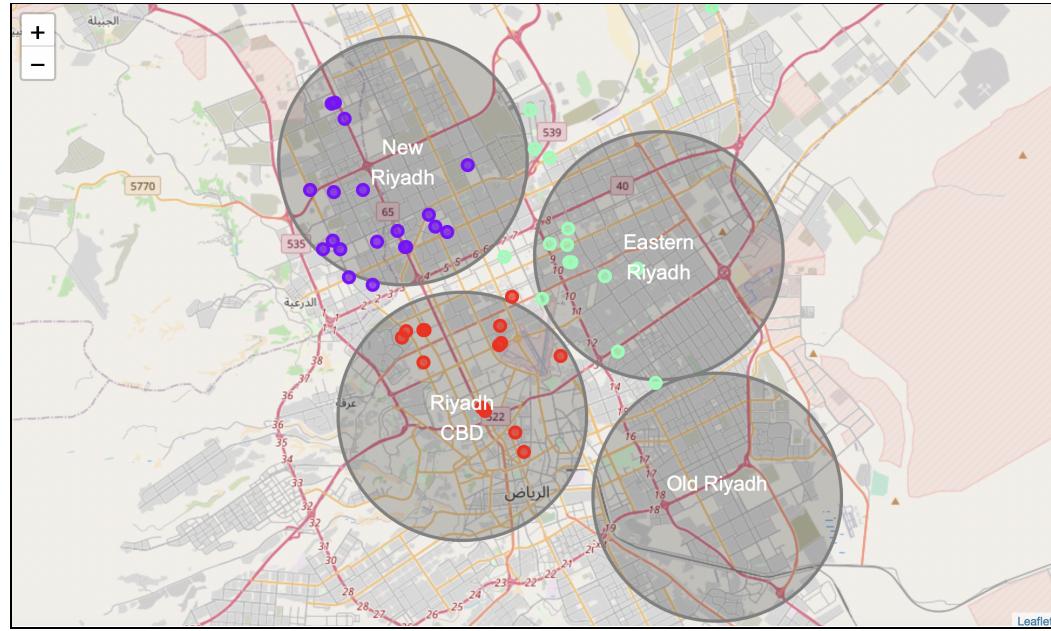


Figure 6: Map of Riyadh with food trucks clusters.

To have a better understanding of the current scene, Balady data will be plotted on the map to see the location of current licensed food trucks. It was noted that according to the Ministry of Municipal, Rural Affairs and Housing, there are two categories of food trucks licenses: (1) Stationed food trucks that get a license in a static position (dark green markers); and (2) Moving food trucks that get a license to roam around a zone (light green markers: Zone A and B).

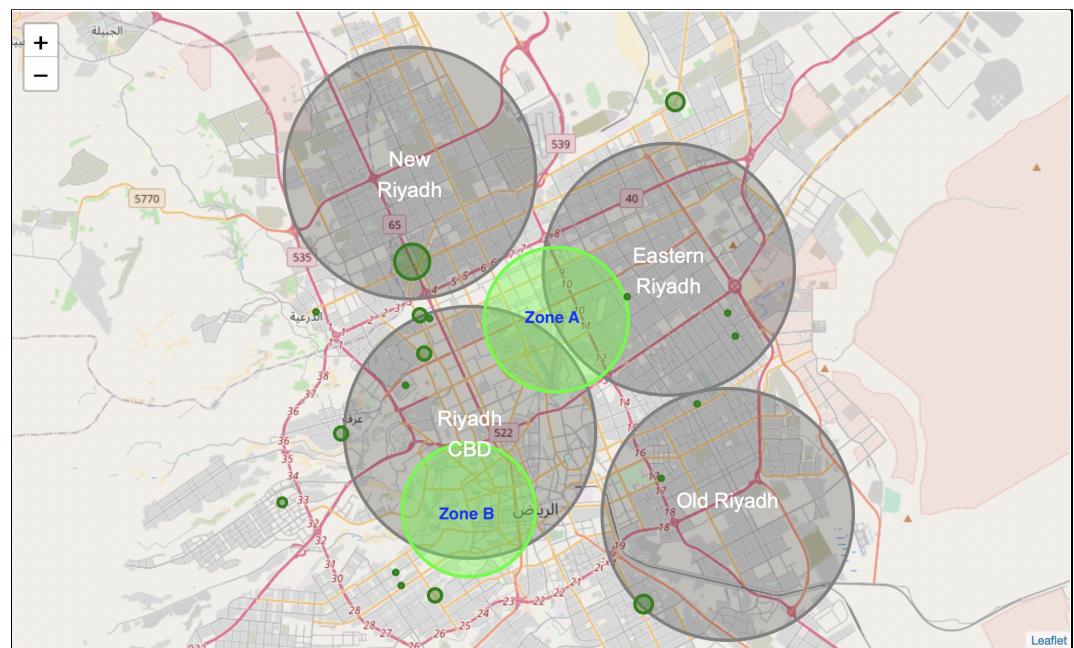


Figure 7: Map of Riyadh with licensed food trucks.

3.2 Gaps in the Food Trucks Market

A summary of available licenses for each zone can be calculated by subtracting the number of licenses issued and quota cap placed by the Ministry for food trucks in each area. The following map highlights this finding:

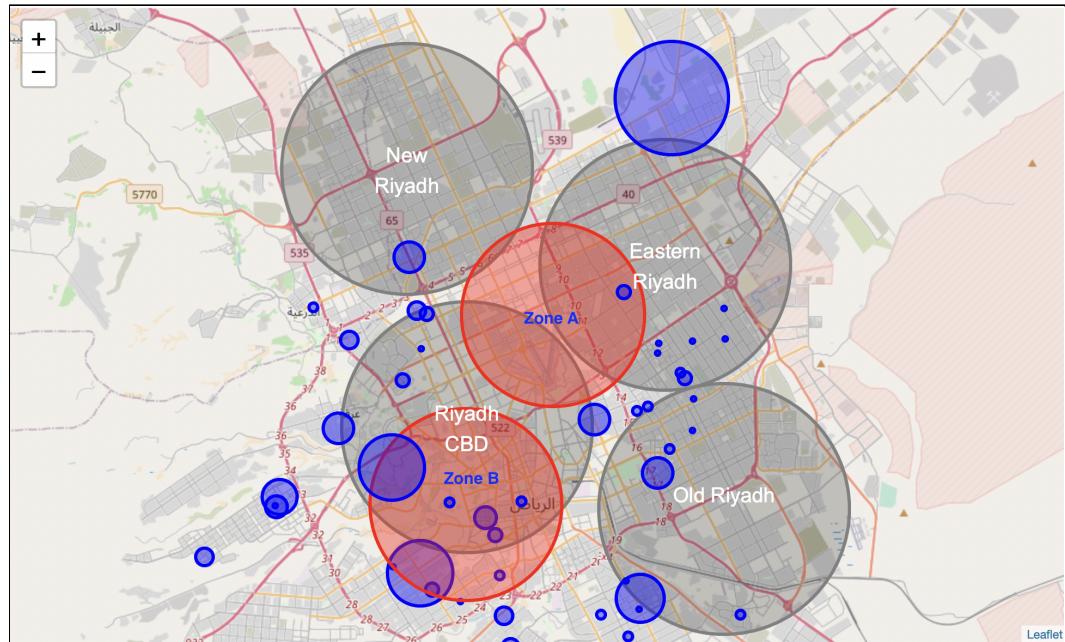


Figure 8: Map of Riyadh with Available licenses for food trucks.

Similarly to Figure 7, the previous map shows the area where a food truck can be licensed and also by clicking on each zone an indicator with the number of available licenses can be seen. The categories of food trucks licenses are also marked: (1) Stationed food trucks (Blue markers); and (2) Moving food trucks (light green markers: Zone A and B). Note the large stationed food trucks in the right top corner, these are the licences covering the whole Althumama Park. A summary of these number is a the following:

License type	Number of Licenses		
	Cap	Issued	Available
Zone A	250	110	140
Zone B	250	102	148
Others	249	49	200
Total	749	261	488

Figure 9: Summary of food truck licenses status in Riyadh.

4.0 Discussion & Recommendations

4.1 Static or Roaming Food Truck

Based on the current regulations of food trucks in Riyadh, the first decision that should be made is whether to acquire a statics or a roaming license. According to the data, it is clear that most of the food trucks in Riyadh are of the roaming type (80%). Also, out of the 488 available licenses around 60% are roaming. The decision to choose a static food truck is more difficult and will required further analysis of the position selected. It will be similar to opening a fixed restaurant. Therefore, it is recommended that if the business wants to open in a fixed location, a more detailed study to be conducted with evaluation of surrounding demographic and competitors that includes other food trucks and restaurants.

4.2 Choosing the Location

It is clear from the data that there are three gaps in the market:

- **All of Old Riyadh:** As highlighted earlier, Old Riyadh is currently not a valid option because of its demography. However, we recommend exploring and waiting for announcements for the new plans for this zone, as it might revive the market.
- Left bottom corner of Riyadh CBD: This is the most lucrative zone to start a food truck business. It has a decent number of available licenses in multiple locations and types. It is the location where most of the businesses are located.
- Althumama (to the North East of Eastrn Riyad): This is the second best option, but as highlighted in the report the number of customers here will depend heavily on the weather conditions.