Applied Data Science Capstone-
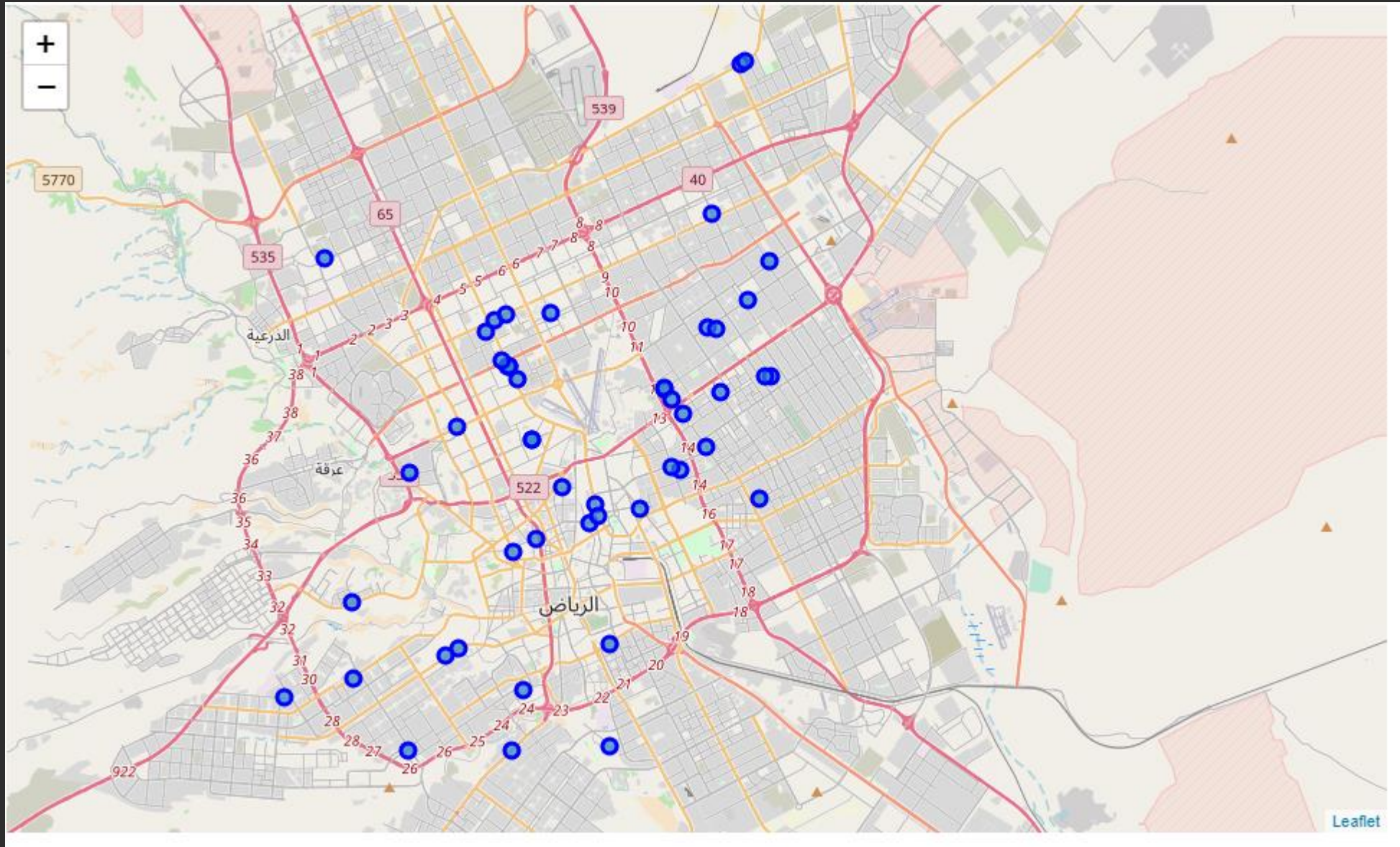# Opening a Billiards Café

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Case Study

Due to the current COVID-19 pandemic there have been restrictions that result in less people going outside. Although this is disadvantageous for most businesses one can hypothesise that when the COVID-19 issue is resolved there will most probably be and upsurge of people leaving their homes to go outside. A billiards cafe is a great way for friends and family to interact while having fun. The aim of this project is to be able to find a suitable location to open a billiards cafe in Riyadh, Saudi Arabia to take advantage of the aforementioned speculation.

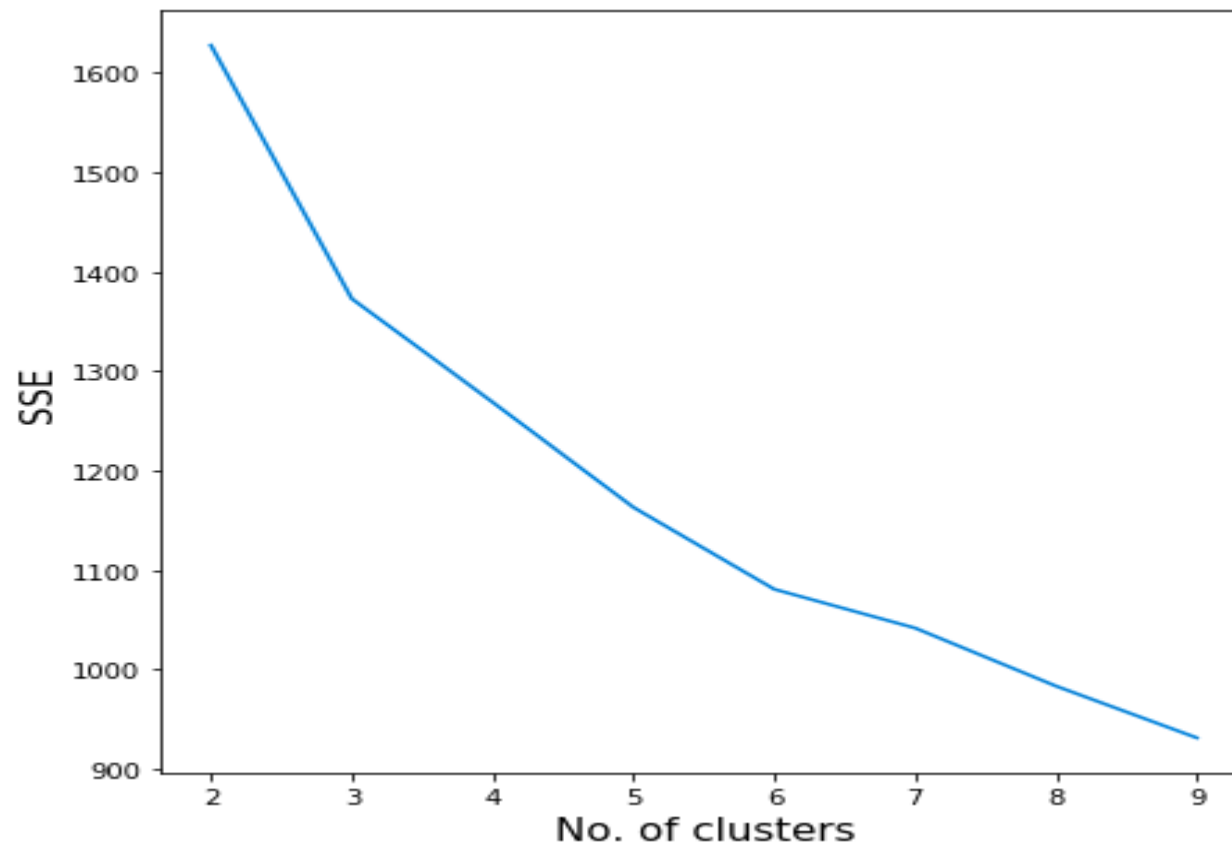# Locations of Current Billiards Café

Venues near existing cafes

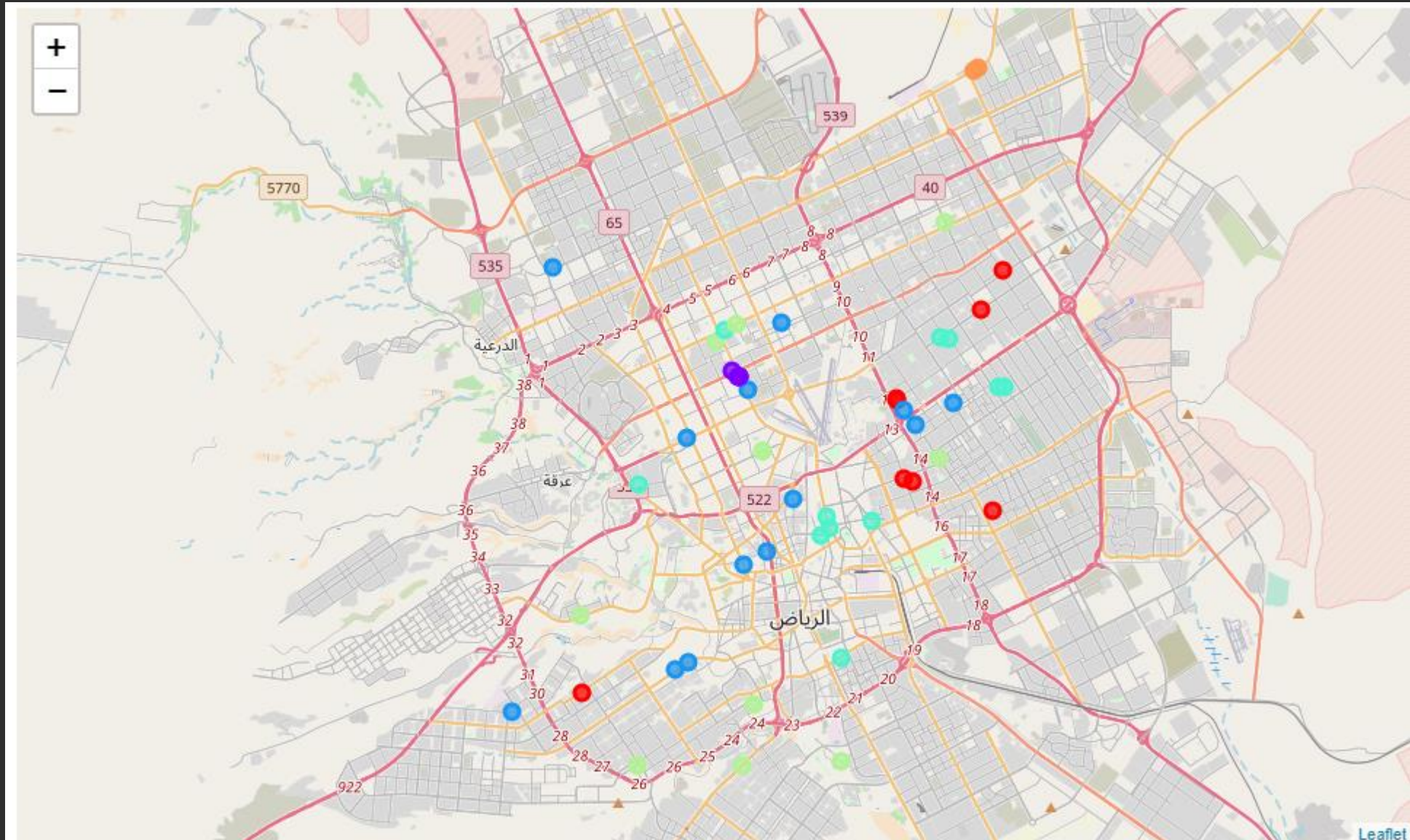| name	Ratings	Donut Shop	Spa	Pharmacy	Gym	Chinese Restaurant	Juice Bar	Ice Cream Shop	Jewelry Store	Lounge	...	Street Food Gathering	Theater	Theme Restaurant	Multiplex	Optical Shop	Auto Works
Al Samar Billiards and Playstation	7.6	2.0	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	...	0.0	0.0	0.0	0.0	0.0	0.0
meeting time	0.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0
Hour Cafe	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0
Al Wizarat	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0
The Black Eight Poll Hall	0.0	1.0	1.0	3.0	0.0	0.0	1.0	2.0	1.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0

This is the table we will use for Kmeans (Excluding the Ratings column)

Elbow Method

We use the elbow method to find the optimum number of clusters for the KMeans algorithm. In this graph it's at 6 clusters.

Clustered view of existing Billiards Cafe

From the data the optimum position to open a billiards café would be a place where there are lots of confectionary shops or coffee shops as well as a place which is close to the city (for easy access) and where there is less competition.

Optimum Position to build a Billiards Cafe