



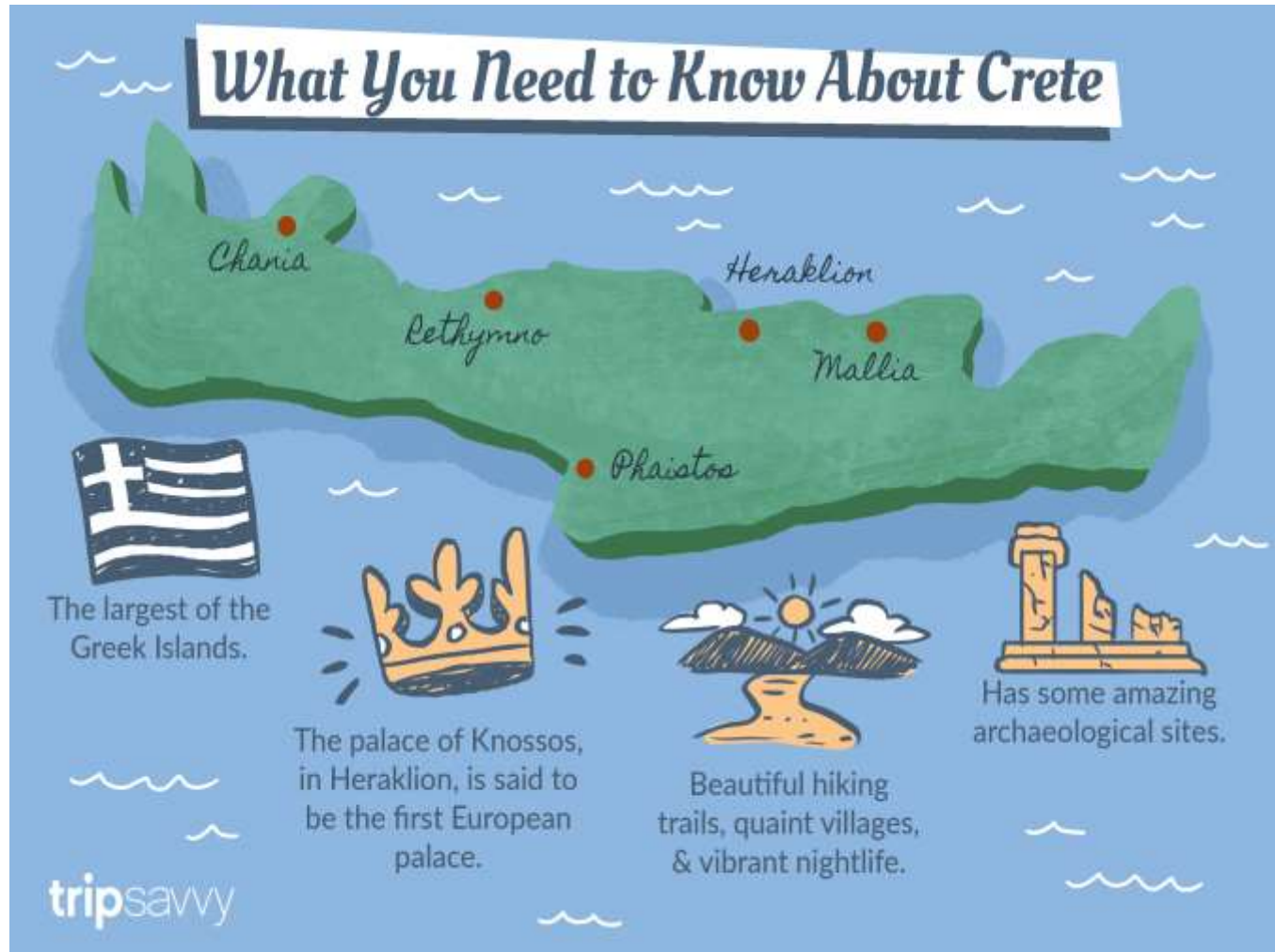
CAPSTONE PROJECT

OPENING A BAR IN CRETE

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WHY WE CHOSE CRETE?



- **Crete** is one of the East Mediterranean Islands in Greece, that is as beautiful as it is historic. Crete welcomed in 2016 around 4 million tourists which are the main source of income for the island
- **Many** investors and developers have opened hotels, restaurants and clubs through the years allowing them a great increase in their revenues due to a yearly incline in tourism.

BUSINESS PROBLEM

“WHERE DO I OPEN A BAR IN CRETE?”

- The goal of this project is to determine which neighborhoods in Crete are the most popular ones for tourism and local clients
- Due to Covid-19 there is an uncertainty of whether new businesses could achieve success. Investors are now looking for ways to guarantee a business would be profitable by using data science



DATA

- ***Number of cities in Greece focusing on Crete***

Cities in Crete , Greece will be obtained from Wikipedia using the link
[Greece] https://en.wikipedia.org/wiki/List_of_cities_and_towns_in_Greece

- ***Longitude and latitude of each city in Crete***

Download latitude and longitude from the Greek site : <https://simplemaps.com/data/gr-cities> (csv format uploaded on notebook)

- ***Airport/s proximity to the city***

Airport list in Crete to determine most preferable location to open a bar
[Airports] https://en.wikipedia.org/wiki/List_of_airports_in_Crete

- ***Local population***

Population Amount per city using the link [Population] https://en.wikipedia.org/wiki/Demographics_of_Greece

- ***Venues nearby the cities and which kind of venues***

Foursquare used to find venues near specifically for the main cities in Crete (using bars, cafe, hotels and restaurants)

METHODOLOGY

- Matplotlib
- Four Square Data pulled from the site for venues
- One-hot encoding
- K-means Algorithm



RESULTS TABLES

Table 1. Compiled table from 3 Wikipedia sources listed in Data section (Airport, Greek cities , Population) (sample of 5 rows)

	Census 2011	Region	City_x	City_y	Latitude	Longitude	Country	Iso2	Capital	Population	Pop_proper	Name	Use	ICAO	IATA
0	140730	Crete	Heraklion	Irákleio	35.338082	25.133029	Greece	GR	admin	137154.0	131654.0	Heraklion International Airport	Civil/Military	LGIR	HER
1	140730	Crete	Heraklion	Chaniá	35.511236	24.029210	Greece	GR	minor	78728.0	54565.0	Heraklion International Airport	Civil/Military	LGIR	HER
2	140730	Crete	Heraklion	Siteía	35.208507	26.103024	Greece	GR	minor	8833.0	8707.0	Heraklion International Airport	Civil/Military	LGIR	HER
3	140730	Crete	Heraklion	Ágios Nikólaos	35.191064	25.715244	Greece	GR	minor	NaN	NaN	Heraklion International Airport	Civil/Military	LGIR	HER
4	140730	Crete	Heraklion	Palaióchora	35.231328	23.681271	Greece	GR	minor	NaN	NaN	Heraklion International Airport	Civil/Military	LGIR	HER

RESULTS TABLES

Table 2. Venues obtained through Four Square near Crete's cities (sample of 5 rows)

	City_y	City Latitude	City Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Irákleio	35.338082	25.133029	Chop Chop	35.338783	25.132699	BBQ Joint
1	Irákleio	35.338082	25.133029	Kipkóp	35.339189	25.133116	Bougatsa Shop
2	Irákleio	35.338082	25.133029	Frankly Cafe	35.337853	25.131265	Coffee Shop
3	Irákleio	35.338082	25.133029	Crumb	35.339399	25.133493	Bakery
4	Irákleio	35.338082	25.133029	Beer o' clock	35.339815	25.132857	Pub

Table 3. Top 5 most common venues near Crete's cities (sample of 5 rows)

	City_y	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Agía Foteiní	Furniture / Home Store	Café	Vineyard	Cosmetics Shop	Grocery Store
1	Anógeia	Hotel	Mountain	Plaza	Taverna	Café
2	Chaniá	Café	Bakery	Gym	Lounge	Dessert Shop
3	Chóra Sfakíon	Greek Restaurant	Vineyard	Historic Site	Grocery Store	Gift Shop
4	Geráni	Greek Restaurant	Coffee Shop	Burger Joint	Restaurant	Cosmetics Shop

RESULTS

FIGURES

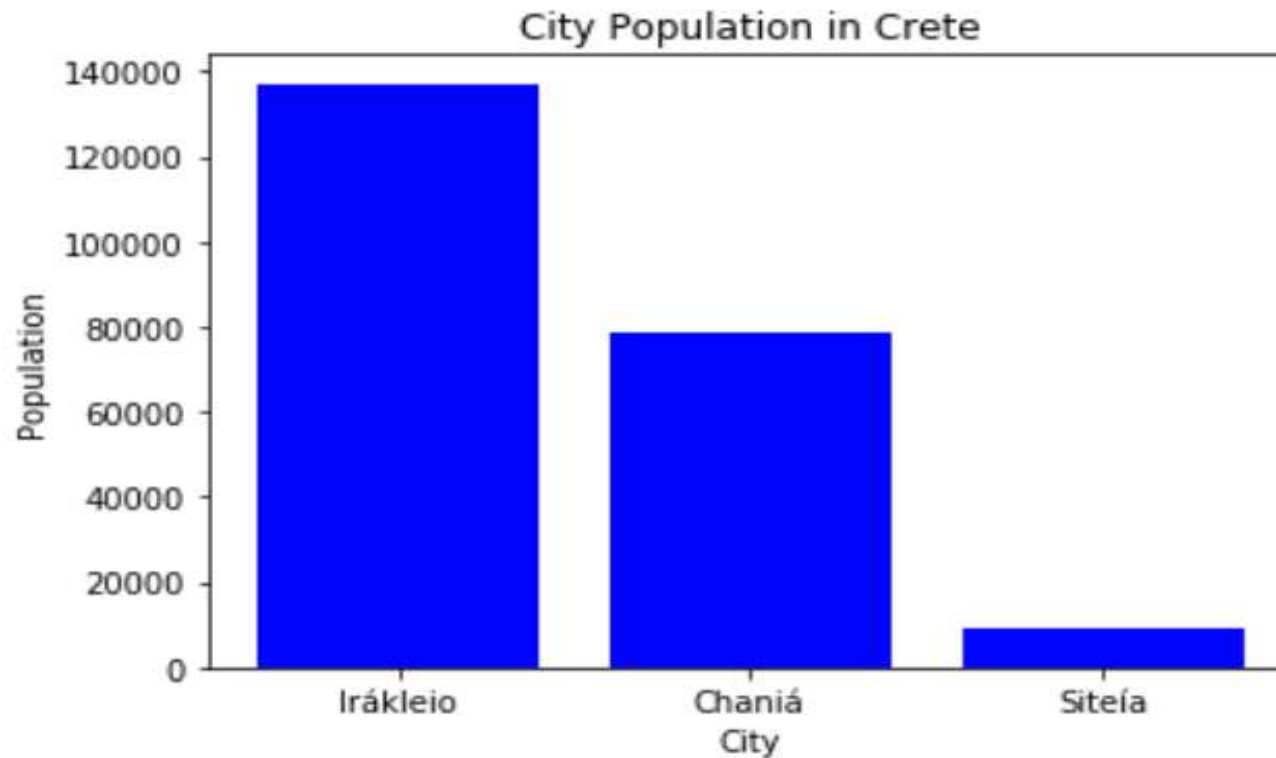


Figure 1. Bar Graph depicting City versus Population (major cities showing only)

RESULTS

FIGURES CONT'D

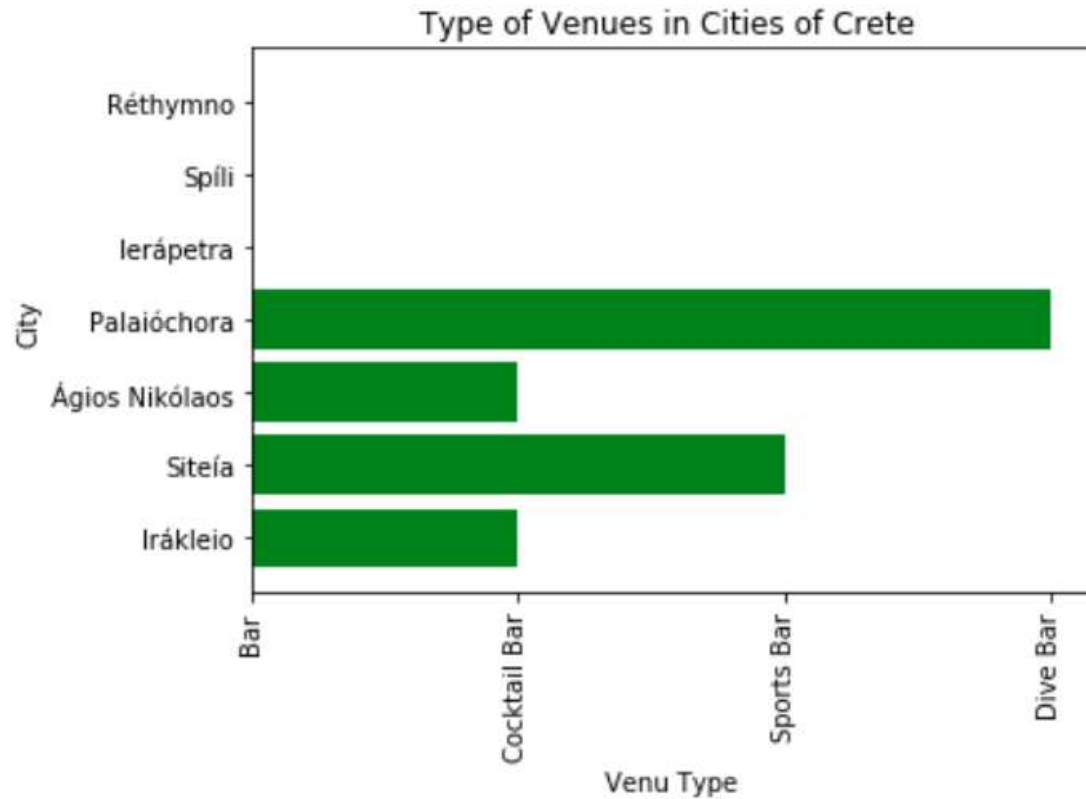


Figure 2. Horizontal Bar Graph depicting cities and the most common venues specific to Bar types

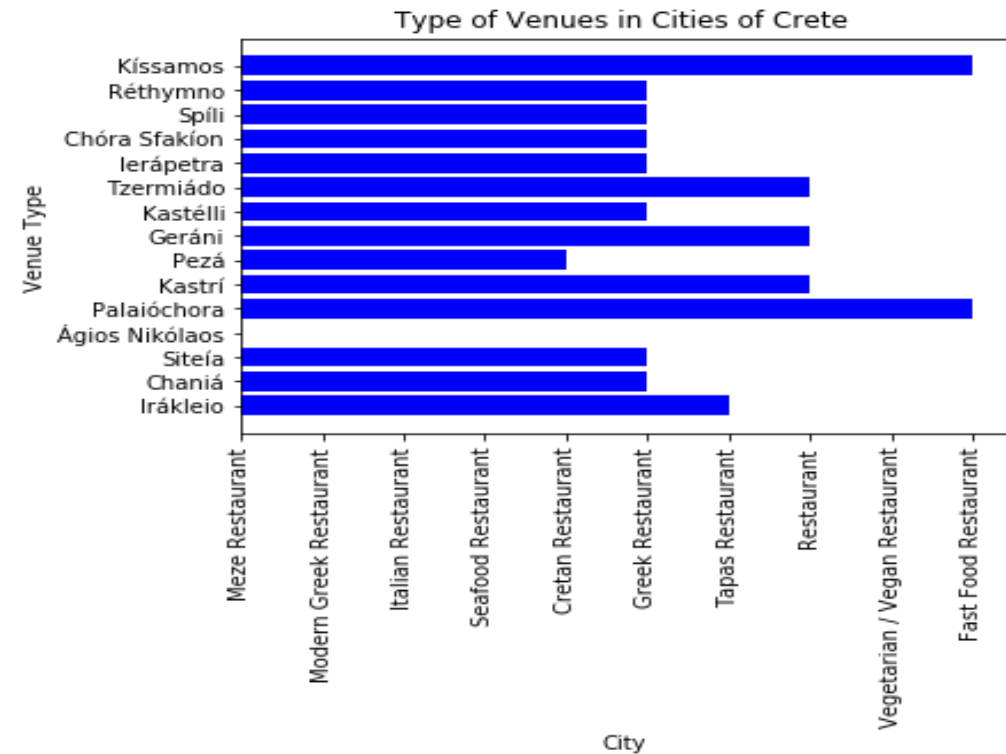


Figure 3. Venue type in cities of Crete grouped by Restaurant type

DISCUSSION

- Cities in the tables (i.e. Result section) are labeled 'City_x' and 'City_y' where x was the English way of writing the cities name and y is the modern Geek spelling.
- Population data is only available in few cities as seen in Table 1.
- Figure 2 and 3 depict Bar and Restaurant Venues near cities focusing on most common one
- Figure 2 and 3 help us determine which locations we would see most fit to open a Bar by isolating bar type and restaurant type we want nearby

CONCLUSION

- Heraklion , known as ' Irakleio' in Crete is the best city to open a Bar due to:
- It has the largest local population
- It has its own airport
- It has mostly cocktail bars which do not offer food
- It has 'Tapas Restaurants' which serve commonly Spanish dishes focusing on seafood
- It has low number of Fast food restaurants



THANK YOU