

ÁNGEL GUARDIÁN EXPANSION FINDING THE BEST LOCATION FOR A NEW BASE


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WHAT IS ÁNGEL GUARDIAN?

- ÁNGEL GUARDIÁN IS AN ORGANIZATION IN GUATEMALA CITY THAT PROVIDES A SERVICE THAT CONSISTS IN CONNECTING PEOPLE WHO ARE UNDER THE INFLUENCE OF ALCOHOL OR DRUGS WITH A VOLUNTEER DRIVER (OFF DUTY VOLUNTEER FIREFIGHTER). THE VOLUNTEER DRIVER TAKES THE PERSON UNDER THE INFLUENCE ON THEIR OWN VEHICLE TO THEIR HOME. THE PURPOSE OF THIS SERVICE IS TO REDUCE THE AMOUNT OF PEOPLE OUT IN THE STREETS DRIVING UNDER THE INFLUENCE OF ALCOHOL OR DRUGS.



FINDING A NEW BASE

- AN ORGANIZATION LIKE ÁNGEL GUARDIÁN NEEDS TO HAVE QUICK SERVICE, SO PEOPLE DON'T EVEN CONSIDER MAKING A BAD DECISION BECAUSE THE WAIT TIME IS TOO LONG.
 - A STRATEGIC LOCATION FOR A NEW BASE WOULD BE SOMEWHERE WITH A LARGE AMOUNT OF BARS AND NIGHTLIFE IN GENERAL.
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GETTING THE DATA

- THE DATA USED FOR THE PROJECT COMES FROM THREE DIFFERENT SOURCES
 - WORLD POSTAL CODES: [HTTPS://WORLDPOSTALCODE.COM/GUATEMALA/CIUDAD-DE-GUATEMALA](https://worldpostalcode.com/guatemala/ciudad-de-guatemala)
 - GPS COORDINATES: [HTTPS://WWW.GPS-COORDINATES.NET](https://www.gps-coordinates.net)
 - FOURSQUARE API

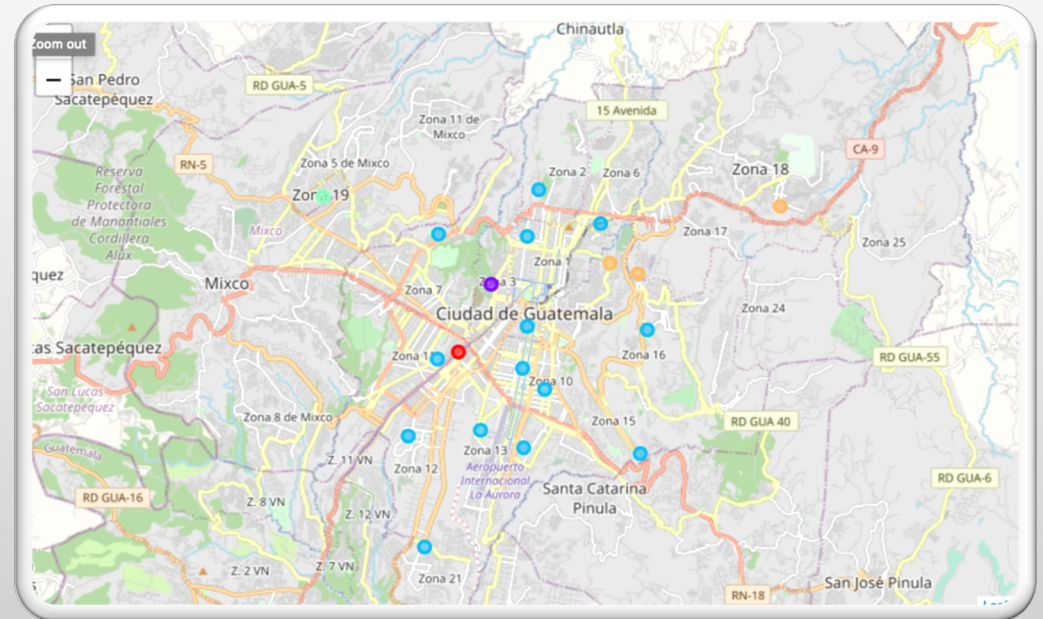
CLEANING THE DATA

- THE DATA WAS ORGANIZED INTO DATA FRAMES CONTAINING THE NAMES OF THE VENUES PER 'ZONA', THE COORDINATES OF EACH VENUE PER 'ZONA', THE POSTAL CODES FOR THE CENTER OF EACH 'ZONA'.
- THEN IT WAS MANIPULATED TO FIND THE MOST COMMON VENUES FOR EACH 'ZONA'.

| | Zona | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue | 4th Most Common Venue | 5th Most Common Venue | 6th Most Common Venue | 7th Most Common Venue | 8th Most Common Venue | 9th Most Common Venue | 10th Most Common Venue |
|---|---------|-----------------------|-----------------------|--------------------------|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|------------------------|
| 0 | Zona 1 | Café | Bar | Restaurant | Bakery | Coffee Shop | Pharmacy | Latin American Restaurant | Performing Arts Venue | Park | College Auditorium |
| 1 | Zona 10 | Café | Hotel | Italian Restaurant | Steakhouse | Breakfast Spot | Bar | Seafood Restaurant | American Restaurant | Restaurant | Shopping Mall |
| 2 | Zona 11 | Bus Station | Arts & Crafts Store | Sandwich Place | Athletics & Sports | Taco Place | Soccer Stadium | Dive Bar | Donut Shop | Diner | Department Store |
| 3 | Zona 12 | Bar | Café | Bike Rental / Bike Share | Seafood Restaurant | Restaurant | Athletics & Sports | Yoga Studio | Factory | Flea Market | Fast Food Restaurant |
| 4 | Zona 13 | Airport Lounge | Airport | Bar | Café | Fast Food Restaurant | Chinese Restaurant | Rental Car Location | Breakfast Spot | Fried Chicken Joint | Bed & Breakfast |


CLUSTERING THE DATA

- USING KMEANS, THE DATA FOR EACH 'ZONA' WAS PUT INTO 5 DIFFERENT CLUSTERS.
- THE CLUSTERS WERE LATER PLOTTED INTO A MAP USING THE FOLIUM LIBRARY, IN WHERE EACH COLOUR OF THE MARKS REPRESENT ONE OF THE CLUSTERS.
- IT IS NOTICED THAT MANY 'ZONAS' FALL UNDER THE SAME CLUSTER.

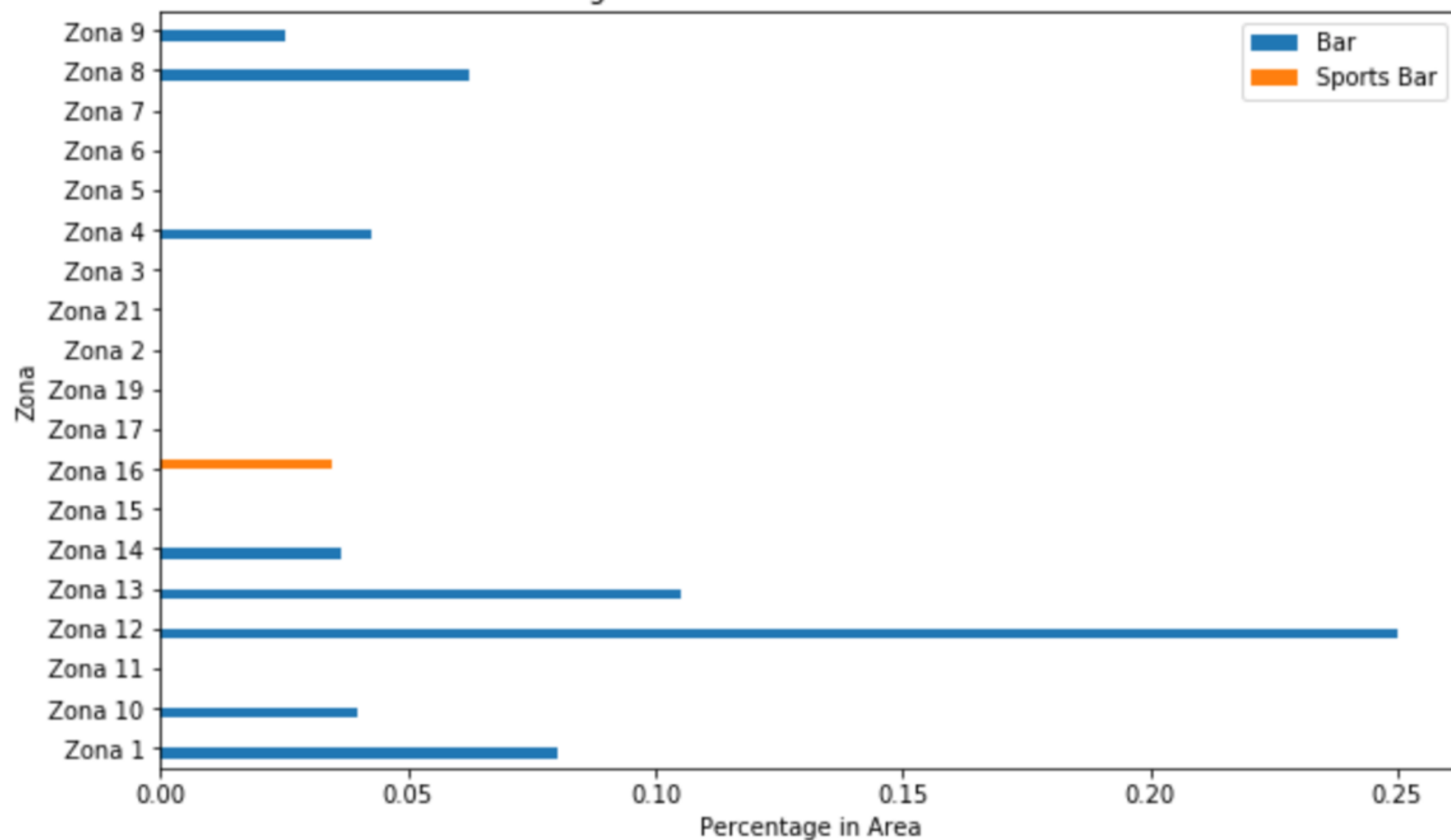




OTHER GRAPHS FOR MORE VISUALIZATION

- THE CLUSTERING OF THE DATA DIDN'T PROVIDE THE INSIGHTS THAT WERE EXPECTED.
 - THE DATA FOR THE AVERAGE AMOUNT OF BARS PER 'ZONA' WERE PLOTTED INTO A BAR CHART TO HAVE A BETTER UNDERSTANDING OF WHICH 'ZONA' HAS THE LARGEST NUMBER OF BARS IN THE CITY.
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Percentage of Venues that are Bars in each Zona



CONCLUSION AND RECOMMENDATIONS

- FROM THE BAR CHART, IT IS OBSERVED THAT THE 'ZONA' WITH THE LARGEST NUMBER OF BARS IS 'ZONA 12'.
- ÁNGEL GUARDIÁN SHOULD CONSIDER SETTING THEIR NEW BASE CLOSE TO OR IN 'ZONA 12' TO OPTIMIZE THE SPEED TO WHICH A DRIVER CAN GET TO PICKUP A CLIENT.
- FOR FUTURE ANALYSIS, MORE DATA SHOULD BE GATHERED WITH OTHER APPLICATIONS TO CAPTURE ALL THE INFORMAL VENUES THAT EXIST IN GUATEMALA CITY.