END TO END PROJECT

Summary

A client has asked me to find the best neighborhood to open a coffee shop in Kansas City. One of the biggest things when opening a small business is location, location, location. Not just a location that is pretty, but one that is set up for success by doing demographic research into the area where it ends up being placed. My client believes that success will depend on 3 factors:

1) **Age**- Client believes the target demographic to be millennials and gen z (15-44 years of age), as this age is considered most likely to visit a coffee shop according to The Food Institute. There is also evidence supporting 10% growth in those 18-24 years of age.

2) **Income**- Expendable income allows those to spend regularly at a coffee shop. The cost of living in Kansas City is roughly $50,000. This number includes the average household (2.31 people) purchasing an average of 6.2 coffees a week.

3) **Competition**- Placing a coffee shop in an area with Starbucks, or other pre-established coffee shops could hurt our chance at success. We will use Yelp Api to find areas with a need for a coffee shop.

After we gather this information, we will search for the area(s) with a need for a coffee shop, an acceptable population of those 15-44 years of age, and expendable income (over $50k household income.)

Gathering Resources

For this project we will be using Census data for the KC Metro area. As well as data pulled from Yelp Fusion Api giving us coffee shop names and locations.

KC_Income.csv- shows what percentage of that zip codes population which falls into each income bracket.

KC_Age.csv- shows the total population of that zip code as well as what percentage of that population falls into our target age group.

target_sorted.csv- During my EDA I decided to join these two tables into a single table after I had dropped any zip codes that didn't fit our minimum requirements.

Coffee_locations.csv- list of coffee shops and their corresponding latitude and longitude for mapping purposes.

Shopping_Centers.csv- list of popular shopping areas in Kansas Citypa and their corresponding latitude and longitude for mapping purposes.

ZipCodeOnly.geojson- used to establish zip code boundaries in our visualization.

Using the data

Python as a language of choice

I chose to use python to conduct this project due to its versatility and ability to handle APIs. Being able to pull data through API requests, merge datasets, perform calculations, and generate insightful visualizations all within a single programming environment was a pivotal factor in selecting Python over alternatives such as SQL or R. With added benefits of using Jupyter Notebooks for readability allowing me to document my thought process should anyone work with this data in the future.

target_sorted.csv

After cleaning, exploring, and organizing the data it is time to find meaning in the numbers. Using target_sorted.csv we have all of the zip codes in the Kansas City Metro that fall meet our minimum requirements of >10k population, and >4k total households. We also added a new column of data that shows the percentage of that zip code's household income above our $50k income target. This data will provide us the population and income data needed to assist in choosing an area for the coffee shop.

Coffee_locations.csv

Coffee is the third most consumed drink in the world next to water and tea, so it is no surprise that a coffee shop is never too far away. Using Yelp Fusion Api, we pulled location and shop name data from 130 chain and independent coffee shop locations in the Kansas City Metro. This will assist in making sure

we aren't picking an area that is already saturated with coffee shops that will cut into our target audience.

Shopping_centers.csv

Shopping and business areas tend to have people who come from all over the area to spend money. Not surprisingly you see a lot of restaurants, fast food, and coffee shops in and around these areas. Looking into it we found that Kansas City has 8 major shopping centers. The data in this provides us with coordinates for mapping purposes to help with picking a location.

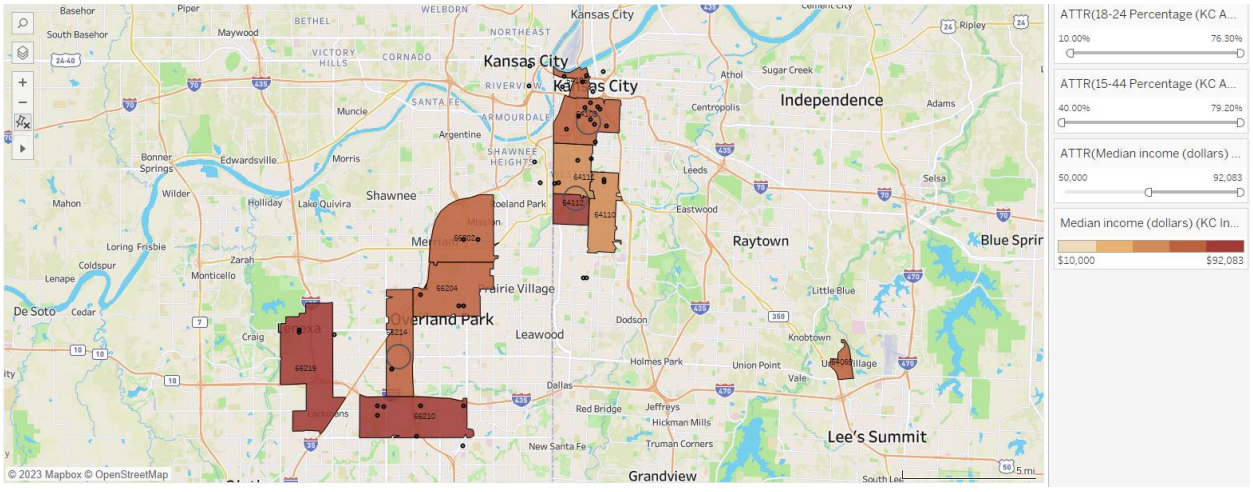
ZipCodeOnly.geojson

For visualization purposes I went ahead and grabbed zip code boundary data from Census.gov and took it into QGIS to show only the zip codes we are doing our research on.

The goal in the end is to have an interactive dashboard where our client can click on an area and see all data relevant to choosing a location.

Conclusions

Using our map to see which areas meet our preset criteria shows that a majority of preexisting coffee shops in the city have also targeted these areas. Using filters, we can narrow it down a bit more to the target audience. As shown below, the zip codes that have a median income of <$50k, target age group percentage of population of 15–44 year olds of greater than 40%, and to narrow it down even more we added a secondary target age group of 18-24 year olds with a minimum percentage of 10% of that zip codes population.



It left us with 13 potential zip codes.

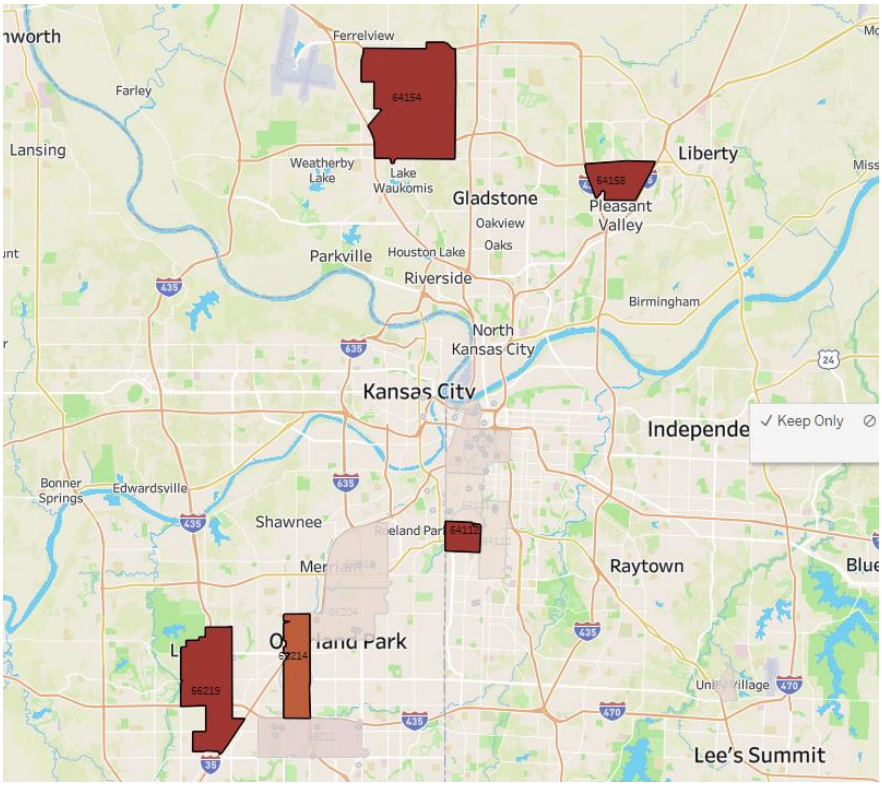
Missouri Side:

- 64105
- 64108
- 64111
- **64112- South Plaza**
- 64110
- **64158- Shoal Creek**
- **64154- Tiffany Springs**
- 64065

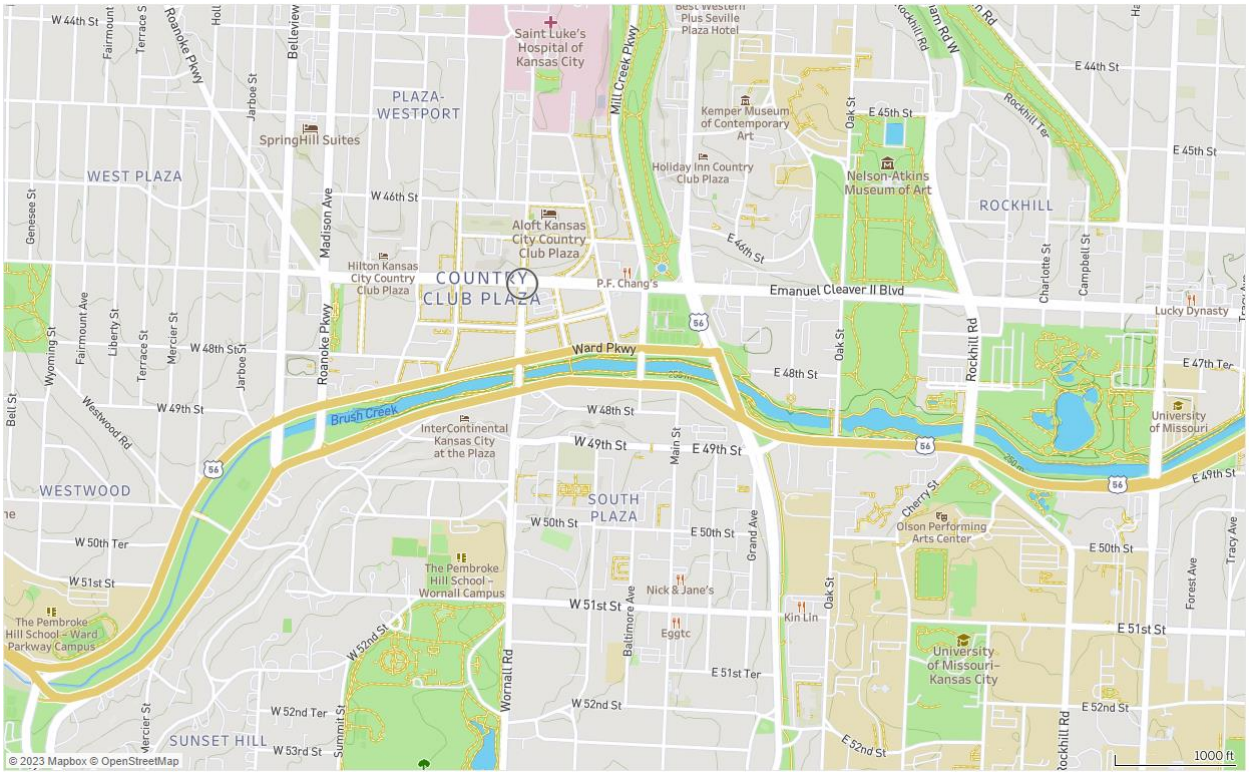
Kansas Side

- 66202
- 66204
- **66214- Oak Park**
- 66210
- **66219- College Blvd**

Five of those zip codes really stood out. The zip codes in bold have a good combination of high traffic business areas, target financial and age demographic, and finally, a low concentration of pre-existing competition.



64112 – Country Club/South Plaza



If I had to pick one my choice would be The Plaza 64112. A well-known shopping area (Country Club Plaza) with heavy traffic most days of the week. Recently a Starbucks closed in the area after some internal issues. This leaves a coffee sized gap in the area that we can potentially fill.

64112 Statistics:

Median Income - $92,083

15-44 Population - 4,625

18-24 Population - 1,465

Though the area has a low population total, it is one of the hottest shopping areas in Kansas City located near downtown. The south plaza neighborhood is home to UMKC which brings students in from all over the city every day causing the day-to-day population of the area to rise with precisely the age demographic we are targeting. As a Kansas City resident, myself, I also would love to have a coffee shop in the area. There has been something missing since Starbucks decided to shut its doors.

Sources

Cost of Living: https://kctoday.6amcity.com/city-guide/live/cost-of-living-kansas-city#:~:text=Don't%20worry%2C%20we%20did,Wyandotte%20counties%20than%20to%20rent.

Household Coffee Consumption: https://www.numbeo.com/cost-of-living/city-estimator/in/Kansas-City?Recalculated=Submit+to+Recalculate&displayCurrency=USD&members=2&restaurants_percentage=10.0&inexpensive_restaurants_percentage=50.0&drinking_coffee_outside=200.0&going_out_monthly=4.2&smoking_packs_per_day=0.0&alcoholic_drinks=25.0&type_of_food=0&driving_car=0.0&taxi_consumption=0.0&paying_for_public_transport=Monthly%2C+All+Members&sport_memberships=100.0&vacation=0.0&clothing_and_shoes=50.0&rent=none&kindergarten_count=0&private_schools_count=0

Increase For 18-24 Year Olds: https://foodinstitute.com/focus/millennials-gen-z-fueling-coffee-sales-boom/

Census Data- Zip Code Boundaries/Population and Income: https://data.census.gov/

Coffee Shop/Shopping Center Data: https://www.yelp.com/