

*LOCATION
RECOMMENDATION FOR
THE CONSTRUCTION OF A
NEW AMUSEMENT PARK
IN CALGARY, ALBERTA,
CANADA.*

*COMPLETED IN PARTIAL
COMPLETION OF IBM'S DATA
SCIENCE PROFESSIONAL
CERTIFICATION*

OGUNDIPE OMOTOKE AYOMIDE



INTRODUCTION

- When visiting a new environment or travelling to another region, province, or country on vacation, one of the major places we all look out for are places to have fun. A great place to have fun for both children, teenagers and adults is an amusement park. An amusement park is a large outdoor area with fairground rides, shows, refreshments, games of chance or skill, and other entertainments. An amusement park consists of roller coasters, water slides, carousels, ferris wheel, bumper cars etc. The location of an amusement park greatly determines how much revenue it would generate.

WHY CALGARY?

- Calgary is the 4th largest city in Canada by population
- The province of Alberta having the third largest GDP in Canada

PROBLEM

- One of the biggest challenges in the construction of a new amusement park is how to make an informed decision in selecting a **location** for the amusement park.

KEY QUESTIONS

1. From available data, is there a relationship between population and entertainment venues in various neighbourhoods
2. what is the relationship between current entertainment venues and number of restaurants in various neighbourhoods
3. Are entertainment venues closer to the city center ?
4. Are entertainment venues located closer to more populated areas or less populated areas

These questions are based on various internet research that implies there is a relationship between amusement park location with restaurant availability, population, available utilities, etc. More information on factors to consider when finding a location to construct a new amusement park.

DATA REQUIREMENTS

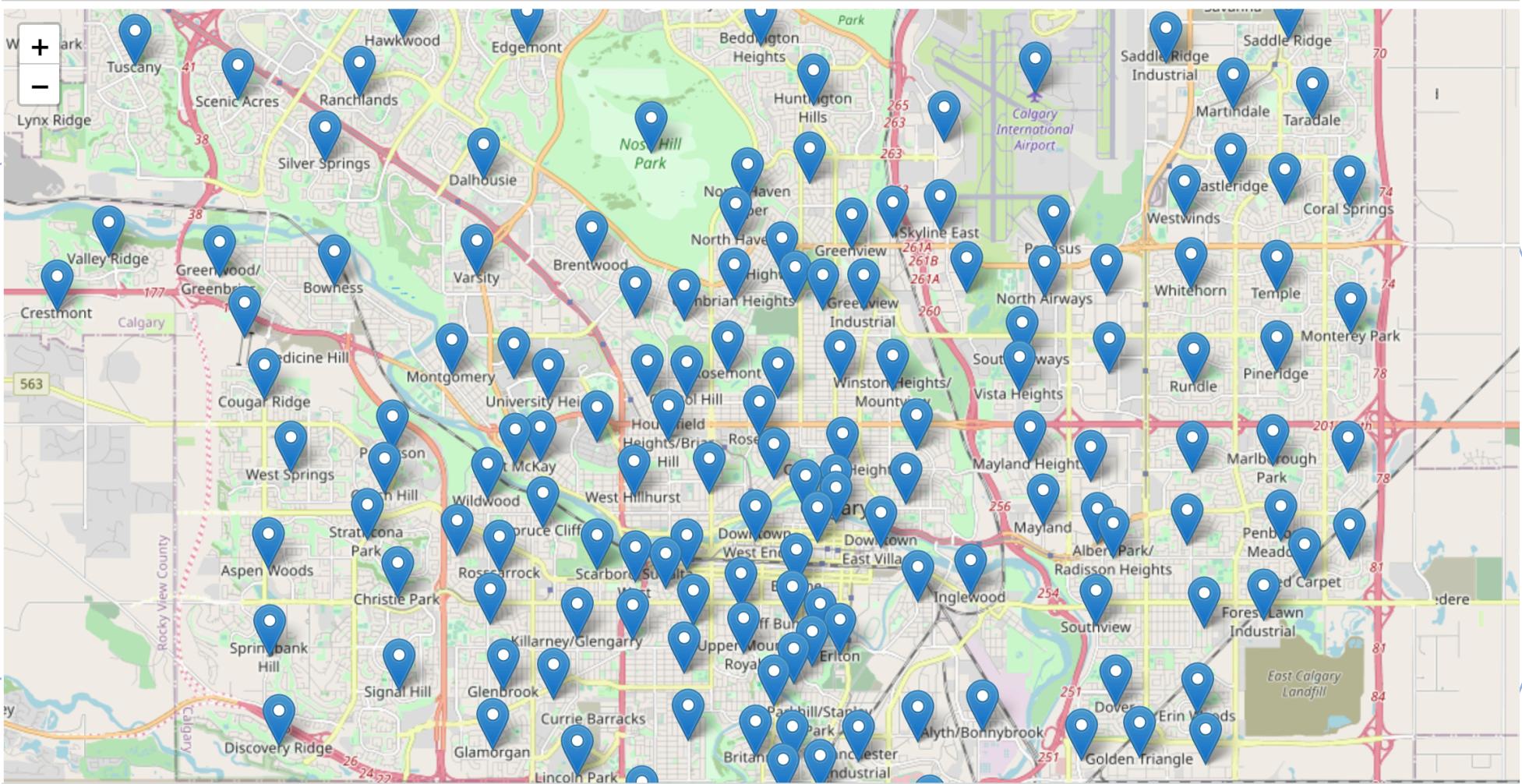
- What is the Neighbourhood's population
- What is the nature of the neighbourhood; is it residential or industrial
- How many entertainment venues are in each neighbourhood ?
- What is the number of restaurants in each neighbourhood?

DESCRIPTION OF DATA

- The data used in this project is obtained from https://en.wikipedia.org/wiki/List_of_neighbourhoods_in_Calgary
- This wikipedia page contains a table containing the list of all neighbourhoods in Calgary, with useful information such as; population, sector, type, area, etc.
- Also, Four square API is used in obtaining useful information such as restaurant and other entertainment venues in each neighbourhood, in order for analysis to determine the best location for a new amusement park.

REASONS FOR DATA SELECTION

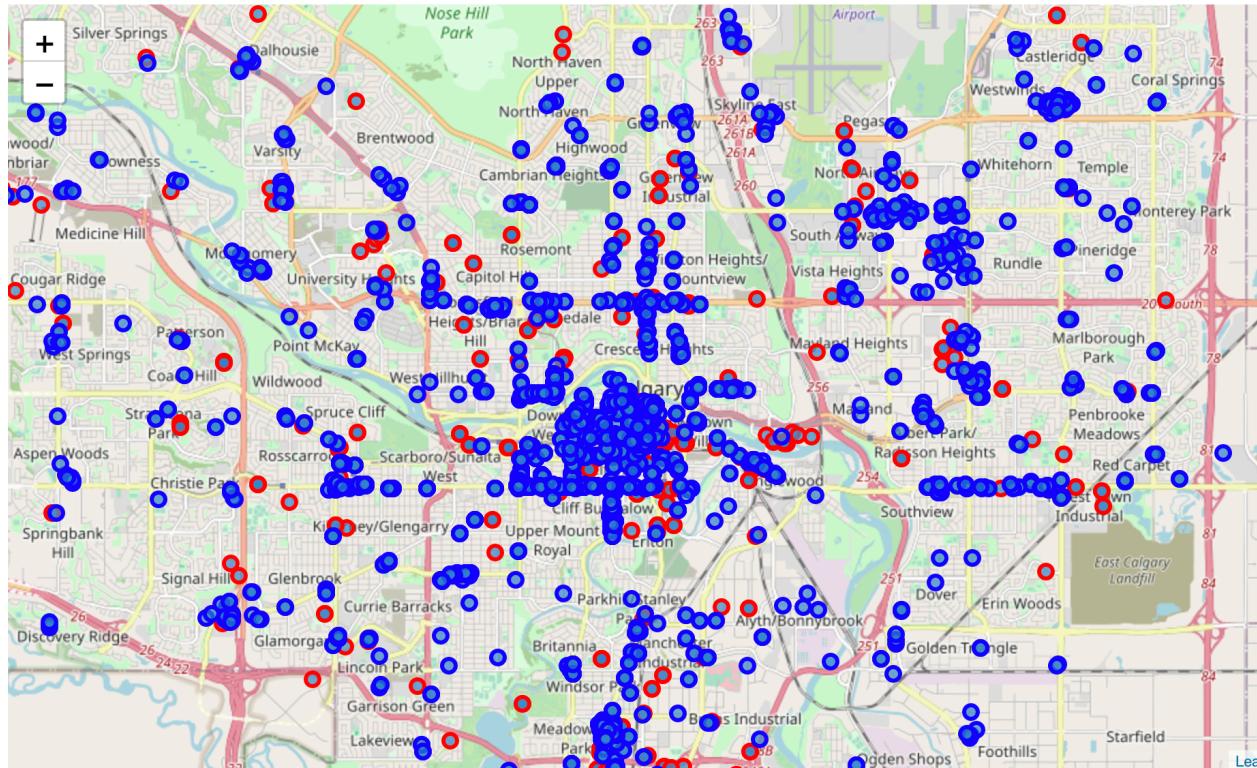
- Entertainment venues: People who would visit other entertainment venues would be attracted to an amusement park that is within a close vicinity. Entertainment venues includes; theme parks, zoos, art theatres, movie theatres, stadiums, museums, etc.
- Restaurant: As entertainment venues attract people to a location, so does restaurants.
- Entertainment, restaurant, and population data are the major factors that can help in identifying the best place to locate a new amusement park.



MAP OF CALGARY WITH NEIGHBORHOODS

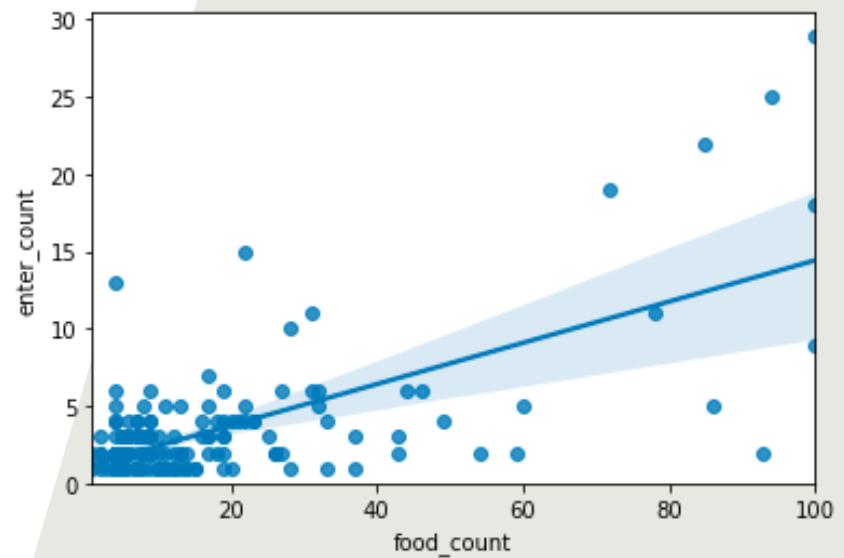
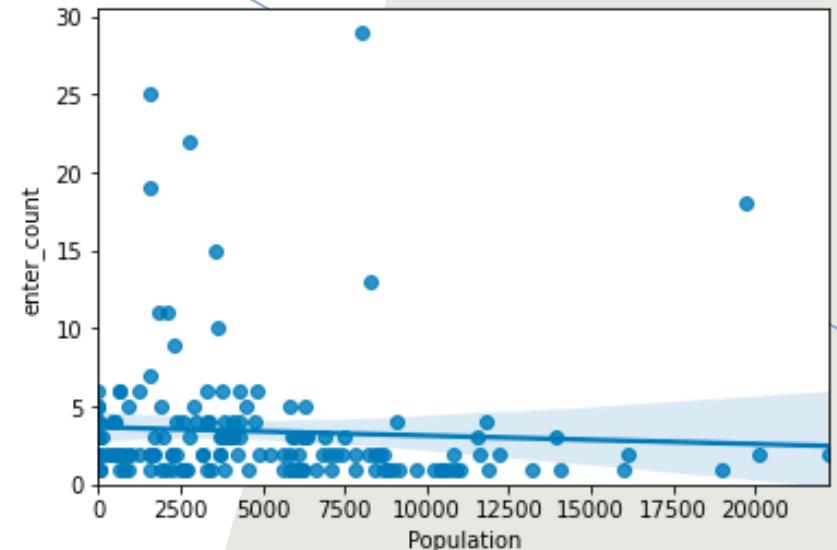
MAP OF CALGARY SHOWING CLUSTERS OF RESTAURANT AND ENTERTAINMENT LOCATIONS

- Entertainment venues in blues
- Restaurant venues in red
- Clusters are closer to the city centre



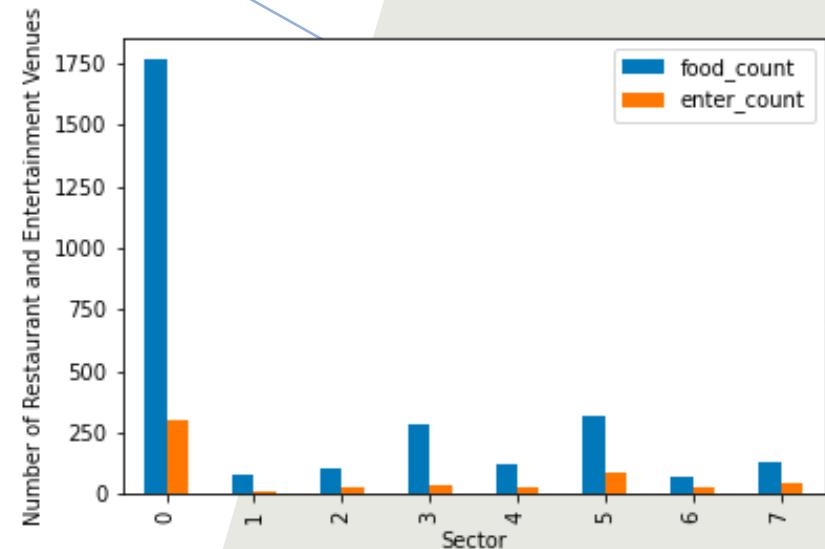
CORRELATION GRAPH OF RESTAURANT LOCATION AND ENTERTAINMENT LOCATION

- We can see there is a positive correlation between Restaurant location and entertainment location
- We can also see there is a Weak negative correlation between population and entertainment location



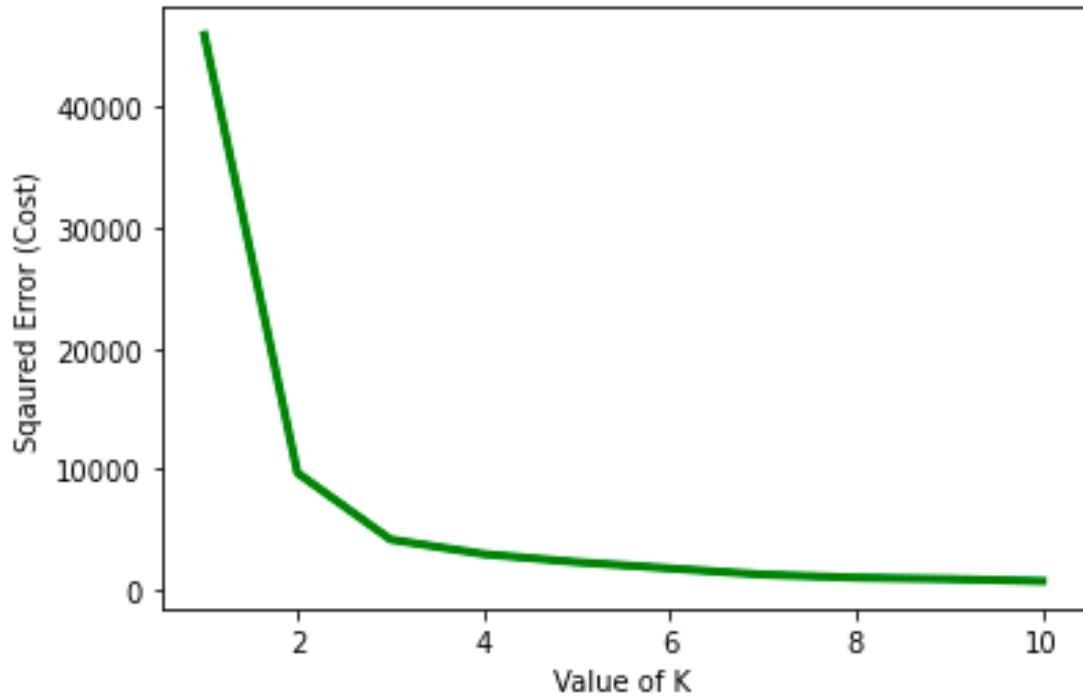
BAR CHART FOR SECTOR VS NUMBER OF RESTAURANT AND ENTERTAINMENT VENUES

- We can see that Neighbourhoods in the Center sector has the most Restaurant and entertainment venues!
- So moving on, we narrow down our focus to Neighbourhoods in the Center Sector

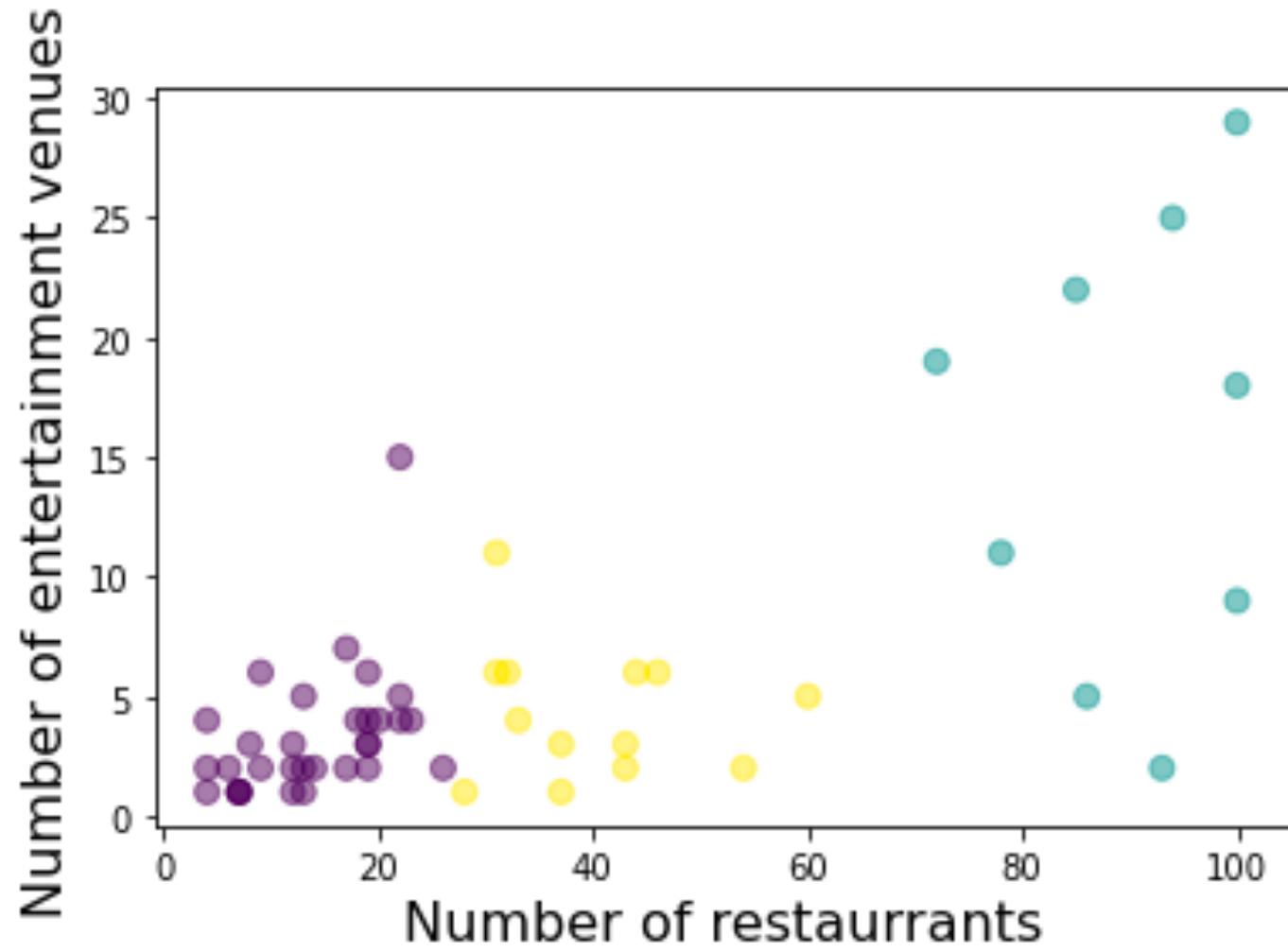


	Sector	food_count	enter_count
0	Centre	1763	300
1	East	77	15
2	North	110	28
3	Northeast	283	34
4	Northwest	119	27
5	South	316	87
6	Southeast	71	27
7	West	133	45

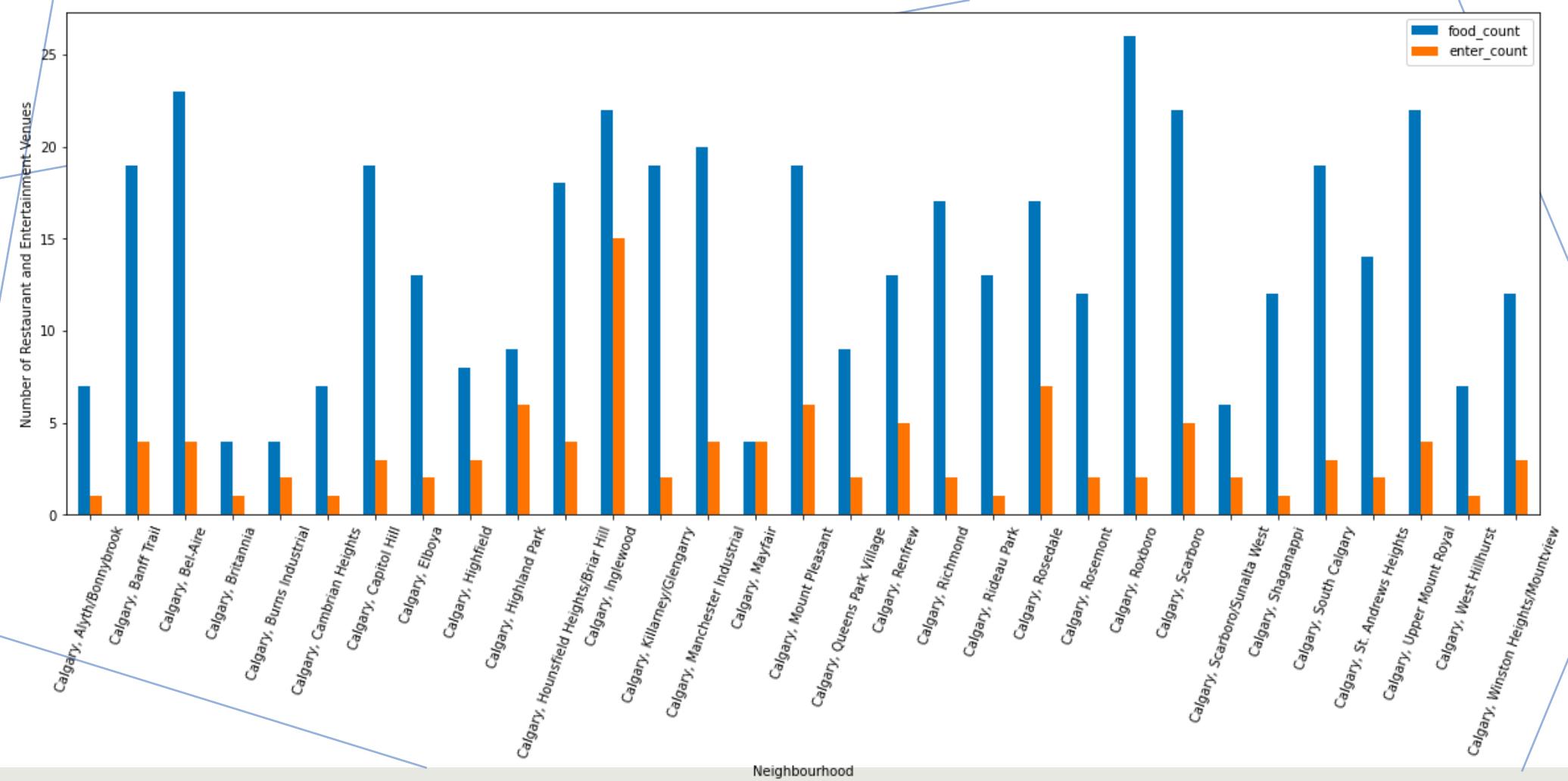
ELBOW METHOD USING K-MEANS CLUSTERING



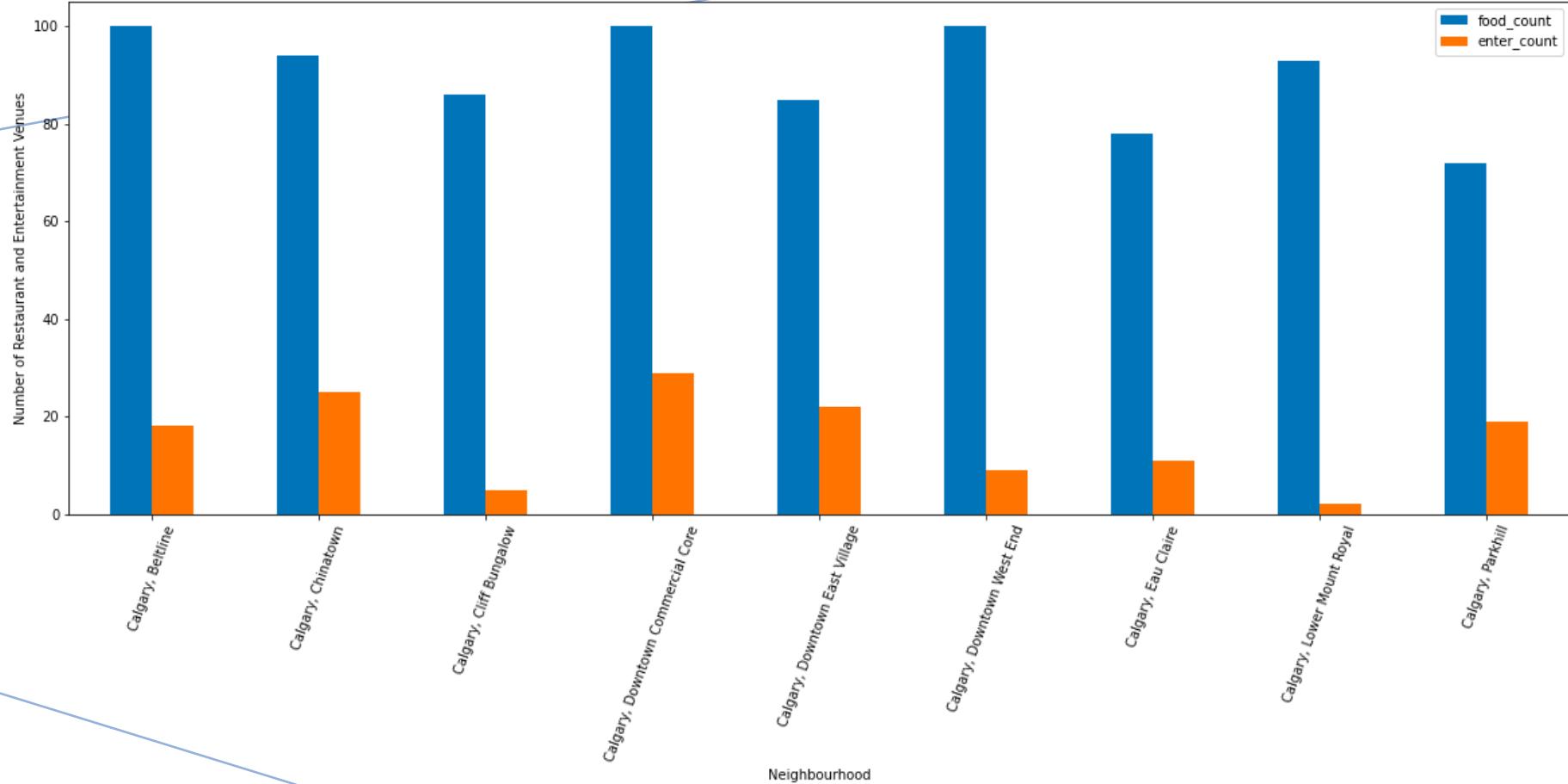
- From the graph, we can observe a clear K value of approximately 3, so we select 3 as our K value.



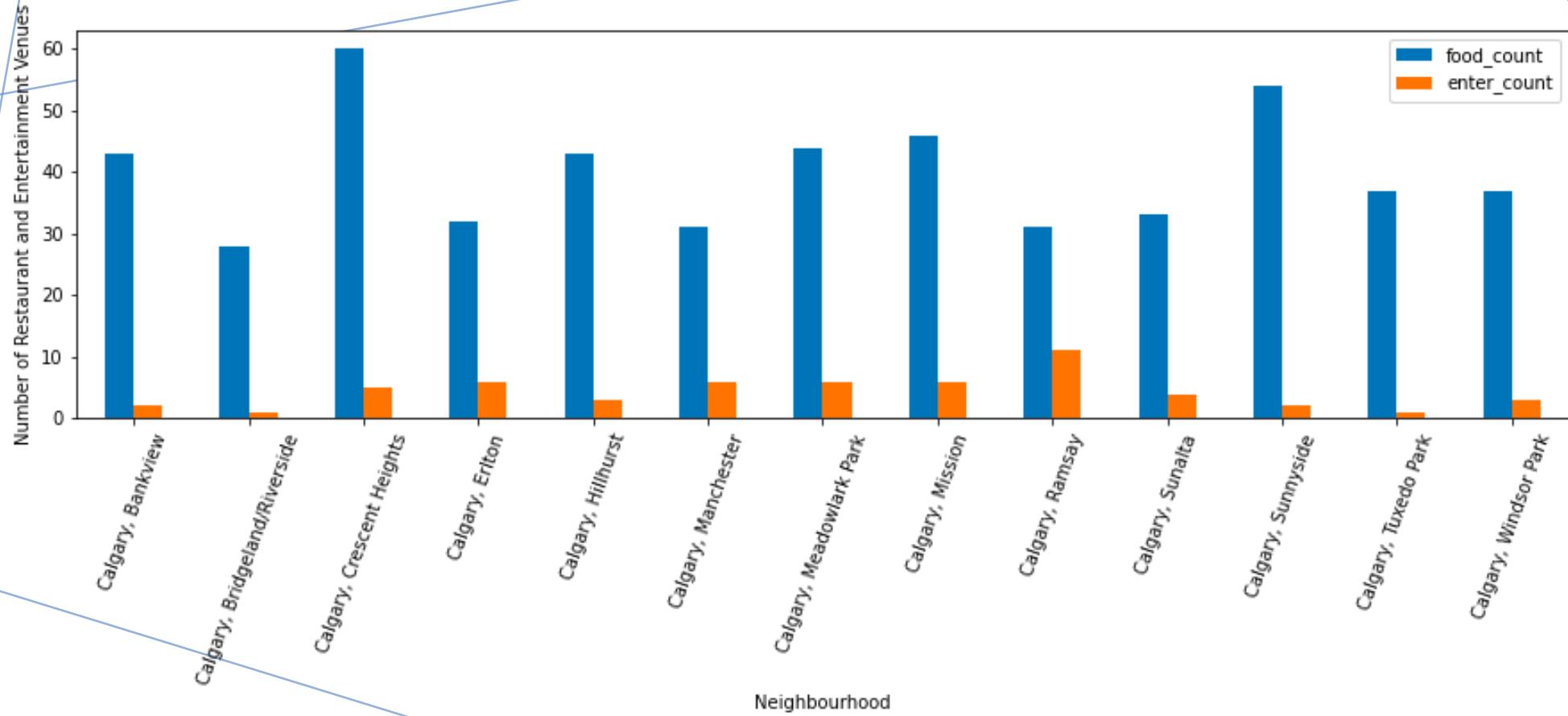
*K-MEANS
CLUSTERS*



CLUSTER 0 BAR CHART



CLUSTER 1 BAR CHART



CLUSTER 2 BAR CHART

RESULT OF ANALYSIS

- As we can see, Although Cluster 1 and 2 look similar, Cluster 1 has a higher count of restaurant and entertainment location.
- From Cluster 1, we see that Downtown Commercial Centre has the overall highest number of Restaurants and entertainment location.

ISSUE WITH ANALYSIS: AREA SIZE LIMITATION

- As we can see, the area size of Calgary, Downtown Commercial Core is 1.8 km squared. From research carried out, size of Calgary, Downtown Commercial Core is just about 444 acres (1.8 km squared) which restricts the available amount of land to build an amusement park. The size of calaway park is about 160 acres (0.647497 km squared), so we get a rough idea of how much land size we should look out for. Downtown areas of city are also known to contain high rise buidings used for office spaces etc and is limited to the available space. Since Center Sector has the highest amount of Restaurant and Entertainment venies, we expand our search for a location to build our amusement park back to the center sector.
- We can find the best location to build the amusement park by ranking the Centre Sector based on Area Size, Restaurant, and entertainment venues

RANKED DATA

- From our ranked data set, according to area size, restaurant and entertainment location, The Beltline Neighbourhood is the best Loction to build our new amusement park.

	Neighborhood	Quadrant	Sector	Type	Population	Area_size	Longitude	Latitude	food_count	enter_count	Clus_km	Rank
0	Calgary, Beltline	SW/SE	Centre	Residential	19681	2	-114.072593	51.040498	100	18	1	1
1	Calgary, Downtown Commercial Core	SW/SE	Centre	Residential	8015	1	-114.067199	51.047378	100	29	1	2
2	Calgary, Inglewood	SE	Centre	Residential	3564	2	-114.027489	51.038800	22	15	0	3
3	Calgary, Ramsay	SE	Centre	Residential	2110	1	-114.041219	51.037727	31	11	2	4
4	Calgary, Chinatown	SW/SE	Centre	Residential	1577	0	-114.062611	51.050654	94	25	1	5
5	Calgary, Downtown East Village	SE	Centre	Residential	2782	0	-114.050643	51.046496	85	22	1	6
6	Calgary, Eau Claire	SW	Centre	Residential	1851	0	-114.070312	51.052579	78	11	1	7
7	Calgary, Parkhill	SW	Centre	Residential	1592	0	-114.062589	51.053423	72	19	1	8

RESULTS AND CONLUSIONS

- Based on initial analysis, Downtown commercial Calgary was selected as the best Neighbourhood. But unfortunately, Downtown is a small Neighbourhood and would not be the best candidate for the construction of a large amusement park based on it's area size. Based on the ranking of the data (area size, restaurant count, and entertainment venues count), **Beltline** having an area size of 2km squared was selected as the best Neighbourhood.
- Calgary is the 4th largest city in Canada by population, with the province of Alberta having the third largest GDP in Canada. It is a beautiful city and building an amusement park can be a very profitable business to invest in. A big amusement park with a lot of rides, and fun activities like Disney World, could be a source of tourist attraction, which could potentially increase the economy of Calgary.