Finding the eating/drinking venues for the Tourists visiting the "City of lakes" Udaipur, Rajasthan, India

Index

- Background

- Introduction

- Data Description

- Methodology Adopted

- Results

- Discussion

- Conclusion & Future Scope

Background

- Every year more than **one million tourists** visit the Lake City.

- The tourists find it difficult to search the best venues with budgetary constraints and they also want to visit the venues that are near to the tourist places of Udaipur, as they have limited time.

Introduction

- Therefore, to help the tourists of this city by helping them by answering the questions:
- Which of the eating/drinking venues available within the 4km periphery from center of Udaipur?
- Which of the eating/drinking venues available within the 4km periphery from center of Udaipur are having low prices?
- Which of the eating/drinking venues available within the 4km periphery from center of Udaipur have good ratings?
- Which of the eating/drinking venues available within the 4km periphery from center of Udaipur are cheaper and have good rating?

Data Description

- The **folium library** shall be used **to generate the map of Udaipur**.

- The **Foursquare API** shall be **used to fetch the data** about the different eating/drinking venues like name, longitude, latitude, etc. within the radius of 4km from the center of Udaipur.

- The **Zomato API** shall be **used to fetch the data** about the different eating/drinking venues like name, longitude, latitude, address, rating, category, price etc. within the radius of 4km from the center of Udaipur.

Methodology Adopted

1. **Data Collection**
2. **Data Cleaning**
3. **Data Analysis**
4. **Results**
5. **Discussion**
6. **Conclusion**

Results

1. Data Collection Results

	name	categories	lat	lng	venue	latitude	longitude	price_for_two	price_range	rating	address	lat_diff	lng_diff
0	Lalit Laxmi Vilas Palace Hotel	Hotel	24.5938	73.6824	Padmini - The LaLiT Laxmi Vilas Palace	24.5939	73.6826	3000.0	4.0	3.7	The Lalit Laxmi Vilas Palace, Opposite Fateh S...	0.0001	0.0002
1	Sankalp	Indian Restaurant	24.5773	73.6992	Sankalp	24.5775	73.6993	600.0	2.0	3.9	Mewar Motor Building, 48, Toran Bawadi, City S...	0.0002	0.0001
2	Natraj Dining	Indian Restaurant	24.5724	73.6997	Natraj Dining Hall & Restaurant	24.5724	73.6996	400.0	1.0	4.5	22-24, City Station Road, City Centre, Udaipur	0.0000	-0.0001
3	Jaiwana Haveli	Hotel	24.5792	73.6826	Jaiwana Haveli Rooftop Restaurant	24.5792	73.6825	1000.0	3.0	4.2	14, Lalghat, Chandpole, Udaipur	0.0000	-0.0001
4	Brewmen Café	Café	24.6014	73.6871	Royal Brewmen	24.6014	73.6872	400.0	1.0	4.0	Shop 4, Hitawala Complex 2, Saheli Marg, Panch...	0.0000	0.0001
5	Panorama	Hotel	24.5804	73.6798	Panorama Rooftop Restaurant	24.5803	73.6798	800.0	2.0	3.1	Panorama Guest House, Hanuman Ghat, Outside Ch...	-0.0001	0.0000
6	Cafe Namaste	Dessert Shop	24.5804	73.6825	1o9 Cafe	24.5805	73.6826	500.0	2.0	4.1	64, Gangaur Ghat, Jagdish Square, Opposite Gan...	0.0001	0.0001

Fig.: Sample of merged Data set of venues fetched using APIs

Results

2. Data Cleaning Results

| 7 | Bagore ki Haveli | History Museum | 24.5795 | 73.6823 | Mewar Haveli Rooftop Restaurant | 24.5796 | 73.6827 | 550.0 | 2.0 | 3.7 | 34-35, Lal Ghat, Chandpole, Udaipur | 0.0001 | 0.0004 |

Fig.: Sample of mismatched Data set of venues fetched using APIs

Results

2. Data Cleaning Results

	categories	venue	latitude	longitude	price_range	rating	address	average_price
0	Hotel	Padmini - The LaLiT Laxmi Vilas Palace	24.5939	73.6826	4.0	3.7	The Lalit Laxmi Vilas Palace, Opposite Fateh S...	1500.0
1	Indian Restaurant	Sankalp	24.5775	73.6993	2.0	3.9	Mewar Motor Building, 48, Toran Bawadi, City S...	300.0
2	Indian Restaurant	Natraj Dining Hall & Restaurant	24.5724	73.6996	1.0	4.5	22-24, City Station Road, City Centre, Udaipur	200.0
3	Hotel	Jaiwana Haveli Rooftop Restaurant	24.5792	73.6825	3.0	4.2	14, Lalghat, Chandpole, Udaipur	500.0
4	Café	Royal Brewmen	24.6014	73.6872	1.0	4.0	Shop 4, Hitawala Complex 2, Saheli Marg, Panch...	200.0
5	Hotel	Panorama Rooftop Restaurant	24.5803	73.6798	2.0	3.1	Panorama Guest House, Hanuman Ghat, Outside Ch...	400.0
6	Dessert Shop	1o9 Cafe	24.5805	73.6826	2.0	4.1	64, Gangaur Ghat, Jagdish Square, Opposite Gan...	250.0
7	Restaurant	Platterzz	24.5924	73.6977	3.0	4.3	5,Bhatt Ji Ki Bari, Residency Road, Near GBH A...	500.0
8	Monument / Landmark	Gaurav Ice Cream&Milk Parlour	24.6004	73.6910	1.0	3.9	Bombay Market, Sukhadiya Circle, Panchwati, Ud...	100.0
9	Roof Deck	TMP Rooftop Restaurant	24.5797	73.6801	3.0	3.3	Hotel Mandiram Palace, 71 - Panchdevri, Hanuma...	500.0
10	Vegetarian / Vegan Restaurant	Millets of Mewar	24.5811	73.6802	2.0	3.9	16, Bhim Parmeshwar Marg, Hanuman Ghat, Outsid...	300.0

Fig.: Sample of Data set generated after data cleaning

Results

3. Data Analysis Results
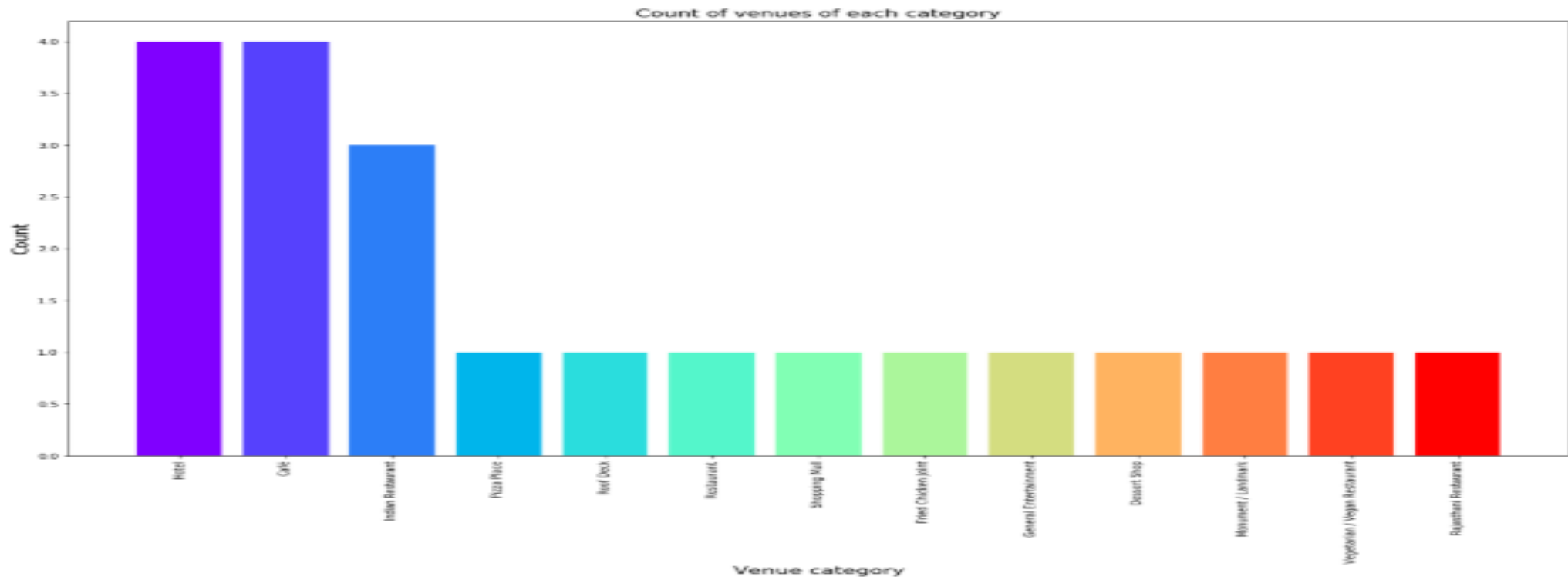
(a) **Analysis on the basis of Category**

Fig.: Bar Plot showing the number of venues for each category

Results

3. Data Analysis Results

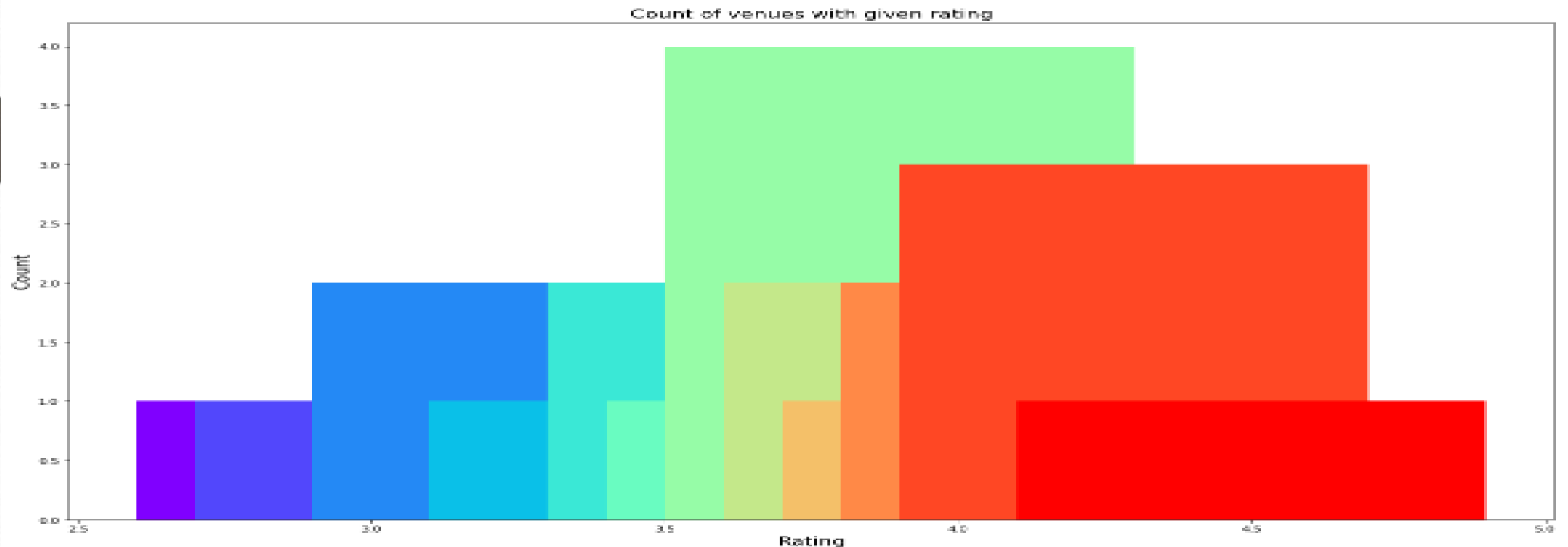**(b) Analysis on the basis of Rating of Venues**

Fig.: Bar Plot showing the number of venues for each rating

Results

3. Data Analysis Results

(c) Analysis on the basis of dividing the venues on the basis of ratings into Low, Okay, Good and very good categories

1 to 2: Low shown with RED
2 to 3: Okay shown with ORANGE
3 to 4 Good shown with GREEN
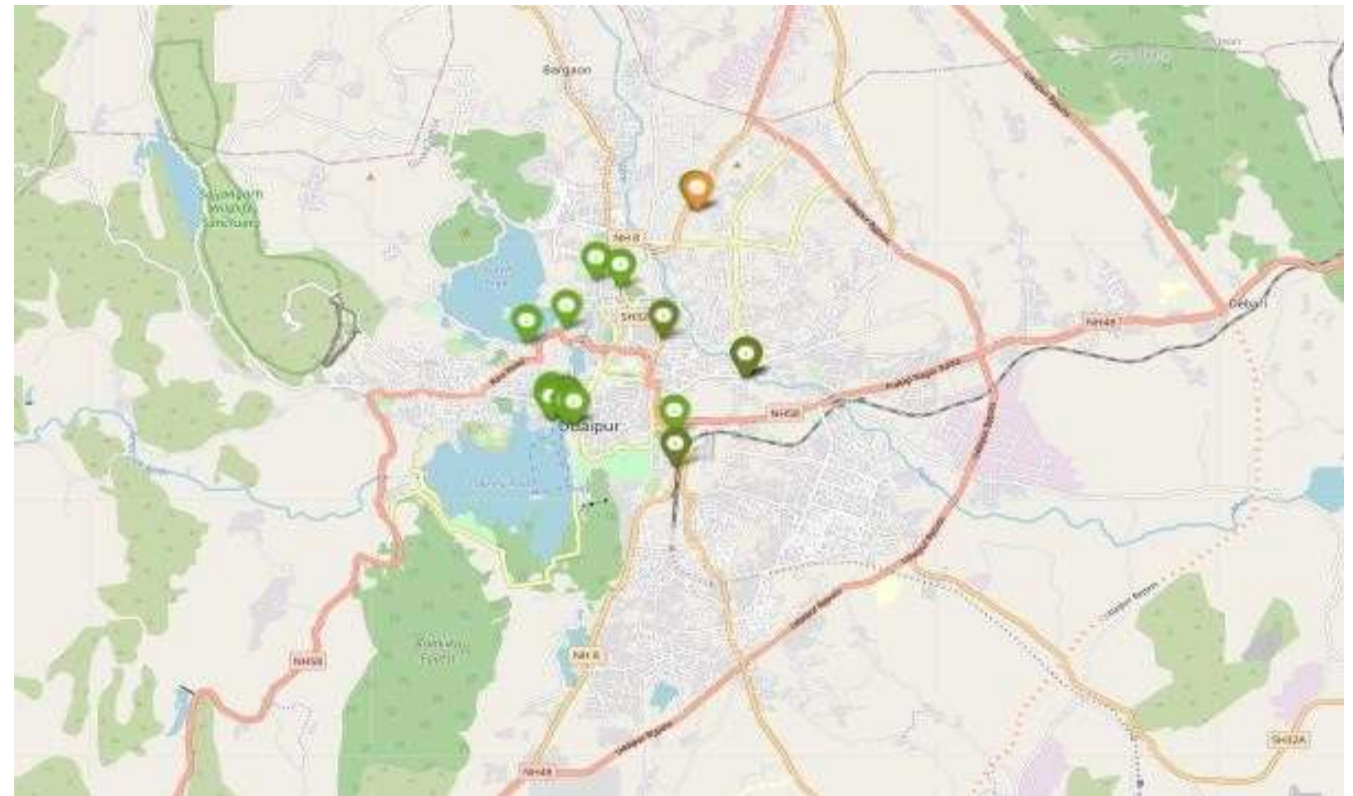4 to 5 Very Good shown with
      DARKGREEN

Fig.: Division of the venues on the basis of ratings into Low, Okay, Good and very good categories

Results

3. Data Analysis Results

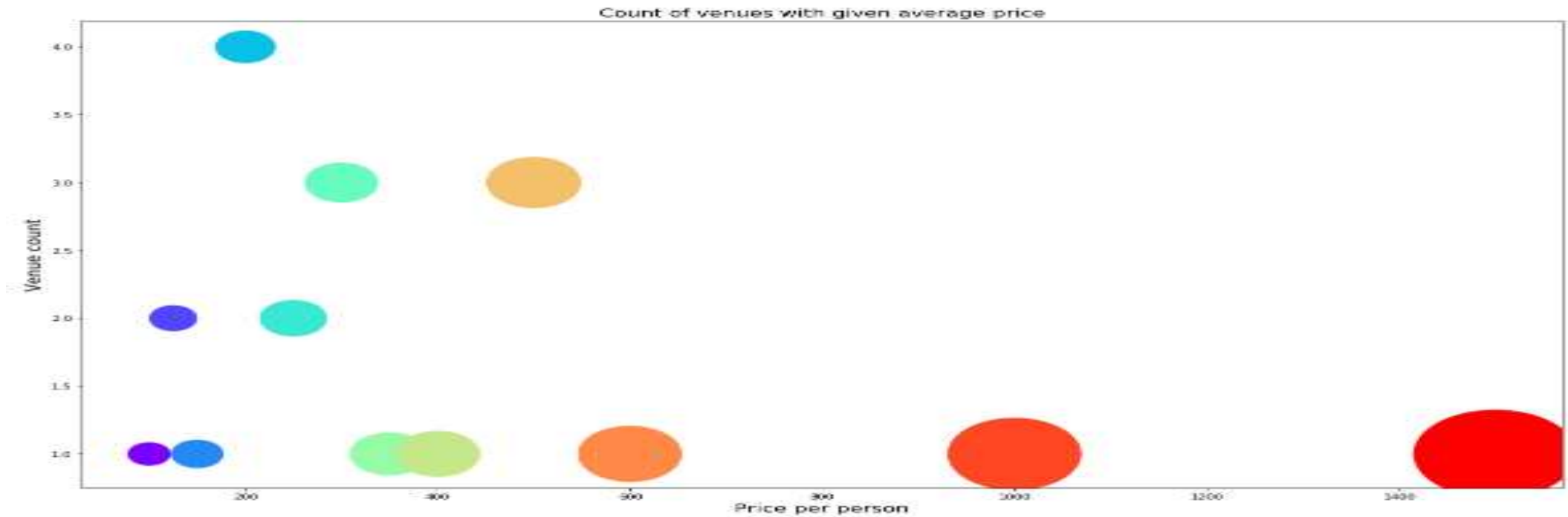**(d)** **Analysis on the basis of venues with Average Price per Person expenses**

Fig.: Division of the venues on the basis of Average Price per person expenses

Results

3. Data Analysis Results

(e) Use of KMeans Clustering

	cluster_labels	categories	venue	latitude	longitude	price_range	rating	address	average_price	rating_bin
0	1	Hotel	Padmini - The LaLiT Laxmi Vilas Palace	24.5939	73.6826	4.0	3.7	The Lalit Laxmi Vilas Palace, Opposite Fateh S...	1500.0	Good
1	0	Indian Restaurant	Sankalp	24.5775	73.6993	2.0	3.9	Mewar Motor Building, 48, Toran Bawadi, City S...	300.0	Good
2	0	Indian Restaurant	Natraj Dining Hall & Restaurant	24.5724	73.6996	1.0	4.5	22-24, City Station Road, City Centre, Udaipur	200.0	Very good
3	0	Hotel	Jaiwana Haveli Rooftop Restaurant	24.5782	73.6825	3.0	4.2	14, Lalghat, Chandpole, Udaipur	500.0	Very good
4	0	Café	Royal Brewmen	24.6014	73.6872	1.0	4.0	Shop 4, Hitawala Complex 2, Saheli Marg, Panch...	200.0	Good

Fig.: Sample dataset for dividing the venues into two clusters with label 1 and 0

Results

3. Data Analysis Results

(e) Use of KMeans Clustering

Cluster 0

	cluster_labels	categories	venue	latitude	longitude	price_range	rating	address	average_price	rating_bin
0	0	Indian Restaurant	Sankalp	24.5775	73.6993	2.0	3.9	Mewar Motor Building, 48, Toran Bawadi, City S...	300.0	Good
1	0	Indian Restaurant	Natraj Dining Hall & Restaurant	24.5724	73.6996	1.0	4.5	22-24, City Station Road, City Centre, Udaipur	200.0	Very good
2	0	Hotel	Jaiwana Haveli Rooftop Restaurant	24.5792	73.6825	3.0	4.2	14, Lalghat, Chandpole, Udaipur	500.0	Very good
3	0	Café	Royal Brewmen	24.6014	73.6872	1.0	4.0	Shop 4, Hitawala Complex 2, Saheli Marg, Panch...	200.0	Good
4	0	Hotel	Panorama Rooftop Restaurant	24.5803	73.6798	2.0	3.1	Panorama Guest House, Hanuman Ghat, Outside Ch...	400.0	Good
5	0	Dessert Shop	1o9 Cafe	24.5805	73.6826	2.0	4.1	64, Gangaur Ghat, Jagdish Square, Opposite Gan...	250.0	Very good
6	0	Restaurant	Platterzz	24.5924	73.6977	3.0	4.3	5,Bhatt Ji Ki Bari, Residency Road, Near GBH A...	500.0	Very good
7	0	Monument / Landmark	Gaurav Ice Cream&Milk Parlour	24.6004	73.6910	1.0	3.9	Bombay Market, Sukhadiya Circle, Panchwati, Ud...	100.0	Good
8	0	Roof Deck	TMP Rooftop Restaurant	24.5797	73.6801	3.0	3.3	Hotel Mandiram Palace, 71 - Panchdevri, Hanuma...	500.0	Good
9	0	Vegetarian / Vegan Restaurant	Millets of Mewar	24.5811	73.6802	2.0	3.9	16, Bhim Parmeshwar Marg, Hanuman Ghat, Outsid...	300.0	Good

Fig.: Sample dataset for clusters 0

Results

3. Data Analysis Results

(e) Use of KMeans Clustering

Cluster 1

	cluster_labels	categories	venue	latitude	longitude	price_range	rating	address	average_price	rating_bin
0	1	Hotel	Padmini - The LaLiT Laxmi Vilas Palace	24.5939	73.6826	4.0	3.7	The Lalit Laxmi Vilas Palace, Opposite Fateh S...	1500.0	Good
1	1	Hotel	Bougainvillea Terrace By The Lake	24.5916	73.6784	4.0	3.6	Hotel Lakend, Fateh Sagar Lake Shore, Alkapuri...	1000.0	Good

Fig.: Sample dataset for clusters 1

Results

3. Data Analysis Results

(e) **Use of KMeans Clustering**

Fig.: Map showing the two clusters 0 and 1 in green and red colours respectively

Discussion

- The data was collected from Foursquare API and Zomato API, within a radius of 4KM, total **54 venues were fetched** but some venues were different in both the APIs. After analysing the latitude and longitude data of these venues and removing the mismatched ones. We were **left with 21 different venues.**

- The ratings of **these 21 venues are between 1.0 to 5.0.** and **majority of the venues are having rating greater than 3.5.** Therefore, on the basis of rating, we can conclude that majority of the venues are of good quality in terms of food, location etc.

- After analyzing the venues on the basis of their Average Price per person, It has been observed that out of all the venues **only two venues are charging More than Rs. 1000** and rest of the venues are having their **average price less than Rs. 1000.** The **minimum average price is Rs. 100** that is very reasonable.

Discussion

- After applying KMeans clustering, it has been observed that venues with less **average price have a mean rating of 3.88 and average price range of 1.79** whereas the venues with **higher price have mean price range of 4.00 and rating spread around 3.60.**

- It has been concluded from the analysis that if the tourist wants a cheaper venue for eating/drinking he/she should go to **Gangaur Ghat** and area that is behind **Pichola Lake**. If he/she is looking for best places with no restriction on budget should try near the **Fateh Sagar** Lake area.

- If the tourist does not have any restriction on budget as well as rating then he/she should try the venues near **city palace, gangaur ghat, lake Pichola and Fateh Sagar Lake**.

Conclusion

The objective of this project is to help the visitors to find the eating/drinking venues who are visiting Udaipur. The observations have been shown through maps and it is suggested to the tourists to **visit Gangaur, Ghat, Cit Palace, Lake Pichola and Fateh Sagar Lake** areas for eating/drinking and can find the venues as per their budget as well as ratings of the venues.

Future Scope: An Android App can be developed for this.

Thank You