In [3]:
```
import sqlite3
```

In [4]:
```
%load_ext sql
```

In [5]:
```
%sql sqlite://
```

In [6]:
```
# %%
%sql mysql+mysqldb://root:123456@localhost/zomato_data
```

In [ ]:
```
%config SqlMagic.autolimit = 3
```

About Dataset

This dataset provides a comprehensive view of the restaurant scene in the 3 metropolitan areas of India(174 restaurants) .Researchers, analysts, and food enthusiasts can use this dataset to gain insights into various aspects such as dining and delivery ratings, customer reviews and preferences, popular cuisines, best-selling items, and pricing information across different cities. It enables the exploration of dining patterns, the comparison of restaurants and cuisines between cities, and the identification of trends in the food industry. This dataset serves as a valuable resource for understanding the culinary landscape and making data-driven decisions related to the restaurant business, customer satisfaction, and food choices in these metropolitan areas of India

In [7]:
```
# Check the dataset

%sql SELECT * FROM zomato_dataset
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'
26859 rows affected.

Out[7]:

Restaurant Name	Dining Rating	Delivery Rating	Dining Votes	Delivery Votes	Cuisine	Place Name	City	Item Name	Best Seller	Votes	Prices
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Platter Kebab Combo	BESTSELLER	84	249
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Chicken Rumali Shawarma	BESTSELLER	45	129
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Chicken Tandoori Salad		39	189
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Chicken BBQ Salad	BESTSELLER	43	189
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Special Doner Wrap Combo	MUST TRY	31	205
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Chicken Tandoori Pizza [8 inches]	BESTSELLER	48	199

Restaurant Name	Dining Rating	Delivery Rating	Dining Votes	Delivery Votes	Cuisine	Place Name	City	Item Name	Best Seller	Votes	Prices
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Special Zinger Tortilla Wrap	CHEF'S SPECIAL	27	165
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Chicken Popcorn [20 Pieces]	BESTSELLER	59	165
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Chicken Tandoori Sandwich		29	115
Doner King	3.9	4.2	39	0	Fast Food	Malakpet	Hyderabad	Chicken Bread Samoli Shawarma		31	129

26859 rows, truncated to displaylimit of 10

If you want to see more, please visit displaylimit configuration

In [8]:
```
# 1.Top 10 restaurant who has highest items
%config SqlMagic.displaylimit = 174
df=%sql select `Restaurant Name`,count(*) from zomato_dataset group by `Restaurant Name`
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

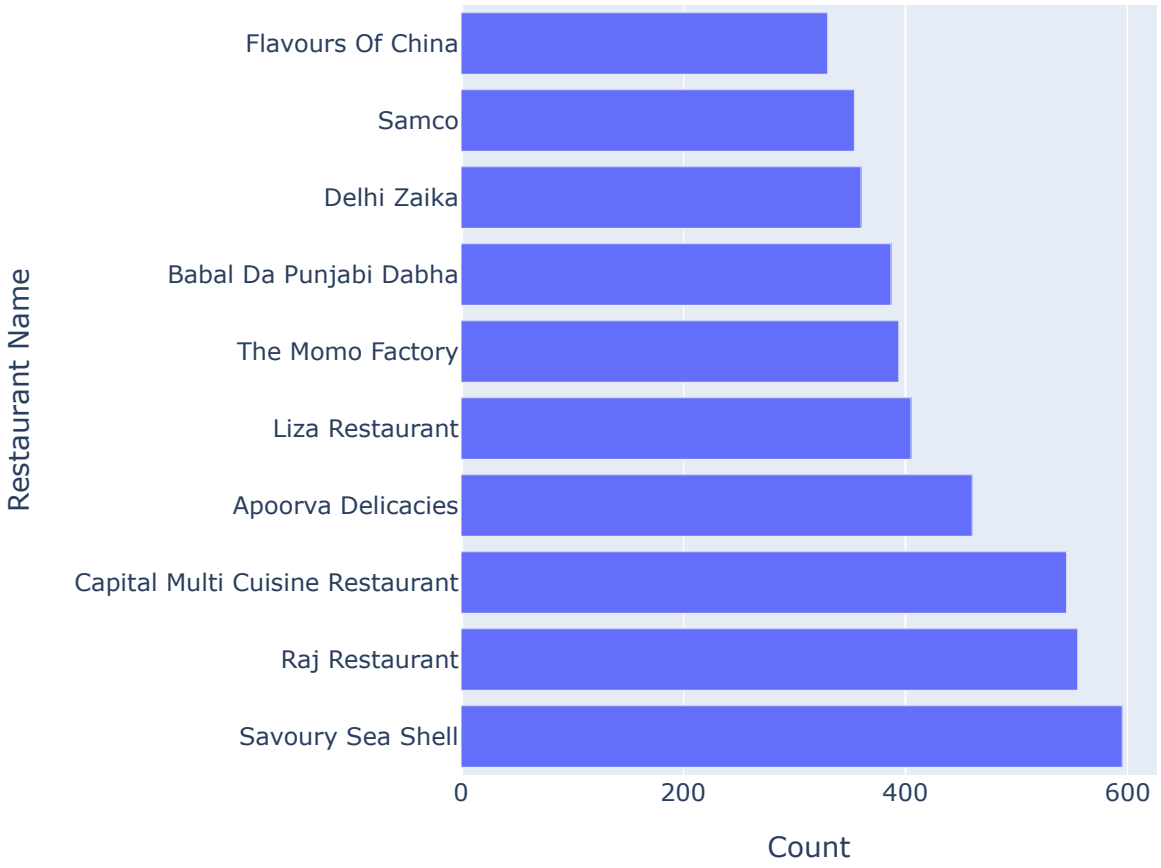
174 rows affected.

In [9]:
```
df1=df.DataFrame()
df1=df1.rename(columns={'count(*)':'Count'})
df1=df1.sort_values(ascending=False,by='Count')
df1=df1.head(10)
df1
```

Out[9]:

	Restaurant Name	Count
139	Savoury Sea Shell	595
110	Raj Restaurant	555
17	Capital Multi Cuisine Restaurant	545
120	Apoorva Delicacies	460
131	Liza Restaurant	405
101	The Momo Factory	394
130	Babal Da Punjabi Dabha	387
109	Delhi Zaika	360
160	Samco	354
107	Flavours Of China	330

In [10]:
```
#Create a bar chart to visualize
import plotly.express as px
px.bar(df1,x='Count',y='Restaurant Name')
```



Conclusion:Savoury Sea shell has the highest items

In [11]:

```
#2. Find the Restaurant who has  the highest Dining Rating
df1=%sql SELECT `Restaurant Name`,round(Avg(`Dining Rating`),2) FROM zomato_dataset group
df1=df1.DataFrame()
df1=df1.sort_values(ascending=False,by='round(Avg(`Dining Rating`),2)')
df1=df1.rename(columns={'round(Avg(`Dining Rating`),2)':'Avg_rating'}).head(20)
df1
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

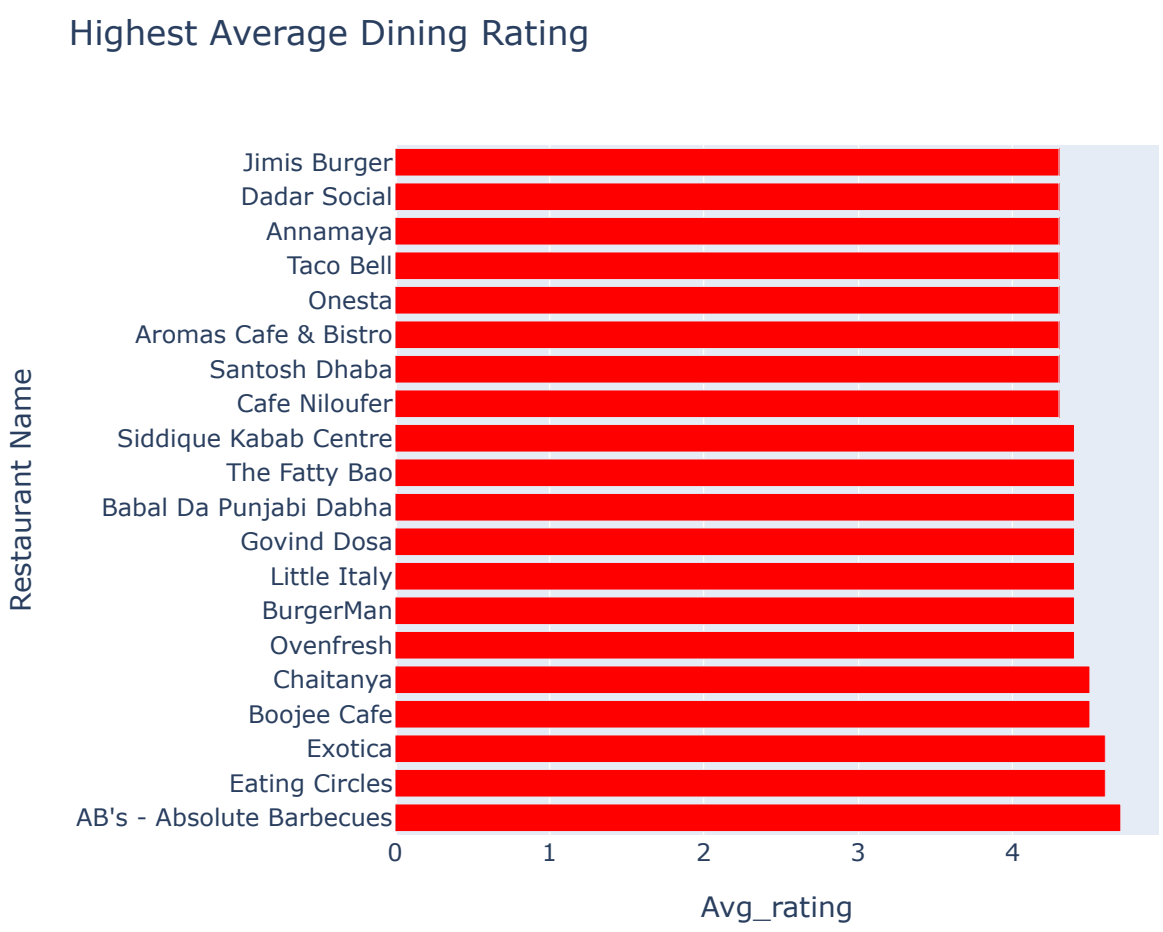
174 rows affected.

Out[11]:

	Restaurant Name	Avg_rating
150	AB's - Absolute Barbecues	4.7
168	Eating Circles	4.6
94	Exotica	4.6
118	Boojee Cafe	4.5
99	Chaitanya	4.5
111	Ovenfresh	4.4
159	BurgerMan	4.4
167	Little Italy	4.4
10	Govind Dosa	4.4

	Restaurant Name	Avg_rating
130	Babal Da Punjabi Dabha	4.4
123	The Fatty Bao	4.4
4	Siddique Kabab Centre	4.4
46	Cafe Niloufer	4.3
22	Santosh Dhaba	4.3
112	Aromas Cafe & Bistro	4.3
39	Onesta	4.3
1	Taco Bell	4.3
119	Annamaya	4.3
102	Dadar Social	4.3
103	Jimis Burger	4.3

In [12]:
```
px.bar(df1,y='Restaurant Name',x='Avg_rating',title='Highest Average Dining Rating',color_
                    labels={'x': 'Some X', 'y': 'Some Y'})
```



Conclusion: ABs-Absolute Barbecues has the highest average rating of dining table that means Abs-Absolute is the good for dining as compared to other restaurant

In [13]:
```
#3. Find the Restaurant who has  the highest Delivery Rating
df2=%sql SELECT `Restaurant Name`,round(Avg(`Delivery Rating`),2) FROM zomato_dataset grou
df2=df2.DataFrame()
df2=df2.sort_values(ascending=False,by='round(Avg(`Delivery Rating`),2)')
df2=df2.rename(columns={'round(Avg(`Delivery Rating`),2)':'Delivery_Avg_rating'}).head(20)
df2
```

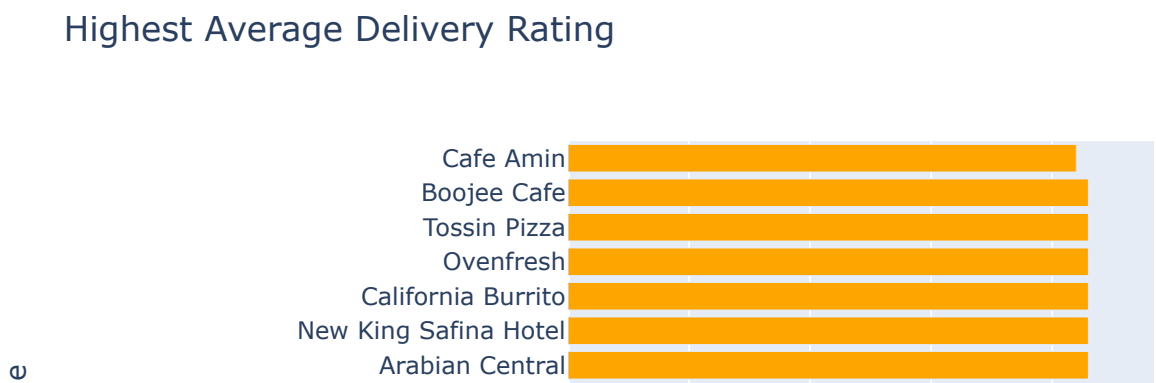
Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

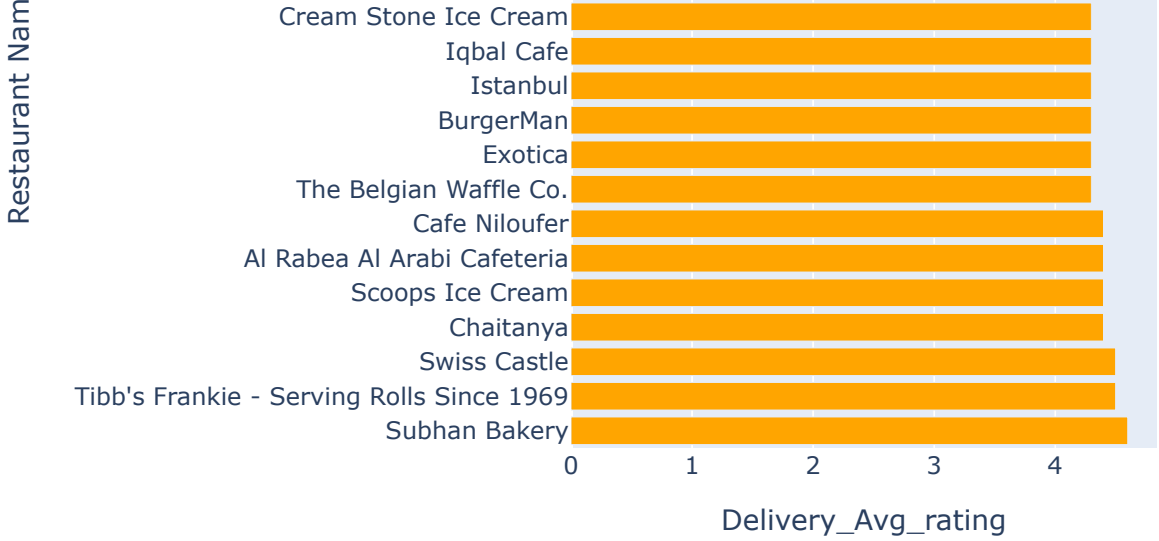
174 rows affected.

Out[13]:

	Restaurant Name	Delivery_Avg_rating
40	Subhan Bakery	4.6
87	Tibb's Frankie - Serving Rolls Since 1969	4.5
70	Swiss Castle	4.5
99	Chaitanya	4.4
77	Scoops Ice Cream	4.4
79	Al Rabea Al Arabi Cafeteria	4.4
46	Cafe Niloufer	4.4
30	The Belgian Waffle Co.	4.3
94	Exotica	4.3
159	BurgerMan	4.3
26	Istanbul	4.3
27	Iqbal Cafe	4.3
86	Cream Stone Ice Cream	4.3
61	Arabian Central	4.3
63	New King Safina Hotel	4.3
49	California Burrito	4.3
111	Ovenfresh	4.3
115	Tossin Pizza	4.3
118	Boojee Cafe	4.3
162	Cafe Amin	4.2

In [14]:
```
px.bar(df2,y='Restaurant Name',x='Delivery_Avg_rating',title="Highest Average Delivery Rat
                    labels={'x': 'Some X', 'y': 'Some Y'})
```





Conclusion: Subhan Bakery has the highest average rating of delivery as compared to other restaurant

In [15]:
```
# Find the city who has highest dining avg rating

df3=%sql SELECT City,round(avg(`Dining Rating`),2) FROM zomato_dataset group by City
df3=df3.DataFrame()
df3=df3.rename(columns={'round(avg(`Dining Rating`),2)':'rating'})
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

3 rows affected.

In [16]:
```
px.bar(df3,x='City',y='rating',text_auto='.2s',title='City has highest Dining Avg Rating')
```

City

In [ ]:

In [17]:
```
# Find the city who has highest dining avg rating

df4=%sql SELECT City,round(avg(`Delivery Rating`),3) FROM zomato_dataset group by City
df4=df4.DataFrame()
df4=df4.rename(columns={'round(avg(`Delivery Rating`),3)':'rating'})
df4
```

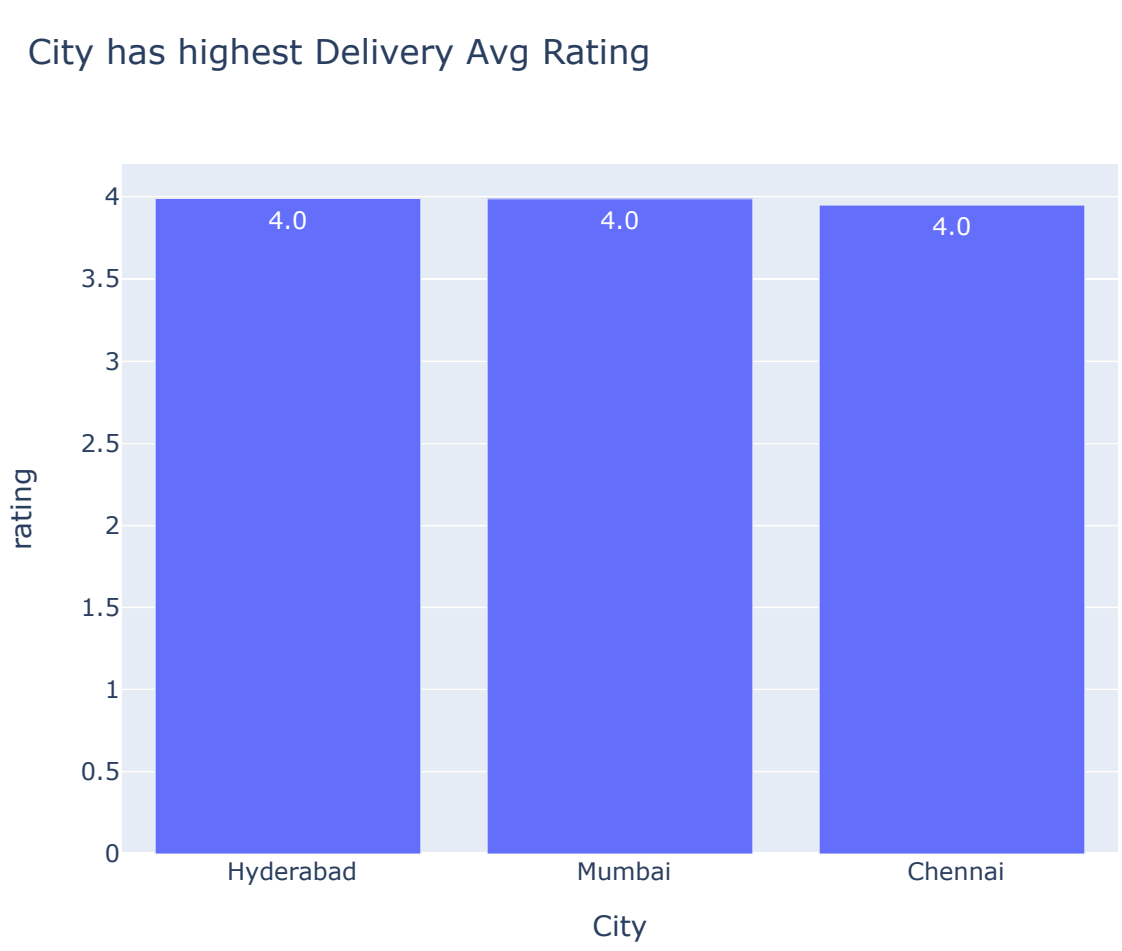
Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

3 rows affected.

Out[17]:

	City	rating
0	Hyderabad	3.990
1	Mumbai	3.988
2	Chennai	3.950

In [18]:
```
px.bar(df4,x='City',y='rating',text_auto='.2s',title='City has highest Delivery Avg Rating
```



In [137…
```
df5=%sql Select City,Cuisine,count(Distinct(Cuisine)) From zomato_dataset group by  City,C
df5=df5.DataFrame()
df5=df5.rename(columns={'count(Distinct(Cuisine))':'Count'})
df5=df5.sort_values(by='Count',ascending=False)
df5=df5.head(10)
df5
```

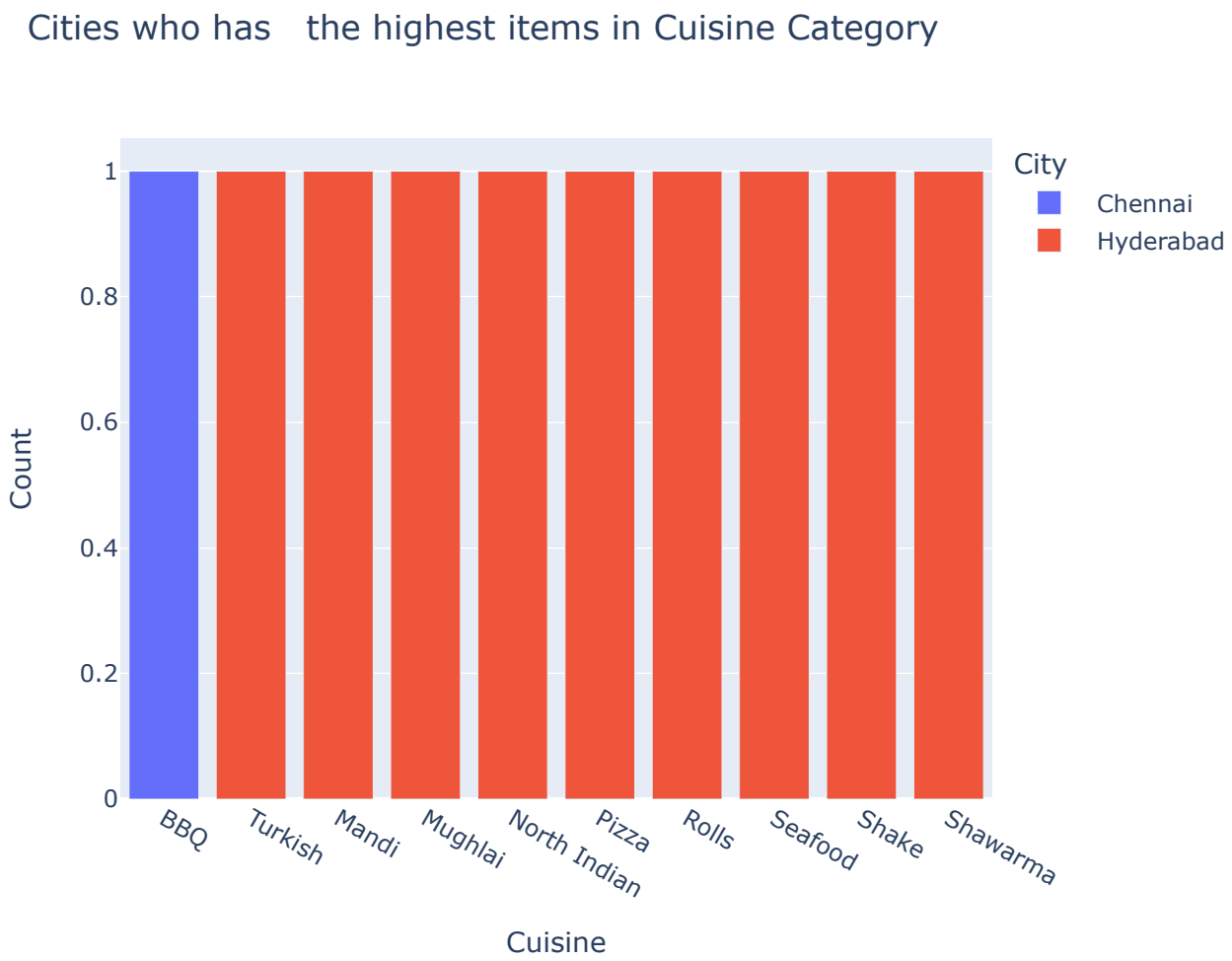
Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

47 rows affected.

Out[137…

	City	Cuisine	Count
0	Chennai	BBQ	1
35	Hyderabad	Turkish	1
26	Hyderabad	Mandi	1
27	Hyderabad	Mughlai	1
28	Hyderabad	North Indian	1
29	Hyderabad	Pizza	1
30	Hyderabad	Rolls	1
31	Hyderabad	Seafood	1
32	Hyderabad	Shake	1
33	Hyderabad	Shawarma	1

In [138…
```
px.bar(df5,color='City',x='Cuisine',y='Count',title='Cities who has   the highest items ir
```



In [23]:
```
#city has highest number of restaurants
df6=%sql Select City ,count(distinct(`Restaurant Name`)) FROM zomato_dataset group by City
df6=df6.DataFrame()
df6=df6.sort_values(by='count(distinct(`Restaurant Name`))',ascending=False)
df6=df6.rename(columns={'count(distinct(`Restaurant Name`))':'Count'})
df6
```

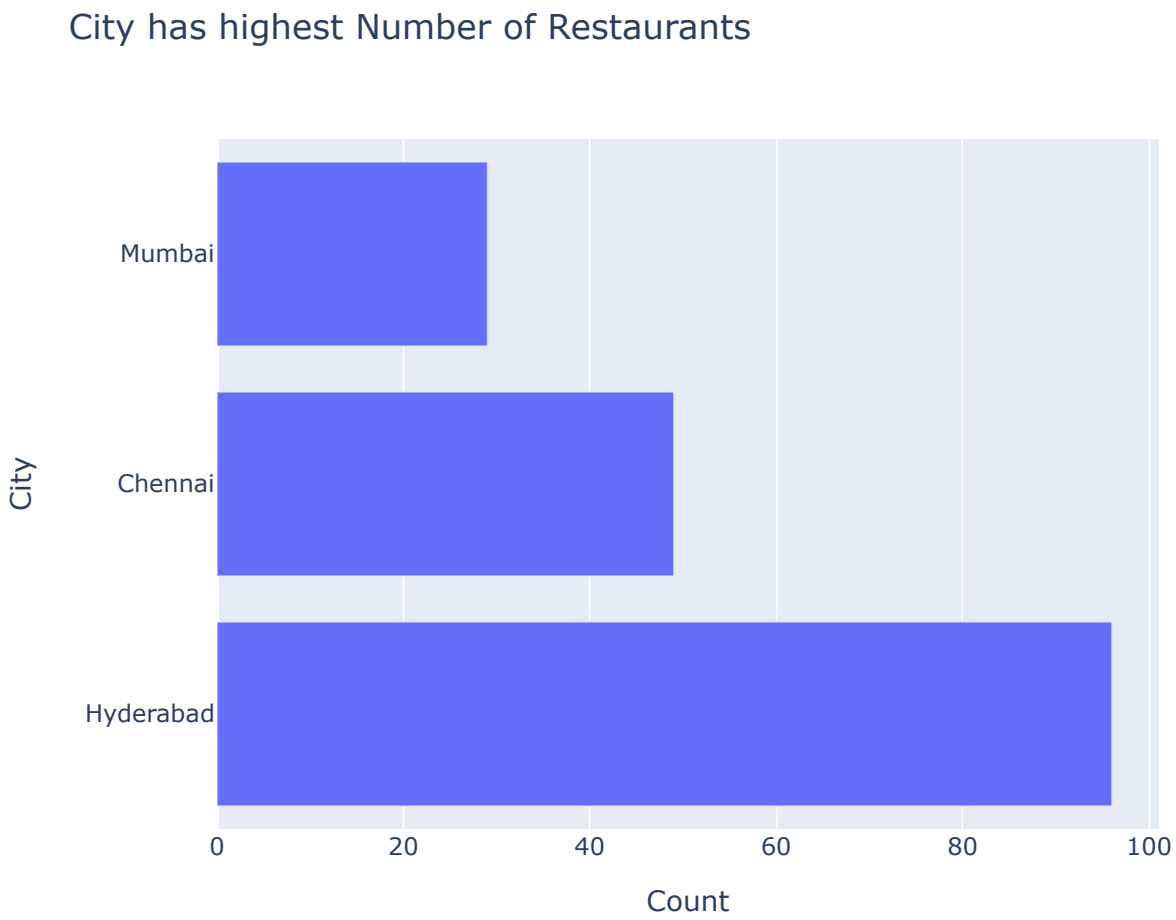
Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

3 rows affected.

Out[23]:

	City	Count
1	Hyderabad	96
0	Chennai	49
2	Mumbai	29

In [24]:
```
px.bar(df6,x='Count',y='City',title='City has highest Number of Restaurants')
```



In [25]:
```
df7=%sql Select `Restaurant Name`, City ,avg(`Dining Rating`) From zomato_dataset group by
df7=df7.DataFrame()
df7=df7.sort_values(by='avg(`Dining Rating`)',ascending=False)
df7=df7.rename(columns={'avg(`Dining Rating`)':'Avg_Dining_Rating'})
df7=df7.head(10)
df7
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

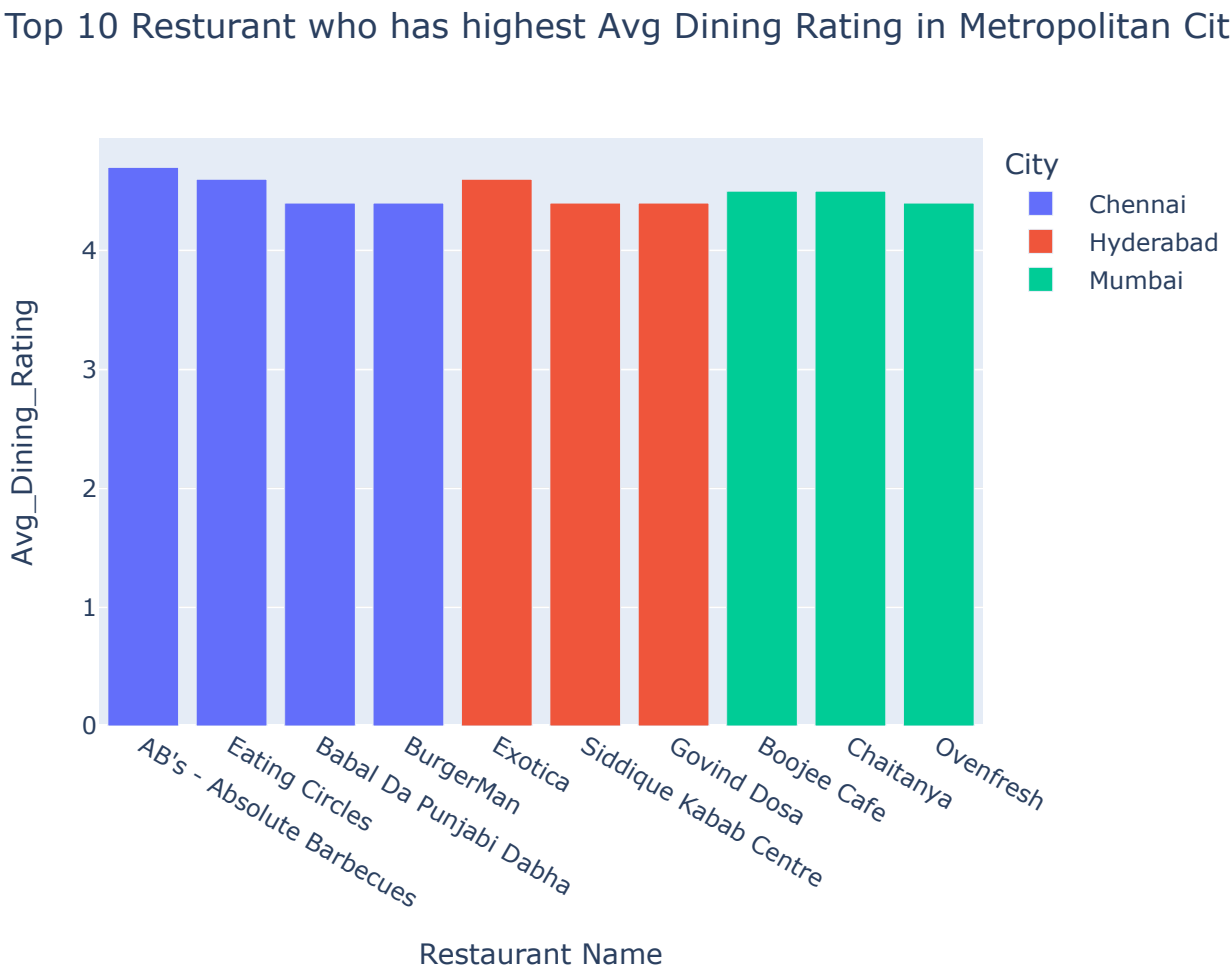
174 rows affected.

Out[25]:

	Restaurant Name	City	Avg_Dining_Rating
150	AB's - Absolute Barbecues	Chennai	4.7
94	Exotica	Hyderabad	4.6
168	Eating Circles	Chennai	4.6
118	Boojee Cafe	Mumbai	4.5
99	Chaitanya	Mumbai	4.5
130	Babal Da Punjabi Dabha	Chennai	4.4
4	Siddique Kabab Centre	Hyderabad	4.4
10	Govind Dosa	Hyderabad	4.4
111	Ovenfresh	Mumbai	4.4
159	BurgerMan	Chennai	4.4

In [26]:

```
px.bar(df7, x="Restaurant Name", y="Avg_Dining_Rating", color="City", title="Top 10 Restur
```



In [60]:

```
#Average Price of Each City
df9=%sql Select City,round(Avg(Prices),2) from zomato_dataset  group by City
df9=df9.DataFrame()
```

```
df9=df9.rename(columns={'round(Avg(Prices),2)':'Avg_Price'})
df9
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

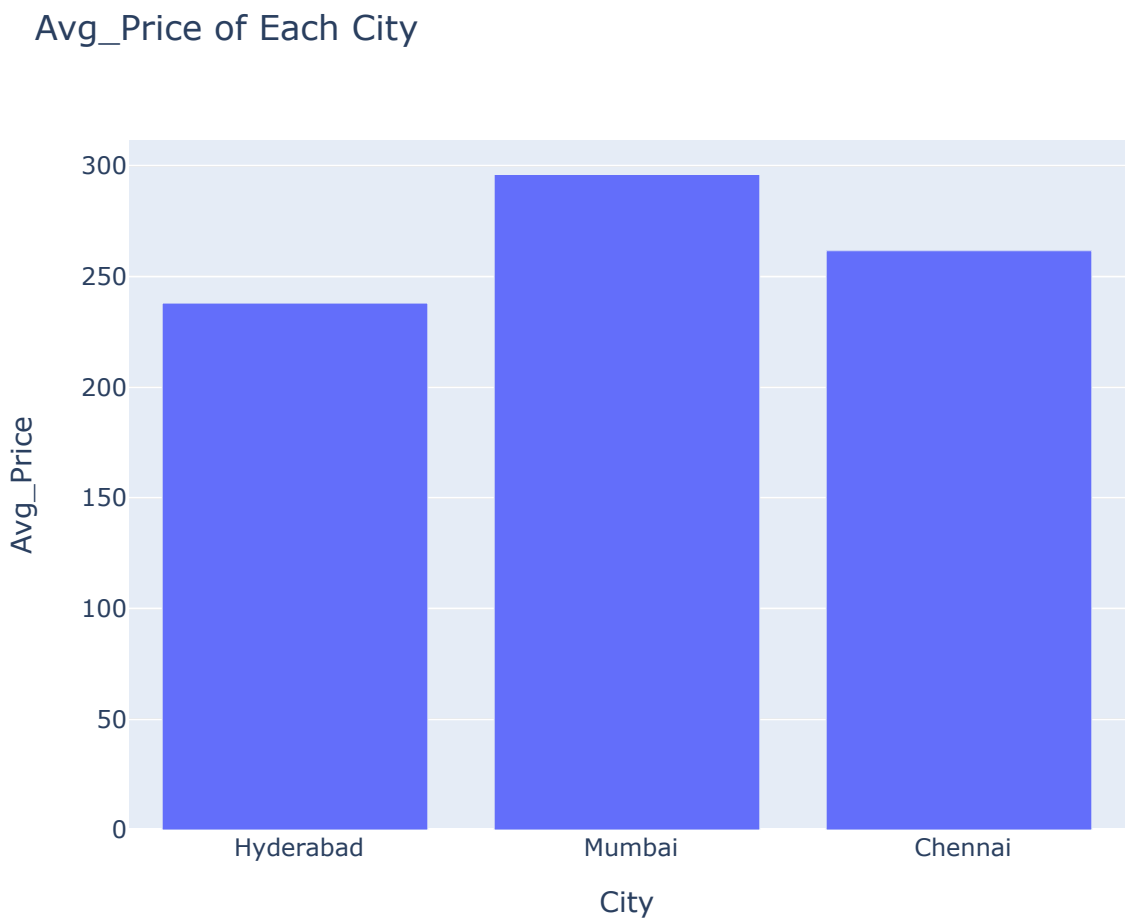
3 rows affected.

Out[60]:

	City	Avg_Price
0	Hyderabad	237.97
1	Mumbai	296.04
2	Chennai	261.63

In [61]:

```
px.bar(df9,x='City',y='Avg_Price',title='Avg_Price of Each City')
```



In [70]:

```
df10=%sql Select City,`Place Name`,Count(distinct('Restaurant Name')) as count from zomato
df10=df10.DataFrame()
df10
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

74 rows affected.

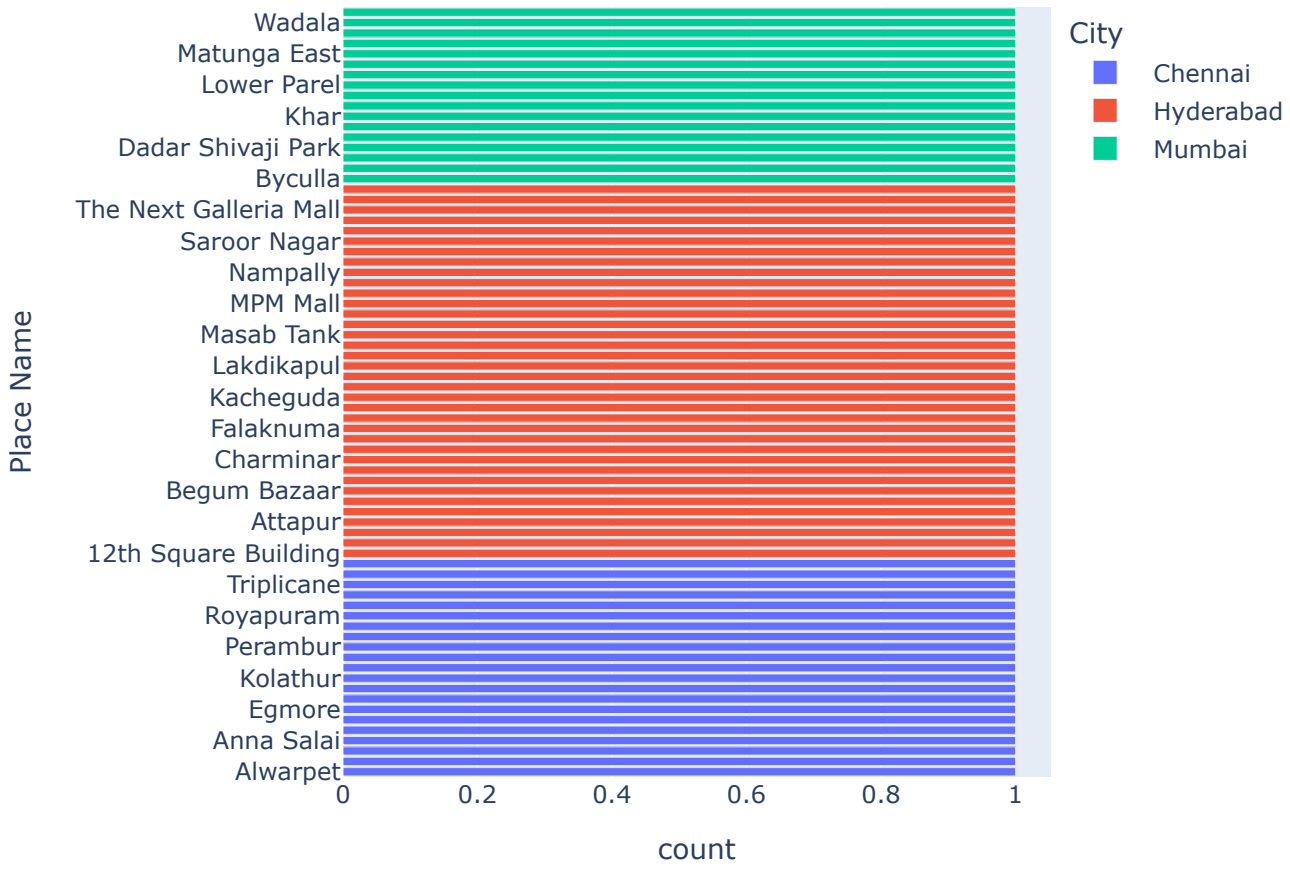
Out[70]:

	City	Place Name	count
0	Chennai	Alwarpet	1
1	Chennai	Aminijikarai	1

	City	Place Name	count
2	Chennai	Anna Nagar West	1
3	Chennai	Anna Salai	1
4	Chennai	Arumbakkam	1
...	...	...	...
69	Mumbai	Matunga East	1
70	Mumbai	Pali Hill	1
71	Mumbai	Parel	1
72	Mumbai	Wadala	1
73	Mumbai	Worli	1

74 rows × 3 columns

In [72]:
```
px.bar(df10,y='Place Name',color='City',x='count')
```



In [89]:
```
#Top 10 Restaurant who got highest dining votes
df11=%sql Select `Restaurant Name`,City, round(Avg(`Dining Votes`),2) from zomato_dataset
df11=df11.DataFrame()
df11=df11.rename(columns={'round(Avg(`Dining Votes`),2)':'Avg_Dining_Votes'})
df11=df11.sort_values(by='Avg_Dining_Votes',ascending=False).head(10)
df11
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

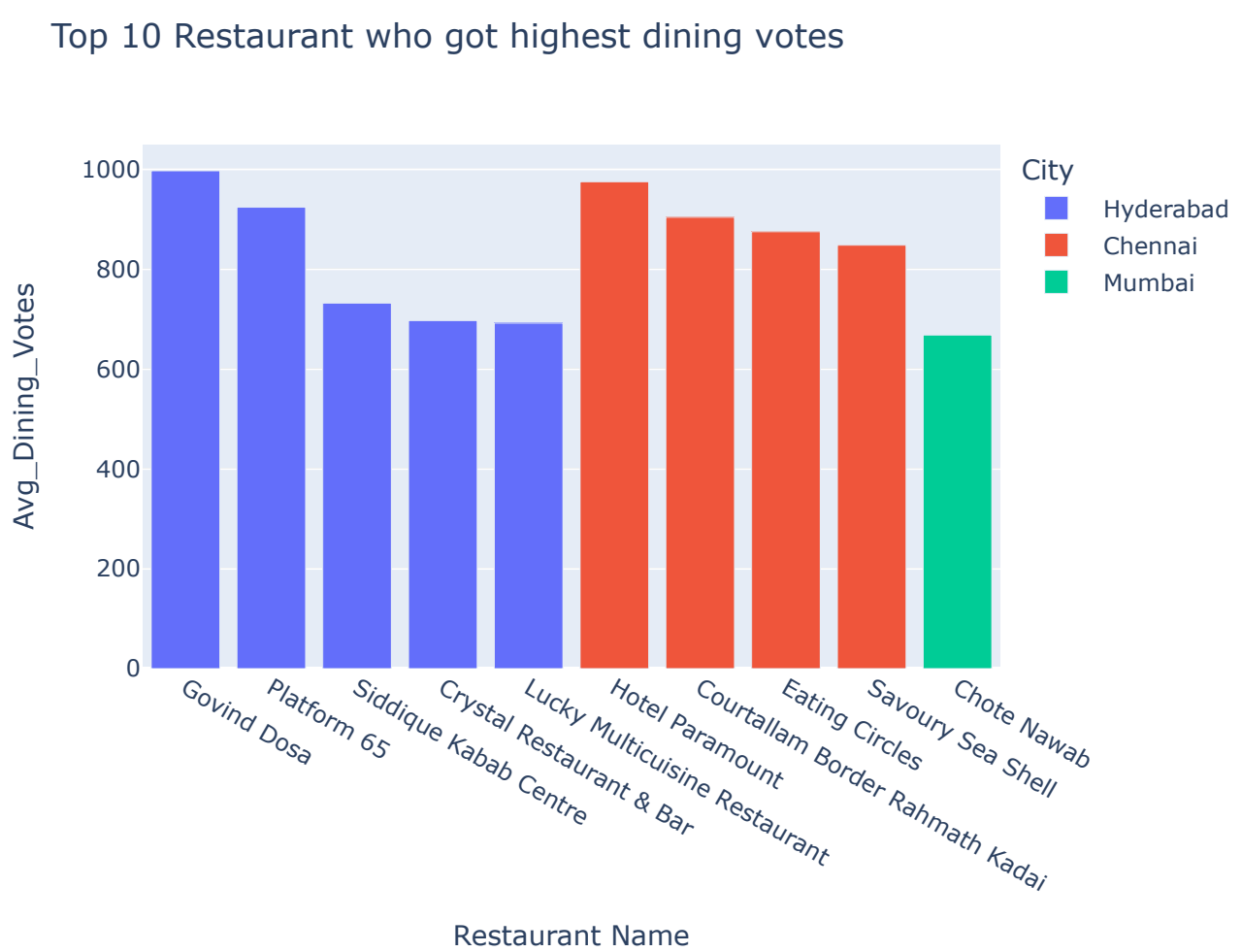
174 rows affected.

Out[89]:

	Restaurant Name	City	Avg_Dining_Votes
10	Govind Dosa	Hyderabad	997.00
157	Hotel Paramount	Chennai	975.00
13	Platform 65	Hyderabad	924.00
161	Courtallam Border Rahmath Kadai	Chennai	904.00
168	Eating Circles	Chennai	875.00
139	Savoury Sea Shell	Chennai	848.00
4	Siddique Kabab Centre	Hyderabad	732.00
3	Crystal Restaurant & Bar	Hyderabad	697.00
72	Lucky Multicuisine Restaurant	Hyderabad	692.00
105	Chote Nawab	Mumbai	668.00

In [90]:

```
px.bar(df11,color='City',x='Restaurant Name',y='Avg_Dining_Votes',title='Top 10 Restaurant
```



In [95]:

```
#Relationship between Dining rate and prices
df12=%sql Select `Dining Rating`,`Prices` from zomato_dataset
df12=df12.DataFrame()
df12
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

26859 rows affected.

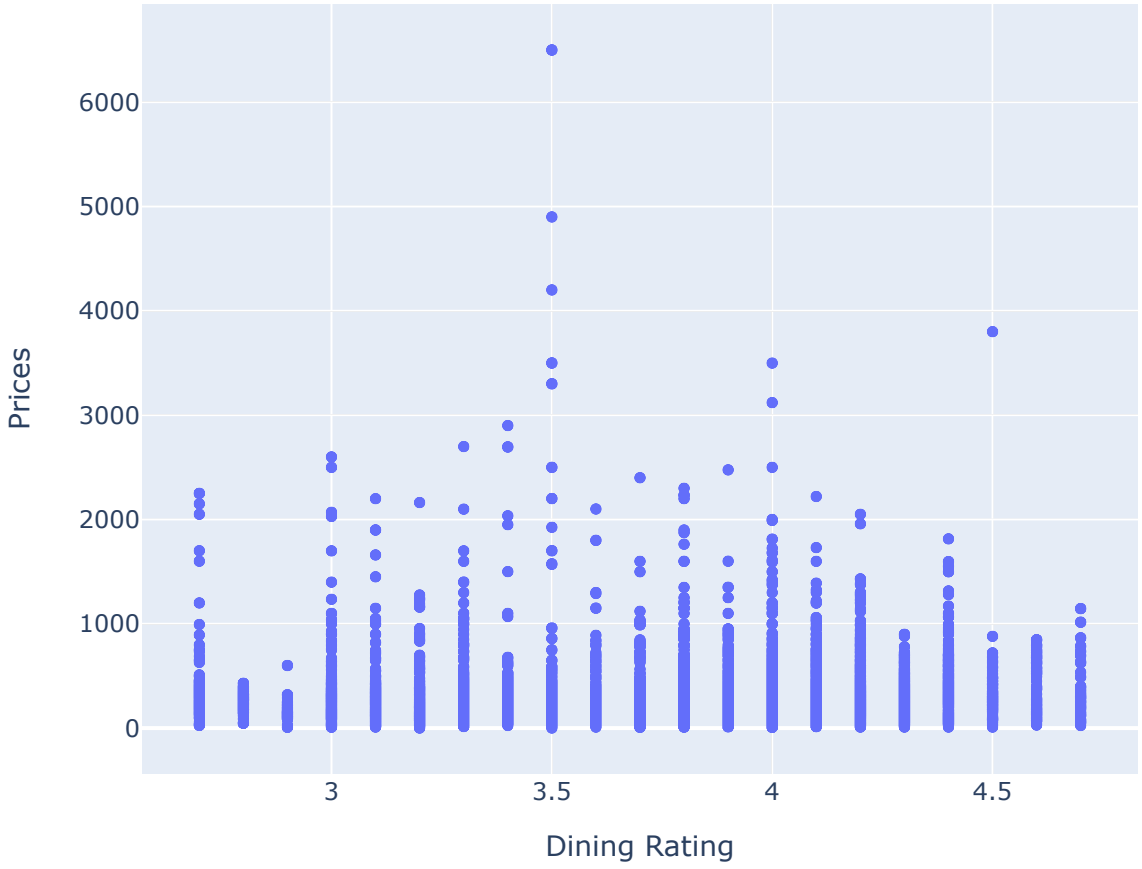
Out[95]:

	Dining Rating	Prices
0	3.9	249
1	3.9	129
2	3.9	189
3	3.9	189
4	3.9	205
...	...	...
26854	3.0	376
26855	3.0	260
26856	3.0	240
26857	3.0	110
26858	3.0	125

26859 rows × 2 columns

In [99]:

```
px.scatter(df12,y='Prices',x='Dining Rating')
```



In [107…
```
df13=%sql select City Cuisine,count(distinct(Cuisine)) from zomato_dataset group by City
df13=df13.DataFrame()
df13=df13.rename(columns={'count(distinct(Cuisine))':'count'})
df13
```

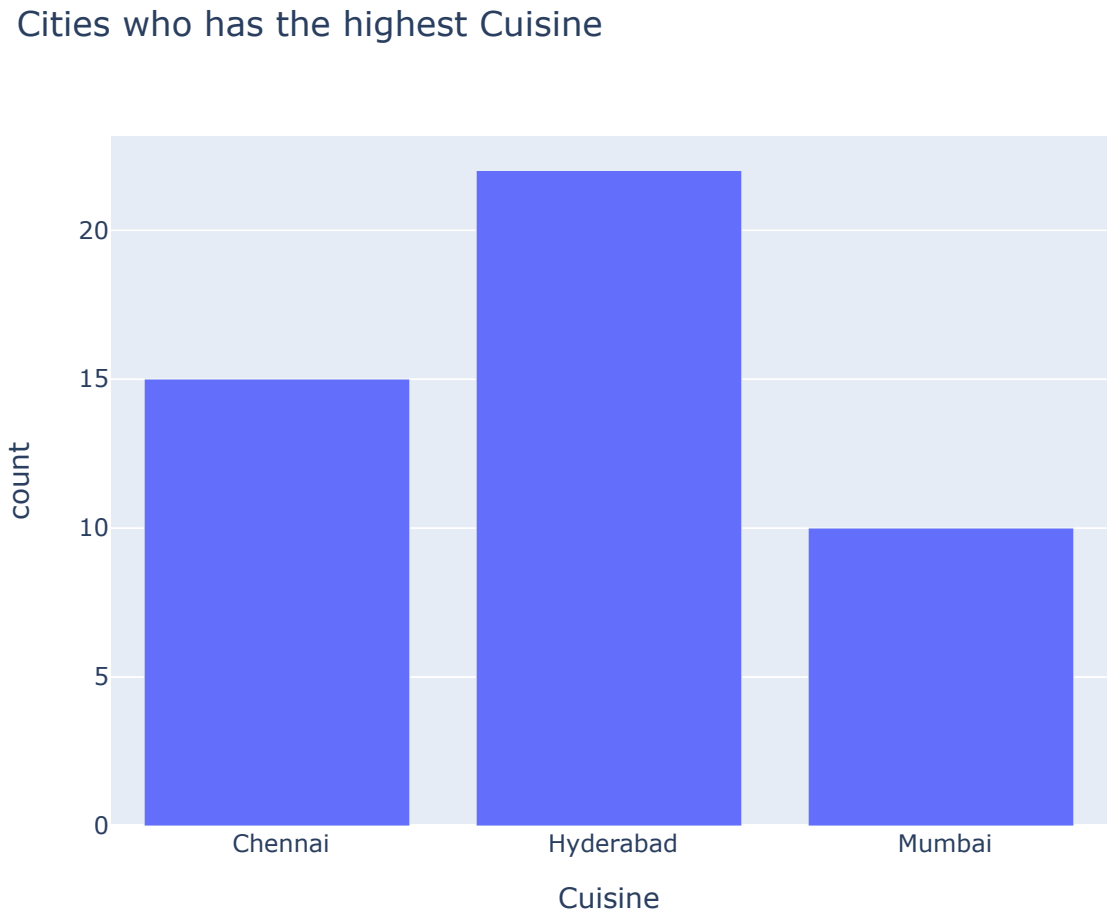
Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

3 rows affected.

Out[107…

	Cuisine	count
0	Chennai	15
1	Hyderabad	22
2	Mumbai	10

In [108…
```
px.bar(df13,x='Cuisine',y='count',title="Cities who has the highest Cuisine")
```



In [120…
```
df14=%sql select Cuisine,round(Avg(Prices),2) from zomato_dataset group by Cuisine
df14=df14.DataFrame()
df14=df14.rename(columns={'round(Avg(Prices),2)':'Avg_price'})
df14=df14.sort_values(by='Avg_price',ascending=False)
df14
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

27 rows affected.

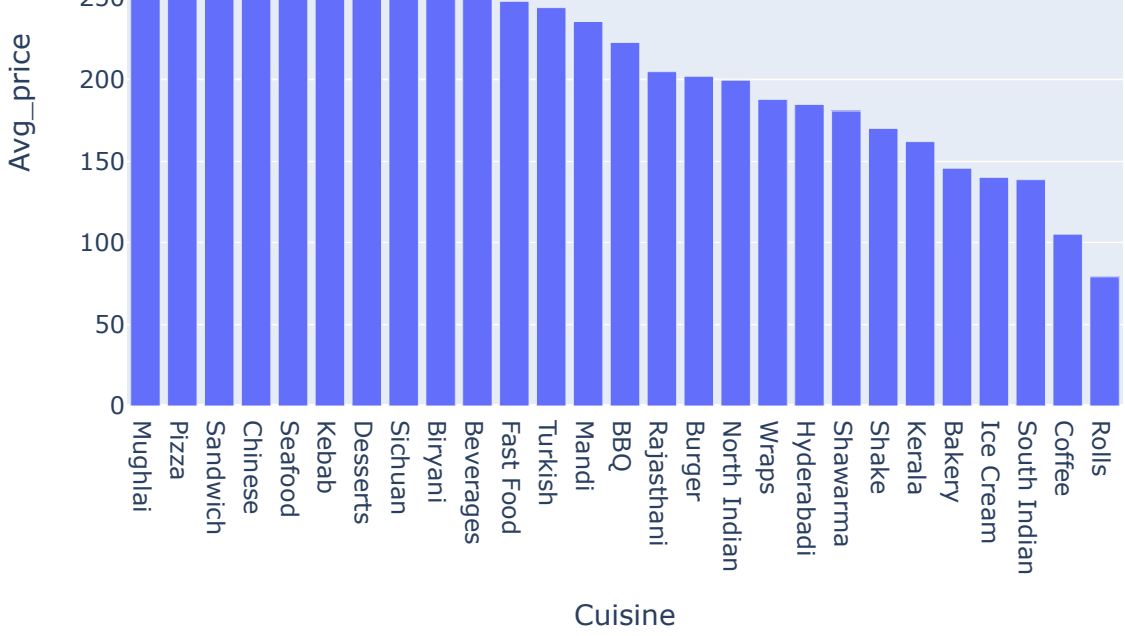
Out[120…

	Cuisine	Avg_price

	Cuisine	Avg_price
11	Mughlai	352.72
18	Pizza	344.00
22	Sandwich	333.65
3	Chinese	310.96
19	Seafood	298.01
8	Kebab	286.31
5	Desserts	279.10
23	Sichuan	273.31
2	Biryani	270.55
4	Beverages	260.84
0	Fast Food	247.94
16	Turkish	244.09
13	Mandi	235.56
25	BBQ	222.76
26	Rajasthani	204.86
15	Burger	202.04
12	North Indian	199.61
1	Wraps	187.89
21	Hyderabadi	184.80
14	Shawarma	180.76
6	Shake	170.10
24	Kerala	162.00
9	Bakery	145.70
10	Ice Cream	140.10
7	South Indian	138.69
17	Coffee	105.28
20	Rolls	79.17

In [132…

```
px.bar(df14,x='Cuisine',y='Avg_price',title="Avg price of  different cuisine  ")
```



In [128…

```
#Top 10 Cuisine of Avg price  of restaurant in cities
df15=%sql select City,Cuisine,Avg(Prices) from zomato_dataset group by City,Cuisine
df15=df15.DataFrame()
df15=df15.rename(columns={'Avg(Prices)':'Avg_price'})
df15=df15.sort_values(ascending=False,by='Avg_price')
df15=df15.head(10)
df15
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

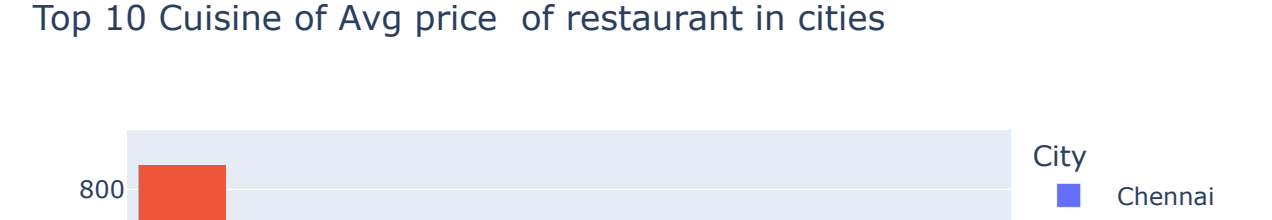
47 rows affected.

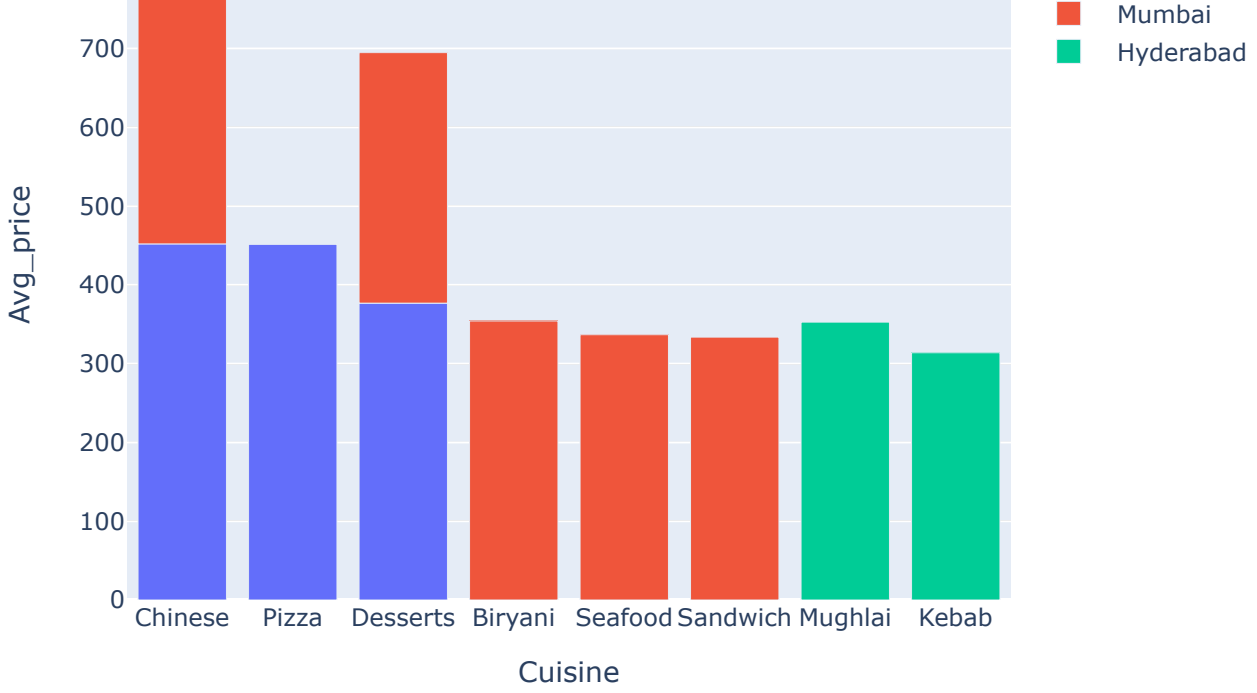
Out[128…

	City	Cuisine	Avg_price
43	Chennai	Chinese	452.0246
46	Chennai	Pizza	451.3787
30	Mumbai	Chinese	380.0412
44	Chennai	Desserts	376.7911
29	Mumbai	Biryani	354.2018
11	Hyderabad	Mughlai	352.7160
28	Mumbai	Seafood	336.7576
22	Mumbai	Sandwich	333.6545
27	Mumbai	Desserts	318.0376
8	Hyderabad	Kebab	313.8658

In [131…

```
px.bar(df15,y='Avg_price',x='Cuisine',color='City',title=' Top 10 Cuisine of Avg price  of
```





In [135…

```
#Top 10 Cuisine has got highest dining rating'
df16=%sql select City,Cuisine ,Avg(`Dining Rating`) from zomato_dataset group by City,Cuis
df16=df16.DataFrame()
df16=df16.rename(columns={'Avg(`Dining Rating`)':'Avg_rating'})
df16=df16.sort_values(ascending=False,by='Avg_rating').head(10)
df16
```

Running query in 'mysql+mysqldb://root:***@localhost/zomato_data'

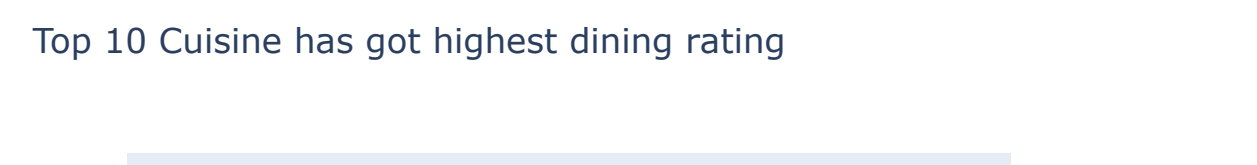
47 rows affected.

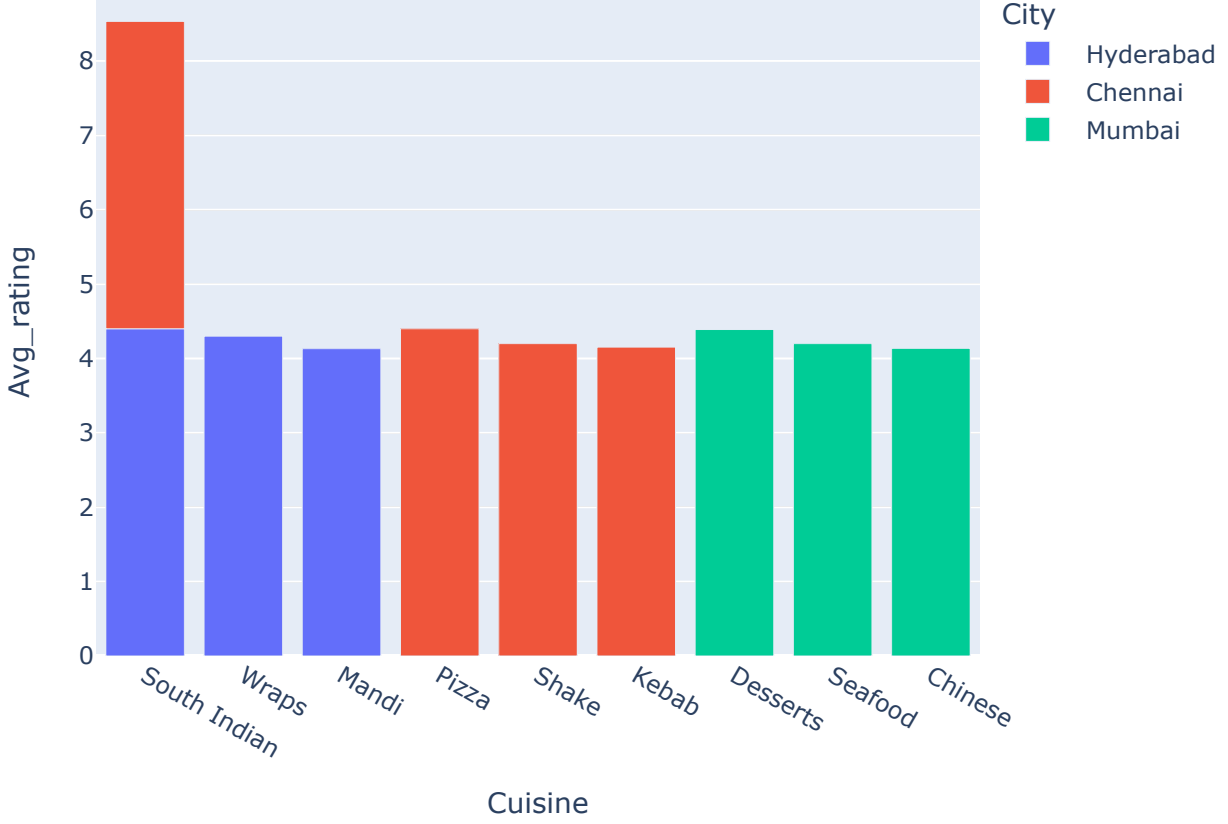
Out[135…

	City	Cuisine	Avg_rating
7	Hyderabad	South Indian	4.400000
46	Chennai	Pizza	4.400000
27	Mumbai	Desserts	4.389671
1	Hyderabad	Wraps	4.300000
28	Mumbai	Seafood	4.200000
33	Chennai	Shake	4.200000
40	Chennai	Kebab	4.152941
30	Mumbai	Chinese	4.136264
13	Hyderabad	Mandi	4.132258
35	Chennai	South Indian	4.132240

In [136…

```
px.bar(df16,color='City',x='Cuisine',y='Avg_rating',title='Top 10 Cuisine has got highest
```





Conclusion

- Savoury Sea shell has got the highest items
- ABs-Absolute Barbecues has the highest average rating of dining table
- Subhan Bakery has the highest average rating of delivery
- Mumbai Has the highest Dining Rating
- Mumbai ,Chennai ,Hyderabad has the highest delivery rating .
- Hyderabad has the highest number of restaurants
- Hotel Paramount in Chennai has got the highest number of votes
- Mumbai has the highest avg price of cuisine
- Hyderabad Govind Dosa has the highest dining rating
- Hyderabad has the highest number of Cuisine
- Mughali Cuisine has the highest average price
- In Chennai Chinese Cuisine has the highest avg price ,In Mumbai Briyani has the highest price and In Hyderabad Mughali has the highest price
- in Hyderabad South Indian Cuisine has the highest dining rating ,Chennai Pizza has the highest rating and In Mumbai Desserts has the highest rating

In [ ]: