Finding the best nearby restaurants using foursquare API in the Munich

Business Problem Statement:

- So these people need food categorical availability to take consideration with respect to worldwide tourist/visitor in the city.

- So successful tourist agency should suggest visitor the best restaurants according to their food choices or they should give them proper suggestions.

Audience:

- Audience for this service are the Tourists, Hotel or Restaurant owners & Native People.

Data Sources:

- GeoCoder/Google Geolocation APIs
- **Data Requirement:**

For this project, I will be utilizing the Foursquare API to pull the following location data on restaurants in Munich, Germany:

- Venue Name
- Venue ID
- Venue Location
- Venue Category
- Count of Likes

First we will find out likes for the restaurant:


```
Munich_venues['total likes_cat']=Munich_venues.apply(conditions, axis=1)
```

[161]: `Munich_venues`

[161]:

	name	id	categories	lat	lng	total likes
0	Marienplatz	4ade0ccef964a520246921e3	Plaza	48.137177	11.575561	4266
4	Chocolaterie Beluga	4c65358a94160f47eab52e17	Café	48.135750	11.575776	93
7	Biergarten am Viktualienmarkt	4bbc6329afe1b7136d4d304b	Beer Garden	48.135194	11.576365	368
9	Kilians	4b58d627f964a520d66d28e3	Irish Pub	48.138720	11.574556	296
10	Rindermarkt	4b2aa139f964a5209dac24e3	Plaza	48.136099	11.573915	102
11	Louis Hotel	4b03b59df964a5201d5022e3	Hotel	48.135792	11.575963	55
12	Andechser am Dom	4ade0ca0f964a5202a6821e3	Bavarian Restaurant	48.138302	11.573778	423
14	Nürnberger Bratwurst Glöckl am Dom	4b294373f964a520ed9b24e3	German Restaurant	48.138338	11.574180	213
16	ZWICKL Gastlichkeit am Viktualienmarkt	50143667e4b0c79e483256fd	German Restaurant	48.135240	11.577249	135
17	BAR ALPINA im Schuster	5beafff4db1d81002cc32bb8	Coffee Shop	48.136362	11.574146	10
21	Leger am Dom	5aa40abaa22db77cd6026bf3	Restaurant	48.138262	11.572932	16
22	Augustiner Klosterwirt	5238825911d2715c80955a54	German Restaurant	48.138649	11.572527	383
23	Kaffeerösterei Viktualienmarkt	54b93632498e7c86d18459ac	Coffee Shop	48.134732	11.576193	90
24	Hirmer	4ade0d1ef964a520e26a21e3	Men's Store	48.138023	11.572046	242
25	Schneider Bräuhaus	4b44c33ef964a52078fb25e3	Bavarian Restaurant	48.136378	11.578446	640
27	Sababa	4b8bb1b6f964a52051a732e3	Falafel Restaurant	48.134748	11.577250	217
28	LUX Restaurant & Bar	4ff06f73f136e5332508001c	Restaurant	48.137193	11.578747	110
29	Ratskeller	4b6dcecdf964a520c3912ce3	Bavarian Restaurant	48.137583	11.576337	544
30	Grano	4b5f1e69f964a52022a729e3	Pizza Place	48.135090	11.573765	92

Exploratory Data Analysis:

Likes as per the restaurants:

```python
url_list = []
like_list = []
json_list = []

for i in venue_id_list:
    venue_url = 'https://api.foursquare.com/v2/venues/{}/likes?client_id={}&client_secret={}&v={}'.format(i, CLIENT_ID, CLIENT_SE
    url_list.append(venue_url)
for link in url_list:
    result = requests.get(link).json()
    likes = result['response']['likes']['count']
    like_list.append(likes)
print(like_list)
```

```
[4266, 93, 368, 296, 102, 55, 423, 213, 135, 10, 16, 383, 90, 242, 640, 217, 110, 544, 92, 8, 105, 102, 88, 181, 10, 13, 353, 51,
9, 17, 174, 73, 25, 67, 9, 141, 12, 37, 286, 169, 56, 6, 568, 44, 10, 254, 68, 958, 9, 3755, 161, 50, 145, 44, 328, 124, 40, 220,
70, 234, 163, 13, 324, 65, 417, 12, 231, 280]
```

Exploratory Data Analysis

- Following are the maximum, minimum, median & mean values of likes for all the restaurants.

```
# now let's bin total likes

print(Munich_venues['total likes'].max())
print(Munich_venues['total likes'].min())
print(Munich_venues['total likes'].median())
print(Munich_venues['total likes'].mean())
```
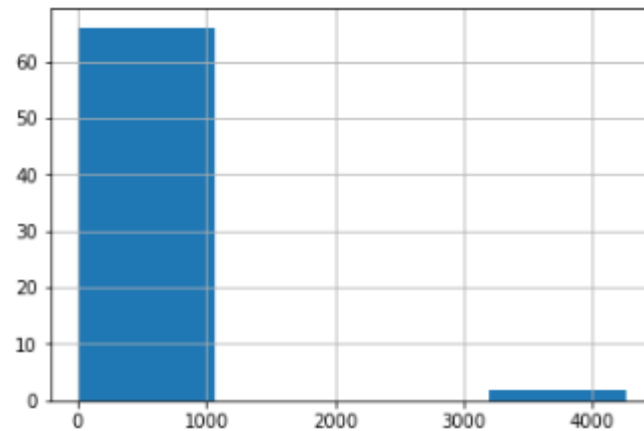```
4266
6
103.5
277.55882352941177
```

# Exploratory Data Analysis

Histogram

```
# Let's visualize our total likes based on a histogram

import matplotlib.pyplot as plt
Munich_venues['total likes'].hist(bins=4)
plt.show()
```

Clusters-1: In this cluster we have found out restaurants with great ratings

	name	id	categories	lat	lng	total likes	total likes_cat	categories_new	label
0	Marienplatz	4ade0ccef964a520246921e3	Plaza	48.137177	11.575561	4266	great	other	1
4	Chocolaterie Beluga	4c65358a94160f47eab52e17	Café	48.135750	11.575776	93	great	other	1
7	Biergarten am Viktualienmarkt	4bbc6329afe1b7136d4d304b	Beer Garden	48.135194	11.576365	368	great	bars_breverages	1
9	Kilians	4b58d627f964a520d66d28e3	Irish Pub	48.138720	11.574556	296	great	bars_breverages	1
10	Rindermarkt	4b2aa139f964a5209dac24e3	Plaza	48.136099	11.573915	102	great	other	1
12	Andechser am Dom	4ade0ca0f964a5202a6821e3	Bavarian Restaurant	48.138302	11.573778	423	great	None	1
23	Kaffeerösterei Viktualienmarkt	54b93632498e7c86d18459ac	Coffee Shop	48.134732	11.576193	90	great	other	1
24	Hirmer	4ade0d1ef964a520e26a21e3	Men's Store	48.138023	11.572046	242	great	None	1
25	Schneider Bräuhaus	4b44c33ef964a52078fb25e3	Bavarian Restaurant	48.136378	11.578446	640	great	None	1
27	Sababa	4b8bb1b6f964a52051a732e3	Falafel Restaurant	48.134748	11.577250	217	great	mex southam food	1
29	Ratskeller	4b6dcecdf964a520c3912ce3	Bavarian Restaurant	48.137583	11.576337	544	great	None	1
35	Schmalznudel - Café Frischhut	4c56c1852308be9afe84576c	Café	48.134858	11.574783	102	great	other	1
36	NORDSEE	4b72ab38f964a52001832de3	Seafood Restaurant	48.135265	11.576559	88	great	italian food	1
37	Hans im Glück - Burgergrill	5602ea37498e7034baa6958e	Burger Joint	48.136214	11.578369	181	great	mex southam food	1
41	Bar Centrale	4ade0ca8f964a5205b6821e3	Café	48.136821	11.579873	353	great	other	1
55	Max-Joseph-Platz	4be9807c1838952165b90acf	Plaza	48.139817	11.577886	141	great	other	1
59	Ohlulia	51795ac7498ee4f33b7d751d	Italian Restaurant	48.136359	11.571843	286	great	italian food	1

Clusters-2:In this cluster we have found out restaurants with poor ratings

	name	id	categories	lat	lng	total likes	total likes_cat	categories_new	label
17	BAR ALPINA im Schuster	5beafff4db1d81002cc32bb8	Coffee Shop	48.136362	11.574146	10	poor	other	2
21	Leger am Dom	5aa40abaa22db77cd6026bf3	Restaurant	48.138262	11.572932	16	poor	euro_indian_food	2
32	Due Passi	4b9a25e4f964a52052a135e3	Italian Restaurant	48.137194	11.578709	8	poor	italian food	2
39	Elly Seidl	4ade0d26f964a5200d6b21e3	Candy Store	48.139410	11.575512	10	poor	other	2
40	Schenk's frischgepresste Säfte	4c31d79ded37a593c7dd6a03	Juice Bar	48.134753	11.576494	13	poor	None	2
44	La Piazza	597c97405455b250bd3c1700	Italian Restaurant	48.134408	11.574506	9	poor	italian food	2
45	Grapes Weinbar	585ae0fe45c3ed1e7dd99fa5	Wine Bar	48.136930	11.579391	17	poor	bars_breverages	2
53	Caspar Plautz	5a02f12a9411f217c4079100	Snack Place	48.134683	11.576058	9	poor	mex southam food	2
56	Hotel am Markt	4ade0c94f964a520ec6721e3	Hotel	48.135427	11.577078	12	poor	other	2
66	MONACO Café & franzmünchinger SHOP	59662f37b8fd9d4e19b75f9d	Coffee Shop	48.137049	11.576329	6	poor	other	2
69	Wir Machen Cupcakes	4cf3f532b3662c0f02a87b30	Cupcake Shop	48.133826	11.575904	44	below avg	other	2
70	Derag Livinghotel Am Viktualienmarkt	4ee3aec2722ea7b94470047d	Hotel	48.134218	11.575501	10	poor	other	2
75	Luigino's Feinkost	4de37f417d8b2547eb1c6760	Sandwich Place	48.134584	11.576376	9	poor	italian food	2
81	Café Nymphenburger Sekt	4cefde810acea35db5e7f0ae	Café	48.135105	11.575326	44	below avg	other	2

Clusters-3:In this cluster we have found out restaurants with average ratings

	name	id	categories	lat	lng	total likes	total likes_cat	categories_new	label
11	Louis Hotel	4b03b59df964a5201d5022e3	Hotel	48.135792	11.575963	55	avg avg	other	3
43	Cortiina Hotel	4b55ecd5f964a520c8f627e3	Hotel	48.136804	11.579450	51	avg avg	other	3
48	Platzl Hotel	4b4253fff964a520add125e3	Hotel	48.137823	11.578919	73	avg avg	other	3
52	Bite Delite	56e15a45498eae4657e9617c	Café	48.139996	11.575072	67	avg avg	other	3
65	Ned Kelly's Australian Bar	4b0ec98af964a520075b23e3	Pub	48.138632	11.574618	56	avg avg	bars_breverages	3
72	Münchner Suppenküche	4b48907df964a520734f26e3	Soup Place	48.134760	11.576290	68	avg avg	other	3
78	Bar Tabacco	4b74556cf964a520ddd52de3	Cocktail Bar	48.139715	11.572672	50	avg avg	bars_breverages	3
87	Cafe Fräulein	4c5f2bbe832fa59389eaecd3	Café	48.134487	11.578152	70	avg avg	other	3
92	El Gaucho	540a202b498ed28daa9363b3	Argentinian Restaurant	48.134512	11.577664	65	avg avg	american food	3

Conclusion

- In this project we have find out restaurants with the great, average & poor ratings.
- User can categorize restaurant as per his/her need as we have also created categories.e.g.bar,euro_indian_food.