

Tasks

Objective Questions:

- What is the total no. of tables present in the data?

Ans: **2 tables** present in the given data.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	RestaurantID	RestaurantName	CountryCodeCity	Address	Locality	LocalityVerbose	Longitude	Latitude	Cuisines	Currency	Has_Table_Booking	Has_Online_delivery	Is_delivering_now	Switch_to_order_menu	Price_range	Votes	Average_Cost
2	18435314	Punjabi Veg Grill	1 New Delhi	19/28, 14 Block Geeta Colony, Geeta Colony	Geeta Colony, New Delhi	77.2767899	28.6027753	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
3	18424051	Tandoori Tandoori	1 New Delhi	10, Sector 10, Noida, Greater Noida, Uttar Pradesh	Greater Noida, New Delhi	77.2413522	28.6588689	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
4	1842405	Taste of Spice	1 New Delhi	C-222, Lajpat Nagar, 1, New Delhi	Lajpat Nagar 1, New Delhi	77.2413522	28.5783107	North Indian	Indian Rupees[! No	Yes	No	No	No	1	0	4	
5	18180072	Kolkata Bengali Oh	1 New Delhi	Gali 7, Mahipalpur, New Delhi	Mahipalpur, New Delhi	77.1239823	28.5435869	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
6	18415377	Sunil Punjabi Dhaba	1 New Delhi	Main Vasant Kunj, Road, Mahipalpur Mahipalpur	Mahipalpur, New Delhi	77.1297061	28.5413656	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
7	18415377	Shrikrishna Restaurant	1 New Delhi	1, New Delhi	Mohammed Ali Road, Nizamuddin, New Delhi	77.1297061	28.6125368	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
8	312413	Just In	1 New Delhi	G-103, Vardhaman Mall, Mulherjee Nagar	Mulherjee Nagar, New Delhi	77.2190942	28.7094798	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
9	303497	Shri Ram Ji Shudh	1 New Delhi	Khaira Moti, Naigarganj, New Delhi Naigarganj	Naigarganj, New Delhi	76.9748902	28.6112536	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
10	18356001	Shri Ram Bhawan	1 New Delhi	W-245, Main Road, Saket Colony Friends Colony	Saket Colony, New Delhi	77.0802799	28.5828978	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
11	18356001	Baba Ka Dhaba	1 New Delhi	W-425, Main Road, Saket Colony Palam	Palam, New Delhi	77.0802799	28.5828978	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
12	18486645	Kaka Da Dhaba	1 New Delhi	R.K. Puram Sector 1, R.K. Puram	R.K. Puram, New Delhi	77.1741183	28.5771926	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
13	18424202	Famous Paratha k	1 New Delhi	44, Gali Number 1, Block A, New A Vasundhara Enclave	Vasundhara Enclave, New Delhi	77.3085095	28.5893704	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
14	18424202	Paratha k	1 New Delhi	1, New A Vasundhara Enclave, Near Sector 1, New Delhi	New A Vasundhara Enclave, New Delhi	77.3085095	28.5893704	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
15	18209806	Zalki-E-Cheap Expr	1 New Delhi	Near Police Chowki, Golchakkar, Dilshad Garden	Dilshad Garden, New Delhi	77.3082095	28.6778853	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
16	18286922	Tandoori Nature	1 New Delhi	22, Samman Bazar, Bhogal, Jangui Jangpura	Jangpura, New Delhi	77.2479992	28.5832431	North Indian	Indian Rupees[! No	No	No	No	No	1	0	4	
17	18464400	Trinket Kothi	1 New Delhi	Shop 2 & 3, DDA Mini Market, N.H. 8, Range 1, Noida	Jangpura, New Delhi	77.2479992	28.5832431	North Indian	Indian Rupees[! No	No	No	No	No	1	0	5	
18	7363	Shri Ram Da Dhaba	1 New Delhi	14/1, Indira Vilas Colony, Near N. Mutherejee Nagar	Mutherejee Nagar, New Delhi	77.1230101	28.5451138	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
19	18464400	Desi Thaat Amritsa	1 New Delhi	G 26, Vardhaman Colony, Moti, N. Mutherejee Nagar	Mutherejee Nagar, New Delhi	77.2091154	28.7146792	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
20	18356179	Hayvana Bhojanay	1 New Delhi	G-103, Vardhaman Colony, Moti, N. Mutherejee Nagar	Mutherejee Nagar, New Delhi	77.2187133	28.7092306	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
21	18446441	Shri Ramji Chh	1 New Delhi	Plot 1, Sector 1, Pawan Garden, Noida	Noida, New Delhi	77.3085095	28.5893704	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
22	18446441	Bala Ji Rasoi	1 New Delhi	A-18, Narech Park, Naigarganj Roa Nangloi	Nangloi, New Delhi	77.06247076	28.67583363	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
23	18312665	Best Chicken Corri	1 New Delhi	Main Rohini Road, Near Sutan Pu Nangloi	Nangloi, New Delhi	77.0688571	28.6823752	North Indian	Indian Rupees[! No	No	No	No	No	2	0	6	
24	18312572	Avera Da Dhaba	1 New Delhi	Ring Road Naranya, Opp Dharavi Naraina	Naraina, New Delhi	77.1364701	28.6205120	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
25	18356001	Shri Ramji Chh	1 New Delhi	Plot 1, Sector 1, Pawan Garden, Noida	Noida, New Delhi	77.3085095	28.5893704	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
26	18355121	Delicious Eating Co	1 New Delhi	Shop 2 & 3, DDA Mini Market, Opp Nehru Place	Nehru Place, New Delhi	77.2511111	28.5471678	North Indian	Indian Rupees[! No	No	No	No	No	1	0	4	
27	18289272	Massi's Kitchen	1 New Delhi	49/A, Ganesh Nagar 2, Pandav Nag Pandav Nagar	Pandav Nagar, New Delhi	77.2857811	28.6238585	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
28	18451571	Shri Ramji Naan	1 New Delhi	Plot 1, Pawan Garden, Akashdeep Te Akashdeep Nagar	Pawan Garden, New Delhi	77.1417247	28.7121655	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
29	18451571	Amriti Naan	1 New Delhi	QH-1, Pawan Garden, Noida	Pawan Garden, New Delhi	77.1417247	28.7121655	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
30	18446406	Parantha on Call	1 New Delhi	Geeta Colony, New Delhi	Geeta Colony, New Delhi	77.2187133	28.6079750	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
31	18357972	Sahraamai	1 New Delhi	101 A, Pratap Nagar, New Vihar Vihar Phase I	New Vihar Phase I, New Delhi	77.3391386	28.6079750	North Indian	Indian Rupees[! No	No	No	No	No	2	0	3	
32	18357972	Shri Ramji Bites	1 New Delhi	101 A, Pratap Nagar, New Vihar Vihar Phase I	New Vihar Phase I, New Delhi	77.3391386	28.6079750	North Indian	Indian Rupees[! No	No	No	No	No	2	0	3	
33	18236975	Syll Kotan Da Dhi	1 New Delhi	A-201, New Moti Nagar, New Delhi Moti Nagar	Moti Nagar, New Delhi	77.2091150	28.6079750	North Indian	Indian Rupees[! No	No	No	No	No	2	0	3	
34	18361767	Yodit Dhaba	1 New Delhi	Opposite Vardhaman Central Mall, Mutherejee Nagar	Mutherejee Nagar, New Delhi	77.2187133	28.7099879	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
35	18464406	Sangam Dhaba	1 New Delhi	Plot 1, Nagi Saket Chowk, Op Naigarganj	Naigarganj, New Delhi	77.0767851	28.6164413	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
36	18356001	Shri Ramji Chh	1 New Delhi	Plot 1, Sector 1, Pawan Garden, Noida	Noida, New Delhi	77.3085095	28.5893704	North Indian	Indian Rupees[! No	No	No	No	No	2	0	3	
37	1855120	Ok Indian & China	1 New Delhi	Shop A-2, R.D.A Mini Market, Opp Nehru Place	Nehru Place, New Delhi	77.2511111	28.5471678	North Indian	Indian Rupees[! No	No	No	No	No	1	0	4	
38	1855121	Delicious Foods	1 New Delhi	Shop A-2, R.D.A Mini Market, Opp Nehru Place	Nehru Place, New Delhi	77.2511111	28.5471678	North Indian	Indian Rupees[! No	No	No	No	No	1	0	4	
39	18554987	Paratha k	1 New Delhi	Shop A-2, R.D.A Mini Market, Opp Nehru Place	Nehru Place, New Delhi	77.2046746	28.5145313	North Indian	Indian Rupees[! No	No	No	No	No	1	0	5	
40	18356126	Shri Ramji Restaurant	1 New Delhi	Plot 1, Sector 1, Pawan Garden, Noida	Noida, New Delhi	77.3085095	28.5893704	North Indian	Indian Rupees[! No	No	No	No	No	1	0	2	
41	18292467	Anupam Jilpan	1 New Delhi	5, Khabibar Pase, Civil Lines, New Civil Lines	Civil Lines, New Delhi	77.2312499	28.6919529	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
42	18378032	Asia	1 New Delhi	Ansari Road Darvaganj, New Darvaganj	Darvaganj, New Delhi	77.2436136	28.6450858	North Indian	Indian Rupees[! No	No	No	No	No	2	0	3	
43	18356001	Shri Ramji Meheli	1 New Delhi	Main Daryaganj Bazar Road, Opposite Dilshad Garden	Dilshad Garden, New Delhi	77.3194007	28.6803726	North Indian	Indian Rupees[! No	No	No	No	No	2	0	3	
44	18236900	All About Food	1 New Delhi	Plot 1, Ground Floor, Moti Nagar, Noida	Gujarwala Town, New Delhi	77.1921149	28.6909028	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	
					Moti Nagar, Noida	77.1921149	28.6909028	North Indian	Indian Rupees[! No	No	No	No	No	1	0	3	

A	B	C
1	Country Code	Country Name
2	1	India
3	14	Australia
4	30	Brazil
5	37	Canada
6	94	Indonesia
7	148	New Zealand
8	162	Philippines
9	166	Qatar
10	184	Singapore
11	189	South Africa
12	191	Sri Lanka
13	208	Turkey
14	214	United Arab Emirates
15	215	United Kingdom
16	216	United States of America
17		
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30		

- What is the total no. of attributes present in the data?

Ans:

- 20 attributes in 'Raw Data'
- 2 attributes in 'country description'

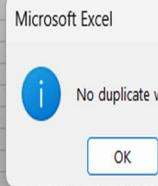
3. How many categorical columns are there in the data? [Search about categorical and continuous data, and try to answer this question]

Ans : 19 Categorical columns

4. The data consists of some inconsistent and missing values so ensure that the data used for further analysis is cleaned.

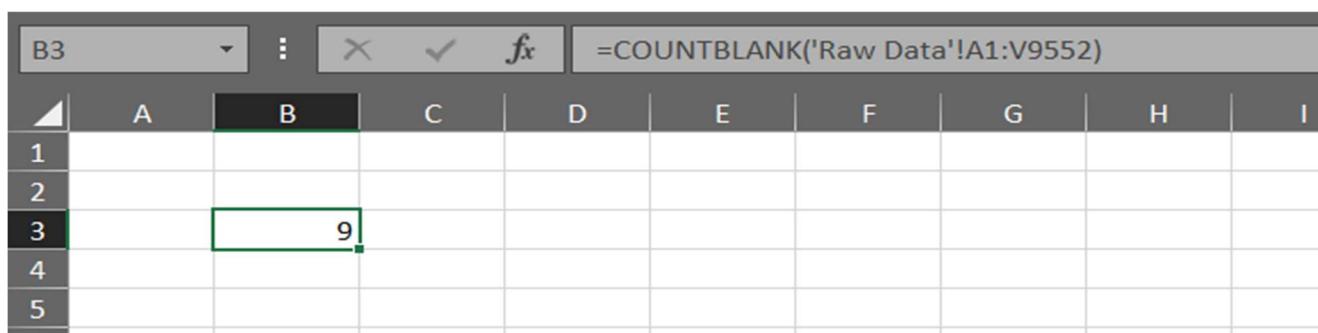
Ans:

- Go to Data -> Remove Duplicates.
- Then, there will be a dialog box asking to select the columns of the table and mainly we have to tick the '**My data has headers**' check box.
- Then Click OK.
- The rows with duplicate values would be removed.
- If there is no duplicate values, a dialog box will be displayed mentioning "**No duplicate values found.**"



A	B	C	D	E	F	G	H	I	J	K	L	
1	RestaurantID	RestaurantName	CountryCode	City	Address	Locality	LocalityVerbose	Longitude	Latitude	Cuisines	Currency	Has_Table_booki
2	18435314	Punjabi's Veg Grill	1	New Delhi	13/288, 14 Block Gurudwara, Geet Geeta Colony	Geeta Colony, New Delhi	77.2767689	28.6507753	North Indian	Indian Rupees(F No		
3	18378015	Tasty Tandoor	1	New Delhi	726/2, Jheel Khurana, Geeta Cola Geeta Colony	Geeta Colony, New Delhi	77.27505159	28.65821556	North Indian	Indian Rupees(F No		
4	18424905	Taste of Spice	1	New Delhi	C-222, Lajpat Nagar 1, New Delhi	Lajpat Nagar 1	77.2413122	28.5783107	North Indian	Indian Rupees(F No		
5	18180072	Kolkata Bengali Dh	1	New Delhi	Gali 7, Mahipalpur, New Delhi	Mahipalpur	77.1239323	28.5435869	North Indian	Indian Rupees(F No		
6	18415377	Sunil Punjabi Dhab	1	New Delhi	Main Vasant Kunj Road, Mahipalpur Mahipalpur	Mahipalpur, New Delhi	77.1297061	28.5413686	North Indian	Indian Rupees(F No		
7	18421485	Bikaner Restaurant	1	New Delhi	Shop 264, Near Hakkat Nagar, Mukherjee Nagar	Mukherjee Nagar, New Delhi	77.2081351	28.699566	North Indian	Indian Rupees(F No		
8	312413	Just In	1	New Delhi	G-103, Vardhaman Mall, Mukherjee Nagar	Mukherjee Nagar, New Delhi	77.2190942	28.7094798	North Indian	Indian Rupees(F No		
9	303497	Shri Shyam Ji Shud	1	New Delhi	Khaira Mod, Najafgarh, New Delhi	Najafgarh, New Delhi	76.9748922	28.6112536	North Indian	Indian Rupees(F No		
10	18354644	Shree Bhojnalaya	1	New Delhi	Sarai Julena, Near Red Light, New Friends Colony	New Friends Colony, New Delhi	77.27276199	28.5607074	North Indian	Indian Rupees(F No		
11	18366001	Baba Ka Dhaba	1	New Delhi	W2-425, Main Road, Palam Colony Palam	Palam, New Delhi	77.0902799	28.5828978	North Indian	Indian Rupees(F No		
12	18486845	Kaka Da Dhaba	1	New Delhi	R.K. Puram Sector 12, R.K. Puram, R.K. Puram	R K Puram, New Delhi	77.1741183	28.5771926	North Indian	Indian Rupees(F No		
13	18424202	Famous Parantha a	1	New Delhi	44, Gali Number 1, Block A, New Vasundhara Enclave	Vasundhara Enclave, New Delhi	77.3085095	28.5893763	North Indian	Indian Rupees(F No		
14	18472678	Garam Masala	1	New Delhi	1002, Gurudwara Road, Kotla Mukhambet Colony	Defence Colony, New Delhi				Indian Rupees(F No		
15	18209806	Zaika-E-Chaap Expr	1	New Delhi	Near Police Chowki, Golchakkar, F Dilshad Garden	Dilshad Garden, New Delhi				Indian Rupees(F No		
16	18286922	Tandoori Nature	1	New Delhi	22, Samman Bazar, Bhogal, Jangpura	Jangpura, New Delhi				Indian Rupees(F No		
17	18458302	Tinker Koch	1	New Delhi	Jangpura, New Delhi	Jangpura, New Delhi				Indian Rupees(F No		
18	7362	Vaishno Da Dhaba	1	New Delhi	Badam Singh Market, NH 8, Rang Mahipalpur	Mahipalpur, New Delhi				Indian Rupees(F No		
19	18466400	Desi Thaat Amritsa	1	New Delhi	14/1, Indira Vikas Colony, Near N Mukherjee Nagar	Mukherjee Nagar, New Delhi				Indian Rupees(F No		
20	18361779	Haryana Bhojnalaya	1	New Delhi	G 26, Vardhaman Central Mall, N Mukherjee Nagar	Mukherjee Nagar, New Delhi				Indian Rupees(F No		
21	18354672	Karol Bagh Ke Chhc	1	New Delhi	Opposite Peer Baba, Gurgaon Roa Najafgarh	Najafgarh, New Delhi				Indian Rupees(F No		
22	18464641	Bala Ji Rasoi	1	New Delhi	A-18, Naresh Park, Najafgarh Roa Nangloi	Nangloi, New Delhi				Indian Rupees(F No		
23	18312665	Best Chicken Corne	1	New Delhi	Main Rohitak Road, Near Sutan Pu Nanglo	Nanglo, New Delhi	77.0688571	28.6823752	North Indian	Indian Rupees(F No		
24	18312572	Avatar Da Dhaba	1	New Delhi	Ring Road Naraina, Opp Dharams Naraina	Naraina, New Delhi	77.1364744	28.6205175	North Indian	Indian Rupees(F No		
25	18349241	Curry Man	1	New Delhi	G-181, Naraina Vihar, Naraina, NT Naraina	Naraina, New Delhi	0	0	North Indian	Indian Rupees(F No		
26	18355121	Delicious Eating Co	1	New Delhi	Shop 2 & 3, DDA Mini Market, Opp Nehru Place	Nehru Place, New Delhi	77.2511121	28.5471678	North Indian	Indian Rupees(F No		
27	18289272	Massi's Kitchen	1	New Delhi	494, Ganesh Nagar 2, Pandav Nag Pandav Nagar	Pandav Nagar, New Delhi	77.2857811	28.6238533	North Indian	Indian Rupees(F No		
28	18449949	Roll Junction	1	New Delhi	F 205 & 206, Near Akshardham Te Pandav Nagar	Pandav Nagar, New Delhi	0	0	North Indian	Indian Rupees(F No		
29	18451571	Amritsari Naan	1	New Delhi	QU-1, Pitampura, New Delhi	Pitampura	77.141747	28.712165	North Indian	Indian Rupees(F No		
30	18446496	Parantha on Call	1	New Delhi	Geeta Colony, New Delhi	Geeta Colony, New Delhi	0	0	North Indian	Indian Rupees(F No		
31	18287070	Salman Foods	1	New Delhi	101 A, Sector 10, Noida, Uttar Pradesh, India	Geeta Colony, New Delhi	0	0	North Indian	Indian Rupees(F No		

- Check for any missing values using COUNTBLANK(Cell Range).
- Use the function **=COUNTBLANK('Raw Data'!A1:V9552)** to find the count of blank values in the specified range as shown in diagram below:



B3		X	✓	f _x	=COUNTBLANK('Raw Data'!A1:V9552)
A	B	C	D	E	F
1					
2					
3		9			
4					
5					

- Filter the blank values from the column where the values are missing.

- Create a Pivot table to check the most number of occurring cuisines

Raw Data Sheet1 country description

A	B	C	D	E	F
1	RestaurantID - RestaurantName	CountryCode	Country Name - City	Address	
8656	17606621 Hi Lite Bar & Lounge	216	United States of Miller	109 N Broadway Ave, M	
8669	17284211 Pearly's Famous Country Cooking	216	United States of Albany	814 N Slappy Blvd, Alb	
8695	17284105 Cookie Shoppe	216	United States of Albany	115 N Jackson St, Alb	
8703	17374552 Corkscrew Cafe	216	United States of Gainesville	51 W Main St, Dahloneg	
8766	17501439 Dovetail	216	United States of Macon	543 Cherry St, Macon, G	
8773	17059060 Hillstone	216	United States of Orlando	215 South Orlando Aven	
8796	17284158 Jimmie's Hot Dogs	216	United States of Albany	204 S Jackson St, Albany	
8878	17142698 Leonard's Bakery	216	United States of Rest of Hawa	933 Kapahulu Ave, Hono	
8905	17616465 Tybee Island Social Club	216	United States of Savannah	1311 Butler Ave, Tybee	
9553					
9554					
9555					
9556	Row Labels		Count of RestaurantID		
9557	North Indian		936		
9558	North Indian, Chinese		511		
9559	Fast Food		354		
9560	Chinese		354		
9561	North Indian, Mughlai		334		
9562	Cafe		299		
9563	Bakery		218		
9564	North Indian, Mughlai, Chinese		197		
9565	Bakery, Desserts		170		
9566	Street Food		149		
9567	Pizza, Fast Food		131		
9568	Chinese, Fast Food		118		
9569	Mithai, Street Food		116		
9570	South Indian		112		

- Replace it in place of the blank values. Most occurring value (**North Indian – 936 times**)

5. Using the LookUp functions, fill up the countries in the original data using the country code.

Ans: =VLOOKUP(C2,'country description'!\$A\$1:\$B\$16,2,0)

- The country code is present in C column.
- So, Insert a column near the country code and name it as Country Name.
- The country code and country name is present in another worksheet named 'country description'
- Use the lookup Formula =VLOOKUP(C2,'country description'!\$A\$1:\$B\$16,2,0) to lookup for values from country_description worksheet and display values for Country Name in the 'Raw Data' worksheet

	A	B	C	D	E
1	RestaurantID	RestaurantName	CountryCode	Country Name	City
2		53 Amber		1 India	New Delhi
3		55 Berco's		1 India	New Delhi
4		60 Colonel's Kababz		1 India	New Delhi
5		64 Diva - The Italian Res		1 India	New Delhi
6		65 Drums of Heaven		1 India	New Delhi
7		66 Embassy		1 India	New Delhi
8		67 Fa Yian		1 India	New Delhi
9		69 Chungwa		1 India	New Delhi
10		73 Ichiban		1 India	New Delhi
11		89 Naivedyam		1 India	New Delhi
12		93 Princess Garden		1 India	New Delhi
13		103 Veg Gulati		1 India	New Delhi
14		104 Woks - The Lalit New		1 India	New Delhi
15		112 Lotus Pond		1 India	New Delhi
16		131 Chopsticks		1 India	New Delhi
17		134 Moti Mahal Delux		1 India	New Delhi
18		143 Domino's Pizza		1 India	New Delhi
19		147 Subway		1 India	New Delhi
20		148 Subway		1 India	New Delhi
21		149 Subway		1 India	New Delhi
22		154 Subway		1 India	New Delhi
23		157 Subway		1 India	Gurgaon
24		158 Subway		1 India	Gurgaon
25		159 Subway		1 India	Gurgaon
26		166 Punjabi by Nature		1 India	Noida
27		171 McDonald's		1 India	New Delhi
28		175 McDonald's		1 India	New Delhi
29		176 McDonald's		1 India	New Delhi
30		177 McDonald's		1 India	New Delhi

6. Create a table to represent the number of restaurants opened in each country.

Ans:

- Select the whole table range.
- Click on **Insert -> Pivot Table**.
- In the PivotTable Fields dialog box, Place '**Country Name**' in **Rows** and '**Restaurant ID**' under '**Values**'.
- Change the aggregate function of '**Restaurant ID**' to '**Count**' and Rename the column to Number (Count) of Restaurants for better understanding.

The screenshot shows a Microsoft Excel spreadsheet with a PivotTable setup. The PivotTable Fields pane is open on the right side of the screen, showing the fields available for the report. The 'Rows' section contains 'Country Name', and the 'Values' section contains 'Number (Count) of Restaurants'. The main worksheet displays a table of data with columns for Country Name and the count of restaurants. The data includes Australia (24), Brazil (60), Canada (4), India (8652), Indonesia (21), New Zealand (40), Philippines (22), Qatar (20), Singapore (20), South Africa (60), Sri Lanka (20), Turkey (34), United Arab Emirates (60), United Kingdom (80), and United States of America (434). A Grand Total row shows 9551. The PivotTable Fields pane also lists other fields like RestaurantID, RestaurantName, CountryCode, City, Address, Locality, and LocalityVerbose, with RestaurantID and Country Name checked.

Row Labels	Number (Count) of Restaurants
Australia	24
Brazil	60
Canada	4
India	8652
Indonesia	21
New Zealand	40
Philippines	22
Qatar	20
Singapore	20
South Africa	60
Sri Lanka	20
Turkey	34
United Arab Emirates	60
United Kingdom	80
United States of America	434
Grand Total	9551

7. Also, the management wants to look at the number of restaurants opened each year, so provide them with something here.

Ans:

- Replace ‘_’ with ‘-‘ in datekey_opening column to convert the values to date format.
- Use **YEAR()** function to extract Year from datekey_joining and name the column as ‘Year of Opening’.

Datekey_Opening	Year of Opening
2013-09-11	2013
2016-08-23	2016
2012-03-11	2012
2014-02-22	2010
2011-06-15	2011
2018-08-20	2018
2013-02-09	2013
2017-12-13	2017
2011-10-13	2010
2016-06-27	2016
2014-08-24	2014
2015-09-19	2015
2018-01-02	2018
2014-04-04	2014
2013-09-25	2016
2017-07-20	2017
2017-05-25	2017
2015-04-09	2015
2017-08-06	2017
2014-04-12	2014
2011-03-15	2011
2011-03-27	2011
2018-03-18	2018
2013-03-20	2013
2011-01-18	2011
2012-04-16	2014
2016-08-08	2016
2018-10-15	2018
2011-03-02	2011

- Select the whole table range.
- Click on **Insert -> Pivot Table**.
- In the PivotTable Fields dialog box, Place ‘Year of Opening’ in **Rows** and ‘Restaurant ID’ under **Values**.
- Change the aggregate function of ‘Restaurant ID’ to ‘Count’ and Rename the column to Number (Count) of Restaurants for better understanding.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2															
3	Row Labels		Number (Count) of Restaurants												
4	2010		1080												
5	2011		1098												
6	2012		1022												
7	2013		1061												
8	2014		1051												
9	2015		1024												
10	2016		1027												
11	2017		1086												
12	2018		1102												
13	Grand Total		9551												
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															

6_Country_Restaurants 7_Year_Restaurants Raw Data country description

Update

8. What is the total number of restaurants in India in the price range of 4?

Ans: =COUNTIFS('Raw Data'!D:D, "India", 'Raw Data'!Q:Q,4)

- **388** restaurants in India with Price Range of 4.
- 2 conditions to be selected where criteria_range1 is Country Name (Column D) and the criteria1 is “India”. Similarly criteria 2 is Price Range (Column C) and the criteria2 is 4.

C3	A	B	C	D	E
		=COUNTIFS('Raw Data'!D:D, "India", 'Raw Data'!Q:Q,4)			
1					
2	Qn. #	Question		Answer	
3		8 Total number of Restaurants in the price range of 4	388		
4					

9. What is the average number of voters for the restaurants in each country according to the data?

Ans:

- Select the whole table range.
 - Click on **Insert -> Pivot Table**.
 - In the PivotTable Fields dialog box, Place '**Country Name**' in **Rows** and '**Votes**' under '**Values**'.
 - Change the aggregate function of '**Votes**' to '**Average**' and Rename the column to Average Number of Voters in each Country for better understanding.

10. Calculate the average rating for all the restaurants that have price_range < 4 and provide online delivery. Use only the “IF” function, Logical Operators, and Aggregation functions to solve this problem. [Note: Don’t use Conditional aggregation in this question.]

Ans: = SUM('Raw Data'!R2:R9552) / COUNT('Raw Data'!R2:R9552)

C6		=SUM('Raw Data'!R2:R9552) / COUNT('Raw Data'!R2:R9552)	
1	A	B	D
5	Qn. #	Question	Answer
6	10	average rating for all the restaurants that have price_range < 4 and provide online delivery	3.273812

Before the previous step, we check both the conditions using IF, AND. If both the conditions are

- True, Display the rating in Column R
- False, the rating value will be blank

Column R in Raw Data Table = IF(AND(Q2<4, N2="Yes"), W2, "")

where

- Column Q = Price Range (Q2<4)
- Column N = Has Online Delivery (N2="Yes")
- Column W = Rating

Using the Fill Handle option, the formula will be applied to all the rows in the column R.

R2		=IF(AND(Q2<4, N2="Yes"), W2, "")	
1	N	Q	R
2	Has_Online_delivery	Price_range	(Price Range < 4) AND (Online Delivery = "Yes")
3	Yes	3	2.6
4	Yes	3	3.9
5	No	2	3.2
6	Yes	4	3.8
7	Yes	3	3.5
8	No	4	3.5
9	Yes	3	4
10	Yes	3	3.3
11	Yes	2	3.9
12	No	2	4.2
13	Yes	3	2.7
14	Yes	3	3.5
15	No	4	3.6
16	Yes	3	4.2
17	Yes	3	3.6
18	No	3	3.6
19	Yes	2	3.8
20	No	2	3.8
21	Yes	2	4.2
22	Yes	2	3.6
23	No	2	3.6
24	No	2	3.7
25	Yes	2	2.5
26	Yes	4	3.1
27	Yes	2	2.5
28	Yes	2	3.7
29	Yes	2	3.3
30	No	2	3.7
31	Yes	2	3.7
32	Yes	2	3.8
33	Yes	2	3.6
34	Yes	2	3.8
35	Yes	2	3.6
36	Yes	2	3.4
37	Yes	2	3.4

11. Using Conditional formatting highlight the rows of restaurants that are located in the countries or cities that you've suggested to the management for opening new restaurants. [Highlighting columns is enough]

Ans:

1	Restaurant	RestaurantName	CountryCod	Country Nai	City	Address	Locality	LocalityVerbose	Longitude	Latitude	Cuisines	Currency	Has_Table_booki	Has_On
1962	65055 Barbeque Nation	1 India	Chennai	Shri Devi Park Hotel, 1, Hanumant T. Nagar	T. Nagar, Chennai	80.23311	13.045479	North Indian, Contine Indian Rupees(Rs.)	No	No				
1963	65413 Palmshore	1 India	Chennai	111/108, Santhome High Road, Fo Santhome	Santhome, Chennai	80.2752348	13.02628657	North Indian, Mughla Indian Rupees(Rs.)	Yes	Yes				
1964	66457 Pind	1 India	Chennai	2, Sarathy Nagar, 1st Main Road, 'Velachery	Velachery, Chennai	80.221898	12.975996	North Indian, Chinesi Indian Rupees(Rs.)	Yes	No				
1965	69024 That Madras Place	1 India	Chennai	34/29, 2nd Main Road, Kasturi Adyar	Adyar, Chennai	80.250744	13.0058006	European, Italian, De Indian Rupees(Rs.)	Yes	Yes				
1966	69951 L'amandier	1 India	Chennai	57, 2nd Main Road, RA Puram, Ch RA Puram	RA Puram, Chennai	80.25479067	13.02701773	European, Cafe, Italia Indian Rupees(Rs.)	Yes	Yes				
1967	70092 Kaldi Kitchen	1 India	Chennai	20/3, Bishop Wallers Avenue, Mylapore	Mylapore, Chennai	80.26147	13.044694	Italian, Mexican, Chi Indian Rupees(Rs.)	Yes	Yes				
1968	70393 Bombay Brasserie	1 India	Chennai	3, College Lane, Nungambakkam, Nungambakkam	Nungambakkam, Chennai	80.251865	13.046672	North Indian, Indian Rupees(Rs.)	Yes	Yes				
1969	70431 Pantry d'or	1 India	Chennai	21/11, J Block, 6th Avenue Main R Anna Nagar East	Anna Nagar East, Chennai	80.2191037	13.0918088	Continental, Cafe, Ita Indian Rupees(Rs.)	Yes	Yes				
1970	70497 Basil With A Twist	1 India	Chennai	58-A, Habibullah Road, T. Nagar, CT. Nagar	T. Nagar, Chennai	80.24226844	13.04964535	Continental, Cafe, Spi Indian Rupees(Rs.)	Yes	Yes				
1971	70890 Fusilli Reasons	1 India	Chennai	1/9, Dr. Vasudevan Street, Ormes Kilipauk	Kilipauk, Chennai	80.24851944	13.08187778	Italian	Indian Rupees(Rs.)	No	No			
1972	70894 Maplai	1 India	Chennai	14, Sterling Avenue, Nungambakkam Nungambakkam	Nungambakkam, Chennai	80.23644167	13.06418056	South Indian, Chettin Indian Rupees(Rs.)	Yes	No				
1973	71443 Palmshore	1 India	Chennai	95, Jawaharlal Nehru Salai, Jaffer Ashok Nagar	Ashok Nagar, Chennai	80.2088157	13.0297985	North Indian, Mughla Indian Rupees(Rs.)	Yes	Yes				
1974	71492 Ciclo Cafe	1 India	Chennai	47, Gandhi Mandapam Road, Kott Kottpururam	Kottpururam, Chennai	80.24243889	13.02239444	Cafe, Continental Indian Rupees(Rs.)	No	No				
1975	72475 Haunted	1 India	Chennai	275, F18, New Number 71, 2nd Ms Anna Nagar East	Anna Nagar East, Chennai	80.2206723	13.0864385	North Indian, Chinesi Indian Rupees(Rs.)	Yes	Yes				
1976	72497 Palmshore	1 India	Chennai	Plot 8, Park Duger, Mount Poovan Ramapuram	Ramapuram, Chennai	80.1745682	13.02627908	North Indian, Mughle Indian Rupees(Rs.)	Yes	Yes				
1977	72604 Coal Barbecues	1 India	Chennai	17-18, Rajalakshmi Nagar, 7th Cr.Velachery	Velachery, Chennai	80.21811381	12.98604688	North Indian, Muttel Indian Rupees(Rs.)	No	No				
1978	73088 Chili's	1 India	Chennai	49 & 50, Tamarind Avenue M1, M Express Avenue Mall, F Express Avenue Mall, Royapettah	Royapettah, Chennai	80.264151	13.058616	Mexican, American, TexMex Indian Rupees(Rs.)	Yes	Yes				
1979	73279 Paradise	1 India	Chennai	592, Anjali Devi Towers Kandancheri Perungudi	Perungudi, Chennai	80.24998214	12.97279291	Biryani, North Indian Indian Rupees(Rs.)	No	Yes				
2028	110237 Kabir Restaurant	1 India	Ahmedabad	JB Tower, Opposite Doordarshan Gurukul	Gurukul, Ahmedabad	72.5239649	23.04850469	North Indian, Chinesi Indian Rupees(Rs.)	No	Yes				
2029	110395 Swati Snack	1 India	Ahmedabad	Near Law Garden, Ellis Bridge Ahr Ellis Bridge	Ellis Bridge, Ahmedabad	72.55903311	23.02443564	Fast Food, Street Foo Indian Rupees(Rs.)	No	No				
2030	110436 MoMo Cafè® - Courtyard B	1 India	Ahmedabad	Courtyard By Marriott, Ramdevna Courtard By Marriott, Courtard By Marriott, Satel	Courtard By Marriott, Satel	72.5115815	23.027929	North Indian, South Indian Rupees(Rs.)	No	No				
2031	110502 Patang - The Revolving Res	1 India	Ahmedabad	Chinubhai Tower, Nehru Bridge Cc Ashram Road	Ashram Road, Ahmedabad	72.572009	23.0261651	Continental, Chinese, Indian Rupees(Rs.)	No	No				
2032	110516 The Garden Cafe - The Fern	1 India	Ahmedabad	The Fern, Near Sola Overbridge, S The Fern, Sola	The Fern, Sola, Ahmedabad	72.5222172	23.0640914	North Indian, Indian, Indian Rupees(Rs.)	No	No				
2033	111826 Yanki Sizzlers	1 India	Ahmedabad	4, Ground Floor, Binori Ambit, Neu Thaltej	Thaltej, Ahmedabad	72.5181257	23.0534466	Continental, Italian, Indian Rupees(Rs.)	No	No				
2034	111895 650 - The Global Kitchen	1 India	Ahmedabad	Shreekuin Mandapam, Beside Gol Ambavadi	Ambavadi, Ahmedabad	72.5375741	23.0104511	Chinese, Italian, Nort Indian Rupees(Rs.)	No	No				
2035	113325 Nin's Kitchen	1 India	Ahmedabad	12, First Floor, Camps Corner 2, O Prahlad Nagar	O Prahlad Nagar, Ahmedabad	72.5072645	23.0117723	North Indian, Contine Indian Rupees(Rs.)	No	Yes				
2036	113433 Pazzio's Pizzaio	1 India	Ahmedabad	Ground Floor, Maruti Crystal Opt Bodakdev	Bodakdev, Ahmedabad	72.5098065	23.0330688	Pizza, Italian, Beverah Indian Rupees(Rs.)	No	Yes				
2037	113537 Puffizza	1 India	Ahmedabad	103, Kairos, Opposite Mahatma G Gurukul	Gurukul, Ahmedabad	72.53774978	23.04619268	Italian, Fast Food Indian Rupees(Rs.)	No	Yes				
2038	113570 Turquoise Villa	1 India	Ahmedabad	Ground Floor, Shanay - 1, Near AN Vastrapur	Vastrapur, Ahmedabad	72.5434513	23.0285142	Continental Indian Rupees(Rs.)	No	No				
2039	113702 @Mango	1 India	Ahmedabad	Opposite Sindhu Bhawan, Bodakd Bodakdev	Bodakdev, Ahmedabad	72.5017644	23.0401653	North Indian, Contine Indian Rupees(Rs.)	No	No				
2040	113703 Cafe Alfresco	1 India	Ahmedabad	101, Dynamic House, Vijay Cross Navrangpura	Navrangpura, Ahmedabad	72.5498285	23.0437235	Cafe, Beverages, Dess Indian Rupees(Rs.)	No	Yes				
4800	6200110 Aalishan	166 Qatar	Doha	Opposite Universal Cooling Systel Al Mutazah	Al Mutazah, Doha	51.5194969	25.2684026	North Indian, Chinesi Qatar Rial(QR)	No	No				
4801	6200388 Applebee's	166 Qatar	Doha	Opposite La Cigale Hotel, C Ring R Al Nasr	Al Nasr, Doha	51.5076178	25.2774224	American, Tex-Mex Qatar Rial(QR)	No	No				
4802	6201130 Vine - The St. Regis	166 Qatar	Doha	1st Floor, The St. Regis Hotel, Wes The St. Regis, Westbay	The St. Regis, Westbay, Doha	51.530127	25.350325	International Qatar Rial(QR)	No	No				
4803	6201309 MRA Bakery Sweets & Resta	166 Qatar	Doha	Opposite Aster Pharmacy, Al Taei Al Ghanim	Al Ghanim, Doha	51.5369233	25.2802233	Kerala, Indian, Chine Qatar Rial(QR)	No	No				
4804	6201312 Zaqq	166 Qatar	Doha	Midmac Flyover, Salwa Road, Al Hail Hilal	Al Hilal, Doha	51.498153	25.2641161	Pakistan Qatar Rial(QR)	No	No				
4805	6201336 Ponderosa	166 Qatar	Doha	Caravan Complex, Ramada Juncti Caravan Complex, Al Hi Caravan Complex, Al Hilal, C	Al Hilal, Doha	51.5104884	25.2709036	Steak Qatar Rial(QR)	No	No				
4806	6201360 Paper Moon	166 Qatar	Doha	Beside Jarir Bookstore, Jaidah Squ.Umm Ghuwailina	Umm Ghuwailina, Doha	51.54457591	25.27301974	Italian Qatar Rial(QR)	No	No				
4807	6201431 Coral - InterContinental Dc	166 Qatar	Doha	Lower Ground Floor, Hotel Interco Hotel intercontinental I Hotel Intercontinental Doha,	The Gate, Dafna, Doha	51.530046	25.348622	International Qatar Rial(QR)	No	No				
4808	6201972 Eatopia	166 Qatar	Doha	2nd Floor, The Gate Mall, Dafna, C The Gate, Dafna	The Gate, Dafna, Doha	51.526653	25.3232606	European, Arabian, Je Qatar Rial(QR)	No	No				
4809	6201976 Indian Coffee House	166 Qatar	Doha	Beside Le Mirage Suites, Ferree Ab Doha Al Jadeeda	Al Doha Al Jadeeda, Doha	51.5210744	25.276109	Indian Qatar Rial(QR)	No	No				
4810	6202039 Mainland China Restauran	166 Qatar	Doha	1st Floor, Barwa Towers, Suhaib Barwa Towers, Al Sadd	Barwa Towers, Al Sadd, Doha	51.50505289	25.28599626	Chinese Qatar Rial(QR)	No	No				
4811	6202515 Culcul Chinese Restaurant	166 Qatar	Doha	Opposite Maaqil, Jhe Mahomed E Faraj Bin Mahmood	E Faraj Bin Mahmood, Doha	51.511452	25.28502556	Indian Qatar Rial(QR)	No	No				

The suggested cities to open new restaurants have been highlighted in the above picture.

12. Create a new customized price column that consists of the abbreviation/symbol of the currency along with the Average_cost_for_two value. [Use string operations to do this task]

Ans: =CONCATENATE(MID(LEFT(L2,LEN(L2)-1),FIND("(",L2)+1,99), " ", T2)

- Column L contains **Currency**
- Column T contains **Average_Cost_for_two**
- MID(LEFT(L2,LEN(L2)-1),FIND("(",L2)+1,99) extracts the Currency symbols between the parentheses ().
- CONCATENATE() – To merge the Columns L and T to display the Currency along with Average_cost_for_two (Column V)

V2	L	T	V
1	Currency	Average_Cost_for_two	Currency Average Cost for two
2	Indian Rupees(Rs.)	1800	Rs. 1800
3	Indian Rupees(Rs.)	1100	Rs. 1100
4	Indian Rupees(Rs.)	900	Rs. 900
5	Indian Rupees(Rs.)	2500	Rs. 2500
6	Indian Rupees(Rs.)	1800	Rs. 1800
7	Indian Rupees(Rs.)	2000	Rs. 2000
8	Indian Rupees(Rs.)	1200	Rs. 1200
9	Indian Rupees(Rs.)	1100	Rs. 1100
10	Indian Rupees(Rs.)	1200	Rs. 1200
11	Indian Rupees(Rs.)	500	Rs. 500
12	Indian Rupees(Rs.)	1200	Rs. 1200
13	Indian Rupees(Rs.)	1200	Rs. 1200
14	Indian Rupees(Rs.)	4500	Rs. 4500
15	Indian Rupees(Rs.)	1800	Rs. 1800
16	Indian Rupees(Rs.)	1700	Rs. 1700
17	Indian Rupees(Rs.)	1000	Rs. 1000
18	Indian Rupees(Rs.)	700	Rs. 700
19	Indian Rupees(Rs.)	500	Rs. 500
20	Indian Rupees(Rs.)	500	Rs. 500
21	Indian Rupees(Rs.)	500	Rs. 500
22	Indian Rupees(Rs.)	500	Rs. 500
23	Indian Rupees(Rs.)	500	Rs. 500
24	Indian Rupees(Rs.)	500	Rs. 500
25	Indian Rupees(Rs.)	500	Rs. 500
26	Indian Rupees(Rs.)	2000	Rs. 2000
27	Indian Rupees(Rs.)	500	Rs. 500
28	Indian Rupees(Rs.)	500	Rs. 500
29	Indian Rupees(Rs.)	500	Rs. 500
30	Indian Rupees(Rs.)	500	Rs. 500
31	Indian Rupees(Rs.)	500	Rs. 500
32	Indian Rupees(Rs.)	500	Rs. 500
33	Indian Rupees(Rs.)	500	Rs. 500
34	Indian Rupees(Rs.)	500	Rs. 500
35	Indian Rupees(Rs.)	500	Rs. 500
36	Indian Rupees(Rs.)	500	Rs. 500
37	Indian Rupees(Rs.)	500	Rs. 500

13. How can you create an array formula in Excel or Google Sheets to count the number of restaurants listed that do not offer online delivery, are in the lowest price range, and have an average cost for two people less than or equal to 250 Indian Rupees?

Ans: **1694**

Formula : {= COUNTIFS('Raw Data'!N2:N9552 , "No", 'Raw Data'!Q2:Q9552, 1, 'Raw Data'!T2:T9552,"<=250")}

- Array formula is enclosed in {} (Curly Braces)

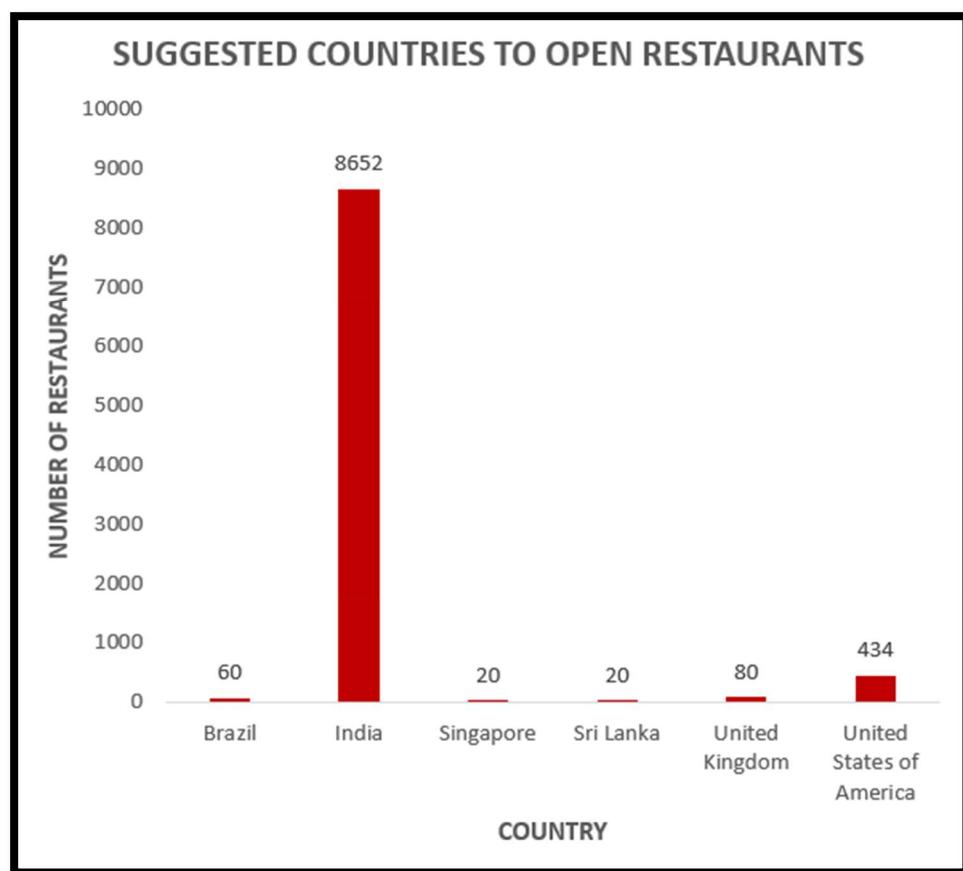
C10		
A	B	C
1		
8		
9	Qn. #	Question
10	13	Sheets to count the number of restaurants listed that do not offer online delivery,
11		are in the lowest price range, and have an average cost for two people less than or equal to 250 Indian Rupees
12		1694

Subjective Question:

1. Suggest a few countries where the team can open newer restaurants with lesser competition. Which visualization/technique will you use here to justify the suggestions?

Ans:

- New restaurants can be opened in countries like Brazil, Singapore, Sri Lanka, United Kingdom, United States of America and India where the average ratings are between 2 and 3 out of 5.
- Also, the average cost per two people ranges from 600 INR (India) to 9850 (INR) in Singapore, which would be a good idea to open new restaurants as the ranges of prices in these countries is diverse.



Recommendation:

- While opening restaurants in these cities, various factors such as average rating, average cost for two, cuisines should be considered.

2. Come up with the names of States and cities in the suggested countries suitable for opening restaurants.

Ans:

- Brasí lia, Brazil
- Ghaziabad, India
- Singapore, Singapore
- Colombo, Sri Lanka
- Birmingham, United Kingdom
- Gainesville, United States of America

City	Number of Restaurants	Average of Rating	Average of Average_Cost_for_two	Average of Average Cost for Two (in Indian Rupees)
India	25	2.93	602.00	602.00
Ghaziabad	25	2.93	602.00	602.00
Brazil	20	3.55	120.00	1,791.60
Brasí lia	20	3.55	120.00	1,791.60
Singapore	20	3.58	155.75	9,849.63
Singapore	20	3.58	155.75	9,849.63
United Kingdom	20	3.73	39.00	4,165.98
Birmingham	20	3.73	39.00	4,165.98
Sri Lanka	20	3.87	2,375.00	665.00
Colombo	20	3.87	2,375.00	665.00
United States of America	20	4.04	21.25	1,783.94
Gainesville	20	4.04	21.25	1,783.94

Recommendation:

While opening restaurants in these cities, various factors such as average rating, average cost for two, cuisines with respect to the restaurants in those cities should be considered.

3. According to the countries you suggested, what is the current quality regarding ratings for restaurants that are open there?

Ans:

City, Country	No. of Restaurants	Average Rating
Brasí lia, Brazil	20	3.55
Ghaziabad, India	25	2.93
Singapore, Singapore	20	3.58
Colombo, Sri Lanka	20	3.87
Birmingham, United Kingdom	20	3.73
Gainesville, United States of America	20	4.04

P	Q	R	S	T	U
1	City	Number of Restaurants	Average of Rating	Average of Average_Cost_for two	Average of Average Cost for Two (in Indian Rupees)
2	■ Brazil	20	3.55	120.00	1,791.60
3	+ Brasí lia	20	3.55	120.00	1,791.60
4	■ India	25	2.93	602.00	602.00
5	+ Ghaziabad	25	2.93	602.00	602.00
6	■ Singapore	20	3.58	155.75	9,849.63
7	+ Singapore	20	3.58	155.75	9,849.63
8	■ Sri Lanka	20	3.87	2,375.00	665.00
9	+ Colombo	20	3.87	2,375.00	665.00
10	■ United Kingdom	20	3.73	39.00	4,165.98
11	+ Birmingham	20	3.73	39.00	4,165.98
12	■ United States of America	20	4.04	21.25	1,783.94
13	+ Gainesville	20	4.04	21.25	1,783.94
14	Grand Total	125	3.59	554.16	3,041.38
15					

Recommendation:

- Considering the ratings and the average cost factor new restaurants can be opened in places like Brasí lia (Brazil), Ghaziabad (India), Colombo (Sri Lanka) where the number of restaurants in these cities range between 20 to 25.
- The average customer ratings in these cities ranges between 2.9 and 4.1 with India having the least rating of 2.9 and USA having the highest rating of 4.1.

4. Also, what is the current expenditure on food in the suggested countries, so we can keep our financial expenditure in control?

Ans:

- Average expenditure (in Indian Rupees) in the suggested countries like Brazil, India, Singapore, Sri Lanka, United Kingdom, United States of America is as follows:

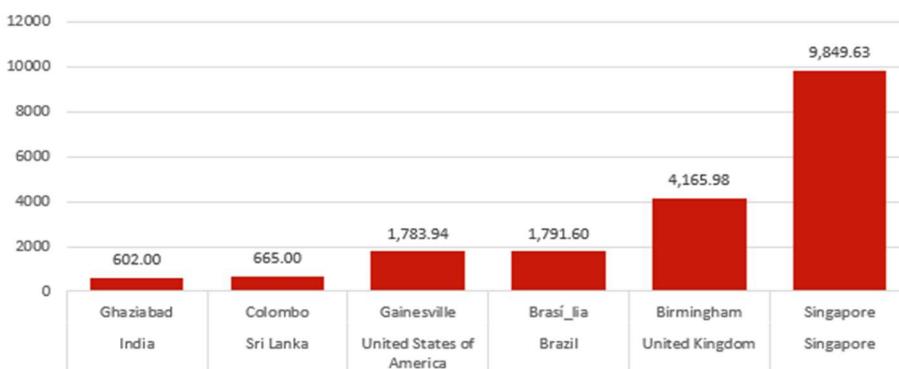
Country Name	Number of Restaurants	Average of Rating	Average_Cost_for_two people	Currency Conversion	Average Cost for Two (in Indian Rupee)
Brazil	60	3.85	134.67	14.93	2010.57
India	8652	2.77	623.37	1	623.37
Singapore	20	3.58	155.75	63.24	9849.63
Sri Lanka	20	3.87	2375.00	0.28	665.00
United Kingdom	80	4.10	47.81	106.82	5107.33
United States of America	434	4.01	26.15	83.95	2195.47
Grand Total	9266	2.851219512	590.0356141	6.021810922	764.7038636

- Average expenditure (in Indian Rupees) in the suggested cities such as **Brasí lia, Ghaziabad, Singapore, Colombo, Birmingham, Gainesville** is as follows:

City, Country	No. of Restaurants	Average Cost for Two (Indian Rupees)
Brasí lia, Brazil	20	1791.6 INR ~ 120 (B\$)
Ghaziabad, India	25	602 INR
Singapore, Singapore	21	9849.63 INR ~ 155.75 (S\$)
Colombo, Sri Lanka	20	665 INR ~ 2375 LKR
Birmingham, United Kingdom	20	4165.98 INR ~ 39 (OE£)
Gainesville, United States of America	20	1783.94 INR ~ 21.25 (\$)

P	Q	R	S	T	U
	City	Number of Restaurants	Average of Rating	Average of Average_Cost_for_two	Average of Average Cost for Two (in Indian Rupees)
1	巴西	20	3.55	120.00	1,791.60
2	Brasí lia	20	3.55	120.00	1,791.60
3	印度	25	2.93	602.00	602.00
4	Ghaziabad	25	2.93	602.00	602.00
5	新加坡	20	3.58	155.75	9,849.63
6	Colombo	20	3.87	2,375.00	9,849.63
7	斯里兰卡	20	3.87	2,375.00	665.00
8	英国	20	3.73	39.00	4,165.98
9	伯明翰	20	3.73	39.00	4,165.98
10	美国	20	4.04	21.25	1,783.94
11	盖恩斯维尔	20	4.04	21.25	1,783.94
12	Grand Total	125	3.59	554.16	3,041.38

AVERAGE COST IN SUGGESTED CITIES



5. Come up with the names of restaurants from the recommended states that are our biggest competitors and also those that are rated in the lower brackets, i.e. 1-2 or 2-3.

Ans:

S.No.	Restaurant Name	City, Country	Number of Restaurants	Average Rating	Average_Cost_for_two	Average Cost for Two (INR)	Average Cost in the City (INR)
1	Sandubas Cafí©	Brasí_lia, Brazil	1	1	30	447.9	1791.6
2	Let's Noodle	Ghaziabad, India	2	1.8	700.00	700.00	602
3	Makansutra Gluttons Bay	Singapore, Singapore	1	3	30.00	1879.20	9849.63
4	Elite Indian Restaurant	Colombo, Sri Lanka	1	2.4	1800.00	560.00	665
5	Pepe's Piri Piri	Birmingham, United Kingdom	1	2.8	10.00	1068.2	4165.98
6	Triangle Restaurant	Gainesville, United States of America	1	2.4	10.00	839.5	1783.94

Average Rating						
F3	A	B	C	D	E	F
1						
2						
3	Restaurants	Number of Restaurants	Average_Cost_for_two people	Currency Conversion	Average Cost for Two (in Indian Rupee)	Average Rating
4	 Brazil	1	30	14.93	447.9	1
5	Sandubas Cafí©	1	30	14.93	447.9	1
6	 India	2	1050	1	525	1.8
7	Let's Noodle	2	1050	1	525	1.8
8	 Singapore	1	30	63.24	1897.2	3
9	Makansutra Gluttons Bay	1	30	63.24	1897.2	3
10	 Sri Lanka	1	1800	0.28	504	2.4
11	Elite Indian Restaurant	1	1800	0.28	504	2.4
12	 United Kingdom	1	10	106.82	1068.2	2.8
13	Pepe's Piri Piri	1	10	106.82	1068.2	2.8
14	 United States of America	1	10	83.95	839.5	2.4
15	Triangle Restaurant	1	10	83.95	839.5	2.4
16	Grand Total	7	2930	38.74571429	829.5428571	2.171428571
17						
18						

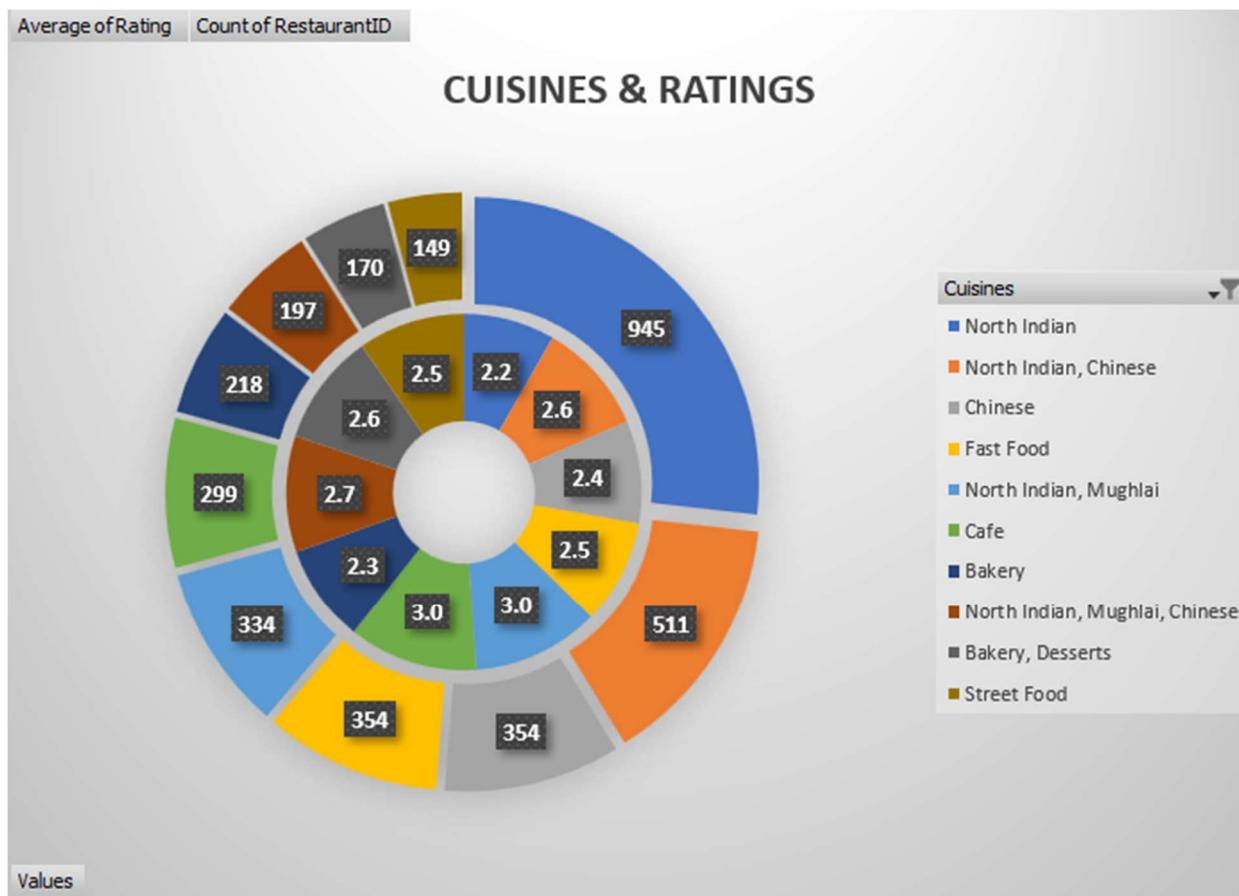
The above selected restaurants can be considered as competitors in their respective cities as they have average cost per two lesser than the average cost of all the restaurants combined in the city.

For example, Elite Indian Restaurant in Colombo has an average cost equivalent to 602 INR whereas the average cost of all the restaurants in Colombo is 665 INR.

6. Which cuisines should we focus on in the newer restaurants to get better feedback? Does the choice of cuisines affect the restaurant ratings?

Ans:

- Considering the top 10 cuisines, we can see that North Indian cuisine which is available in 945 restaurants has a average rating of 2.2, whereas restaurants with Street food cuisine is available at 149 restaurants with an average rating of 2.5.
- From the visual below, we can conclude that the customer ratings has a major effect on the choice of cuisines.



7. According to our current data, should we go for online delivery and table booking? Does that affect the customer's ratings?

Ans: The online delivery and table booking definitely has an impact on the customer ratings across the globe. It would be better for the restaurants to have both table booking and online delivery in order to get better ratings from the customers.

S.No.	TABLE BOOKING	ONLINE DELIVERY																														
1	<table border="1"> <thead> <tr> <th>Has Table Booking</th> <th>Average of Rating</th> <th>Number of Restaurants</th> </tr> </thead> <tbody> <tr> <td>No</td> <td>2.81</td> <td>8393</td> </tr> <tr> <td>Yes</td> <td>3.48</td> <td>1158</td> </tr> <tr> <td>Grand Total</td> <td>2.89</td> <td>9551</td> </tr> <tr> <td>40</td> <td></td> <td></td> </tr> </tbody> </table>	Has Table Booking	Average of Rating	Number of Restaurants	No	2.81	8393	Yes	3.48	1158	Grand Total	2.89	9551	40			<table border="1"> <thead> <tr> <th>Has Online Delivery</th> <th>Average of Rating</th> <th>Number of Restaurants</th> </tr> </thead> <tbody> <tr> <td>No</td> <td>2.75</td> <td>7100</td> </tr> <tr> <td>Yes</td> <td>3.29</td> <td>2451</td> </tr> <tr> <td>Grand Total</td> <td>2.89</td> <td>9551</td> </tr> <tr> <td>41</td> <td></td> <td></td> </tr> </tbody> </table>	Has Online Delivery	Average of Rating	Number of Restaurants	No	2.75	7100	Yes	3.29	2451	Grand Total	2.89	9551	41		
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2	<p>Average of Rating: 2.81 Number of Restaurants: 8393 Total Votes: 1089748</p>	<p>Average of Rating: 2.75 Number of Restaurants: 7100 Total Votes: 980731</p>																														
3	<ul style="list-style-type: none"> From the above chart, we can see that restaurant offering table booking is less than the ones that does not offer table booking. While opening a new restaurant in any of the suggested cities, table bookings can increase or decrease depending on the location / locality. 	<ul style="list-style-type: none"> Around 25-28% of the restaurants offer online deliveries and the average ratings are higher than the restaurants that do not offer online delivery. On analysis for the suggested cities, online delivery can be done for countries like India where many restaurants offer the same. 																														

8. Should the team keep the rate of cuisines higher? Will that affect the feedback? According to our data are the rates of cuisines and ratings, correlated?

Ans:

- The correlation value between rates of cuisines and customer ratings is 5%, which means that the rates of cuisines and ratings are not very much dependent. Inst

C17	<input type="button" value="X"/> <input type="button" value="✓"/> <input type="button" value="fx"/>	=CORREL('Raw Data'!S2:S9552,'Raw Data'!W2:W9552)
A	B	C
1		
17	Correlation between the rates of cuisines and customer ratings	0.058957
18		

- On further analysis by finding correlation between other numerical values, we can see that price range and customer ratings has the highest value.
- It means that price range has a great impact on the customer ratings.

S. No.	Analysis - Correlation between	Answer	
14	1 Price Range and Customer Ratings	0.462939	CORREL('Raw Data'!Q2:Q9552,'Raw Data'!W2:W9552)
15	2 Cost at Restaurants (Local Currency) and customer ratings	0.058957	CORREL('Raw Data'!T2:T9552,'Raw Data'!W2:W9552)
16	3 Cost at Restaurants (INR) and customer ratings	0.341648	CORREL('Raw Data'!U2:U9552,'Raw Data'!W2:W9552)
17	4 Votes and Customer Ratings	0.349105	CORREL('Raw Data'!S2:S9552,'Raw Data'!W2:W9552)

Recommendation:

- It is important to determine the price range of the restaurant to be opened which will directly impact the customer ratings.
-

9. What is the distribution of the number of restaurants of different price ranges in all the countries?

Ans: The distribution of restaurants with price ranges from 1 to 4 is as follows:

- Price Range 1 – 4444 (46.53%)
 - Price Range 2 – 3113 (32.60%)
 - Price Range 3 – 1408 (14.74%)
 - Price Range 4 – 586 (6.13%)
- We can observe that most of the restaurants fall in the price range 1 which means that there are high chances of a restaurant being opened in the future under the price range 1.



10. Explain your approach in brief for suggesting countries/cities in order to open new restaurants, if the objective and subjective questions would have not been given to assist you.

Ans:

1. Approach and the steps for dashboard creation:

- Firstly, data has to be checked for inconsistencies by handling missing values and removing duplicate values.
- Create new columns from existing columns if needed for analysis. Eg) Extracting year from date to find number of restaurants being opened yearwise.
- Check for correlations between numerical values and do the analysis accordingly.
- See if any parameters can be forecasted. In the excel file, I have forecasted the price ranges as well as the number of restaurants that can be opened in the future.
- Categorize the ratings as they cannot be visualized properly, the reason being too many values ranging from 1.0 to 4.9.
- Create the dashboard with the required visuals like KPIs, Timeline, Slicers, Column charts, line charts, Pie Charts etc.

2. Questions not addressed in subjective and objective questions:

- Comparing the number of restaurants according to the rating category
 - Ratings in accordance with the total votes
 - Forecasting the number of restaurants being opened in the future
 - Price Range forecast in case if a new price range pops up
-