Call Centre Trend Analysis with Power BI

Final year 2023 Data Analysis Report

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Introduction

For firms to always thrive, it's critical to do analysis of it's business performance over a period of time. What such analysis does is to basically help finding out issues if there's any, help understand trends/performances and put up strategies to address such issues to help such firm to reach it's goal.

This analysis was done to find trends and insights using some visuals and understand the performance of this particular "Call Centre" for the first quarter of the year using some key performance indicators (KPI's).

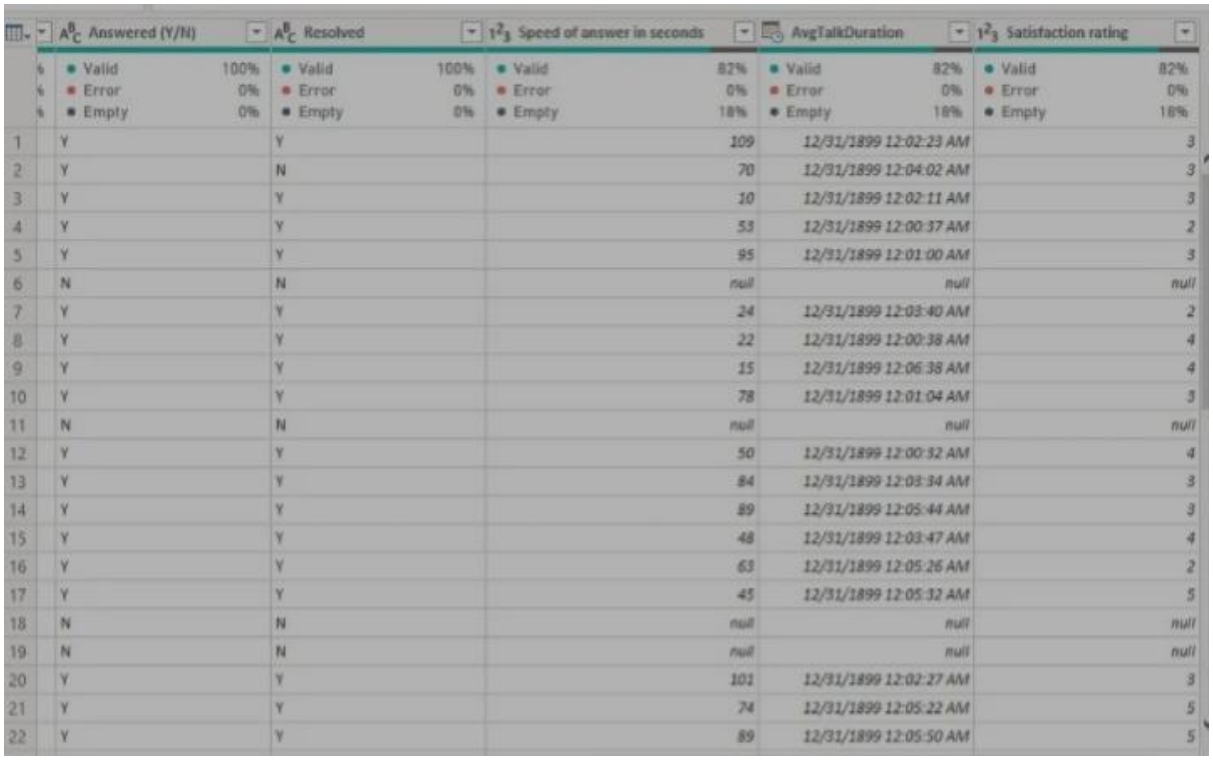
Data Preparation

We had a glance of the dataset using excel and we are able to find out that the data consists of 10 columns and 5001 rows with the column names as Call Id, Agent, Date, Time, Topic, Answered (Y/N), Resolved, Speed of answer in seconds, AvgTalkDuration and Satisfaction rating.

	A	B	C	D	E	F	G	H	I	J
1	Call Id	Agent	Date	Time	Topic	Answered (Y/N)	Resolved	Speed of answer in seconds	AvgTalkDuration	Satisfaction rating
2	ID0001	Diane	2021-01-01	9:12:58	Contract related	Y	Y	109	0:02:23	3
3	ID0002	Becky	2021-01-01	9:12:58	Technical Support	Y	N	70	0:04:02	3
4	ID0003	Stewart	2021-01-01	9:47:31	Contract related	Y	Y	10	0:02:11	3
5	ID0004	Greg	2021-01-01	9:47:31	Contract related	Y	Y	53	0:00:37	2
6	ID0005	Becky	2021-01-01	10:00:29	Payment related	Y	Y	95	0:01:00	3
7	ID0006	Stewart	2021-01-01	10:00:29	Technical Support	N	N			
8	ID0007	Diane	2021-01-01	10:22:05	Payment related	Y	Y	24	0:03:40	2
9	ID0008	Diane	2021-01-01	10:22:05	Payment related	Y	Y	22	0:00:38	4
10	ID0009	Greg	2021-01-01	11:13:55	Admin Support	Y	Y	15	0:06:38	4
11	ID0010	Jim	2021-01-01	11:13:55	Streaming	Y	Y	78	0:01:04	3
12	ID0011	Joe	2021-01-01	11:15:22	Payment related	N	N			
13	ID0012	Greg	2021-01-01	11:15:22	Payment related	Y	Y	50	0:00:32	4
14	ID0013	Joe	2021-01-01	11:52:48	Payment related	Y	Y	84	0:03:34	3
15	ID0014	Martha	2021-01-01	11:52:48	Contract related	Y	Y	89	0:05:44	3
16	ID0015	Becky	2021-01-01	11:55:41	Admin Support	Y	Y	48	0:03:47	4
17	ID0016	Becky	2021-01-01	11:55:41	Admin Support	Y	Y	63	0:05:26	2
18	ID0017	Greg	2021-01-01	11:57:07	Technical Support	Y	Y	45	0:05:32	5
19	ID0018	Becky	2021-01-01	11:57:07	Admin Support	N	N			
20	ID0019	Jim	2021-01-01	12:01:26	Streaming	N	N			
21	ID0020	Jim	2021-01-01	12:01:26	Contract related	Y	Y	101	0:02:27	3
22	ID0021	Jim	2021-01-01	12:02:53	Technical Support	Y	Y	74	0:05:22	5
23	ID0022	Dan	2021-01-01	12:02:53	Admin Support	Y	Y	89	0:05:50	5
24	ID0023	Martha	2021-01-01	12:02:53	Technical Support	N	N			
25	ID0024	Joe	2021-01-01	12:02:53	Technical Support	Y	Y	68	0:05:25	2
26	ID0025	Diane	2021-01-01	12:30:14	Streaming	Y	Y	97	0:04:09	3
27	ID0026	Dan	2021-01-01	12:30:14	Payment related	N	N			

After taking a glance at the dataset, we moved to Power BI and connected to the dataset then did some cleaning and processing in the power query editor such as:

- Replacing the null values in some columns with 0. Replacing null with 0 isn't the only way to treat null values but we chose to replace with 0 because there were no trends in those columns to say we want to follow existing trends neither do we have access to the stakeholders to give me an insights as to why those cells had null values hence, resolving to 0. we couldn't replace the AvgTalkDuration with 0 because it can't take any value that isn't in the time format.



	Answered (Y/N)	Resolved	Speed of answer in seconds	AvgTalkDuration	Satisfaction rating
	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 82% Error 0% Empty 18%	Valid 82% Error 0% Empty 18%	Valid 82% Error 0% Empty 18%
1	Y	Y	109	12/31/1899 12:02:23 AM	3
2	Y	N	70	12/31/1899 12:04:02 AM	3
3	Y	Y	10	12/31/1899 12:02:11 AM	3
4	Y	Y	53	12/31/1899 12:00:37 AM	2
5	Y	Y	95	12/31/1899 12:01:00 AM	3
6	N	N	null	null	null
7	Y	Y	24	12/31/1899 12:03:40 AM	2
8	Y	Y	22	12/31/1899 12:00:38 AM	4
9	Y	Y	15	12/31/1899 12:06:38 AM	4
10	Y	Y	78	12/31/1899 12:01:04 AM	3
11	N	N	null	null	null
12	Y	Y	50	12/31/1899 12:00:52 AM	4
13	Y	Y	84	12/31/1899 12:03:34 AM	3
14	Y	Y	89	12/31/1899 12:05:44 AM	3
15	Y	Y	48	12/31/1899 12:03:47 AM	4
16	Y	Y	63	12/31/1899 12:05:26 AM	2
17	Y	Y	45	12/31/1899 12:05:32 AM	5
18	N	N	null	null	null
19	N	N	null	null	null
20	Y	Y	101	12/31/1899 12:02:27 AM	3
21	Y	Y	74	12/31/1899 12:05:22 AM	5
22	Y	Y	89	12/31/1899 12:05:50 AM	5

2. Changed the N and Y in Answered (Y/N) and Resolved to Yes and No which people could easily relate with.

Answered (Y/N)	Resolved
Valid 100%	Valid 100%
Error 0%	Error 0%
Empty 0%	Empty 0%
Yes	Yes
Yes	No
Yes	Yes
Yes	Yes
Yes	Yes
No	No
Yes	Yes
Yes	Yes
Yes	Yes
Yes	Yes
No	No
Yes	Yes
Yes	Yes
Yes	Yes
Yes	Yes
Yes	Yes
Yes	Yes

3. The “AvgTalkDuration” column name was changed to “Avg. Talk Duration” and initially, the column consisted of both time and date but we changed the data type to only time since it was talking about duration and it was on a particular day.