



ABC CALL VOLUME TREND ANALYSIS



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Project Description

- A customer experience (CX) team comprises professionals who analyse customer feedback and data and share insights with the rest of the organisation.
- Advertising is a way of marketing your business to increase sales or make your audience aware of your products or services
- Advertising is very competitive as many players bid much money in a single industry segment to target the same audience. Here come the analytical skills of the company to target those audiences from those types of media platforms where they convert them to their customers at a low cost.

Approach

- First of all, I have read the case study and tried to understand the problems whose solution was asked
- Then imported the data , and made a copy of the dataset so that we can always return to the original dataset
- Checked for duplicates in the dataset
- Performed the analysis of the data and made the report

Tech Stack Used

- Microsoft Excel : For doing the analysis on the data
- Microsoft PowerPoint Presentation : For making a Report of the insights and tasks

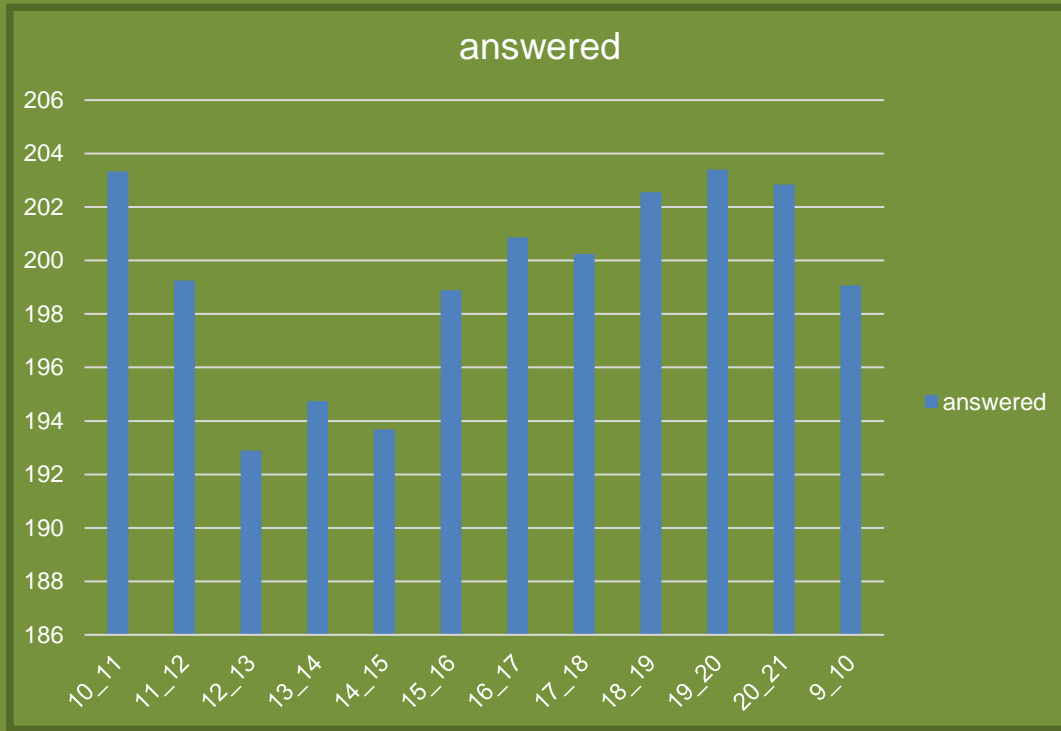


Insights



Calculate the average call time duration for all incoming calls received by agents (in each Time_Bucket).

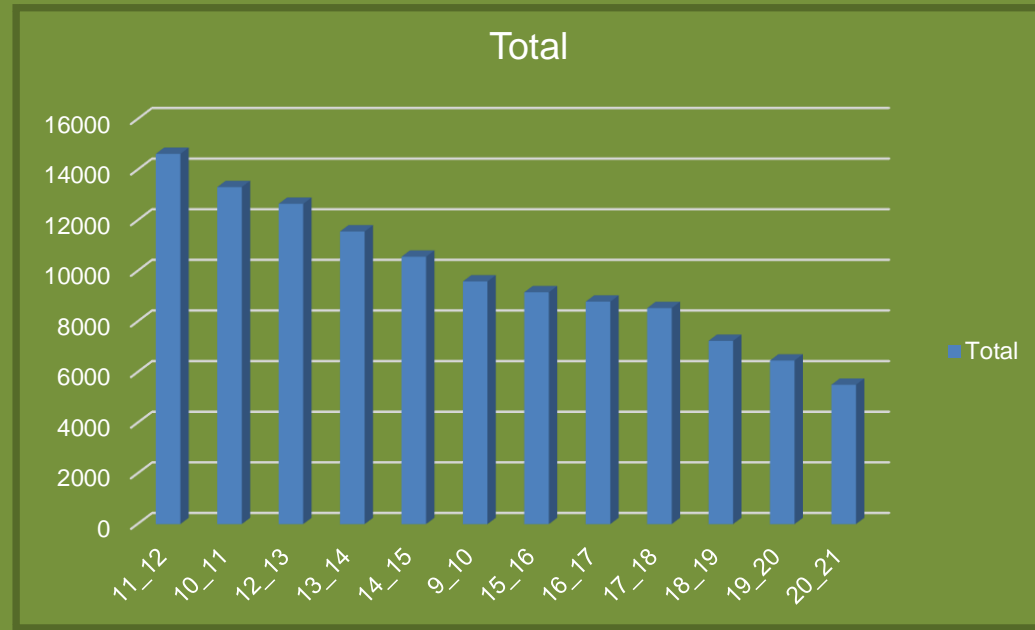
- From the column chart it can be seen that most number of calls in the time slot 10-11 were answered for the longest time
- The calls in the time slot 12-13 have the least average call time



Time bucket vs average time for which call was answered

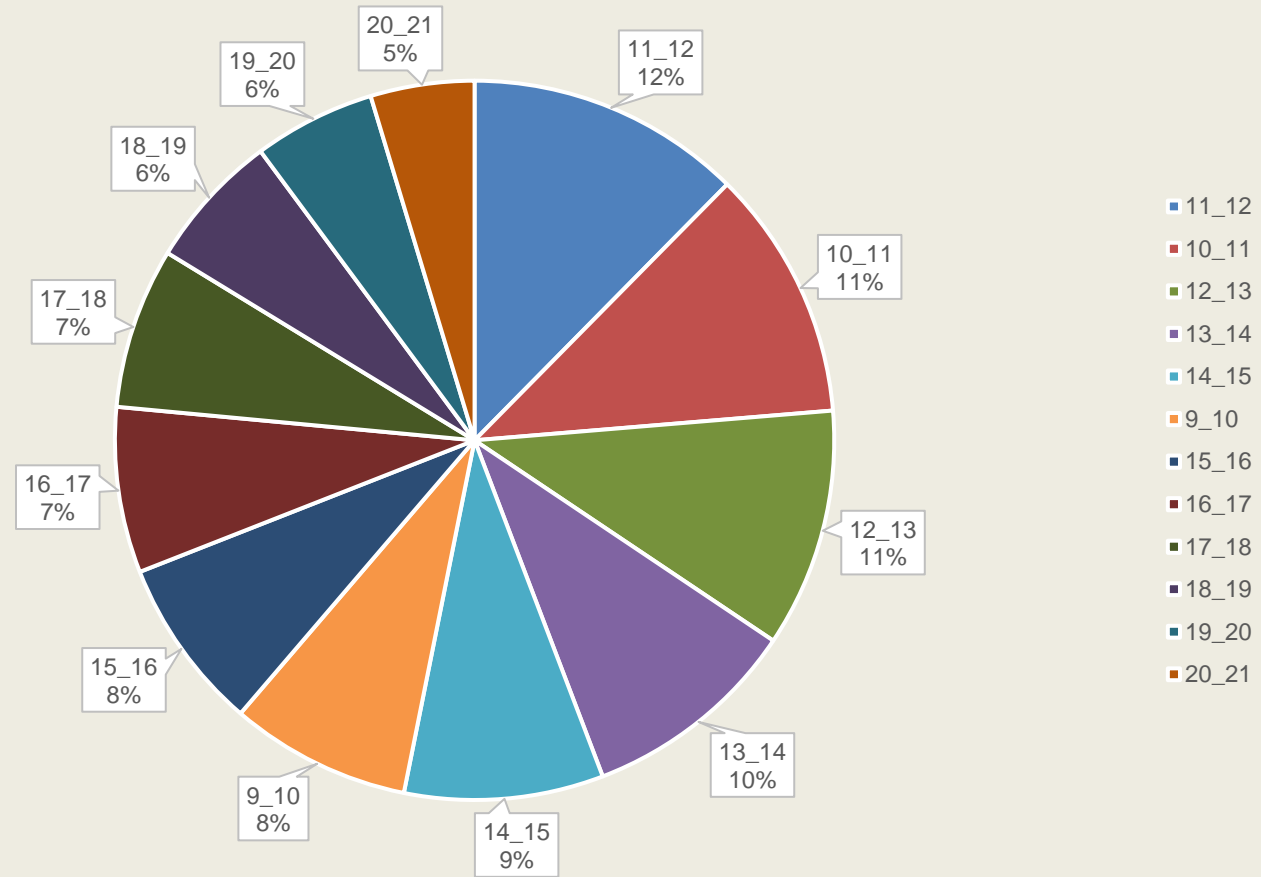
Show the total volume/ number of calls coming in via charts/ graphs (Number of calls v/s Time). You can select time in a bucket form (i.e. 1-2, 2-3,)

- From the column chart, it can be seen that most number of calls came in the time slot 11-12
- Least number of calls came in the time slot 20-21



Time bucket vs count of customer phone number

Pie chart showing the distribution



Agents working hour	9
Working hour excluding weight	7.5
Working Days	6
Out of 30 days, an agent works	26
Unplanned leave days	4
Work days per month	22
Days an agent work in a week	5
Actual working hours	60% of 7.5
Total time spent on call	4.5

Assumptions

As you can see current abandon rate is approximately 30%. Propose a manpower plan required during each time bucket [between 9am to 9pm] to reduce the abandon rate to 10%.

- We have to calculate minimum number of agents required in each time bucket so that at least 90 calls should be answered out of 100.
- A person works 4.5 hours per day
- The average time spend on call per day is 715787.7826 in seconds or 198.8299396 in hours
- The given data is for 23 days which is nearly a month, as a person works almost 22 days in a month
- total agents for 69.88%

$$= 198.8299396 / 4.5 = 44.18443103$$
- Therefore, total agents for 90%

$$= 44.18443103 * 0.9 / 0.6988 = 56.9061075$$

Time Bucket	manpower value
9_10	5
10_11	6
11_12	7
12_13	6
13_14	6
14_15	5
15_16	4
16_17	4
17_18	4
18_19	3
19_20	3
20_21	3
Total	52

- Therefore total agents working for 90% are nearly 57
- Now we have multiplied the value with the percentage of calls to find the distribution.

Time Bucket	Percentage of calls		Manpower values
9_10	8.13%	4.631962572	5
10_11	11.28%	6.431509984	6
11_12	12.40%	7.065820253	7
12_13	10.72%	6.1121809	6
13_14	9.80%	5.585118826	6
14_15	8.95%	5.102018849	5
15_16	7.76%	4.424712683	4
16_17	7.45%	4.245482591	4
17_18	7.23%	4.122775197	4
18_19	6.13%	3.496677628	3
19_20	5.48%	3.122275147	3
20_21	4.67%	2.659465369	3
Total	100%	57	57

average customer calls in daytime	5130
average customer calls in night time	1539
time required for 90% of calls	76.49982
Average time spend on call per day	198.8299396
time spend on calling in a day(hrs)	4.5
number of agents required for night call	17

Assumptions

Let's say customers also call this ABC insurance company in night but didn't get answer as there are no agents to answer, this creates a bad customer experience for this Insurance company. Suppose every 100 calls that customer made during 9 Am to 9 Pm, customer also made 30 calls in night between interval [9 Pm to 9 Am]

- Average customer calls in day is 5130
- Therefore average customer calls in night is $5130 \times 30 / 100 = 1539$
- Time required for all calls = $1539 \times 198.8299396 / 3600 = 84.99979918$
- Time required for 90% of calls = $84.99979918 \times 0.9 = 76.49982$
- Number of agents required for call = $76.49982 / 4.5 = 16.9999$
- Therefore 17 agents were distributed for night time calls by multiplying 17 with number of call percentage

NIGHT CALLS DISTRIBUTION				
Time Bucket	Number of calls	percentage of calls	number of agents	
9pm-10pm	3	10%	1.7	2
10pm-11pm	3	10%	1.7	2
11pm-12am	2	7%	1.133333333	1
12am-1am	2	7%	1.133333333	1
1am-2am	1	3%	0.566666667	1
2am-3am	1	3%	0.566666667	1
3am-4am	1	3%	0.566666667	1
4am-5am	1	3%	0.566666667	1
5am-6am	3	10%	1.7	2
6am-7am	4	13%	2.266666667	2
7am-8am	4	13%	2.266666667	2
8am-9am	5	17%	2.833333333	3
Total	30		17	19

After rounding off the values, the net number of agents came to around 19 therefore, we need 19 agents to manage nighttime calls

Result

- By doing this project, I understood the importance of data analysis in call centres and its importance for a customer representation team
- It even gave us an insight into how data analytics have made our life simpler



Excel Sheet Link

[Excel Sheet link](#)

THANK YOU

