

ABC Call Volume Trend Analysis

Project Description:

A customer experience (CX) team consists of professionals who analyse customer feedback and data, and share insights with the rest of the organization. Typically, these teams fulfil various roles and responsibilities such as: Customer experience programs (CX programs), Digital customer experience, Design and processes, Internal communications, Voice of the customer (VoC), User experiences, Customer experience management, Journey mapping, Nurturing customer interactions, Customer success, Customer support, Handling customer data, Learning about the customer journey.

Advertising is a way of marketing your business in order to increase sales or make your audience aware of your products or services. Until a customer deal with you directly and actually buys your products or services, your advertising may help to form their first impressions of your business. Target audience for businesses could be local, regional, national or international or a mixture. So, they use different ways for advertisement. Some of the types of advertisement are: Internet/online directories, Trade and technical press, Radio, Cinema, Outdoor advertising, National papers, magazines and TV. Advertising business is very competitive as a lot of players bid a lot of money in a single segment of business to target the same audience. Here comes 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:

Downloading the data set and performing EDA to understand the data set. Checked for the null values and the distribution. Defining the problem and to analyse each task first noted the features to be used. Now to get result I checked all the functions which will be required to perform the operations. Create charts and graphs to define underlying aspects of the data. Finally created a report consisting the description, approach, result, insights, conclusion, etc.

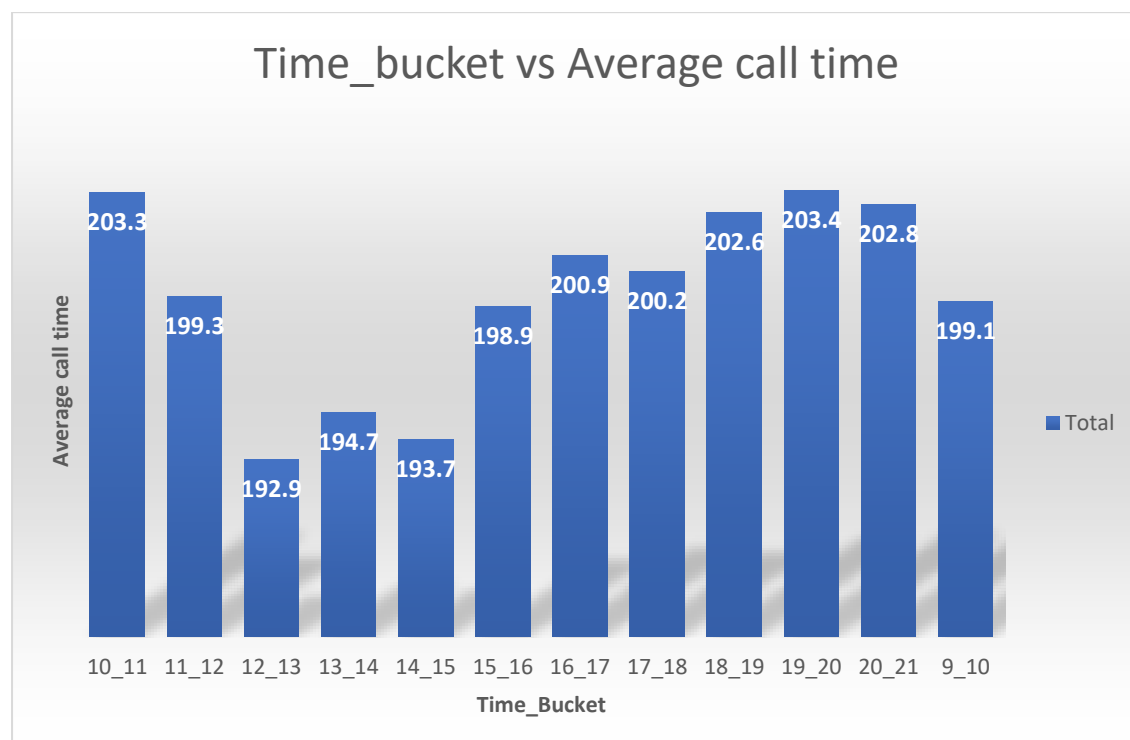
Tech-Stack Used:

For this assignment I have used Microsoft Excel (2016).

Insights & results:

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

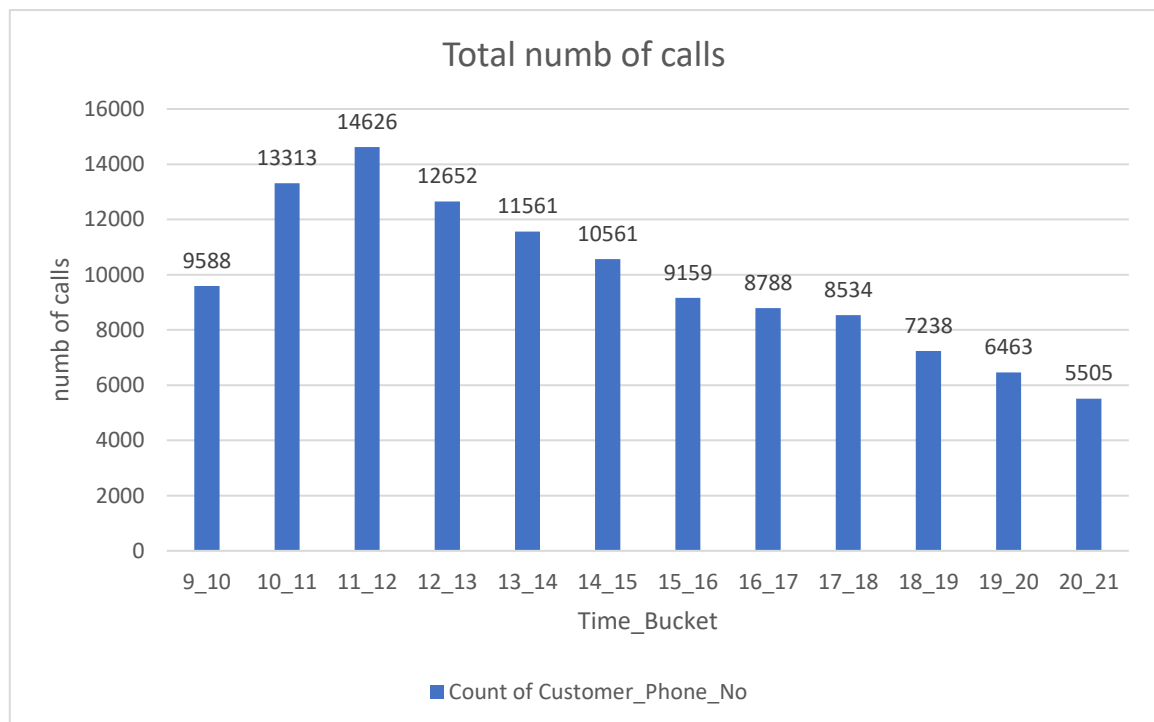
Row Labels	Average of Call_Seconds (s)
10_11	203.3
11_12	199.3
12_13	192.9
13_14	194.7
14_15	193.7
15_16	198.9
16_17	200.9
17_18	200.2
18_19	202.6
19_20	203.4
20_21	202.8
9_10	199.1
Grand Total	198.62

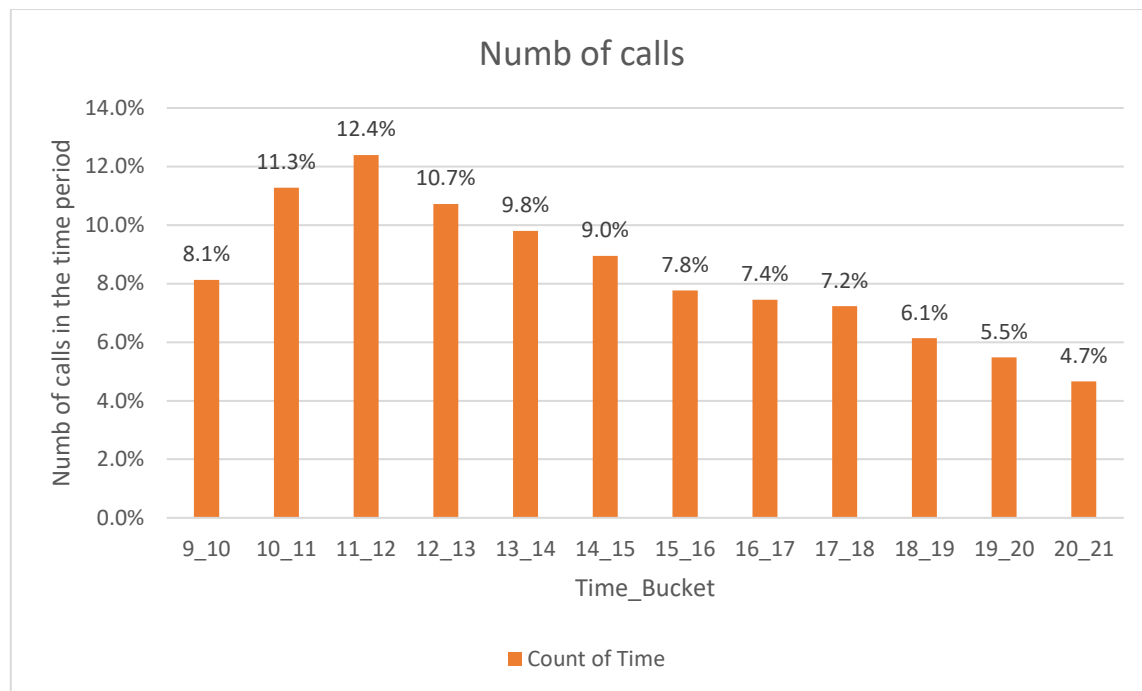


- Minimum average call time is for time bucket 12_13.
- Total average time to answer each call is 198.62 sec.

B) 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,)

Row Labels	Count of Customer_Phone_No	Count of Time
10_11	13313	11.28%
11_12	14626	12.40%
12_13	12652	10.72%
13_14	11561	9.80%
14_15	10561	8.95%
15_16	9159	7.76%
16_17	8788	7.45%
17_18	8534	7.23%
18_19	7238	6.13%
19_20	6463	5.48%
20_21	5505	4.67%
9_10	9588	8.13%
Grand Total	117988	100.00%





C) 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%. (i.e., You have to calculate minimum number of agents required in each time bucket so that at least 90 calls should be answered out of 100.)

Date	abandon	answered	transfer	Grand Total
01-Jan	684	3883	77	4644
02-Jan	356	2935	60	3351
03-Jan	599	4079	111	4789
04-Jan	595	4404	114	5113
05-Jan	536	4140	114	4790
06-Jan	991	3875	85	4951
07-Jan	1319	3587	42	4948
08-Jan	1103	3519	50	4672
09-Jan	962	2628	62	3652
10-Jan	1212	3699	72	4983
11-Jan	856	3695	86	4637
12-Jan	1299	3297	47	4643
13-Jan	738	3326	59	4123
14-Jan	291	2832	32	3155
15-Jan	304	2730	24	3058
16-Jan	1191	3910	41	5142
17-Jan	16636	5706	5	22347

18-Jan	1738	4024	12	5774
19-Jan	974	3717	12	4703
20-Jan	833	3485	4	4322
21-Jan	566	3104	5	3675
22-Jan	239	3045	7	3291
23-Jan	381	2832	12	3225
Grand Total	34403	82452	1133	117988
Percentage total	29%	70%	1%	100%

Numb of calls on daily basis:

Date	abandon	answered	transfer	Grand Total
numb of calls on daily basis	1495.8	3584.9	49.3	5129.9

From the Question A we know that the average call duration is 198.62 sec.

So total time to answer 90% of the calls will be:

$$\text{total time} = \text{total numb of calls} * \text{average call duration}$$

time required to answer 90% calls per day	254.7001826
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As one person works for 4.5 hours the total numb of persons required to answer 90% of calls will be:

$$\text{numb of persons} = \frac{\text{tme required to answer 90\% of the calls}}{\text{hours for a person works}}$$

numb of working persons	57
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So, to answer 90% of the calls we will require 57 agents.

D) 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] and distribution of those 30 calls are as follows:

Distribution of 30 calls coming in night for every 100 calls coming in between 9am - 9pm (i.e. 12 hrs slot)											
9pm- 10pm	10pm - 11pm	11pm- 12am	12am- 1am	1am - 2am	2am - 3am	3am - 4am	4am - 5am	5am - 6am	6am - 7am	7am - 8am	8am - 9am
3	3	2	2	1	1	1	1	3	4	4	5

Now propose a manpower plan required during each time bucket in a day. Maximum Abandon rate assumption would be same 10%.

Assumption: An agent work for 6 days a week; On an average total unplanned leaves per agent is 4 days a month; An agent total working hrs is 9 Hrs out of which 1.5 Hrs goes into lunch and snacks in the office. On average an agent occupied for 60% of his total actual working Hrs (i.e., 60% of 7.5 Hrs) on call with customers/ users. Total days in a month is 30 days.

	Values	Formulas
Daily call volume from (9AM-9PM)	5129.9	Average of the total numb of calls per day
Total calls from (9PM-9AM)	1539.0	Average of the total numb of calls per night
Total night time required	76.4	$\text{night time to answer 90\% of calls(hours)} = \frac{\text{numb of calls at night} * \text{average call duration} * 0.9}{3600}$
Additional man power needed	17	$\text{Additional man power} = \frac{\text{total night time}}{\text{hours for a agent works}}$
Total man power needed	74	Total man power = agents on day time + agents on night time

Total agents needed to answer night calls is 17.

Challenges:

The project consists of the deep knowledge of the call volume trend and analysis of the company. Also, it includes the prediction of number of agents at day and night time which was a challenging part.