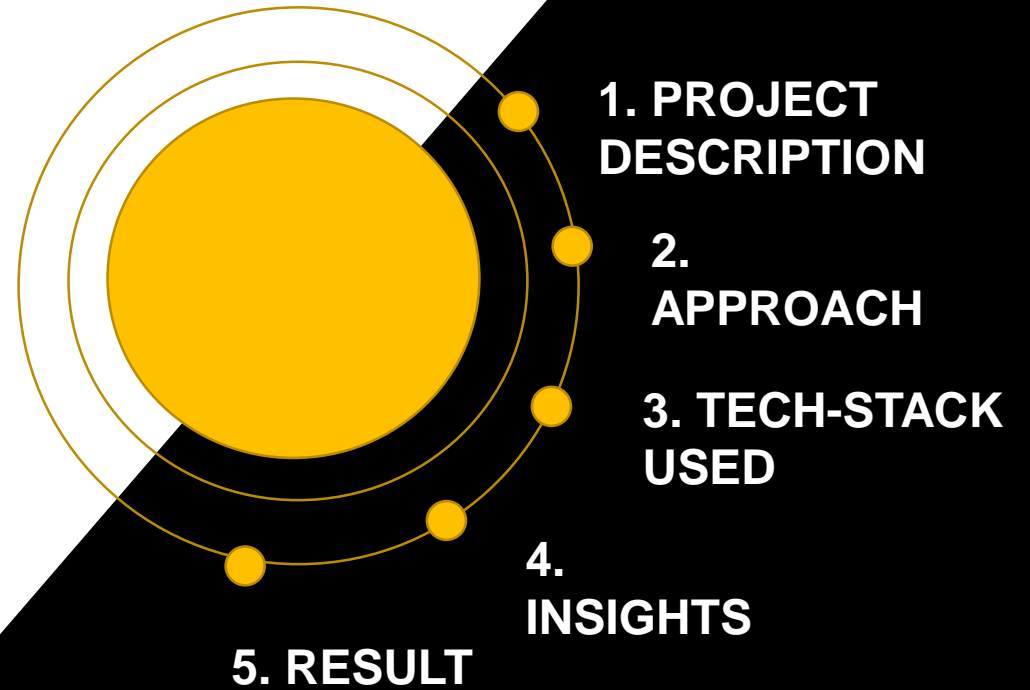


# ABC Call Volume Trend Analysis

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# 1) Project Description

This project is about how company uses its analytical skills to target audiences from many types of media platform to convert them as their customers at low cost.

I am provided with **Customer Experience (CX) Inbound calling team for 23 days (Call\_Volume\_Trend\_Analysis)** data sets, tables from which I must derive certain insights out of it and answer the questions. so it will be easy for me to handle it using **Excel** and provide a detailed report

## 2) Approach

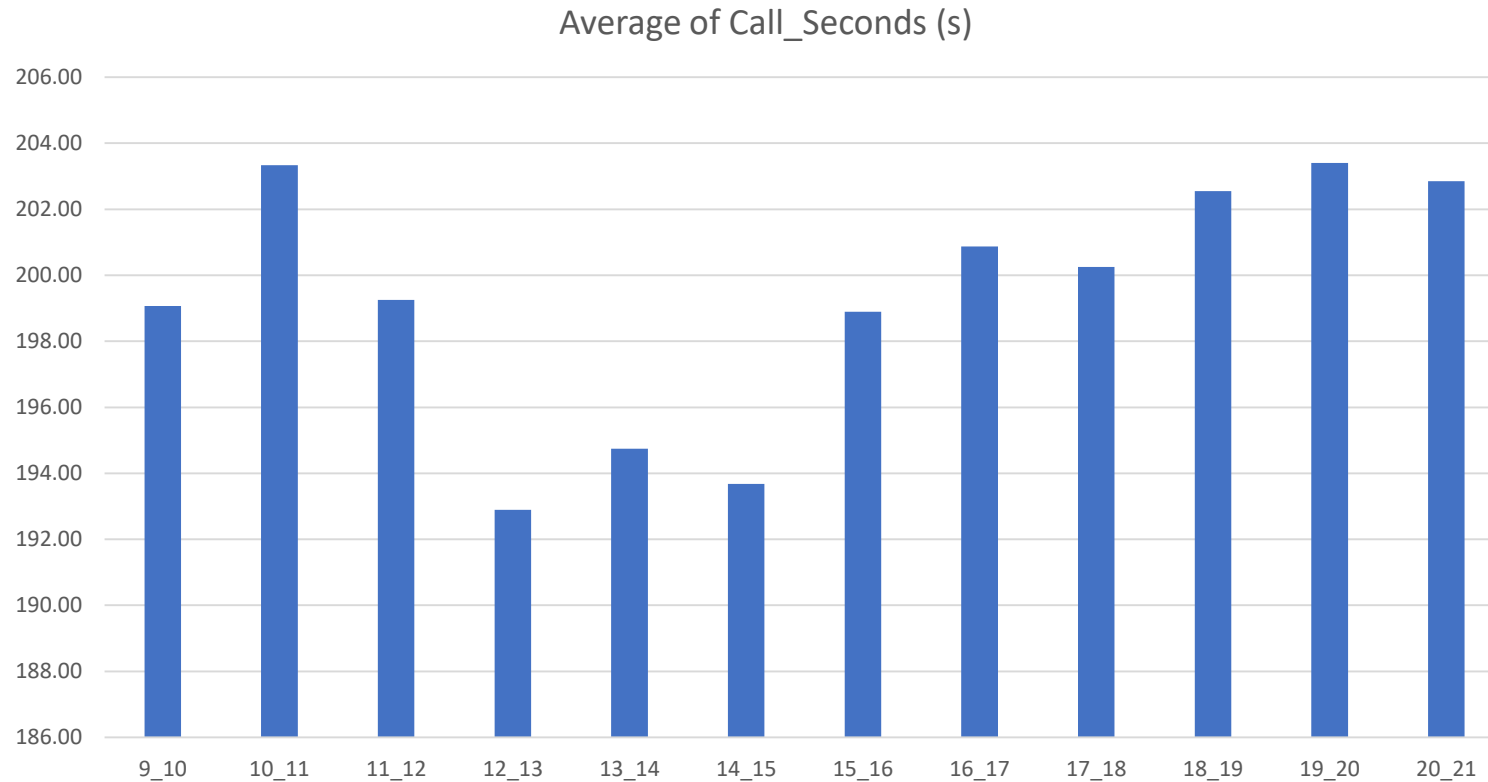
1. I revised 2-3 times the Description of Final Project-4 (ABC Call Volume Trend Analysis).
2. Collected the **Call\_Volume\_Trend\_Analysis** Dataset.
3. Inserted/Loaded it into Excel.
4. Finally analyzed the dataset and attached results for the given questions.

### 3) Tech-Stack Used

- ❖ I have used **Excel** software.
- ❖ Excel is a tool for **organizing and performing calculations** on data.
- ❖ It can analyze data, calculate statistics, generate **pivot table**, and represent data as **charts or graphs**.
- ❖ I have used **Excel 2016 version** to complete this project.

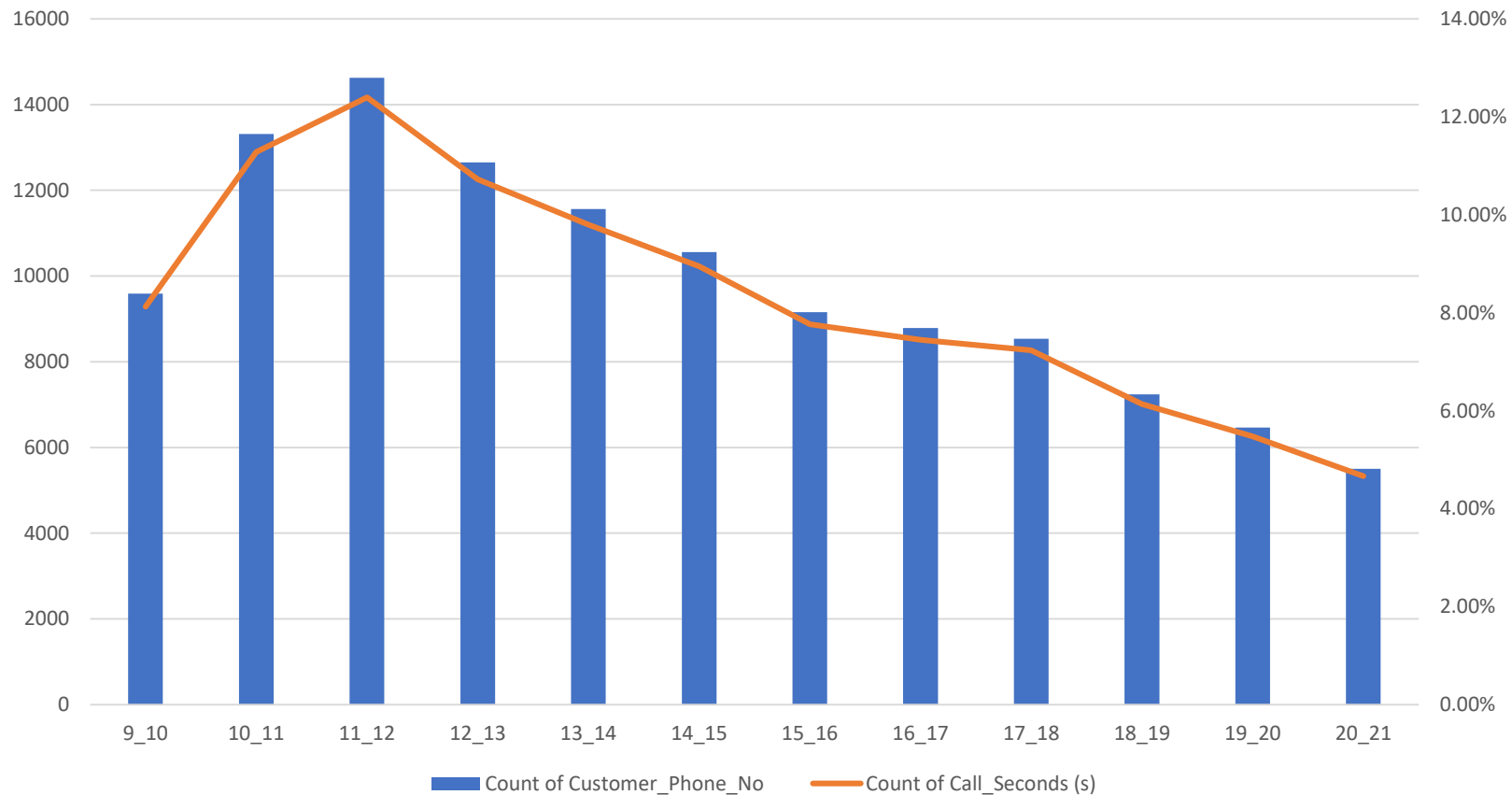
## 4) Insights

**1) Calculate the average call time duration for all incoming calls received by agents (in each Time Bucket).**



- I have put Time\_Bucket in Row Section and computed average of Call\_Seconds in Value Section and plotted a Bar Graph.
- Agents answer calls for an average of 198.6 seconds.
- Average call time duration is highest between 7pm-8pm with value of 203.41 and 10 am to 11 am with value of 203.33.
- The average call time duration is least between 12am and 1 pm with value of 192.89.

**2) 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, .....)**



- I have put Time\_Bucket in Row Section and computed count of Customer\_Phone\_No and count of Call\_Seconds in Value Section and plotted Clustered Cloumn chart where

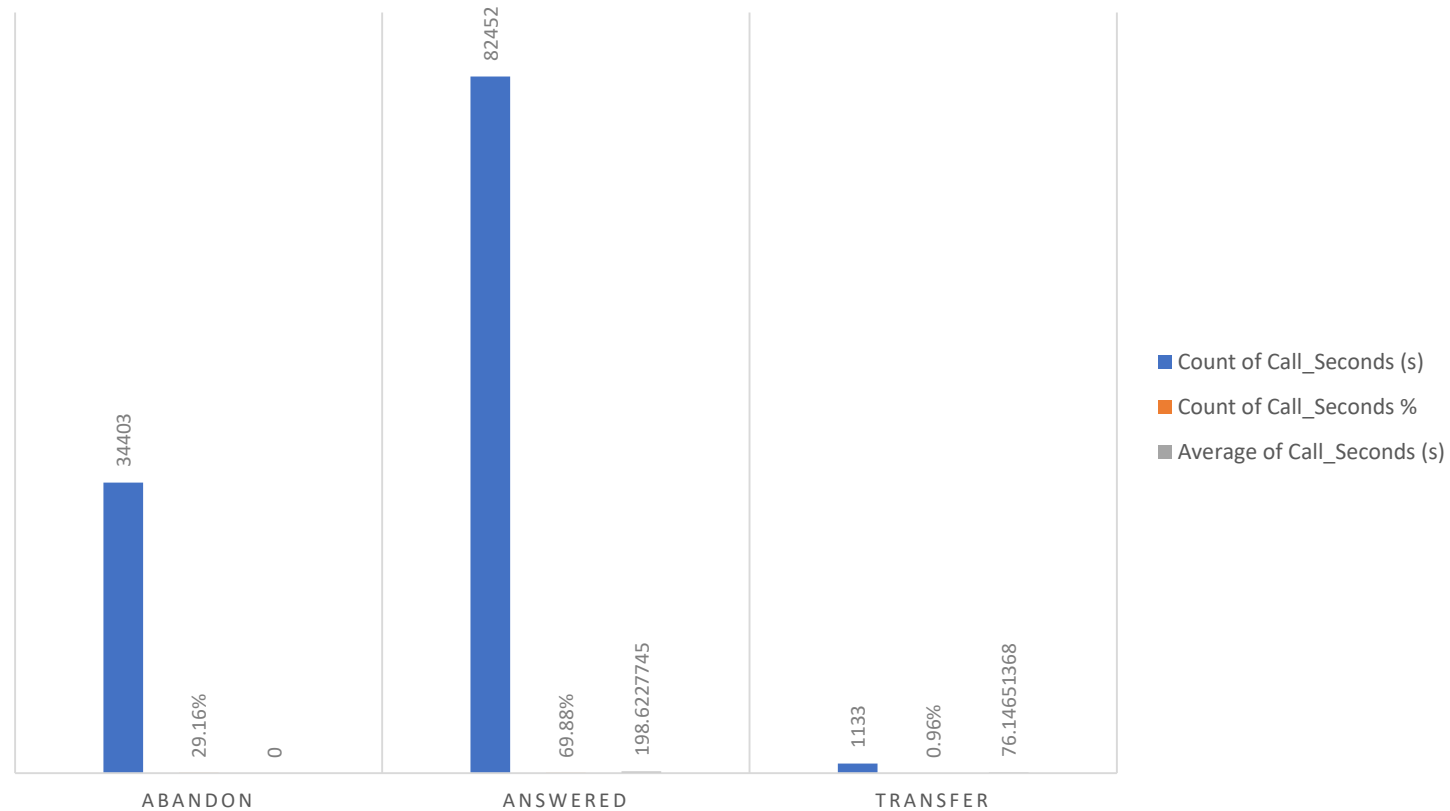
Bar Graph represents Count of Customer\_Phone\_No

Line Graph represents Count of Call\_Seconds

- Customers call the most in between 11am to 12am.
- Customers call the least in between 8pm to 9pm.



**3) 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.)**



Assumption				
	Time (in Hrs)			Time (in Mins)
The ABC Company's Total Working Hours	9		Morning Break	15
Break	1.5		Lunch	60
IT DownTime	0.5		Afternoon Break	15
Meetings/Discussions	1			
Agent's actual Working Hours	4.5			

Date	Sum of Call_Seconds (s)	Sum of Call_Seconds (s)2
01-Jan	676664	187.96

Total agent equals 60% work	41.77
Agent required for 90%	62.65

- Total agents working is calculated by average calls on single day divided by total time spend by an agent in a single day.

$$\text{Total Agent} = 187.96 / 4.5 = 41.77$$

- If Agents are working for 4.5 hrs a day and 60% of calls are answered. If the ABC Company want 90% of calls to get connected, using unitary method we can determine how many agents are needed.

$$\begin{aligned} \text{Agents Required} &= 90 * 41.77 / 60 = 62.65 \\ &= 63 \end{aligned}$$

Time_Buckets	Count of Call_Seconds (s)	Count of Call_Seconds (s)	Agents Required
10_11	11.28%	0.11	5
11_12	12.40%	0.12	5
12_13	10.72%	0.11	4
13_14	9.80%	0.10	4
14_15	8.95%	0.09	4
15_16	7.76%	0.08	3
16_17	7.45%	0.07	3
17_18	7.23%	0.07	3
18_19	6.13%	0.06	2
19_20	5.48%	0.05	2
20_21	4.67%	0.05	2
9_10	8.13%	0.08	3
	Total		40

- I have created a pivot table with Call\_Status in Row Section and count of Call\_Seconds and in percentage as well and Average of Call\_Seconds. Then plotted a Bar Graph.
- To calculate I have created a pivot table with Date & Time in Row Section and Sum of Call\_Seconds in value Section. As the values are in Seconds I have divided them with 3600 to convert them to Hours.
- 29.16% of the calls are abandoned, 69.88% of the calls are answered and 0.96% of the call are transferred.
- 63 Agents are needed to answer 90% of calls per day.
- The no.of agents required for each Time\_Bucket is  $63 * \text{count of Call\_Second}$ .

**4) 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%**

I have created a pivot table with Date\_&\_Time in Row Section, count of Customer\_Phone\_No and Call\_Status in Column Section. Average calls in DayTime is calculated.

Using the above result Average calls in NightTime is calculated (i.e 30% of Average call in DayTime)

Using Average calls in NighthTime I have calculated Additional Hour required (i.e  $\text{Average calls in NightTime} * \text{Answered Average of Call\_Second} * 0.9 / 3600$ )

Using above result I have calculated Additional Agents Required. (i.e  $\text{Additional Hour required} / 60\%$  of 7.5hrs)

Average call in DayTime (9am to 9pm)	5130
Average call in NightTime (9pm - 9am)	1539
Additional Hour required	76.4
Additional Agents	17

Time	Call Count	Time Distribution	Agents Required
9pm - 10pm	3	0.10	2
10pm - 11pm	3	0.10	2
11pm - 12pm	2	0.07	1
12pm - 1am	2	0.07	1
1am - 2am	1	0.03	1
2am - 3am	1	0.03	1
3am - 4am	1	0.03	1
4am - 5am	1	0.03	1
5am - 6am	3	0.10	2
6am - 7am	4	0.13	2
7am - 8am	4	0.13	2
8am - 9am	5	0.17	3
Total	30	1	19

- Time Distribution is calculated by dividing each Calls Distribution by Total Calls.
- The number of agents required for each Time\_Bucket is calculated by Additional agents required \* Time Distribution.

- For the night shift, the ABC Company should hire 17 agents.
- Between 1 am to 5 am, customers call the least. As a result, the ABC Company can use a few agents to answer calls at that time.
- In order to answer the most calls, the Head can switch some Agent's shifts from 5 am to 2 pm and 2 pm to 11 pm as most of the customers call in these time.



## 5) Result

This project helped me to understand how companies like ABC uses their analytical skills to target the audience and to convert them to their customers at a low cost.

I have learned how companies strives to provide customer satisfaction and how an analyst can make an positive/negative impact on customer service.

Please refer to the “ABC Call Volume Trend Analysis Report.xlsx” file and “ABC\_Call\_Volume\_Trend\_Analysis\_Videos.pdf” file as well !!