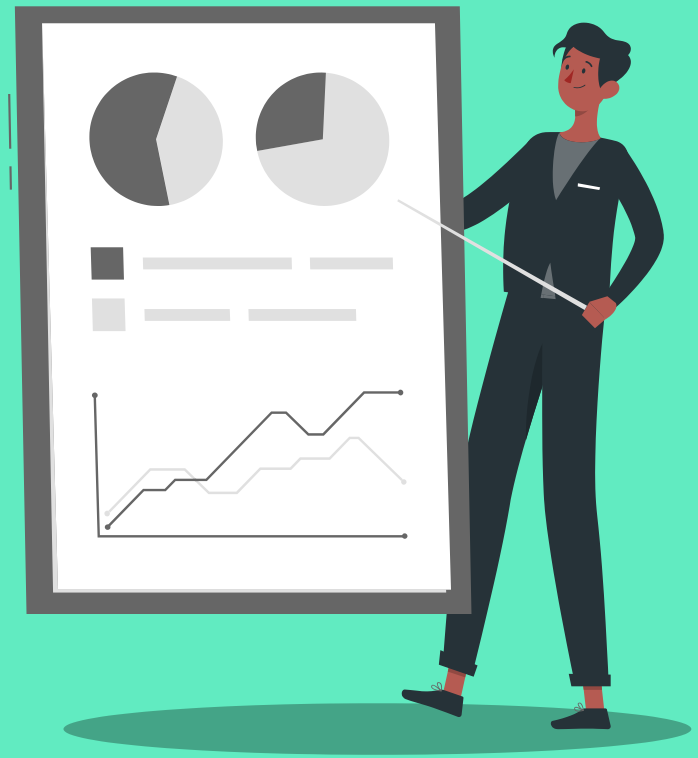


ABC Call Volume Trend

By Yash Shinde

Excel Worksheet :- Click Here to Download

Video Presentation:- Click Here to Watch Video Presentation

Project Description!

In this CX analytics project, we will delve into the world of customer experience by analyzing a dataset spanning 23 days, focusing on the inbound calling team of a company. The dataset contains essential details such as agent information, queue times, call timestamps, call durations, and call statuses. Specifically, we'll spotlight the pivotal role of customer service representatives in managing inbound customer support, aiming to engage and delight customers and foster their loyalty to the business.

Table of Contents

Tech Stack Used :-

-> Excel
-> PowerPoint
-> Github
-> Google Drive

A Average Call Duration

Determine the average duration of all incoming calls received by agents.

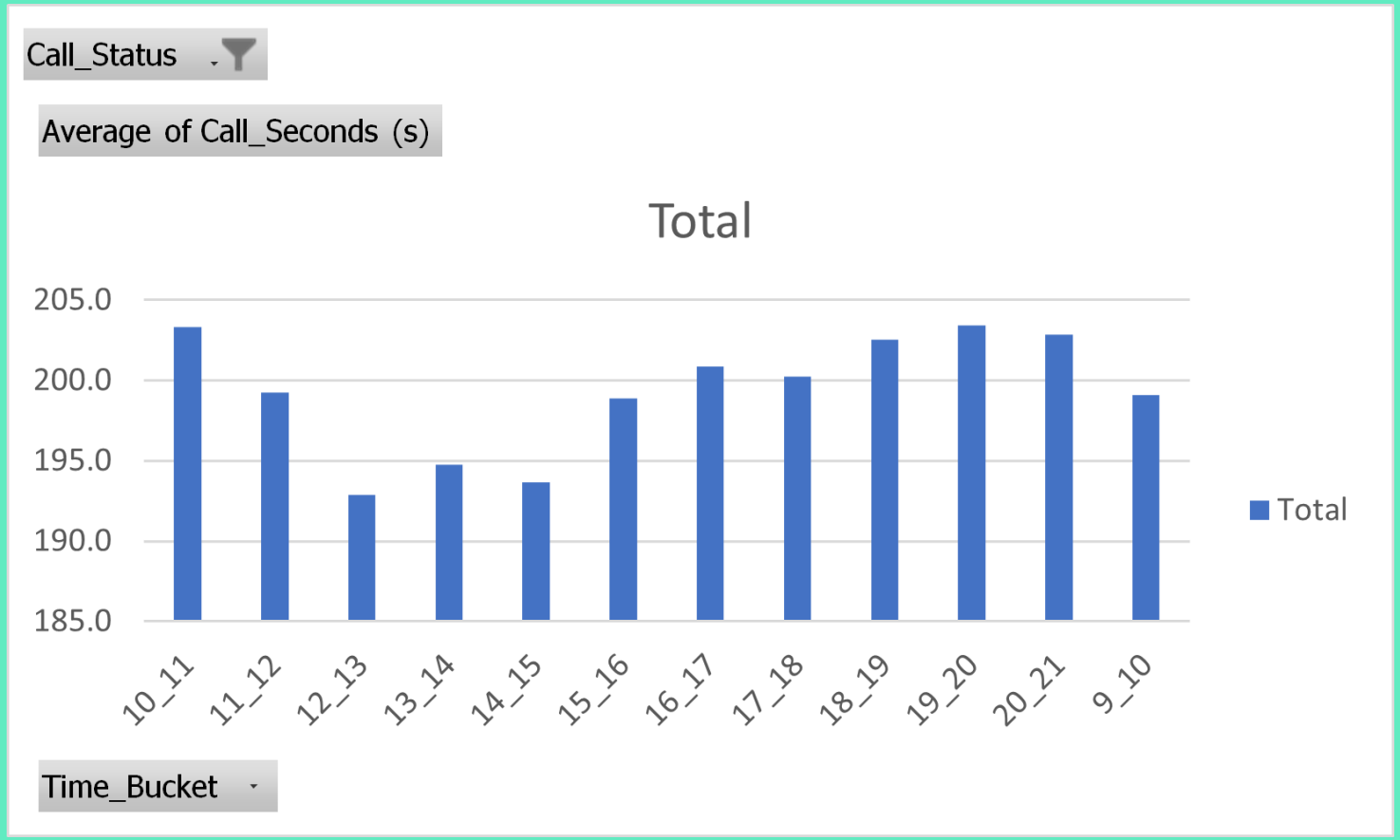
Average Call Duration

- To find the Average Call Duration first I created a new pivot table using the raw data.
- Then, I added Time_Bucket to the rows.
- I used Call_Status as a filter for filtering data. Since we have only asked for the call that are answered.
- And in values area I have added Call_seconds. And calculated the Average value of Call seconds.
- Then finally I got the Average Call Duration of all incoming calls received by agents.
- This duration is calculated for each time bucket.

Call_Status	answered
Time_Bucket	**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	**198.6**

- Thus, we have calculated the duration of calls for each time bucket.
- Bar Graph of the result table is given below
- Average duration of calls between 9am – 21pm is 198.6 seconds.

Bar Graph of Average Call Duration



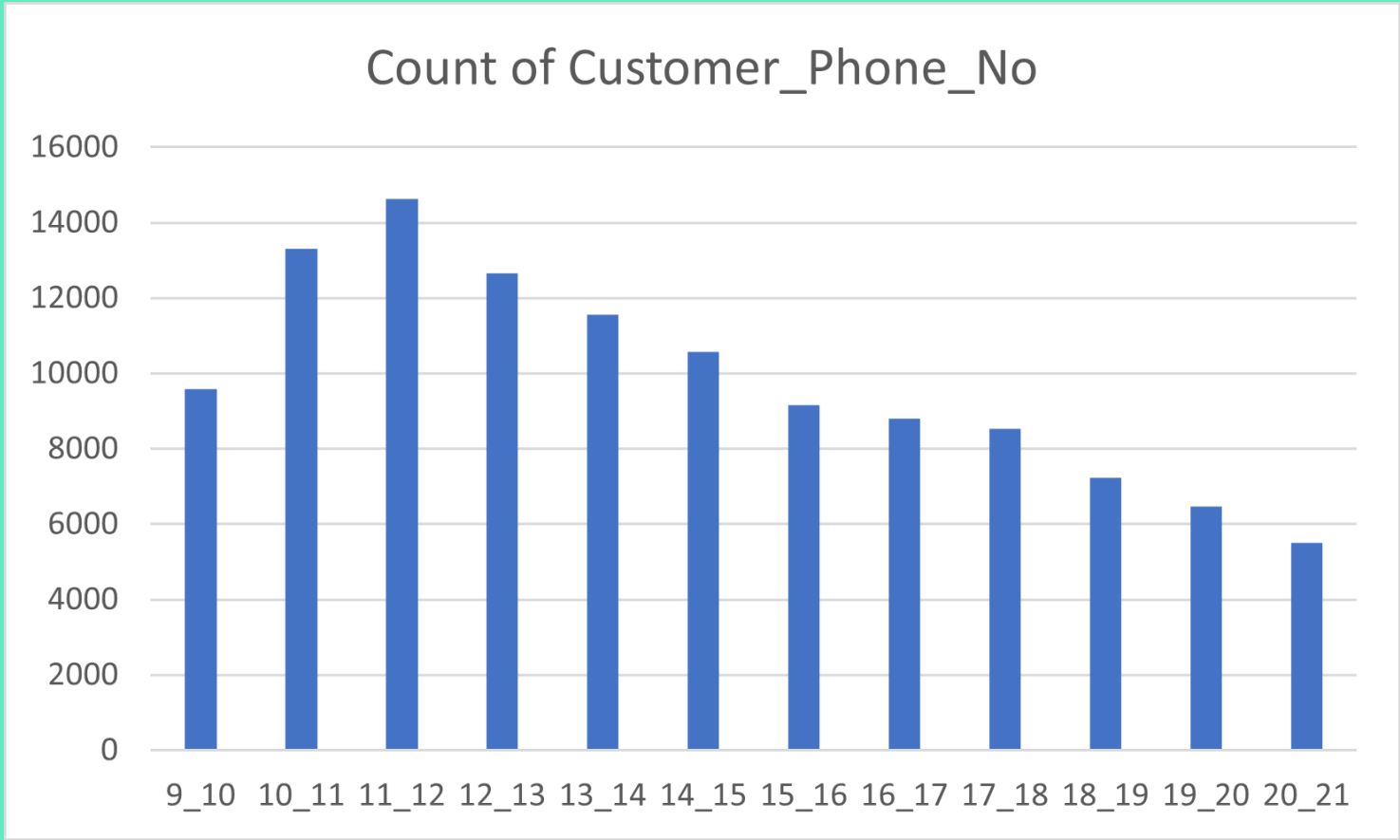
B

Call Volume Analysis

Visualize the total number of calls received.

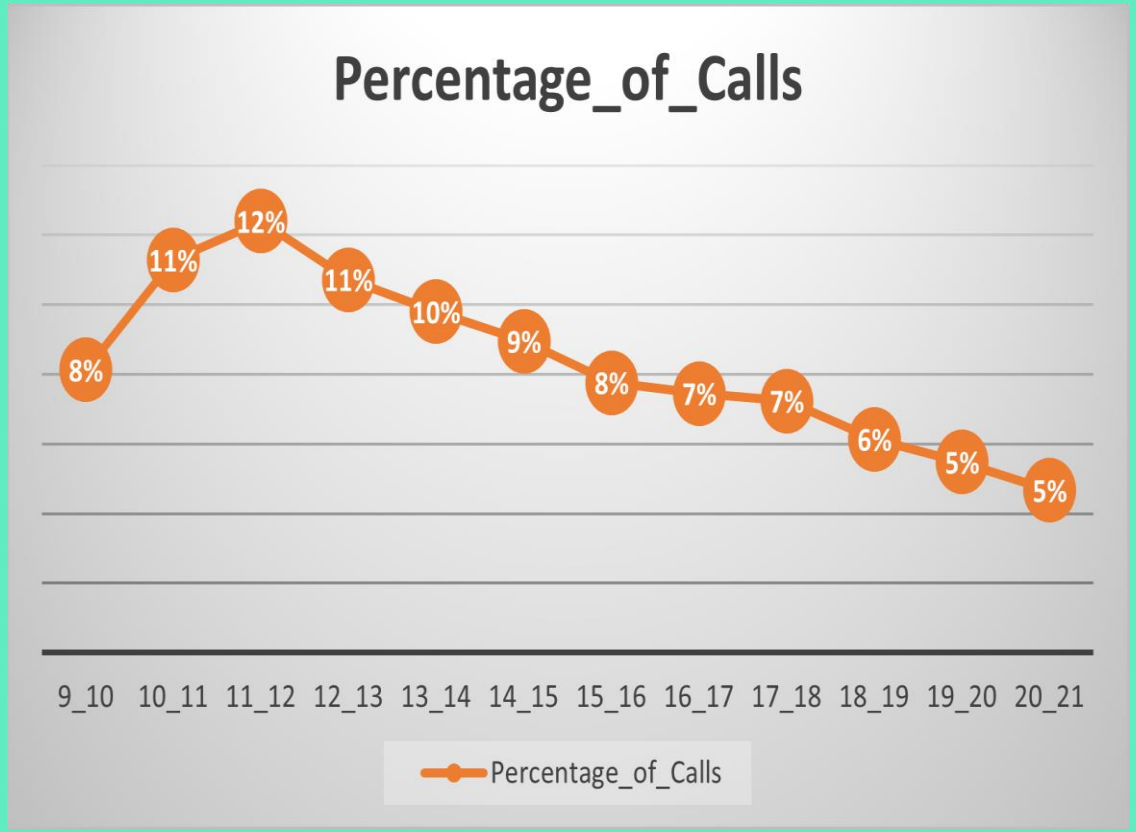
Call Volume Analysis

- To perform Call Volume Analysis first I created a new pivot table using the raw data.
- Then, I added Time_Bucket to the rows.
- For columns I used Values of Time and Customer_Phone_No.
- And in the values area, I have added Time and Customer_Phone_No. And calculated the Count of those variables.
- Then finally I got how many calls I made for each time_bucket and what percentage it represents.
- This duration is calculated for each time bucket.
- Lastly, I have represented the result in the form of Bar Chart.



- Highest number of calls (i.e., 14626) are received between 11 am – 12 p.m.

Line Graph of Percentage of Calls



- Thus, we have calculated the percentage of calls received in each time bucket.
- Here, we can easily see the highest percentage(12%) of calls received between 11am – 12 p.m.

C

Manpower Planning

To calculate the minimum number of agents required in each time bucket to ensure that at least 90 out of 100 calls are answered.

Manpower Planning

- First, I have calculated how many hours an agent works on Average daily.
- I got that an agent on average works 4.5 hours daily. And they work for a minimum of 20 days in a month.
- Then, I created a new pivot table by selecting all the raw data.
- Then, I added Time_Bucket to the rows.
- For columns I used Values of Sum_of_Queue_Time and Sum_of_Call_Seconds.
- Then I calculated the Total_Average_Call_Time by taking addition of Sum_of_Queue_Time and Sum_of_Call_Seconds.
- Then I calculated the Agents_Required to Answer 90% of the call using the following formula.
- =ROUND(J36*0.9/1800, 0)
- Lastly, to find the total number of working persons required per day. I divided the total working hours into two shifts 9am and 12pm
- Then total number of agents required to answer 90% of the calls is calculated by finding the max agents needed in between each shift.

Number of agents needed in each time bucket.

Time_Bucket	Sum_of_Queue_Time	Sum_of_Call_Seconds	Total_Average_Call_Time	Agents_Required
9_10	794488	882195	72899.26087	36
10_11	1108373	1297006	104581.6957	52
11_12	1057814	1708079	120256.2174	60
12_13	527125	1831061	102529.8261	51
13_14	483286	1728843	96179.52174	48
14_15	460446	1552143	87503.86957	44
15_16	273704	1556085	79556.04348	40
16_17	206853	1594489	78319.21739	39
17_18	202644	1533769	75496.21739	38
18_19	246724	1261762	65586.34783	33
19_20	379340	934437	57120.73913	29
20_21	414407	583250	43376.3913	22

Result

Average Time Taken to Answer a Call	198.6
Time Requirement to Answer 90% of the call (in hour)	254.7001826
Current Manpower or no of agents	65
How many seconds agent Attend calls each hour	1800
Agents Needed in 9am - 6pm shift	60
Agents Needed in 12pm - 9pm Shift	51
Total manpower needed for answering 90% of calls	111
New agents needed	46

- Thus, we have calculated the total manpower needed for answering 90% of calls. i.e., 111
- Here, I have calculated the current manpower using the unique function of excel. i.e., 65
- Thus, we need to add 46 new agents to answer 90% of the calls.

D
Night Shift Man power Planning

Creating a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.

Night Shift Manpower Planning

- This is the extended question to the previous question.
- Thus, I duplicated the previous sheet and calculated the Night Shift manpower planning.
- Then, as we know about 30% of calls are Call Volume at Night(9 PM – 9 AM).
- I calculated it by taking 30% of total calls daily.
- Then I calculated the Additional Hours Required using the following formula.
- =B69*198.6*0.9/3600
- Lastly, to find the total number of working persons required for the Night Shift. I divided the additional hours required to answer the calls by the total hours of calls attended by the agents.
- Then by using the total calls distribution table given in the question by time_buckets. I calculated the Total_Additional_hours using the following formula.
- =B70*B81/30
- And Lastly calculated the Required_Agents using =D81/0.6 as each agent can be active on call only for 60% of time.

Distribution of Required_Agents across each Time_Bucket

Time_Bucket	Sum_of_Queue_Time	Sum_of_Call_Seconds	Total_Call_Time	Agents_Required
9_10	794488	882195	72899.26087	36
10_11	1108373	1297006	104581.6957	52
11_12	1057814	1708079	120256.2174	60
12_13	527125	1831061	102529.8261	51
13_14	483286	1728843	96179.52174	48
14_15	460446	1552143	87503.86957	44
15_16	273704	1556085	79556.04348	40
16_17	206853	1594489	78319.21739	39
17_18	202644	1533769	75496.21739	38
18_19	246724	1261762	65586.34783	33
19_20	379340	934437	57120.73913	29
20_21	414407	583250	43376.3913	22
21_22	N/A	N/A	29743.01624	15
22_23	N/A	N/A	29743.01624	15
23_24	N/A	N/A	19828.6775	10
00_01	N/A	N/A	19828.6775	10
01_02	N/A	N/A	9914.338748	5
2_3	N/A	N/A	9914.338748	5
3_4	N/A	N/A	9914.338748	5
4_5	N/A	N/A	9914.338748	5
5_6	N/A	N/A	29743.01624	15
6_7	N/A	N/A	39657.35499	20
7_8	N/A	N/A	39657.35499	20
8_9	N/A	N/A	49571.69374	25

Result

Average Time Taken to Answer a Call	198.6
Current Manpower or no of agents	65
Total Queue Time	6155204
Total Time agents needed to answer the calls	991433.8748
How many seconds agent Attend calls each hour	1800
Agents Needed in 6am - 3pm shift	60
Agents Needed in 3pm - 12am Shift	40
Agents Needed in 12am - 6am	15
Total manpower needed for answering 90% of calls	115
New agents needed	50

- Here I have performed Night Shift Manpower Planning.
- Thus, I have calculated the total manpower needed for answering 90% of calls. for all 24 hours. i.e., 115
- Here, I have calculated the current manpower using the unique function of excel. i.e., 65
- Thus, we need to add 50 new agents to answer 90% of the calls.

Conclusion

- Thus, I have completed a Call Volume Trend Analysis.
- Given key findings and all meaningful trends or patterns I have discovered.
- I have learned to use Excel formulas and Pivot tables to analyze the dataset.
- GitHub Repository and drive links are given as follows.

GitHub Repository:- https://github.com/ShindeYash/ABC_Call_Volume_Trend.git

Excel Worksheet:- https://docs.google.com/spreadsheets/d/1hWG8c6Sn37MUcVyXZuUwGw8Fmu5qy9PS/edit?usp=sharing&ouid=104957742252162470359&rtpof=true&sd=true

Drive Link:- https://drive.google.com/drive/folders/1JyZV5MwtrUY1I9D_W0g3Z9wZqXSnaz4G?usp=sharing

Video Presentation:- https://www.loom.com/share/4eaf16e829744f149b0a6bcca5ee9f47?sid=4e1f71fa-4cab-4cc9-8576-3501fcc95af4

Thanks!

Do you have any questions?

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