CALL VLOUME TREND ANALYSIS

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PROJECT DESCRIPTION

A customer experience (CX) team consists of professionals who analyze 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.

Inbound customer support is defined as the call center which is responsible for handling inbound calls of customers. Inbound calls are the incoming voice calls of the existing customers or prospective customers for your business which are attended by customer care representatives. Inbound customer service is the methodology of attracting, engaging, and delighting your customers to turn them into your business' loyal advocates. By solving your customers' problems and helping them achieve success using your product or service, you can delight your customers and turn them into a growth engine for your business.

Case Study Objectives:

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

- 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

- 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 must calculate minimum number of agents required in each time bucket so that at least 90 calls should be answered out of 100.)

TECH STACK USED

Microsoft®Excel®2016

Purpose – All the analysis has been performed in excel. This tool is also used to create graphical representation of the results and to understand the result set better.

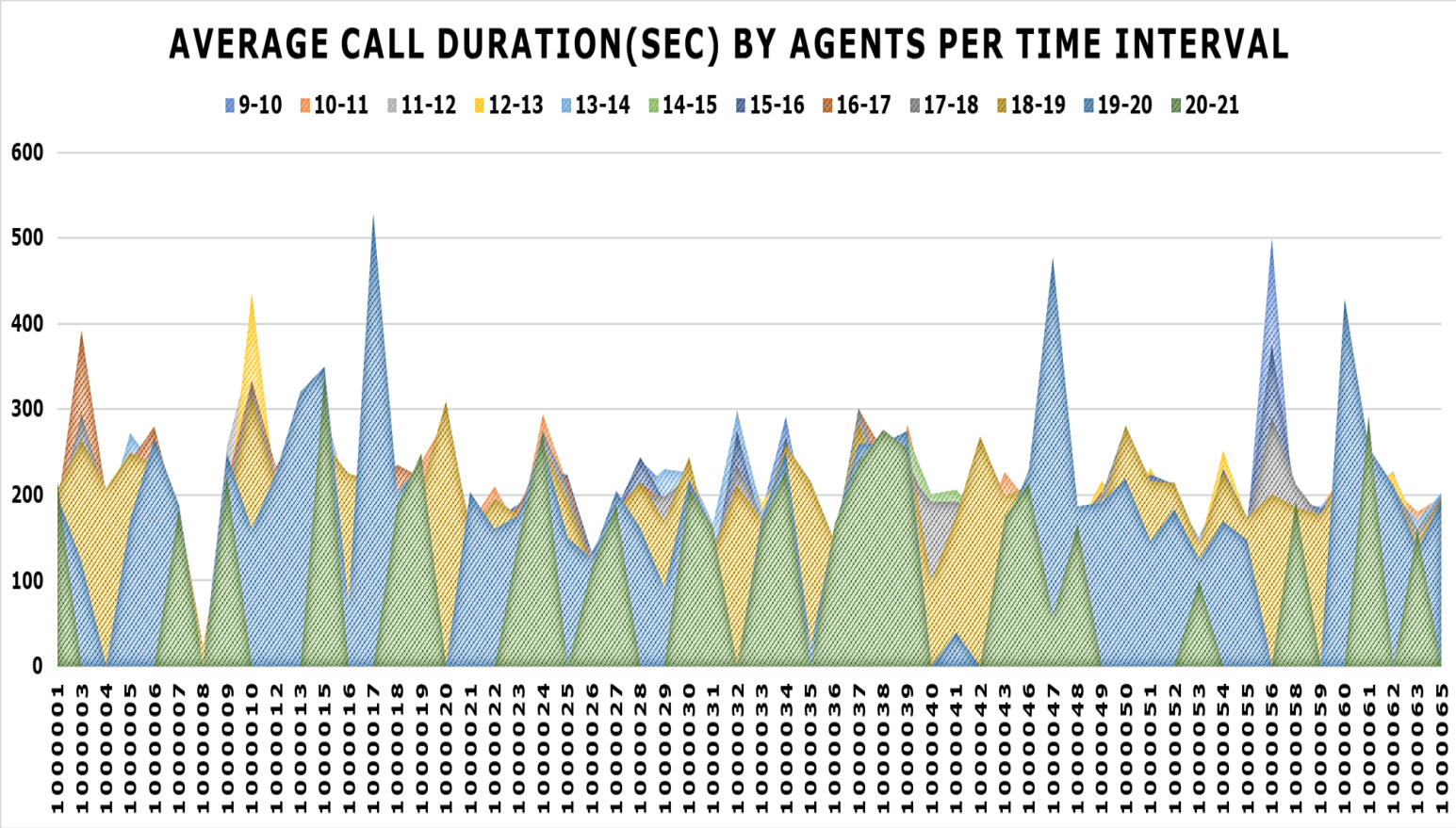
SQL Server Management Studio

Purpose – This tool is used to create the data base and store records. It is also used to carry out the required analysis by writing SQL queries.

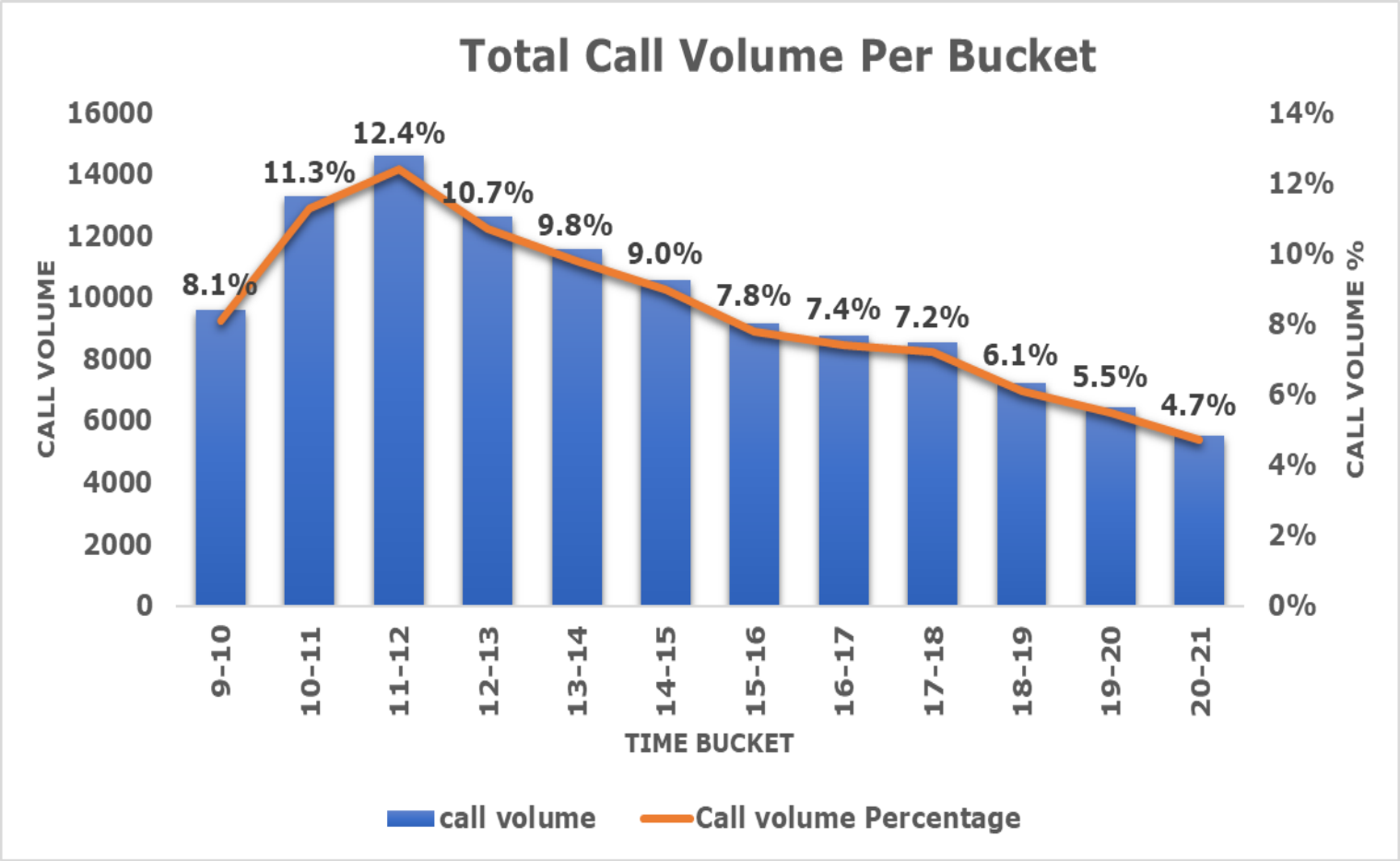
APPROACH

- My approach to this project involved understanding the data set.
- I have also gained the domain knowledge on how call centres leverage data to improve customer experience.
- After understanding the data set, I have checked there are null records on the columns agent name and agent id. Instead of removing those nulls, I have replaced those nulls with Executives 66 on the agent's name column and 1000066 on the agent ids column as removing the nulls will impact the data and in turn analysis as well. The null imputation has been done on the category columns as it will not impact the records of the other columns.
- The case study objectives were answered using both SQL and Excel.

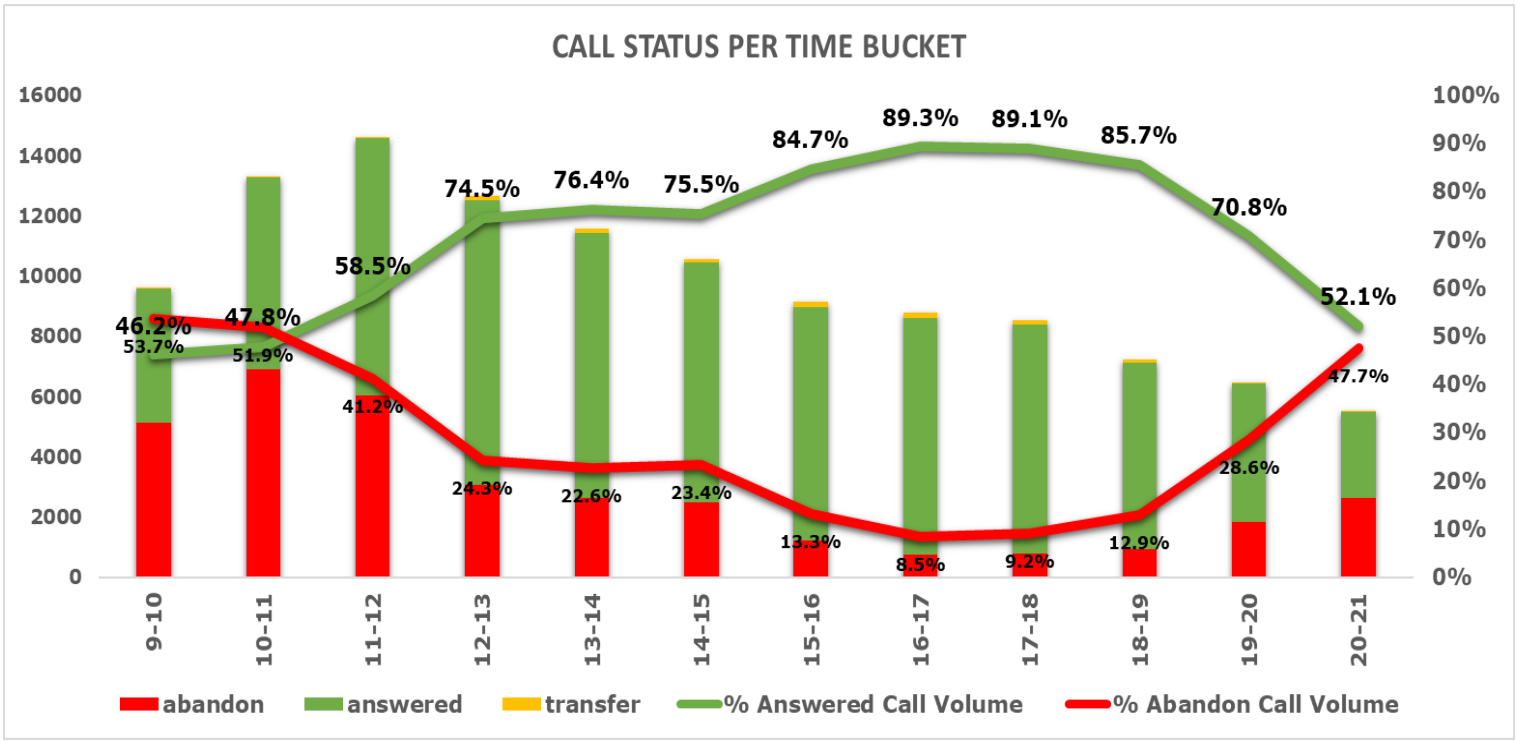
INSIGHTS



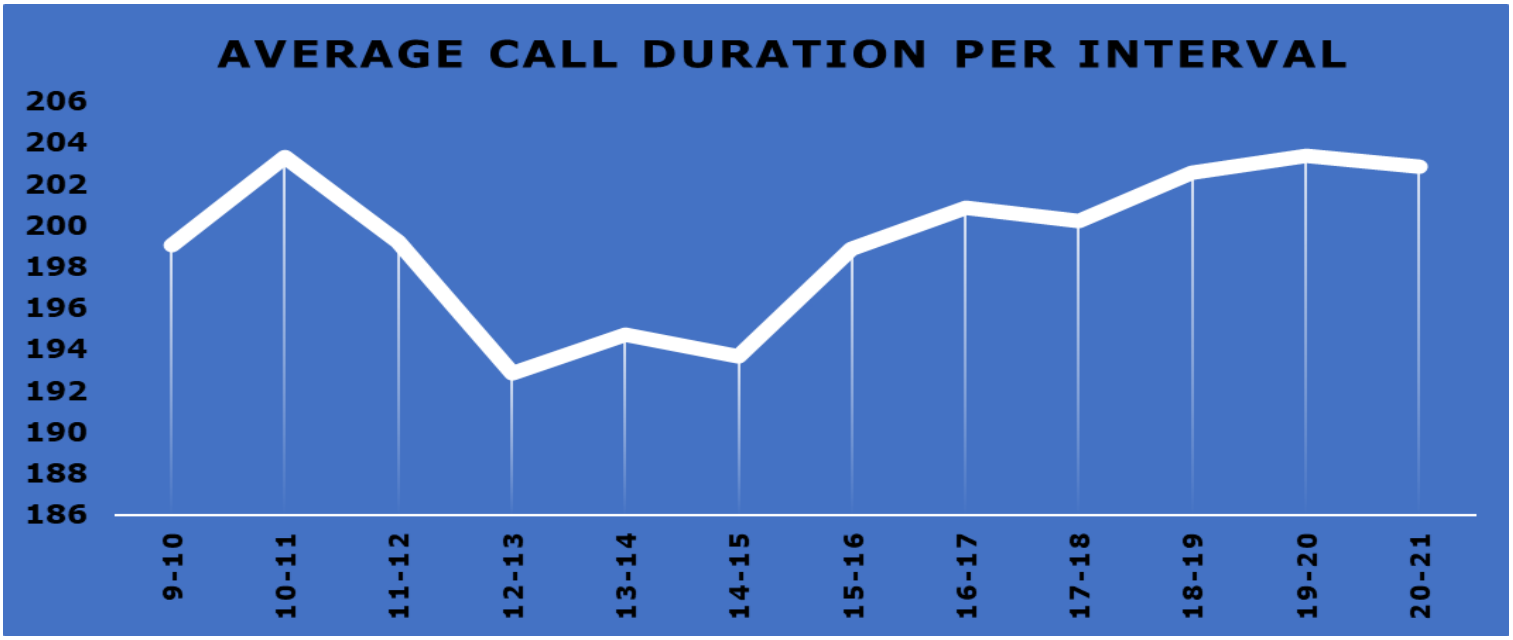
The above graph shows average call duration for each agent for each time bucket. The average call duration has been calculated for 23 days for the month of January 2022.Y axis depicts the average call duration in seconds and the X axis depicts each agent. This analysis showcases that each agent has engaged with the customers for an average duration of 199 seconds ≅ 3.3 minutes between time period 9:00 AM - 9:00 PM. Graph also showcases that the agents engaged with the customers for a longer duration between the time period 10:00 AM – 11:00 AM and 6:00 PM – 7:00 PM, 7:00 PM – 8:00 PM and 8:00 PM – 9:00 PM.



The above graph depicts the total inbound call and the % inbound call volume within each time interval. Data includes 23 days of data for January 2022. The secondary axis shows the volume of call percentage over time intervals. The volume of inbound calls is high during the early hours and at peak during the time period 11:00 AM – 12:00 PM but gradually decreases throughout the 12 hours slot. The graph showcases a vital analysis of which time intervals the call volume is at peaks. This analysis can help improve customer experience in terms of agents' availability at peak intervals. Total call volume includes answered, abandon, and transferred calls.



The above graph depicts the distribution of call volume for each call status. The secondary axis shows the percentage of call volume being answered and abandoned.



The above graph showcases the average call duration for each time period in a 12 Hour slot.

Time Bucket	abandon	answered	transfer	Grand Total	Occupancy	Average Duration (sec)	Total Working Days out of 30 days	Total Working Hours	Time Required to answer 90 % of the call (Hrs)	Total Agent Required Per Time Interval
9-10	5149	4428	11	9588	0.9	199	20	4.5	477	5
10-11	6911	6368	34	13313	0.9	203	20	4.5	677	8
11-12	6028	8560	38	14626	0.9	199	20	4.5	729	8
12-13	3073	9432	147	12652	0.9	193	20	4.5	610	7
13-14	2617	8829	115	11561	0.9	195	20	4.5	563	6
14-15	2475	7974	112	10561	0.9	194	20	4.5	511	6
15-16	1214	7760	185	9159	0.9	199	20	4.5	455	5
16-17	747	7852	189	8788	0.9	201	20	4.5	441	5
17-18	783	7601	150	8534	0.9	200	20	4.5	427	5
18-19	933	6200	105	7238	0.9	203	20	4.5	367	4
19-20	1848	4578	37	6463	0.9	203	20	4.5	329	4
20-21	2625	2870	10	5505	0.9	203	20	4.5	279	3
Grand Total	**34403**	**82452**	**1133**	**117988**	**0.9**	**199**	**20**	**4.5**	**5859**	**65**

The above data table depicts the manpower calculation required for each time interval. The 23 days of data has been taken in to consideration. While calculating man power requirement many factors must be taken in to consideration like work load, occupancy, and shrinkage. The above man power calculation has been done by dividing total time required to answer the call by total working hours multiplied by total working days. As the abandon rate must be considered as 10% which means 90% of the calls must be answered which gives the occupancy of 0.9 or 90%. And shrinkage can be defined as the amount of time the agent is away from taking the calls. Shrinkage includes lunch hours, training hours, coaching hours, and paid leaves. In this scenario the agent is away for the 40% of the total actual working hours. The above calculation has been done as follows:

- First the total calls for each time period have been calculated taking the 23 days data in to consideration.
- Total Working days is calculated as 20 days. As 4 paid leaves are allowed in a month. There are only 6 working days in a week which gives 20 days as total working days out of 30 days.
- Average duration has been calculated by taking the average of call seconds (sec) for each time period.
- Total working hours has been calculated as 4.5 hours. As the total shift hours of an agent is 9 hours out of which 1.5 hours goes in to lunch and snacks. Given the agent is only occupied for 60 % of his/her actual working hours that is 0.65 * 7.5 hours ≅ 4.5 hours.
- Time required to answer 90% of the calls has been calculated as total work load multiplied by average call duration multiplied by occupancy for each time period, where work load is total calls multiplied by average call duration in hours
- Finally, agent required for each time period has been calculated by dividing time required to answer 90% calls by total working hours multiplied by total working days.

CONCLUSION

All the case study objectives were successfully answered. This project helps understand the terminologies and metrics that are required to carry out analysis in a call center. The insights are as follows:

- The average call duration calculated for each time period helps track average handling time.
- The call volume percentage calculated for each call status helps track the total volume of calls.