ABC CALL VOLUME TREND ANALYSIS

PROJECT REPORT

By
Shubhangi Chaudhary

LIST OF CONTENTS

Project Description

In this project, we are provided with a dataset that spans 23 days and includes various details . We all know that a Customer Experience (CX) team plays a crucial role in a company. They analyze customer feedback and data, derive insights from it, and share these insights with the rest of the organization. This team is responsible for a wide range of tasks, including managing customer experience programs, handling internal communications, mapping customer journeys, and managing customer data, among others.

In the current era, several AI-powered tools are being used to enhance customer experience. These include Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, and Intelligent Routing.

One of the key roles in a CX team is that of the customer service representative. In this project, we use our analytical skills to understand the trends in the call volume of the CX team and derive valuable insights from it. The dataset has been provided from Trainity.

Approach

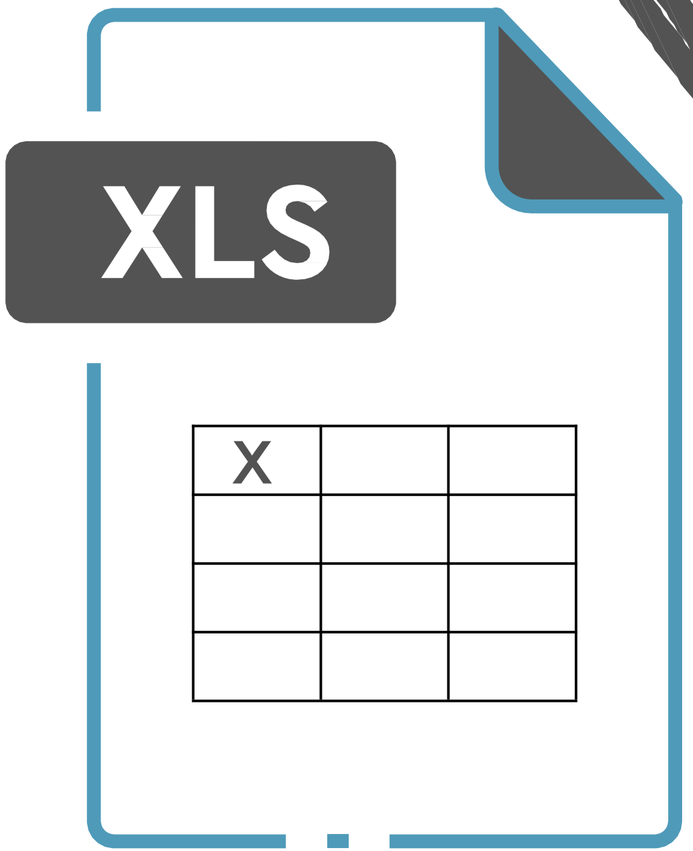
From the provided dataset, we clean it and the analyse the data for trends and patterns to answer the following questions.

1. Average Call Duration: Find the average duration of calls for each time bucket?
2. Call Volume Analysis: Visualize the total number of calls received against time.
3. Manpower Planning: Find the minimum number of agents required in each time bucket to reduce the abandon rate to 10%?
4. Night Shift Manpower Planning: Propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.

We also interpret the data based on apparent trends, to derive relevant conclusions.

Tech Stack

The project required me to work extensively with MS-Excel (2022), allowing me to gain a better understanding related to its various features and how I could seek relevant insights with the same when dealing with a huge quantity of data.

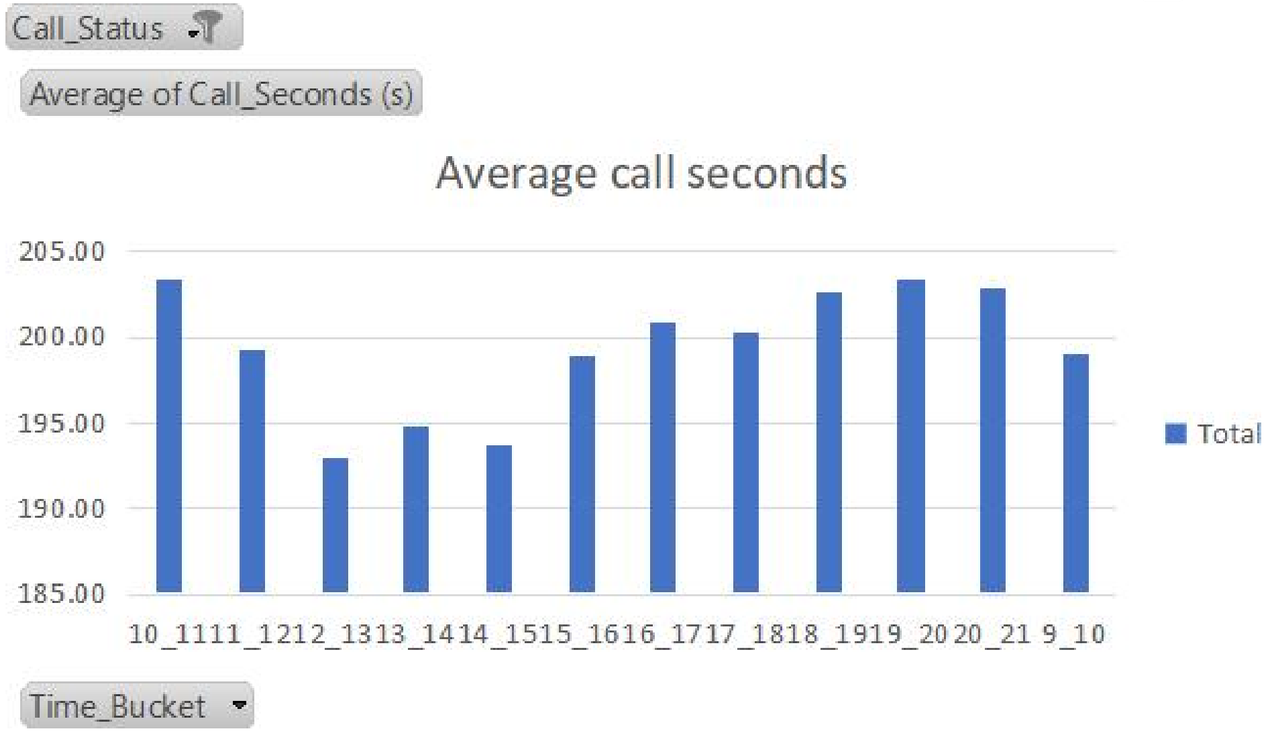


Task 1 Insight

Determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.

We see that the average call seconds is 198.62

Row Labels	Average of Call_Seconds (s)
10_11	203.33
11_12	199.26
12_13	192.89
13_14	194.74
14_15	193.68
15_16	198.89
16_17	200.87
17_18	200.25
18_19	202.55
19_20	203.41
20_21	202.85
9_10	199.07
Grand Total	**198.62**



Task 2 Insight

Visualize the total number of calls received.

The total number of calls received were 117988.

Row Labels	Sum of Call_Seconds (s)	Count of Customer_Phone_No
10_11	1297006.00	13313
11_12	1708079.00	14626
12_13	1831061.00	12652
13_14	1728843.00	11561
14_15	1552143.00	10561
15_16	1556085.00	9159
16_17	1594489.00	8788
17_18	1533769.00	8534
18_19	1261762.00	7238
19_20	934437.00	6463
20_21	583250.00	5505
9_10	882195.00	9588
Grand Total	**16463119.00**	**117988**

Task 3 Insight

What is the minimum number of agents required in each time bucket to reduce the abandon rate to 10%?

The minimum number of agents needed is **55.**

Count of Duration(hh:mm:ss)	Column Labels			
Row Labels	abandon	answered	transfer	Grand Total
1-Jan	684	3883	77	4644
2-Jan	356	2935	60	3351
3-Jan	599	4079	111	4789
4-Jan	595	4404	114	5113
5-Jan	536	4140	114	4790
6-Jan	991	3875	85	4951
7-Jan	1319	3587	42	4948
8-Jan	1103	3519	50	4672
9-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
average call status number	1495.782609	3584.87	49.261	5129.913
percentage of call status	29	70	1	
avg call duration inseconds	198			
working hour of an agent	4.5			
time needed for 90% calls	254			
agents needed	56			

Count of Call_Seconds (s)	Column Labels				percentage of calls				
Row Labels	abandon	answered	transfer	Grand Total	abandon	answered	transfer	Grand Total	agent needed
10_11	6911	6368	34	13313	0.06	0.05	0.00	0.11	6
11_12	6028	8560	38	14626	0.05	0.07	0.00	0.12	7
12_13	3073	9432	147	12652	0.03	0.08	0.00	0.11	6
13_14	2617	8829	115	11561	0.02	0.07	0.00	0.10	5
14_15	2475	7974	112	10561	0.02	0.07	0.00	0.09	5
15_16	1214	7760	185	9159	0.01	0.07	0.00	0.08	4
16_17	747	7852	189	8788	0.01	0.07	0.00	0.07	4
17_18	783	7601	150	8534	0.01	0.06	0.00	0.07	4
18_19	933	6200	105	7238	0.01	0.05	0.00	0.06	3
19_20	1848	4578	37	6463	0.02	0.04	0.00	0.05	3
20_21	2625	2870	10	5505	0.02	0.02	0.00	0.05	3
9_10	5149	4428	11	9588	0.04	0.04	0.00	0.08	5
Grand Total	34403	82452	1133	117988					55.00

Task 4 Insight

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

With a need for 19 people the following distribution was suggested.

time	call distribution	time distribution	agents needed
9_10	3	10	2
10_11	3	10	2
11_12	2	15	1
12_1	2	15	1
1_2	1	30	1
2_3	1	30	1
3_4	1	30	1
4_5	1	30	1
5_6	3	10	2
6_7	4	7.5	2
7_8	4	7.5	2
8_9	5	6	3
total	**30**		**19**

Count of Duration(hh:mm: Column bels				
Row Labels	abandon	answered	transfer	Grand Total
1-Jan	684	3883	77	4644
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22-Jan	239	3045	7	3291
23-Jan	381	2832	12	3225
Grand Total	**34403**	**82452**	**1133**	**117988**
average call status number	1495.7826	3584.8696	49.26087	5130
percentage of call status	29	70	1	
avg call second	198.6			
number of calls at night=	1539			
more hours needed	76			
agents needed	17			

Result

Through the project we gained a better idea of what the Customer Experience (CX) team has to keep track of and the various factors that might impact the overall consumer experience and how it can be improved besides many other factors.

Link to Excel sheet

Link to video

THANK YOU