ABC Call Volume Trend Analysis

Project Description: In this CX analytics project spanning 23 days, our focus is on the inbound calling team's performance. With a dataset detailing agent interactions, queue times, call durations, and statuses, we aim to enhance customer experience. By understanding call trends, we seek valuable insights to refine advertising strategies, ultimately attracting, engaging, and delighting customers for increased business success.

Approach:

1) Pre-Processing the Data
   The null values in “Wrapped_By” are treated by filling the empty cells with “No Agent” as they are abandoned calls.

Call_Status	Wrapped_By	Ringing	IVI
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
abandon		YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
answered	Agent	YES	
0	47877	0	

	K	L	M
	Call_Status	Wrapped _By	Ringin
	answered	Agent	YES
	abandon	No Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	answered	Agent	YES
	0	0	

2) Average Call Duration:

To calculate the average call duration, a Pivot Table is used. To create the Pivot Table, the “Time-Bucket” column goes into rows and the “Call-Seconds” column goes into values and sets it to calculate average values in Value Field Settings.

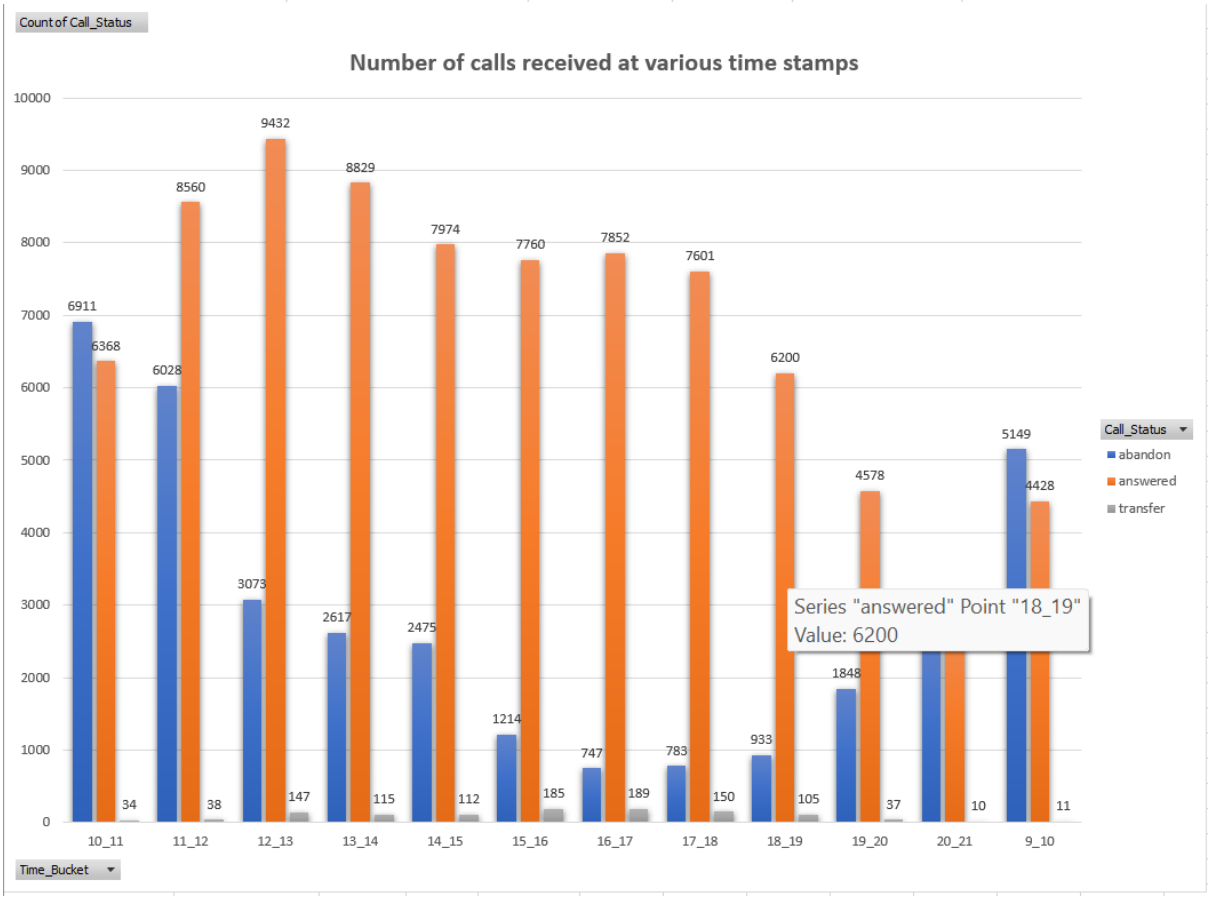
OUTPUT:

Time Stamp	Average of Call_Seconds (s)
10_11	97.42402163
11_12	116.7837413
12_13	144.7250237
13_14	149.5409567
14_15	146.9693211
15_16	169.8968228
16_17	181.4393491
17_18	179.7245137
18_19	174.3246753
19_20	144.5825468
20_21	105.9491371
9_10	92.01032541
Grand Total	**139.5321473**

3) Call Volume Analysis:

To analyze the call volume, a Pivot Table is created to group required columns together and a bar chart is created for visualization purpose.

Count of Call_Status	Column Labels			
Row Labels	abandon	answered	transfer	Grand Total
10_11	6911	6368	34	13313
11_12	6028	8560	38	14626
12_13	3073	9432	147	12652
13_14	2617	8829	115	11561
14_15	2475	7974	112	10561
15_16	1214	7760	185	9159
16_17	747	7852	189	8788
17_18	783	7601	150	8534
18_19	933	6200	105	7238
19_20	1848	4578	37	6463
20_21	2625	2870	10	5505
9_10	5149	4428	11	9588
Grand Total	**34403**	**82452**	**1133**	**117988**



4) ManPower Planning to reduce the abandonment rate to 10%
To calculate the number of agents required in each time bucket, values such as “Total-handling time” and “Average time an agent spends on calls” are used.

QUERY:

Minimum agents required

```
=CEILING(G3/($B$22*(1-0.13)*(1-0.1)),1)
```

Here, G3: Total handling time
B22: Average time an agent spends on calls

Total HandlingTime

```
=GETPIVOTDATA("Call_Seconds (s)",$A$1,"Time_Bucket","10_11","Call_Status","answered")*B20
```

Here, B20: Average Call Duration

OUTPUT:

Count of Call_Seconds (s)	Column Labels						
Row Labels	**abandon**	**answered**	**transfer**	**Grand Total**	Abandon Rate	Total Handling Time	Minimum Agents Required
10_11	6911	6368	34	13313	0.520445817	888527.04	5
11_12	6028	8560	38	14626	0.413216342	1194376.8	7
12_13	3073	9432	147	12652	0.245741703	1316046.96	7
13_14	2617	8829	115	11561	0.228638826	1231910.37	7
14_15	2475	7974	112	10561	0.236864772	1112612.22	6
15_16	1214	7760	185	9159	0.135279697	1082752.8	6
16_17	747	7852	189	8788	0.086870566	1095589.56	6
17_18	783	7601	150	8534	0.093392176	1060567.53	6
18_19	933	6200	105	7238	0.130800505	865086	5
19_20	1848	4578	37	6463	0.287581699	638768.34	4
20_21	2625	2870	10	5505	0.477707006	400451.1	3
9_10	5149	4428	11	9588	0.537642268	617838.84	4
Grand Total	**34403**	**82452**	**1133**	**117988**	0.294407599	11504527.56	59

Average Call Duration	139.53
Total Agents	65
Average time an agent is spending on calls	253278.7538

5) NightShift Manpower Planning
To calculate the agents required for each time bucket at night, the number of calls received was identified, and in the same manner, the manpower required was calculated.

OUTPUT:

Row Labels	Count of Ringing			
10_11	13313		Average time an agent is spending on calls	
11_12	14626		253278.7538	
12_13	12652			
13_14	11561			
14_15	10561			
15_16	9159			
16_17	8788			
17_18	8534			
18_19	7238			
19_20	6463			
20_21	5505			
9_10	9588			
Grand Total	**117988**	Calls to be answered for 10% abandon rate	Total handling time	No. of agents required
21_22	3540	3186	444497.3723	2
22_23	3540	3186	444497.3723	2
23_24	2360	2124	296331.5815	2
24_1	2360	2124	296331.5815	2
1_2	1180	1062	148165.7908	1
2_3	1180	1062	148165.7908	1
3_4	1180	1062	148165.7908	1
4_5	1180	1062	148165.7908	1
5_6	3540	3186	444497.3723	2
6_7	4720	4248	592663.163	3
7_8	4720	4248	592663.163	3
8_9	5899	5309	740828.9538	3
Grand Total	35396	31857		

Assumptions:

Assumptions: An agent works for 6 days a week; On average, each agent takes 4 unplanned leaves per month; An agent's total working hours are 9 hours, out of which 1.5 hours are spent on lunch and snacks in the office. On average, an agent spends 60% of their total actual working hours (i.e., 60% of 7.5 hours) on calls with customers/users. The total number of days in a month is 30.

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

Tech-Stack Used: To create this project, the MS EXCEL (2019) version was used due to its friendly user interface and prior knowledge.

Insights:

1) The average of call seconds turns out to be 139.53 with the highest during 4-5 pm and the lowest between 9-10 am.
2) The maximum number of calls abandoned was from 9-10 am, the maximum number of calls answered was from 12-1 pm and the maximum number of calls transferred was from 4-5 pm.
3) The maximum number of agents required in the daytime is 11-12 am, 12-1 pm, and 1-2 pm.
4) To reduce the abandonment rate from 30% to 10% during daytime, a minimum of 59 agents are required.
5) To keep the abandonment rate at 10% during night-time, a minimum of 23 agents are required with the highest being required during 6-7 am, 7-8 am, and 8-9 am.

Result: This project helped me in upskilling and delving into the domain of Customer Experience(CX) Analytics. Additionally, I have delved into the realm of behavioural analytics, which involves studying customer behavior patterns to identify trends, preferences, and opportunities for enhancing the overall customer experience.

Drive Link:

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