ABC Call Volume Trend Analysis

Description:

For you final project we are providing you with a dataset of a Customer Experience (CX) Inbound calling team for 23 days. Data includes Agent_Name, Agent_ID, Queue_Time [duration for which customer have to wait before they get connected to an agent], Time [time at which call was made by customer in a day], Time_Bucket [for easiness we have also provided you with the time bucket], Duration [duration for which a customer and executives are on call, Call_Seconds [for simplicity we have also converted those time into seconds], call status (Abandon, answered, transferred).

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.

Approach:

Understanding the data is the key and after carefully analyze the give problem statement the analysis was done. Finally creating charts and graphs for visual understanding.

Tech-Stack Used:

Microsoft Excel

Insights:

After completing this project I got to understand how to use different formulae for analysis of the data and advanced excel.

Result:

A. Calculate the average call time duration for all incoming calls received by agents (in each Time_Bucket).

Row Labels	Average of Call_Seconds (s)	Average of Queue_Time(Secs)
10_11	97.42402163	83.25493878
11_12	116.7837413	72.32421715
12_13	144.7250237	41.66337338
13_14	149.5409567	41.80313122
14_15	146.9693211	43.59871224
15_16	169.8968228	29.88361175
16_17	181.4393491	23.53812016
17_18	179.7245137	23.74548863
18_19	174.3246753	34.08731694
19_20	144.5825468	58.6941049
20_21	105.9491371	75.27829246
9_10	92.01032541	82.8627451
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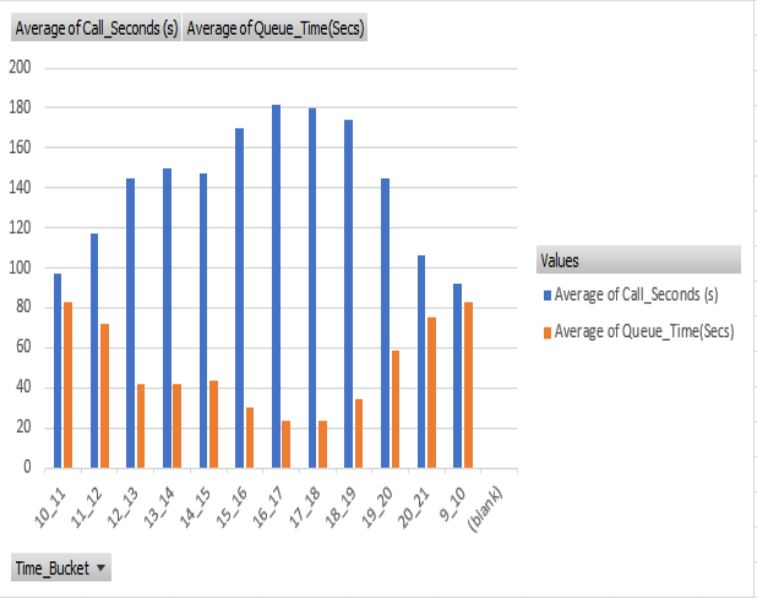
Grand Total	**139.5321473**	**52.16805099**



B. 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, …..)

Row Labels	Count of Customer_Phone_No	Count of Time
10_11	13313	11.28%
11_12	14626	12.40%
12_13	12652	10.72%
13_14	11561	9.80%
14_15	10561	8.95%
15_16	9159	7.76%
16_17	8788	7.45%
17_18	8534	7.23%
18_19	7238	6.13%
19_20	6463	5.48%
20_21	5505	4.67%
9_10	9588	8.13%
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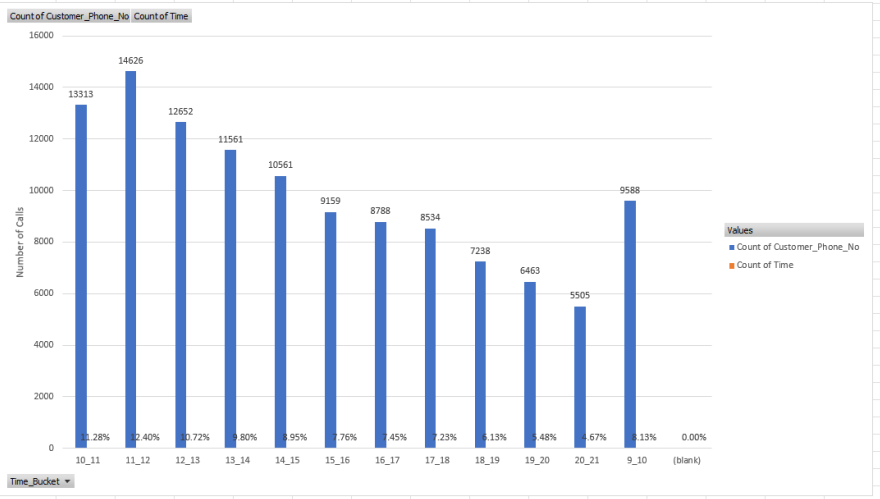
Grand Total	**117988**	**100.00%**



C. 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

Time_Bucket	abandon	answered	transfer	Grand Total
09_10	5149	4428	11	9588
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
Grand Total	**34403**	**82452**	**1133**	**117988**

Time_Bucket	9 Shift	10 Shift	12 Shift	Agents Req	Agents Req Calculated
09_10	50	0	0	50	44.88
10_11	50	20	0	70	64.04
11_12	50	20	0	70	73.96
12_13	25	10	40	75	62.65
13_14	0	20	40	60	58.47
14_15	50	0	20	70	53.57
15_16	25	20	40	85	48.84
16_17	50	20	0	70	47.6
17_18	50	10	20	80	46.01
18_19	0	20	30	50	39.48
19_20	0	0	40	40	34.78
20_21	0	0	30	30	26.58

Time_Bucket	COUNTof Agent_ID
09_10	42
10_11	51
11_12	59
12_13	60
13_14	58
14_15	60
15_16	58
16_17	58
17_18	58
18_19	59
19_20	52
20_21	27
Grand Total	**66**

Agents Required is calculated by using the formula.

Agents Req Calculated = 1.1 * calls Each Day * 2 * (avg call duration + avg queue time)

where 1.1 and 2 are tolerance of no of calls and waiting time respectively.

So, the total manpower required = 9 AM shift + 10 AM Shift + 12 PM Shift = 50 + 20 + 40 = 110

New Manpower to be added = req manpower - available employees = 110 – 66 = 44

It is advised to add 44 new employees to reduce the abandon rate from 30 % to 10 %

D. 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:

Now propose a manpower plan required during each time bucket in a day. Maximum Abandon rate assumption would be same 10%.

Assumption: An agent work for 6 days a week; On an average total unplanned leaves per agentis 4 days a month; An agent total working hrs is 9 Hrs out of which 1.5 Hrs goes into lunch andsnacks in the office. On average an agent occupied for 60% of his total actual working Hrs (i.e.,60% of 7.5 Hrs) on call with customers/ users. Total days in a month is 30 days.

	Values	Formulas
Daily call volume from (9AM-9PM)	5129.9	Average of the total numb of calls per day
Total calls from (9PM-9AM)	1539.0	Average of the total numb of calls per night
Total night time required	76.4	$\text{night time to answer 90\% of calls(hours)} = \frac{\text{numb of calls at night} * \text{average call duration} * 0.9}{3600} =$
Additional man power needed	17	$\text{Additional man power} = \frac{\text{total night time}}{\text{hours for a agent works}}$
Total man power needed	74	Total man power = agents on day time + agents on night time

Total agents needed to answer night calls is 17.