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Project- ABC Call Volume Trend Analysis

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.

In a Customer Experience team there is a huge employment opportunities for Customer service representatives A.k.a. call centre agents, customer service agents. Some of the roles for them include: Email support, Inbound support, Outbound support, social media support.

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.

Approach :

Firstly we will go through the data and check the missing data or null one. After that we will remove the outliers if its present or not and using charts we will show our results.
This dataset does not require Cleaning

Tech-Stack Used :

This time I am going to use WPS office for analyzing the given dataset and create the chart based on them

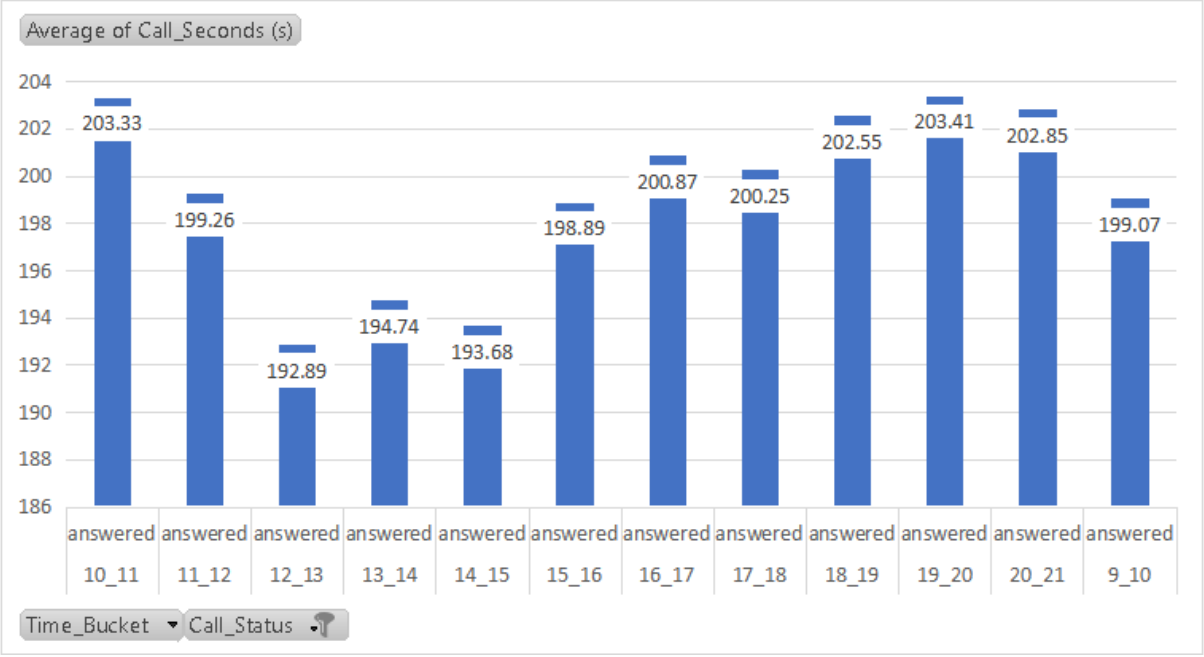
Data includes Agent_Name, Agent_ID, Queue_Time [duration for which customer have to wait before they get connected to an agent], Time [time at which call was made by customer in a day], Time_Bucket [for easiness we have also provided you with the time bucket], Duration [duration for which a customer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

Insights:

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

Result:

Time_Bucket	Call_Status	Average of Call_Seconds (s)
10_11		**203.3310302**
	answered	203.3310302
11_12		**199.2550234**
	answered	199.2550234
12_13		**192.8887829**
	answered	192.8887829
13_14		**194.7401744**
	answered	194.7401744
14_15		**193.6770755**
	answered	193.6770755
15_16		**198.8889175**
	answered	198.8889175
16_17		**200.8681864**
	answered	200.8681864
17_18		**200.2487831**
	answered	200.2487831
18_19		**202.5509677**
	answered	202.5509677
19_20		**203.4060725**
	answered	203.4060725
20_21		**202.845993**
	answered	202.845993
9_10		**199.0691057**
	answered	199.0691057
Grand Total		**198.6227745**

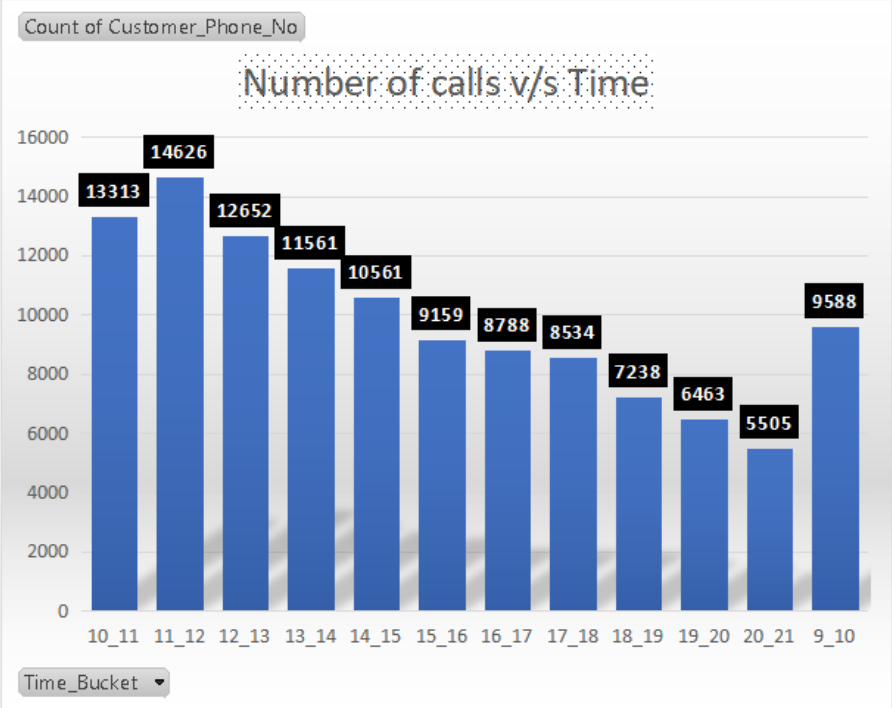


Insights:

- 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, ...)

Result:

Time_Bucket	Count of Customer_Phone_No
10_11	13313
11_12	14626
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**



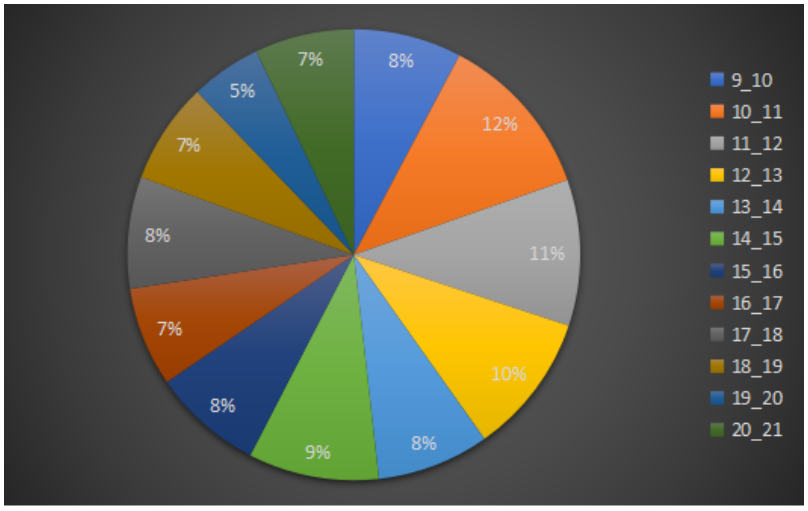
Insights:

- 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.)

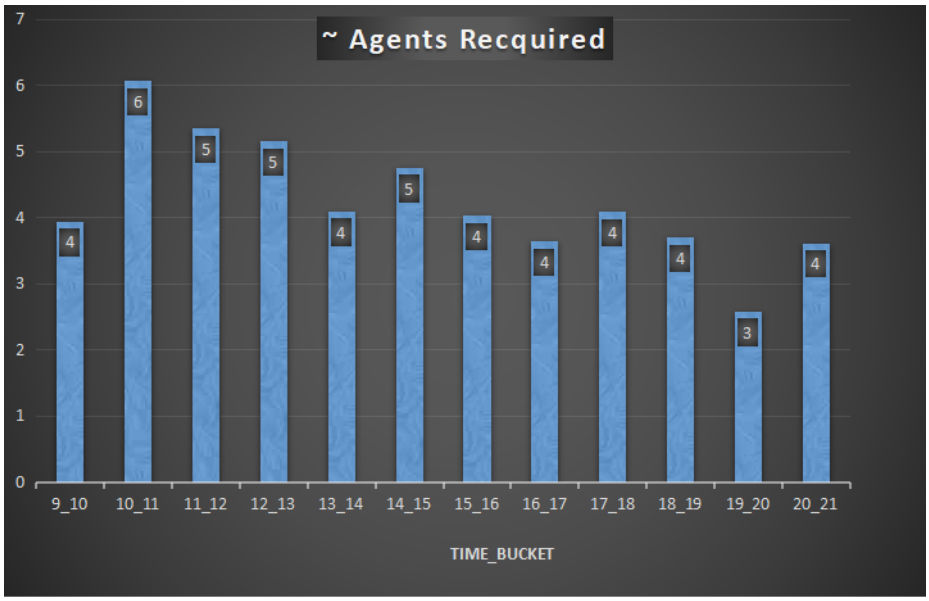
Result:

MONTH ((6*4)-4)	**20 DAYS**
WORKING Hrs	**9**
BREAK Hrs	**1.5**
ACTUAL WORKS Hrs (7.5 X 0.6)	**4.5**
Average calls per day.	**4644**
Time requirement to answer Hrs	**230.598**
90% calls	
TOTAL AGENTS	51.24396
TOTAL AGENTS ~	**51**

Call_Status	Count of Customer_Phone_I	Average of Call_Seconds (s)	Count of Customer_Phone_No2
abandon	34403	0	29.16%
answered	82452	198.6227745	69.88%
transfer	1133	76.14651368	0.96%
Grand Total	**117988**	**139.5321473**	**100.00%**



Time_Bucket	Count	Average Call	~ Agents Recquired
9_10	359	0.077304048	4
10_11	552	0.118863049	6
11_12	487	0.104866494	5
12_13	469	0.100990525	5
13_14	373	0.080318691	4
14_15	433	0.093238587	5
15_16	367	0.079026701	4
16_17	331	0.071274763	4
17_18	372	0.080103359	4
18_19	337	0.072566753	4
19_20	235	0.050602929	3
20_21	329	0.0708441	4
	4644		51



Insights:

- 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:

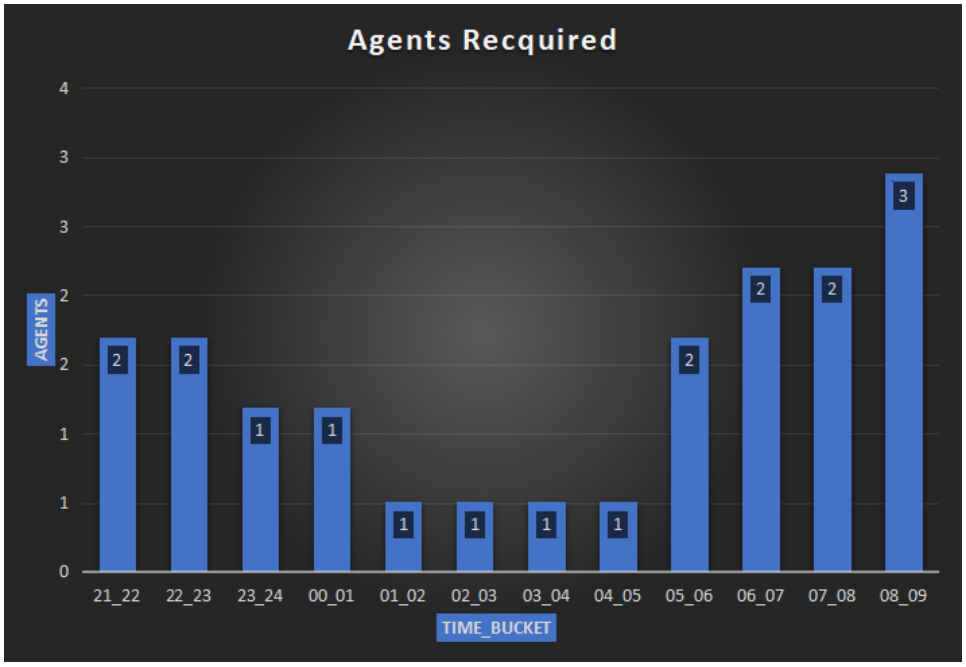
Distribution of 30 calls coming in night for every 100 calls coming in between 9am - 9pm (i.e. 12 hrs slot)											
9pm- 10pm	10pm - 11pm	11pm- 12am	12am- 1am	1am - 2am	2am - 3am	3am - 4am	4am - 5am	5am - 6am	6am - 7am	7am - 8am	8am - 9am
3	3	2	2	1	1	1	1	3	4	4	5

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

Result:

Avg Call Volume per day	5130
Avg Call Volume	1539
Total Call duration	76
Agents Required	17

Time_Bucket	Calls	Time Distribution	Agents Recquired
21_22	3	0.1	2
22_23	3	0.1	2
23_24	2	0.07	1
00_01	2	0.07	1
01_02	1	0.03	1
02_03	1	0.03	1
03_04	1	0.03	1
04_05	1	0.03	1
05_06	3	0.1	2
06_07	4	0.13	2
07_08	4	0.13	2
08_09	5	0.17	3
Total	30		17



Call_Volume_Trend_Analysis_Project.xlsx

Thank you