ABC Call Volume Trend Analysis

Here we have dataset of customer experience bound calling team which 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).

Inbound customer support is defined as the call centre 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.

Approach : To begin with I imported the given dataset into Microsoft Excel using necessary commands. Firstly I saw the dataset and then I saw the task to done for given dataset and based on the task I did mind mapping like which columns and Excel functions to use for required task and later the same was used in Excel.

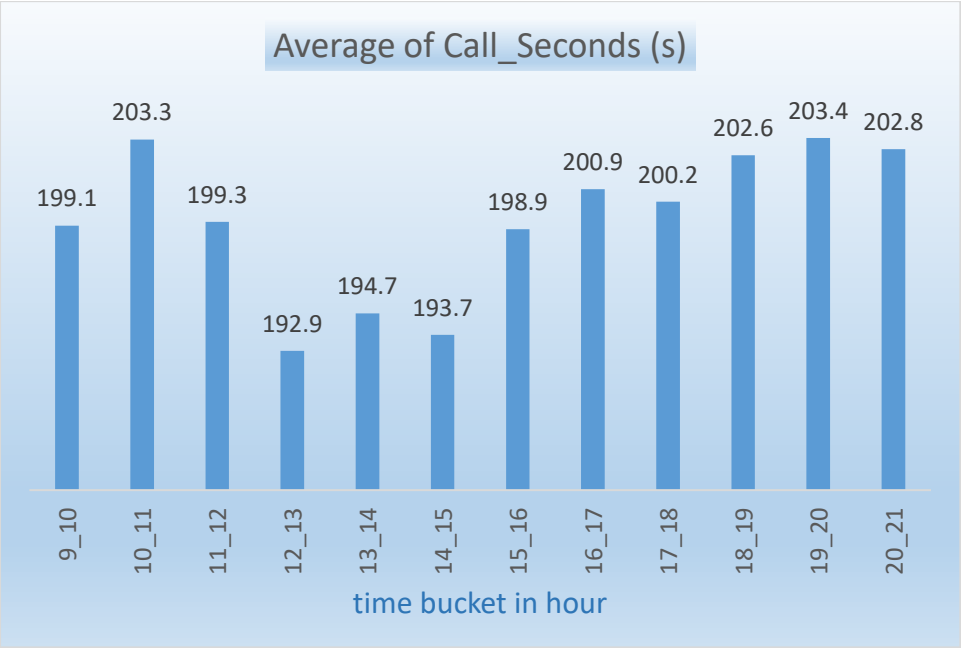
Tech Stack Used : Microsoft Excel

Analysis

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

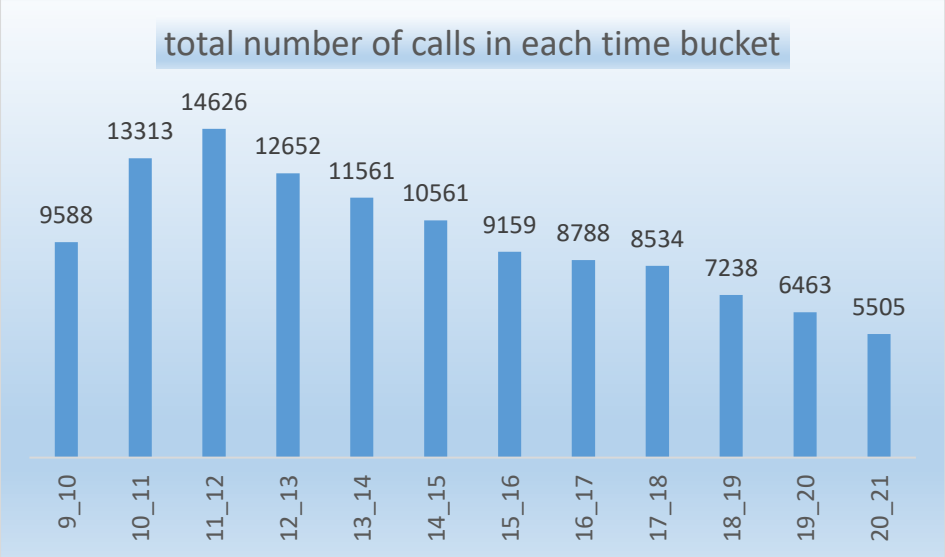
time bucket	Average of Call_Seconds (s)
9_10	199.1
10_11	203.3
11_12	199.3
12_13	192.9
13_14	194.7
14_15	193.7
15_16	198.9
16_17	200.9
17_18	200.2

18_19	202.6
19_20	203.4
20_21	202.8
Grand Total	**198.6**



We can clearly see from above chart average customer interaction duration in seconds is more in the time bucket 19_20 i.e 7pm-8pm and 10am -11am and less in time bucket 12_13 i.e 12pm-1pm.

2. 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, …..)



We can clearly see from above chart more traffic of calls i.e more number of calls received in the time bucket 11am-12pm .

The frequency of calls is less in time bucket 20_21 i.e 8pm-9pm.

3. 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.)

call status	Count of Call_Status	percentage
abandon	34403	29.16%
answered	82452	69.88%
transfer	1133	0.96%
Grand Total	**117988**	**100.00%**

Count of Call_Status	Column Labels			
Dates	**abandon**	**answered**	**transfer**	**Grand Total**
01-Jan	684	3883	77	4644
02-Jan	356	2935	60	3351
03-Jan	599	4079	111	4789
04-Jan	595	4404	114	5113
05-Jan	536	4140	114	4790
06-Jan	991	3875	85	4951
07-Jan	1319	3587	42	4948
08-Jan	1103	3519	50	4672
09-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	**1496**	**3585**	**49**	**5130**

Average total number of calls in day from above table =5130

Average call duration per customer in seconds =198.6

We want 90% answered rate so multiply by =0.9

This is in seconds to get in hours divide by =3600

Total duration calls in hours per day =(5130*198.6*0.9/3600)

=254.70 hours

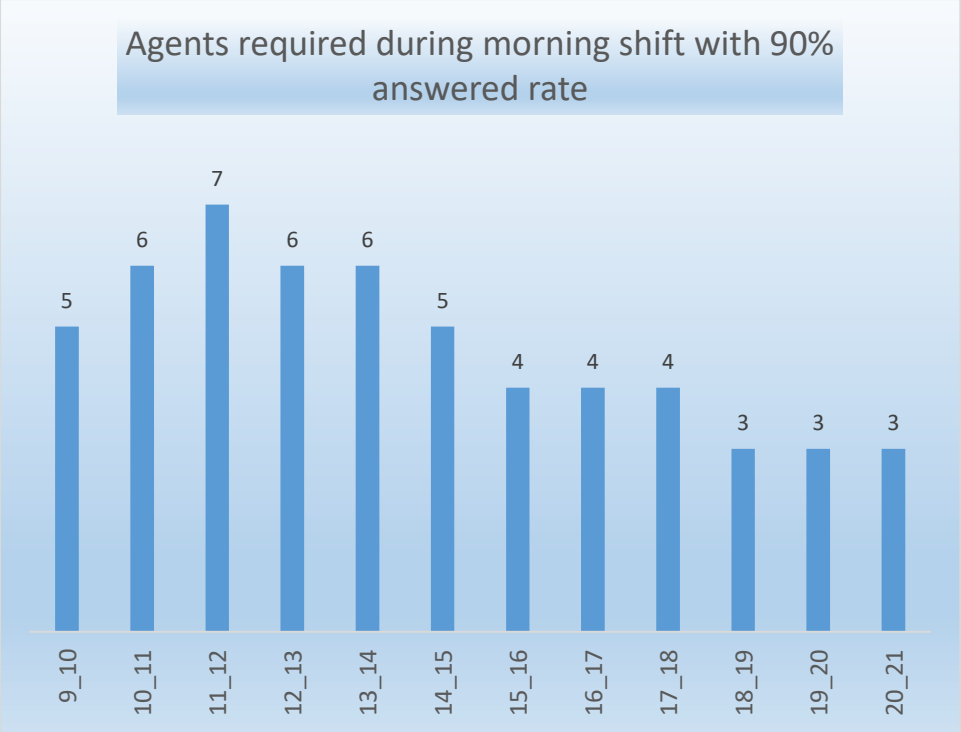
We know that as given in project description only 60% 7.5 hours is utilized for working so we get 0.6*7.5 =4.5 hours

Therefore total agents required in a day for 90% answered rate inbound calling is

=round(254.70/4.5)=57

So we require 57 agents in morning shift to get 90% answered rate in receiving the call.

time bucket	count of phone_num	percentage	agents required
10_11	13313	11.28%	6
11_12	14626	12.40%	7
12_13	12652	10.72%	6
13_14	11561	9.80%	6
14_15	10561	8.95%	5
15_16	9159	7.76%	4
16_17	8788	7.45%	4
17_18	8534	7.23%	4
18_19	7238	6.13%	3
19_20	6463	5.48%	3
20_21	5505	4.67%	3
9_10	9588	8.13%	5
Grand Total	**117988**	**100.00%**	**57**



The above table and chart shows the total number of agents required in each time bucket. It is evident from chart that 11am -12pm requires 7 agents which is highest and 6pm -9pm i.e all the 3 slots requires 3 agents which is lowest.

4. 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%.

Count of Call_Status	Column Labels			
Dates	**abandon**	**answered**	**transfer**	**Grand Total**
01-Jan	684	3883	77	4644
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Grand Total	**34403**	**82452**	**1133**	**117988**
Average	**1496**	**3585**	**49**	**5130**

Here also we are doing the same approach which we had done for morning shift of 90% efficiency rate in receiving calls so,

Average total number of calls in day from above table =5130

From the given data we know that 30% of count of morning calls will be night calls so 0.3*5130=1539

Therefore total number of calls in night =1539

Average call duration per customer in seconds =198.6

We want 90% answered rate so multiply by =0.9

This is in seconds to get in hours divide by =3600

Total duration calls in hours per day =(1539*198.6*0.9/3600)

=76.4 hours

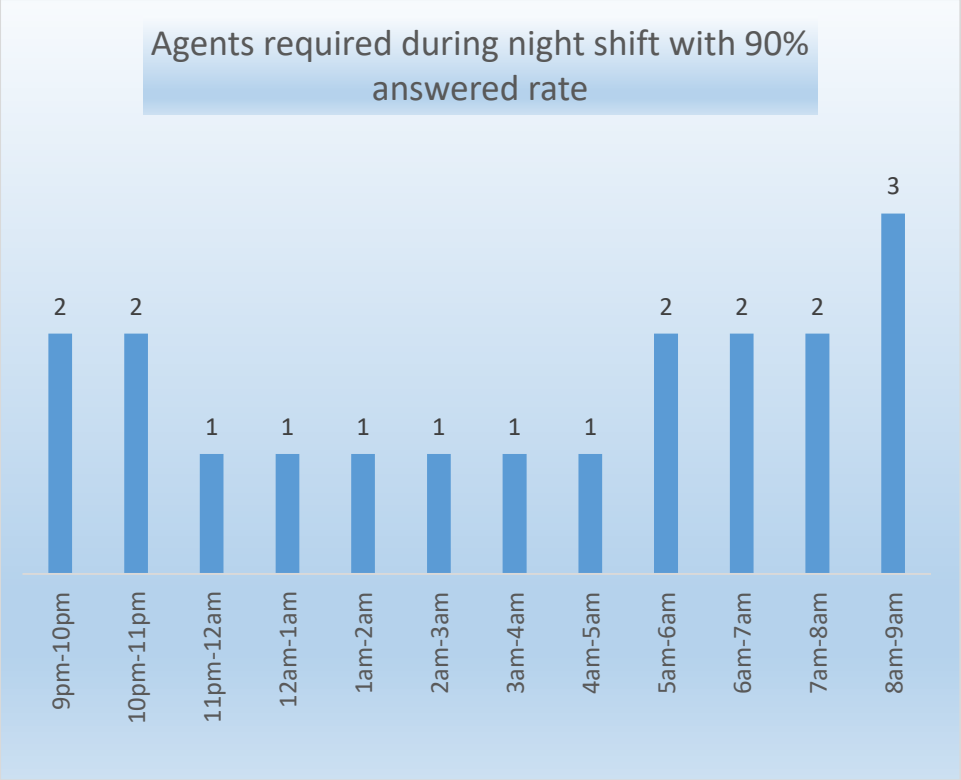
We know that as given in project description only 60% 7.5 hours is utilized for working so we get 0.6*7.5 =4.5 hours

Therefore total agents required in a day for 90% answered rate inbound calling is

=round(76.4/4.5)=17

So we require 17 agents in night shift to get 90% answered rate in receiving the call.

time_bucket	count of call	Call %	agents required
9pm-10pm	3	10.00%	2
10pm-11pm	3	10.00%	2
11pm-12am	2	6.67%	1
12am-1am	2	6.67%	1
1am-2am	1	3.33%	1
2am-3am	1	3.33%	1
3am-4am	1	3.33%	1
4am-5am	1	3.33%	1
5am-6am	3	10.00%	2
6am-7am	4	13.33%	2
7am-8am	4	13.33%	2
8am-9am	5	16.67%	3
Grand Total	**30**	**100.00%**	**17**



The above table and chart shows the total number of agents required in each time bucket. It is evident from chart that 8am -9am requires 3 agents which is highest and 11pm -5am i.e all the 6 slots requires 1 agent which is lowest.

Excel Analysis Worksheet Link:

https://docs.google.com/spreadsheets/d/1ZyedWGfAp2K6DCU1lEsVy7jqZH3GUHz4/edit?usp=sharing&ouid=113123883243133768755&rtpof=true&sd=true