ABC Call Volume Trend Analysis

Hyperlink of Excel File:

https://docs.google.com/file/d/1WewJI8TicX-SoflEutjGEe9Fi_8ieaim/edit?usp=docslist_api&filetype=msexcel

Hyperlink of Video presnataion:

https://drive.google.com/file/d/1Jzt2t8-3nwz1WHWSG3loxMiSTw3WuWaZ/view?usp=drivesdk

Data Analytics Tasks:

1. **Average Call Duration:** The average duration of all incoming calls received by agents for each time bucket is given below

A	B	C
Call_Status	answered	
Time Bucket	**Average of Duration(hh:mm:ss)**	**Average of Call_Seconds (s)**
10_11	00:03:23	203.3310302
11_12	00:03:19	199.2550234
12_13	00:03:13	192.8887829
13_14	00:03:15	194.7401744
14_15	00:03:14	193.6770755
15_16	00:03:19	198.8889175
16_17	00:03:21	200.8681864
17_18	00:03:20	200.2487831
18_19	00:03:23	202.5509677
19_20	00:03:23	203.4060725
20_21	00:03:23	202.845993
9_10	00:03:19	199.0691057
Grand Total	**00:03:19**	**198.6227745**

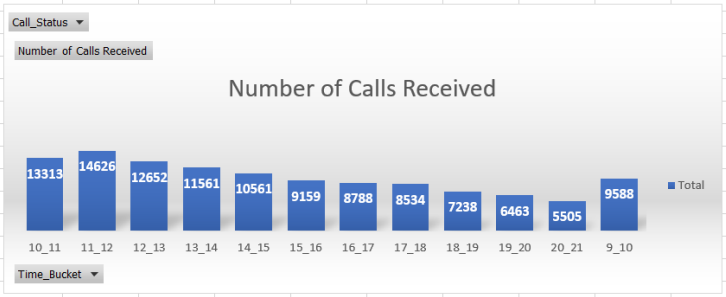
The above result was calculated by using a pivot table for the final data in which time bucket is taken in the rows field and average of duration and average of call seconds are taken in the value field to give us the required output where a filter is used in which it filters all the calls, that were answered by the agent as framed in the given question.

INSIGHT: The insight here is pretty clear that, if an agent picks a call its going to last for almost 200 secs or 3.20 mins. So, the agent should give everything is best knowing the call wont last for more time to enhance user experience.

2. **Call Volume Analysis:** Below is a chart or graph that shows the number of calls received in each time bucket

Call_Status	(All)

Time Bucket	Number of Calls Received
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**



To achieve the above result , I again used a pivot table using the final data where again like the above used time bucket in rows field and customer phone number in the value list and changed it to the count of customer phone number to arrive at the desired result.

INSIGHT: Its likely to get many numbers of calls in the day time from 9 am to 3 pm and it peaks at 11 to 12 time bucket. As the day time passes by, number of calls received in each bucket is expected to reduce. Company is advised to allot and manage the agents accordingly in the above given time to meet the requirements and unexpectedness.

3. **Manpower Planning:** Below is result showing the minimum number of agents required in each time bucket to reduce the abandon rate to 10%.

Row Labels	Count of Call_Status	Number of Employees Required
10_11	11.28%	7
11_12	12.40%	7
12_13	10.72%	6
13_14	9.80%	6
14_15	8.95%	5
15_16	7.76%	5
16_17	7.45%	4
17_18	7.23%	4
18_19	6.13%	4
19_20	5.48%	3
20_21	4.67%	3
9_10	8.13%	5
Grand Total	**100.00%**	**59**

	Seconds	Hour
Avg Call Sec	715787.7826	199
	For 70% total Agents =	45
	For 90% total Agents =	?

An Agent works for a total of 4.5 hours

Total Agents required for 90% is	58

Row La	Sum of Call_Seconds (s)
01-Jan	676664
02-Jan	574003
03-Jan	812863
04-Jan	861946
05-Jan	846798
06-Jan	829040
07-Jan	757019
08-Jan	735444
09-Jan	541147
10-Jan	778739
11-Jan	785717
12-Jan	709934
13-Jan	691320
14-Jan	564227
15-Jan	556267
16-Jan	674394
17-Jan	945615
18-Jan	796768
19-Jan	750270
20-Jan	759613
21-Jan	639855
22-Jan	621577
23-Jan	553899
Grand Tot	16463119

Above initially I used a pivot table to get the sum of call seconds on each available day in given data set, then used the result to calculate the average of it. Now after converting it to total hours, used the same result to derive the total number of agents working by estimating an agent works for 4.5 hours (given) and assumed the result is for 70% answer rate. Then used the result to estimate the agents required to make answered 90%. Now the total result is distributed to each time bucket based on the total number of calls received in each bucket as shown above.

INSIGHT: 58 agents are required to make to the abandon rate reduce to 10% and improve the efficiency of the company.

4. **Night Shift Manpower Planning**: Below is a manpower plan for each time bucket throughout the day (24 hours), keeping the maximum abandon rate at 10%.

Row Labels	Count of Customer_Phone_No
01-Jan	4644
02-Jan	3351
03-Jan	4789
04-Jan	5113
05-Jan	4790
06-Jan	4951
07-Jan	4948
08-Jan	4672
09-Jan	3652
10-Jan	4983
11-Jan	4637
12-Jan	4643
13-Jan	4123
14-Jan	3155
15-Jan	3058
16-Jan	5142
17-Jan	22347
18-Jan	5774
19-Jan	4703
20-Jan	4322
21-Jan	3675
22-Jan	3291
23-Jan	3225
Grand Total	117988

Every 100 call during day	100	30	During Night
Average of Total calls	5129.913043	?	
For Every	1539	?	How Many Required?
For Every	5129.913043	58	Agents Required
	18		

Time Bucket	Assumed Call Percentage	No of Agents required to make Abandoned 10%
9_10	15%	3
10_11	15%	3
11_12	10%	2
12_1	7%	1
1_2	7%	1
2_3	6%	1
3_4	6%	1
4_5	4%	1
5_6	4%	1
6_7	5%	1
7_8	10%	2
8_9	11%	2
Grand Total	100%	19

Assuming 30 calls at night for every 100 calls during the day. By taking the average of total calls during the day, derived the average total calls during night. And its already found the number of agents required to make 90% answered rate during day, used the result to derive the agents required during night. Then assumed a call percentage for each time bucket on my own and distributed the agents accordingly to each time bucket.

INSIGHT: Total of 18 agents are required during night to make abandoned rate to 10%.

Project Description: The project is based on enhancing customer experience, its objective is to derive insights on how to enhance customer experience based on the data provided.

Approach: I initially went through the questions in detail and understood the problem before executing, once I understood the question, I used my knowledge in excel and statistics to execute the same. Excel functions and tools were used.

Tech-Stack Used: Microsoft Excel 2019

Insights: Insights are given above in the required tasks

Result: I was able improve my skills in excel, statistics and problem solving. It helped improve my patience, consistency and perseverance which eventually helped me grow overall as data analyst.