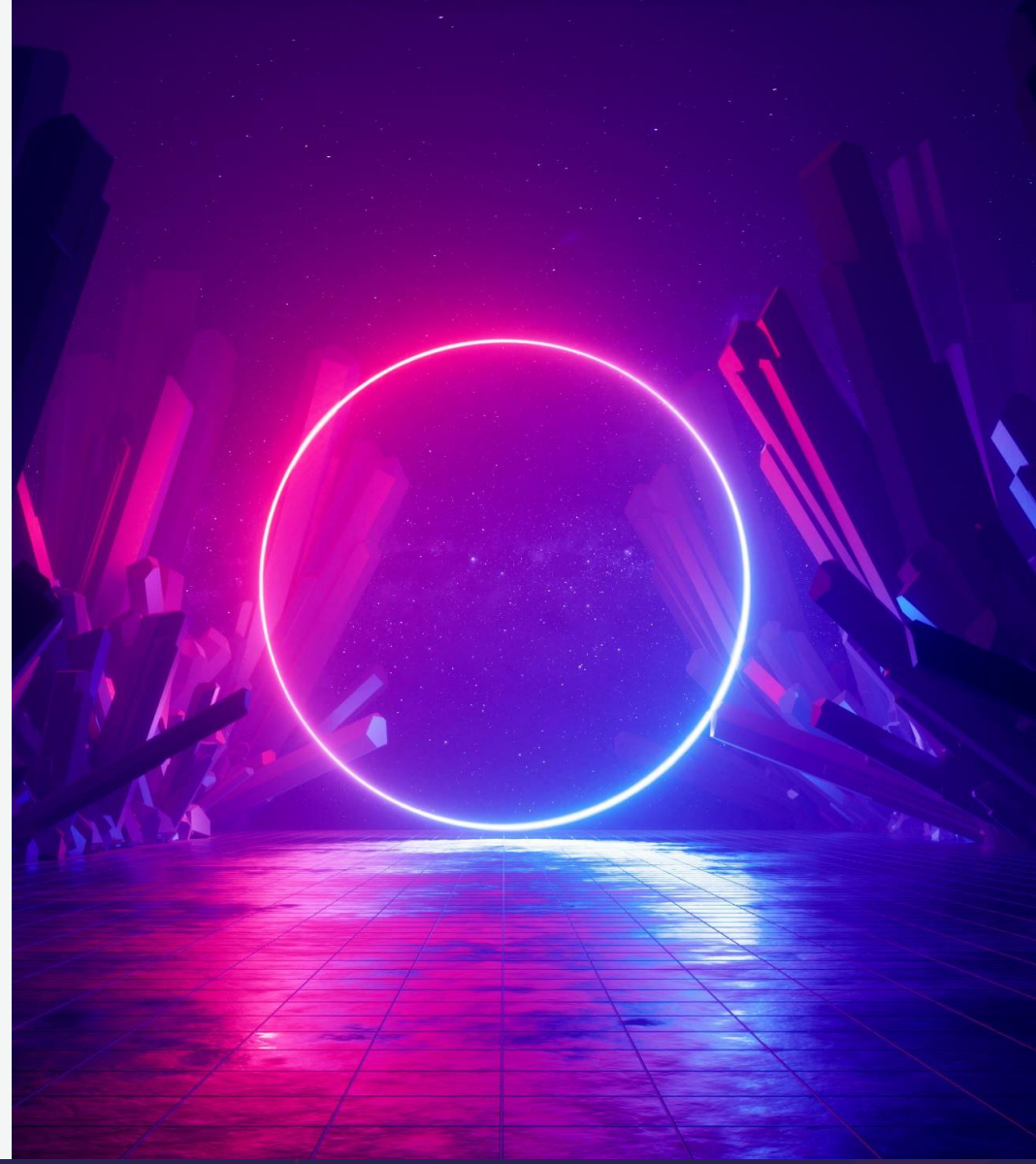
ABC Call Volume Trend Analysis

-Ranapratap Ghosh



Project Overview:

- Attached is a call from ABC Company from insurance category, including a 23-day customer experience (CX) team call. Data Agent_Name, Agent_ID, Queue Time [time the customer must wait before connects to an agent], Time [time of day the customer called], Time Bucket [for the convenience of we also give you time. bucket], Duration [Time Between Customer and Standby Operation, Call_Seconds [For simplicity we also change this to seconds], Call Status (Call, Answer, Transfer). The Customer Service (CX) team consists of experts who analyze customer feedback and data and share insights with other organizations. Typically these teams fulfill multiple roles and responsibilities, such as Customer Service (CX Program), Digital Customer Experience, Design and Process, Internal Communications, Voice of the Customer (VoC), Customer, Customer Service Management, Travel. Map, monitor customer interactions, customer satisfaction, customer support, protect customer data, understand customers. Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, Intelligent Routing are some of the client impacting AIs we can use in this project. There are many great career opportunities for Customer Service Representatives A.k.a. on the customer service team. Contact a representative, customer service representative. Some of the roles are: Email Services, Inbound Services, Outbound Services, Newsletter Services.

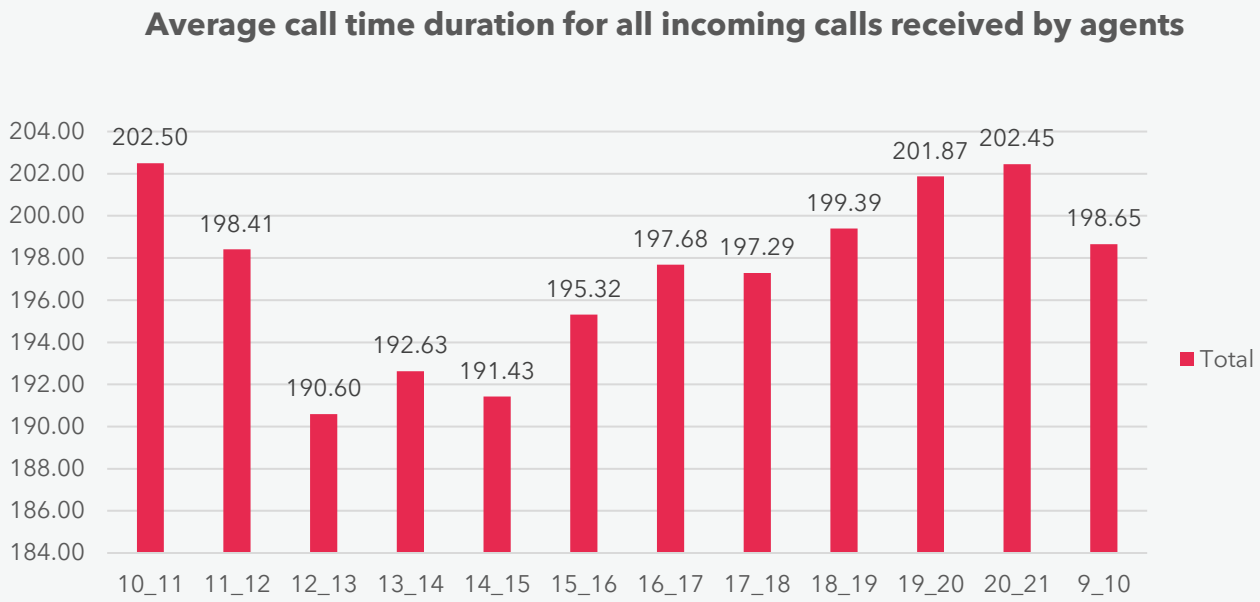
Approach & Tech-Stack

- **Microsoft Excel :**
  Allows users to create, edit, and calculate d ata in
  spreadsheets. Organizes information in an easy to use way. We don't need to do any o f the
  complex math operations. It turns mountai ns of data into useful graphs and tables**.**
- **Microsoft PowerPoint** :
  PowerPoint used for the making of the project.

Excel Link -
https://docs.google.com/spreadsheets/d/1iVuWeEjB2T9LZMLkoujoi1i68wSdGoul/edit?usp=share_link&ouid=113064335578958696818&rtpof=true&sd=true

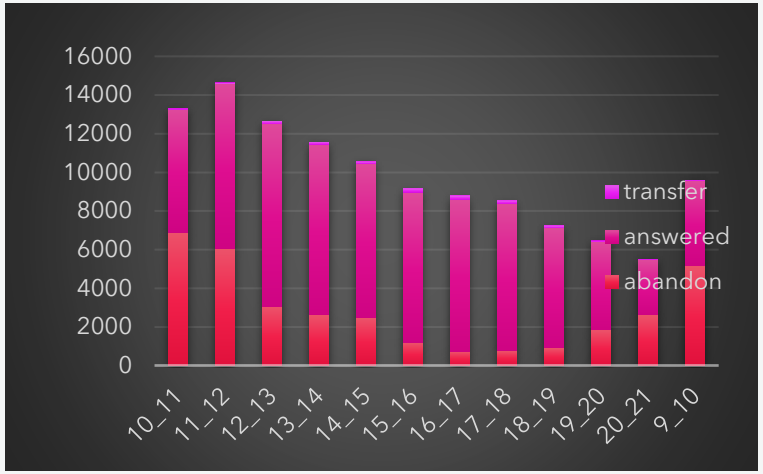
Calculate the average call time duration for all incoming calls received by agents (in each Time_Bucket)

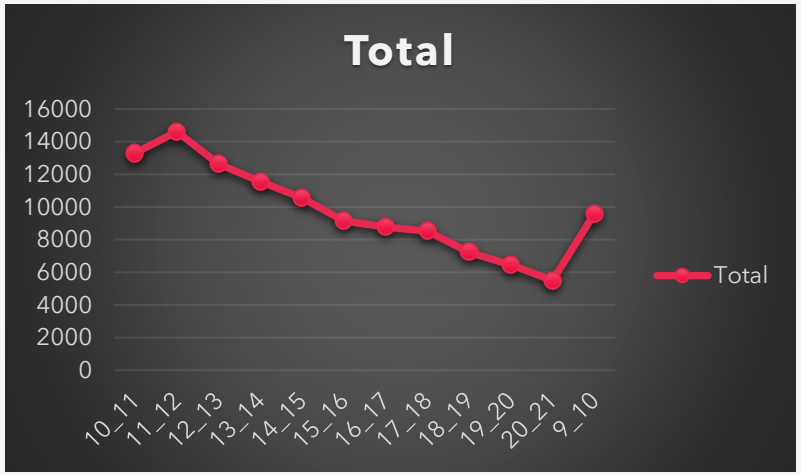
- Firstly, Pivot-table was created on Excel Worksheet.
- We put, Time_Bucket in the Rows and average of Call_Seconds in the Values section.
- We get grand total result of 196.48.
- The average call time duration for all incoming calls received by agents,we get the highest volume between 10 am to 12 am and from 7 pm to 9 pm



Show the total volume/ number of calls coming in via charts/ graphs:

- We put Count of Customer_Phone_No and Count of Time in the Values section and Time_Bucket in the rows.
- We measured Count of Time as the percentage of Column Total.
- The customers call the most in between 12 am to 1 pm.
- The customers call the least in between 8 pm to 9 pm.





As we 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. We have to calculate minimum number of agents required in each time bucket so that at least 90 calls should be answered out of 100.)

Our Primary Assumption Was:

Agent Stats	Values
Agents working hour	9
Working Hours on Floor	7.5
Total Working Hour Per Month	6
Unplanned Leaves	4
Total Workdays Per Month	20
Working Days in A Week	5
Working Hour(Percentage)	60
Time Spent On Calls	4.5

If Total Days in Month Is 30DAys. And Their is 6Working days Every Week then
Total Working Days in month will be by default = 6*4=24
Now, We know Every Empolyee takes unplanned leaves of 4 Days on avarage

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.

Count of Durati	Column Labe			
Row Labels	abandon	answered	transfer	Grand Total
1-Jan	684	3883	77	4644
2-Jan	356	2935	60	3351
3-Jan	599	4079	111	4789
4-Jan	595	4404	114	5113
5-Jan	536	4140	114	4790
6-Jan	991	3875	85	4951
7-Jan	1319	3587	42	4948
8-Jan	1103	3519	50	4672
9-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
	0.2915805	0.698816829	0.009602671	

call vloume(Daily)	117988	Avarage Time taken to answer call	196.48
call vloume if provide support at Night(9PM-9Am)	35396		
		Time Required To Answer 90% of The calls	5858.1042
Additional Hours Required	1757.4114		
Total Employee Required to meet goal	1302		

- First, we created pivot table. Date & Time is dragged down to Rows, Call Status to Columns, while taking count Call Duration in the Values section.
- 70% of the calls are answered ,29% of the calls are abandoned, and 1% is transferred, while in the day time.

- Total agents required to answer the 90% of the calls per day is 1302.

Count of Time	Required Agents	Count Of Time
11.28%	146.9092281	11.28%
12.40%	161.39821	12.40%
10.72%	139.6150795	10.72%
9.80%	127.5758721	9.80%
8.95%	116.5408516	8.95%
7.76%	101.0697529	7.76%
7.45%	96.97576025	7.45%
7.23%	94.17286504	7.23%
6.13%	79.87147846	6.13%
5.48%	71.31933756	5.48%
4.67%	60.74778791	4.67%
8.13%	105.8037767	8.13%
100.00%	1302	**100.00%**

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

- We first calculated the Time Distribution by dividing each calls distribution by total calls 30 as stated in the question.
- Previously, We calculated Additional HC of 391.
- The required agents for each time bucket is calculated by 391* Time Distribution.

- 391 is calculated above by dividing the additional hours required to answer the night calls by 4.5 (actual working hours of agents).

Time_Bucket	Calls Duration	Time Destribution	Required Agent
21_22	3	10.00%	39
22_23	3	10.00%	39
23_24	2	6.67%	26
00_01	2	6.67%	26
01_02	1	3.33%	13
2_3	1	3.33%	13
3_4	1	3.33%	13
4_5	1	3.33%	13
5_6	3	10.00%	39
6_7	4	13.33%	52
7_8	4	13.33%	52
8_9	5	16.67%	65
	30	**100.00%**	**391**

-:Insights:-

- The customers handling is least in the evening. So, the company can reduce the number of agents at that time slot.
- The company can hire 391 customer support agents for the night shift work.
- The company can make the employers divide into 3 parts too, so that that customer support can help them maximum amount of time.
- We found out that there were few data that can affect the result of this whole analysis. So removing them will cause us to generate wrong analysis.

THANK YOU