ABC Call Volume Trend Analysis

Project description:

A attached dataset is of inbound calls of an ABC Company from the insurance category consists 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.

Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, Intelligent Routing are some the most impactful AI-empowered customer experience tools we can use this in the project.

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 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:

In order to execute the project, we have to create the pivot table and graphical representation of data and finding the insights.

Tech stack used:

To find the insights we have used excel to represent the graphs and download the dataset in excel, Microsoft word to present the report and google drive to submit the project.

Insights:

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)
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
9_10	199.1
Grand Total	**198.6**
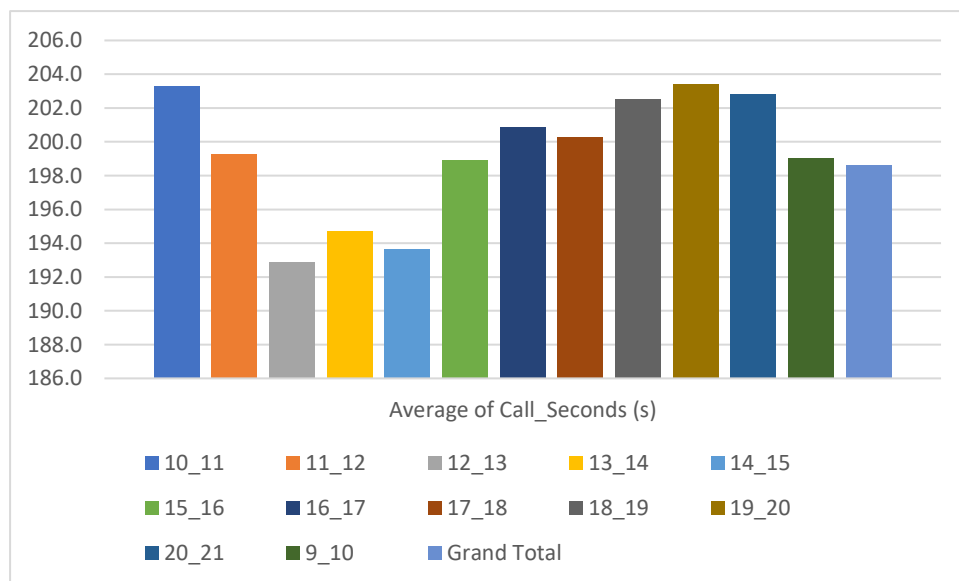
Result:

- pivot table is used to create the above table, time bucket has been taken in rows and in values section I have taken the average of call seconds.
- 10am to 11am and 7 pm to 8 pm has the highest average call time duration for all answered calls.
- The total average call time duration for all incoming calls is 198.6 seconds.

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
9_10	9588
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
Grand Total	117988

Count of Customer_Phone_No
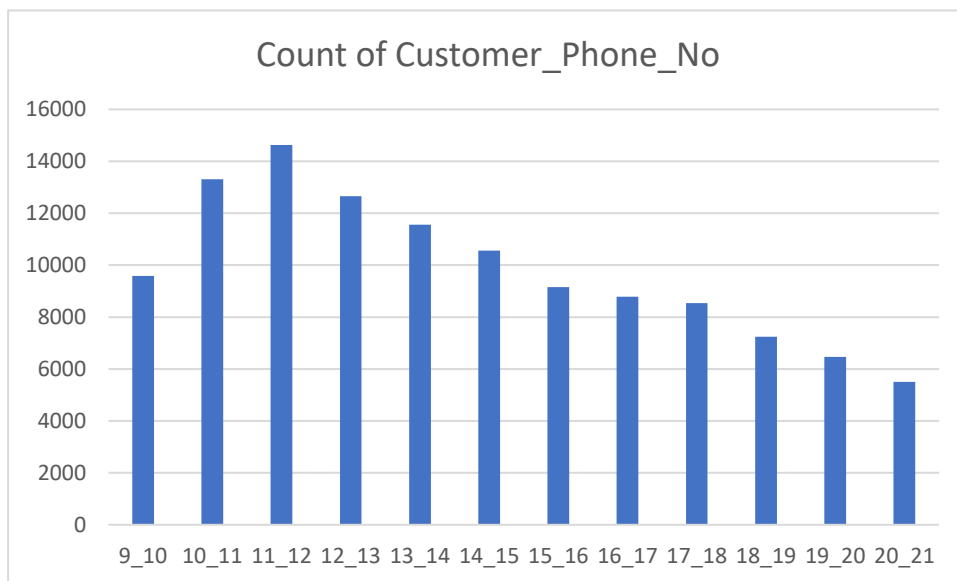
Result: 11am-12pm has highest count of customer_phone_number i.e., 14626.

Row Labels	Count of no. of calls
9_10	8%
10_11	11%
11_12	12%
12_13	11%
13_14	10%

14_15	9%
15_16	8%
16_17	7%
17_18	7%
18_19	6%
19_20	5%
20_21	5%
Grand Total	**100%**
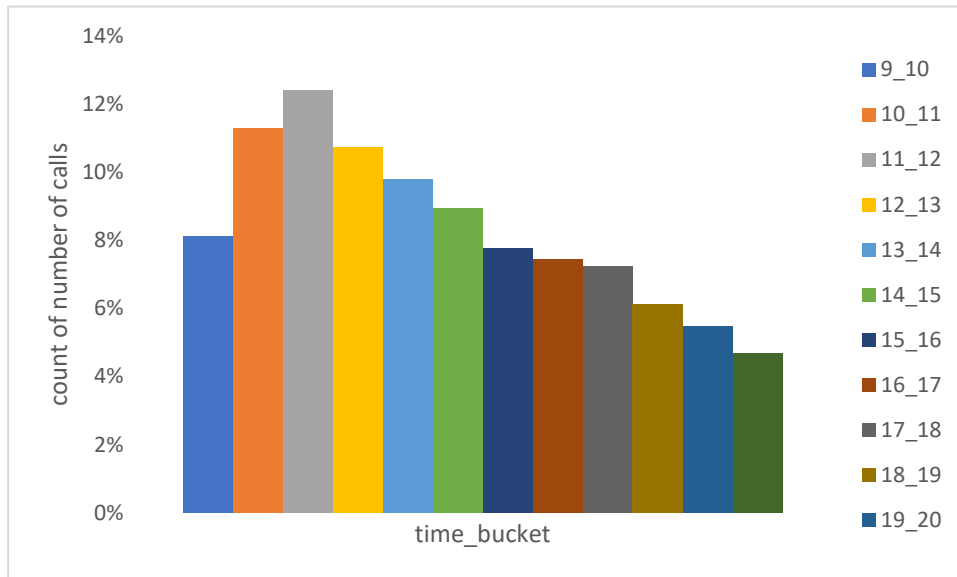
Result: 11am-12pm has the highest number of calls of 12%.

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.)

Assumption: An agent work for 6 days a week; On an average total unplanned leaves per agent is 4 days a month; An agent total working hrs is 9 Hrs out of which 1.5 Hrs goes into lunch and snacks 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.

Agent working hour	9			
Agent on-floor work hour	7.5			
Days an agent work in a week	5		6 working day in a week, 28	

			days in month	
Total time spent on call(60% of 7.5hrs)	4.5		out of 28, 24 working days	
			out of 24 working days, 4 days unplanned leave remains to 20days	
I have taken 28 days for calculation				
Count of Duration(hh:mm:ss)	**call status**			
date and time	**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**

	1496	3585	49	5130
average	1496	3585	49	5130
percentage	29%	70%	1%	
total no. of calls on an average per day	5130			
time taken on an average to answer a call	198.6			
time requirement to answer 90% of the calls	254.7			
total working person required per day	57			

Result:

- average number of calls are 5130
- Time taken on an average to answer the a calls is 198.6(from question 1)
- Time requirement to answer 90% of calls is 257.7.
- Total person required per day is 57.

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:

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%

	1496	3585	49	5130
average of all call status	1496	3585	49	5130
percentage	29%	70%	1%	
total no. of calls on an average per day	5130			
time taken on an average to answer a call	198.6			
time requirement to answer 90% of the calls	254.7			
total working person required per day	57			
call volume daily(9am-9pm)	5130			
if we provide support in night(9pm-9am)	1539			
additional hours required	76			
additional head count	17			
total head count	74			

time	no.of calls	time distribution	requirement
21_22	3	10%	2
22_23	3	10%	2
23_24	2	7%	1

00_01	2	7%	1
01_02	1	3%	1
02_03	1	3%	1
03_04	1	3%	1
04_05	1	3%	1
05_06	3	10%	2
06_07	4	13%	2
07_08	4	13%	2
08_09	5	17%	3
sum	**30**		**17**

Result:

- Time distribution is calculated as number of calls divided by sum of calls i.e.,30
- Required agent is calculated as additional head count multiplied by time distribution.
- The agent required from 9pm to 9am is 17 people.

Conclusion:

- The customers call least in the evening so that the company can reduce the number of agents at that time.
- The company should hire 17 people for the night shift.