ABC Call Volume Trend Analysis

Project Description

A dataset 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.

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.

Advertising is a way of marketing your business in order to increase sales or make your audience aware of your products or services. Until a customer deals with you directly and actually buys your products or services, your advertising may help to form their first impressions of your business. Target audience for businesses could be local, regional, national or international or a mixture. So they use different ways for advertisement. Some of the types of advertisement are: Internet/online directories, Trade and technical press, Radio, Cinema, Outdoor advertising, National papers, magazines and TV. Advertising business is very competitive as a lot of players bid a lot of money in a single segment of business to target the same audience. Here comes the analytical skills of the company to target those audiences from those types of media platforms where they convert them to their customers at a low cost.

Approach

This project is about the data analysis using excel sheet and statistics.
ABC Call Volume Trend Analysis is the fundamental and the most important to get insight related to call and customer. This analysis is very useful to a customer experience (CX) team consists of professionals who analyze customer feedback and data, and share insights with the rest of the organization.

Let’s look at some of the most impactful AI-empowered customer experience tools you can use today. Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, Intelligent Routing. 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.

Statistics is collection, organization, analysis, implementation and presentation of data. It is a review, gather, analyze and raw conclusion from data. Here we also use pie chart, bar chart, histogram, frequency table and many more to understanding data in graphical format which is very easy to understanding.

Tech-Stack Used

1. Microsoft Excel
Analyze Data in Excel empowers you to understand your data through natural language queries that allow you to ask questions about your data without having to write complicated formulas. In addition, Analyze Data provides high-level visual summaries, trends, and patterns.

2.Google Sheet
Get summaries and charts of your data with the click of a button in Sheets. It's kind of like having an expert in data analysis sitting next to you. In a spreadsheet, select a range of cells, columns, or rows. Otherwise, you'll get insights based on where your cursor is.

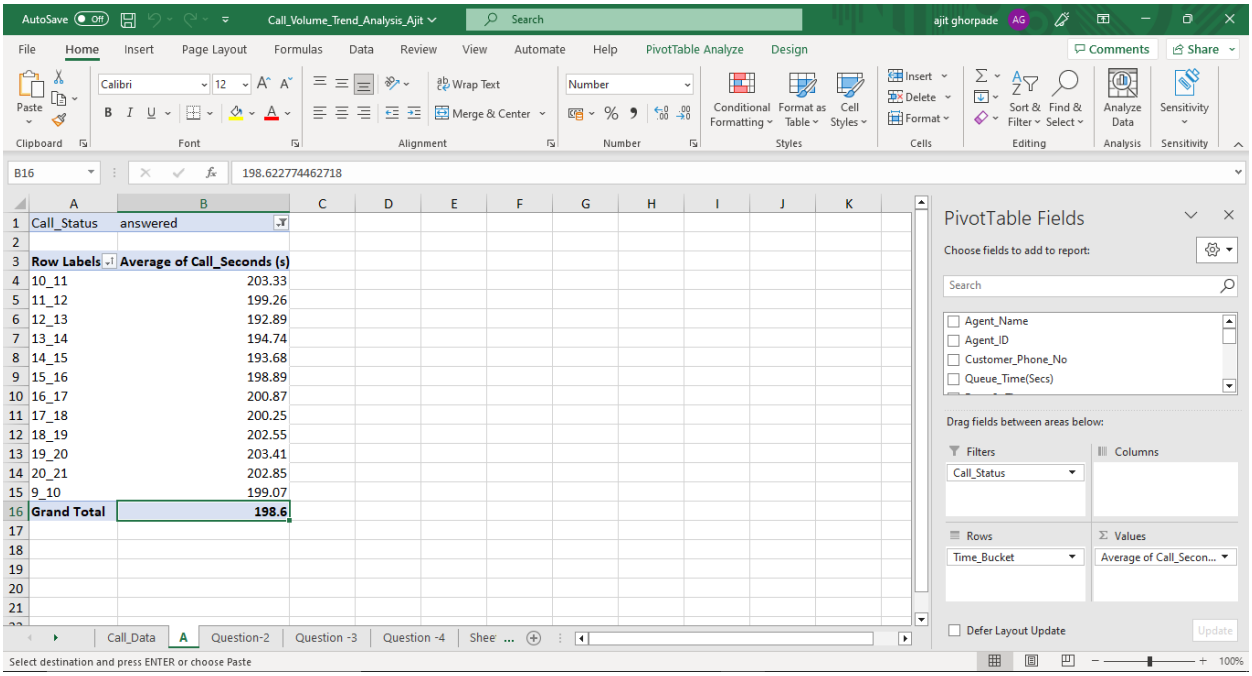
Result

I feel there is real sense of achievement working on Excel or Google Sheet, from solving queries and find result. The way of performing matrices is new for me. There is so much to learn working with Microsoft excel. The way of performing queries and applying logic on it. It definitely helps me in my future data analytics career.

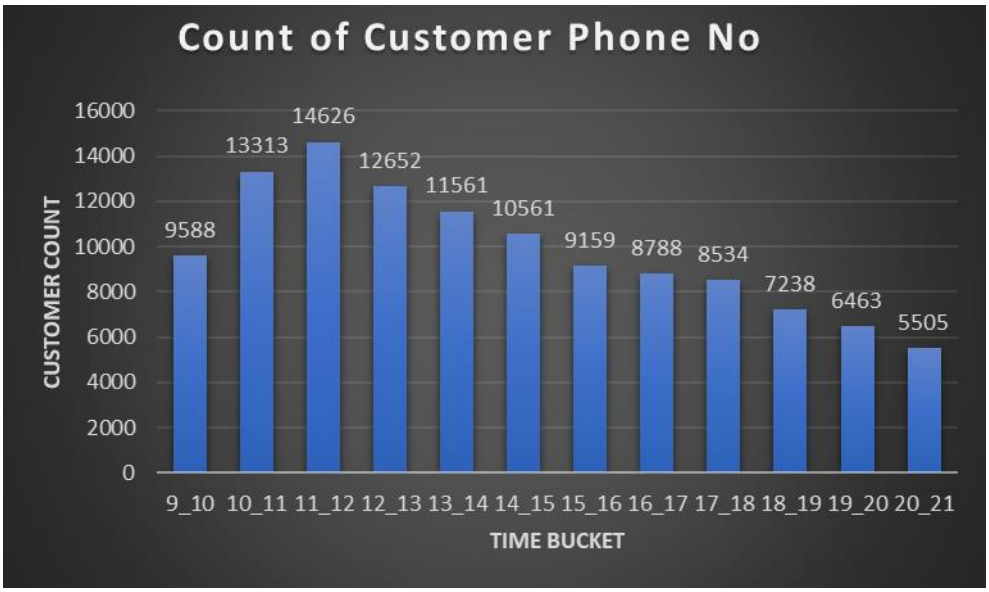
A : Calculate the average call time duration for all incoming calls received by agents (in each Time_Bucket).

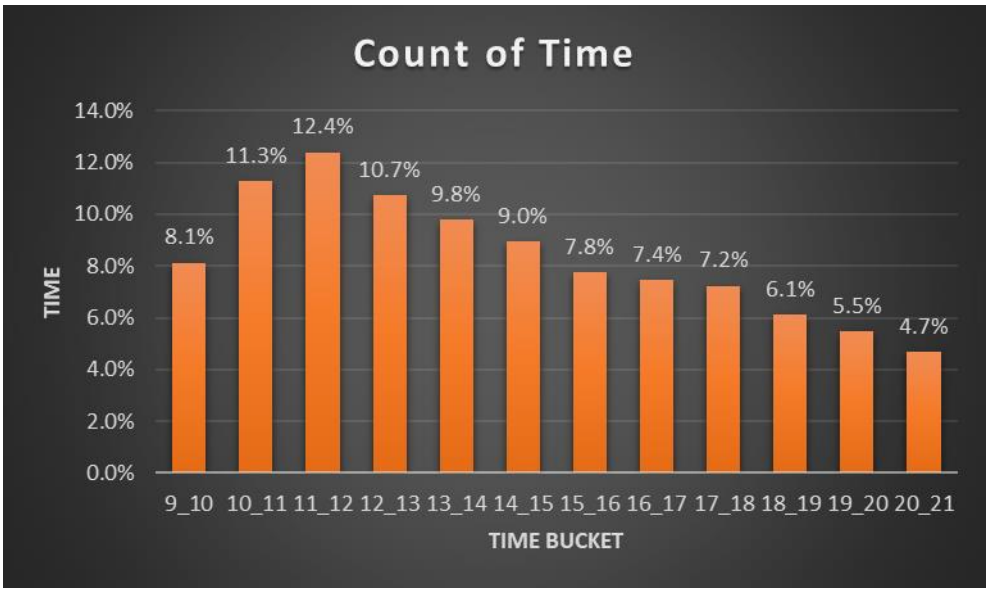
Call_Status	answered

Row Labels	Average of Call_Seconds (s)
10_11	203.33
11_12	199.26
12_13	192.89
13_14	194.74
14_15	193.68
15_16	198.89
16_17	200.87
17_18	200.25
18_19	202.55
19_20	203.41
20_21	202.85
9_10	199.07
Grand Total	**198.6**



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, …..)





3	**Row Labels**	**Count of Call_Status**	**Count of Call_Status2**
4	10_11	13313	11.28%
5	11_12	14626	12.40%
6	12_13	12652	10.72%
7	13_14	11561	9.80%
8	14_15	10561	8.95%
9	15_16	9159	7.76%
10	16_17	8788	7.45%
11	17_18	8534	7.23%
12	18_19	7238	6.13%
13	19_20	6463	5.48%
14	20_21	5505	4.67%
15	9_10	9588	8.13%
16	**Grand Total**	**117988**	**100.00%**
17			

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.)

Count of Duration(hh:mm:ss)	Column Labels			
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
	1496	3585	49	5130

Time taken on an average to answer a call	198.6 seconds
Time requirement to answer 90% of the calls (hrs)	254.7001826
Total working person required per day	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%.

Time taken on an average to answer a call : 198.6 seconds

Time requirement to answer 90% of the calls (hrs) : 254.7001826

Total working person required per day : 57

Call volume daily (9 AM - 9pm) : 5130

If we provide support in night, (9 PM - 9 AM) : 1539

Additional hours required : 76.41135

Additional HC : 17

Total HC : 74