ABC Call Volume Trend Analysis

Project Description

This project focuses on analyzing Customer Experience (CX) data for a company's inbound calling team. Using a 23-day dataset, it includes agent details, the agent's name and ID, the queue time (how long a customer had to wait before connecting with an agent), call durations, and call statuses (answered, abandoned, or transferred). The aim is to gain insights into customer interactions to enhance service quality. This CX analysis will help in understanding call wait times, agent performance, and call outcomes, ultimately supporting the goal of improving customer satisfaction and loyalty.

There are four data analytics tasks in this project:-

1. Average call duration
2. Call volume analysis
3. Manpower planning
4. Night shift manpower planning

Through these analyses we can understand the different data patterns and trends that help to make data driven decisions for achieving customer satisfaction, because this is the most important thing for a company's success.

Approach

For this project , I follow the step by step approach such that:-

1. First of all I download the call dataset from the trainity platform. It contains different variables related to customers,cx team and phone calls like agent name,agent id, customer phone no, call duration, call status, date and time etc.

2. After understanding the dataset, I started working on this project using excel. There are 4 analytics tasks mentioned in the project details. I completed each task one by one according to the given instructions.

3. After completing the tasks, I made a Project Report through google docs, after it i recorded the project presentation using loom Platform.

Tech stack used

Microsoft Excel : The project is totally based on excel and statistics, therefore I use ms excel. I use excel's different tools , different tabs, editing tools, formulas like count, absolute,average, except this sort and filter option , table design options, pivot table, visualization tools eg. column and bar chart, and many more that are available on the excel. They are easy to access and use.

Loom presentation platform : Loom is a video messaging tool that allows users to record and share presentations, screen activity, edit , store and more options available in this platform.

Insights

By analyzing the different data patterns I gained various knowledge related to customers, call team, agents and calling details like what is the average call duration, the no of call received for each time bucket, how many agents required for each time bucket for both day and night shift to ensure that at least 90 out of 100 calls are answered, so that company achieve more customer satisfaction and enhance service quality.

I also understood how data analytics is important for a company's calling team.

It expands my excel skills like how to use tables, pivot tables, sort and filtering options, data visualization tools help me convert the data into column and bar chart, and all other tools and techniques like to design tables , editing options and use of different tabs.

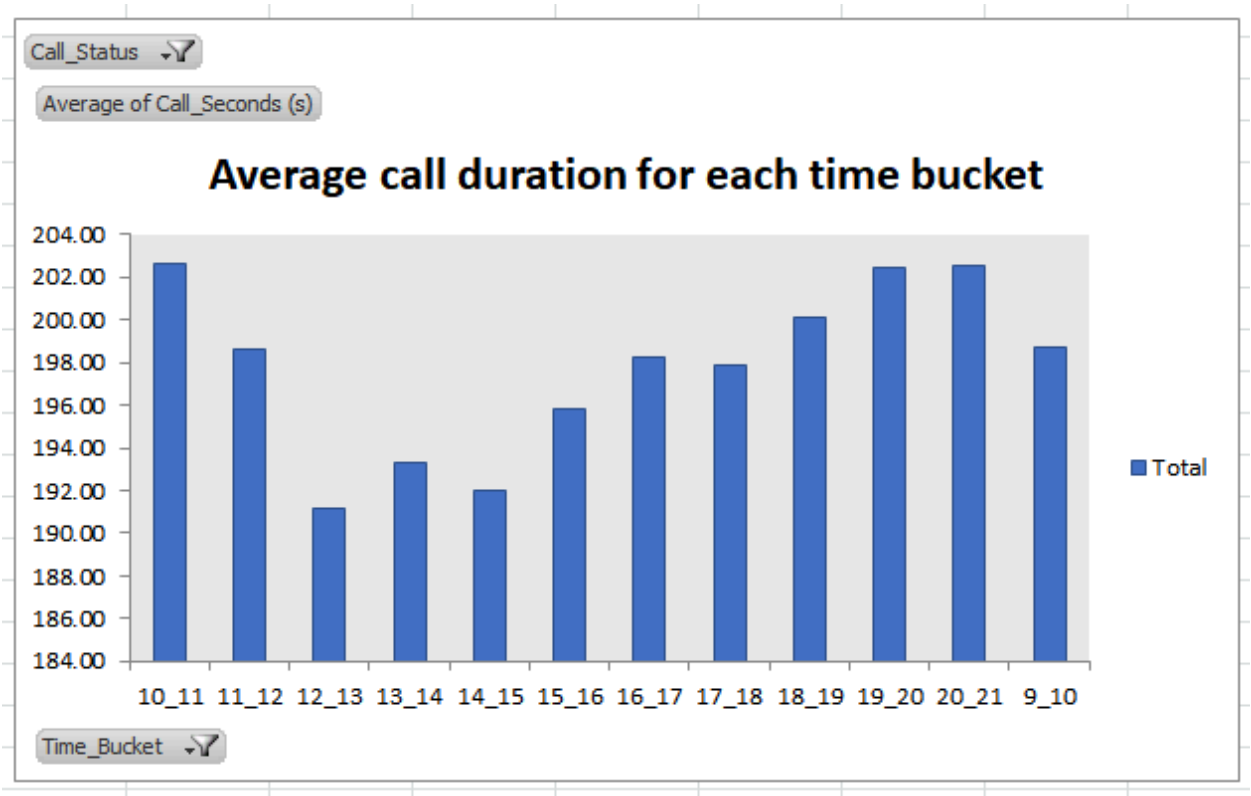
In this project the following observations and meaningful trends are covered:-

Data Analytics Tasks:

1. **Average Call Duration:** Determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.

   Task: What is the average duration of calls for each time bucket?

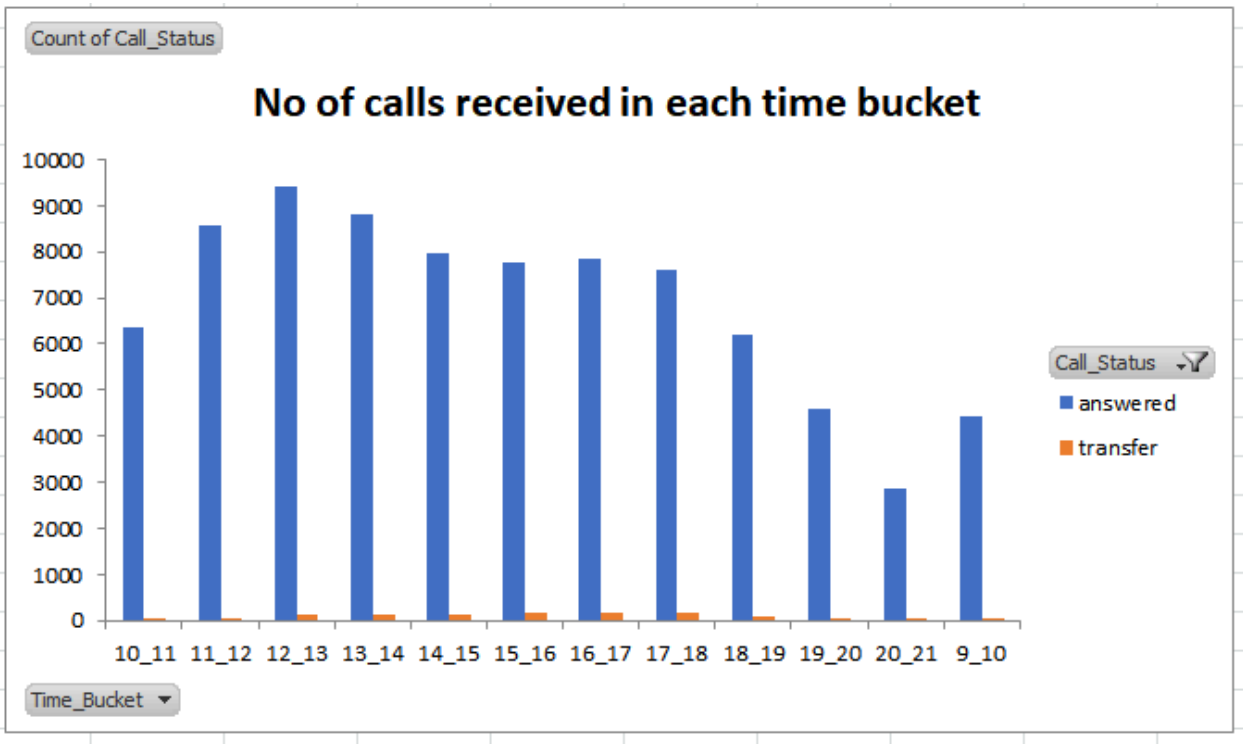
Call_Status	(Multiple Items)
Time Bucke	**Average of Call_Seconds (s)**
10_11	202.59
11_12	198.66
12_13	191.15
13_14	193.30
14_15	191.95
15_16	195.86
16_17	198.29
17_18	197.88
18_19	200.12
19_20	202.48
20_21	202.52
9_10	198.74
Grand Total	**196.96**



2. **Call Volume Analysis:** Visualize the total number of calls received. This should be represented as a graph or chart showing the number of calls against time. Time should be represented in buckets (e.g., 1-2, 2-3, etc.).

   Task: Can you create a chart or graph that shows the number of calls received in each time bucket?

Count of Call_Status	Column Labels		
Time Bucket	answered	transfer	Grand Total
10_11	6368	34	6402
11_12	8560	38	8598
12_13	9432	147	9579
13_14	8829	115	8944
14_15	7974	112	8086
15_16	7760	185	7945
16_17	7852	189	8041
17_18	7601	150	7751
18_19	6200	105	6305
19_20	4578	37	4615
20_21	2870	10	2880
9_10	4428	11	4439
Grand Total	**82452**	**1133**	**83585**



3. **Manpower Planning:** The current rate of abandoned calls is approximately 30%. Propose a plan for manpower allocation during each time bucket (from 9 am to 9 pm) to reduce the abandon rate to 10%. In other words, you need to calculate the minimum number of agents required in each time bucket to ensure that at least 90 out of 100 calls are answered.

Task: What is the minimum number of agents required in each time bucket to reduce the abandon rate to 10%?

Row Labels	Count of Customer_Phone_No	Percentage
abandon	34403	29.16%
answered	82452	69.88%
transfer	1133	0.96%
Grand Total	**117988**	**100.00%**

Assumptions: An agent works for 6 days a week; On average, each agent takes 4 unplanned leaves per month; An agent's total working hours are 9 hours, out of which 1.5 hours are spent on lunch and snacks in the office. On average, an agent spends 60% of their total actual working hours (i.e., 60% of 7.5 hours) on calls with customers. The total no of days in a month is 30.

Table for the above assumptions

Agent works for a week	6 days
On average Agent takes leaves per month	4 days
Total working hour	9
Lunch and snack time in hour	1.5
actual working hour	7.5
On average % actual working	60%
Total working time in hour	4.5
Total working time in sec	16200
avg call time per agent in sec	199
no of agents per day	81
no of agents per hour	18
Total no of days in a month	30

Count of call status for each time bucket for total_working_days

Time bucket	abandon	answered	transfer	Grand Total
10_11	6911	6368	34	**13313**
11_12	6028	8560	38	**14626**
12_13	3073	9432	147	**12652**
13_14	2617	8829	115	**11561**
14_15	2475	7974	112	**10561**
15_16	1214	7760	185	**9159**
16_17	747	7852	189	**8788**
17_18	783	7601	150	**8534**
18_19	933	6200	105	**7238**
19_20	1848	4578	37	**6463**
20_21	2625	2870	10	**5505**
9_10	5149	4428	11	**9588**
Grand Total	**34403**	**82452**	**1133**	**117988**

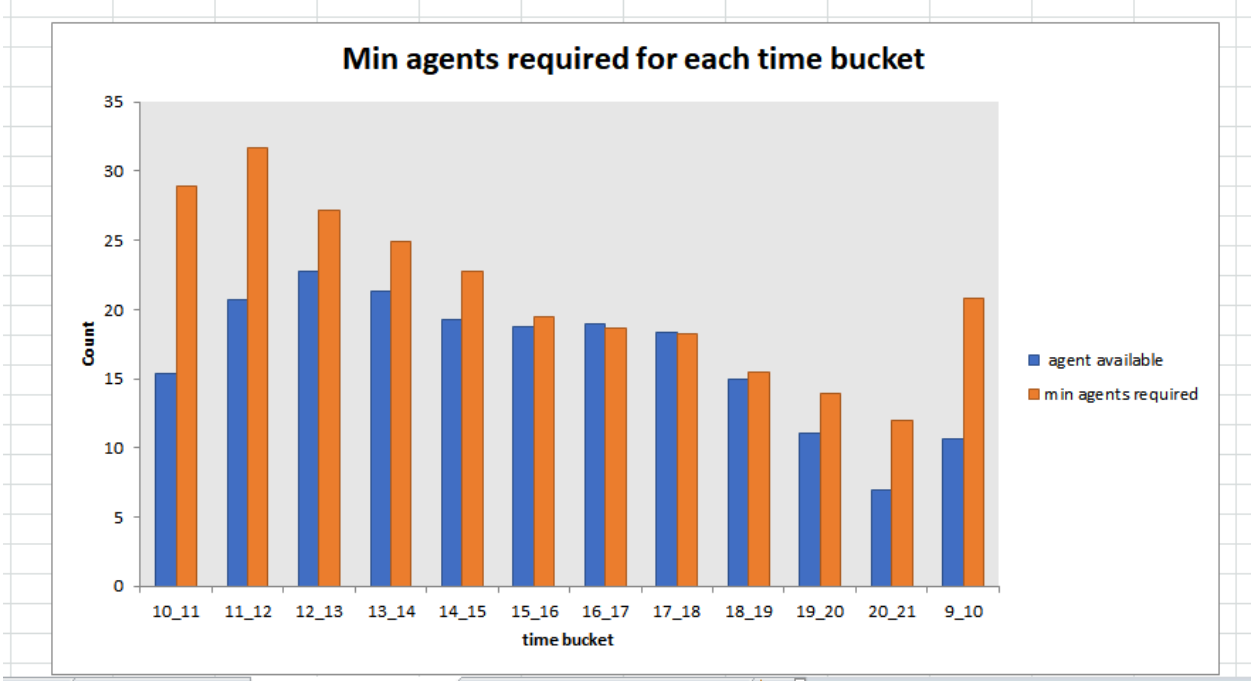
Count of call status for each time bucket for per day

(total no of call received to reduce the abandon rate to 10%)

Time bucket	abandon	answered	Total	daily call volume for 90% achievement
10_11	300.48	276.87	577.35	519.61
11_12	262.09	372.17	634.26	570.83
12_13	133.61	410.09	543.70	489.33
13_14	113.78	383.87	497.65	447.89
14_15	107.61	346.70	454.30	408.87
15_16	52.78	337.39	390.17	351.16
16_17	32.48	341.39	373.87	336.48
17_18	34.04	330.48	364.52	328.07
18_19	40.57	269.57	310.13	279.12
19_20	80.35	199.04	279.39	251.45
20_21	114.13	124.78	238.91	215.02
9_10	223.87	192.52	416.39	374.75

the minimum number of agents required in each time bucket to reduce the abandon rate to 10%

Time Bucket	answered call	agent available	daily call volume for 90% achievement	min agents required
10_11	276.87	15	519.61	29
11_12	372.17	21	570.83	32
12_13	410.09	23	489.33	27
13_14	383.87	21	447.89	25
14_15	346.70	19	408.87	23
15_16	337.39	19	351.16	20
16_17	341.39	19	336.48	19
17_18	330.48	18	328.07	18
18_19	269.57	15	279.12	16
19_20	199.04	11	251.45	14
20_21	124.78	7	215.02	12
9_10	192.52	11	374.75	21



4. **Night Shift Manpower Planning:** Customers also call ABC Insurance Company at night but don't get an answer because there are no agents available. This creates a poor customer experience. Assume that for every 100 calls that customers make

between 9 am and 9 pm, they also make 30 calls at night between 9 pm and 9 am.

Task: Propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.

Day shift call volume

Time Bucket	daily call volume for 90% achievement
10_11	519.61
11_12	570.83
12_13	489.33
13_14	447.89
14_15	408.87
15_16	351.16
16_17	336.48
17_18	328.07
18_19	279.12
19_20	251.45
20_21	215.02
9_10	374.75

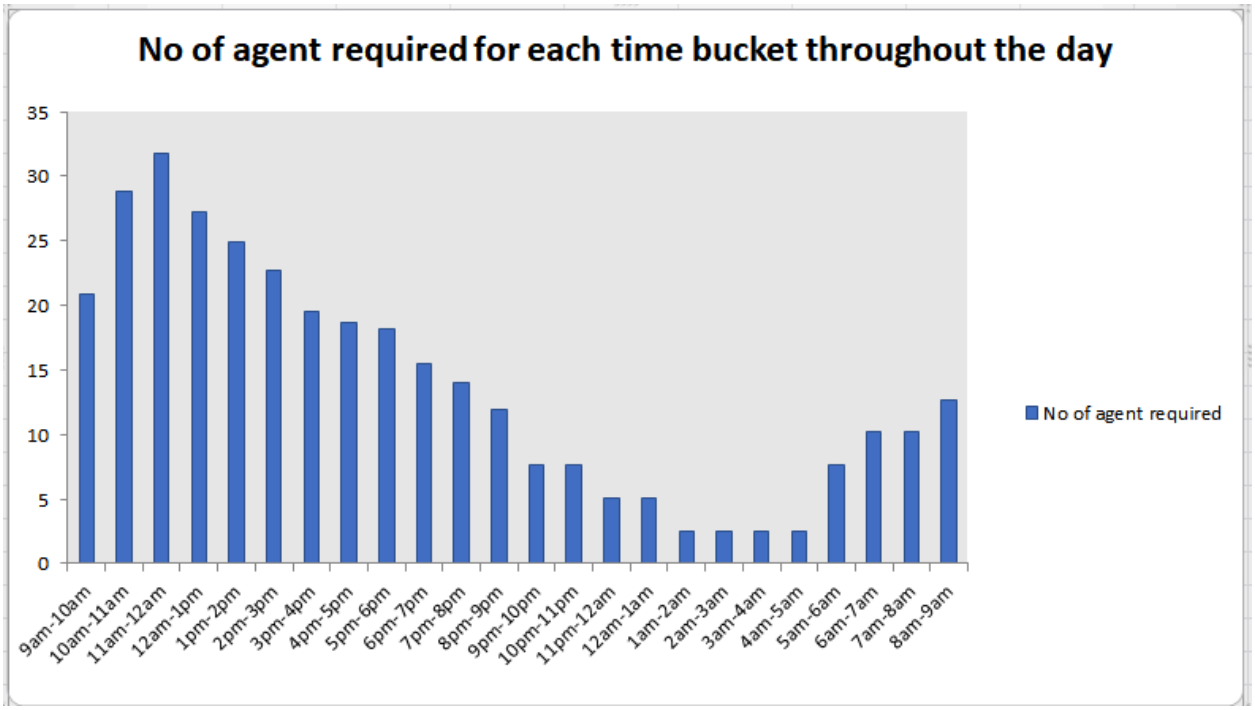
total no of call per day (from 9 am to 9pm)	4573	
total no of call per night(from 9pm to 9am)	1372	(30% of total calls)

Night shift manpower planning

time bucket	distribution of calls in night	Distribution in %	no of calls	no of agent required
9pm-10pm	3	10%	137	8
10pm-11pm	3	10%	137	8
11pm-12am	2	7%	91	5
12am-1am	2	7%	91	5
1am-2am	1	3%	46	3
2am-3am	1	3%	46	3
3am-4am	1	3%	46	3
4am-5am	1	3%	46	3
5am-6am	3	10%	137	8
6am-7am	4	13%	183	10
7am-8am	4	13%	183	10
8am-9am	5	17%	229	13
Total	**30**	**100%**	**1372**	**76**

Propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.

time bucket	No of agent required
9am-10am	21
10am-11am	29
11am-12am	32
12am-1pm	27
1pm-2pm	25
2pm-3pm	23
3pm-4pm	20
4pm-5pm	19
5pm-6pm	18
6pm-7pm	16
7pm-8pm	14
8pm-9pm	12
9pm-10pm	8
10pm-11pm	8
11pm-12am	5
12am-1am	5
1am-2am	3
2am-3am	3
3am-4am	3
4am-5am	3
5am-6am	8
6am-7am	10
7am-8am	10
8am-9am	13
Total	330



Result

The project improves my knowledge about customer experience, the calling team of a company , how its work, how agents manage the customers call and solve their queries, it enhances the bonding between the company and customers.

For the rest i knew about the different factors related to calling team like average call duration,call volume analysis, manpower planning and through the data analytics tasks, I improve my excel and statistics skills and thorough this project I get experience about the loom platform and its features, that is an excellent tech stack for presentation, live classes, video recording and organizing meetings etc.

The aim of this project is to highlight the importance of data-driven insights in optimizing customer experience for the calling team. By analyzing key metrics like queue time, call duration, and call statuses, we can identify areas for improvement. These insights allow the CX team to make recommendations to enhance customer interactions, reduce abandoned calls, and streamline response times.

In conclusion such analytics helps to ensure that each customer interaction meets high standards of satisfaction, improves greater customer loyalty and strengthens the company’s reputation.

Excel sheet Link

You can access the excel sheet through this link

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Video Presentation Link

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