ABC CALL VOLUME TREND ANALYSIS

SUMMARY:

This project focuses on analysing Customer Experience (CX) data related to a company's inbound calling team. The dataset spans 23 days and includes information such as agent details, queue times, call durations, and call statuses (abandoned, answered, or transferred). The goal is to improve CX by analysing customer interactions, providing insights to the organization, and optimizing service. CX teams use AI-powered tools like IVR, RPA, predictive analytics, and intelligent routing to enhance the customer experience. The project centres on inbound customer support, aiming to engage and retain customers through effective call handling.

Insights for Data Analytics Tasks:

Average Call Duration:

By calculating the average call duration for each time bucket (e.g., hourly), you can identify when calls tend to be longer or shorter. This will help determine peak times when more agents might be needed or when additional training may be required to handle more complex customer issues. Shorter calls during off-peak hours may indicate that customers are getting quicker resolutions.

Call Volume Analysis:

Visualizing the total number of calls in time buckets helps identify trends in call volumes. High call volumes during specific hours suggest periods of high demand, requiring better manpower allocation. Understanding these trends is crucial for optimizing staffing and ensuring agents are available when most needed, reducing customer wait times and enhancing service efficiency.

Manpower Planning:

The current 30% call abandonment rate suggests insufficient staffing during peak times. To reduce this to 10%, calculating the required number of agents per time bucket based on call volumes and average handling times is essential. This ensures that at least 90% of calls are answered, improving customer satisfaction and reducing the abandon rate. Proper staffing during busy hours will directly impact the company’s customer experience performance.

Night Shift Manpower Planning:

With 30% of daily call volume occurring at night, allocating agents during these hours is critical to avoid abandoned calls and poor customer experience. Based on the call distribution and assumptions about agent availability and productivity, you can propose a manpower plan that ensures a maximum abandon rate of 10%. Having agents available during the night can help manage demand and improve the overall customer experience.

Assumptions-Based Planning:

Given that agents work for 6 days a week with 4 unplanned leaves per month and 9-hour shifts (with breaks), you’ll need to factor in their total working hours and actual call-handling time. This insight is key to determining the number of agents required, taking into account available hours for answering calls. Balancing agent availability with customer demand will ensure optimal staffing without overburdening the team.

These insights provide a foundation for data-driven workforce management and improved customer experience in ABC Insurance’s inbound calling operations.

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Technology Used - MS Excel 2021 WAS USED FOR ANALYSIS

TASK1-Average Call Duration: Determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.

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

OUTCOMES-

Call_Status	answered

Row Labels	Average of Call_Seconds (s)
10_11	203.3310302
11_12	199.2550234
12_13	192.8887829
13_14	194.7401744
14_15	193.6770755
15_16	198.8889175
16_17	200.8681864
17_18	200.2487831
18_19	202.5509677
19_20	203.4060725
20_21	202.845993
9_10	199.0691057
Grand Total	**198.6227745**

The overall average call duration is 198.62 seconds.

The longest average call duration occurs between 10 AM to 11 AM at 203.33 seconds, while the shortest is between 14 PM to 15 PM at 193.68 seconds.

The call durations are relatively consistent throughout the day, with only minor variations in different time buckets.

Peak durations (above 200 seconds) happen in multiple time buckets: 10-11 AM, 16-17 PM, 19-20 PM, suggesting these could be busier periods requiring more efficient call handling.

These insights help identify the time slots where additional workforce or optimization might be needed to reduce call duration and improve efficiency.

TASK2-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.).

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

OUTCOMES-

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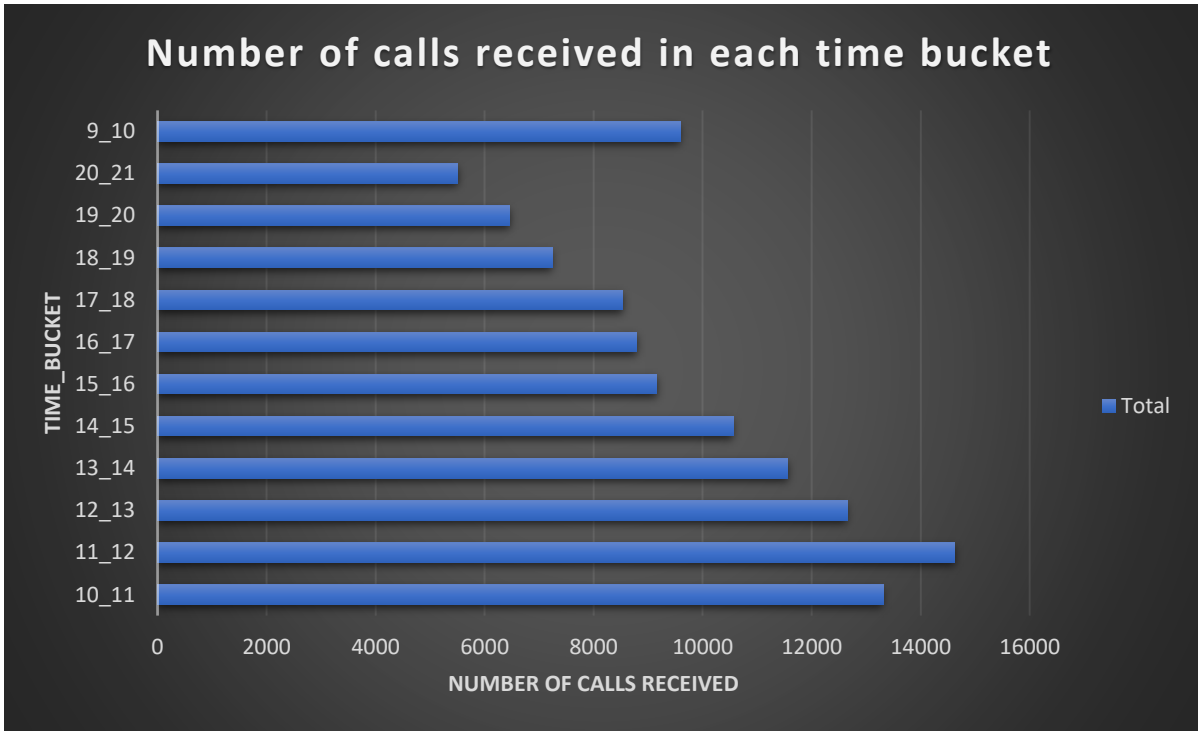
Row Labels	Count of Call_Status
10_11	13313
11_12	14626
12_13	12652
13_14	11561
14_15	10561
15_16	9159
16_17	8788
17_18	8534
18_19	7238
19_20	6463
20_21	5505
9_10	9588
Grand Total	**117988**



Peak Call Volume:

The highest volume of calls is observed in the time bucket 10-11 AM, with approximately 14,000 calls received, indicating this period is likely the busiest for the inbound calling team.

Gradual Decline:

After 10-11 AM, there is a gradual decline in call volume through the midday hours, with the 12-1 PM and 1-2 PM slots also experiencing high volumes (around 10,000 to 12,000 calls).

Lower Call Volume in Evening:

Call volume significantly decreases during the later hours, particularly from 8-9 PM onwards, where the numbers drop below 5,000 calls in the 9-10 PM time bucket.

Distribution of Calls:

The call distribution shows a clear peak during business hours, suggesting optimal staffing is needed during the morning and early afternoon shifts to handle the high volume effectively**.**

Implications for Staffing:

The significant call volume during peak hours implies that additional staffing may be necessary to manage customer inquiries efficiently and reduce wait times, especially between 10 AM and 2 PM.

These insights provide a foundation for better resource allocation and improving customer service during high-demand periods.

TASK3- 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.

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

OUTCOMES-

Count of Duration(hh:mm:ss)	Column Labels			
Row Labels	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**

Column1	Column2	Column3	Column4	Column5
Average No. of call status	1,496	3,585	49	5,130
Call Status in %	29	70	1	
Agents working hours	4.5			
Average of call duration in sec	198.62			
Hours needed for 90%	255			
Total No. of Agents Required	57			

Total Call Volume:

A total of 117,988 calls were received from January 1 to January 23, with 82,452 calls answered, 34,403 calls abandoned, and 1,133 calls transferred.

Call Status Distribution:

29% of the calls were abandoned, while 70% were answered, and only 1% were transferred to another department. This indicates a relatively high rate of abandoned calls, suggesting potential issues with wait times or staffing.

Average Call Duration:

The average call duration is approximately 198.62 seconds (or about 3 minutes and 18 seconds). This metric is important for understanding how long agents are engaged with customers**.**

Staffing Needs:

To maintain a service level where at least 90% of calls are answered without abandonment, a total of 57 agents are required during peak times.

255 hours of agent time are needed to meet this service level. Given that agents work 4.5 hours per shift, this means effective scheduling will be crucial during high-volume periods.

Daily Call Insights:

January 17 stands out with an extraordinarily high number of calls abandoned (16,636), suggesting a severe staffing issue or an unexpected surge in call volume.

The average number of answered calls per day is 3,585, indicating a consistent workload but with specific days (like January 17) showing extreme variations.

TASK4- 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.

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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. The distribution of these 30 calls is as follows:

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

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/users. The total number of days in a month is 30.

Count of Duration(hh:mm:ss)	Column Labels			
Row Labels	abandon	answered	transfer	Grand Total
01-Jan	684	3883	77	4644
02-Jan	356	2935	60	3351
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Grand Total	34403	82452	1133	117988

Column1	Column2	Column3	Column4	Column5
Average No. of call status	1,496	3,585	49	5,130
Call Status in %	29	70	1	
Agents working hours	4.5			
Average of call duration in sec	198.62			
Avg NO. of Calls at Night	1,539			

For 90% Call Rate at Night	76.4
Total No of Agents Required In Night Shift	17

Call Statistics Summary:

Total Calls (Jan 1 - Jan 23): 117,988

Answered Calls: 82,452

Abandoned Calls: 34,403

Transferred Calls: 1,133

Call Status Distribution:

29% of calls were abandoned.

70% of calls were answered.

1% of calls were transferred.

Average Call Duration:

The average call duration is **198.62 seconds** (~3 minutes and 18 seconds).

Night Shift Calls:

On average, **1,539 calls** were received during the night shift (9 PM to 9 AM).

To maintain a **90% call answer rate at night**, **76.4%** of the calls need to be answered.

The **total number of agents required for the night shift** is **17**.

Manpower Planning Assumptions:

Agent Working Days: 6 days a week.

Unplanned Leaves: 4 per month on average.

Working Hours: 9 hours, with 1.5 hours for breaks, leaving **7.5 actual working hours**.

Effective Call Time: Agents spend **60%** of their working hours on calls (~4.5 hours per day).

Month Length: 30 days.

Manpower Requirements:

Based on the given assumptions and to maintain an abandonment rate below **10%**, a detailed manpower plan must ensure:

For peak daytime hours (9 AM to 9 PM), agents must be distributed to handle both higher call volumes and maintain the call answer rate.

At night (9 PM to 9 AM), **17 agents** are required to meet the demand of 90% answered calls.

Adjustments need to be made considering peak call days like **Jan 17**, where the abandonment rate was extraordinarily high due to over 16,000 abandoned calls.

Agent Utilization:

Effective utilization of agents is crucial, especially during the night shifts, where fewer agents are available, but a 90% call answer rate is still necessary.

Scheduling agents to match call volume patterns can help improve service levels and decrease abandonment rates.

This analysis emphasizes the importance of **effective manpower planning** and **scheduling adjustments** to ensure the abandon rate remains below 10%, both during the day and night.