ABC Call Volume Trend Analysis

Final Project-4

Excel Workbook Link:
[Call Volume Trend Analysis](#)

Project Description:

In this project, we dive into the world of Customer Experience (CX) analytics, specifically focusing on the inbound calling team of a company. A dataset that spans 23 days and includes various details such as the agent's name and ID, the queue time (how long a customer had to wait before connecting with an agent), the time of the call, the duration of the call, and the call status (whether it was abandoned, answered, or transferred) has been provided.

A Customer Experience (CX) team plays a crucial role in a company. They analyze customer feedback and data, derive insights from it, and share these insights with the rest of the organization. This team is responsible for a wide range of tasks, including managing customer experience programs, handling internal communications, mapping customer journeys, and managing customer data, among others.

In the current era, several AI-powered tools are being used to enhance customer experience. These include Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, and Intelligent Routing.

One of the key roles in a CX team is that of the customer service representative, also known as a call center agent. These agents handle various types of support, including email, inbound, outbound, and social media support.

Inbound customer support, which is the focus of this project, involves handling incoming calls from existing or prospective customers. The goal is to attract, engage, and delight customers, turning them into loyal advocates for the business.

Approach:

There are a total of five sheets where one is a data table and four are the tasks that are performed.
We have mainly made use of pivot tables and charts.
We have also used mathematical functions in excel.

Tech-Stack Used:

Softwares Used:

WPS Office
Sheets
Microsoft Edge
OBS Studio
Google Drive
Google Docs

Hardware Used:

HP Pavilion
i5 Processor

Insights:

Usually we start by cleaning data, but the given dataset is mostly clean and the minimal missing values are not causing any issues so we have skipped it here as it won't make much difference.
After checking the data we insert a table.

Tasks: Analysis

1. **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?

We can calculate the average call duration for incoming calls received for each time bucket by using pivot table, and by filtering only the answered calls from the Call_Status column.

Result:
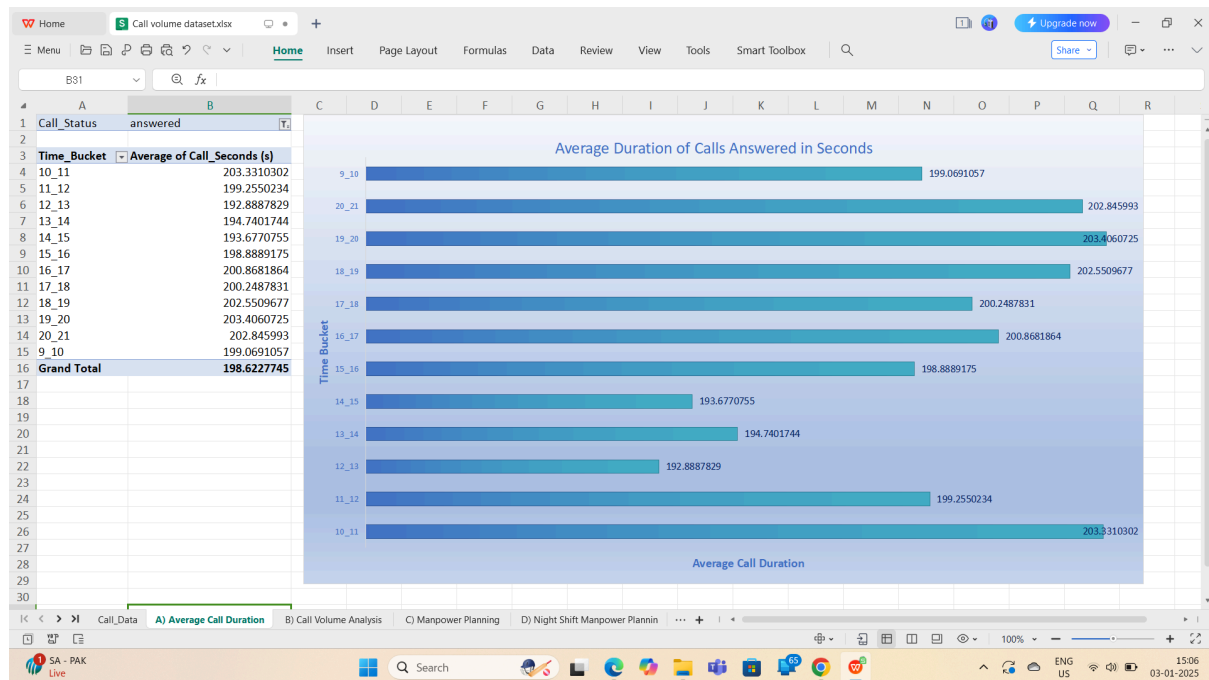
The total average call duration for incoming calls received by the agent is 198.62 seconds.

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

We can calculate the number of calls coming in each time bucket by using pivot tables by taking the Time_Bucket as rows and the count of Call_Seconds as values.

Then we use a pie chart to graphically show these values.

Results:
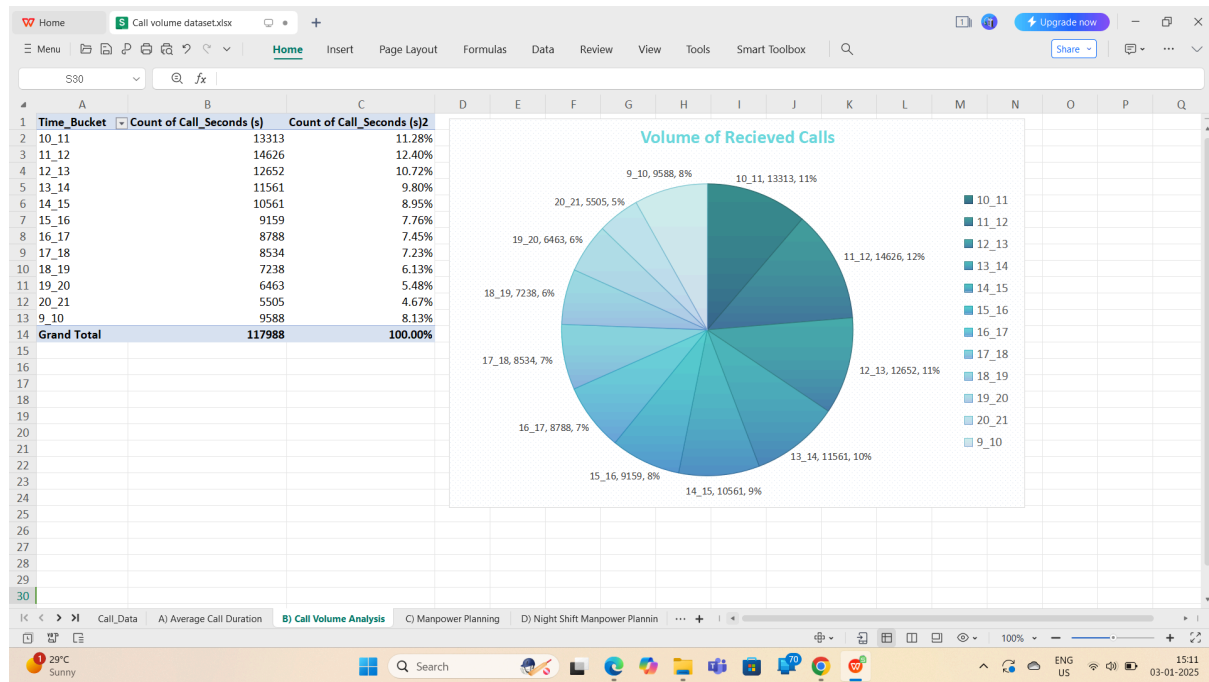
Time Bucket 11_12 has the highest call volume which is 12% of the total volume, while 20_21 has the lowest.

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

Assumptions:

Agent working hours – 9 hrs
Time taken for lunch and snacks – 1.5hrs
Agent actual working hours = 7.5hrs
Duration for which agent is on call with customers = 60% of actual working hrs = 5 hrs

 Total hours needed to attend the calls for a single day is 187.96 hours
 If one agent works 4.5hrs per day, then the total number of agents required to complete 187.96hrs (1 day) of work = 187.96/5 = 38
Total number of agents required to complete approximately 60% of work per day= 41.77
Total number of agents required to complete approximately 90% of work per day =90*38/60
=57 Agents
To find number of agents required for each time bucket value of Count of Call Seconds in decimal*57

Result:
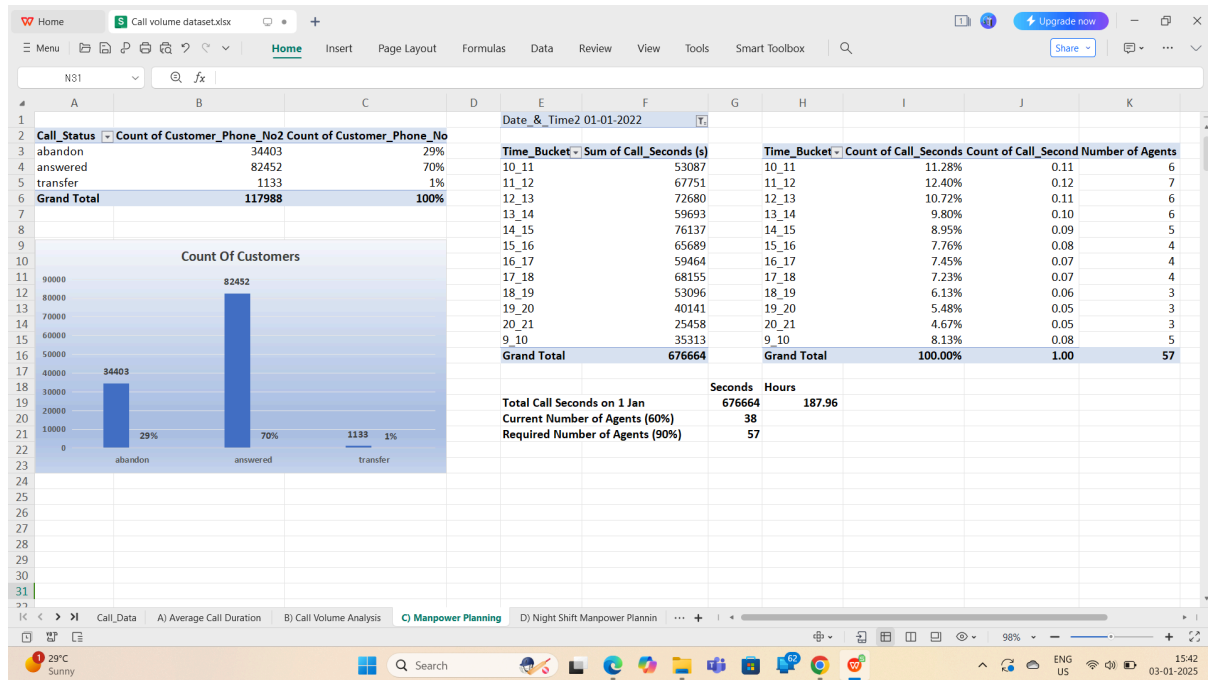
From the pivot table and chart, we find that approximately 29% of calls are abandoned, 70% of calls are answered and 1% of calls are transferred.

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. 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.

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 make use of a pivot table to find the count of calls according to their call status.

Average Daily Calls	Grand Total/Count(Date&Time) = 5130
Average Nightly Calls (30%)	5130*30/100 = 1539
Average night call seconds	1539*198.6*0.9/3600 = 76
Total agents required	76/5= 15

To find Time Distribution values for each time bucket 30/Call Distribution
To find number of agents required for each time bucket =15/Time Distribution

Result:

From the analysis we find that the company needs to hire at least 15 more employees to work a night shift.

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