

ABC Call Volume Trend Analysis

Problem Statement:

In this project, you'll be diving into the world of Customer Experience (CX) analytics, specifically focusing on the inbound calling team of a company. You'll be provided with 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).

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.

Data Cleaning:

In this step we clean the data as per requirement we remove the unnecessary columns like :

1. Agent_Name
2. Agent_ID
3. Queue_Time(Secs)
4. Wrapped_By
5. Ringing
6. IVR_Duration

Tech Task Used:

Pivot Tables:

- **Purpose:** Summarize, analyze, explore, and present data.
- **How to Use:**
 1. Select your data range.
 2. Go to the **"Insert"** tab.
 3. Click on **"PivotTable"**.
 4. Choose the data range and the location for the PivotTable.
 5. Drag and drop fields into the **Rows, Columns, Values, and Filters** areas to create your report.

Charts:

- **Purpose:** Visualize data trends and patterns.
- **How to Use:**
 1. Select the data you want to chart.
 2. Go to the **"Insert"** tab.
 3. Choose the type of chart you need from options like **Column** and **Bar**.
 4. Customize the chart using the **Chart Tools** that appear on the Ribbon.

Data Analytics Tasks:

You have been provided with a dataset that contains information about the inbound calls received by a company named ABC, which operates in the insurance sector. Your task is to use this data to answer the following questions:

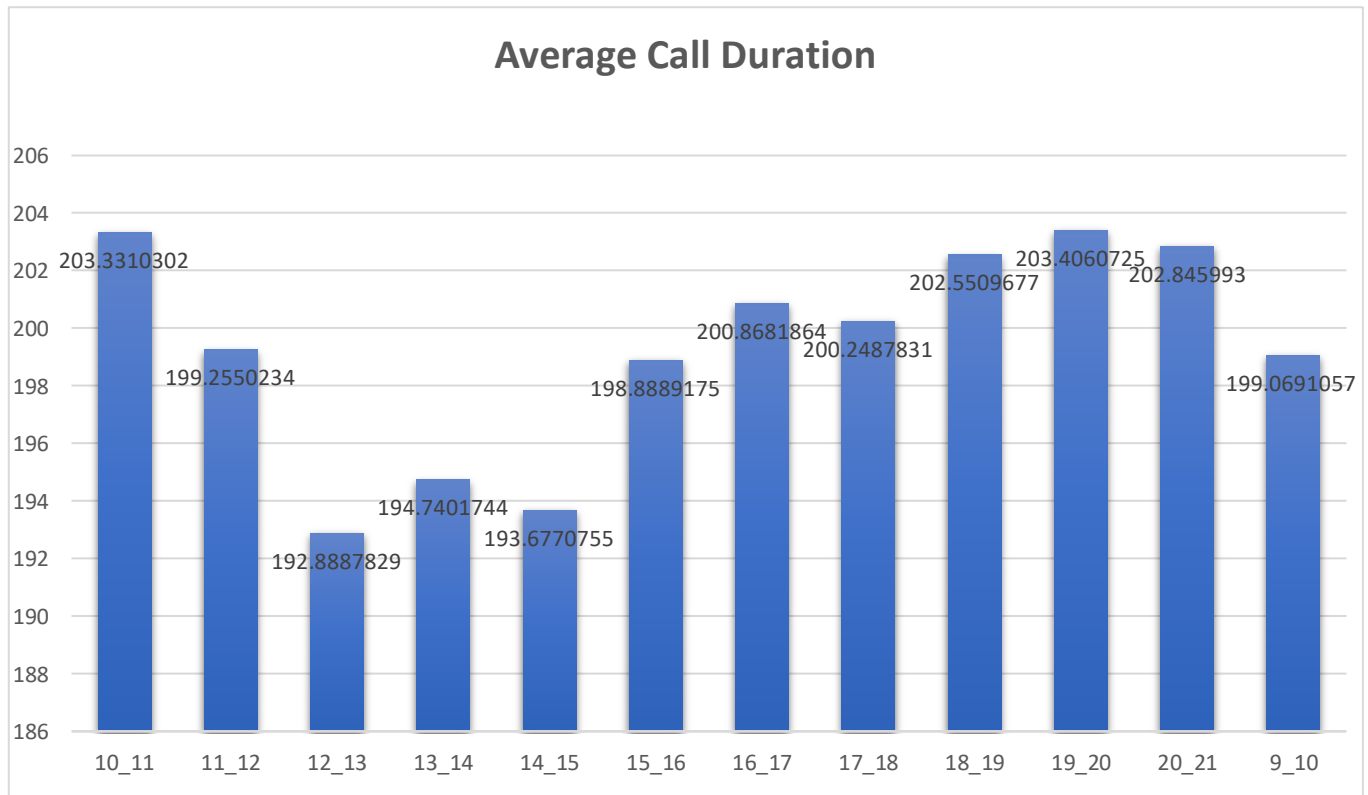
1. Average Call Duration:

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?

Result:

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

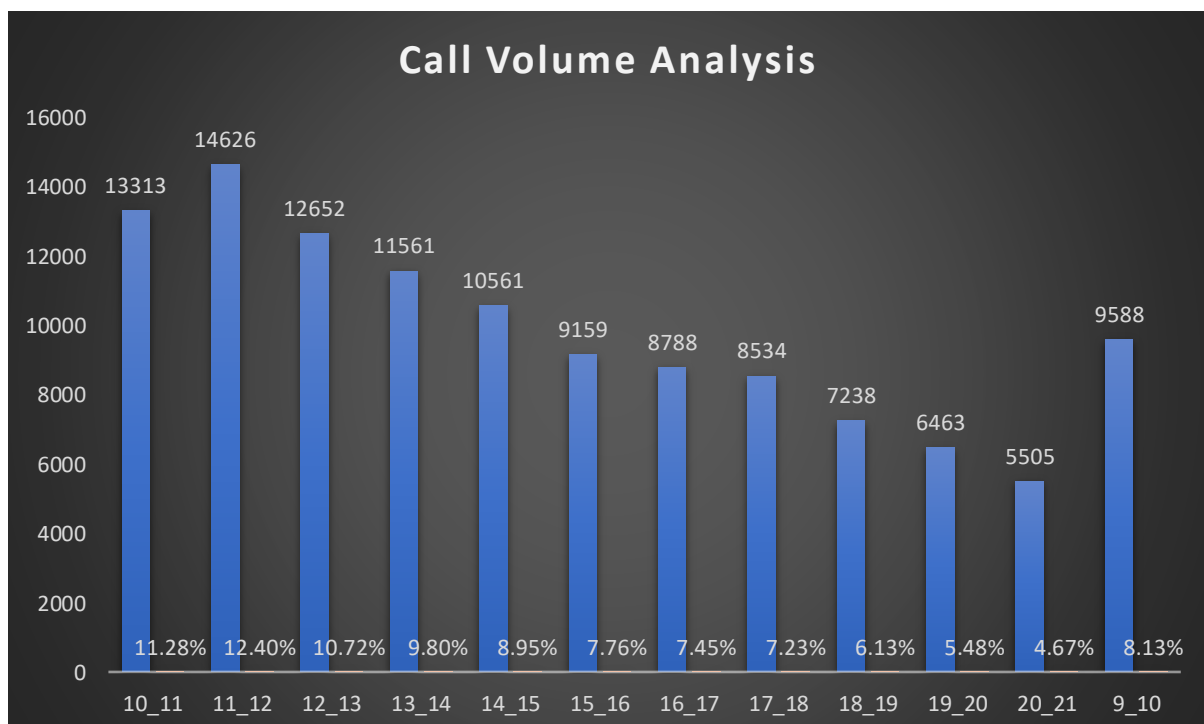


2. Call Volume Analysis: Visualize the total number of calls received. This should be represented as a graph or chart showing the number of calls against time. Time should be represented in buckets (e.g., 1-2, 2-3, etc.).

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

Result:

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



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%?

Result:

Count of Customer_Phone_No	Column Labels			Grand
Row Labels	abandon	answered	transfer	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

Average no. of Call Status	1495.782609	3584.87	49.2609	5129.91304
Percentage of Call Status	29%	70%	1%	
Agents Working Hours	4.5			
Average Call Duration in Seconds	198.6227745			
Hours Needed for 90%	255			
Total no. of Agent Required	57			

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%.

Result:

Count of Customer_Phone_No	Column Labels			Grand
Row Labels	abandon	answered	transfer	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
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Grand Total	34403	82452	1133	117988

Average no. of Call Status	1495.782609	3584.87	49.2609	5129.91304
Percentage of Call Status	29%	70%	1%	
Agents Working Hours	4.5			
Average Call Duration in Seconds	198.6227745			
Average Call Duration in Seconds at Night	1539			
Hours Needed for 90% in Night	76			
Total no. of Agent Required in Night	17			

Conclusion:

In this way, I done ABC Call Volume Trend Analysis Project using Excel. All tasks and its result are clearly mentioned in the report above.