ABC Call Volume Trend Analysis

- **Project Description:** In this project, I analyze customer experience (CX) data from an inbound calling team over a 23-day period. The dataset includes details such as agent performance, queue times, call timing, duration, and call status (abandoned, answered, or transferred). The goal is to extract insights from these metrics to improve customer satisfaction and agent efficiency, providing actionable recommendations for optimizing the overall customer experience.

- **Approach:** In this project, I started by exploring the dataset to understand its structure and key metrics, such as queue times, call durations, and agent performance. I applied exploratory data analysis (EDA) techniques using Microsoft Excel to uncover trends and patterns within the data. Next, I focused on segmenting the data based on call statuses (answered, abandoned, or transferred) to examine the impact of queue time and call duration on customer outcomes. Additionally, I evaluated individual agent performance to identify key areas for improvement. Finally, the insights were translated into visual reports, offering actionable recommendations to improve customer satisfaction and optimize the inbound calling process.

- **Tech-Stack Used:** Microsoft Excel 2022: Used for performing exploratory data analysis (EDA), generating summary statistics, and creating pivot tables to analyze agent performance and call status data. It also facilitated quick insights into queue times and call durations.

- **Assumption:**

    - **Working Days:** 6 days per week
    - **Unplanned Leaves:** 4 leaves per months
    - **Total Working Hours:** 9hrs
    - **Break-Time:** 1.5hrs
    - **Actual Working hours:** 7.5hrs
    - **Call Working Hours (60% of actual working hours):** 4.5hrs

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

- **Insights:**

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?
- **Conclusion:** The Average duration of call for each time bucket is **140**

Time Bucket	Average of Call_Seconds (s)
10_11	97.42402163
11_12	116.7837413
12_13	144.7250237
13_14	149.5409567
14_15	146.9693211
15_16	169.8968228
16_17	181.4393491
17_18	179.7245137
18_19	174.3246753
19_20	144.5825468
20_21	105.9491371
9_10	92.01032541
Grand Total	**139.5321473**

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?
- **Conclusion:** Chart 1 Represent the Count of Customer Phone Number means in which time bucket how many phones number are received by call agent Highest time bucket call received by call agent is **11-12** and Lowest at **18-19.** Chart 2 shows Count of call in percentage of every time bucket.

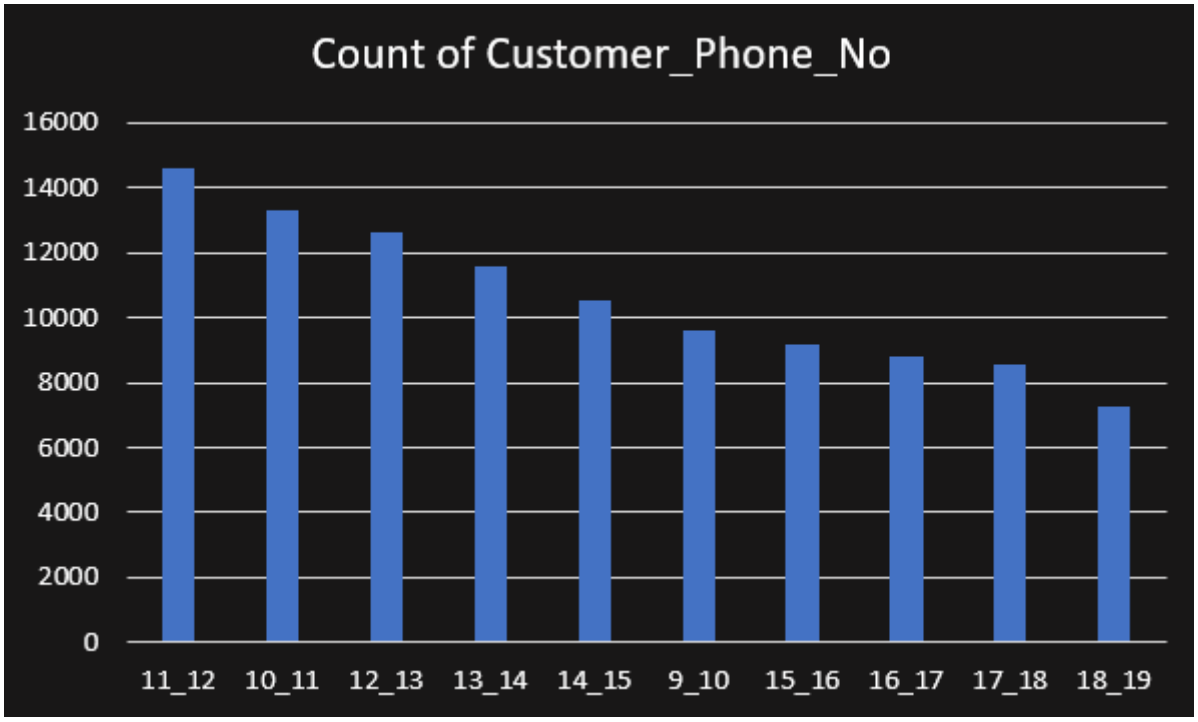

Chart 1

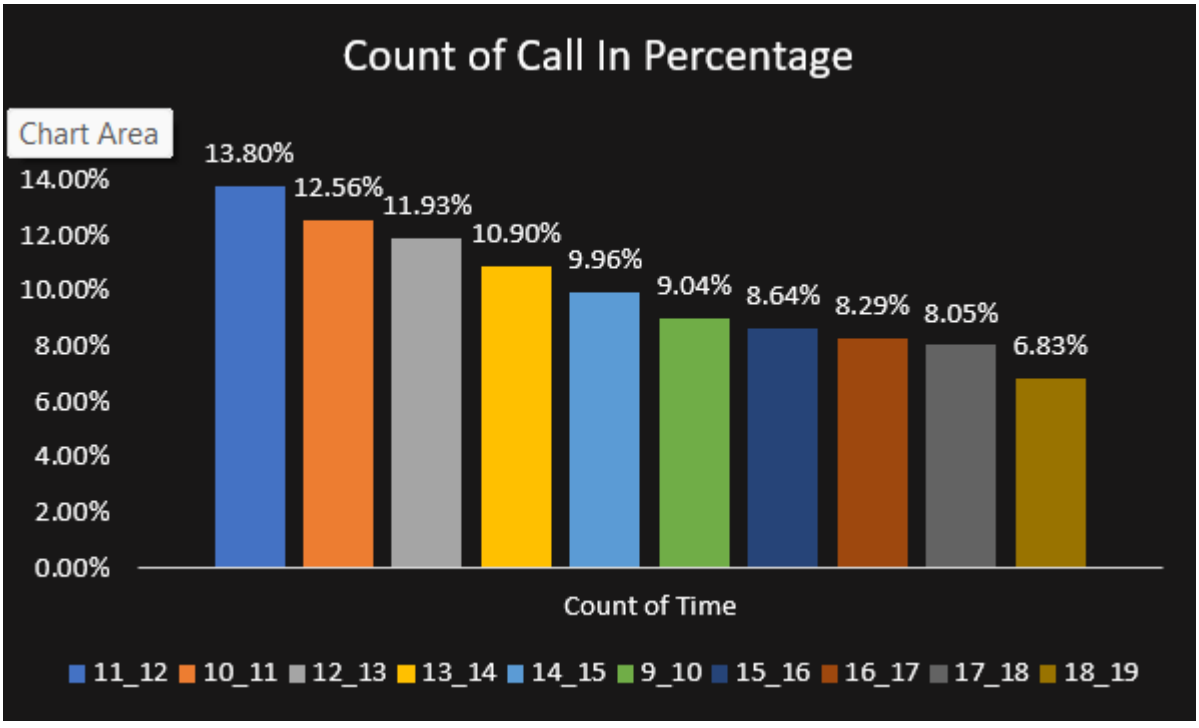

Chart 2

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%?
- **Conclusion:** To reduce the abandon rate from 30% to 10%, you need a minimum of **40 agents** working from 9 am to 9 pm across different shifts. This calculation ensures that 90% of calls are answered, with agents distributed in a way that meets the target abandon rate of 10%.

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%.
- **Conclusion:** For the night shift from 9 pm to 9 am, deploying **12 agents** will ensure that 90% of the expected call volume (1539 calls) is handled efficiently, maintaining a maximum abandon rate of 10%. This plan significantly improves customer experience during night hours.

Result:

- At the beginning and toward the end of the shift, the agents' call abandonment rate is particularly high. The management needs to take a close look at if the agents aren't being managed correctly, team meetings or some other factor is to blame for the high abandon rate.
- Whatever the cause, management must act immediately. If the issue is caused by the engagement in some other activity, then it must be moved to the timing of 4pm to 6 pm as during this time period less traffic as well as abandon call rate is observed.

Learning:

- This project was challenging and has helped me enhance my skills in terms of Excel usage, comfortability around it, and Data Analysis.

- Skill Learned:
  Problem-Solving & Manpower Planning

- Overall, this project enhanced my Excel skills for data analysis, equipping me with the ability to extract valuable insights, make informed decisions, and contribute to better outcomes.

- **Excel Sheet Link:**
  https://docs.google.com/spreadsheets/d/1WoYWU33tgkVsM1joK8kY3aBQ_iXoIST6/edit?usp=sharing&ouid=116406143301160000153&rtpof=true&sd=true