ABC Call Volume

Trend Analysis

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Description of PROJECT

ABOUT THE PROJECT

In this project, we'll delve into the realm of Customer Experience (CX) analytics, focusing on our inbound calling team. With a dataset spanning 23 days, we'll be exploring crucial details like agent names, queue times, call timings, durations, and statuses (abandoned, answered, or transferred). Our CX team holds a pivotal role, analyzing customer feedback to ensure satisfaction and loyalty. Leveraging AI tools like IVR and RPA, we aim to enhance efficiency. By dissecting inbound call trends, our goal is to address customer needs, foster loyalty, and optimize our CX initiatives. Advertising's role in shaping perceptions is vital, and through analytics, we'll uncover insights to drive customer-centric excellence.

Approach

Understanding

1

Analyzing data to identify columns requiring cleaning & determining types of analysis that can be conducted with each column

Data Cleaning

2

Addressing Null/Abnormal Values & Eliminating Unnecessary Features

Insights

3

Extract insights from the data analysis to gain a data-driven understanding of the business & its processes

Visualize

4

Visualize the insights & findings to gain a deeper understanding of the data, analysis & the narrative it conveys

TECH STACK USED

I utilized Microsoft Excel for advanced data analysis, visualization, and gaining valuable insights for the task at hand. Its advanced Excel capabilities facilitated complex analyses and provided features that enhanced productivity, making it the ideal tool for my needs.

DATA CLEEANING PREPARATION

04

UNDERSTANDING THE DATA

117989 Number of Rows

13 Number of Columns

34198 Number of N/A (Agent Name, Agent ID)

47877 Number of NULL

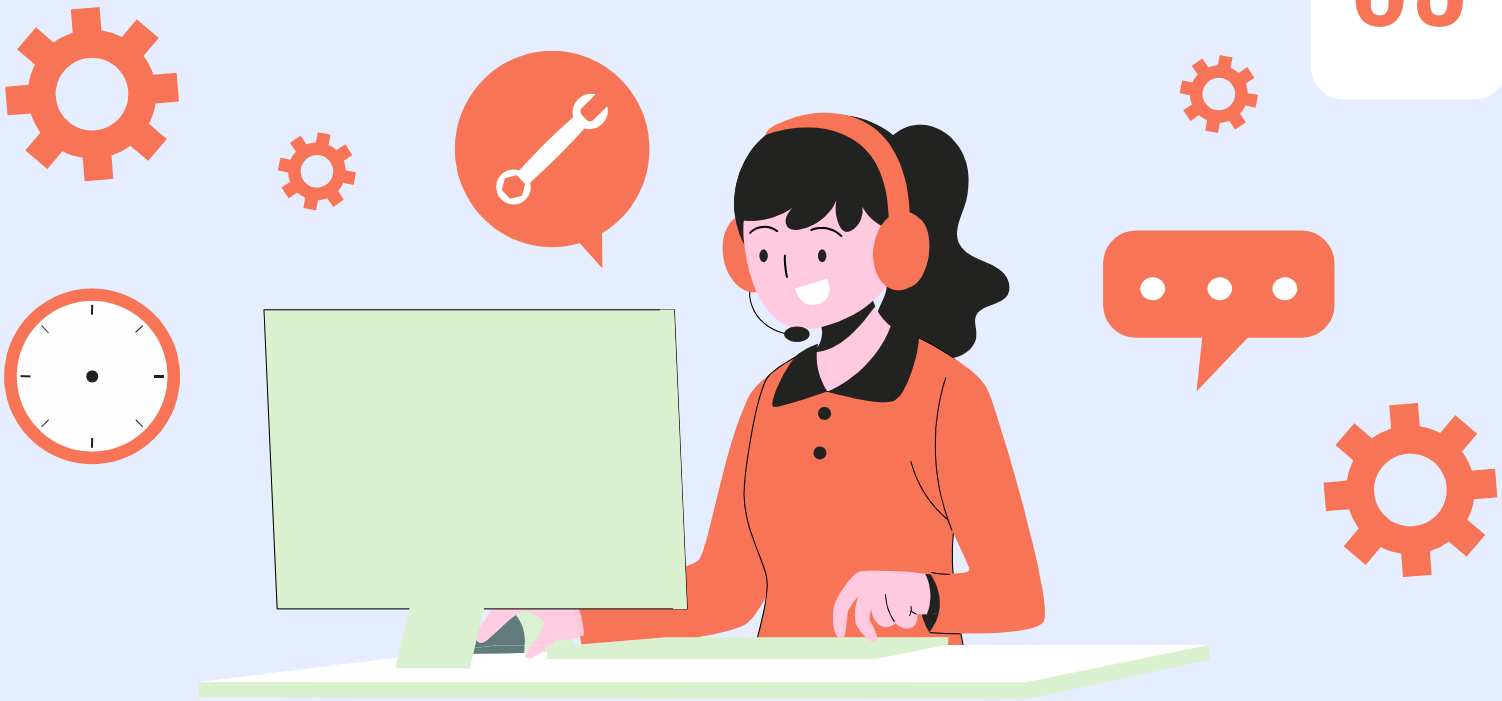
DATA CLEANING

- We observe that there are "N/A" values in the Agent Name and Agent ID columns. These "N/A" values are not abnormal; they correspond to calls that were abandoned. Since these abandoned calls did not connect to any agent and therefore have no call duration, they were not assigned an Agent ID or Agent Name.

- Next, we'll analyze null values in the "Wrapped By" column. Since all the abandoned calls were represented by BLANKS, they have been replaced with "Abandon Call". For BLANKS in the "Answered" and "Transfer" categories, they were replaced with the mode of the "Agent" column.

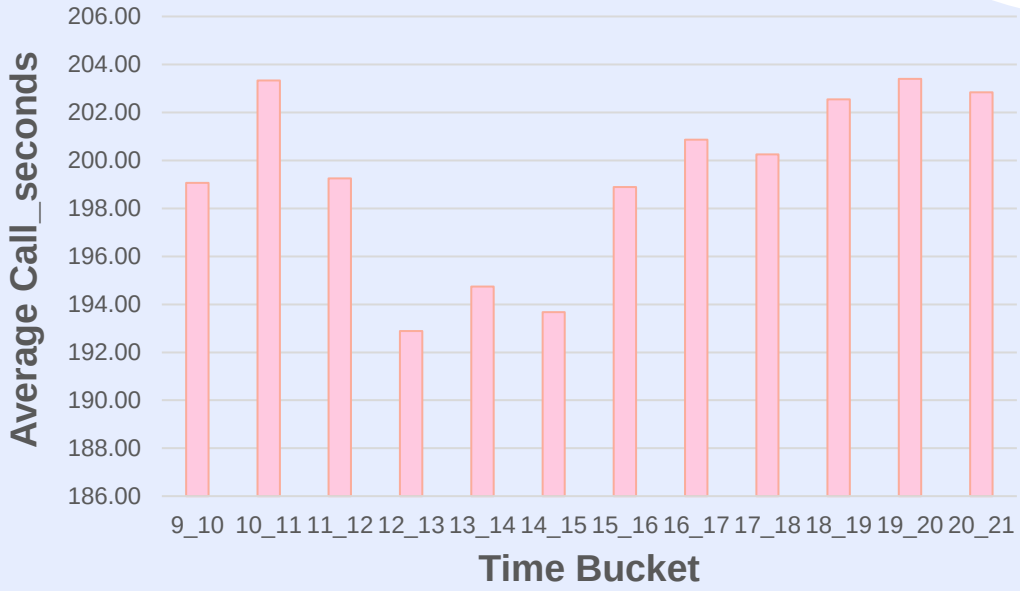
CASE STUDY-Insights

05

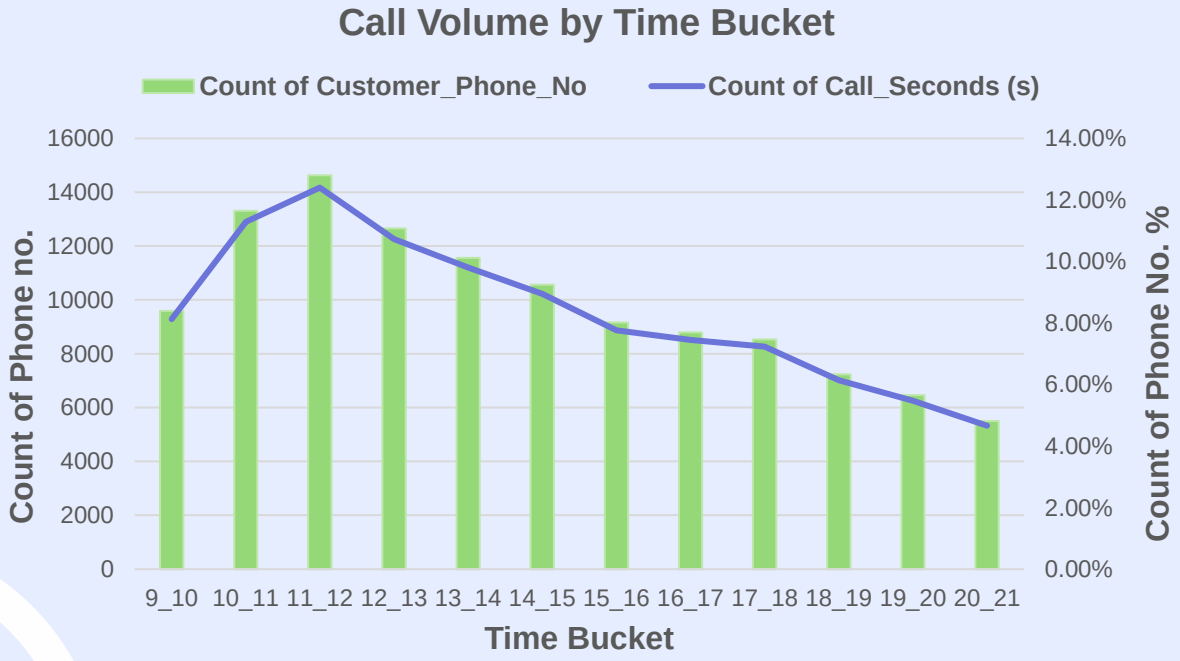


AVERAGE CALL DURATION BY TIME BUCKET

For visualization, I chose a bar graph, as it allows us to easily observe the average call duration per second according to their time buckets. Interestingly, the time bucket between **12-15** had the **least amount of calls handled**, indicating potential areas for improvement in resource efficiency during this period.



DISTRIBUTION OF CALL VOLUME BY TIME BUCKET



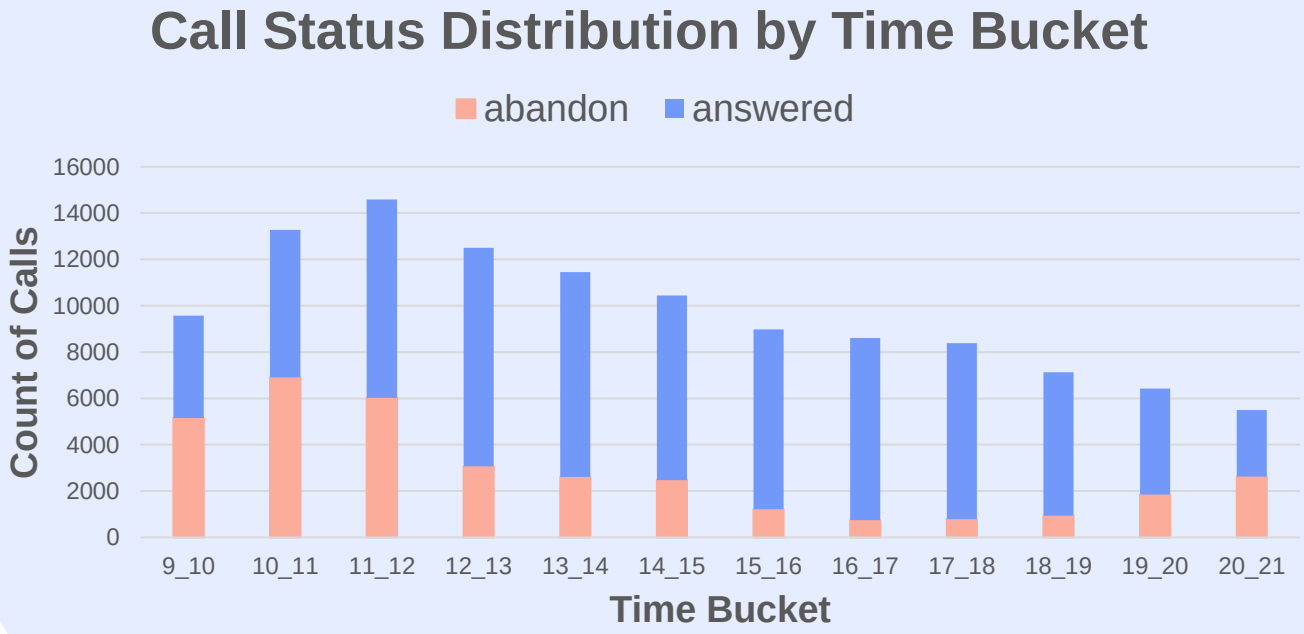
For visualization, I chose a combination chart. From the graph, we observe a **significant drop** in the percentage of phone calls after the **12pm time bucket**.

ASSUMPTION

Assumption & Calculation	
Work Hour	9
Break	1.5
Actual Working Hour	7.5
Percentage of time on calls	60%
Total Working Seconds as per time on calls	16200
Average Call Time/Agent	199
Call capacity of an Agent/day	81
Call capacity of an Agent/Hour	18

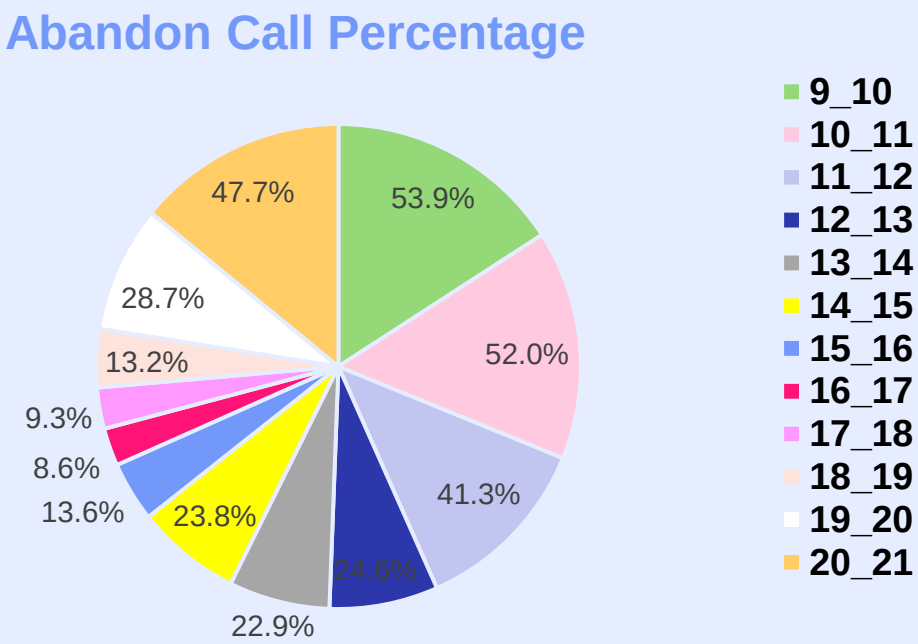
The current rate of abandoned calls is approximately 30%. Propose a plan for manpower allocation during each time bucket (from 9 am to 9 pm) to reduce the abandon rate to 10%. In other words, you need to calculate the minimum number of agents required in each time bucket to ensure that at least 90 out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

COUNT OF CALL STATUS



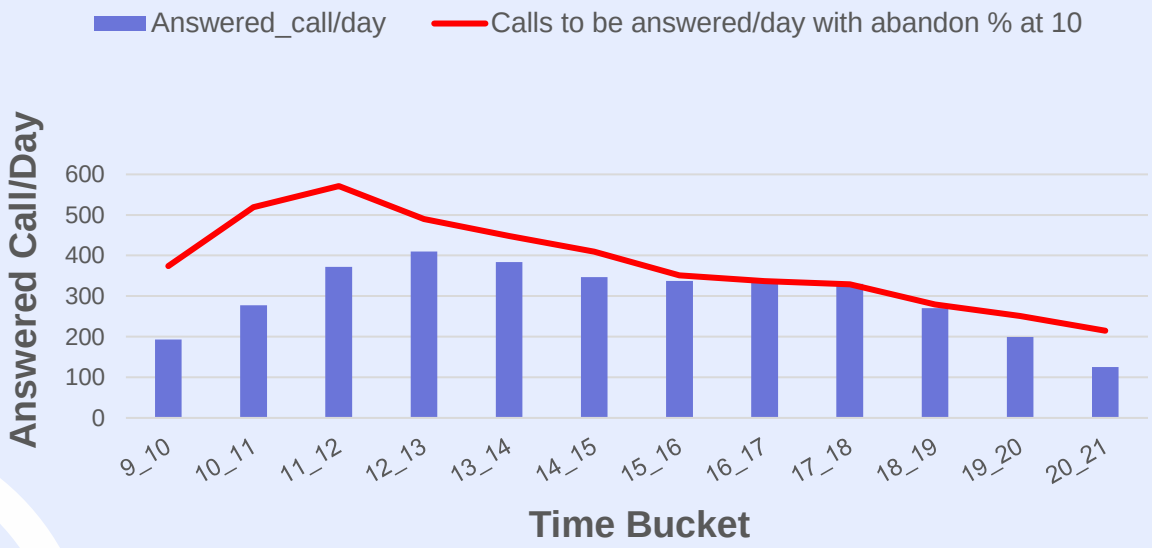
The stacked column chart reveals that the highest number of **abandoned calls** occurs during the **9-10 time bucket**, totaling up to **721 calls**.

CALL STATUS & VOLUME ANALYSIS BY TIME BUCKET



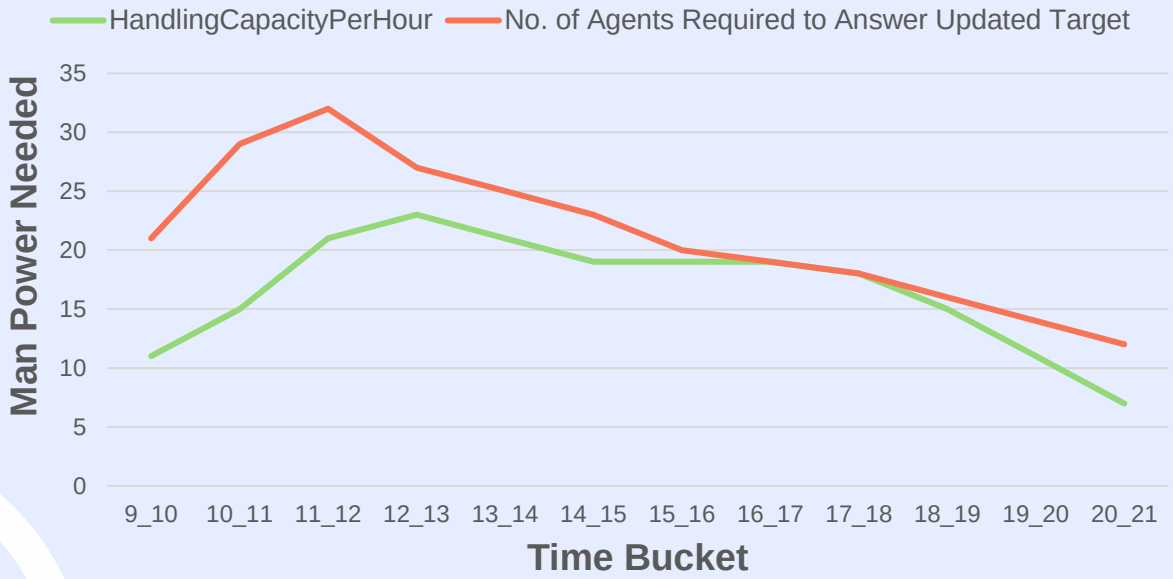
For visualization, I chose a pie chart, which demonstrates that **over 50%** of calls were **abandoned** between the **time buckets of 9-11**.

AGENT CAPACITY & MANPOWER PLANNING BY TIME BUCKET



In this combination chart, we observe the comparison between current call volumes and updated call numbers per day for each time bucket, considering the new abandonment rate. This analysis will inform the calculation of the number of agents required in each time bucket.

AGENT CAPACITY & MANPOWER REQUIREMENTS BY TIME BUCKET



In this line chart, we compare the current call volumes with the updated call numbers per day for each time bucket, adjusted according to the new abandonment rate. This comparison will inform the calculation of the required number of agents in each time bucket.

ASSUMPTIONS FOR TASK EXECUTION

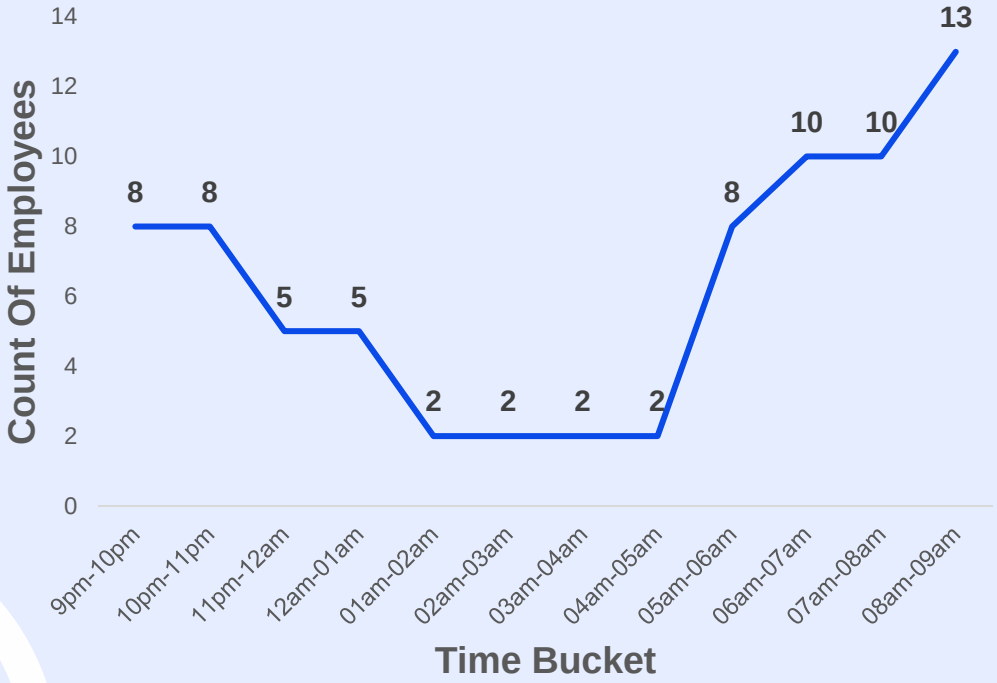
An agent works for 6 days a week; On average, each agent takes 4 unplanned leaves per month; An agent's total working hours are 9 hours, out of which 1.5 hours are spent on lunch and snacks in the office. On average, an agent spends 60% of their total actual working hours (i.e., 60% of 7.5 hours) on 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 will calculate the percentage distribution of calls for each time bucket to determine the required distribution of calls and the number of employees needed to handle them for each time bucket.

Time Slot	Distribution of calls	Percentage Distribution
9pm-10pm	3	0.1
10pm-11pm	3	0.1
11pm-12am	2	0.07
12am-01am	2	0.07
01am-02am	1	0.03
02am-03am	1	0.03
03am-04am	1	0.03
04am-05am	1	0.03
05am-06am	3	0.1
06am-07am	4	0.13
07am-08am	4	0.13
08am-09am	5	0.17
total	30	

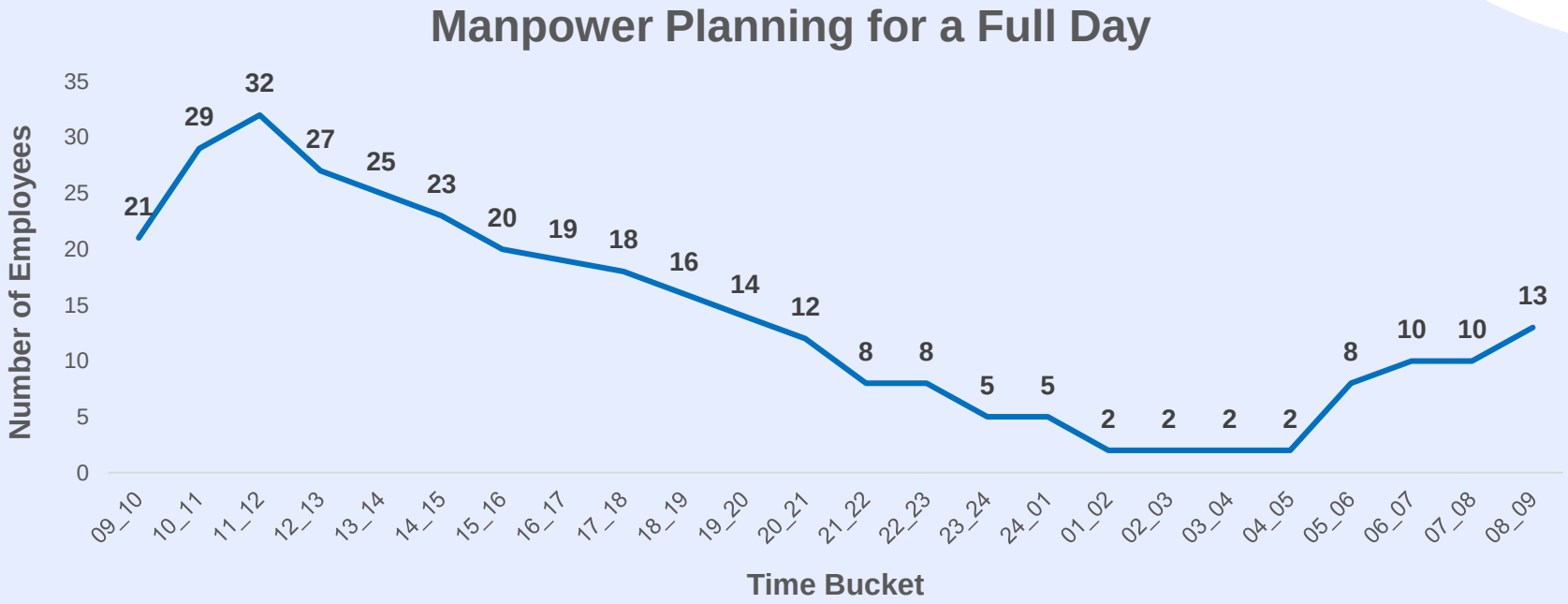
EMPLOYEE DISTRIBUTION FOR NIGHT SHIFT



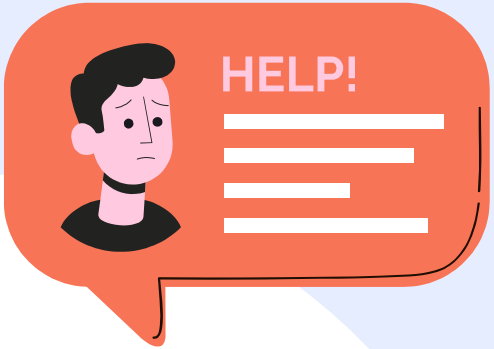
Total number of calls answered with a 10% abandonment rate on an average day was **4573**. Considering that 30% of calls are received during the night, & each agent can answer **18 calls per hour**, the total calls answered on average during the night is **1372**.

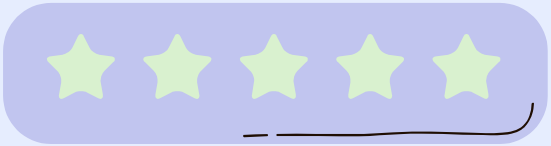
For this visualization, I utilized a line chart to illustrate the manpower requirements for the night shift. It depicts that the need for employees is lower during the **1 am to 5 am** time period.

EMPLOYEE DISTRIBUTION FOR FULL DAY



This line chart illustrates the number of agents required to meet the updated target throughout the entire day.





AREA TO FOCUS

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- The analysis has revealed a notable trend of **high call abandonment rates** by agents at the **beginning** and **end** of their shifts. It is essential for management to closely examine whether this trend is due **to inadequate monitoring of agents** during these times or if it is influenced by factors such as **team meetings scheduled at the start or end of the day**.
- If the high call abandonment rate is attributed to reasons such as team meetings, it is advisable to schedule these meetings during **evening hours between 4 pm to 7 pm**, as the abandonment rate of calls during this time period is consistently **below 10%**. This strategic adjustment can help mitigate the impact of meetings on **call abandonment rates and ensure optimal agent availability during peak call periods**.
- **Implementing systems for ongoing monitoring of call volume trends and customer feedback** can enable proactive adjustments to **customer service strategies**, ensuring alignment with evolving **customer needs and preferences**.
- **Leveraging AI-powered tools such as IVR and RPA** to automate routine tasks and streamline customer interactions can enhance efficiency and free up agents to focus on more complex customer inquiries, ultimately improving overall service quality.

RESULT 06

Through this analysis, we gained valuable insights into the call volume trends, abandonment rates, and manpower requirements of the inbound calling team. By leveraging data-driven approaches, we were able to optimize the allocation of resources, improve customer service efficiency, and enhance overall customer experience.

Further, This analysis provided a comprehensive understanding of the dynamics of customer interactions and the critical role of the CX team in ensuring customer satisfaction and loyalty. It underscored the importance of data analytics in informing strategic decision-making processes and driving business outcomes. Additionally, it highlighted the significance of adapting to changing customer needs and continuously refining customer service strategies to stay competitive in a dynamic business environment.

THANKS!

Sheet Link:
https://docs.google.com/spreadsheets/d/1nXuCzNvdtxLQGf2r1uvNWWToTKZCBJgo/edit?usp=drive_link&ouid=106840552770845347568&rtpof=true&sd=true

Drive Link:
https://drive.google.com/drive/folders/1GNaD7SdmFnqTGe5-b-0r8IC2ZzNyaMII?usp=drive_link

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