ABC Call Volume Trend Analysis

Video Link:
https://drive.google.com/file/d/1MfTJAIQr8p1lS-hUwJvzelm5PZn4c65u/view?usp=sharing

Data Set link:
https://docs.google.com/spreadsheets/d/1VjkDICovNn5B3sK8UrBS0up_J576CiXi/edit?usp=sharing&ouid=104761672347413617130&rtpof=true&sd=true

Project Description

This project aimed to analyze the inbound call volume trend of ABC, an insurance company, over a span of 23 days. The objectives included determining the average call duration, visualizing call volume against time, proposing manpower allocation plans to reduce call abandonment rates, and optimizing nighttime manpower planning to improve customer experience.

Approach

- **Data Analysis:** Utilized Microsoft Excel for data analysis, employing various techniques such as pivot tables, complex functions, and conditional formatting.
- **Statistical Analysis:** Incorporated appropriate statistical analyses to derive insights and make recommendations.
- **Manpower Planning:** Developed manpower allocation plans based on call volume and abandonment rates to ensure efficient customer service.
- **Documentation:** Prepared a report summarizing findings, insights, and recommendations.

Tech-Stack Used

Software: Microsoft Excel 2023

Purpose: Data analysis, visualization, and statistical calculations.

MS Excel 2023

MS PPT 2023

Understanding Data

Briefly elaboration of data

117,988	47,877	34,198	34,198
Number of Rows	Wrapped Values(Null)	Agent name (N/A) **Abnormal Value**	Agent Id **Value(N/A)Abnromal value**

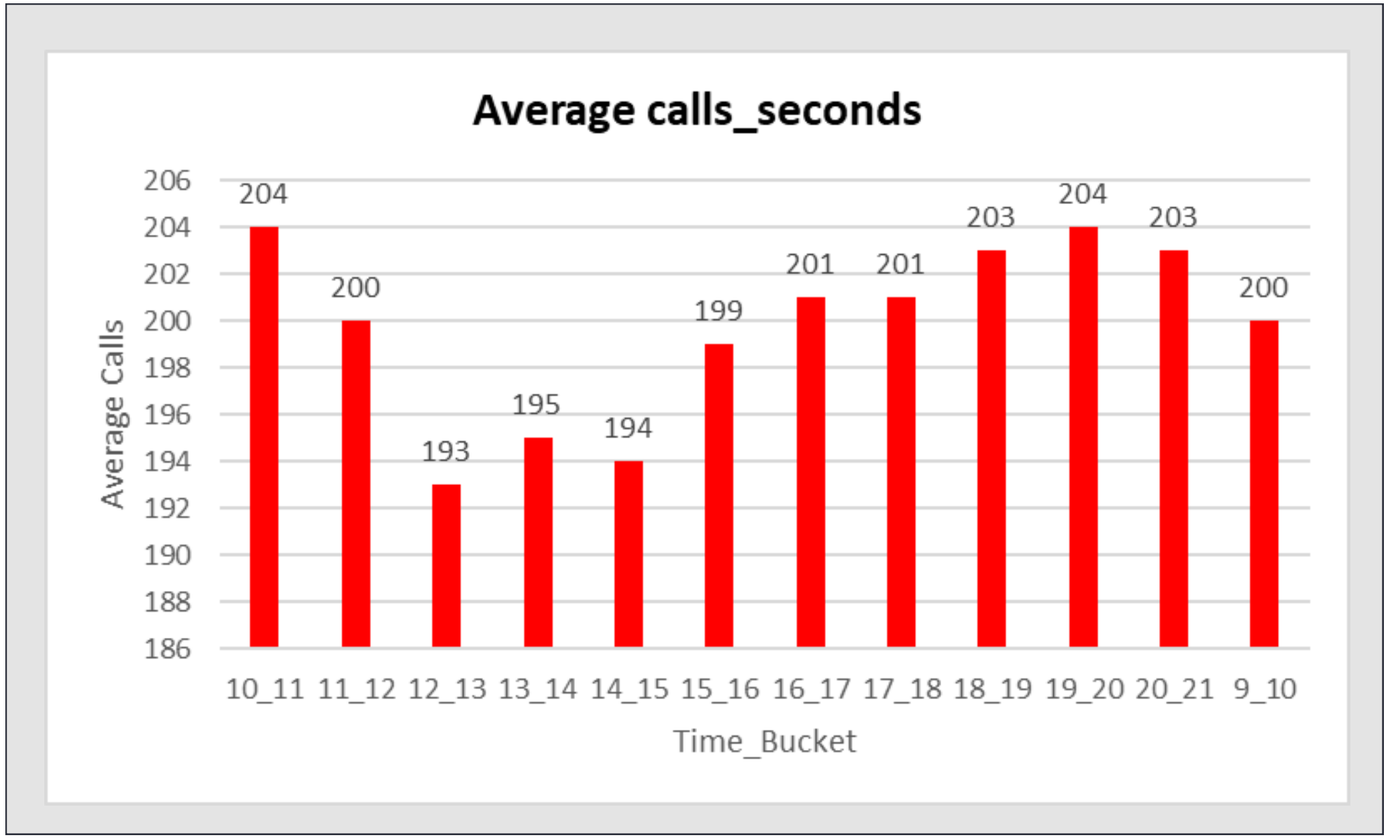
Data Cleaning

The Agent Name and Agent ID Columns both display N/A, as can be seen. However, we discovered that these "N/A" values are actually assigned to abandoned calls and are not at all random. due to the abandoned and unanswered calls. Consequently, they were not transferred to any agent and lacked both an Agent ID and an Agent Name.
We examine Null values in the Wrapped By Column in more detail. The figure shows that every abandoned call is a Null, which is then replaced by an 'Abandoned call'. In the responded and transfer categories, Mode ('Agent') took the place of the Nulls.

Task 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?

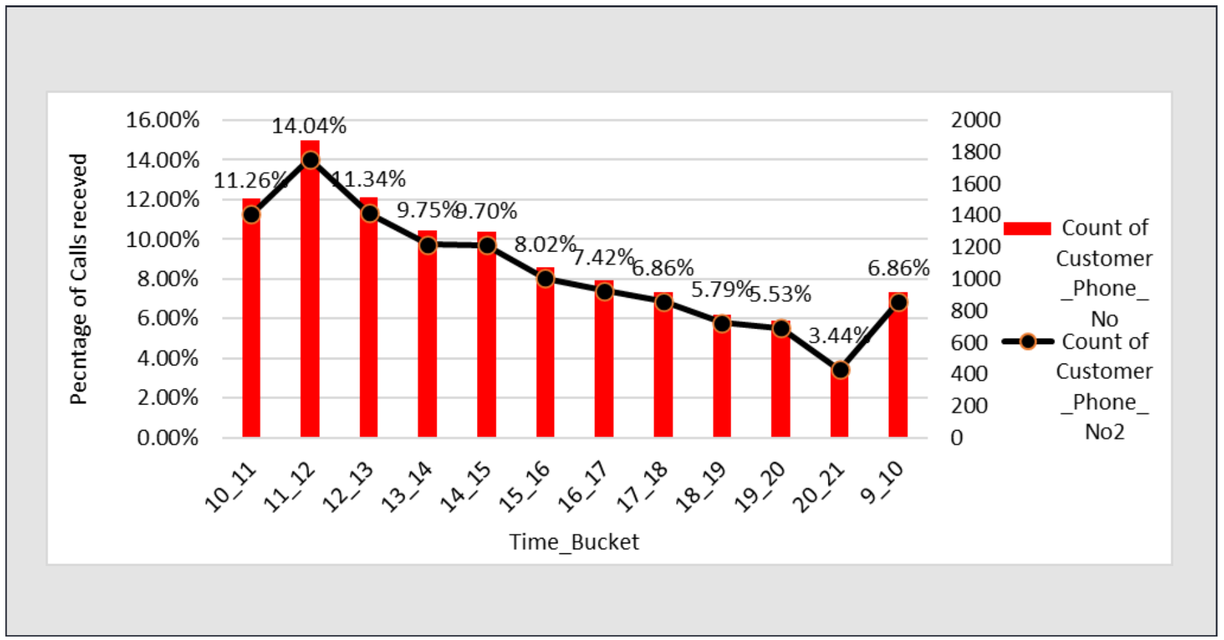


The analysis reveals the average call duration per time bucket, with the highest duration observed during the 10-11 AM time slot at 204 seconds. Generally, call durations remain consistent throughout the day, with a slight peak during evening hours. **Overall, the grand total average call duration stands at 199 seconds.** This information aids in understanding call handling efficiency across different time periods, enabling targeted improvements in customer service operations.

Task 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?

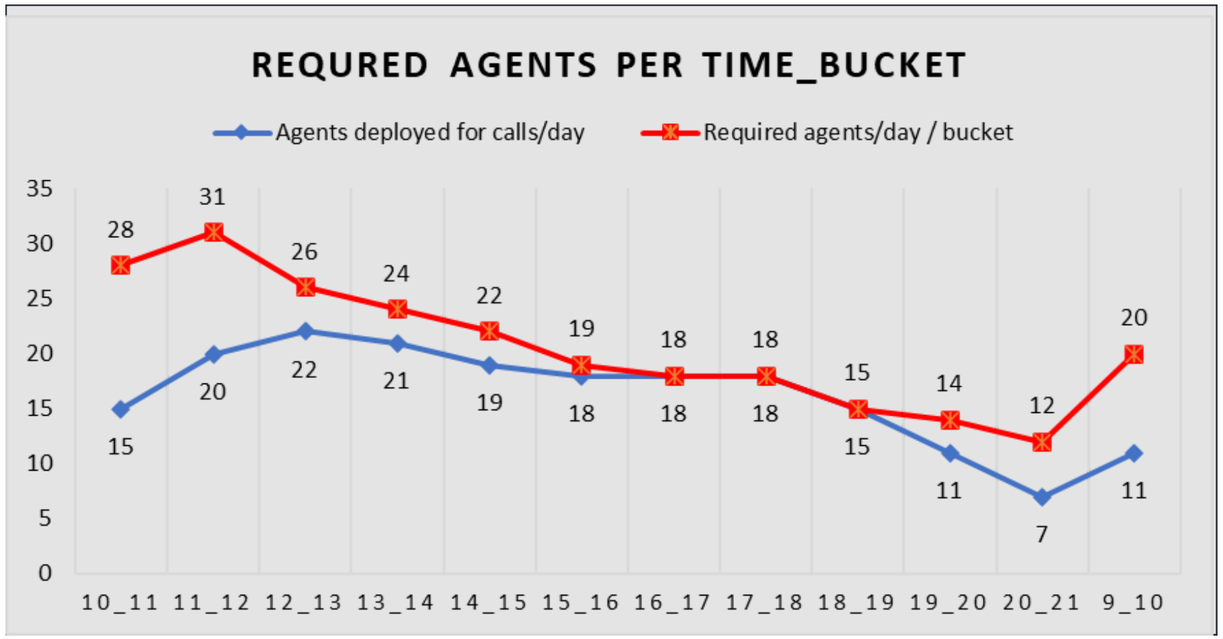


The task 2 result provides a detailed breakdown of call volume across different time buckets. The highest volume of calls, comprising 14.04% of the total, occurs during the 11-12 PM time slot, followed closely by the 12-1 PM slot at 11.34%. The lowest call volume, constituting 3.44% of the total, is observed during the 8-9 PM time period. This distribution highlights peak hours of call activity, enabling better resource allocation and scheduling for efficient customer service management.

Task 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%?

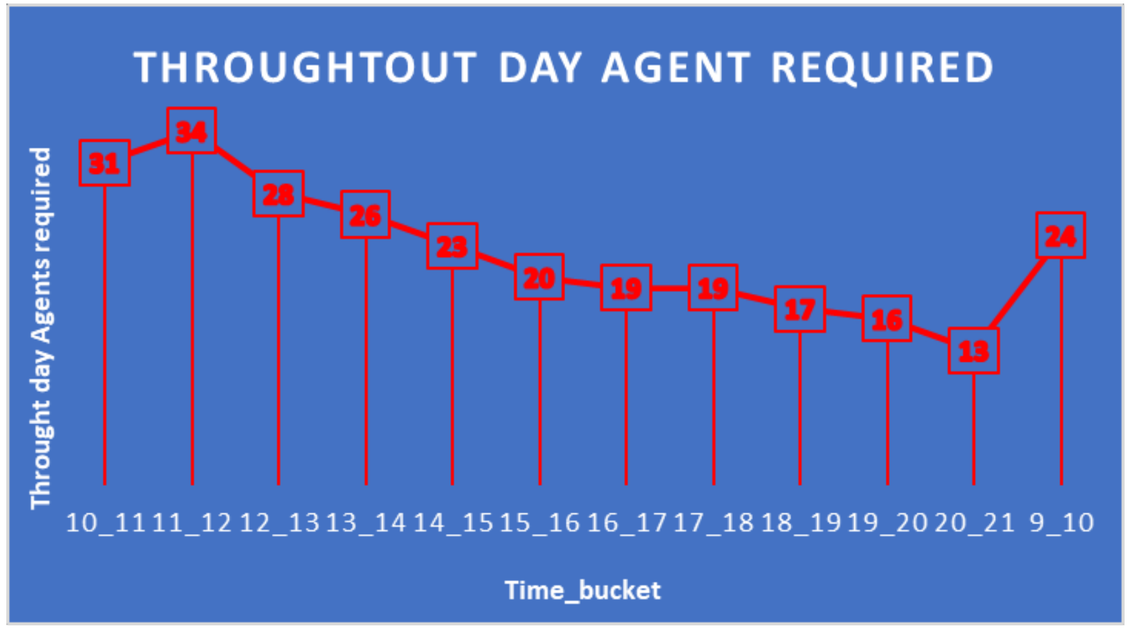


Task 3 results provide insights into the required deployment of agents per time bucket to reduce the call abandonment rate to 10%. The analysis indicates varying agent deployment needs throughout the day, with peak requirements during the 11-12 PM slot, necessitating 31 agents, followed closely by the 10-11 AM slot requiring 28 agents. The lowest requirement is during the 20-21 PM slot, needing only 12 agents. Overall, to meet the target abandonment rate, a total of 241 agents are required daily, distributed across different time buckets to ensure efficient call handling and customer satisfaction.

Task 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%.



Task 4 provides a comprehensive plan for manpower allocation throughout the day, considering nighttime calls to maintain a maximum abandonment rate of 10%. The analysis indicates varying agent requirements across different time buckets to ensure efficient call handling. The highest agent requirement is during the 11-12 PM slot, with 34 agents needed, followed by the 10-11 AM slot requiring 31 agents. The lowest requirement is during the 20-21 PM slot, needing 13 agents. Overall, this manpower plan aims to optimize resource allocation, providing adequate agent coverage to address customer calls and enhance overall customer experience.

Thank You

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