

# **ABC CALL VOLUME TREND ANALYSIS**

**- A DATA ANALYTICS PROJECT**

**Presented By : Iswariya S**

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# INTRODUCTION

The dataset provided contains valuable insights into the inbound call volume of an ABC company's Customer Experience (CX) Inbound calling team, specifically focusing on the insurance category over a span of 23 days. This data encompasses crucial metrics such as Agent\_Name, Agent\_ID, Queue\_Time (the duration customers wait before connecting to an agent), Time (the time of day when the call was made), Time\_Bucket (a simplified time categorization), Duration (the length of the call), Call\_Seconds (call duration in seconds), and call status (Abandon, answered, transferred). This analysis aims to uncover trends and patterns in call volume to enhance customer service and operational efficiency.





# APPROACH

1

## Call Volume by Time Bucket Analysis:

Analyze call volume trends based on time buckets to optimize staffing. Use graphs for visual distribution.

2

## Queue Time Analysis:

Examine queue time impact on satisfaction and efficiency. Identify trends for operational improvements.

3

## Call Status Analysis:

Evaluate call outcomes (abandoned, answered, transferred). Analyze reasons for abandonment to reduce rates.

# TECH-STACK USED

The tech stack used for the project "ABC call volume trend" includes :

## Microsoft Excel

It helps format, organize, and compute data efficiently in a spreadsheet, simplifying navigation and reducing the need for complex math, while also transforming data into visual charts.

## Microsoft Powerpoint

It is utilized to create a presentation (PPT) for delivery to the executive leadership team.

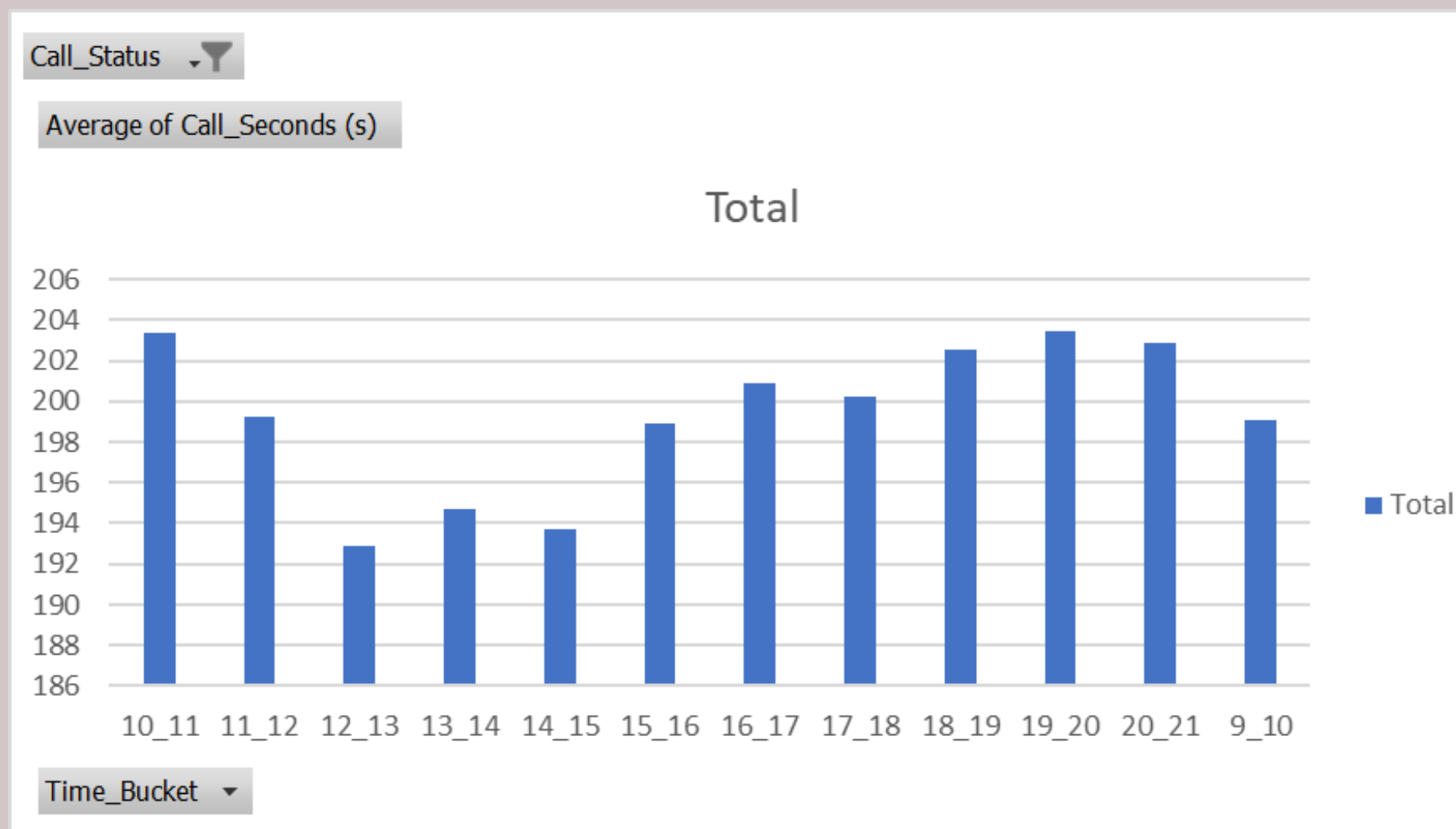
# INSIGHTS

Insights were obtained by analyzing a dataset containing information about :

- **Average Call Duration**  
Determine the average duration of all incoming calls received by agents.
- **Call Volume Analysis**  
Visualize the total number of calls received.
- **Manpower Planning**  
calculate the minimum number of agents required in each time bucket to ensure that at least 90 out of 100 calls are answered.
- **Night Shift Manpower Planning**  
Propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.

## A. Average Call Duration:

**Task :** To determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.



- In this data analysis scenario, the Time\_Bucket represents the rows, the average of Call\_Seconds is shown in the Values section, and the Call\_Status is filtered accordingly.
- The overall average call duration for calls answered by agents is calculated to be 198.6 seconds.
- Further examination reveals that the average call duration for incoming calls handled by agents peaks between 10 am to 11 am and from 7 pm to 8 pm. Conversely, the shortest average call duration for incoming calls occurs between 12 noon to 1 pm.
- These findings offer valuable insights into the distribution of call durations throughout the day, aiding in the identification of peak and off-peak call handling periods.

## B. Call Volume Analysis:

**Task :** To visualize the total number of calls received.



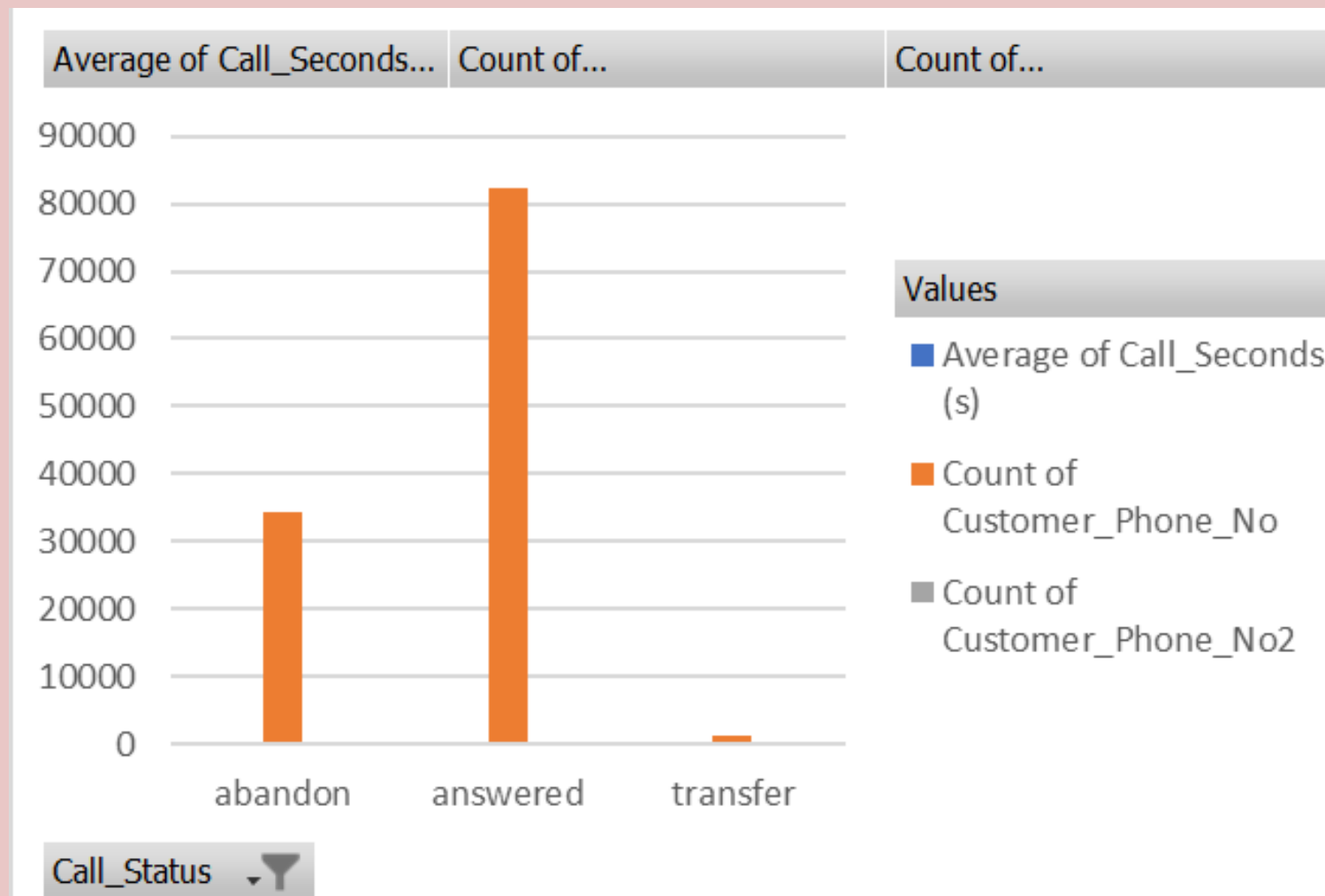
- In the given data analysis scenario, we plotted the Time\_Bucket in the rows and measured the count of Customer\_Phone\_No and count of Time in the Values section. We expressed the count of Time as a percentage of the column total.
- Based on the analysis, it was observed that customers make the highest number of calls between 11 am to 12 noon. This time period sees the highest customer engagement and interaction.
- On the other hand, the analysis also revealed that customers make the least number of calls between 8 pm to 9 pm. During this time, there is a decrease in customer call activity, possibly due to various factors such as dinner time or reduced availability of customer service.
- These insights provide valuable information about customer call patterns throughout the day, highlighting peak and low activity periods. This information can be used to optimize staffing and resources to ensure efficient customer service and satisfaction.



## C. Manpower Planning:

**Task :** To calculate the minimum number of agents required in each time bucket to ensure that at least 90 out of 100 calls are answered..

Row Labels	Sum of Call_Seconds (s)	Sum of Hour
01-Jan	676664	187.96



To calculate the total number of agents required, the formula is used:

Total agents = (Average calls / Time per person).

Given: Sum of Hour

Average calls on a single day: 187.96

Total time spent by one person in a single day: 5 hours

Using the formula:

Total agents =  $187.96 / 5 = 37.59$

To attain a 90% call connection rate (instead of the current 60%), we compute the additional agents needed. Applying the unitary method, it is found that approximately 56 agents would be necessary.

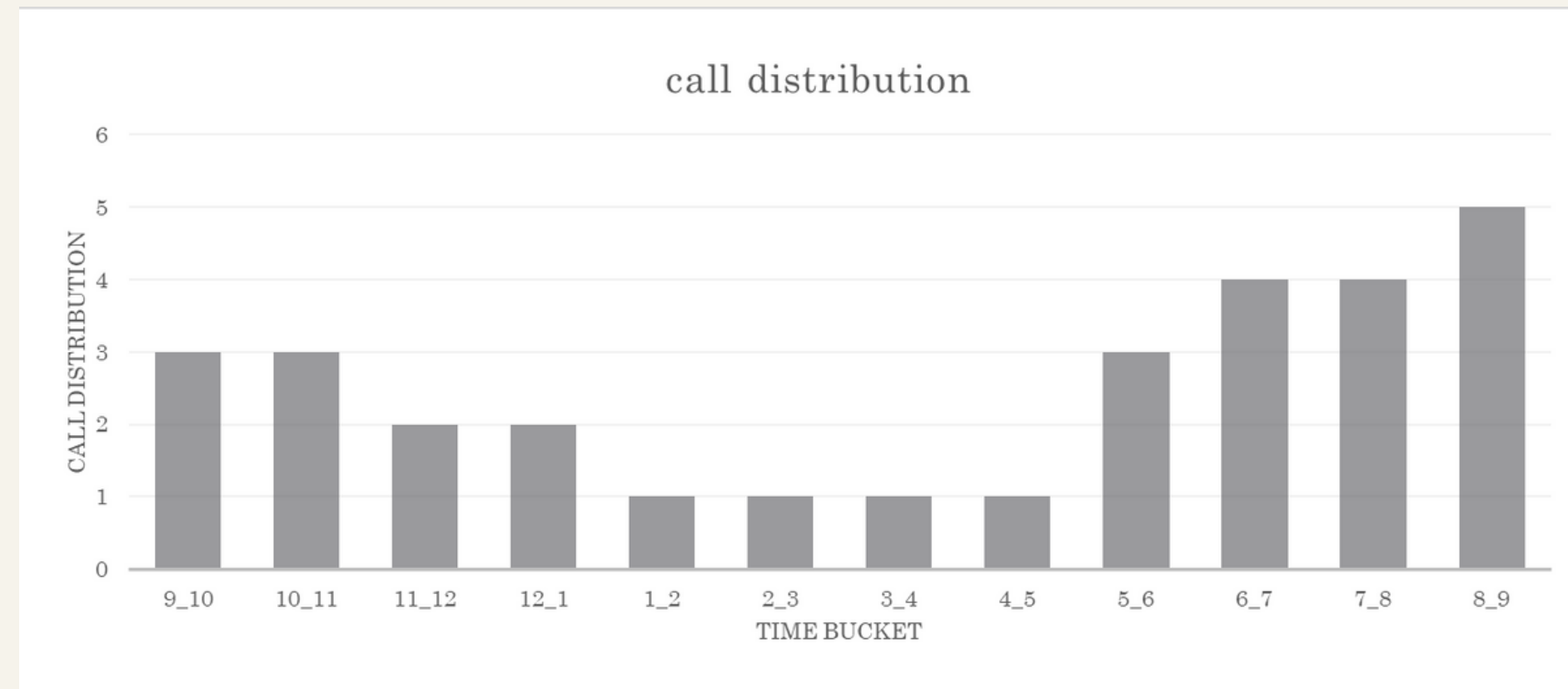
Thus, the total number of agents needed to achieve a 90% call connection rate is approximately 56.

## D. Night Shift Manpower Planning:

**Task :** To propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.

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

Night call (9pm - 9am)	Call Distribution	Time Distribution	Agent required
9pm - 10pm	3	0.10	2
10pm - 11pm	3	0.10	2
11pm - 12pm	2	0.07	1
12pm - 1am	2	0.07	1
1am - 2am	1	0.03	1
2am - 3am	1	0.03	1
3am - 4am	1	0.03	1
4am - 5am	1	0.03	1
5am - 6am	3	0.10	2
6am - 7am	4	0.13	2
7am - 8am	4	0.13	2
8am - 9am	5	0.17	3
Total	30	1	19





- The analysis indicates that customer calls are least frequent in the evening, suggesting an opportunity for the company to optimize its workforce by reducing the number of agents during that time for call handling.
- To support the night shift, the company could consider hiring 15 dedicated customer support agents available during night hours or shifting some day workers to the night shift for continuous coverage and efficient call handling.
- Adjusting employee shift timings, such as having some workers from 5 am to 2 pm and others from 2 pm to 11 pm, could maximize the number of calls answered during peak hours.
- For round-the-clock availability, dividing the workforce into three shifts would enable agents to be available 24/7 for addressing customer queries and concerns.
- Notably, outliers in the data were identified during the analysis. Removing these outliers could potentially lead to different outcomes and answers, as they may have influenced the results.
- These insights offer actionable strategies for optimizing workforce allocation, improving customer service efficiency, and ensuring continuous availability to address customer needs.





# RESULT



- Throughout this project, I have gained valuable insights into the role of an analyst in the customer service department and its impact on ensuring maximum customer satisfaction. The company's commitment to effective customer handling strategies is evident.
- An important tool utilized is the Interactive Voice Response (IVR) system, which uses AI technology to address customer queries by identifying their specific concerns and routing calls to the appropriate agents for resolution.
- The analysis of the provided data was made more efficient by the pre-calculated time buckets and call durations converted into seconds, which saved time and effort in calculations.
- Additionally, I have explored behavioral analytics, which involves studying customer behavior patterns to identify trends, preferences, and opportunities for enhancing the overall customer experience.
- Overall, this project has provided me with valuable knowledge and insights into the dynamics of customer service and the significant role of an analyst in optimizing customer satisfaction.

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# THANK YOU

**Presented By : Iswariya S**