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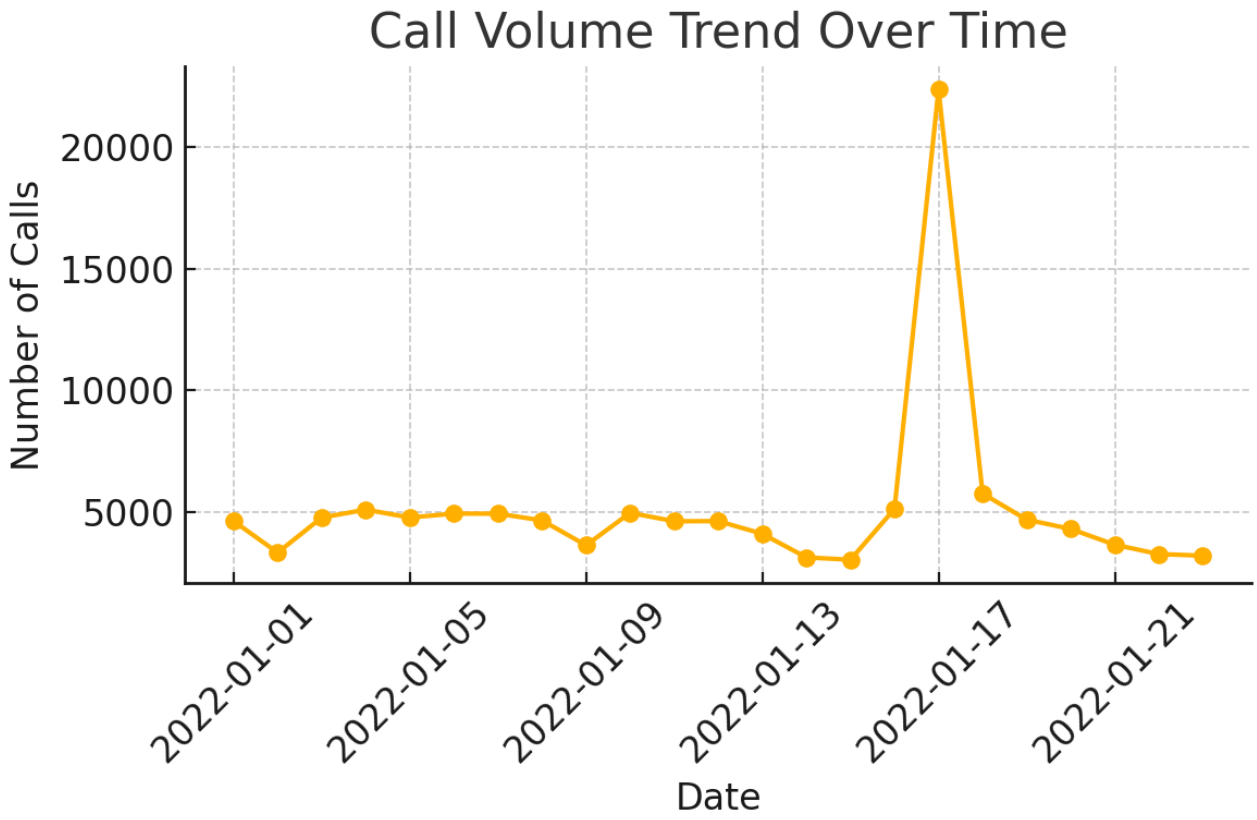
ABC Call Volume Trend Analysis

1. Introduction

In this project, we analyze the call volume trends of an inbound calling team for a Customer Experience (CX) team. The dataset spans 23 days and contains details such as agent name, call times, queue time, and call statuses. The goal of this project is to derive insights from the dataset, focusing on call durations, call statuses, and to propose manpower plans to reduce the abandon rate and improve customer satisfaction.

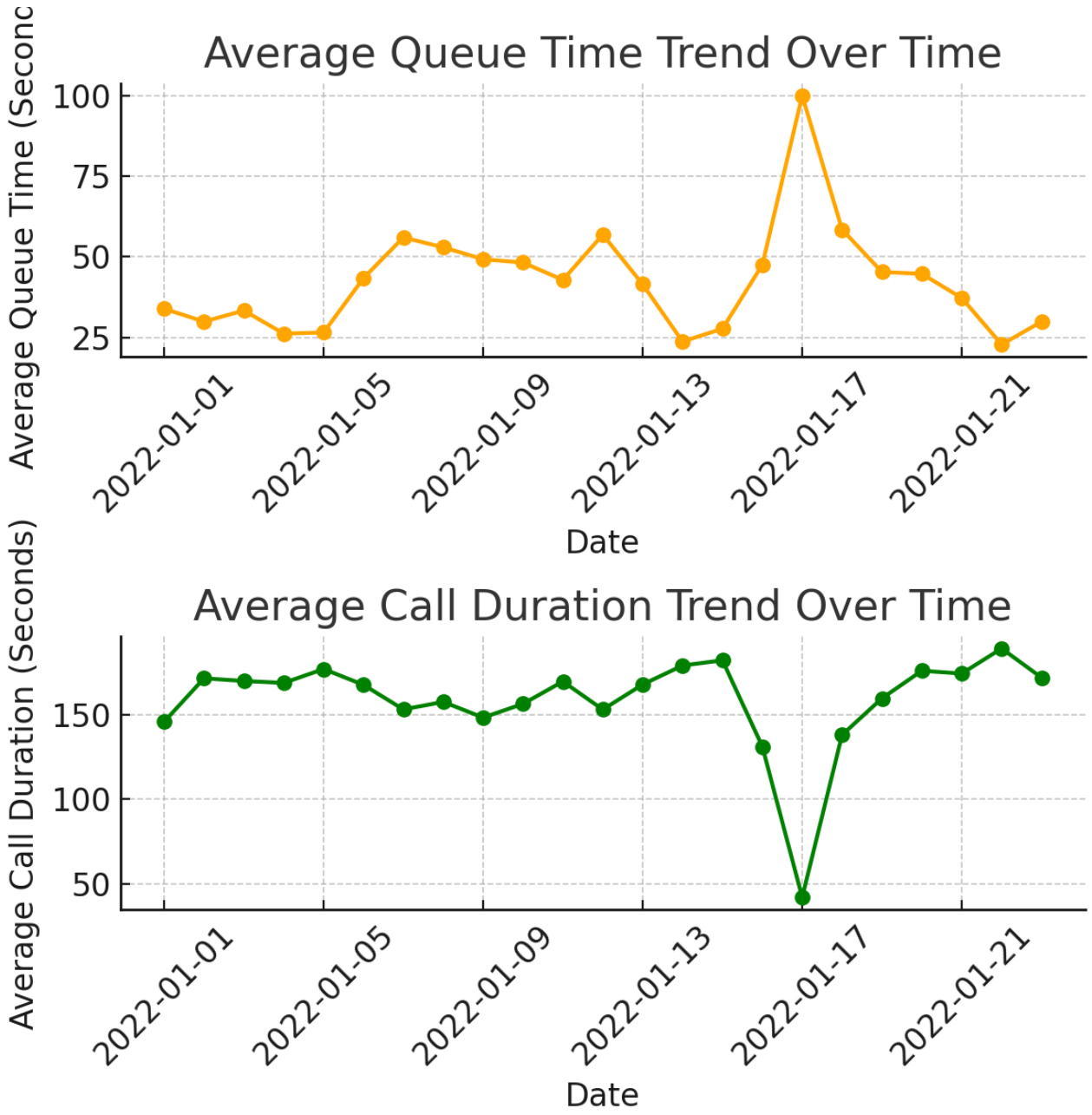
2. Call Volume Trend Over Time

The first analysis focuses on the call volume trend over time. By aggregating the number of calls received each day, we observe the fluctuations in the number of calls handled by agents during the 23-day period. This helps us identify patterns and potential causes for call volume spikes or drops on specific days.



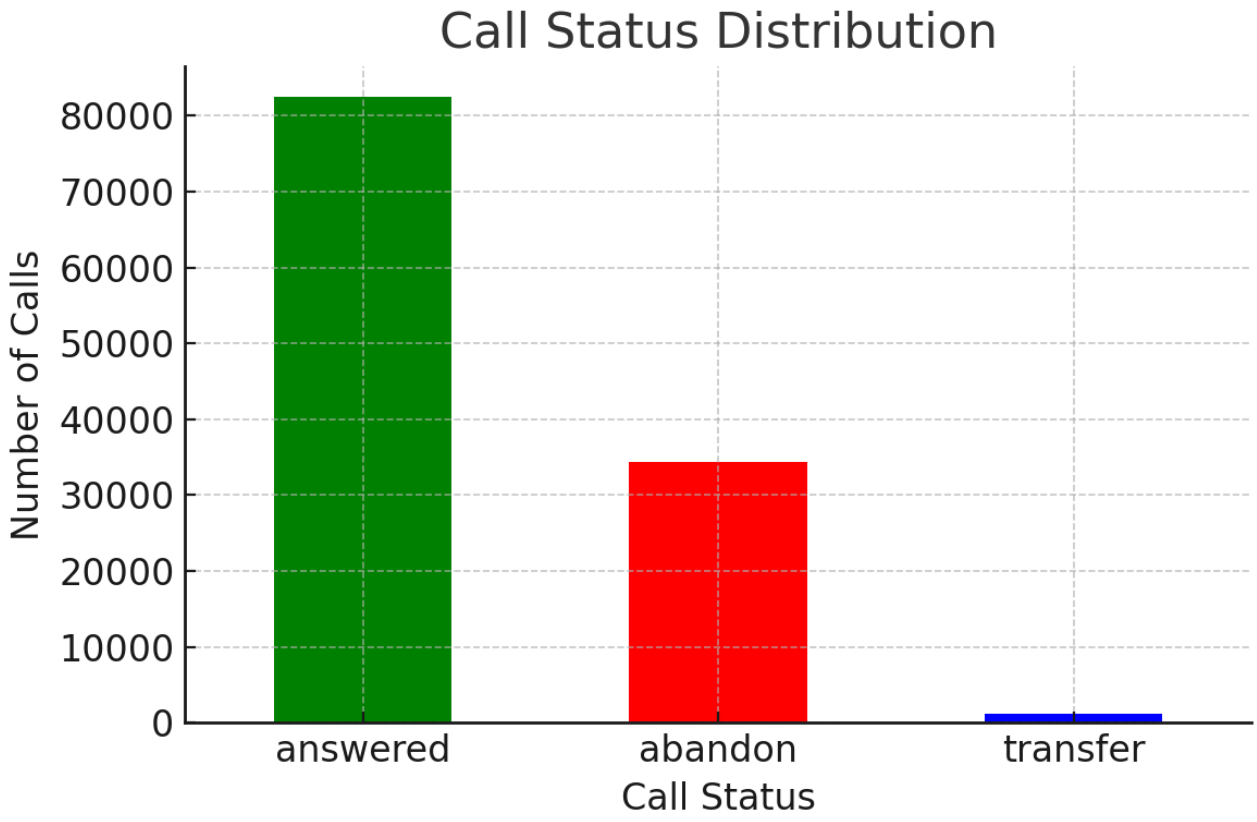
3. Queue Time and Call Duration Trends

Next, we analyze the average queue time and call duration trends over time. This helps us assess the efficiency of the calling system and how well agents handle calls over the days.



4. Call Status Distribution

The distribution of call statuses (answered, abandoned, or transferred) provides insights into how well the inbound calling team handles the customer calls. A significant number of abandoned calls indicates areas where improvement is needed.



5. Average Call Duration for Each Time Bucket

The table below shows the average call duration for each time bucket, allowing us to analyze the distribution of call durations throughout the day.

Time Bucket	Average Call Duration (Seconds)
10_11	97.42
11_12	116.78
12_13	144.73
13_14	149.54
14_15	146.97
15_16	169.90
16_17	181.44
17_18	179.72
18_19	174.32
19_20	144.58

20_21	105.95
9_10	92.01

6. Call Volume for Each Time Bucket

The table below represents the total number of calls received for each time bucket, providing insights into the peak hours of customer calls.

Time Bucket	Call Volume
10_11	13313
11_12	14626
12_13	12652
13_14	11561
14_15	10561
15_16	9159
16_17	8788
17_18	8534
18_19	7238
19_20	6463
20_21	5505
9_10	9588

7. Manpower Planning

To reduce the abandon rate from 30% to 10%, we calculate the minimum number of agents required for each time bucket. The table below shows the number of agents needed to ensure that at least 90 out of 100 calls are answered.

Time Bucket	Minimum Agents Required
10_11	104.99
11_12	115.34
12_13	99.77
13_14	91.17
14_15	83.28

15_16	72.23
16_17	69.30
17_18	67.30
18_19	57.08
19_20	50.97
20_21	43.41
9_10	75.61

8. Night Shift Manpower Planning

Since no agents are available to answer calls at night, we propose a manpower allocation for the night shift (9 pm to 9 am), ensuring the abandon rate remains below 10%.

Night Shift Time Bucket	Minimum Agents Required
21_22	23.26
22_23	23.26
23_24	23.26
0_1	23.26
1_2	23.26
2_3	23.26
3_4	23.26
4_5	23.26
5_6	23.26
6_7	23.26
7_8	23.26
8_9	23.26

9. Background on Customer Experience (CX) Analytics

Customer Experience (CX) teams play an essential role in modern businesses by analyzing customer interactions, providing feedback to various departments, and ensuring that customer journeys are seamless. CX analytics can help companies retain customers, improve satisfaction, and increase loyalty. In this analysis, the focus is on inbound calling analytics, where key performance indicators (KPIs) like call volume, queue time, and

call duration are used to evaluate the effectiveness of the customer service team.

10. Importance of Call Volume and Queue Time in CX

Call Volume: High call volumes can signal peak business hours or times when customers are likely to need assistance. Understanding call volume trends can help the company allocate resources efficiently. It can also help anticipate periods of high traffic and mitigate the risk of overwhelming the support staff, which can lead to abandoned calls and dissatisfied customers.

Queue Time: The time customers spend waiting to be connected to an agent is one of the most critical factors in customer experience. Extended wait times can lead to frustration, increasing the likelihood of call abandonment. Monitoring and minimizing queue time is essential for improving customer satisfaction.

11. Insights from Call Duration

Analyzing the **call duration** helps us understand how much time agents spend on calls. Shorter durations might indicate that issues are being resolved quickly, but could also reflect rushed conversations. On the other hand, longer calls may indicate complex issues that need more time, but could also reflect inefficiency in resolving customer problems. Understanding this helps in agent training and process optimization.

12. Leveraging AI and Technology in CX Analytics

Several AI-powered tools are now being adopted by Customer Experience teams to optimize their operations, including:

- **Interactive Voice Response (IVR)**: Automates customer interactions by using pre-recorded messages and options to direct customers to the appropriate department or agent.
- **Robotic Process Automation (RPA)**: Automates routine tasks like updating customer profiles, enabling agents to focus on complex tasks.
- **Predictive Analytics**: Anticipates customer needs by analyzing previous interactions and behaviors, allowing proactive engagement.

- **Intelligent Routing**: Directs customers to the best-suited agents based on their previous history, location, or the nature of their inquiry.

In this context, analyzing data on **IVR duration** and agent performance can offer further opportunities to streamline processes and integrate AI tools effectively.

13. Agent Utilization and Call Handling Efficiency

One of the critical aspects of manpower planning is understanding how agents are utilizing their time. In this case, we assume agents spend **60% of their working hours** on calls. The company can track metrics such as **average handling time per agent**, compare it to the industry standards, and assess if there are inefficiencies. Analyzing **agent productivity** can lead to better scheduling, performance management, and resource optimization.

14. Manpower Allocation Strategy

In order to achieve an abandoned call rate of less than 10%, it is critical to ensure optimal staffing levels for each time bucket. The analysis provided earlier shows that call volumes fluctuate throughout the day, requiring dynamic staffing levels to match peak demand times.

- **Peak Hours**: From 9 AM to 6 PM, the call volume is higher, and as a result, the number of agents required increases significantly. During these hours, it's important to ensure that enough staff is available to handle the majority of inbound calls.
- **Non-Peak Hours**: Call volumes drop significantly after 6 PM, but maintaining a minimal number of agents is crucial to keep abandon rates low.

15. Night Shift Recommendations

The absence of support during the night has a negative impact on customer satisfaction. By distributing night shift agents evenly across buckets from 9 PM to 9 AM, companies can maintain a smooth customer experience without requiring a large workforce. A smaller team of night shift agents can manage a moderate volume of calls with proper planning.

Scheduling Flexibility: One possible solution for night shifts is to implement a rotating schedule where agents work flexible hours across different shifts. Additionally, companies can explore the use of **outsourced call centers** to handle overflow during nighttime hours.

16. Conclusion

This project provides insights into how data analytics can be used to optimize the operations of an inbound calling team. The proposed manpower planning based on current call trends, durations, and status can reduce the call abandonment rate and improve customer satisfaction. By strategically allocating agents, adopting AI technologies, and monitoring call volume trends, companies can ensure a smoother, more efficient customer experience.

Hyperlink

Excel Sheet: https://docs.google.com/spreadsheets/d/1aigIPSOgv9K-Z6mynLnWsg22CXd509NS/edit?usp=sharing&ouid=107712337603641298783&rtpof=true&sd=true