PROJECT – 8

ABC Call Volume Trend Analysis

Final Project-4

Project description:

This project focuses on analyzing the inbound calling team's performance as part of the company's Customer Experience (CX) strategy. I will be working with a 23-day dataset that includes details such as agent IDs, customer queue time, call durations, and call statuses.

The goal is to understand trends in call volume, evaluate how efficiently the team is handling inbound support, and uncover any issues affecting the customer experience. By diving into the data, I will look for patterns like peak call times, long wait periods, or high abandonment rates, and provide insights to optimize the customer journey.

The ultimate objective is to help the company enhance customer satisfaction by making data-driven decisions to improve the support process, streamline operations, and ensure a more seamless experience for customers when they reach out. Through this analysis, we aim to support the company in turning first impressions into long-term loyalty.

Approach:

- Data cleaning is performed to identify and address inconsistencies, missing values, or outliers to enhance overall data quality.
- Exploratory data analysis (EDA) is conducted to uncover patterns, trends, and relationships within the data, providing insights into overall behaviour and performance.
- Statistical methods are applied to interpret the data, test hypotheses, and validate findings.
- Visualizations like creating graphs, charts, and dashboards to effectively communicate the findings and make insights easily digestible.

Finally, actionable insights are generated from the analysis to inform decision-making and strategy development based on observed data trends.

Tech-stack used:

For this project, Microsoft Excel 2019 was the primary tool used for data analysis and visualization. Excel was chosen for its user-friendly interface, built-in functions, and versatility in handling various types of data analysis tasks.

Data Analytics Tasks:

1. Average Call Duration: What is the average duration of calls for each time bucket?

Output:

Time_bucket	Average of Call_Seconds (s)
9_10	92
10_11	97
11_12	117
12_13	145
13_14	150
14_15	147
15_16	170
16_17	181
17_18	180
18_19	174
19_20	145
20_21	106
Grand Total	140
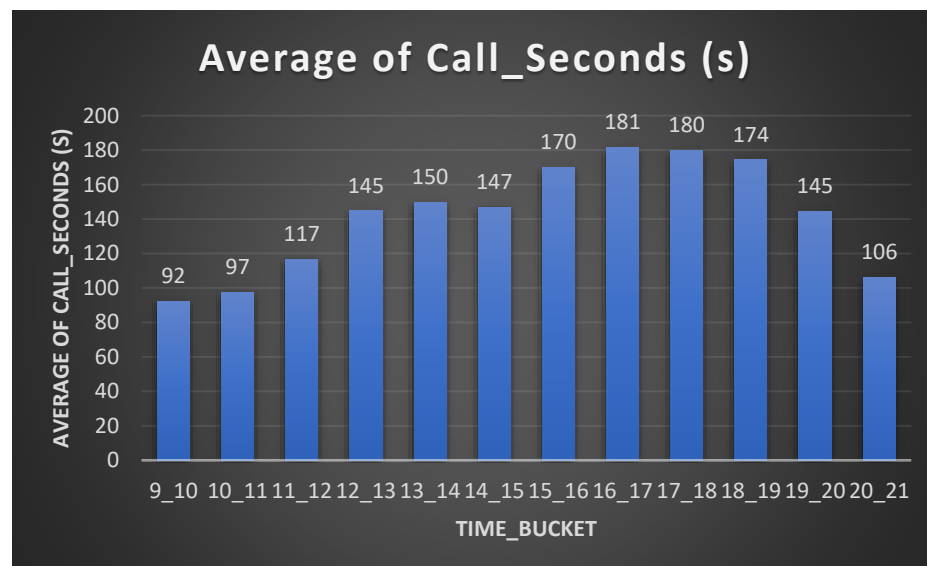
Insights:

The table shows the average call duration for each time bucket.

The average call duration is longer from 3 to 7pm in evening and shorter in mornings.

The average duration of all incoming calls received by agents is 140 seconds.

This information can be used to understand which time periods have longer or shorter average call durations.

2. Call Volume Analysis: Can you create a chart or graph that shows the number of calls received in each time bucket?

Output:

Time_bucket	Count of Time
9_10	9588
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
Grand Total	117988
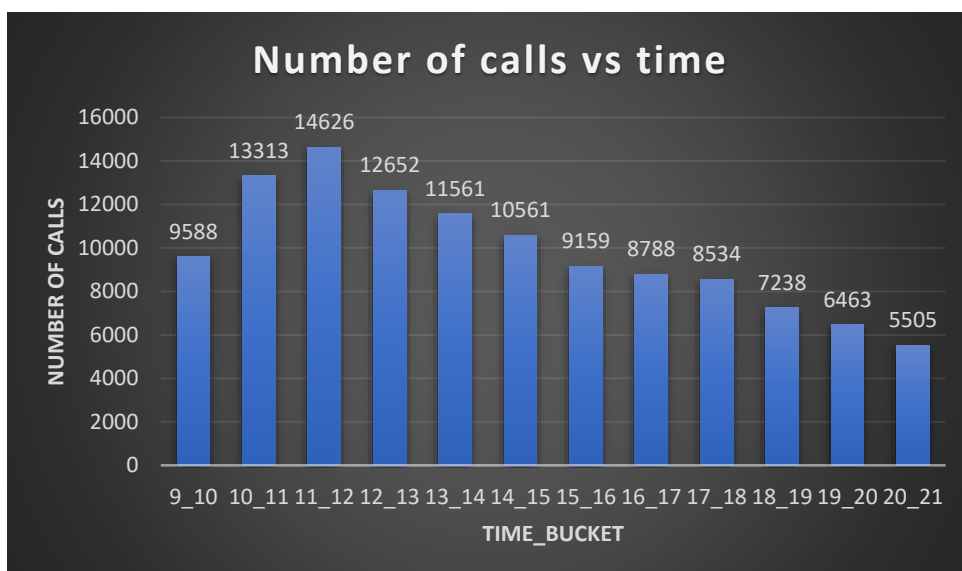
Insights:

Time buckets from 10-3pm experience the highest call volumes. This helps in understanding when customers are most likely to reach out, allowing for better staffing and resource allocation.

After 3pm call volumes are lower. So, company can reduce staffing during these off-peak hours, potentially leading to cost savings.

By understanding peak and off-peak times, we can make data-driven decisions about staffing levels. For example, 10- 3pm there is significantly higher call volume, so can schedule more agents during that time.

3. Manpower Planning: What is the minimum number of agents required in each time bucket to reduce the abandon rate to 10%?

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%.

Parameters:

- **Current Abandon Rate**: 30% (70% of calls are answered)

- **Target Abandon Rate**: 10% (90% of calls should be answered)

Output:

Working Hours		9
Break		1.5
Actual Working Hours		7.5
calls taken		60%
Total work seconds		16200
Average Call Time/Agent		140
Calls by Agent/day		116
Calls by an Agent/Hour		26

Time_bucket	avg no. of agents availabl	avg. Agents Require
9_10	7	14
10_11	11	20
11_12	14	22
12_13	16	19
13_14	15	17
14_15	13	16
15_16	13	14
16_17	13	13
17_18	13	13
18_19	10	11
19_20	8	10
20_21	5	8
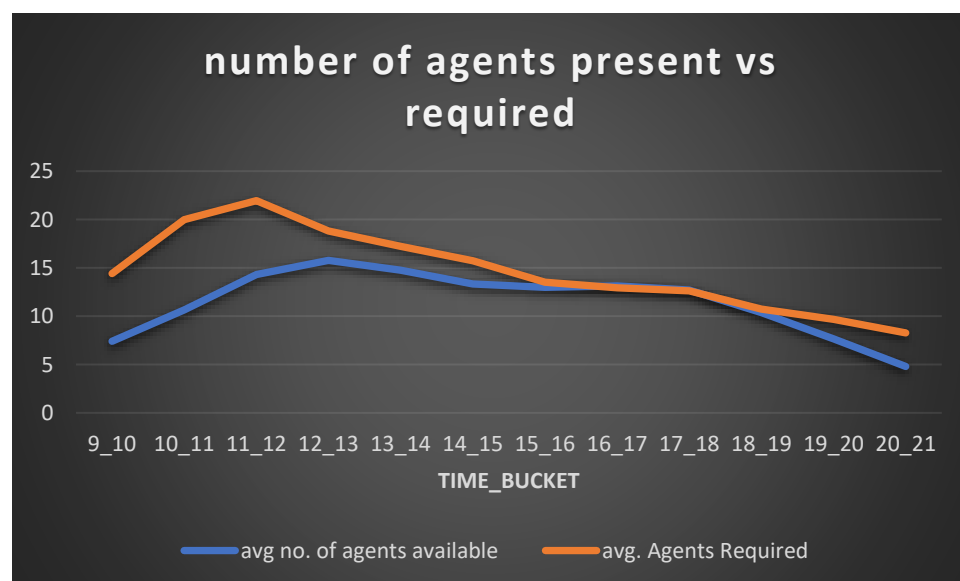
Insights:

To reduce the abandon rate to 10% we need to increase the number of agents to maintain this.

The manpower needs to be increased for morning and afternoon as significant number of calls are being abandoned during these times.

4.Night Shift Manpower Planning: Propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.
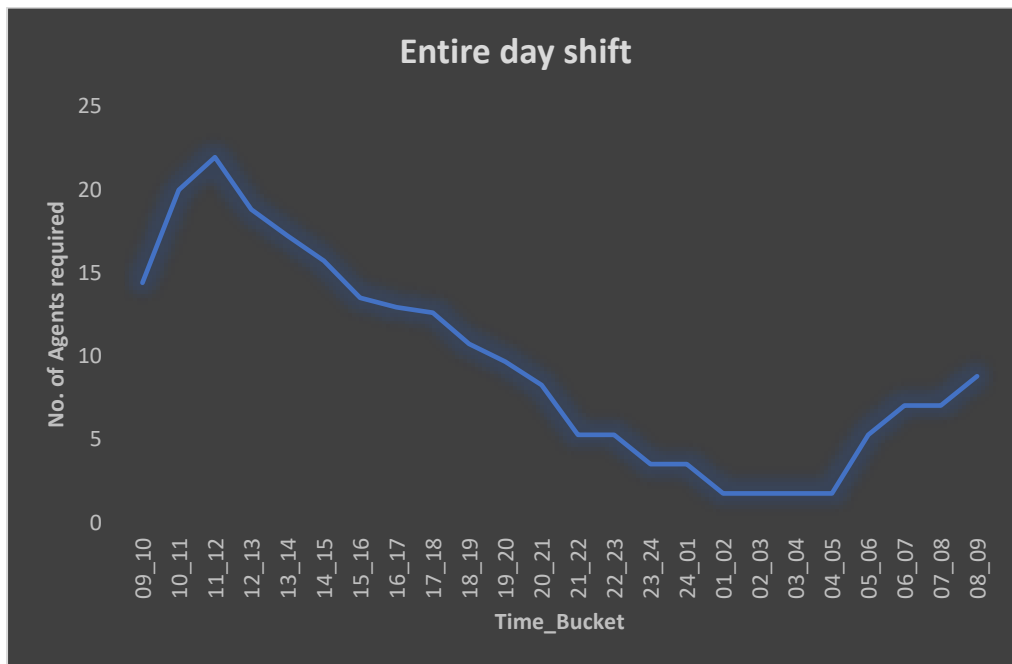
Output:

Manpower required for night shift

Time_Slot	no. of agents required
9pm-10pm	5
10pm-11pm	5
11pm-12am	4
12am-01am	4
01am-02am	2
02am-03am	2
03am-04am	2
04am-05am	2
05-am-06am	5
06am-07am	7
07am-08am	7
08am-09am	9
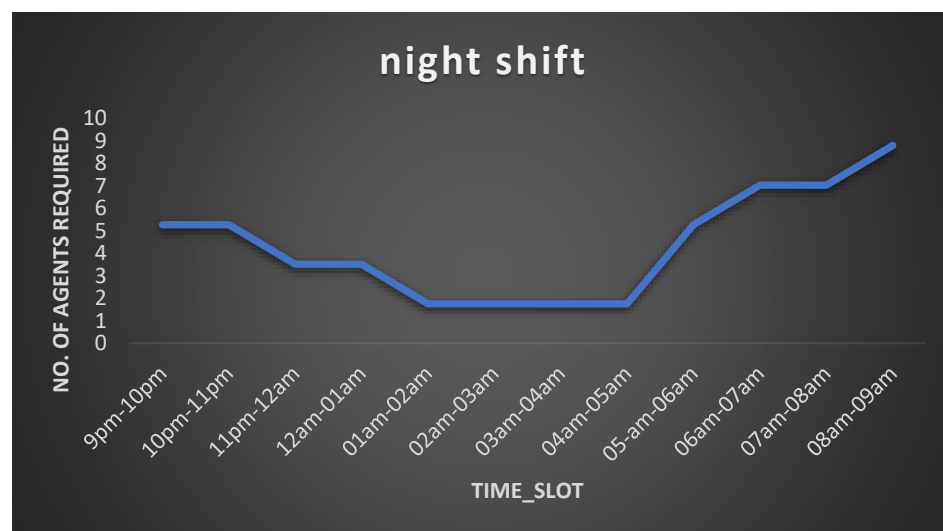
Manpower for the entire day and night shift

Entire day shift

(Chart: No. of Agents required vs Time_Bucket)

INSIGHTS:

- The average call duration is longer from 3 to 7pm in evening and shorter in mornings. The average duration of all incoming calls received by agents is 140 seconds. This information can be used to understand which time periods have longer or shorter average call durations.
- Time buckets from 10-3pm experience the highest call volumes. This helps in understanding when customers are most likely to reach out, allowing for better staffing and resource allocation. After 3pm call volumes are lower. So, company can reduce staffing during these off-peak hours, potentially leading to cost savings. By understanding peak and off-peak times, we can make data-driven decisions about staffing levels. For example, 10- 3pm there is significantly higher call volume, so can schedule more agents during that time.
- To reduce the abandon rate to 10% we need to increase the number of agents to maintain this.
- The manpower needs to be increased for morning and afternoon as significant number of calls are being abandoned during these times.

Conclusion:

This project focused on customer experience analytics provided valuable insights into analyzing call data for better service delivery. It highlighted how understanding customer behaviour can lead to improved operations. Identifying call volume trends was crucial for resource planning, ensuring adequate staffing during peak times.

Calculating metrics like average call duration and abandonment rates shed light on areas needing improvement. Using data visualization tools made it easier to interpret complex information and derive actionable insights. Collaboration with different teams emphasized the role of data analytics in addressing operational challenges. Overall, this experience underscored how data-driven approaches can enhance customer service and support business success.

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