ABC Call Volume Trend Analysis

PROJECT MADE BY:

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Project Description

This project aims to analyze the inbound call data for ABC Insurance Company over a span of 23 days. The primary objective is to understand call volume trends, average call durations, and to propose manpower planning strategies to improve customer experience by reducing the call abandonment rate.

Objectives:

- Determine the average duration of calls for each time bucket.
- Visualize the total number of calls received in different time buckets.
- Propose a manpower plan to reduce the call abandonment rate to 10% during regular business hours (9 am to 9 pm).
- Develop a night shift manpower plan to address customer calls outside regular business hours.

Tech-Stack Used

Microsoft Excel:

Purpose: Data cleaning, analysis, and visualization.

Features Utilized: Pivot tables, charts, and basic statistical functions

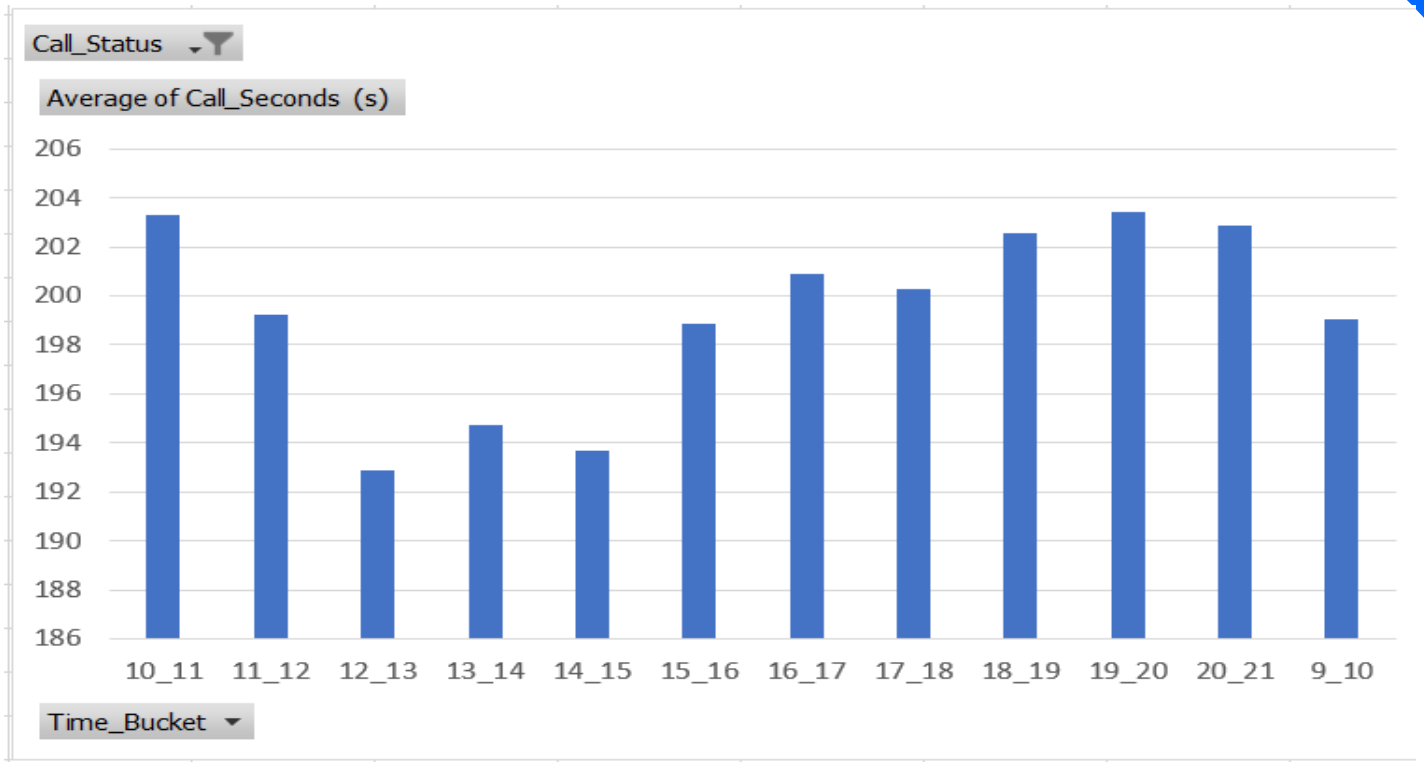
Microsoft Power Point:

For making this presentation

APPROACH AND INSIGHTS

What is the average duration of calls for each time bucket?

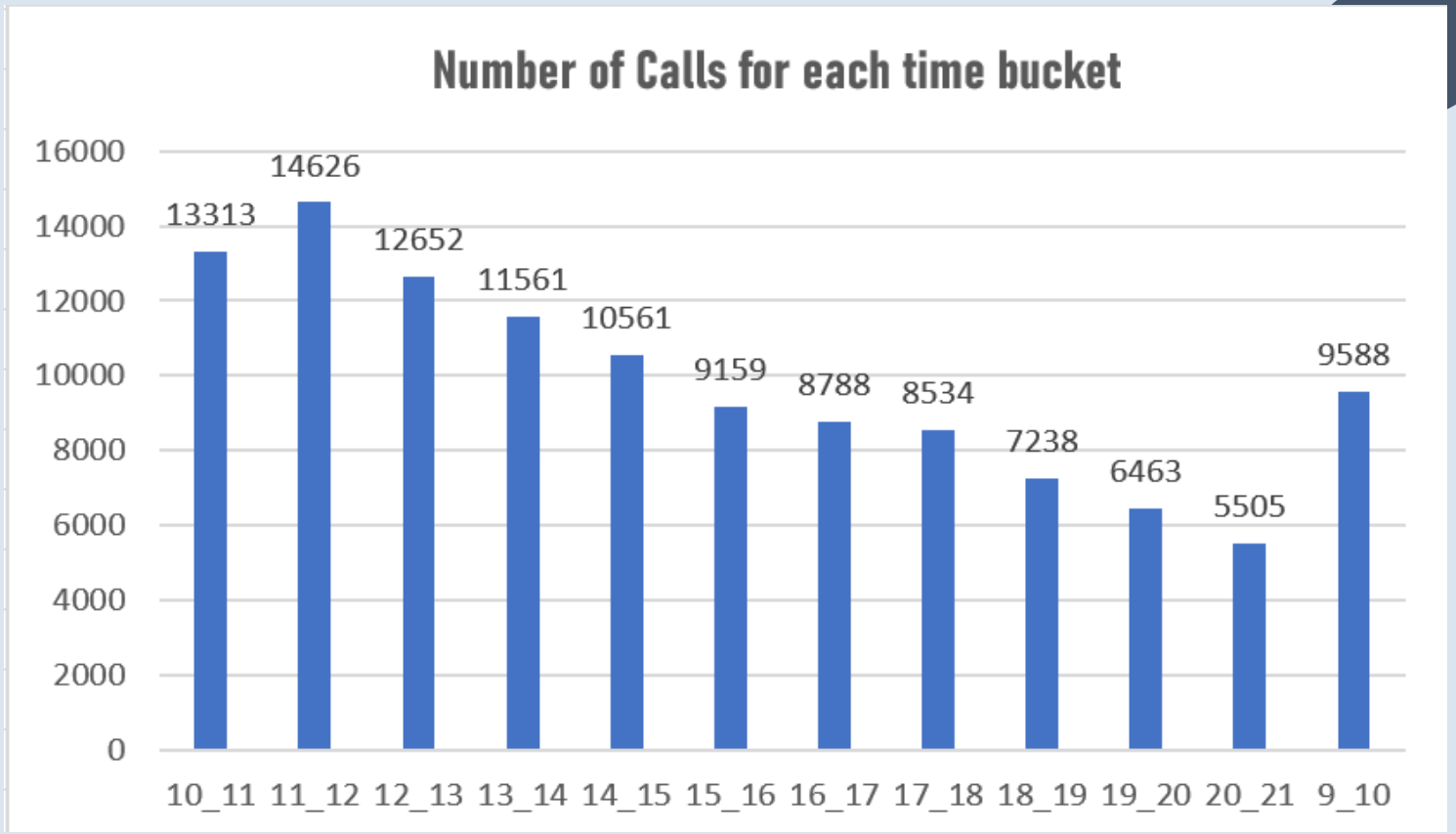
Call_Status	answered
TIME BUCKET	**Average of Call_Seconds (s)**
10_11	203.3310302
11_12	199.2550234
12_13	192.8887829
13_14	194.7401744
14_15	193.6770755
15_16	198.8889175
16_17	200.8681864
17_18	200.2487831
18_19	202.5509677
19_20	203.4060725
20_21	202.845993
9_10	199.0691057
Grand Total	**198.6227745**



For this task, the goal was to determine the average duration of calls for each time bucket. To achieve this, I analyzed the cleaned data and created a pivot table based on the question's requirements. The provided Excel screenshot shows the pivot table calculation, which was used to find the average duration of calls for each time bucket and visualization of the results. Resulting in an average of 198.62 seconds per time bucket.

Create a chart that shows the number of calls received in each time bucket?

Time Bucket	Count of calls	Count of Time
10_11	13313	11.28%
11_12	14626	12.40%
12_13	12652	10.72%
13_14	11561	9.80%
14_15	10561	8.95%
15_16	9159	7.76%
16_17	8788	7.45%
17_18	8534	7.23%
18_19	7238	6.13%
19_20	6463	5.48%
20_21	5505	4.67%
9_10	9588	8.13%



To analyze the call volume, I plotted the Time_Bucket in the rows and included the total Count of Customer_Phone_No and Count of Time in the Values section of the pivot table. I measured the Count of Time as a percentage of the Column Total. From this analysis, I found that customers call the most between 11 am and 12 noon, while the fewest calls are received between 8 pm and 9 pm.

What is the minimum number of agents required in each time bucket to reduce the abandon rate to 10%?

Time_Bucket	Count of Time	Required no. of Agents
9_10	8.1%	5
10_11	11.3%	6
11_12	12.4%	7
12_13	10.7%	6
13_14	9.8%	6
14_15	9.0%	6
15_16	7.8%	4
16_17	7.4%	4
17_18	7.2%	4
18_19	6.1%	3
19_20	5.5%	3
20_21	4.7%	3
Grand Total	100%	57

Working Hours per agent	4.5
Time taken on an Average Call to answer	198.62
Time required to answer 90% of the call (hrs)	254.73
No. of agents required in a day	57
Call Volume - 9am- 9 pm	5130
Call Volume - 9pm- 9 am	1539
To increase call rate to 90% in night	76
No. of agents needed in night	17

Count of Call_Status	Column Labels			
Time bucket	abandon	answered	transfer	Grand Total
10_11	6911	6368	34	13313
11_12	6028	8560	38	14626
12_13	3073	9432	147	12652
13_14	2617	8829	115	11561
14_15	2475	7974	112	10561
15_16	1214	7760	185	9159
16_17	747	7852	189	8788
17_18	783	7601	150	8534
18_19	933	6200	105	7238
19_20	1848	4578	37	6463
20_21	2625	2870	10	5505
9_10	5149	4428	11	9588
Grand Total	**34403**	**82452**	**1133**	**117988**

	ABANDON	*ANSWERED*	*TRANSFERRED*
PERCCENTAGE:	29%	70%	1%

No. of agents required in a day	**57**
No. of agents needed in night	**17**

I created a pivot table, Call Status to the Columns, and Then, I calculated the average for abandoned, answered, and transferred calls using the average Excel formula. The analysis showed that 29% of the calls are abandoned, 1% are transferred, and 70% of the calls are answered during the day.
Based on this data, the total number of agents required to answer 90% of the calls per day
After performing all the calculations is 57.

Working hours per agent:
Working hours per agent = (60 / 100) * 7.5 = 4.5 hours
Average call duration:
Average call duration = 198.62 seconds

To calculate the number of agents needed to answer 90% of the calls per day, I used the following steps:

1.Calculate the total hours needed for 90% of the calls: Total hours needed = (5130 * 198.62 * 0.9) / 3600 = 254.73 hours
2.Calculate the number of agents required: Number of agents needed = 254.73 / 4.5 ≈ 57 agents
Therefore, to answer 90% of the calls per day, a total of 57 agents are needed.

Propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.

Night Call (9 pm- 9 am)	Call Distribution	Time Distribution	Agents Required
21_22	3	10%	2
22_23	3	10%	2
23_24	2	7%	1
00_01	2	7%	1
01_02	1	3%	1
2_3	1	3%	1
3_4	1	3%	1
4_5	1	3%	1
5_6	3	10%	2
6_7	4	13%	2
7_8	4	13%	2
8_9	5	17%	3
Total	30	100%	19

For this task, I used the previously calculated pivot table and conducted an analysis specifically for night shift operations. Assuming that for every 100 calls made between 9 am and 9 pm, an additional 30 calls are made at night between 9 pm and 9 am, I performed calculations based on the night shift hours from 9 pm to 9 am to address this issue. This helps mitigate the poor customer experience caused by unattended calls during the night.

ABC CALL VOLUME ANALYSIS EXCEL FILE:

https://docs.google.com/spreadsheets/d/1_9CcCbS3mKHcaBvRhHYTEKZpAe_P51Ix/edit?usp=sharing&ouid=118309411958556729568&rtpof=true&sd=true

ALL EXCEL TASKS IN THIS FILE

RESULT

In the ABC Call Volume Trend Analysis project, I worked to enhance customer relationships and support business growth. Working with Microsoft Excel throughout the project significantly improved my technical skills with the software.

By examining customer interactions and addressing issues, I learned how to maintain strong connections between the business and its customers. This experience also sharpened my data analysis and visualization skills.

Additionally, I gained a better understanding of how staffing plans can impact productivity and customer satisfaction. As a data analyst, this project deepened my knowledge of customer service teams and improved my ability to generate actionable insights.

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