



# ABC CALL VOLUME ANALYSIS

Divyasri Jegan



# ”Call trend analysis of ABC Company

Analysis is based on the dataset provided and strategies to solve the given task and make a valuable insights from it..



# PROJECT DESCRIPTION

- A Customer Experience (CX) team plays a crucial role in a company. They analyze customer feedback and data, derive insights from it, and share these insights with the rest of the organization. This team is responsible for a wide range of tasks, including managing customer experience programs, handling internal communications, mapping customer journeys, and managing customer data, among others.
- In the current era, several AI-powered tools are being used to enhance customer experience. These include Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, and Intelligent Routing.
- One of the key roles in a CX team is that of the customer service representative, also known as a call center agent. These agents handle various types of support, including email, inbound, outbound, and social media support.
- Inbound customer support, which is the focus of this project, involves handling incoming calls from existing or prospective customers. The goal is to attract, engage, and delight customers, turning them into loyal advocates for the business.

# BUSINESS UNDERSTANDING

- Advertising is a crucial aspect of any business. It helps increase sales and makes the audience aware of the company's products or services. The first impressions of a business are often formed through its advertising efforts.
- The target audience for businesses can be local, regional, national, or international. Various types of advertising are used to reach these audiences, including online directories, trade and technical press, radio, cinema, outdoor advertising, and national papers, magazines, and TV.
- The advertising business is highly competitive, with many players bidding large amounts of money to target the same audience segment. This is where the company's analytical skills come into play. The goal is to identify those media platforms that can convert audiences into customers at a low cost.

# APPROACH

## 01 - DATA PREPROCESSING

Data preprocessing is done to read and know about the dataset before diving into analysis and also to find the error, null values all sort of data is being handled.

## 02 - TECH STACK USED

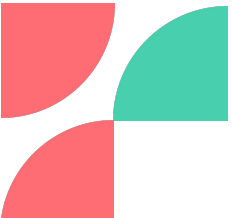
Tools to implement the result and analysis of clients queries

## 03 - ANALYSIS

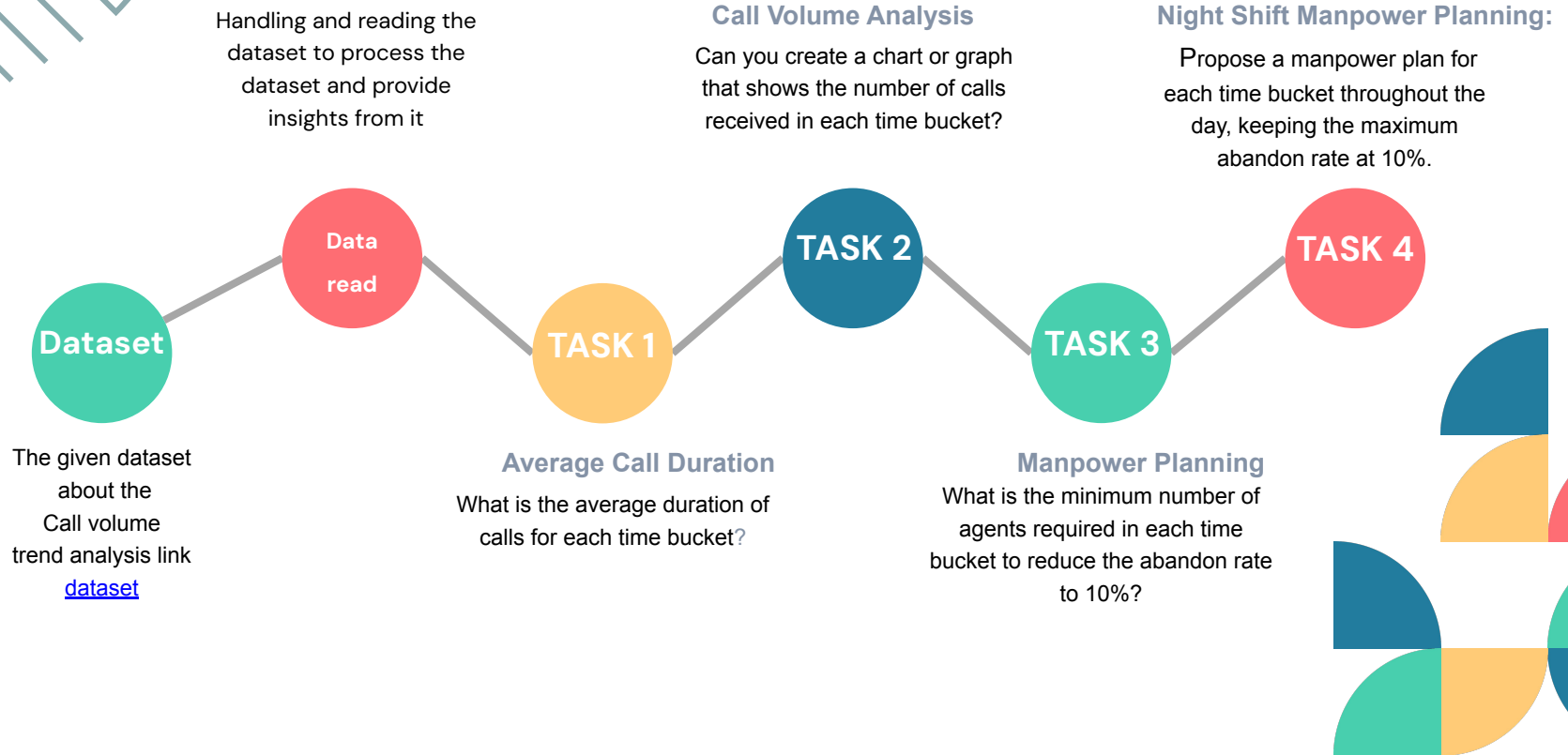
Providing solution to my task and making a helpful insights for better decision making.

## 04 - RESULTS

Result and conclusions of the clients need and solution to my project .



# PROJECT TIMELINE

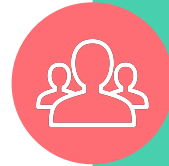


# TECH STACK USED



## GOOGLE SHEETS

Google sheets were used in excelling and to make interactive charts for elaborative output and to perform data analysis in it.



## GOOGLE SLIDES

Google slides helped in presentation regarding the project .

# ANALYSIS

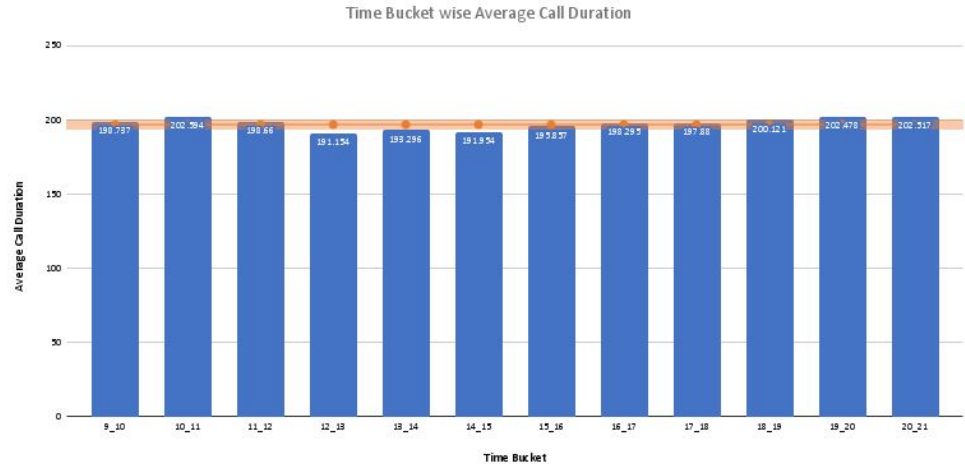




1. **Average Call Duration:** Determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.

**Your Task:** What is the average duration of calls for each time bucket?

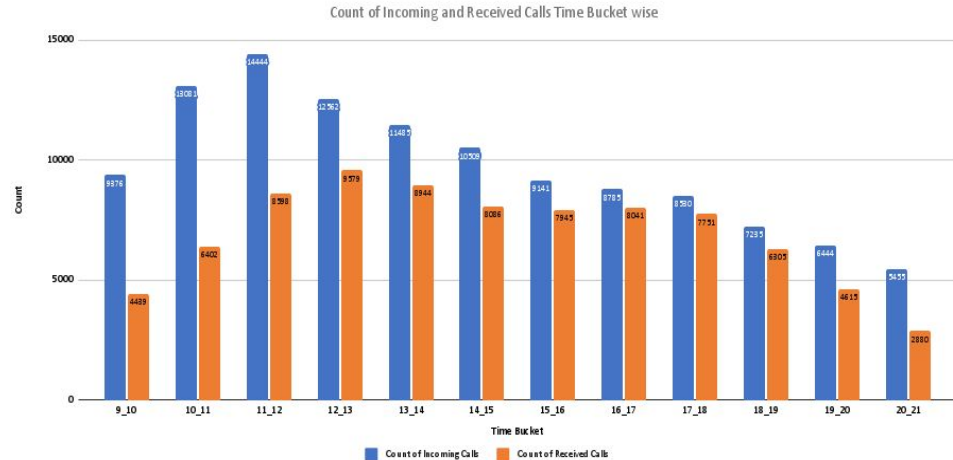
- The overall **Average Call Duration** is **196.963 seconds**.
- We can observe that the **Average Call Duration** first peaks in the **morning hours** before dropping to below average value during the **lunch hours** and then again increasing to above average value.



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?

- We can observe that the number of **received** calls received **first increases** with time **before dropping down**.
- We can also observe that the number of **abandoned** calls are **very high** in the **morning hours** and as the day progresses, the number of **abandoned calls reduces**.



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%?

- We can observe that to maintain a maximum of **10% abandon rate**, we need to **increase** the availability of agents in the **morning hours** by a **large margin** as in these hours, the number of incoming calls are quite high and the number of agents available currently are quite low.
- During **afternoon hours** and during **late evening hours**, we need to **increase** the availability of agents by a **slight margin** to maintain a maximum of **10% abandon rate**.

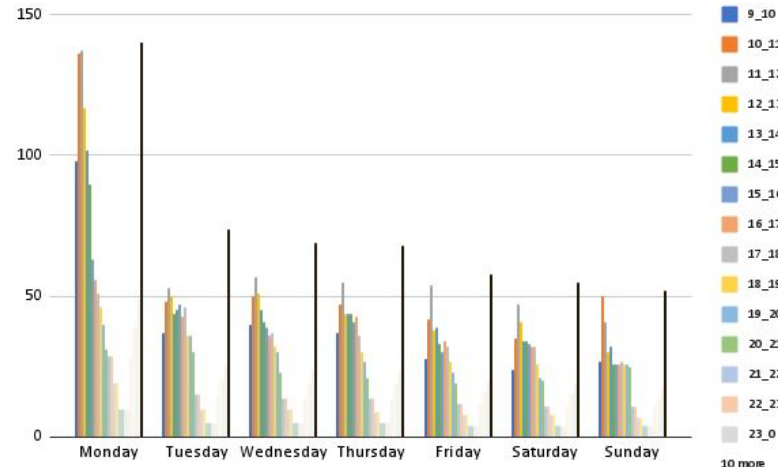


**Night Shift Manpower Planning:** Customers also call ABC Insurance Company at night but don't get an answer because there are no agents available. This creates a poor customer experience. Assume that for every 100 calls that customers make between 9 am and 9 pm, they also make 30 calls at night between 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%. **Assumptions:** An agent works for 6 days a week; On average, each agent takes 4 unplanned leaves per month; An agent's total working hours are 9 hours, out of which 1.5 hours are spent on lunch and snacks in the office. On average, an agent spends 60% of their total actual working hours (i.e., 60% of 7.5 hours) on calls with customers/users. The total number of days in a month is 30.

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

- From the above heatmap, we can observe that for day of the week, **Monday** requires the **most number of agents in individual time buckets** as well as for the **overall day** as it is starting of the week.
- For rest of the days, agent requirement remains **more or less the same** with **Saturday's** and **Sunday's** requirement on the **lower side** as they are weekends.
- For individual time buckets, **the most number of agents required** is in the **morning hours from 9 A.M to 1 P.M** and the **least number of agents required** is at **night hours from 12 A.M to 5 P.M**.



### 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

73	Sunday	48334.778	89174.245	74374.069	53847.594	57980.290	47443.451	45905.353	47648.803	47782.642	46327.976	46514.776	45475.100	19516.181	19516.181	12948.236	1294
74																	
75																	
76	Required Number of Distinct Agents													Required Number of Distinct Agents			
77	Time Bucket	Minimum											Midpoint				
78		9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21	21_22	22_23	23_0	0
79	Monday	98	136	137	117	102	90	63	56	51	46	40	31	29	29	19	1
80	Tuesday	37	48	53	50	44	45	47	43	46	36	36	30	15	15	10	1
81	Wednesday	40	50	57	51	45	41	39	36	37	32	30	23	14	14	10	1
82	Thursday	37	47	55	44	44	44	41	43	36	30	27	21	14	14	9	1
83	Friday	28	42	54	38	39	33	30	34	32	27	23	19	12	12	8	1
84	Saturday	24	35	47	41	34	34	33	32	32	26	21	20	11	11	8	1
85	Sunday	27	50	41	30	32	26	26	26	27	26	26	25	11	11	7	1
86																	
87																	
88																	150



# RESULT

- Through this project ,I was able to understand the importance of Data analysis in the call trend analysis.
- Provided the insights regarding the dataset gives the solution to the project and help me to improve my knowledge regarding it.

## Links:

[spreadsheet](#)



The background features four decorative geometric patterns in the corners. The top-left corner has a series of parallel diagonal lines in a light blue-grey color, with a thin curved line segment to its right. The top-right corner contains several overlapping semi-circles in yellow, red, teal, and dark blue. The bottom-left corner features a cluster of overlapping semi-circles in red, teal, and dark blue. The bottom-right corner has a thin curved line segment with a series of parallel diagonal lines below it, matching the top-left pattern.

THANK YOU