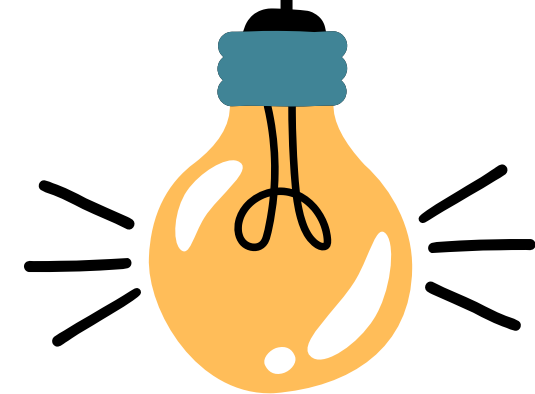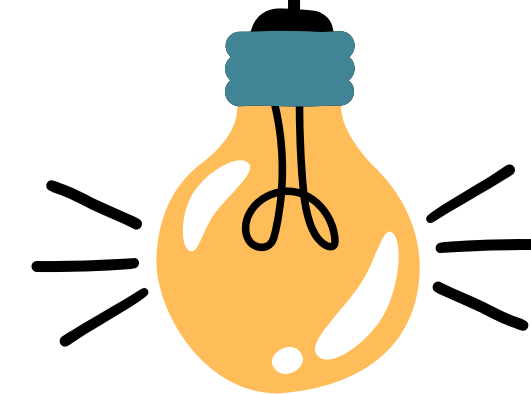# ABC CALL VOLUME

TREND ANALYSIS

By Sandeep Tomar

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PROJECT DESCRIPTION

The project aims to analyze the dataset of an ABC company's inbound call center for the insurance category. The dataset includes information such as agent names, queue time, call time, call duration, call status, and other relevant details.

The objectives of the project are to calculate the average call time duration for incoming calls in each time bucket, visualize the total volume of calls over time, and propose a manpower plan to reduce the abandon rate to 10% during specific time periods.
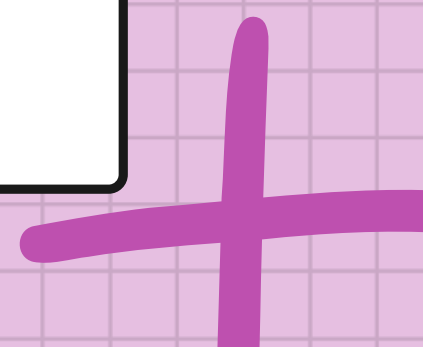
Additionally, the project involves addressing the issue of unanswered calls during the night and proposing a manpower plan for that time period as well.

APPROACH

- Import the dataset into Excel Sheets.
- Clean the data by removing any irrelevant columns or rows.
- Calculate the average call time duration for incoming calls in each time bucket by using appropriate formulas or functions.
- Create a chart or graph to visualize the total volume of calls over time.
- Analyze the current abandon rate and calculate the minimum number of agents required in each time bucket to reduce the abandon rate to 10%.
- Analyze the distribution of calls during the night and propose a manpower plan to address the issue of unanswered calls.
- Consider the assumptions regarding agent work schedule and calculate the required number of agents in each time bucket.
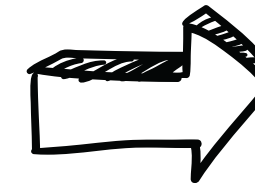- Summarize the findings and insights in a report.
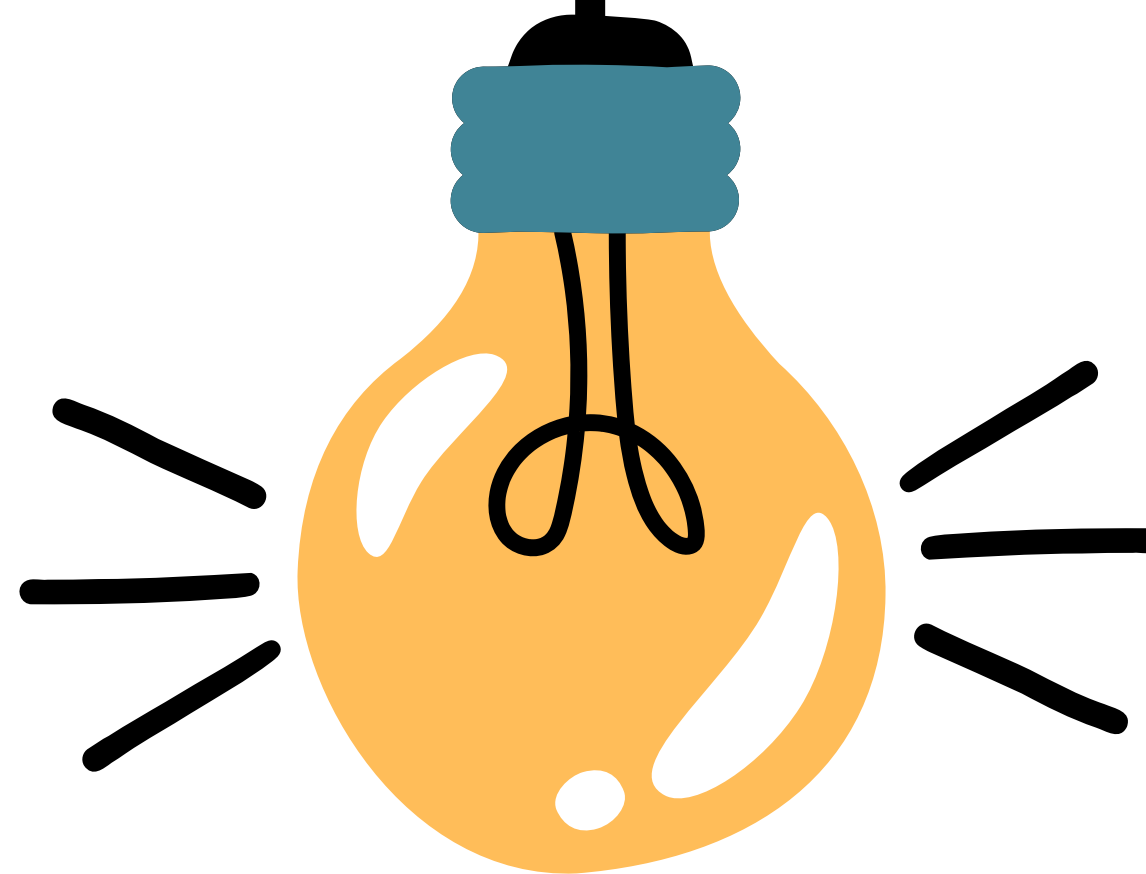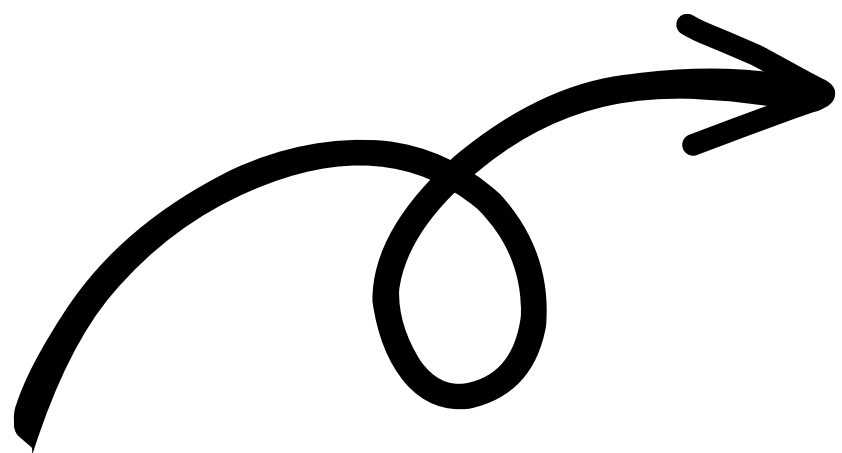
TECH STACK USED

Microsoft Excel (2021) – used for data analysis, calculations, and visualization.

INSIGHTS

A. Calculate the average call time duration for all incoming calls received by agents (in each Time_Bucket).

INSIGHT

1 The total call time duration is from 9 AM to 9 PM with an overall average call duration of 198.62 seconds.

2 The Avg call duration is highest from 9 am to 12 noon and from 6 pm to 9 pm.

3 Average minimum calls received by agent slot During 12 noon to 1 p.m.

AVERAGE OF CALL SECONDS BY TIME

Average of Call Seconds by Time

Time Bucket	Average
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
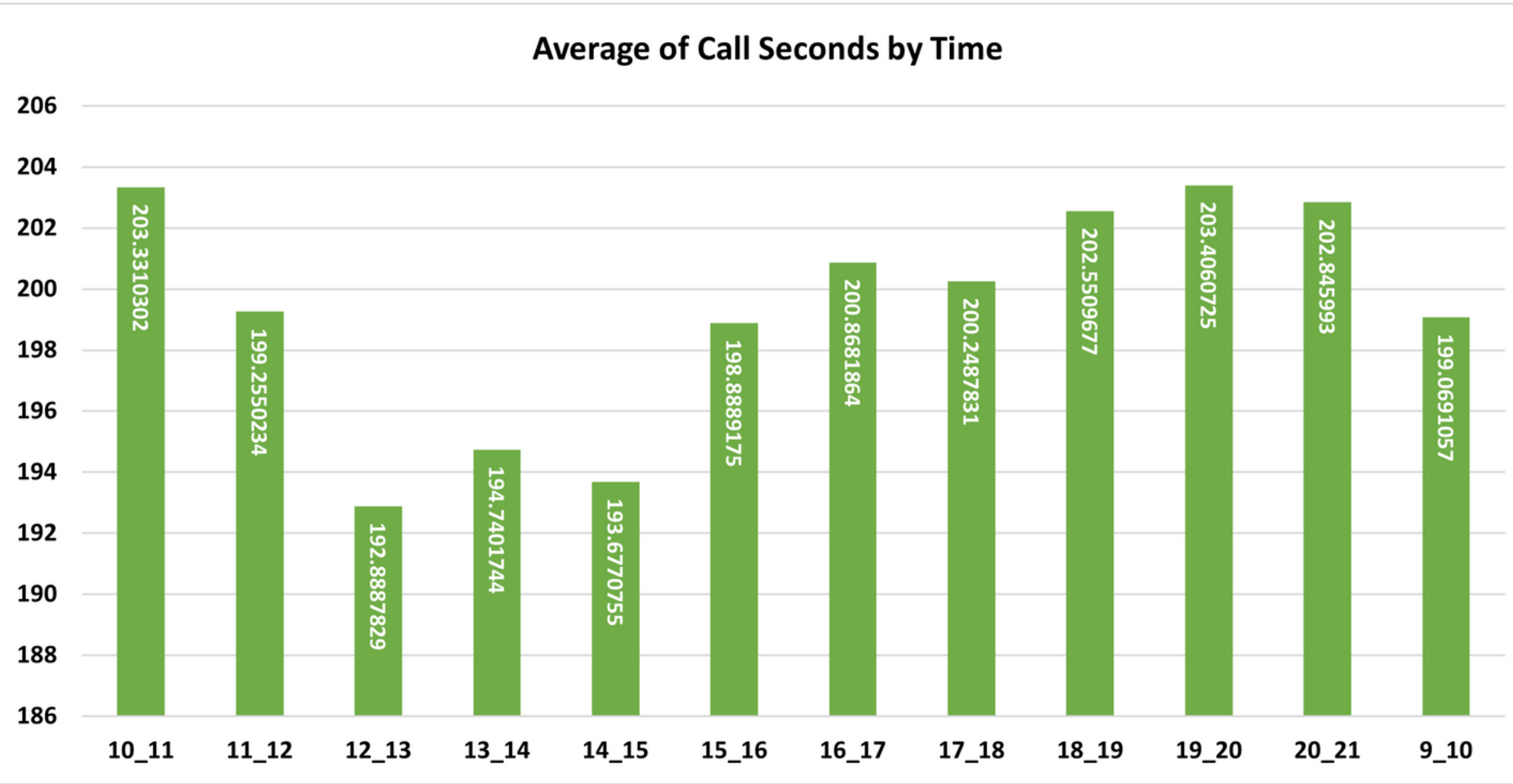
B. Show the total volume/ number of calls coming in via charts/ graphs [Number of calls v/s Time]. You can select time in a bucket form (i.e. 1–2, 2–3, ...)

NUMBER OF CALLS V/S TIME

Number of calls v/s Time

- Count of Customer_Phone_No
- Count of Call_Seconds (s)

Bars (Count of Customer_Phone_No): 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

Percentages: 11.28%, 12.40%, 10.72%, 9.80%, 8.95%, 7.76%, 7.45%, 7.23%, 6.13%, 5.48%, 4.67%, 8.13%
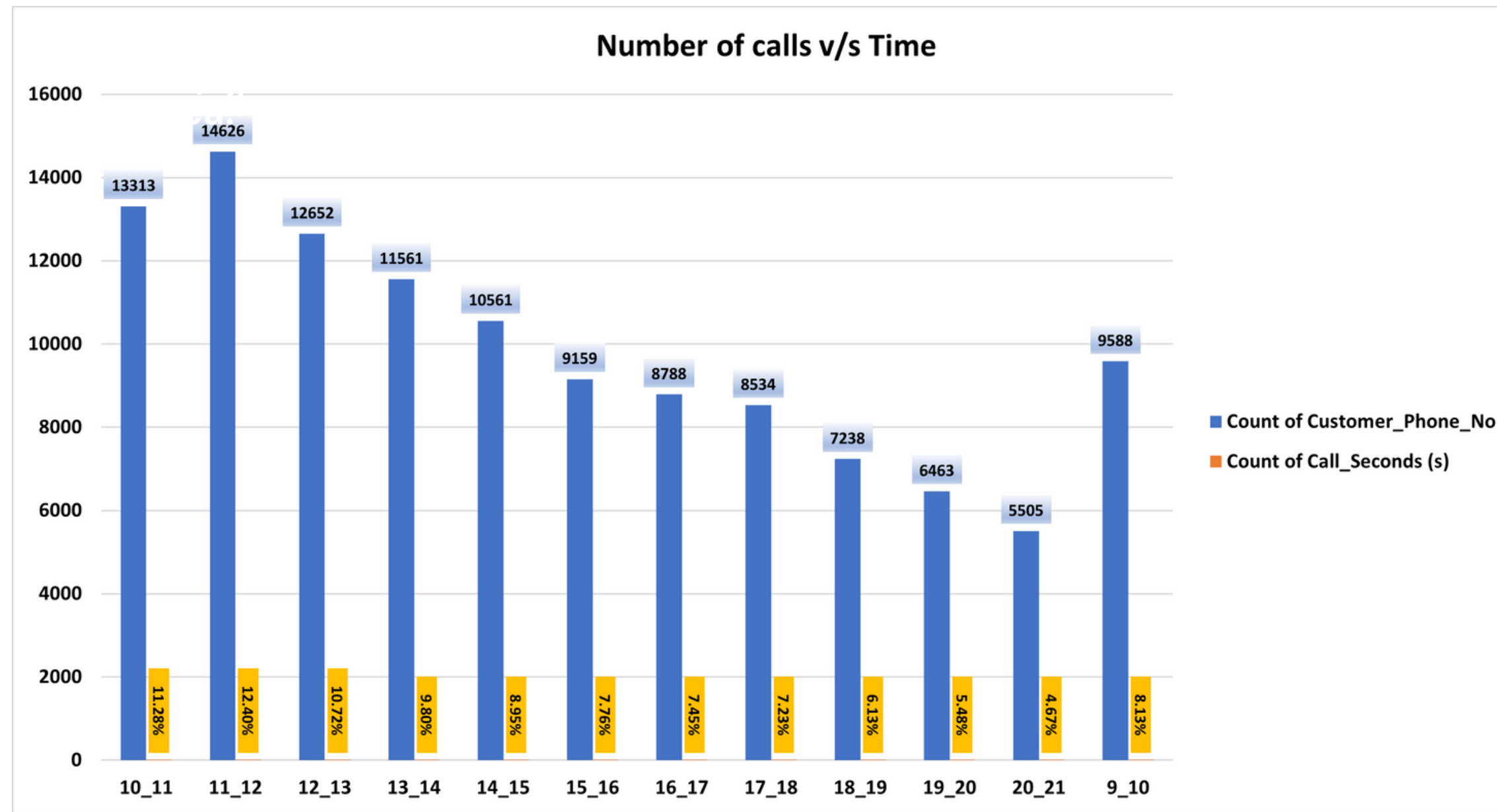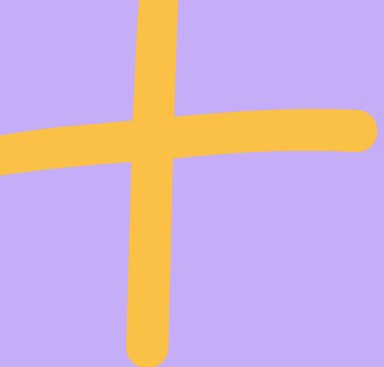
INSIGHT

1 Based on the analysis, I found that the highest number of calls are made by customers between 11 am and 12 noon. The highest customer engagement is seen in this time period.

2 Customers make the least calls between 8 pm and 9 pm.

3 These insights give useful information regarding daily customer call trends, showing peak and low activity hours.
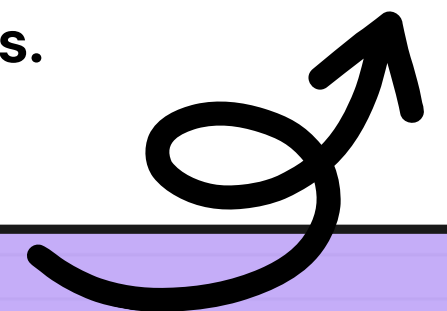
C. As you can see current abandon rate is approximately 30%. Propose a manpower plan required during each time bucket [between 9am to 9pm] to reduce the abandon rate to 10%. (i.e. You have to calculate minimum number of agents required in each time bucket so that at least 90 calls should be answered out of 100.)

Assumption

Agent Working Days in a week	6 days
Average Unplanned Leaves	4 days of Months
Total Working Hrs in Day	9 Hrs
Lunch/Snacks, Break	1.5 Hrs
Total Actual Working in Hrs	60% of 7.5 Hrs
Total Time Spent on Call	4.5 Hrs

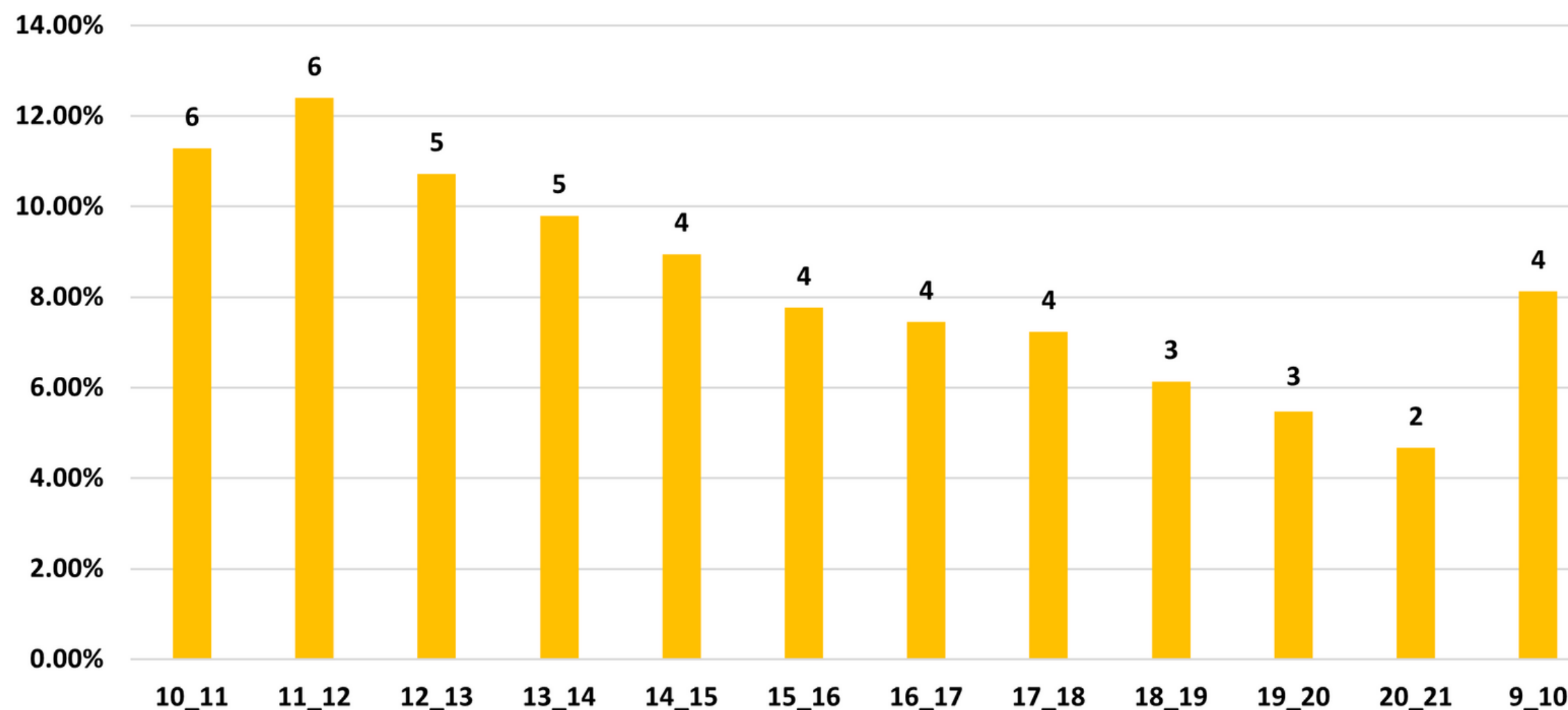|	
Working Hours by the company	9 Hrs
Break	1.5 Hrs
IT Downtime	0.5 Hrs
Meetings	1 Hrs
Fun and conversation with colleagues.	1 Hrs
Actual working hours by agent in day	5 Hrs

Average, Number and Percentage of Call Status
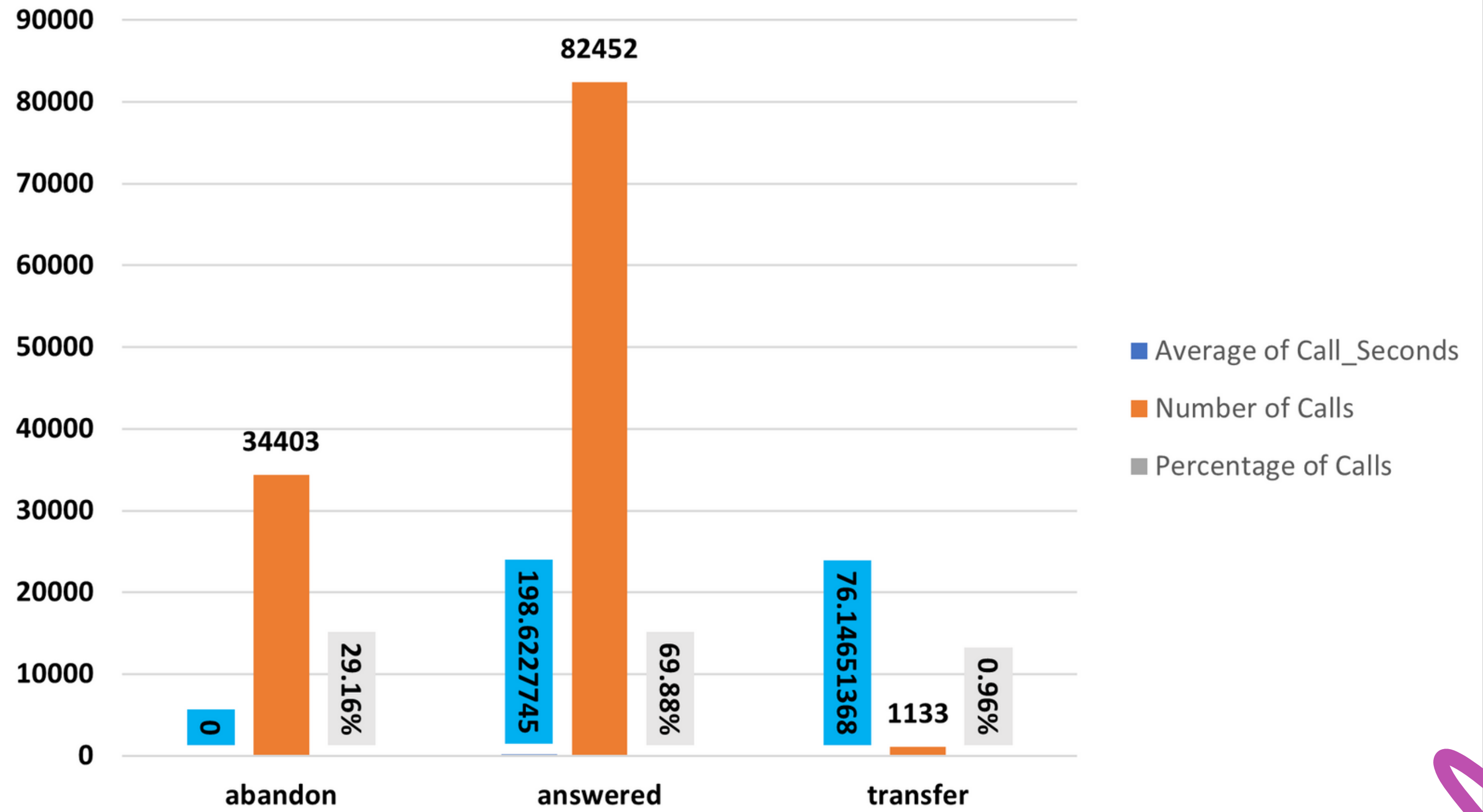
Date	Sum of Call_Seconds	Sum of Hour
1-Jan	676664	187.96
Total Agent equal 70%	38.00	
Total Agent Required for 90%	49.00	

MIN AGENTS REQUIRED OF TIME BUCKET

SOLUTION

To determine the total number of agents needed, I can use the formula:–
Total Agents = (Sum of Hrs / Time per person).

Given the following information:

Average calls in a day :– 187.96
Total time spent by a person in a single day: 5 hours

Using the formula, I get:
Total Agent = ROUND(187.96/5,0) = 38

To achieve a 90% call connection rate (instead of the current 70%),I calculate the number of additional agents required.

min agent req = ROUND(90*38/70,0) = 49

Applying the unitary method, I find that 49 agents will be required.

Therefore, the total number of agents required to achieve a 90% call connection rate is 49.

INSIGHT

- **According to statistics, during the day 29% of calls were dropped, 1% were transferred and 70% were answered.**

- **A total of 49 agents are needed to ensure that 90% of calls are answered each day.**

- **This data gives information about call management efficiency, call status distribution, and the number of employees needed for good customer support.**
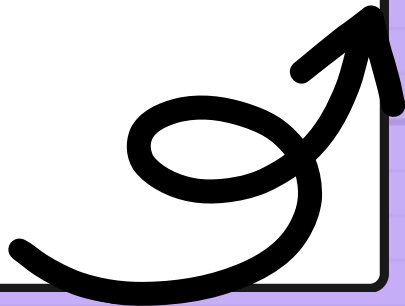
Click here to view <u>My Analysis File.</u>
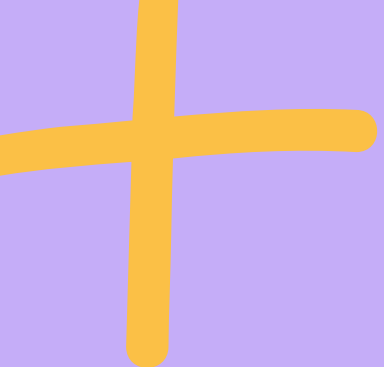
D. Let's say customers also call this ABC insurance company in night but didn't get answer as there are no agents to answer, this creates a bad customer experience for this Insurance company. Suppose every 100 calls that customer made during 9 Am to 9 Pm, customer also made 30 calls in night between interval [9 Pm to 9 Am] and distribution of those 30 calls are as follows:

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

Total Number of Agents Required is Calculated by

Avg Call Daily (9am - 9pm)	5130
Avg Call For Night (9pm - 9am)	1539
Additional Hours Required	76
Additional Agent Required	15

Agents Required of Night Time Bucket ● ● ●

	9pm - 10pm	10pm - 11pm	11pm - 12am	12am - 1am	1am - 2am	2am - 3am	3am - 4am	4am - 5am	5am - 6am	6am - 7am	7am - 8am	8am - 9am
Agents	2	2	1	1	1	1	1	1	2	2	2	3
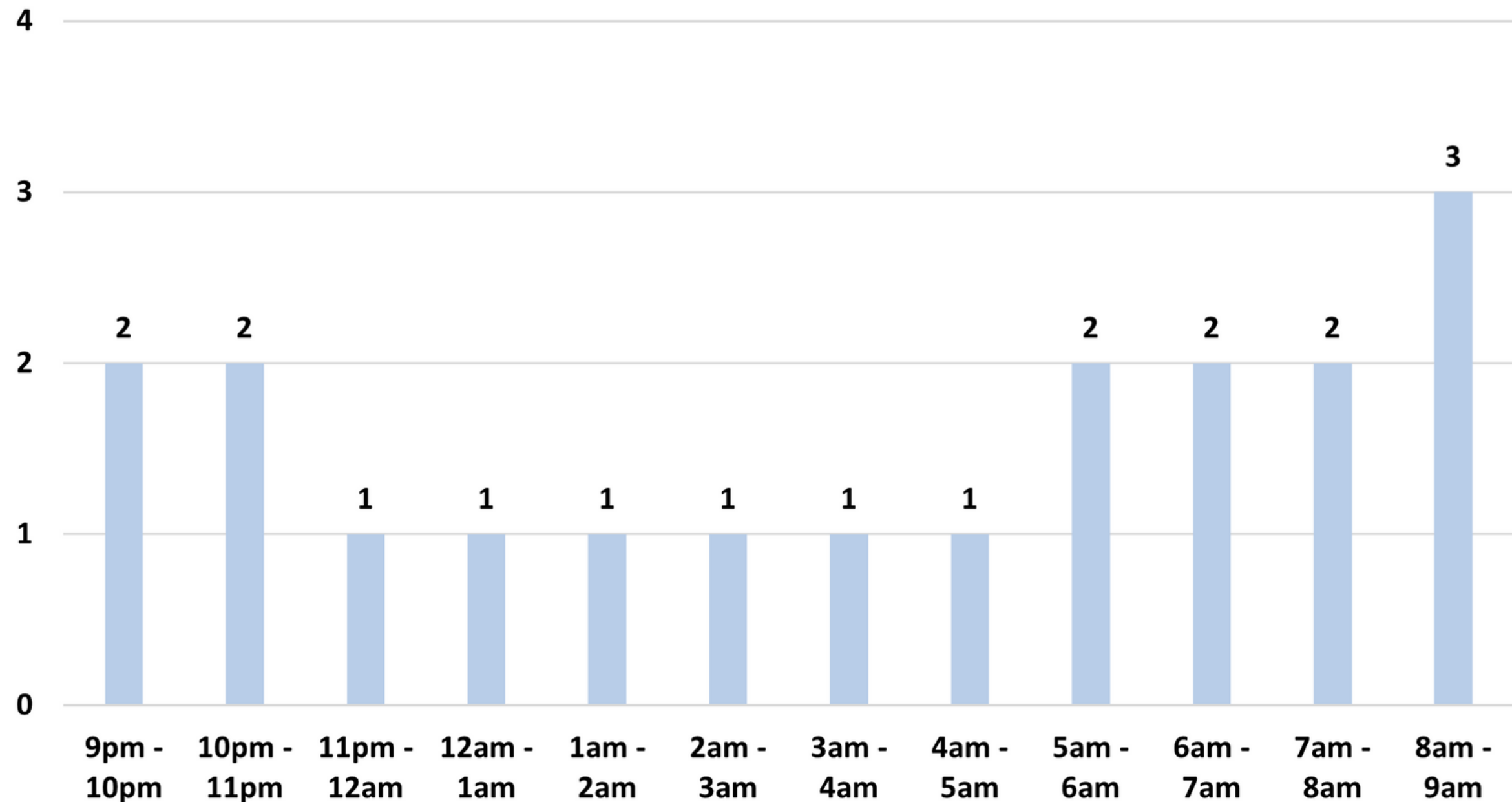
Solution ● ● ●

- First, I estimated the time distribution by dividing each call distribution by the total number of calls, which was 30.

- The number of agents required for each time bucket is determined by the 15 * time distribution.

- The above number 15 is obtained by dividing the additional time required to answer night calls by 5 (the actual working hours of the agents).

- In addition, when calculating, rounded amounts are used, since 1.5 people cannot do the job.

INSIGHT

- Customers call the least in the evening. As a result, the organization can reduce the number of personnel answering calls at that time.

- The organization can appoint 15 customer service representatives for the night shift.

- Employees who work from 9 am to 9 pm In order to answer more calls, the manager may change the shift of some employees from 5 am to 2 pm And others from 2 pm to 11 pm.

- The company may someday shift the employees to the night shift which will provide continuous coverage and effective call handling throughout the day.

- The organization can also divide the employers into three categories so that agents are always available 24 hours.

RESULT

By performing the analysis and implementing the proposed manpower plans, the project aims to achieve the following:

- Gain insights into call durations in different time buckets, facilitating better resource management and planning.

- Provide visual representations of call volume trends over time, enabling better decision-making regarding staffing requirements.

- Propose a manpower plan to reduce the abandon rate from 30% to 10% during specified time periods, leading to improved customer satisfaction.

- Propose a manpower plan to address unanswered calls during the night, ensuring a better customer experience round the clock.

- The project report will serve as a valuable resource for the leadership team to understand and optimize the performance of the ABC company's inbound call center.