

CALL VOLUME TREND ANALYSIS

Project description

The project analyzes a dataset of an insurance company's Customer Care team for 23 days. The dataset includes information about agents, call durations, and statuses. Data includes Agent_Name, Agent_ID, Queue_Time , Time, Time_Bucket, Duration, Call_Seconds, call status (Abandon, answered, transferred).

Tech-Stack used -MS Excel. Excel Analysis File Link---

[https://docs.google.com/spreadsheets/d/1-gNLzVsVIP-](https://docs.google.com/spreadsheets/d/1-gNLzVsVIP-OrQ4Gt9PUQnMAqyg8FtRx/edit?usp=drive_link&oid=100722541522733905001&rtpof=true&sd=true)

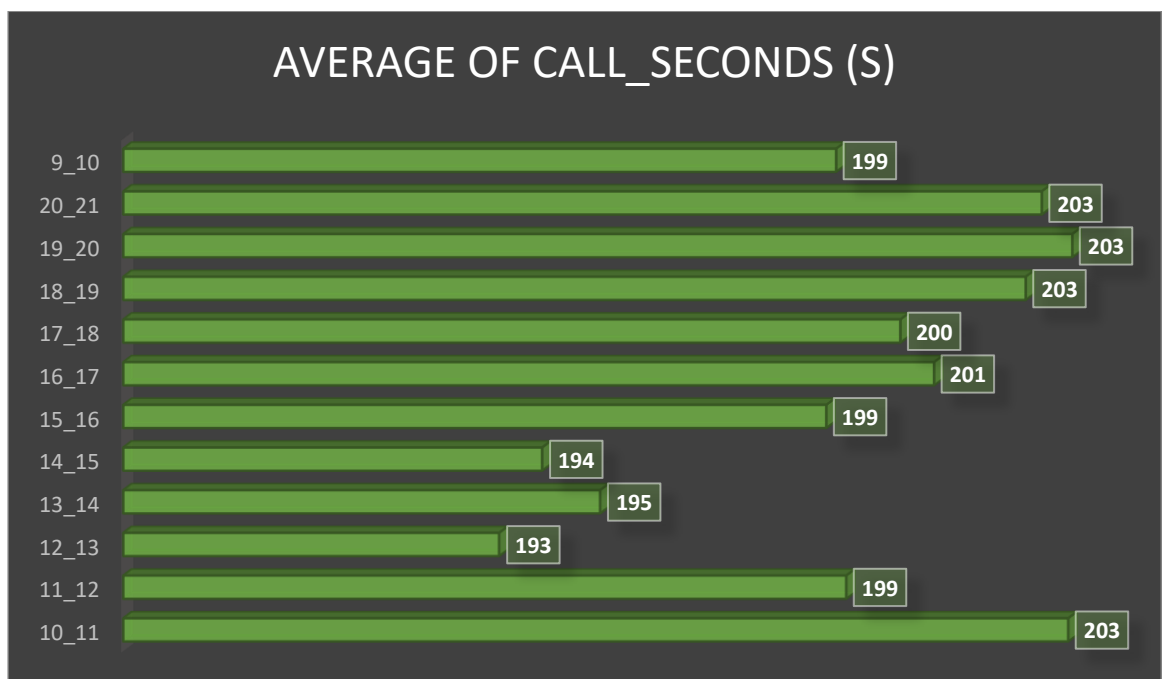
[OrQ4Gt9PUQnMAqyg8FtRx/edit?usp=drive_link&oid=100722541522733905001&rtpof=true&sd=true](https://docs.google.com/spreadsheets/d/1-gNLzVsVIP-OrQ4Gt9PUQnMAqyg8FtRx/edit?usp=drive_link&oid=100722541522733905001&rtpof=true&sd=true)

Approach

There are 13 columns and 117989 rows. We are not planning on deleting extra columns as they do not tend to disturb our analysis. I have created the charts and done a few calculations to understand the data and draw some insights.

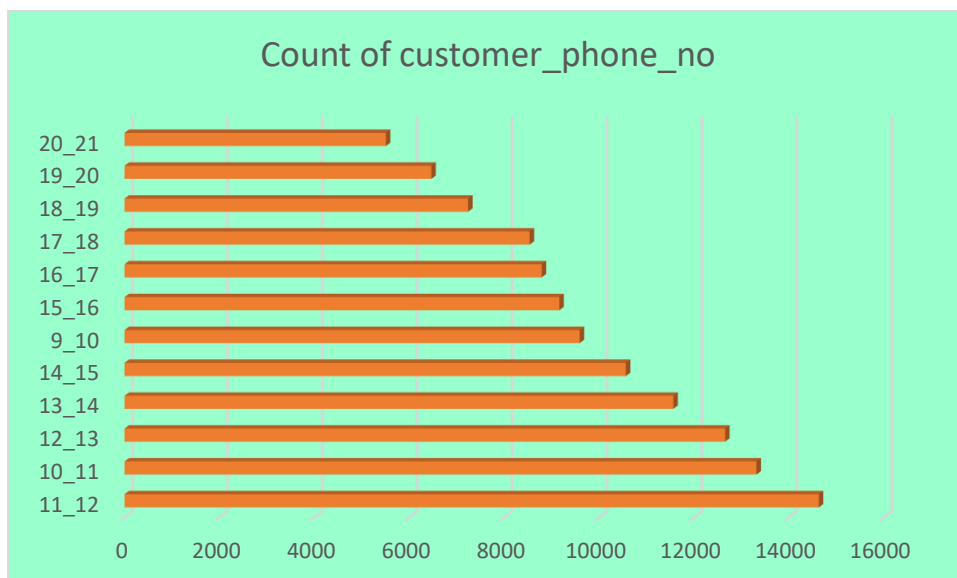
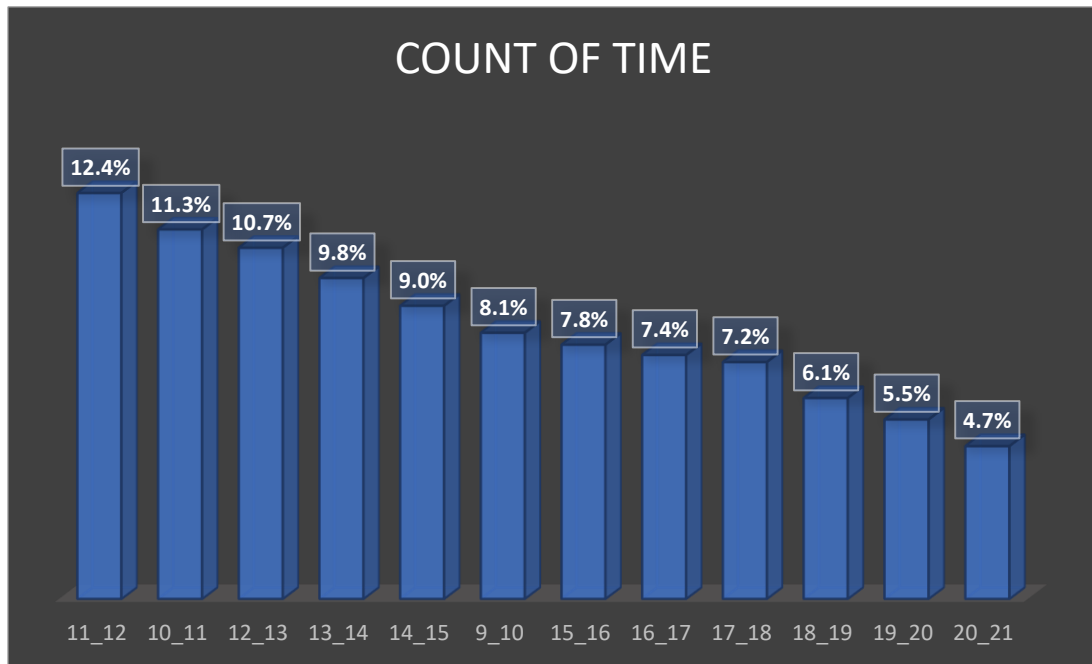
Tasks-----

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



Average call time is 199 seconds. I have created a pivot table and added a filter so that the data can be filtered according to the call status.

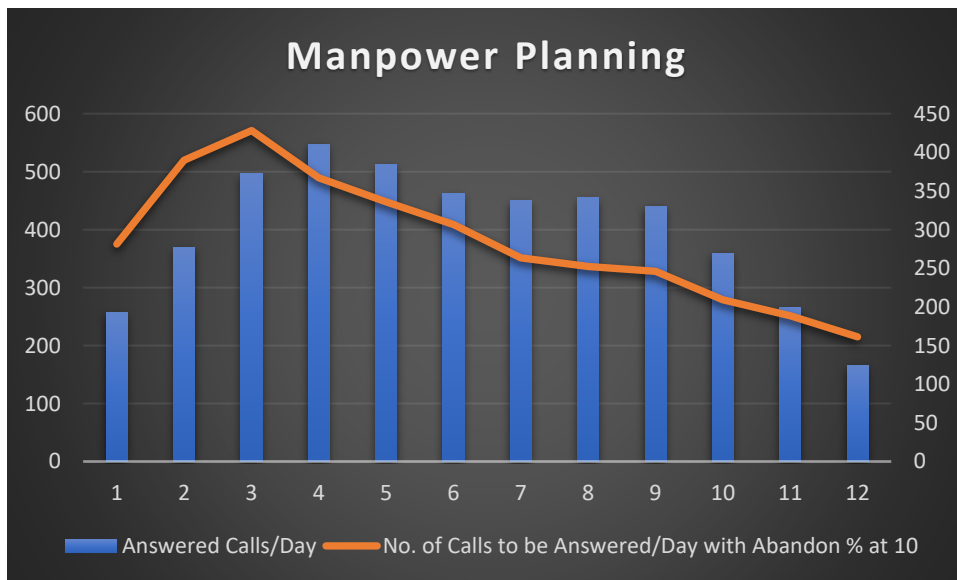
- Show the total volume/ number of calls coming in via charts/ graphs [Number of calls v/s Time].



Most number of calls are in 11_12 interval that is 12.4% of the total number of calls.

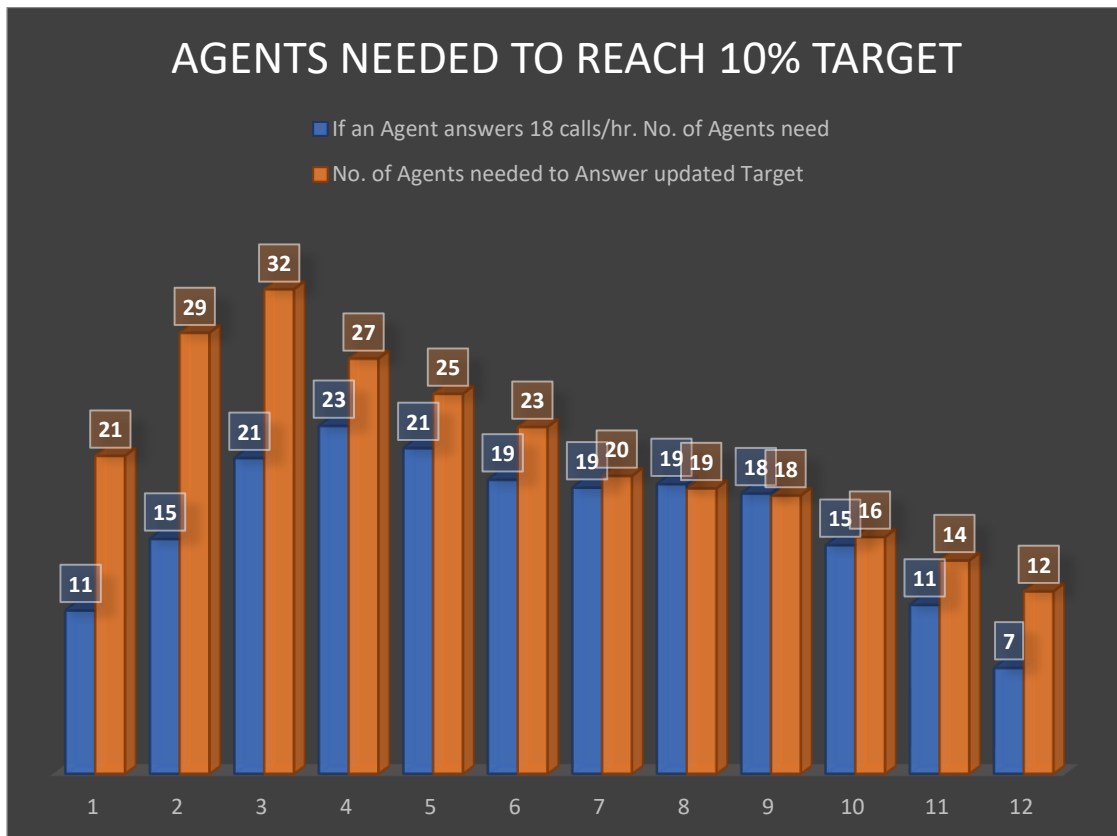
- As you can see, the current abandon rate is approximately 30%. Propose a manpower plan required during each time bucket [between 9am to 9pm] to reduce the abandon rate to 10%. (i.e. You must calculate the minimum number of agents required in each time bucket so that at least 90 calls should be answered out of 100.)

Time_Bucket	Answered Calls/Day	If an Agent answers 18 calls/hr. No. of Agents need	No. of Calls to be Answered/Day with Abandon % at 10
09_10	193	11	375
10_11	277	15	520
11_12	372	21	571
12_13	410	23	489
13_14	384	21	448
14_15	347	19	409
15_16	337	19	351
16_17	341	19	336
17_18	330	18	328
18_19	270	15	279
19_20	199	11	251
20_21	125	7	215



Here we see the comparison of current calls Vs the updated call numbers per day for each time bucket as per the new Abandon Rate. Based on which we'd be calculating the number of Agents needed in each time bucket.

If an Agent answers 18 calls/hr. No. of Agents need	No. of Agents needed to Answer updated Target
11	21
15	29
21	32
23	27
21	25
19	23
19	20
19	19
18	18
15	16
11	14
7	12



- 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 a customer made during 9 Am to 9 Pm, customer also made 30 calls in night between interval [9 Pm to 9 Am].

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

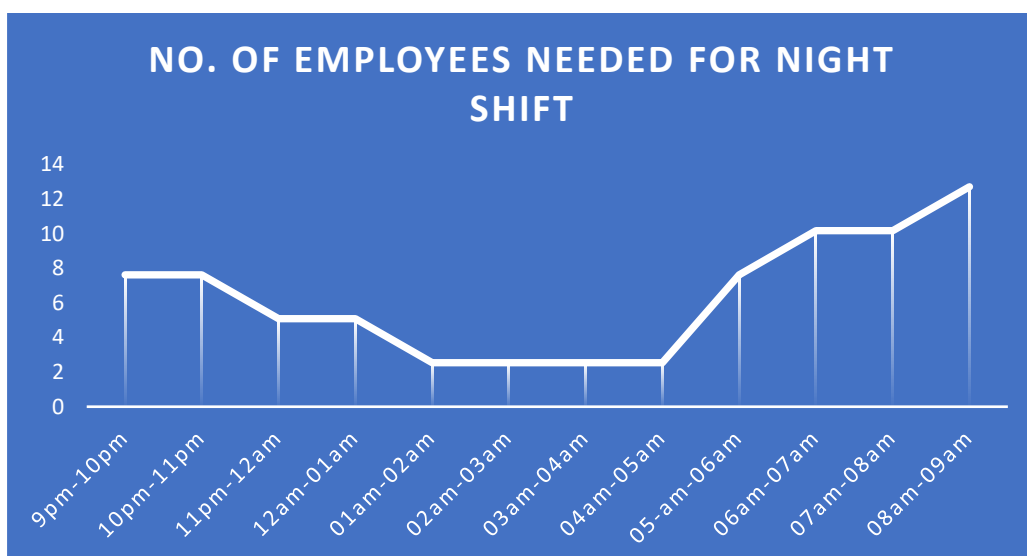
Time_Slot	Distribution of 30 calls	Percentage Distribution
9pm-10pm	3	0.1000
10pm-11pm	3	0.1000
11pm-12am	2	0.0667
12am-01am	2	0.0667
01am-02am	1	0.0333
02am-03am	1	0.0333
03am-04am	1	0.0333
04am-05am	1	0.0333
05-am-06am	3	0.1000
06am-07am	4	0.1333
07am-08am	4	0.1333
08am-09am	5	0.1667
Total	30	1

Calculations: Distribution of 30 calls/30 * 100 gives percentage distribution

Time_Bucket	No. of Calls to be Answered/Day with Abandon % at 10
09_10	375
10_11	520
11_12	571
12_13	489
13_14	448
14_15	409
15_16	351
16_17	336
17_18	328
18_19	279
19_20	251
20_21	215
Total Calls on an average/day	4573
Total Calls on an average/night	1372

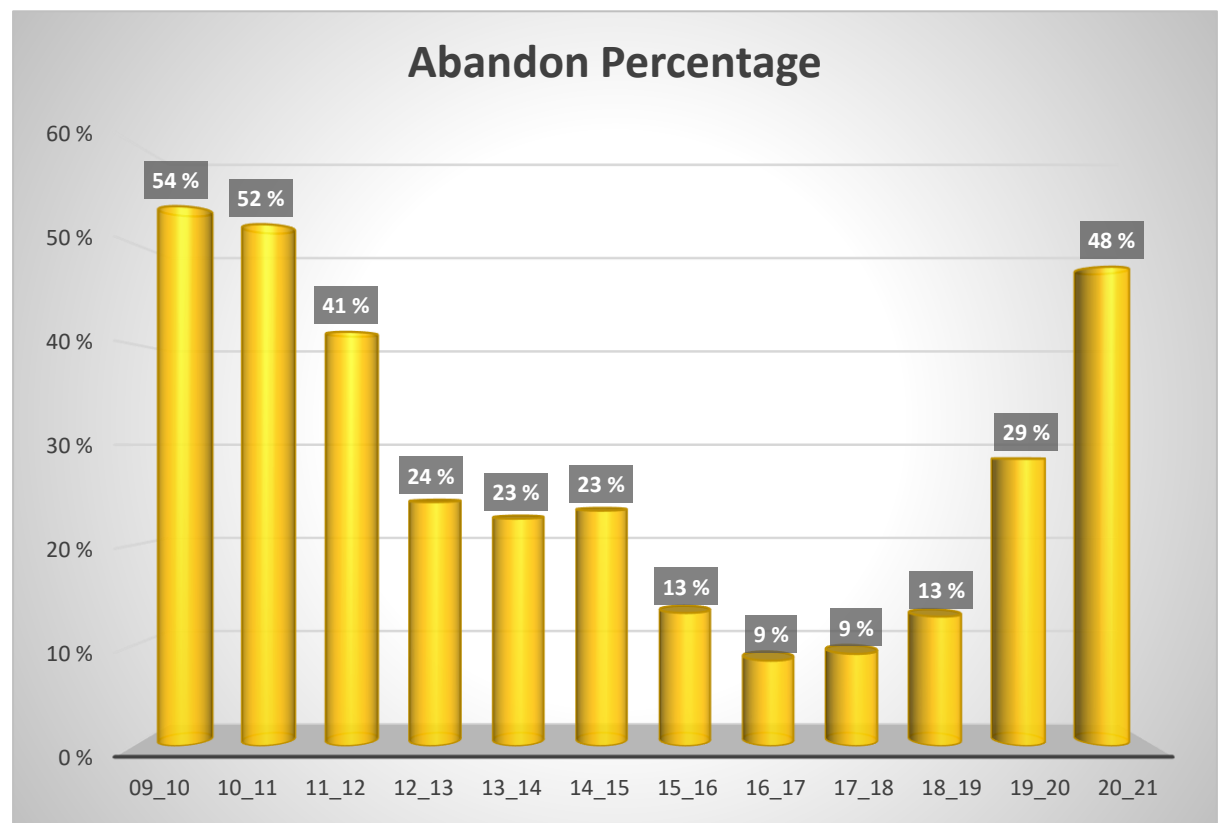
This is from previous question.

- Total Calls answered with 10% abandon rate on an average/day:4573
- 30% of calls received during the day are received during night
- Total Calls answered on an average/night: $4573 \times 0.3 = 1372$
- Multiplying the Total Calls with percentage distribution, we get the total calls expected/time slot.
- As we know the number of calls an Agent can answer/hr. is 18, dividing the No. of Calls by 18, we get the number of agents required.



The call Abandon rate by the agents at the start and towards the end of the shift is very high. The management must have a strong look if the reason for such high number of calls being abandoned is because of the agents not being monitored properly towards the start and end of the shift.

If the call abandon rate is high because of reasons such as team meetings, they should be conducted during afternoon hours between 4pm to 6 pm where in the call abandon rate is below 10%.



Takeaway and Results

This project was challenging in terms of calculations. It was a good way to analyse the data and it helped me to work on excel.