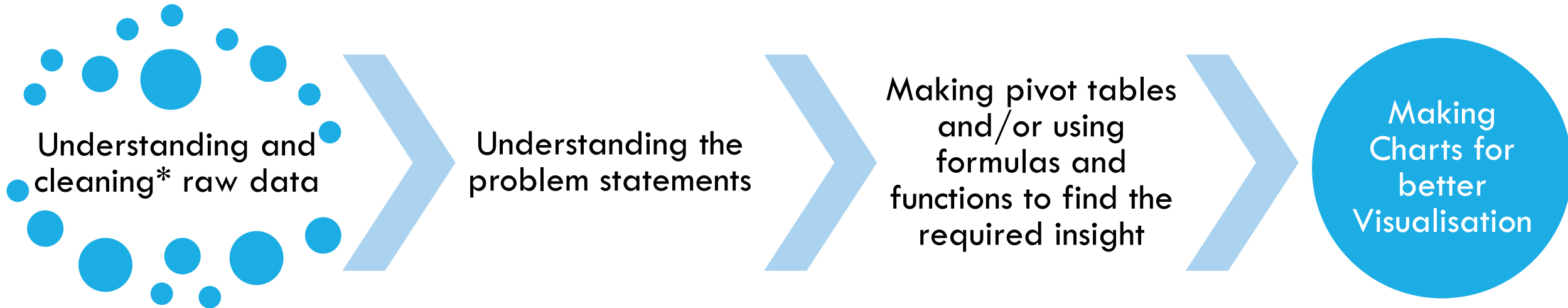# ABC CALL VOLUME TREND ANALYSIS

PROJECT DEATILS

➢For this project, we need to figure out how long calls usually last and how many calls happen in an hour on average.

➢We're also tasked with suggesting a plan for how many people should be available during different times to keep the abandon rate (calls that are hung up before being answered) below 10%.

➢Additionally, we have to propose a plan for managing staff when calls come in throughout the entire day.

APPROACH TO COMPLETE THE TASK

Understanding and cleaning* raw data

Understanding the problem statements

Making pivot tables and/or using formulas and functions to find the required insight

Making Charts for better Visualisation

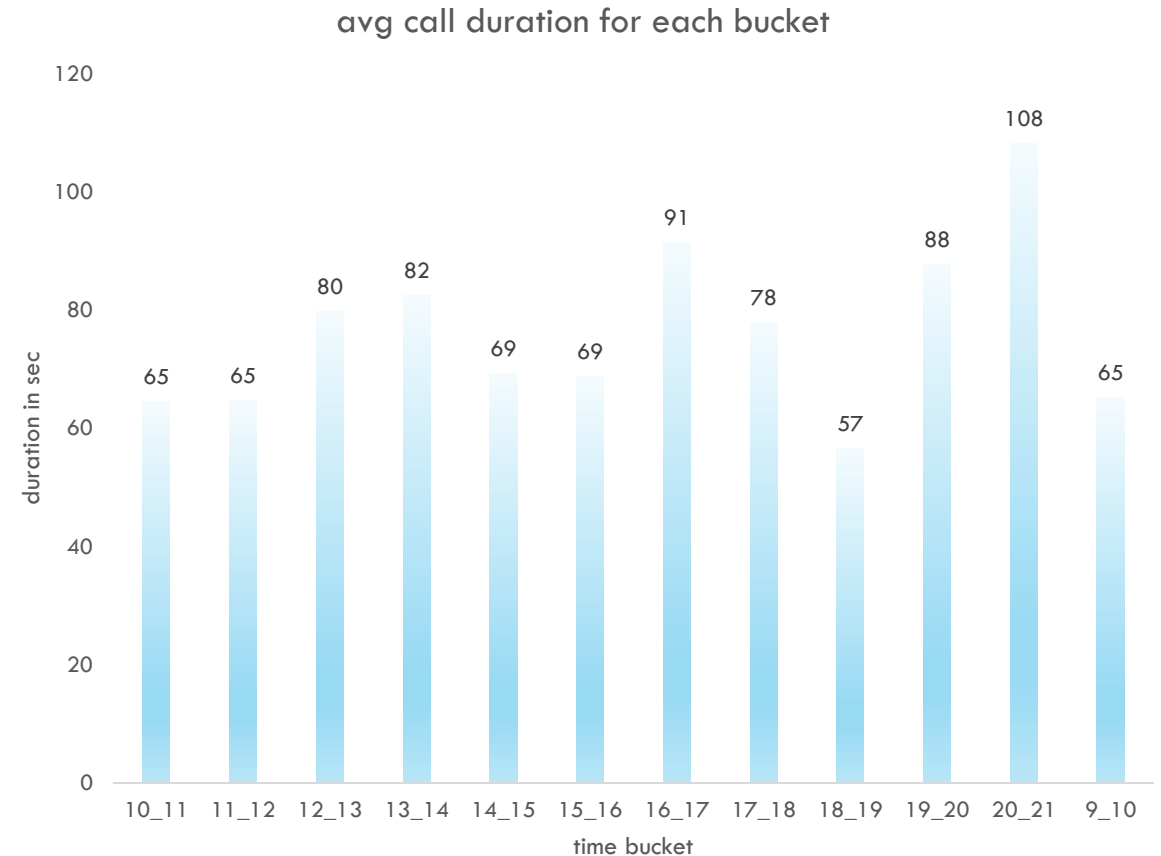* All null values are replaced by #N/A, because categorical values are missing

TECH STACK USED AND EXCEL FILE LINK
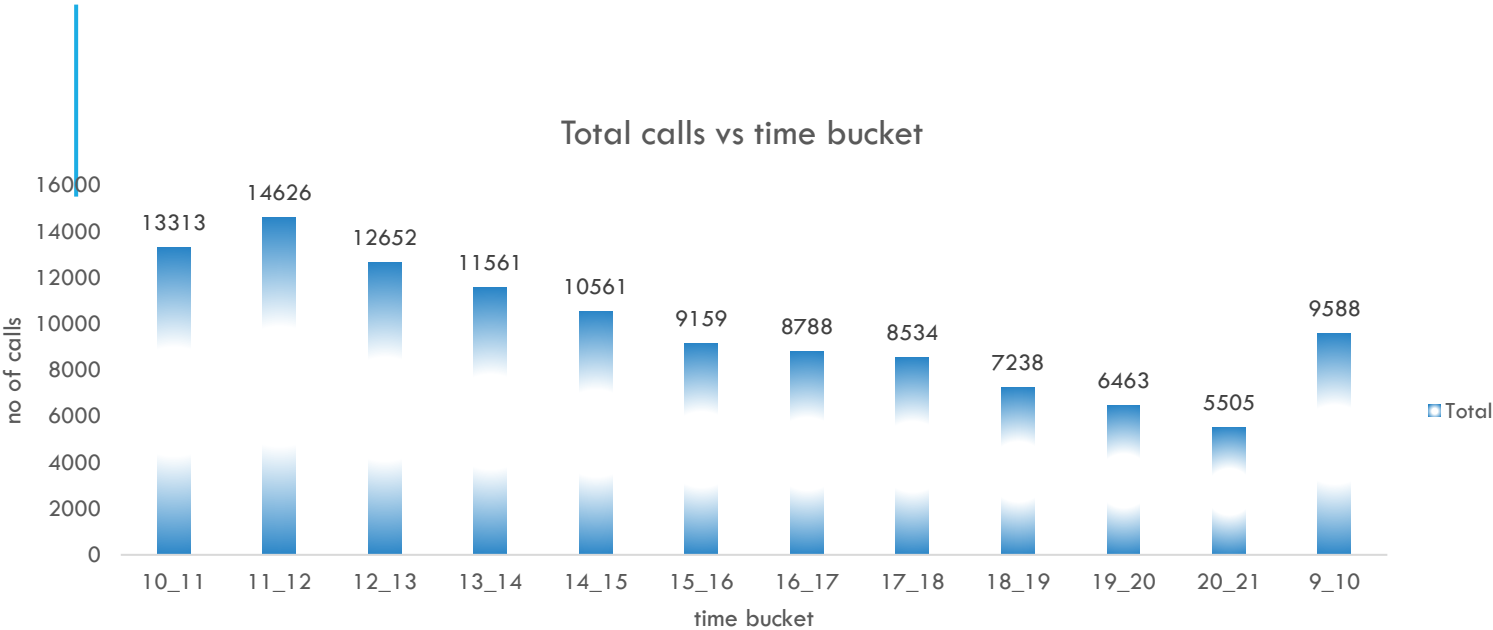
Tech stack used- Microsoft office excel 2021

Excel file link- https://drive.google.com/drive/folders/1XzJtPubAg-Cx9fRDom2iRFYPqvERWjbH?usp=sharing

AVERAGE CALL TIME IN EACH TIME BUCKET

➤Call durations rise steadily from 9 am to 9 pm, averaging 76.14 seconds.

➤Shortest periods: 6 pm to 7 pm

➤Longest durations:8 pm to 9 pm

➤Peaks in the morning (9 am to 12 pm) and evening (6 pm to 9 pm).

avg call duration for each bucket

CALL VOLUME

Total calls vs time bucket

total calls w.r.t time bucket with call status

	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21	9_10
transfer	34	38	147	115	112	185	189	150	105	37	10	11
answered	6368	8560	9432	8829	7974	7760	7852	7601	6200	4578	2870	4428
abandon	6911	6028	3073	2617	2475	1214	747	783	933	1848	2625	5149

➤ The call volume starting at 9588 at 9 am, peaking at 14626 from 11 am to 12 pm, and gradually decreasing to 5505 at 8 pm to 9 pm.

➤ Overall, there's a decreasing trend.

➤ Abandoned calls are prevalent during the initial and final hours, with over 11 lakh calls received throughout the day.
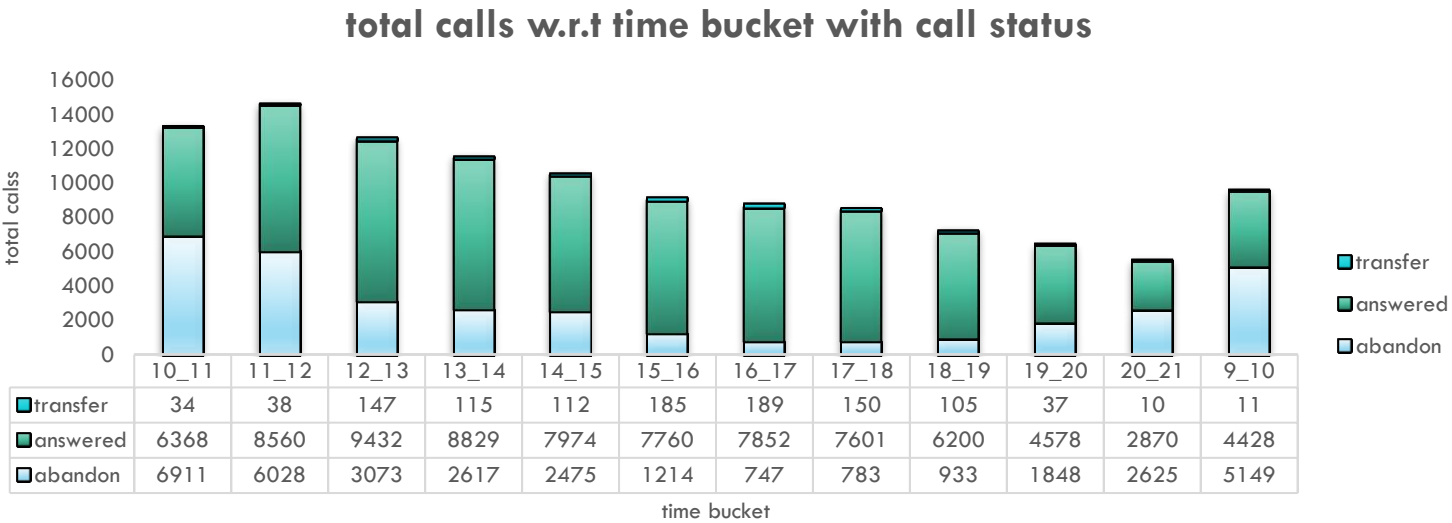
MANPOWER PLANING

Given Assumption: An agent work for 6 days a week; On an average total unplanned leaves per agent is 4 days a month; An agent total working hrs is 9 Hrs out of which 1.5 Hrs goes into lunch and snacks in the office. On average an agent occupied for 60% of his total actual working Hrs (i.e 60% of 7.5 Hrs) on call with customers/ users. Total days in a month is 30 days.

time	1-1-22
Row Labels	Sum of Call_Seconds (s)
9 AM	35313
10 AM	53087
11 AM	67751
12 PM	72680
1 PM	59693
2 PM	76137
3 PM	65689
4 PM	59464
5 PM	68155
6 PM	53096
7 PM	40141
8 PM	25281
9 PM	177
Grand Total	676664

Row Labels	Count of Call_Seconds (s)	Count of Call_Seconds (s)2	total agent needed
10_11	11.28%	0.11	5
11_12	12.40%	0.12	6
12_13	10.72%	0.11	5
13_14	9.80%	0.10	5
14_15	8.95%	0.09	4
15_16	7.76%	0.08	4
16_17	7.45%	0.07	3
17_18	7.23%	0.07	3
18_19	6.13%	0.06	3
19_20	5.48%	0.05	3
20_21	4.67%	0.05	2
9_10	8.13%	0.08	4
Grand Total	100.00%	100.00%	47

1st jan all calls in secs		676664
1st jan all calls in hrs		188
as per agent data 1 agent can work 6 hrs(exclude 3 hrs in meeting,lunch,breakfast and extra time)		6
total agent for 60%		31
agent required for 90%		47

Row Labels	Count of Customer_Phone_No	Count of Customer_Phone_No2	Average of Call_Seconds (s)
abandon	34403	29.16%	0
answered	82452	69.88%	198.6227745
transfer	1133	0.96%	76.14651368
Grand Total	117988	100.00%	139.5321473

NIGHT SHIFT MANPOWER PLAN

Given Assumption: An agent work for 6 days a week; On an average total unplanned leaves per agent is 4 days a month; An agent total working hrs is 9 Hrs out of which 1.5 Hrs goes into lunch and snacks in the office. On average an agent occupied for 60% of his total actual working Hrs (i.e 60% of 7.5 Hrs) on call with customers/ users. Total days in a month is 30 days.

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

Count of Call_Status	Column Labels			
Row Labels	abandon	answered	transfer	Grand Total
01-Jan	684	3883	77	4644
02-Jan	356	2935	60	3351
03-Jan	599	4079	111	4789
04-Jan	595	4404	114	5113
05-Jan	536	4140	114	4790
06-Jan	991	3875	85	4951
07-Jan	1319	3587	42	4948
08-Jan	1103	3519	50	4672
09-Jan	962	2628	62	3652
10-Jan	1212	3699	72	4983
11-Jan	856	3695	86	4637
12-Jan	1299	3297	47	4643
13-Jan	738	3326	59	4123
14-Jan	291	2832	32	3155
15-Jan	304	2730	24	3058
16-Jan	1191	3910	41	5142
17-Jan	16636	5706	5	22347
18-Jan	1738	4024	12	5774
19-Jan	974	3717	12	4703
20-Jan	833	3485	4	4322
21-Jan	566	3104	5	3675
22-Jan	239	3045	7	3291
23-Jan	381	2832	12	3225
Grand Total	34403	82452	1133	117988

avg call in day	5130
avg call in night	1539
additional manpower need for day is	47
additional manpower need for night is	14

9PM_9AM	calls	time duration	agent required
9_10	3	10	2
10_11	3	10	2
11_12	2	15	1
12_1	2	15	1
1_2	1	30	1
2_3	1	30	1
3_4	1	30	1
4_5	1	30	1
5_6	3	10	2
6_7	4	7.5	2
7_8	4	7.5	2
8_9	5	6	3
TOTAL	30	201	14

FINAL MANPOWER REQUIRED BUCKET WISE

19

TECH STACK USED AND EXCEL FILE LINK

Tech stack used- Microsoft office excel 2021

Excel file link- https://drive.google.com/drive/folders/1XzJtPubAg-Cx9fRDom2iRFYPqvERWjbH?usp=sharing

RESULT & CONCLUSION

➢ The project taught me how to analyze data from call centers and draw useful insights. It also enhanced my skills in using charts and pivot tables in Excel.

➢ Through this experience, I gained a better understanding of managing high-stakes situations where customer satisfaction, profitability, and employee job security are all crucial factors.

➢ Overall, the project provided valuable insights into navigating such complex scenarios.