

ABC CALL VOLUME TREND ANALYSIS

Made by:
Anurag John Phillips



PROJECT DESCRIPTION

Our project focuses on enhancing the customer experience (CX) within an inbound call center operated by company ABC. By analyzing data from the inbound calling team over a 23-day period, we aimed to gain insights into call volume patterns, the duration analysis, and abandonment percentage.

These insights informed strategic decisions to optimize call center operations and enhance customer interactions.

By delving into the inbound calling team's customer experience data, which includes details such as time bucket, call durations, and call statuses, we aimed to uncover patterns that contribute to improved customer satisfaction and operational efficiency.

Our overarching goal was to offer actionable recommendations on Manpower Planning both during the day and night time to reduce the abandonment percentage to 10% while keeping certain assumption about the agents in mind.

Through a process of continuous analysis and insights sharing, our project endeavours to make a positive impact on both customer experiences and operational effectiveness.



APPROACH



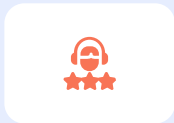
**Understanding the
Dataset**



Cleaning Dataset



Analysing Dataset



Visualising Dataset



Insights



Learning



TECH STACK USED

24/7



Microsoft Excel for Mac Version 16.74

Tableau Public 2023.2.1



Google Drive Link

https://drive.google.com/drive/folders/1Azz1Xcli9B-h87CtDI7xw1IDkfUEvavc?usp=drive_link



UNDERSTANDING AND CLEANING THE DATASET

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Agent_Name	Agent_ID	Customer_Phone_No	Queue_Time(Secs)	Date_& Time	Time	Time_Bucket	Duration(hh:mm:ss)	Call_Seconds (s)	Call_Status	Wrapped_By	Ringin	IVR_Duration
2	Executives 42	1000042	98502XXXX	2	01/01/22	9.00_9_10		0:01:36	96.00	answered	Agent	YES	0:00:16
3	Executives 4	1000004	80595XXXX	0	01/01/22	9.00_9_10		0:02:20	140.00	answered	Agent	YES	0:00:26
4	Executives 65	1000065	70202XXXX	0	01/01/22	9.00_9_10		0:01:25	85.00	answered	AutoWrapped	YES	0:00:16
5	Executives 55	1000055	96104XXXX	1	01/01/22	9.00_9_10		0:01:31	91.00	answered	Agent	YES	0:00:25
6	Executives 21	1000021	82001XXXX	0	01/01/22	9.00_9_10		0:02:45	165.00	answered	Agent	YES	0:00:23
7	#N/A	#N/A	96424XXXX	13	01/01/22	9.00_9_10		0:00:00	0.00	abandon		YES	0:00:16
8	Executives 55	1000055	96737XXXX	79	01/01/22	9.00_9_10		0:01:25	85.00	answered	AutoWrapped	YES	0:00:13
9	#N/A	#N/A	96392XXXX	60	01/01/22	9.00_9_10		0:00:00	0.00	abandon		YES	0:00:17
10	Executives 42	1000042	90820XXXX	52	01/01/22	9.00_9_10		0:01:05	65.00	answered	Agent	YES	0:00:20
11	Executives 65	1000065	97410XXXX	62	01/01/22	9.00_9_10		0:03:00	180.00	answered	AutoWrapped	YES	0:00:44
12	Executives 4	1000004	70076XXXX	52	01/01/22	9.00_9_10		0:01:48	108.00	answered	Agent	YES	0:00:15
13	Executives 21	1000021	82505XXXX	89	01/01/22	9.00_9_10		0:03:06	186.00	answered	Agent	YES	0:00:16
14	#N/A	#N/A	97232XXXX	120	01/01/22	9.00_9_10		0:00:00	0.00	abandon		YES	0:00:40
15	Executives 55	1000055	96392XXXX	45	01/01/22	9.00_9_10		0:01:40	100.00	answered	AutoWrapped	YES	0:00:42
16	Executives 42	1000042	97471XXXX	55	01/01/22	9.00_9_10		0:01:15	75.00	answered	AutoWrapped	YES	0:00:19
17	#N/A	#N/A	77082XXXX	16	01/01/22	9.00_9_10		0:00:00	0.00	abandon		YES	0:00:18
18	#N/A	#N/A	95255XXXX	44	01/01/22	9.00_9_10		0:00:00	0.00	abandon		YES	0:00:17
19	Executives 4	1000004	79725XXXX	88	01/01/22	9.00_9_10		0:04:03	243.00	answered	AutoWrapped	YES	0:00:15
20	Executives 49	1000049	98344XXXX	46	01/01/22	9.00_9_10		0:04:10	250.00	answered	Agent	YES	0:00:19
21	Executives 50	1000050	96873XXXX	64	01/01/22	9.00_9_10		0:03:28	208.00	answered	Agent	YES	0:00:48
22	Executives 42	1000042	79899XXXX	52	01/01/22	9.00_9_10		0:02:34	154.00	answered		YES	0:00:26
23	Executives 65	1000065	95754XXXX	67	01/01/22	9.00_9_10		0:02:07	127.00	answered	AutoWrapped	YES	0:00:45
24	Executives 55	1000055	70546XXXX	64	01/01/22	9.00_9_10		0:03:11	191.00	answered	AutoWrapped	YES	0:00:40
25	Executives 21	1000021	97050XXXX	47	01/01/22	9.00_9_10		0:03:23	203.00	answered	Agent	YES	0:00:25
26	#N/A	#N/A	89680XXXX	120	01/01/22	9.00_9_10		0:00:00	0.00	abandon		YES	0:00:25
27	Executives 59	1000059	99954XXXX	75	01/01/22	9.00_9_10		0:02:30	150.00	answered	AutoWrapped	YES	0:00:21
28	Executives 16	1000016	90074XXXX	71	01/01/22	9.00_9_10		0:04:13	253.00	answered	Agent	YES	0:00:20
29	#N/A	#N/A	96048XXXX	65	01/01/22	9.00_9_10		0:00:00	0.00	abandon		YES	0:00:17
30	Executives 42	1000042	99971XXXX	27	01/01/22	9.00_9_10		0:00:44	44.00	answered	Agent	YES	0:00:16
31	Executives 65	1000065	63523XXXX	36	01/01/22	9.00_9_10		0:01:27	87.00	answered		YES	0:00:17
32	Executives 50	1000050	99824XXXX	36	01/01/22	9.00_9_10		0:01:16	76.00	answered	AutoWrapped	YES	0:00:17
33	Executives 42	1000042	93684XXXX	50	01/01/22	9.00_9_10		0:02:44	164.00	answered	Agent	YES	0:00:41
34	Executives 4	1000004	91057XXXX	42	01/01/22	9.00_9_10		0:03:25	205.00	answered	Agent	YES	0:00:46
35	Executives 21	1000021	62807XXXX	0	01/01/22	9.00_9_10		0:00:54	54.00	answered	AutoWrapped	YES	0:00:42

COLUMNS- 13
ROWS- 117989

Calculated Percentage of Missing Values in each Column

Agent_Name	Agent_ID	Customer_Phone_No	Queue_Time(Secs)	Date_&_Time	Time	Time_Bucket	Duration(hh:mm:ss)	Call_Seconds (s)	Call_Status	Wrapped_By	Ringing	IVR_Duration
117988	117988	117988	0	117988	117988	117988	117988	0	0	47677	0	0
0	0	0	0	0	0	0	0	0	0	68.28742593	0	0
Executives 42	1000042	9850200000		2	01/01/22	9:00 9:10		0:01:36	96.00 answered	Agent	YES	0:00:16
Executives 4	1000004	8059500000		0	01/01/22	9:00 9:10		0:02:20	140.00 answered	Agent	YES	0:00:26
Executives 55	1000055	9610400000		0	01/01/22	9:00 9:10		0:01:25	85.00 answered	AutoWrapped	YES	0:00:15
Executives 55	1000055	9610400000		1	01/01/22	9:00 9:10		0:01:31	91.00 answered	Agent	YES	0:00:25
Executives 21	1000021	8200100000		0	01/01/22	9:00 9:10		0:02:45	165.00 answered	Agent	YES	0:00:23
#N/A	#N/A	9642400000		13	01/01/22	9:00 9:10		0:00:00	0.00 abandon	Agent	YES	0:00:16
Executives 55	1000055	9673700000		79	01/01/22	9:00 9:10		0:01:25	85.00 answered	AutoWrapped	YES	0:00:13
Executives 21	1000021	8200100000		60	01/01/22	9:00 9:10		0:00:00	0.00 abandon	Agent	YES	0:00:17
Executives 42	1000042	9082000000		52	01/01/22	9:00 9:10		0:01:05	65.00 answered	Agent	YES	0:00:20
Executives 65	1000065	9741000000		62	01/01/22	9:00 9:10		0:03:00	180.00 answered	AutoWrapped	YES	0:00:44
Executives 4	1000004	7007600000		52	01/01/22	9:00 9:10		0:01:48	108.00 answered	Agent	YES	0:00:15
Executives 21	1000021	8205000000		89	01/01/22	9:00 9:10		0:03:06	186.00 answered	Agent	YES	0:00:16
#N/A	#N/A	9723200000		120	01/01/22	9:00 9:10		0:00:00	0.00 abandon	Agent	YES	0:00:40
Executives 55	1000055	9639200000		45	01/01/22	9:00 9:10		0:01:40	100.00 answered	AutoWrapped	YES	0:00:42
Executives 42	1000042	9747100000		55	01/01/22	9:00 9:10		0:01:15	75.00 answered	AutoWrapped	YES	0:00:19
#N/A	#N/A	7708200000		16	01/01/22	9:00 9:10		0:00:00	0.00 abandon	Agent	YES	0:00:18
#N/A	#N/A	9525300000		44	01/01/22	9:00 9:10		0:00:00	0.00 abandon	Agent	YES	0:00:17
Executives 4	1000004	7972500000		88	01/01/22	9:00 9:10		0:04:03	243.00 answered	AutoWrapped	YES	0:00:15
Executives 49	1000049	9834400000		46	01/01/22	9:00 9:10		0:04:10	250.00 answered	Agent	YES	0:00:19
Executives 50	1000050	9687300000		64	01/01/22	9:00 9:10		0:03:28	208.00 answered	Agent	YES	0:00:48
Executives 42	1000042	7989900000		52	01/01/22	9:00 9:10		0:02:34	154.00 answered	Agent	YES	0:00:26
Executives 65	1000065	9575400000		67	01/01/22	9:00 9:10		0:02:07	127.00 answered	AutoWrapped	YES	0:00:45
Executives 55	1000055	7054600000		64	01/01/22	9:00 9:10		0:03:11	191.00 answered	AutoWrapped	YES	0:00:40
#N/A	#N/A	9705000000		47	01/01/22	9:00 9:10		0:03:23	203.00 answered	Agent	YES	0:00:25
#N/A	#N/A	8968000000		120	01/01/22	9:00 9:10		0:00:00	0.00 abandon	Agent	YES	0:00:25
Executives 59	1000059	9995400000		75	01/01/22	9:00 9:10		0:02:30	150.00 answered	AutoWrapped	YES	0:00:21
Executives 16	1000016	9007400000		71	01/01/22	9:00 9:10		0:04:13	253.00 answered	Agent	YES	0:00:20
#N/A	#N/A	9604800000		65	01/01/22	9:00 9:10		0:00:00	0.00 abandon	Agent	YES	0:00:17
Executives 42	1000042	9997100000		27	01/01/22	9:00 9:10		0:00:44	44.00 answered	Agent	YES	0:00:16
Executives 65	1000065	6352300000		36	01/01/22	9:00 9:10		0:01:27	87.00 answered	Agent	YES	0:00:17
Executives 50	1000050	9982400000		36	01/01/22	9:00 9:10		0:01:16	76.00 answered	AutoWrapped	YES	0:00:17

Agent_Name	Agent_ID	Customer_Phone_No	Queue_Time(Secs)	Date_&_Time	Date	Time	Time_Bucket	Duration(hh:mm:ss)	Call_Second	Call_Sta	Ringing	IVR_Dur
Executives 42	1000042	9850200000		2	01/01/22	01/01/22	9:00 9:10		0:01:36	96.00 answered	YES	0:00:16
Executives 4	1000004	8059500000		0	01/01/22	01/01/22	9:00 9:10		0:02:20	140.00 answered	YES	0:00:26
Executives 65	1000065	7020200000		0	01/01/22	01/01/22	9:00 9:10		0:01:25	85.00 answered	YES	0:00:16
Executives 55	1000055	9610400000		1	01/01/22	01/01/22	9:00 9:10		0:01:31	91.00 answered	YES	0:00:25
Executives 21	1000021	8200100000		0	01/01/22	01/01/22	9:00 9:10		0:02:45	165.00 answered	YES	0:00:23
#N/A	#N/A	9642400000		13	01/01/22	01/01/22	9:00 9:10		0:00:00	0.00 abandon	YES	0:00:16
Executives 55	1000055	9673700000		79	01/01/22	01/01/22	9:00 9:10		0:01:25	85.00 answered	YES	0:00:13
#N/A	#N/A	9639200000		60	01/01/22	01/01/22	9:00 9:10		0:00:00	0.00 abandon	YES	0:00:17
Executives 42	1000042	9082000000		52	01/01/22	01/01/22	9:00 9:10		0:01:05	65.00 answered	YES	0:00:20
Executives 65	1000065	9741000000		62	01/01/22	01/01/22	9:00 9:10		0:03:00	180.00 answered	YES	0:00:44
Executives 4	1000004	7007600000		52	01/01/22	01/01/22	9:00 9:10		0:01:48	108.00 answered	YES	0:00:15
Executives 21	1000021	8205000000		89	01/01/22	01/01/22	9:00 9:10		0:03:06	186.00 answered	YES	0:00:16
#N/A	#N/A	9723200000		120	01/01/22	01/01/22	9:00 9:10		0:00:00	0.00 abandon	YES	0:00:40
Executives 55	1000055	9639200000		45	01/01/22	01/01/22	9:00 9:10		0:01:40	100.00 answered	YES	0:00:42
Executives 42	1000042	9747100000		55	01/01/22	01/01/22	9:00 9:10		0:01:15	75.00 answered	YES	0:00:19
#N/A	#N/A	7708200000		16	01/01/22	01/01/22	9:00 9:10		0:00:00	0.00 abandon	YES	0:00:18
#N/A	#N/A	9525300000		44	01/01/22	01/01/22	9:00 9:10		0:00:00	0.00 abandon	YES	0:00:17
Executives 4	1000004	7972500000		88	01/01/22	01/01/22	9:00 9:10		0:04:03	243.00 answered	YES	0:00:15
Executives 49	1000049	9834400000		46	01/01/22	01/01/22	9:00 9:10		0:04:10	250.00 answered	YES	0:00:19
Executives 50	1000050	9687300000		64	01/01/22	01/01/22	9:00 9:10		0:03:28	208.00 answered	YES	0:00:48
Executives 42	1000042	7989900000		52	01/01/22	01/01/22	9:00 9:10		0:02:34	154.00 answered	YES	0:00:26
Executives 65	1000065	9575400000		67	01/01/22	01/01/22	9:00 9:10		0:02:07	127.00 answered	YES	0:00:45
Executives 55	1000055	7054600000		64	01/01/22	01/01/22	9:00 9:10		0:03:11	191.00 answered	YES	0:00:40
Executives 21	1000021	9705000000		47	01/01/22	01/01/22	9:00 9:10		0:03:23	203.00 answered	YES	0:00:25
#N/A	#N/A	8968000000		120	01/01/22	01/01/22	9:00 9:10		0:00:00	0.00 abandon	YES	0:00:25
Executives 59	1000059	9995400000		75	01/01/22	01/01/22	9:00 9:10		0:02:30	150.00 answered	YES	0:00:21
Executives 16	1000016	9007400000		71	01/01/22	01/01/22	9:00 9:10		0:04:13	253.00 answered	YES	0:00:20
#N/A	#N/A	9604800000		65	01/01/22	01/01/22	9:00 9:10		0:00:00	0.00 abandon	YES	0:00:17
Executives 42	1000042	9997100000		27	01/01/22	01/01/22	9:00 9:10		0:00:44	44.00 answered	YES	0:00:16
Executives 65	1000065	6352300000		36	01/01/22	01/01/22	9:00 9:10		0:01:27	87.00 answered	YES	0:00:17
Executives 50	1000050	9982400000		36	01/01/22	01/01/22	9:00 9:10		0:01:16	76.00 answered	YES	0:00:17
Executives 42	1000042	9368400000		50	01/01/22	01/01/22	9:00 9:10		0:02:44	164.00 answered	YES	0:00:27
Executives 4	1000004	9105700000		42	01/01/22	01/01/22	9:00 9:10		0:03:25	205.00 answered	YES	0:00:46
Executives 21	1000021	6280700000		0	01/01/22	01/01/22	9:00 9:10		0:00:54	54.00 answered	YES	0:00:42

Yellow Row-

Count of number of missing values

=COUNTBLANK(A5:A117992)

Red Row-

Count the number of cells that have value in it

=COUNTA(A5:A117992)

Green Row-

Calculated the percentage of missing values

=COUNTBLANK(A:A) / COUNTA(A:A) *100

Conditional Formatting to highlight the Cell with Blank Percentage of more than 30%

Added the Date Column which extracted the Date from Date_&_Time Column

=INT([@[Date_&_Time]])

COLUMNS- 13
ROWS- 117989

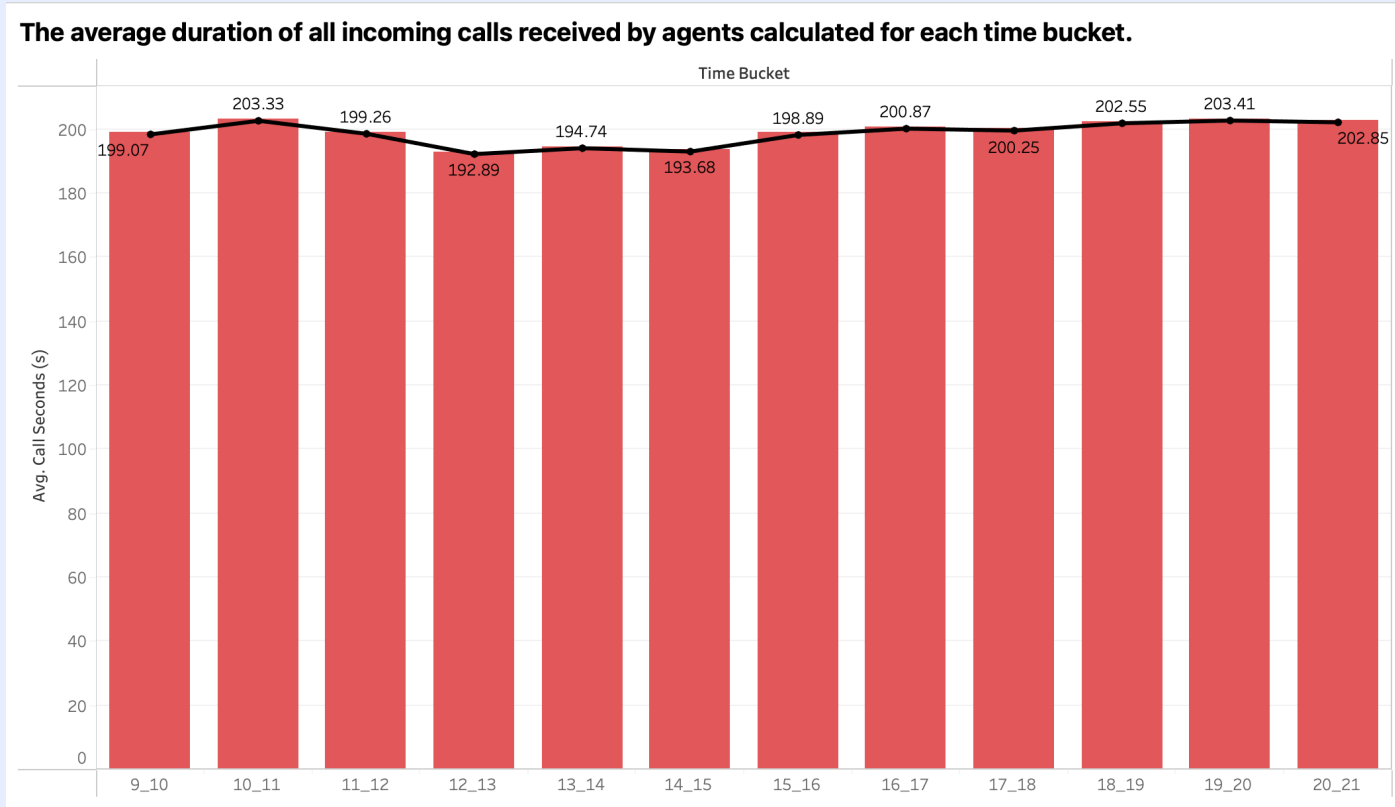
01

AVERAGE CALL DURATION

Determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.



Average duration of calls for each time bucket

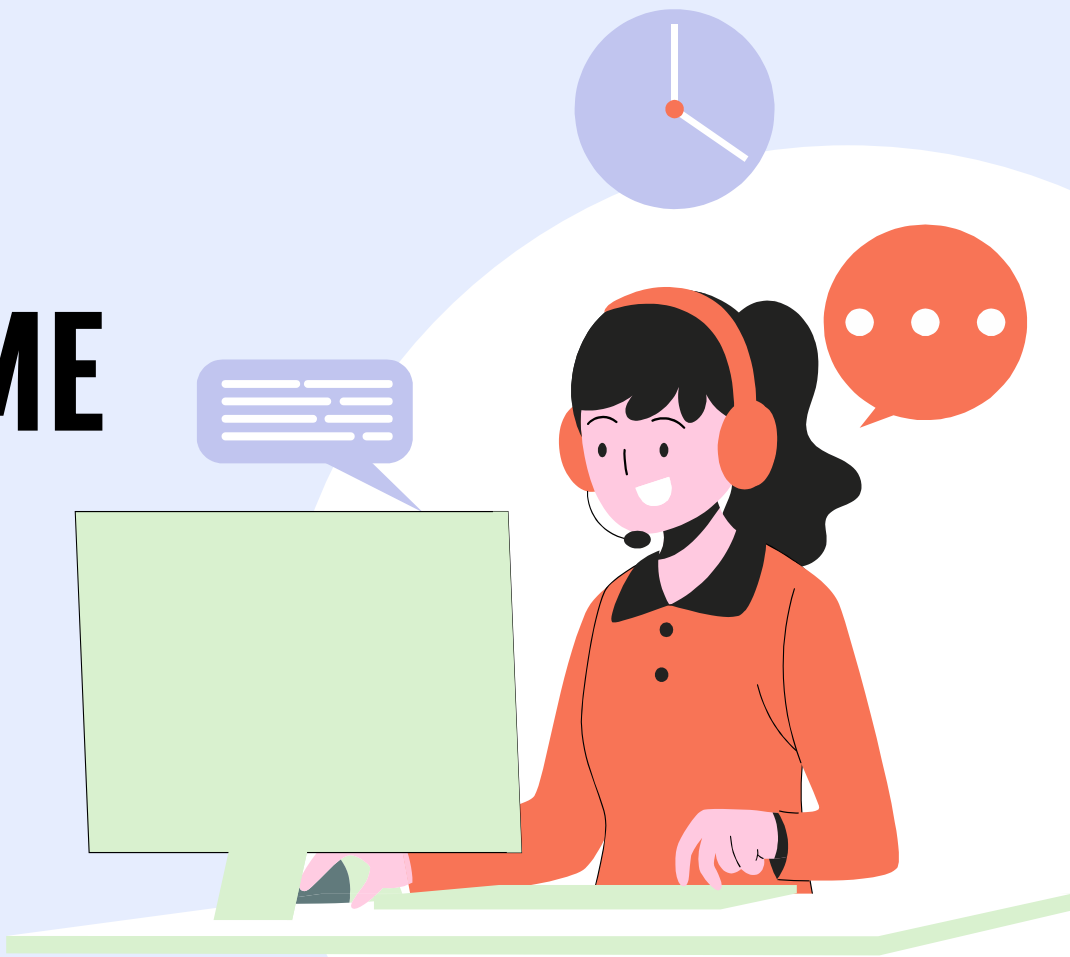


We observe that the average duration across the different Time Buckets is relatively same with an average call duration of 198.62 Seconds

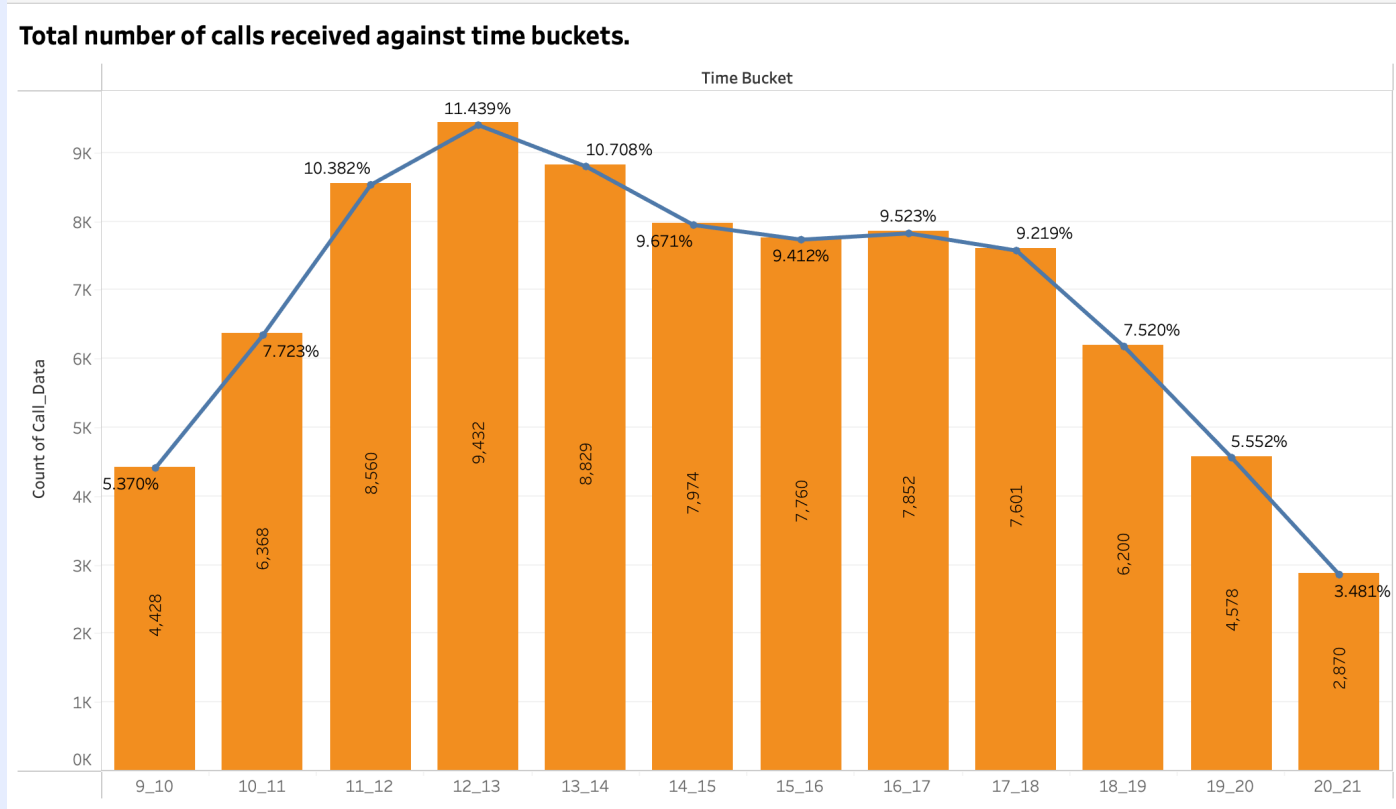
02

CALL VOLUME ANALYSIS

Visualize the total number
of calls received against
time buckets.



Total number of calls received against time buckets.



We observe that highest percent of the calls are received between 11 AM to 6 PM.

03

MANPOWER PLANNING

Propose a plan for manpower allocation to reduce the abandon rate from 30% to 10% during each time buckets.



Propose a plan for Manpower Allocation to reduce the Abandon Rate from 30% to 10% during each time buckets.

Row Labels ▼	Count of Call_Status	Count of Call_Status2
abandon	34403	29.16%
answered	82452	69.88%
transfer	1133	0.96%
Grand Total	117988	100.00%

We confirm that the Abandonment Rate is at 30% right now.

ASSUMPTIONS GIVEN

Total Number of days in a month	30 Days
Working Days in a week	6 Days
Unplanned Leaves Per Month	4 Days
Agents Total Working Hours	9 Hours
Time spent on Lunch and Snacks	1.5 Hours
Actual Working Hours (60% of 7.5Hours)	4.5 Hours

Each Employee is working 6 Days a week ▼	Values ▼
Effort Per Week (%) (=6/7)	86%
Effort Per Month in Days (86% of 30)	26
Unplanned leaves per month per Employee (Days)	4
Final Working Days per Month	22
Total Working Days in a Month (Days)	30
Overall Leaves Per Employee Per Month	8

Calculating Manpower Requirements

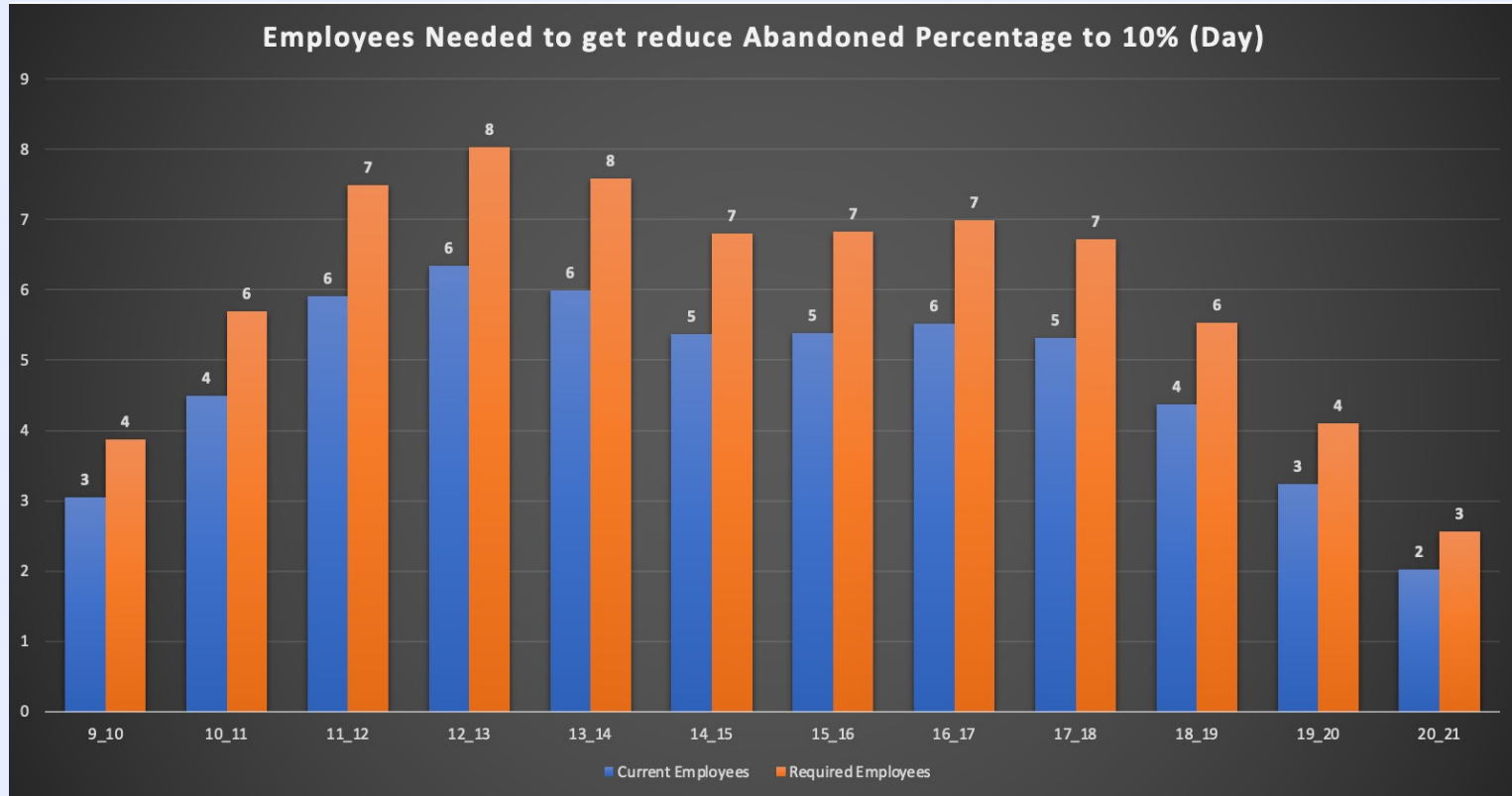
Date	(All)	
Call_Status	(All)	
Row Labels	Sum of Call_Seconds (s)	Sum of Call_Seconds (s)2
9_10	882195	5.36%
10_11	1297006	7.88%
11_12	1708079	10.38%
12_13	1831061	11.12%
13_14	1728843	10.50%
14_15	1552143	9.43%
15_16	1556085	9.45%
16_17	1594489	9.69%
17_18	1533769	9.32%
18_19	1261762	7.66%
19_20	934437	5.68%
20_21	583250	3.54%
Grand Total	16463119	100.00%

			Current Employees	Required Employees
9_10	38356	5.36%	3	4
10_11	56392	7.88%	4	6
11_12	74264	10.38%	6	7
12_13	79611	11.12%	6	8
13_14	75167	10.50%	6	8
14_15	67484	9.43%	5	7
15_16	67656	9.45%	5	7
16_17	69326	9.69%	6	7
17_18	66686	9.32%	5	7
18_19	54859	7.66%	4	6
19_20	40628	5.68%	3	4
20_21	25359	3.54%	2	3
			57	72

Current Manpower (30% Abandonment Rate)	Values
Total Number of Seconds the employees were in call (Seconds)	16463119
Number of Days in our Dataset (Days)	23
Average Number of Seconds on call per day at 30% Abandonment Rate (Average calculated across 23 days of data)	715787.78
To convert seconds into hours we divide Seconds by	3600
Total Number of Hours Worked by all Employees (Hours)	198.83
Actual Duration of Employee on call per day (Hours)	4.5
Number of Employees needed	45
Leaves per employee in Person Days (Including Unplanned Leaves and 6 days/week)	8
Total Leaves Per Month by all Employees	360
Total Working Days in a Month (Given)	30
Employees on Leave per Day (or additional employees needed)	12
Total Team Count	57

Proposed Manpower (10 % Abandonment Rate)	Values
Average Number of Seconds on calls per day at 30% Abandonment Rate (Average calculated across 23 days of data)	715787.78
Average Number of Seconds on calls per day at 0% abandonment rate (100% Answered Rate)	1022553.98
Average Number of Seconds on calls per day at 10% abandonment rate (90% Answered Rate)	920298.5776
To convert seconds into hours we divide Seconds by	3600
Total Number of Hours Worked by all Employees in Hours	255.64
Actual Duration of Employee on call per day (Hours)	4.5
Number of Employees needed	57
Leaves per employee in Person Days (Including Unplanned Leaves and 6 days/week)	8
Total Leaves Per Month by all Employees	456
Total Working Days in a Month (Given)	30
Employees on Leave per Day (or additional employees needed)	15
Total Team Count Needed	72

Manpower Planning during the Day



CURRENT EMPLOYEES- 57
REQUIRED EMPLOYEES- 72



04

24/7



NIGHT SHIFT MANPOWER PLANNING

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

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

Night Time	Calls Distribution when total calls are 30
21_22	3
22_23	3
23_24	2
24_01	2
01_02	1
02_03	1
03_04	1
04_05	1
05_06	3
06_07	4
07_08	4
08_09	5

Total Number of days in a month	30 Days
Working Days in a week	6 Days
Unplanned Leaves Per Month	4 Days
Agents Total Working Hours	9 Hours
Time spent on Lunch and Snacks	1.5 Hours
Actual Working Hours (60% of 7.5Hours)	4.5 Hours

Each Employee is working 6 Days a week	Values
Effort Per Week (%) (=6/7)	86%
Effort Per Month in Days (86% of 30)	26
Unplanned leaves per month per Employee (Days)	4
Final Working Days per Month	22
Total Working Days in a Month (Days)	30
Overall Leaves Per Employee Per Month	8

Calculating Night Manpower Requirements

Row Labels	Count of Call_Status	Sum of Call_Seconds (s)
9_10	9588	882195
10_11	13313	1297006
11_12	14626	1708079
12_13	12652	1831061
13_14	11561	1728843
14_15	10561	1552143
15_16	9159	1556085
16_17	8788	1594489
17_18	8534	1533769
18_19	7238	1261762
19_20	6463	934437
20_21	5505	583250
Grand Total	117988	16463119

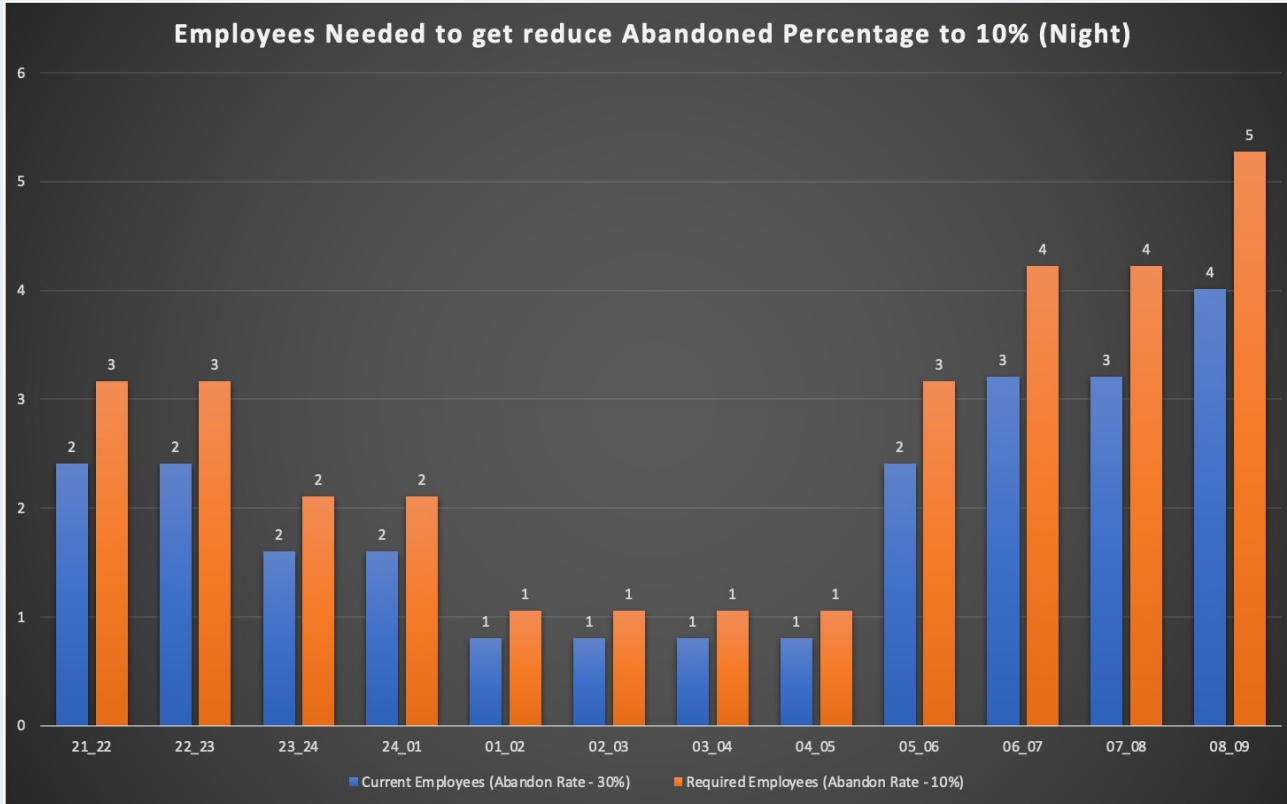
Total Calls in 23 days	117988
Average Calls During Day Time	5130
Average Calls During Night Time (30% of Day Calls)	1539
Average Duration of One Call (From Task 1)	198.62

Night Time	Calls Distribution when total calls are 30	Calls Distribution in Percentage	Average Calls Received Per Day in Time Bucket	Call duration in Seconds	Current Employees (Abandon Rate - 30%)	Required Employees (Abandon Rate - 10%)
21_22	3	10.00%	154	30568	2	3
22_23	3	10.00%	154	30568	2	3
23_24	2	6.67%	103	20378	2	2
24_01	2	6.67%	103	20378	2	2
01_02	1	3.33%	51	10189	1	1
02_03	1	3.33%	51	10189	1	1
03_04	1	3.33%	51	10189	1	1
04_05	1	3.33%	51	10189	1	1
05_06	3	10.00%	154	30568	2	3
06_07	4	13.33%	205	40757	3	4
07_08	4	13.33%	205	40757	3	4
08_09	5	16.67%	257	50946	4	5
			1539	305676	24	32

Current Manpower (30% Abandonment Rate)	Values
Average Number of Seconds on call per day at 30% Abandonment Rate (Average calculated from Table)	305676.18
To convert seconds into hours we divide Seconds by	3600
Total Number of Hours Worked by all Employees (Hours)	84.91
Actual Duration of Employee on call per day (Hours)	4.5
Number of Employees needed	19
Leaves per employee in Person Days (Including Unplanned Leaves and 6 days/week)	8
Total Leaves Per Month by all Employees	152
Total Working Days in a Month (Given)	30
Employees on Leave per Day (or additional employees needed)	5
Total Team Count	24

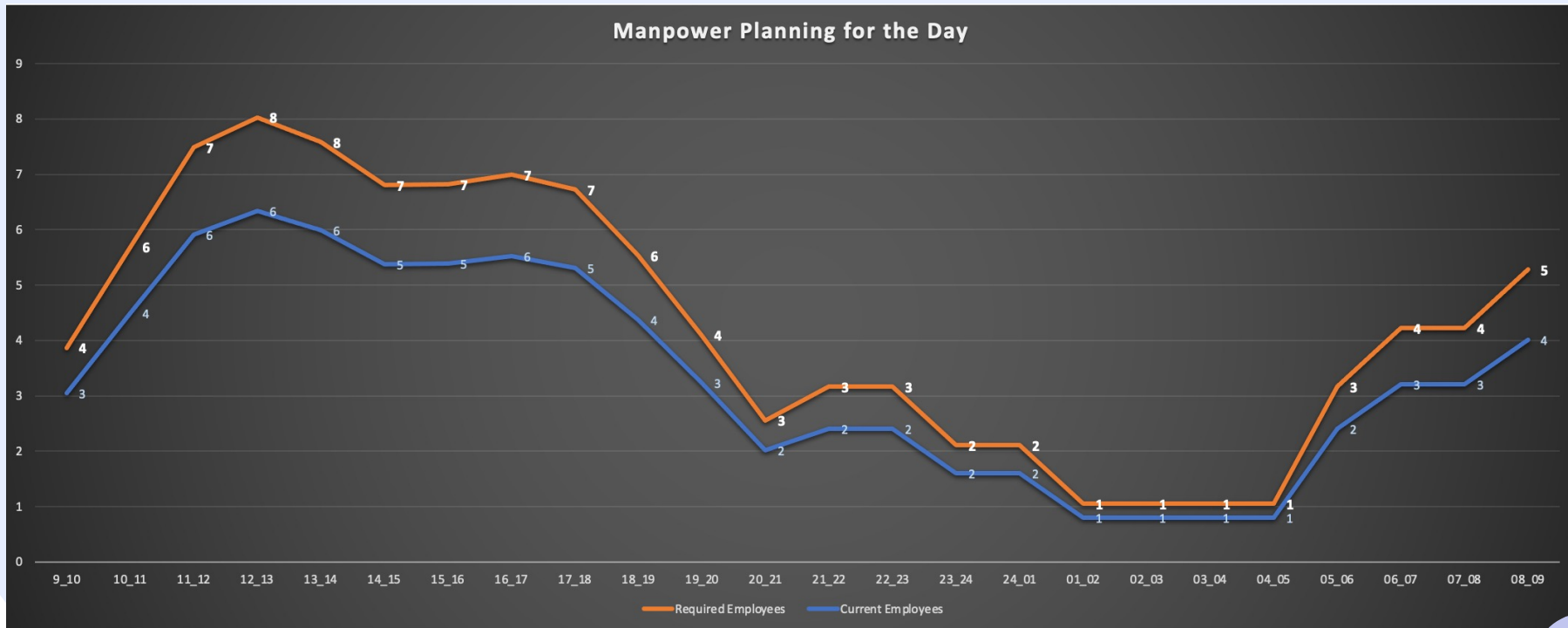
Proposed Manpower (10 % Abandonment Rate)	Values
Average Number of Seconds on calls per day at 30% Abandonment Rate (Average calculated from Table)	305676.18
Average Number of Seconds on calls per day at 0% abandonment rate (100% Answered Rate)	436680.26
Average Number of Seconds on calls per day at 10% abandonment rate (90% Answered Rate)	393012.2
To convert seconds into hours we divide Seconds by	3600
Total Number of Hours Worked by all Employees in Hours	109.17
Actual Duration of Employee on call per day (Hours)	4.5
Number of Employees needed	25
Leaves per employee in Person Days (Including Unplanned Leaves and 6 days/week)	8
Total Leaves Per Month by all Employees	200
Total Working Days in a Month (Given)	30
Employees on Leave per Day (or additional employees needed)	7
Total Team Count Needed	32

Manpower Planning during the Night



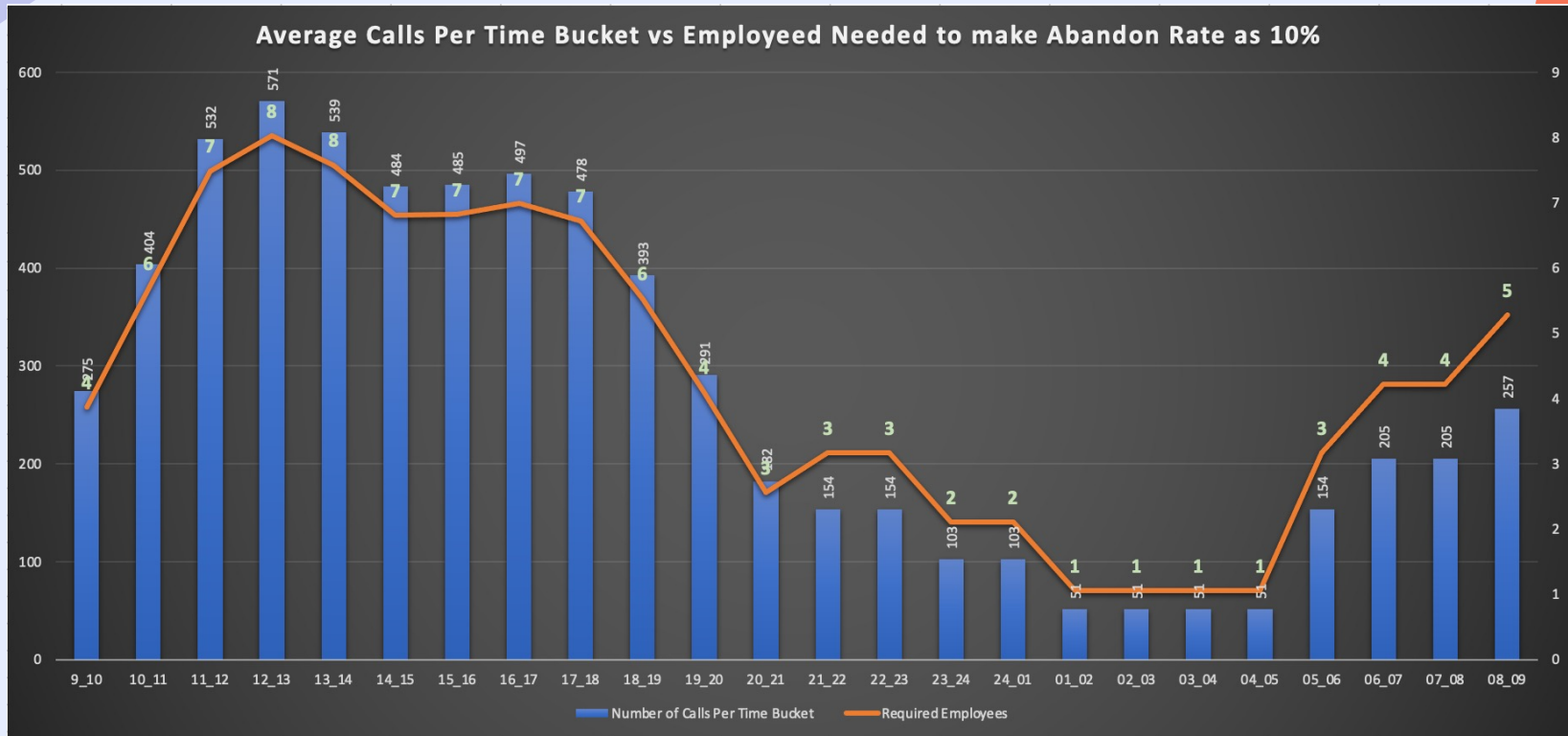
CURRENT EMPLOYEES - 24
REQUIRED EMPLOYEES - 32

Manpower Planning during the whole day (24 Hours)



24/7

Calls Received vs Manpower Planning of the whole day (24 Hours)



INSIGHTS



- We observed that the average duration is relatively same across different Time Buckets with an average call duration of **198.62 seconds**
- We observed that most number of the calls are received between **11 AM to 6 PM**
- We observed that during the day time we will have to **increase** the number of employees from **57 to 72** to reduce the abandon rate to 10%
- Right now no agents work during the night time and to maintain the abandon rate of 10%, ABC company has to **hire 32 employees**.
- We observed that although most number of the calls are received between 11 AM to 6 PM but from 8 o'clock in the morning again call volume starts to pick up
- Right now the employees are working at just 50% (4.5 Hours) of the Total Hours (9), which is not optimal for the company hence the company should take steps so that the **employees actual working hours increase** as that will reduce the total number of employees needed

MY LEARNINGS



- This dataset was very interesting as by analysing we are required to solve a real world problem which is faced by almost every company
- I took a lot of time to get the Abandon rate to 10% as I wanted to include all the assumptions in my calculation
- This project helped me in learning more about Manpower Planning
- This project helped me in improving my Excel skills and gaining a better understanding of how to navigate complex datasets.

**THANK
YOU!!!**

