

ABC CALL VOLUME TREND ANALYSIS

FINAL PROJECT 4

PROJECT DESCRIPTION

In this project, you'll be diving into the world of Customer Experience (CX) analytics, specifically focusing on the inbound calling team of a company. You'll be provided with a dataset that spans 23 days and includes various details such as the agent's name and ID, the queue time (how long a customer had to wait before connecting with an agent), the time of the call, the duration of the call, and the call status (whether it was abandoned, answered, or transferred).

APPROACH

- First I calculated the number of rows and the number of blank field for every column given in the raw data
- Then there were few columns that had blank fields, but these columns are not required to perform the analysis as per the project description. So I neither removed the blank fields from those rows nor replaced with the median value.
- I removed the columns which are not required for the analysis and kept only 7 columns that are required.
- Then I prepared the ready data which is used in the further analysis

TECH STACK USED

Microsoft Excel 2021

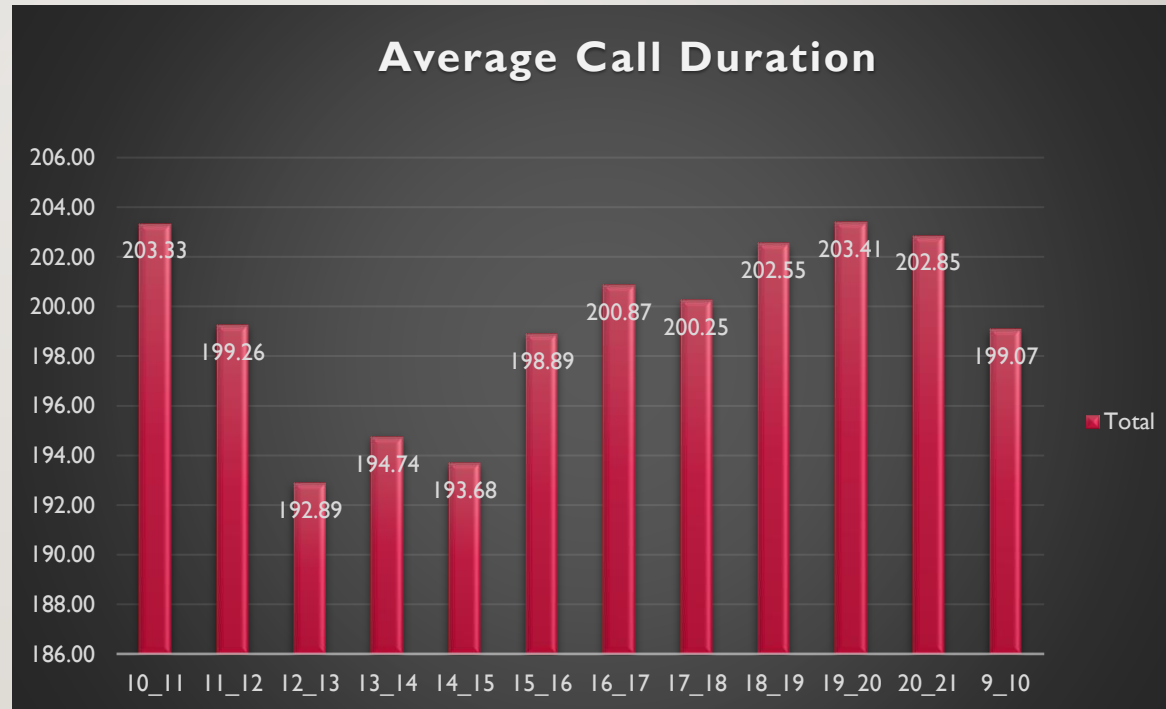
Reason: Excel provides easy sorting of data, large selection of formulas, provides graphs, pie charts to visualize the data and so on.

Excel File Link https://docs.google.com/spreadsheets/d/112UWY-DCBiVhOXaOfcAbLs2sJvC3SIta/edit?usp=drive_link&ouid=111599462622587335316&rtpof=true&sd=true

AVERAGE CALL DURATION: .

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

Row Labels	Average of Call_Seconds (s)
10_11	203.33
11_12	199.26
12_13	192.89
13_14	194.74
14_15	193.68
15_16	198.89
16_17	200.87
17_18	200.25
18_19	202.55
19_20	203.41
20_21	202.85
9_10	199.07
Grand Total	198.62

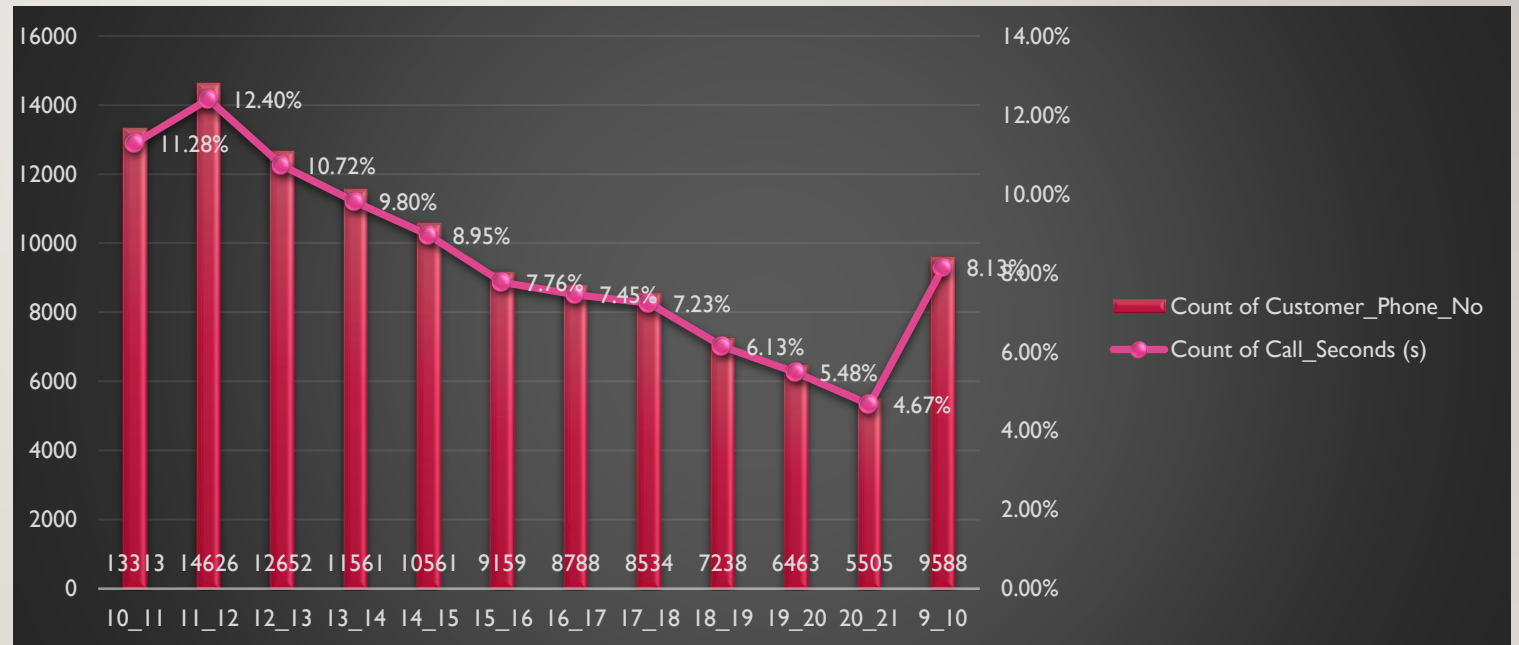


Most number of calls are answered during the time bucket 19-20 (7pm – 8pm)

CALL VOLUME ANALYSIS:

Task: Can you create a chart or graph that shows the number of calls received in each time bucket?

Row Labels	Count of Customer_Phone_No	Count of Call_Seconds (s)
10_11	13313	11.28%
11_12	14626	12.40%
12_13	12652	10.72%
13_14	11561	9.80%
14_15	10561	8.95%
15_16	9159	7.76%
16_17	8788	7.45%
17_18	8534	7.23%
18_19	7238	6.13%
19_20	6463	5.48%
20_21	5505	4.67%
9_10	9588	8.13%
Grand Total	117988	100.00%



Most number of calls are received during the time bucket 11-12

MANPOWER PLANNING:

Task :What is the minimum number of agents required in each time bucket to reduce the abandon rate to 10%?

Row Labels	Count of Call_Seconds (s)	Sum of Call_Seconds (s)	Time Duration	Number of Agents required
10_11	11.28%	1297006	0.08	4
11_12	12.40%	1708079	0.10	6
12_13	10.72%	1831061	0.11	6
13_14	9.80%	1728843	0.11	6
14_15	8.95%	1552143	0.09	5
15_16	7.76%	1556085	0.09	5
16_17	7.45%	1594489	0.10	5
17_18	7.23%	1533769	0.09	5
18_19	6.13%	1261762	0.08	4
19_20	5.48%	934437	0.06	3
20_21	4.67%	583250	0.04	2
9_10	8.13%	882195	0.05	3
Grand Total	100.00%	16463119	1	54

Row Labels	Sum of Call_Seconds (s)	
01-Jan	676664	
Grand Total	676664	
Row Labels	Sum of Call_Seconds (s)	Sum of Call_hours
01-Jan	676664	187.9622222
Grand Total	676664	

Assumption: 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.	
Total Working Hours	9 Hrs
Lunch Break	1.5 Hrs
Actual Working Hours	7.5 Hrs
Agent spends 60% of Actual Working hours on Call	4.5 Hrs
Agents worked on call	187.96
Number of Agents worked for 4.5 hrs with abandoned rate 30%	42
Agents required to work to reduce the abandon rate 10%	
42	70
i	90
Unitary method	54

Approximately 54 agents are required to reduce the abandon rate to 10%

NIGHT SHIFT MANPOWER PLANNING

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

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	

Average calls per day	5130
Average calls during night (for every 100 calls 30 calls are made during night between 9:00 PM - 9:00AM)	1539
Average time(seconds) required to answer the call	
Average incoming call at night * average call answered in night	305680.45
Average Hour required to answer the call	84.911236
Actual average hours required to answer the call (10% abandon rate)	76.420112
Number of Agents required to work during night shift	16.982247
Total Number of Agents required to work during night shift	17

Time Bucket	Calls Made	Time Distribution	Man power required	Man power required (APPROX VALUE DERIVED FROM M)
9 PM- 10 PM	3	0.1	1.69	2
10 PM - 11 PM	3	0.1	1.69	2
11 PM - 12 AM	2	0.066666667	1.126666667	1
12 AM - 01 AM	2	0.066666667	1.126666667	1
01 AM - 02 AM	1	0.033333333	0.563333333	1
02 AM - 03 AM	1	0.033333333	0.563333333	1
03 AM - 04 AM	1	0.033333333	0.563333333	1
04 AM - 05 AM	1	0.033333333	0.563333333	1
05 AM - 06 AM	3	0.1	1.69	2
06 AM - 07 AM	4	0.133333333	2.253333333	2
07 AM - 08 AM	4	0.133333333	2.253333333	2
08 AM - 09 AM	5	0.166666667	2.816666667	3
Total	30	1	17	

Approximately 17 agents are required to work during night shift between 9pm-9am, by keeping abandon rate at 10%

RESULT

- I am able to get the insights (tasks) that are required as mentioned in the project description.
- The insights I drew in this project are available in the slides that are available in this document.