

A decorative graphic on the left side of the slide, consisting of a network of light blue lines and small circles, resembling a circuit board or a data network, extending from the top to the bottom of the frame.

CALL_VOLUME TREND ANALYSIS

Link to Analysis Excel file - [here](#)

APPROACH

- Understanding the data
- Getting familiar with the data values and attributes
- Analysing the data by applying filters and formulas
- Visualise the data with graph/ charts to get better understanding

Steps

1. Clean the data by checking missing/null values.
2. Check for outliers in different columns.
3. Find Correlation between columns.

TECH STACK Used

Microsoft Excel

PROBLEM STATEMENT

- For my final project, I am provided with a dataset of a Customer Experience (CX) Inbound calling team for 23 days.
- Data includes Agent_Name, Agent_ID, Queue_Time [duration for which customer have to wait before they get connected to an agent], Time [time at which call was made by customer in a day], Time_Bucket [for easiness we have also provided you with the time bucket], Duration [duration for which a customer and executives are on call, Call_Seconds [for simplicity we have also converted those time into seconds], call status (Abandon, answered, transferred).
- Company wants to understand information related to avg call time duration, no. of calls received/answered/abandoned/transferred and requirement of agents.

DATASET

Dataset has 117988 rows and 13 columns

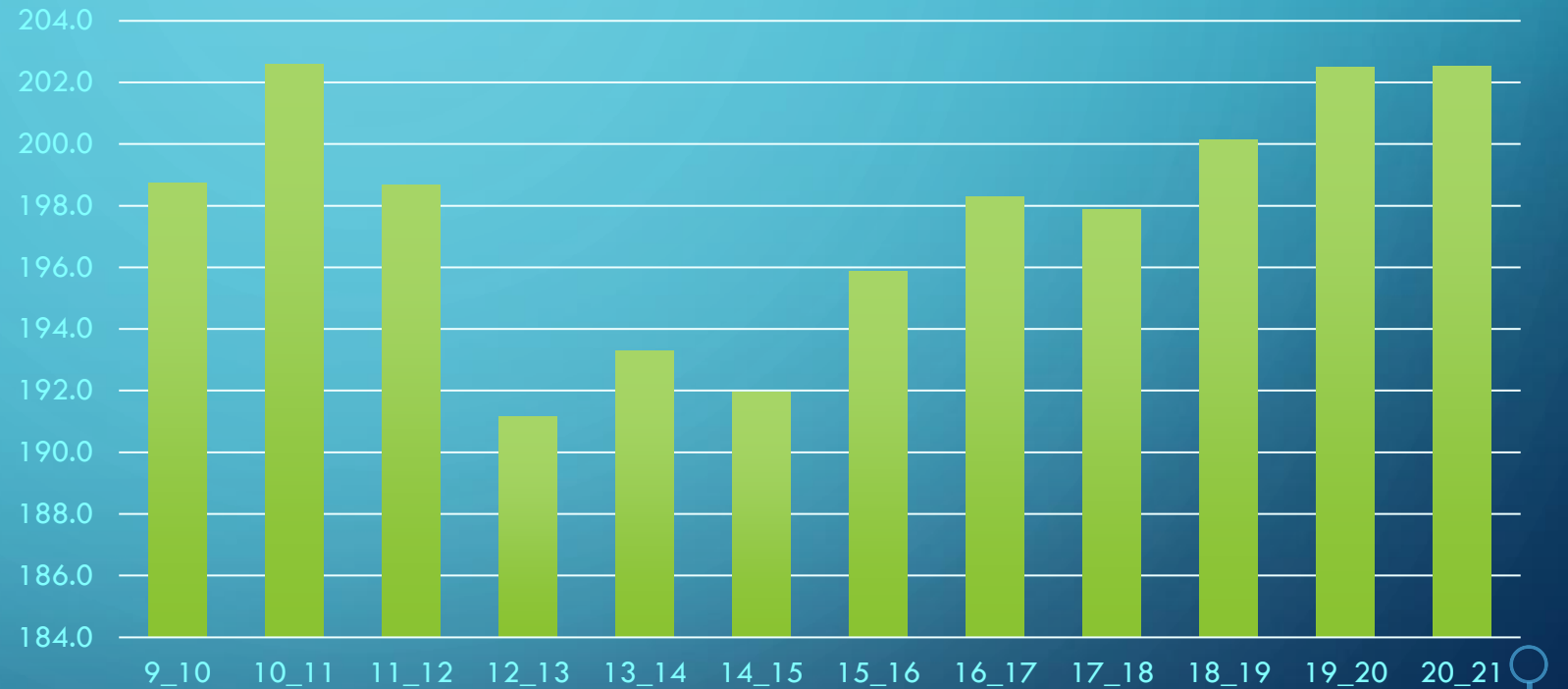
Agent_Name	Agent_ID	Customer_Phone_No	Queue_Time(Secs)	Date_&_Time	Time	Time_Bucket	Duration(hh:mm:ss)	Call_Seconds (s)	Call_Status	Wrapped_By	Ringing	IVR_Duration
Executives 42	1000042	98502XXXXX	2	01/01/22	9.00	9_10	0:01:36	96.00	answered	Agent	YES	0:00:16
Executives 4	1000004	80595XXXXX	0	01/01/22	9.00	9_10	0:02:20	140.00	answered	Agent	YES	0:00:26
Executives 65	1000065	70202XXXXX	0	01/01/22	9.00	9_10	0:01:25	85.00	answered	AutoWrapped	YES	0:00:16
Executives 55	1000055	96104XXXXX	1	01/01/22	9.00	9_10	0:01:31	91.00	answered	Agent	YES	0:00:25
Executives 21	1000021	82001XXXXX	0	01/01/22	9.00	9_10	0:02:45	165.00	answered	Agent	YES	0:00:23
#N/A	#N/A	96424XXXXX	13	01/01/22	9.00	9_10	0:00:00	0.00	abandon		YES	0:00:16
Executives 55	1000055	96737XXXXX	79	01/01/22	9.00	9_10	0:01:25	85.00	answered	AutoWrapped	YES	0:00:13
#N/A	#N/A	96392XXXXX	60	01/01/22	9.00	9_10	0:00:00	0.00	abandon		YES	0:00:17
Executives 42	1000042	90820XXXXX	52	01/01/22	9.00	9_10	0:01:05	65.00	answered	Agent	YES	0:00:20
Executives 65	1000065	97410XXXXX	62	01/01/22	9.00	9_10	0:03:00	180.00	answered	AutoWrapped	YES	0:00:44
Executives 4	1000004	70076XXXXX	52	01/01/22	9.00	9_10	0:01:48	108.00	answered	Agent	YES	0:00:15
Executives 21	1000021	82505XXXXX	89	01/01/22	9.00	9_10	0:03:06	186.00	answered	Agent	YES	0:00:16
#N/A	#N/A	97232XXXXX	120	01/01/22	9.00	9_10	0:00:00	0.00	abandon		YES	0:00:40
Executives 55	1000055	96392XXXXX	45	01/01/22	9.00	9_10	0:01:40	100.00	answered	AutoWrapped	YES	0:00:42
Executives 42	1000042	97471XXXXX	55	01/01/22	9.00	9_10	0:01:15	75.00	answered	AutoWrapped	YES	0:00:19
#N/A	#N/A	77082XXXXX	16	01/01/22	9.00	9_10	0:00:00	0.00	abandon		YES	0:00:18
#N/A	#N/A	95255XXXXX	44	01/01/22	9.00	9_10	0:00:00	0.00	abandon		YES	0:00:17
Executives 4	1000004	79725XXXXX	88	01/01/22	9.00	9_10	0:04:03	243.00	answered	AutoWrapped	YES	0:00:15
Executives 49	1000049	98344XXXXX	46	01/01/22	9.00	9_10	0:04:10	250.00	answered	Agent	YES	0:00:19
Executives 50	1000050	96873XXXXX	64	01/01/22	9.00	9_10	0:03:28	208.00	answered	Agent	YES	0:00:48
Executives 42	1000042	79899XXXXX	52	01/01/22	9.00	9_10	0:02:34	154.00	answered		YES	0:00:26

AVG CALL TIME/DURATION

Overall Avg Call Duration = 197 s

Time_Bucket	Average Call_Seconds (s)
9_10	198.7
10_11	202.6
11_12	198.7
12_13	191.2
13_14	193.3
14_15	192.0
15_16	195.9
16_17	198.3
17_18	197.9
18_19	200.1
19_20	202.5
20_21	202.5

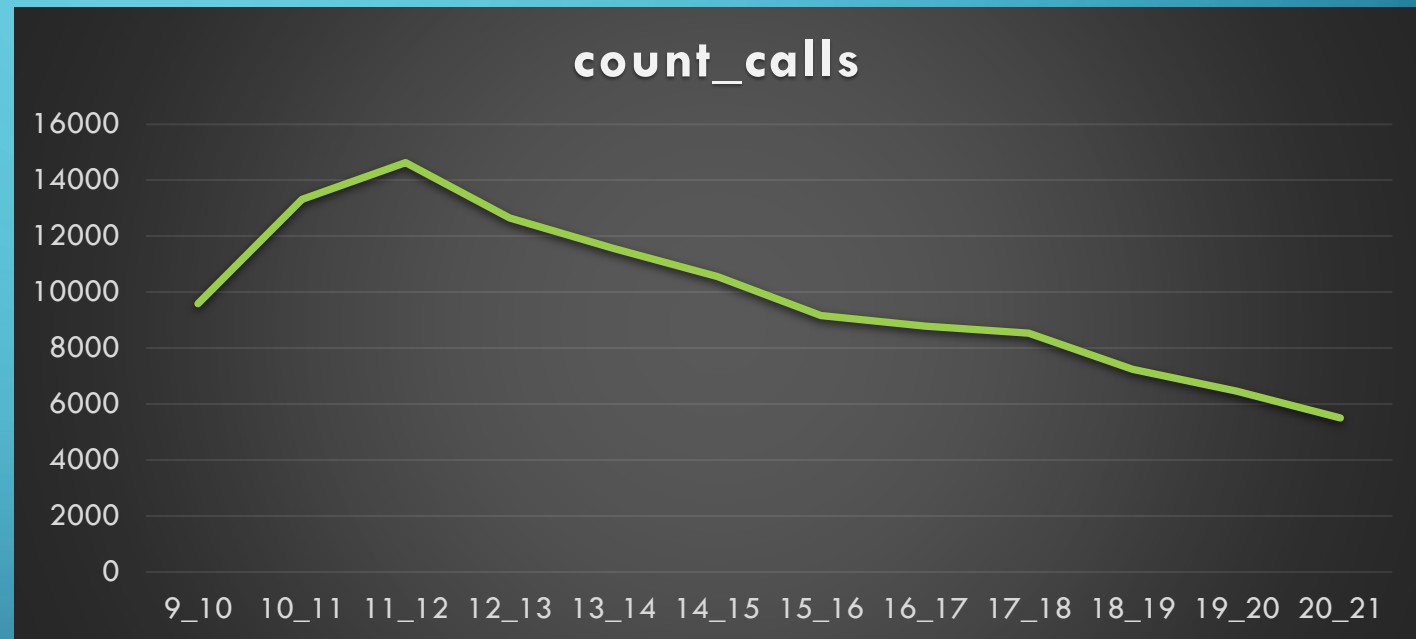
Average Call_Seconds (s)



Call duration is more in morning and evening time, less in afternoon time.
Maximum call duration is 202.6 s whereas least is 191.2 s.

NO. OF CALLS IN 23 DAYS

Time_Bucket	count_calls	Answered	Abandon	Transfer
9_10	9588	4428	5149	11
10_11	13313	6368	6911	34
11_12	14626	8560	6028	38
12_13	12652	9432	3073	147
13_14	11561	8829	2617	115
14_15	10561	7974	2475	112
15_16	9159	7760	1214	185
16_17	8788	7852	747	189
17_18	8534	7601	783	150
18_19	7238	6200	933	105
19_20	6463	4578	1848	37
20_21	5505	2870	2625	10
Total	117988	82452	34403	1133
%		70%	29%	1%

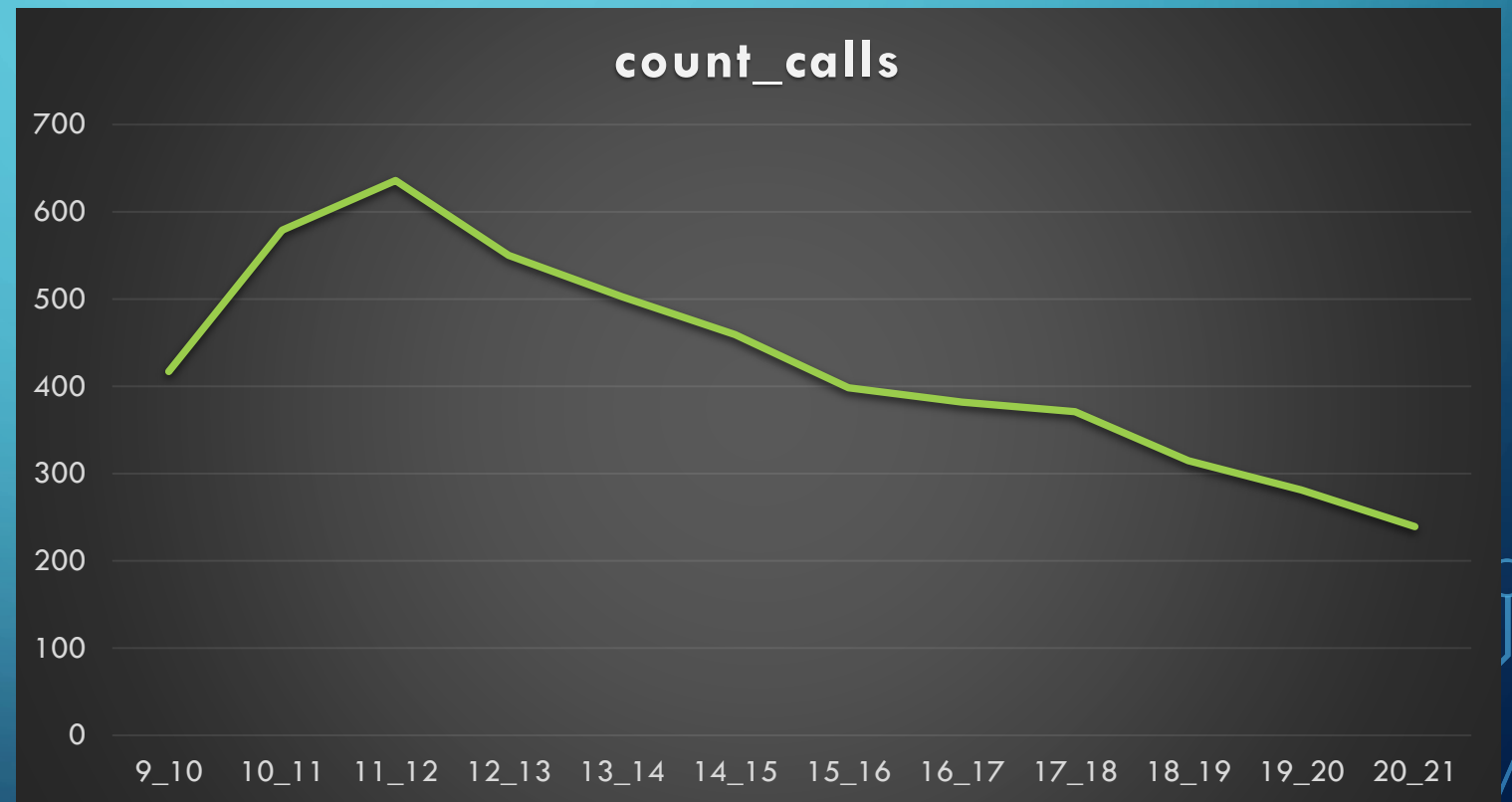


Total calls in 23 days = 117988

AVG NO. OF CALLS PER DAY

Avg no. of calls per day = 5130

Time_Bucket	count_calls
9_10	417
10_11	579
11_12	636
12_13	550
13_14	503
14_15	459
15_16	398
16_17	382
17_18	371
18_19	315
19_20	281
20_21	239



MANPOWER TO ANSWER 90% CALLS

For each day					
Time_Bucket	count_calls	90% calls	Avg Call_time (s)	Call Time (Hrs)	man required
9_10	417	375.2	198.7	20.7	5
10_11	579	520.9	202.6	29.3	7
11_12	636	572.3	198.7	31.6	7
12_13	550	495.1	191.2	26.3	6
13_14	503	452.4	193.3	24.3	5
14_15	459	413.3	192.0	22.0	5
15_16	398	358.4	195.9	19.5	4
16_17	382	343.9	198.3	18.9	4
17_18	371	333.9	197.9	18.4	4
18_19	315	283.2	200.1	15.7	3
19_20	281	252.9	202.5	14.2	3
20_21	239	215.4	202.5	12.1	3
				Total men	56

Assumption: Every agent attend
calls for 4.5 hours in a day

MANPOWER IN NIGHT SHIFT

Time	9pm - 10 pm	10pm-11 pm	11pm - 12am	12am-1am	1am-2am	2am-3am	3am-4am	4am-5am	5am-6am	6am-7am	7am-8am	8am-9am
% calls	3	3	2	2	1	1	1	1	3	4	4	5
No. of calls	154	154	103	103	51	51	51	51	154	205	205	256
90% calls	139	139	92	92	46	46	46	46	139	185	185	231
Call time(hrs)	7.58	7.58	5.05	5.05	2.53	2.53	2.53	2.53	7.58	10.11	10.11	12.63
Agents	2	2	1	1	1	1	1	1	2	2	2	3

Time	Agents
9pm - 10 pm	2
10pm-11 pm	2
11pm - 12am	1
12am-1am	1
1am-2am	1
2am-3am	1
3am-4am	1
4am-5am	1
5am-6am	2
6am-7am	2
7am-8am	2
8am-9am	3
Total	19

Assumption: Every agent attend calls for 4.5 hours in a day

RESULTS

- Average call time is 197s. Call duration is more in morning and evening time, less in afternoon time.
- Avg no. of calls per day = 5130, max calls received between 10 am to 3 pm
- Currently 70% calls are answered, 29% are abandoned and 1% calls are transferred.
- To increase answered calls to 90%, 56 agents will be required in a day time from 9am – 9pm.
- In the night-time from 9pm to 9am, 19 agents will be needed to attend 90% of calls.