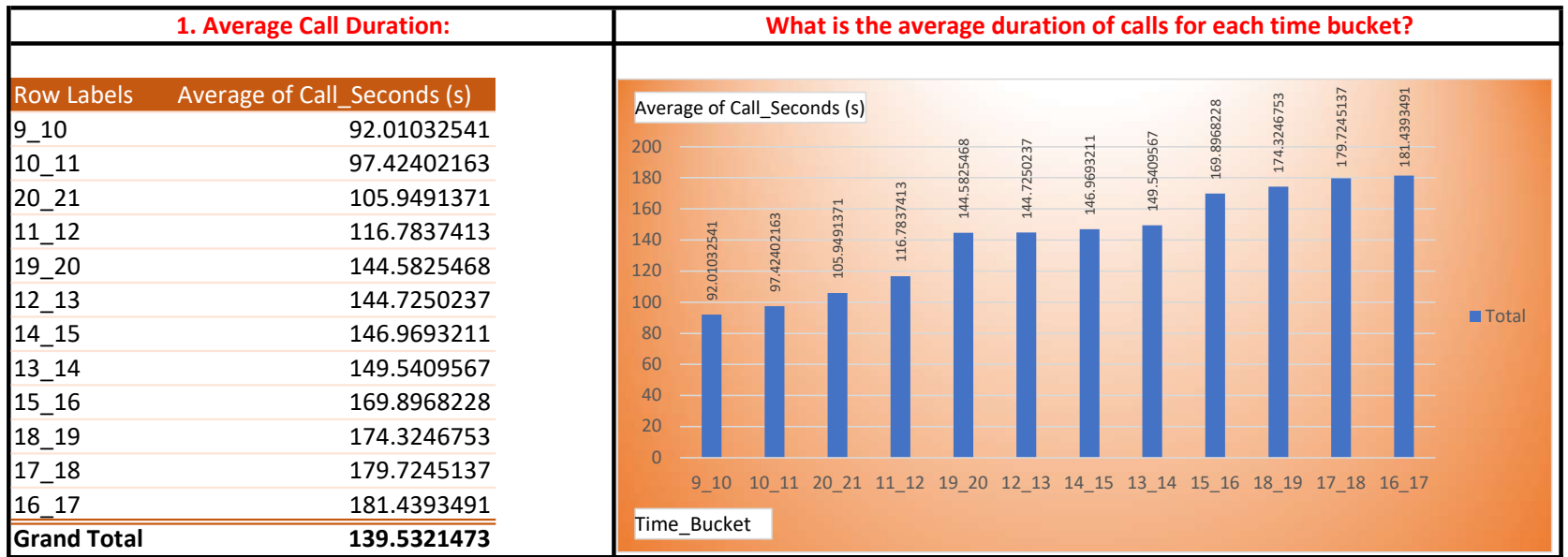


Column Name	Non-Blank Cells	Blank Cells
Agent_Name	117989	0
Agent_ID	117989	0
Customer_Phone_No	117989	0
Queue_Time(Secs)	117989	0
Date_&_Time	117989	0
Time	117989	0
Time_Bucket	117989	0
Duration(hh:mm:ss)	117989	0
Call_Seconds (s)	117989	0
Call_Status	117989	0
Wrapped_By	70112	47877
Ringing	117989	0
IVR_Duration	117989	0

DATA CLEANING DETAILS	No Duplicates Found
	Replaced the blank cells (47877) in Wrapped_By column with 'NA'



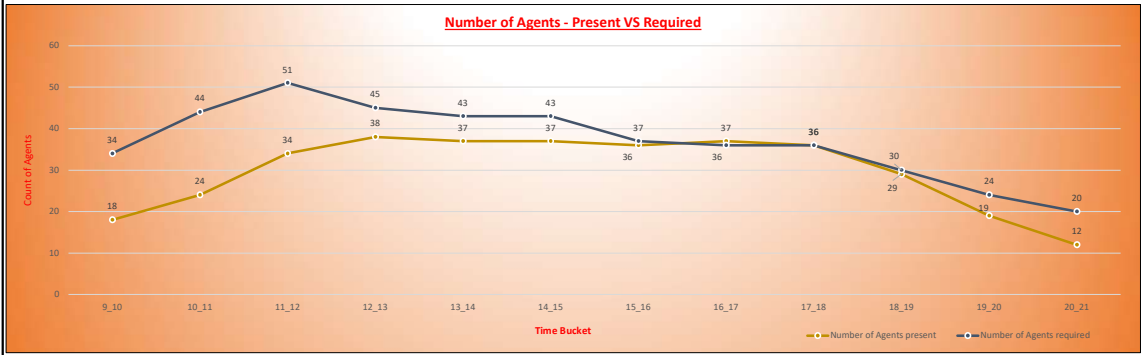
2. Call Volume Analysis:

Count of Call_Seconds (s)		Column Labels			
Row Labels		abandon	answered	transfer	Grand Total
11_12		6028	8560	38	14626
10_11		6911	6368	34	13313
12_13		3073	9432	147	12652
13_14		2617	8829	115	11561
14_15		2475	7974	112	10561
9_10		5149	4428	11	9588
15_16		1214	7760	185	9159
16_17		747	7852	189	8788
17_18		783	7601	150	8534
18_19		933	6200	105	7238
19_20		1848	4578	37	6463
20_21		2625	2870	10	5505
Grand Total		34403	82452	1133	117988

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



3. Manpower Planning:					What is the minimum number of agents required in each time bucket to reduce the abandon rate to 10%?									
		ROUND(C/23,0)		ROUND(E/23,0)		ROUND(G/23,3)	ROUND(H/F,3)			ROUND(H/I,3)		ROUND(0.9*D*I,3)		ROUND(L/K,0)
Time Bucket	Number of Incoming Calls		Number of Received Calls		Call Duration (s)				Daily Average of Number of Agents Available	Daily Average Call Duration per Agent	Daily Average Call Duration required		Number of Agents Required	
	Count	Daily Average	Count	Daily Average	Sum	Daily Average	Daily Average per Call							
9_10	9376	408	4439	193	882195	38356.304	198.737		18	2130.906	72976.226		34	
10_11	13081	569	6402	278	1297006	56391.565	202.847		24	2349.649	103877.949		44	
11_12	14444	628	8598	374	1708079	74264.304	198.568		34	2184.244	112230.634		51	
12_13	12562	546	9579	416	1831061	79611.348	191.373		38	2095.035	94040.692		45	
13_14	11485	499	8944	389	1728843	75167.087	193.232		37	2031.543	86780.491		43	
14_15	10509	457	8086	352	1552143	67484.478	191.717		37	1823.905	78853.202		43	
15_16	9141	397	7945	345	1556085	67655.87	196.104		36	1879.33	70067.959		37	
16_17	8785	382	8041	350	1594489	69325.609	198.073		37	1873.665	68097.497		36	
17_18	8530	371	7751	337	1533769	66685.609	197.88		36	1852.378	66072.132		36	
18_19	7235	315	6305	274	1261762	54859.217	200.216		29	1891.697	56761.236		30	
19_20	6444	280	4615	201	934437	40627.696	202.128		19	2138.3	50936.256		24	
20_21	5455	237	2880	125	583250	25358.696	202.87		12	2113.225	43272.171		20	



4. Night Shift Manpower Planning:														Propose a manpower plan for each time bucket throughout the day, keeping the maximum abandon rate at 10%.															
Assumptions:		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 customer's/users. The total number of days in a month is 30																											
Distribution of 30 calls coming in night shift for every 100 calls coming in between 9am - 9pm (i.e. 12 hrs slot)														Distribution of Calls at Night Shift as per Question															
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															
														0.100 0.100 0.067 0.067 0.033 0.033 0.033 0.033 0.100 0.133 0.133 0.167															
Count of Incoming Calls														Count of Incoming Calls at Night Shift (as per Question)															
Time Bucket	9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21	21_22	22_23	23_0	0_1	1_2	2_3	3_4	4_5	5_6	6_7	7_8	8_9					
Monday	1051	1438	1454	1323	1191	1007	682	589	551	469	405	294	314	314	209	209	105	105	105	105	314	418	418	523					
Tuesday	377	440	532	518	463	471	485	441	469	349	348	271	155	155	103	103	52	52	52	52	155	207	207	258					
Wednesday	378	464	562	498	436	426	389	368	358	318	280	224	141	141	94	94	47	47	47	47	141	188	188	235					
Thursday	345	442	533	441	432	414	391	385	342	279	253	196	134	134	89	89	45	45	45	45	134	178	178	223					
Friday	280	402	525	399	359	326	290	329	321	257	228	202	118	118	78	78	39	39	39	39	118	157	157	196					
Saturday	258	367	471	426	356	358	332	325	323	275	216	205	117	117	78	78	39	39	39	39	117	156	156	196					
Sunday	262	514	435	330	355	288	276	287	279	280	260	268	115	115	77	77	38	38	38	38	115	153	153	192					
Required Count of Received Calls														Required Count of Received Calls at Night Shift (as per Question)															
Time Bucket	9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21	21_22	22_23	23_0	0_1	1_2	2_3	3_4	4_5	5_6	6_7	7_8	8_9					
Monday	946	1294	1309	1191	1072	906	614	530	496	422	365	265	283	283	188	188	95	95	95	95	283	376	376	471					
Tuesday	339	396	479	466	417	424	417	397	422	314	313	244	140	140	93	93	47	47	47	47	140	186	186	232					
Wednesday	340	506	488	506	448	383	350	331	322	286	252	202	127	127	85	85	42	42	42	42	127	169	169	212					
Thursday	311	398	480	397	389	373	352	347	308	251	228	176	121	121	80	80	41	41	41	41	121	160	160	201					
Friday	252	362	473	359	323	293	261	296	289	231	205	182	106	106	70	70	35	35	35	35	106	141	141	176					
Saturday	232	324	383	324	322	299	299	293	244	191	185	105	105	105	70	70	35	35	35	35	105	140	140	176					
Sunday	236	463	392	297	320	259	248	258	251	252	234	241	104	104	69	69	34	34	34	34	104	138	138	173					
Count of Received Calls														Total Count															
Time Bucket	9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21																	
Monday	223	347	455	532	499	450	464	454	438	340	220	134																	
Tuesday	214	316	410	476	440	401	400	413	393	303	223	122																	
Wednesday	188	304	407	451	410	375	356	355	337	285	190	117																	
Thursday	188	286	385	417	393	352	360	354	325	260	199	126																	
Friday	190	254	330	370	325	304	280	307	305	236	182	117																	
Saturday	192	209	338	392	341	334	323	317	314	254	192	130																	
Sunday	167	260	346	318	345	276	269	282	275	255	201	128																	
Average Call Duration (s)														Total Average															
Time Bucket	9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21																	
Monday	41418.333	65844.333	85780	94302.333	85755.333	80524.667	85346	86944.667	81436.333	67200	43078.333	28108.667																	
Tuesday	41922	68418.333	82378.667	92072	84319.667	75779.333	78084.333	78745	76842	62386	45853.667	27009.333																	
Wednesday	40164	65012	82486.333	92155.333	84004.333	71979.667	70773.667	69896.667	70470	57994	40405	23659.667																	
Thursday	39554.333	60346.667	72540.667	83887	80867	74443.667	74756.333	78302.667	80711.667	56826.667	42107	27233.333																	
Friday	37987	53470.333	68042.333	70816	69811.667	61762.333	57672.667	64318.333	61281.667	49700.333	36496.667	22541																	
Saturday	35258.5	39356.5	67952.25	75335.75	66117.25	64111	64254	62135.5	62034.5	47980.75	37698.75	25253.25																	
Sunday	34203	50076.25	65646.5	57655	62510	50557.5	49792.5	52081.25	52353.5	46879.5	39955	24152.75																	
Average Call Duration (s) per Received Call														Day's Average															
Time Bucket	9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21																	
Monday	185.732	189.753	186.527	177.260	171.854	178.944	183.935	191.508	185.528	197.647	195.811	209.798																	
Tuesday	195.897	216.514	200.924	193.429	193.636	188.976	195.211	193.087	195.527	205.894	205.622	221.388																	
Wednesday	213.638	213.855	202.669	204.336	204.889	191.946	198.802	198.802	209.110	203.488	212.658	202.219																	
Thursday	212.544	213.002	207.259	201.168	205.819	211.488	207.656	221.194	211.421	218.564	211.593	216.058																	
Friday	199.932	210.513	206.189	190.854	214.805	203.166	205.974	209.506	200.923	210.595	200.531	192.658																	
Saturday	188.308	188.309	201.042	192.183	193.892	191.949	198.929	196.011	197.562	188.901	196.348	194.256																	
Sunday	204.808	192.603	189.730	181.305	181.138	183.179	185.102	184.085	190.369	183.843	188.781	188.693																	
Required Average Call Duration (s)														Required Average Call Duration (s) at Night Shift (as per Question)															
Time Bucket	9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21	21_22	22_23	23_0	0_1	1_2	2_3	3_4	4_5	5_6	6_7	7_8	8_9	Total Required Call Duration				
Monday	17502.883	245540.539	246782.462	211116.689	184227.890	162122.996	112936.302	100499.281	92220.140	83407.059	71470.871	55588.035	52533.832	52533.832	34898.800	34898.800	17635.032	17635.032	17635.032	17635.032	52533.832	69979.600	69979.600	87432.631	2267582.198				
Tuesday	66409.150	85739.900	96243.394	90137.714	79912.048	63201.779	85820.134	76655.605	62122.275	64650.631	64359.631	54018.666	27748.343	28432.829	18432.829	9315.516	9315.516	9315.516	9315.516	27748.345	36865.658	36865.658	45982.972	120357.710					
Wednesday	72637.021	105550.576	121542.326	109580.582	97315.238	73512.325	69580.852	65171.259	67333.353	58197.488	53589.789	40848.314	25871.016	25871.016	17315.247	17315.247	8555.769	8555.769	8555.769	8555.769	25871.016	34426.785	34426.785	43186.263	1123380.499				
Thursday	66011.285	83978.928	99484.348	78693.643	80063.723	78884.908	73095.081	60754.309	65117.518	54859.590	48243.196	38026.243	25473.383	25473.383	16841.906	16841.906	8631.477	8631.477	8631.477	8631.477	25473.383	33683.812	33683.812	42315.288	1098754.546				
Friday	58128.558	76205.750	97527.344	68516.005	69382.057	59257.512	53759.105	62041.767	58066.891	48447.360	41108.883	35063.778	21653.824	21653.824	14299.695	14299.695	7149.847	7149.847	7149.847	7149.847	21653.824	28803.671	28803.671	35953.518	935922.980				
Saturday	42404.021	61246.113	71605.113	63045.113	61067.611	51607.611	51607.611	51607.611	46947.346	38091.445	29917.317	20379.568	13586.379	13586.379	6793.189	6793.189	6793.189	6793.189	6793.189	20379.568	27172.758	27172.758	34160.038	886714.365					
Sunday	48334.778	89174.245	74374.069	53947.594	57980.290	47443.451	45905.353	47648.803	47782.462	46327.976	46514.776	45475.100	19516.181	19516.181	12948.236	12948.236	6380.290	6380.290	6380.290	6380.290	19516.181	25896.471	25896.471	32464.417	845032.614				
Required Number of Distinct Agents														Required Number of Distinct Agents at Night Shift (as per Question)														Total Number of Required Agents	
Time Bucket	9_10	10_11	11_12	12_13	13_14	14_15	15_16	16_17	17_18	18_19	19_20	20_21	21_22	22_23	23_0	0_1	1_2	2_3	3_4	4_5	5_6	6_7	7_8	8_9					
Monday	38	136	137	117	102	95	63	56	51	51	46	31	29	29	19	10	10	10	10	10	29	39	39	49	140				
Tuesday	48	53	50	44	40	40	47	43	46	36	36	30	15	15	10	5	5	5	5	5	15	20	20	26	74				
Wednesday	40	50	57	51	45	44	41	39	36	37	32	30	23	23	14	14	10	5	5	5	14	19	19	24	69				
Thursday	37	47	55	44	44	44	41	43	43	36	30	27	21	21	14	9	9	5	5	5	14	19	19	24	68				
Friday	38	42	54	38	38	38	34	32	32	27	23	19	12	12	8	4	4	4	4	4	12	16	16	20	58				
Saturday	24	35	47	47	41	34	34	32	32	32	26	21	11	11	7	8	4	4	4	4	11	15	15	19	55				
Sunday	27	50	41	40	34	26	26	26	27	26	26	26	25	25	11	11	7	4	4	4	11	14	14	18					

Project 08 - ABC Call Volume Trend Analysis		
Before		After
Total Rows - 117989	No Duplicates Found	
	Replaced the blank cells (47877) in Wrapped_By column with 'NA'	
	Total Rows - 117989	
FINAL SUMMARY		
Sr No	Question	Answer
1	Project Description	<p>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).</p> <p>A Customer Experience (CX) team plays a crucial role in a company. They analyze customer feedback and data, derive insights from it, and share these insights with the rest of the organization. This team is responsible for a wide range of tasks, including managing customer experience programs, handling internal communications, mapping customer journeys, and managing customer data, among others.</p> <p>In the current era, several AI-powered tools are being used to enhance customer experience. These include Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, and Intelligent Routing.</p> <p>One of the key roles in a CX team is that of the customer service representative, also known as a call center agent. These agents handle various types of support, including email, inbound, outbound, and social media support.</p> <p>Inbound customer support, which is the focus of this project, involves handling incoming calls from existing or prospective customers. The goal is to attract, engage, and delight customers, turning them into loyal advocates for the business.</p>
2	Approach	<p>1. Understood the dataset provided</p> <p>2. Have done the data cleaning as described in the data cleaning table</p> <p>3. Used appropriate functions and formulas to get the required answers for each questions</p>
3	Tech-Stack Used	Microsoft Office 2019
4	Insights	In this projects I have used different excel functions, formulas, charts to extract the answers for all the questions which has helped me to improve the way of thinking while working on excel and selecting appropriate functions according to the questions.
5	Result	This project has helped me to improve my skills on advanced excel functions, pivot tables and charts