ABC Call Volume Trend Analysis

A project by

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CONTENT

- Average Call Duration
- Call Volume Analysis
- Manpower Planning
- Night Shift Manpower Planning

Task 1

Average Call Duration

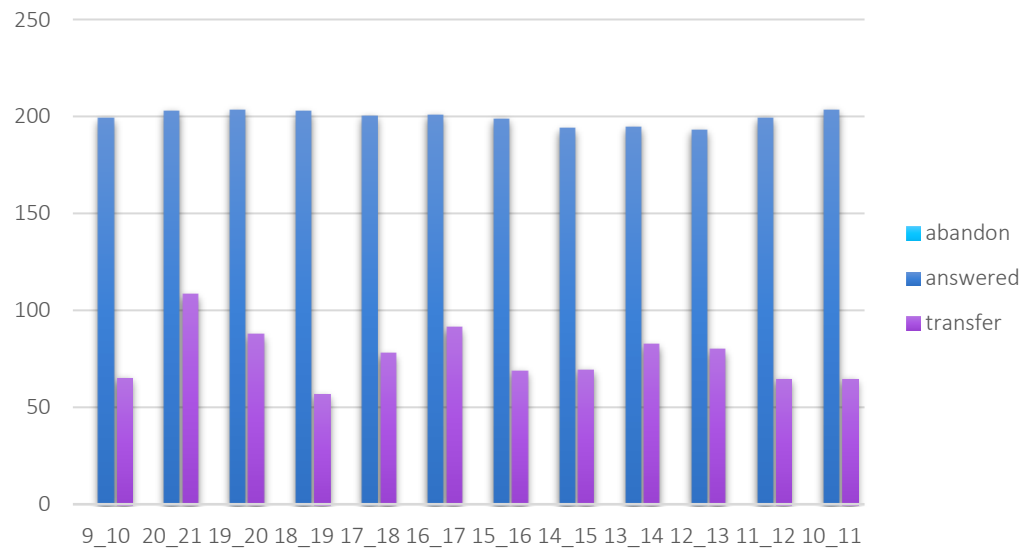
Determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.

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

Approach :

- Using the pivot table.
- Add time_bucket in rows and average time in value section.
- Insert the column chart which shows the relationship between time_bucket and Average of time in seconds.

Average of Call_Seconds (s)	Column Labels			
Row Labels	abandon	answered	transfer	Grand Total
9_10	0	199.0691057	65.18181818	92.01032541
20_21	0	202.845993	108.2	105.9491371
19_20	0	203.4060725	87.67567568	144.5825468
18_19	0	202.5509677	56.62857143	174.3246753
17_18	0	200.2487831	77.85333333	179.7245137
16_17	0	200.8681864	91.38624339	181.4393491
15_16	0	198.8889175	68.68648649	169.8968228
14_15	0	193.6770755	69.30357143	146.9693211
13_14	0	194.7401744	82.45217391	149.5409567
12_13	0	192.8887829	79.82312925	144.7250237
11_12	0	199.2550234	64.63157895	116.7837413
10_11	0	203.3310302	64.52941176	97.42402163
Grand Total	**0**	**198.6227745**	**76.14651368**	**139.5321473**



Solution 1

Task 2

Call Volume Analysis

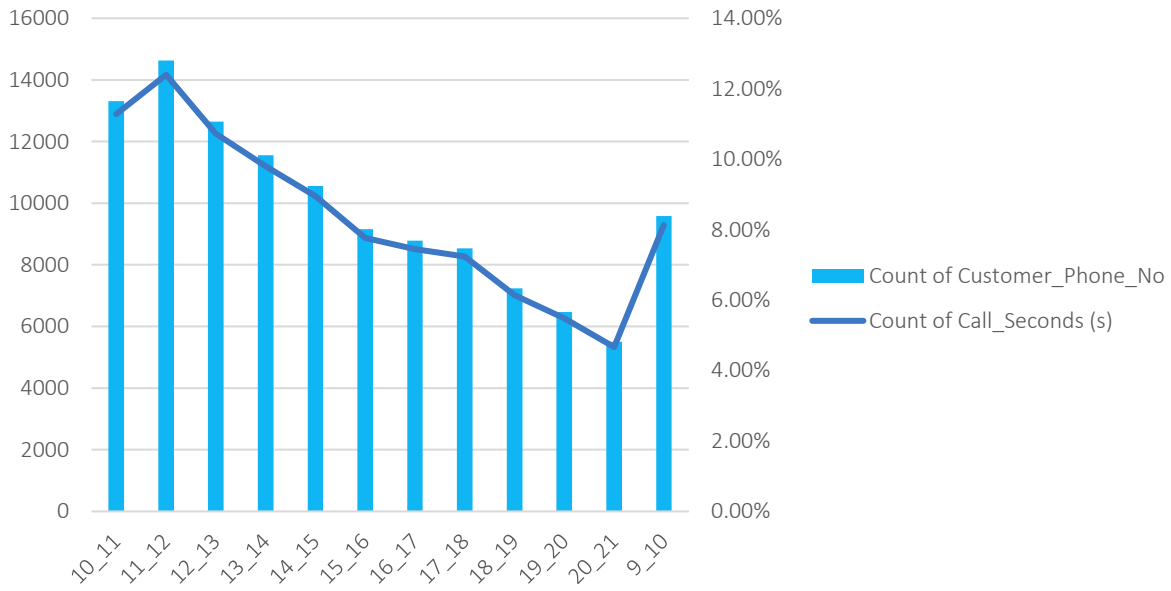
Visualize the total number of calls received. This should be represented as a graph or chart showing the number of calls against time. Time should be represented in buckets (e.g., 1-2, 2-3, etc.).

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

Approach:

- Use the pivot table and add time_bucket in row and count of customer phone call and count of second in values section.
- Insert the combination chart for the same pivot chart.

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%**



Solution 2

Task 3

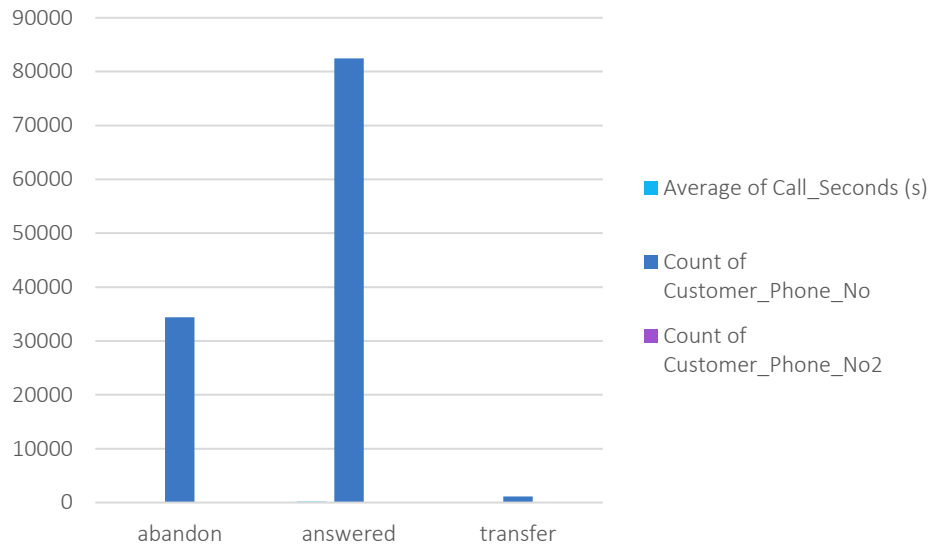
Manpower Planning

The current rate of abandoned calls is approximately 30%. Propose a plan for manpower allocation during each time bucket (from 9 am to 9 pm) to reduce the abandon rate to 10%. In other words, you need to calculate the minimum number of agents required in each time bucket to ensure that at least 90 out of 100 calls are answered.

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

Approach:

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



Assumption			
Total Working Hrs	9		
Break	1.5		
Remaining Hrs	7.5		
Out of 7.5 hrs 60% the agent is occupied So, working hours	4.5		
Therefore, Total Hour worked on 1st Jan is	187.96		
According to our assumption, 1 agent can work for 4.5 hrs, so the no of agent work on that day	187.96/4.5		
	41.7688889		
	42		
			No of agent required
As you see 70 precentage of call is Answer by 42 agent and Now we have increase it to 90 percentage .			12
For this we use Unitary Methods			
90*42/70			
54			

Solution 3

Duration = count of call in that bucket/ total number of call

Row Labels	Count of Call_Seconds (s)	Count of Call_Seconds (s)2	Duration	Agent
10_11	11.28%	13313	0.112833508	2
11_12	12.40%	14626	0.123961759	2
12_13	10.72%	12652	0.107231244	2
13_14	9.80%	11561	0.097984541	2
14_15	8.95%	10561	0.089509103	2
15_16	7.76%	9159	0.077626538	1
16_17	Chart Area	8788	0.074482151	1
17_18	7.23%	8534	0.072329389	1
18_19	6.13%	7238	0.061345222	1
19_20	5.48%	6463	0.054776757	1
20_21	4.67%	5505	0.046657287	1
9_10	8.13%	9588	0.081262501	1
Grand Total	**100.00%**	**117988**	1	12

Solution 3

Task 4

Night Shift Manpower Planning

Customers also call ABC Insurance Company at night but don't get an answer because there are no agents available. This creates a poor customer experience. Assume that for every 100 calls that customers make between 9 am and 9 pm, they also make 30 calls at night between 9 pm and 9 am. The distribution of these 30 calls is as follows

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

Approach:

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

Average incoming call	5130
Average incoming call At Night For every 100 calls that the customer made between 9Am and 9pm. The customer also made 30 calls in night between interval[9pm to 9am]. So 30%calls are made at night	1539
Average seconds required to answer the call (Avg incoming call at night* Avg of call second answered)	305679.258
Avg hour required to answer the call	84.910905
Actual Avg hours hour required to answer the call	76.4198145
Number of agent required	16.982181
Number of agent required	17

Time	Call	Duration	No of agent
9pm-10pm	3	0.10	2
10pm-11pm	3	0.10	2
11pm-12am	2	0.07	2
12am-1am	2	0.07	2
1am-2am	1	0.03	1
2am-3am	1	0.03	1
3am-4am	1	0.03	1
4am-5am	1	0.03	1
5am-6am	3	0.10	2
6am-7am	4	0.13	3
7am-8am	4	0.13	3
8am-9am	5	0.17	3
Total	30		

Chart Area

Count of Call_Status	Column Labels			
Row Labels	abandon	answered	transfer	Grand Total
<01-01-2022	23891	38711	213	62815
01-Jan	684	3883	77	4644
01-Feb	356	2935	60	3351
01-Mar	599	4079	111	4789
01-Apr	595	4404	114	5113
01-May	536	4140	114	4790
01-Jun	991	3875	85	4951
01-Jul	1319	3587	42	4948
01-Aug	1103	3519	50	4672
01-Sep	962	2628	62	3652
01-Oct	1212	3699	72	4983
01-Nov	856	3695	86	4637
01-Dec	1299	3297	47	4643
Grand Total	**34403**	**82452**	**1133**	**117988**
			Average	5129.91304

Chart Area

Solution 4

Thank You

Link
https://drive.google.com/file/d/1WBtlYrktihnwFNC2bc4GViVA9rHG1AMa/view?usp=drive_link