

ABC Call Volume Trend Analysis

TRAINITY PROJECT 8

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Hyper link for excel analysis file:

<https://docs.google.com/spreadsheets/d/1xYq4XH1hnXU-eAG4bqiMSrtAWGLvI7UH/edit?usp=sharing&ouid=106990321423670318865&rtpof=true&sd=true>

Project Description:

This project is based on Customer experience analytics, specifically focusing on the inbound calling team of a company. The dataset provided 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).

Data Analytics Tasks:

1. **Average Call Duration:** Determine the average duration of all incoming calls received by agents. This should be calculated for each time bucket.

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

For this task following steps were taken:

- a. First a pivot table was been made by selecting time bucket, call (seconds) and call status.
- b. Then, all the variables were dragged to the fields as such: call_status- filters, Time_bucket- Rows, Call seconds (Average)- Values.
- c. Since, we need to find the received calls, only, answered calls is been taken into consideration.
- d. Then, the sorted pivot data was turned into bar chart for visualization.

Time_Bucket	Average of Call_Seconds (s)
10_11	203.3310302
11_12	199.2550234
12_13	192.8887829
13_14	194.7401744
14_15	193.6770755
15_16	198.8889175
16_17	200.8681864
17_18	200.2487831
18_19	202.5509677

19_20	203.4060725
20_21	202.845993
9_10	199.0691057
Grand Total	198.6227745

VISUALISATION:



Insight:

The maximum average duration of calls received is between 19:00 PM to 20:00 PM with average of 203.4 sec, followed by 10:00 AM to 11 AM with average of 203.3 sec and the least average duration of calls received by agents is between 12:00 PM to 1:00 PM with average duration of 192.8 sec.

- 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.).

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

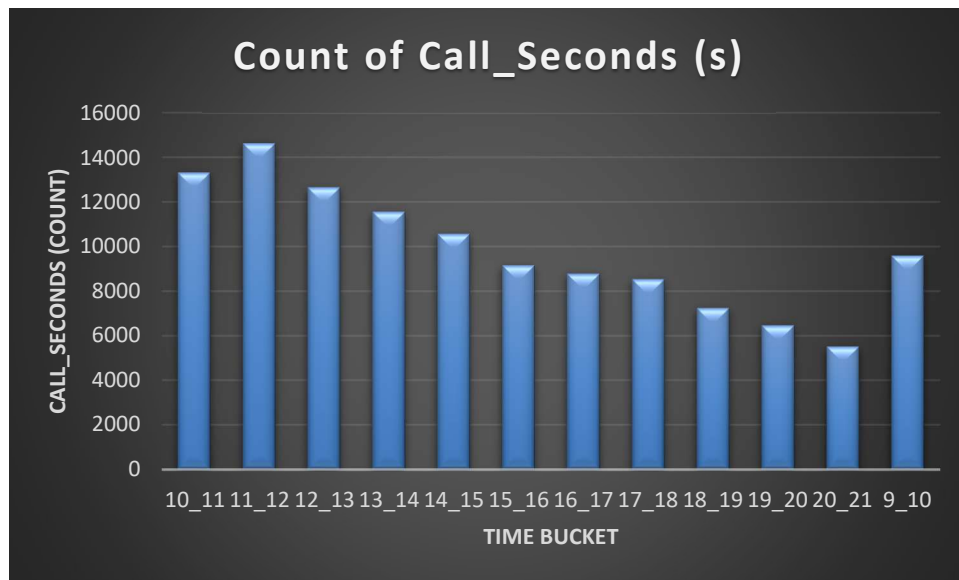
For this task following steps were taken:

- First a pivot table was been made by selecting time bucket, call (seconds).
- Then, all the variables were dragged to the fields as such: Time_bucket- Rows, Call seconds (Count)- Values.
- Then, the sorted pivot data was turned into bar chart for visualization.

Time_Bucket	Count of Call_Seconds (s)
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10_11	13313
11_12	14626
12_13	12652
13_14	11561
14_15	10561
15_16	9159
16_17	8788
17_18	8534
18_19	7238
19_20	6463
20_21	5505
9_10	9588
Grand Total	117988

Vizualisation:



Insight:

The most calls are received between 11:00 AM to 12:00 PM i.e most busy hour, and the least calls are received between 20:00 PM to 21:00 PM.

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.

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

For this task following steps were taken:

- a. Extract date using INT function and then format it in 1-Jan form.
- b. Make a pivot table using variables: date and call status.
- c. Drag the date in column and get a count of call status on the basis of distinct values present in the dataset (transferred, answered, abandon).
- d. Now, calculate the average of all the distinct call status, the abandon rate is 29% (% by grand total).
- e. Number of working hour is 60% of 7.5 which is 4.5
- f. Total average hour for receiving a call for 90% times is calculated by average of calls received multiplied by average call duration (calculated in task 1) multiplied by 0.9 (90%) and whole product divided by 3600 (60min*60sec).
- g. Calculating the total number of manpower is done by dividing 4.5 to the value of previous step i.e 254.729 and rounding the final value.
- h. Now, to calculate the manpower distribution for every time duration first segregate the time duration by count of time_bucket using % of grand total using pivot table and multiplying that percentage to the total manpower needed.

Time_Bucket	Count of Time_Bucket	Number of agents needed
10_11	11.28%	6
11_12	12.40%	7
12_13	10.72%	6
13_14	9.80%	6
14_15	8.95%	5
15_16	7.76%	4
16_17	7.45%	4
17_18	7.23%	4
18_19	6.13%	3
19_20	5.48%	3
20_21	4.67%	3
9_10	8.13%	5
Grand Total	100.00%	57

Insight:

Total manpower that should be increased in order to decrease the abandon rate to 10% should be 57 agents.

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:

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

For this task following steps were taken:

- Since, at night only 30% of day calls are received, calculate the average number of calls received at night by 0.3×5130 (5130- from task 3).
- Calculate the hours needed for receiving calls at night ($1539 \times 198.6228 \times 0.9 / 3600$).
- Total manpower needed will be calculated by dividing 4.5 to the previous step calculation.
- Convert count of time bucket on basis of each time bucket into percentage (by using % BY GRAND TOTAL) using the data given.
- Now, multiply the total manpower needed to each percentage of the time bucket to calculate the agents needed for each time bucket in order to maintain the abandon rate to 10%.

TIME BUCKET	CALLS	%	DISTRIBUTION OF MAN POWER
9-10 PM	3	10%	2
10-11 PM	3	10%	2
11-12 AM	2	7%	1
12-1 AM	2	7%	1
1-2 AM	1	3%	1
2-3 AM	1	3%	1
3-4 AM	1	3%	1
4-5 AM	1	3%	1
5-6 AM	3	10%	2
6-7 AM	4	13%	2
7-8 AM	4	13%	2
8-9 AM	5	17%	3
GRAND TOTAL	30	100%	17

Insight:

Total manpower needed at night is 17.

TECH STACK USED: Excel 365 (2021) is used to perform the analysis.

Result: for ABC trend call analysis, I learnt how to play around with data for better customer reach and better customer support, that can help company reach more customers and get a better business by increasing the manpower with same work efficiency of each agent.