**ABC CALL VOLUME TREND ANALYSIS**

**PROJECT DESCRIPTION:**

* In this project, we will move into the world of Customer Experience (CX) analytics, specifically focusing on the inbound calling team of a company. 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) is provided to us.  The goal is to attract, engage, and delight customers, turning them into loyal advocates for the business.

**APPROACH:**

* To perform the project a systematic approach was followed. A dataset having relevant information on agent's name and ID, the queue time, the time of the call, the duration of the call, and the call status was downloaded. Microsoft Excel 2021 was selected as the primary tool for data analysis due to its versatility and robust capabilities in handling tabular data. There are N/A in the dataset but as per the tasks those data columns are not required so they remain there in the dataset which will not affect our analysis.

**TECH-STACK USED:**

* Software: Microsoft Excel 2021
* Purpose: Excel was chosen for its extensive data analysis functions, including pivot tables, charts, and statistical functions and visualization of the call data

INSIGHTS: various key insights were uncovered through the data analytics process. These are the following tasks which have to be done as per the client requirement

* **Average Call Duration:**
* **Call Volume Analysis**
* **Manpower Planning**
* **Night Shift Manpower Planning:**

AVERAGE CALL DURATION:

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

|  |  |
| --- | --- |
| Call\_Status | answered |
|  |  |
| Time Bucket | 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** |

* As seen in the graph we can clearly the average duration of calls for each time buckets for answered calls only. For **7pm-8pm** the duration of calls is the **highest** and for **12 pm -1 pm** the value is the **lowest** amongst all

CALL VOLUME ANALYSIS:

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

|  |  |  |
| --- | --- | --- |
| **Time Bucket** | **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%** |

* Highest no of calls received during between **11 am to 12** pm as clearly seen in this graph

MANPOWER PLANNING:

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Row Labels** | **Average of Call\_Seconds (s)** | **Count of Customer\_Phone\_No** | **Count of Customer\_Phone\_No2** |
| abandon | 0.00 | 34403 | 29% |
| answered | 198.62 | 82452 | 70% |
| transfer | 76.15 | 1133 | 1% |
| **Grand Total** | **139.53** | **117988** | **100.00%** |

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.

So

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time Bucket** | **Count of Call\_Seconds (s)** | **Count of Call\_Seconds (s)2** | call\_seconds | Agent Required |
| 10\_11 | 11.28% | 0.11 | 0.11 | 6 |
| 11\_12 | 12.40% | 0.12 | 0.12 | 7 |
| 12\_13 | 10.72% | 0.11 | 0.11 | 6 |
| 13\_14 | 9.80% | 0.10 | 0.10 | 6 |
| 14\_15 | 8.95% | 0.09 | 0.09 | 5 |
| 15\_16 | 7.76% | 0.08 | 0.08 | 4 |
| 16\_17 | 7.45% | 0.07 | 0.07 | 4 |
| 17\_18 | 7.23% | 0.07 | 0.07 | 4 |
| 18\_19 | 6.13% | 0.06 | 0.06 | 3 |
| 19\_20 | 5.48% | 0.05 | 0.05 | 3 |
| 20\_21 | 4.67% | 0.05 | 0.05 | 3 |
| 9\_10 | 8.13% | 0.08 | 0.08 | 5 |
| **Grand Total** | **100.00%** | **1.00** | 1.00 | 57 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date\_&\_Time2 | **01-Jan** |  |  |  |  |
|  |  |  |  |  |  |
| **Row Labels** | **Sum of Call\_Seconds (s)** |  |  |  |  |
| 09 | 35313.00 |  | 188.0 | **Per one day** |  |
| 10 | 53087.00 |  | 38 | As mentioned, 60% |  |
| 11 | 67751.00 | So | 60% | 38 |  |
| 12 | 72680.00 |  | 90% | **57** | Total agent req |
| 13 | 59693.00 |  |  |  |  |
| 14 | 76137.00 |  |  |  |  |
| 15 | 65689.00 |  |  |  |  |
| 16 | 59464.00 |  |  |  |  |
| 17 | 68155.00 |  |  |  |  |
| 18 | 53096.00 |  |  |  |  |
| 19 | 40141.00 |  |  |  |  |
| 20 | 25281.00 |  |  |  |  |
| 21 | 177.00 |  |  |  |  |
| **Grand Total** | **676664.00** |  |  |  |  |

* Total agent required are **57** and the **minimum number of agents** required in each time bucket to ensure that at least 90 out of 100 calls are answered are also shown by the table

NIGHT SHIFT MANPOWER PLANNING:

**Your 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** |

|  |  |
| --- | --- |
| **5130** | TOTAL AVG CALLS |
| **1539** | FOR NIGHT |
| **76** | ADDITIONAL hr. REQ |
| **15** | ADDITIONAL AGENT REQ |

**ASSUMPTION: we have an assumption value as provided for call between 9pm-9am and their call distribution value**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CALL BETWEEN 9PM-9AM | CALL DISTRIBUTION | TIME DISTRIBUTION | AGENT REQUIRED | ROUND FIGURE |
| 9PM-10PM | 3 | 10 | 1.5 | 2 |
| 10PM-11PM | 3 | 10 | 1.5 | 2 |
| 11PM-12PM | 2 | 15 | 1 | 1 |
| 12PM-1AM | 2 | 15 | 1 | 1 |
| 1AM-2AM | 1 | 30 | 0.5 | 1 |
| 2AM-3AM | 1 | 30 | 0.5 | 1 |
| 3AM-4AM | 1 | 30 | 0.5 | 1 |
| 4AM-5AM | 1 | 30 | 0.5 | 1 |
| 5AM-6AM | 3 | 10 | 1.5 | 2 |
| 6AM-7AM | 4 | 7.5 | 2 | 2 |
| 7AM-8AM | 4 | 7.5 | 2 | 2 |
| 8AM-9AM | 5 | 6 | 2.5 | 3 |
| TOTAL | 30 |  | 15 | 19 |

* Total **Average calls** are **5130**
* For night it was told that **30% of calls** so **30%\*5130= 1539**
* Then for additional hour we calculate by round formula

**=round (1539\*198.6\*0.9/3600,0)**, it will result into **76 hr**

* Then for agent who work **5** hr in a day the we will, calculate by round formula **=round (76/5,0)** and we get **15 as additional agent** required for the night hour Planning.

RESULT**:** We have achieved so many fruitful insights about the ABC Call Volume Trend Analysis by doing so many tasks such as call status, call duration, man power planning with the help of Microsoft Excel and its useful functions which will help us get better idea about how a call volume analysis have been doing

EXCEL LINK: [PROJECT-8-ABC CALL VOLUME TREND ANALYSIS.xlsx](PROJECT-8-ABC%20CALL%20VOLUME%20TREND%20ANALYSIS.xlsx)

PPT LINK: <https://drive.google.com/file/d/12I0cSG4Ja-1aKg2Uy0buh-ZmU_txG4ux/view?usp=sharing>

