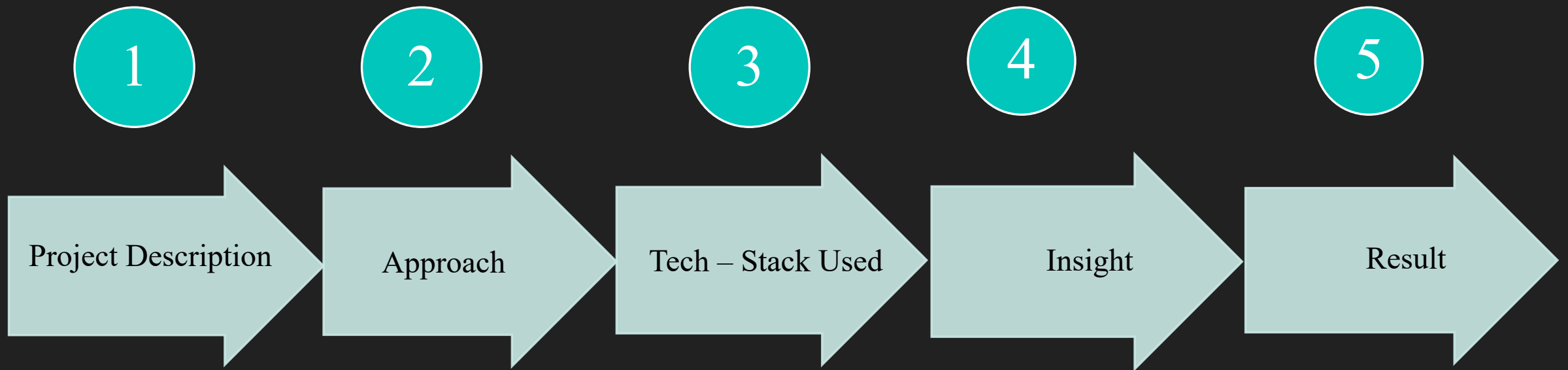


ABC Call Volume Trend Analysis

Content



Project Description

- The objective of this project is to analyze the inbound call data of ABC Insurance Company to derive insights and propose strategies for optimizing call handling efficiency and minimizing abandon rates.
- The project involves data analysis, including segmentation of calls into time buckets, calculation of average call durations, visualization of call volume trends, and strategic manpower planning based on current and predicted call patterns.
- The project will deliver insights into call duration patterns, visual representations of call volumes, manpower allocation strategies to reduce abandon rates, and a comprehensive plan for handling both daytime and night time calls effectively.

Approach

1. Data Preparation:

- Data Cleaning: Removal or imputation of null values, elimination of duplicates, handling outliers, and removal of irrelevant columns to ensure data quality.

2. Data Analysis:

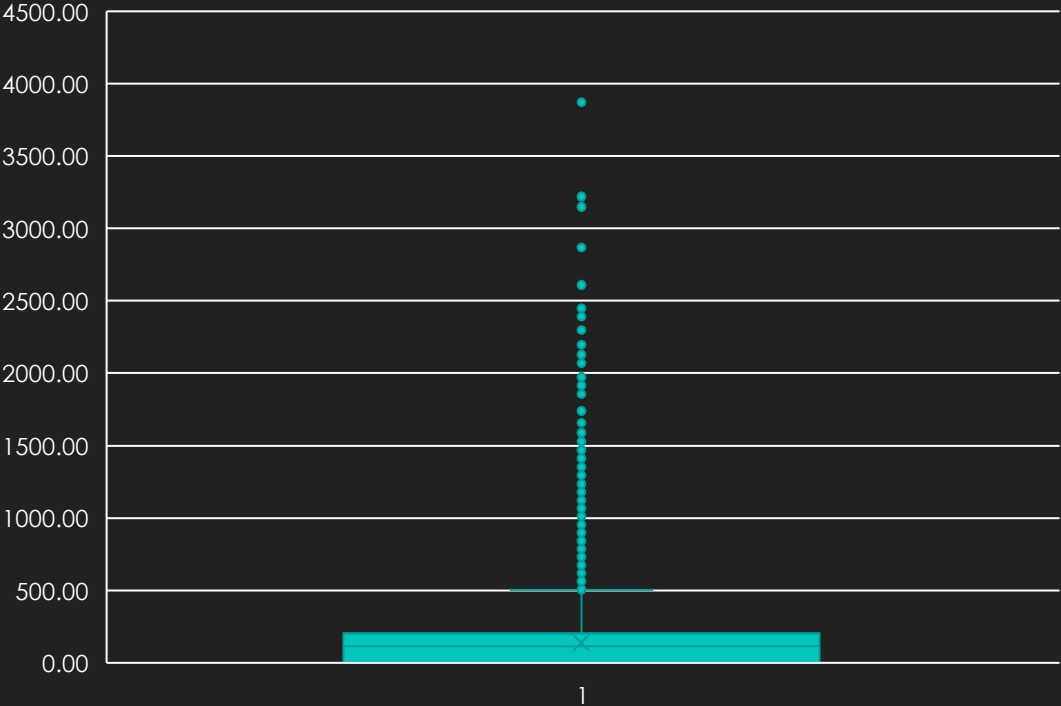
- Pivot Tables and Functions: Using pivot tables and functions to aggregate and summarize data across different dimensions and variables.
- Graphs/Charts: Visual representation of data using graphs and charts to identify patterns, trends, and relationships within the dataset.

Tech- Stack Used

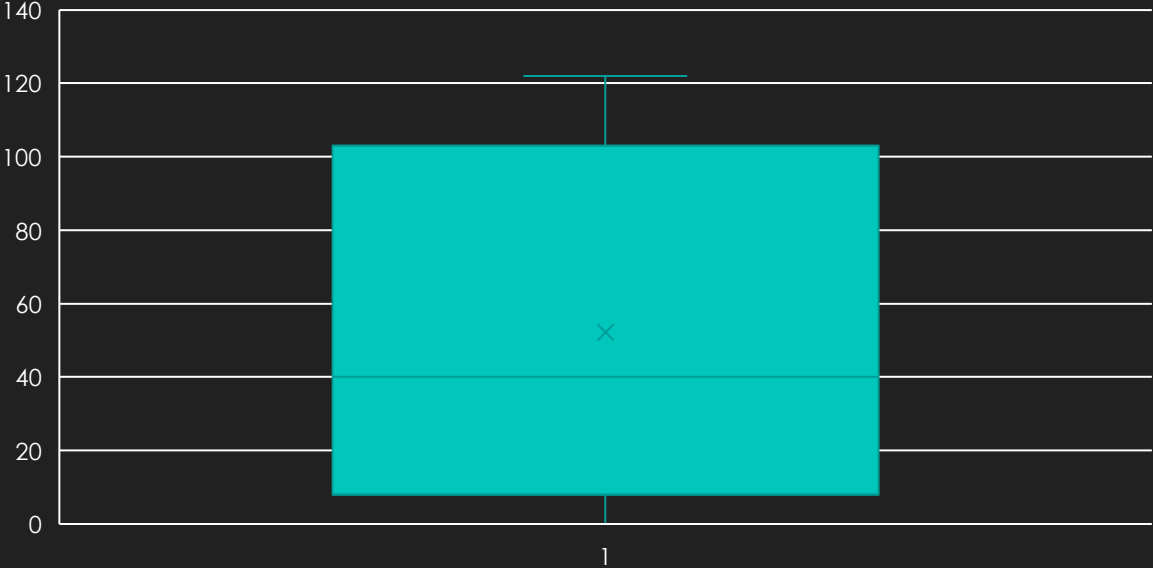
The analysis for this project has been performed using Microsoft Excel as it offers a user-friendly interface that allows users to work with data, perform calculations, and create visual representations without extensive programming knowledge.

Outlier Analysis

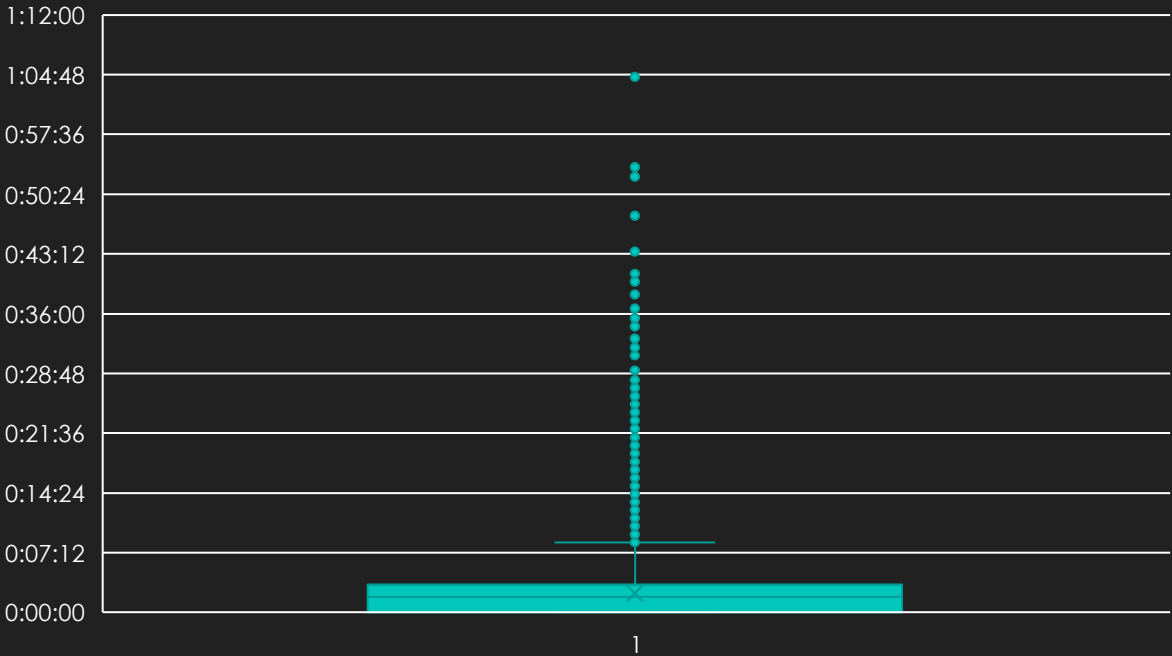
Call_Seconds

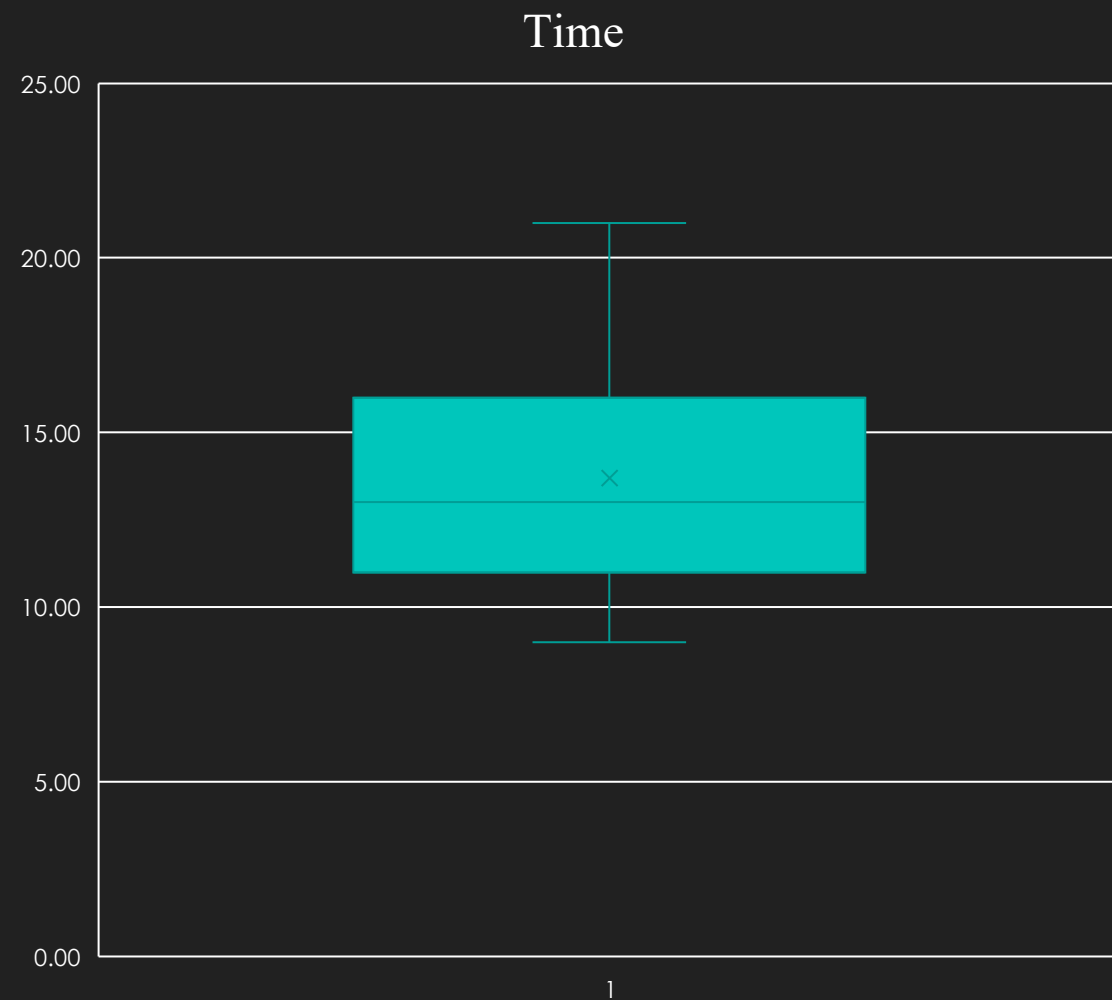
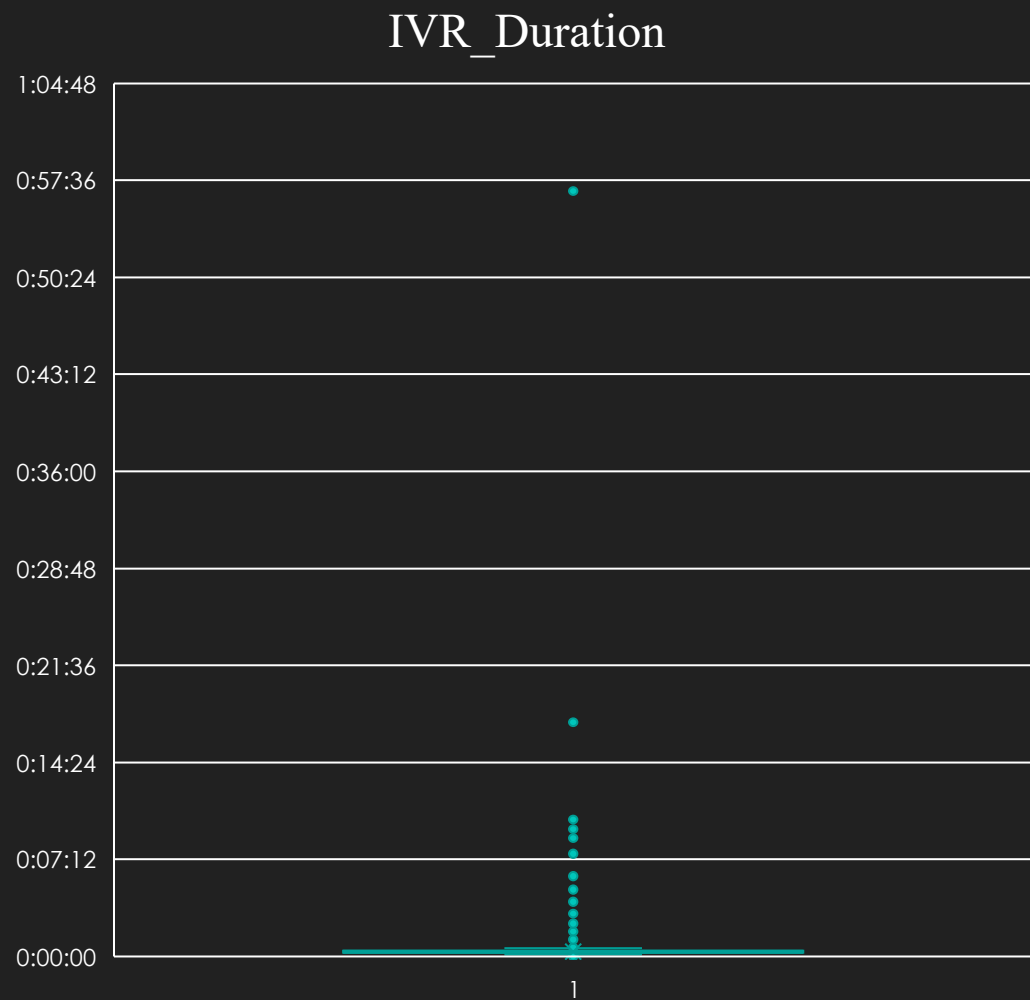


Queue_Time(Secs)



Duration





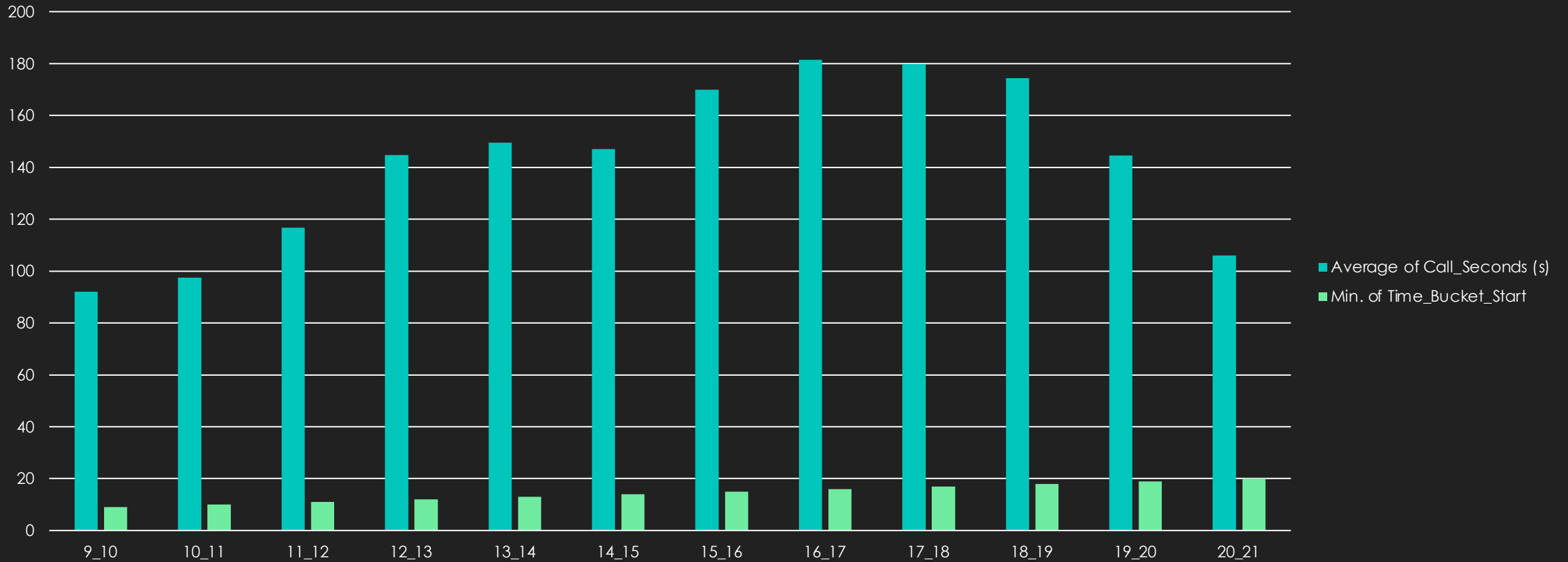
There are outliers in our dataset but the variation is not so extreme, so the data points have not been replaced.

Task 1: Average Call Duration

Call_Status	(All)	
Time_Bucket	Min of Time Bucket Start	Average of Call_Seconds (s)
9_10	9	92.01032541
10_11	10	97.42402163
11_12	11	116.7837413
12_13	12	144.7250237
13_14	13	149.5409567
14_15	14	146.9693211
15_16	15	169.8968228
16_17	16	181.4393491
17_18	17	179.7245137
18_19	18	174.3246753
19_20	19	144.5825468
20_21	20	105.9491371
Grand Total	9	139.5321473

The pivot table provides information regarding the average call duration in seconds in each time bucket. The column has been sorted with the help of the created new column “Min of Time Bucket Start”.

Average Call Duration

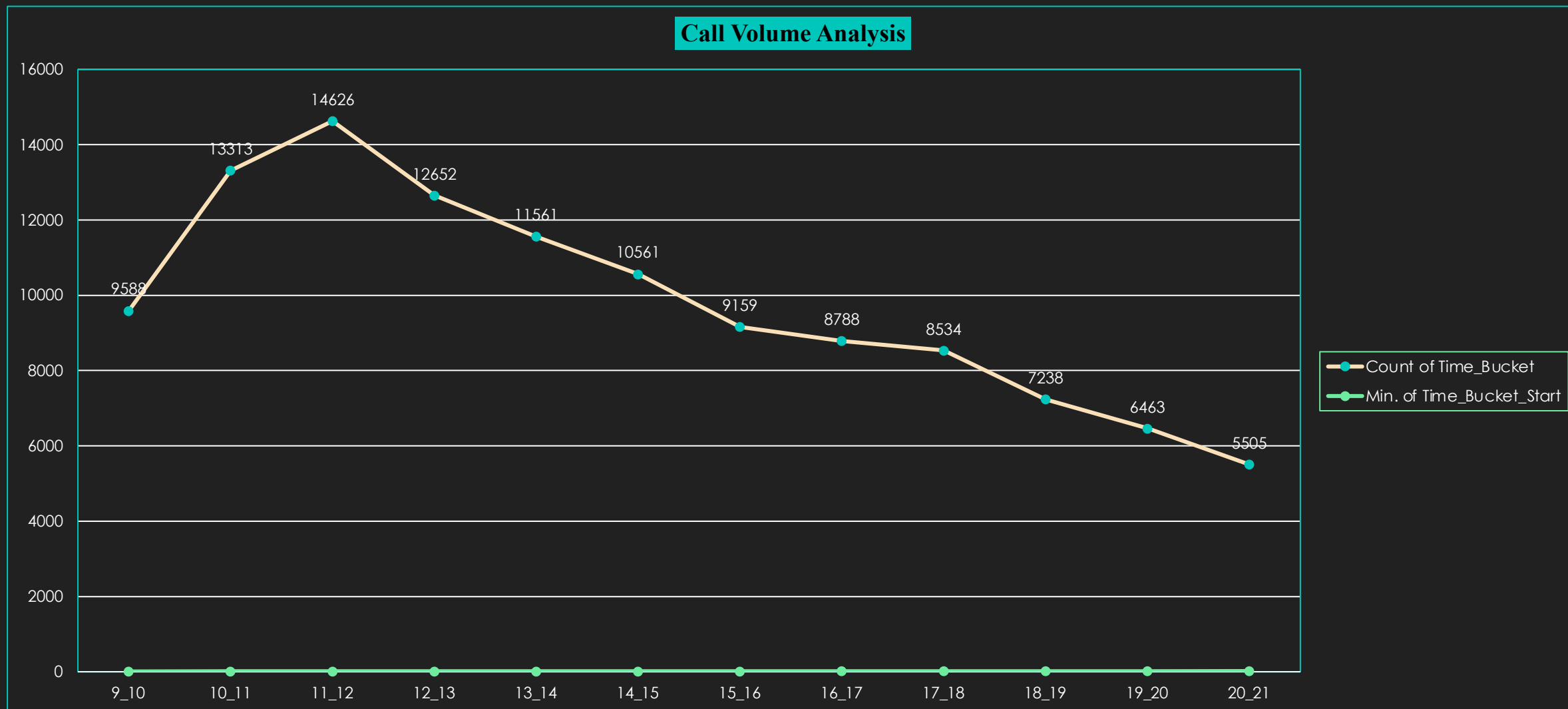


The bar chart shows that customer support representatives receive higher average duration calls in the 16-18 hrs time bucket, while in the morning 9-10 time frame, average duration of calls is very low.

Task 2: Call Volume Analysis

Call Status	(All)	
Time Bucket	Min of Time Bucket Start	Calls received (Count of Time Bucket)
9 10	9	9588
10 11	10	13313
11 12	11	14626
12 13	12	12652
13 14	13	11561
14 15	14	10561
15 16	15	9159
16 17	16	8788
17 18	17	8534
18 19	18	7238
19 20	19	6463
20 21	20	5505
Grand Total	9	117988

The pivot table provides information regarding the number of calls received in each time bucket during the day. This analysis can help us understand the spread of calls received and let the management be prepared with the need of customer support representatives in each time bucket.



The graph shows that the highest number of calls are received by the customer support representatives during the 11-12 hrs, followed by 10-11 and 12-13, hence more employees should be available during these hours, while the lowest number of calls are received during the 19-10 and 20-21 time buckets.

Task 3: Manpower Planning

Day Call Planning				
Call Status	(All)			
Time Bucket	Min of Time Bucket Start	Average of Call Seconds (s)	Calls received (Count of Time Bucket)	Min Agents for 10% abandonment
9 10	9	92.01032541	9588	23232
10 11	10	97.42402163	13313	32258
11 12	11	116.7837413	14626	35440
12 13	12	144.7250237	12652	30657
13 14	13	149.5409567	11561	28013
14 15	14	146.9693211	10561	25590
15 16	15	169.8968228	9159	22193
16 17	16	181.4393491	8788	21294
17 18	17	179.7245137	8534	20679
18 19	18	174.3246753	7238	17538
19 20	19	144.5825468	6463	15660
20 21	20	105.9491371	5505	13339
Grand Total	9	139.5321473	117988	285893
Agent absence correction factor = days of work X due to holiday X due to breaks* (lunch / snacks X dedication to calls = (6/7) * (26/30) * (7.5/9) * (60/100) = 0.371428571				

The management needs to plan for their manpower requirements during the different hours of the day, so that 90% of the calls are answered.

Based on the constraints provided, agent absence correction factor has been calculated.

The list of the number of agents required in each time bucket has been provided in the table.

Task 4: Night Shift Manpower Planning

Night Call Planning			
Time Bucket	Night call distribution	Calls received (Count of Time Bucket)	Min Agents for 10% abandonment
21 22	3	3540	8578
22 23	3	3540	8578
23 24	2	2360	5718
24 1	2	2360	5718
1 2	1	1180	2859
2 3	1	1180	2859
3 4	1	1180	2859
4 5	1	1180	2859
5 6	3	3540	8578
6 7	4	4720	11437
7 8	4	4720	11437
8 9	5	5899	14294
Grand Total	30	35399	85774

It has been provided that for every 100 calls received during the day, 30 calls are received during the night.

Based on the call distribution during the night, the list of minimum number of agents is calculated, so that 90% of the calls are answered.

Excel File Link

https://docs.google.com/spreadsheets/d/1ij_GyI_UA8IgViACvoZDIw-bH6IVUt-c/edit?usp=share_link&ouid=101949921485202693908&rtpof=true&sd=true

Loom Videos Link

<https://www.loom.com/share/433488f0638f4314ab845a8bab357ea7?sid=76d472f4-71c5-45ad-8e42-a01cfc7589a6>

<https://www.loom.com/share/c096590de3b44825878105389cf1ca84?sid=679476bc-42dd-40c0-ab3b-6d0a5a01ab5d>