ABC Call Volume Trend Analysis

Final Project-4

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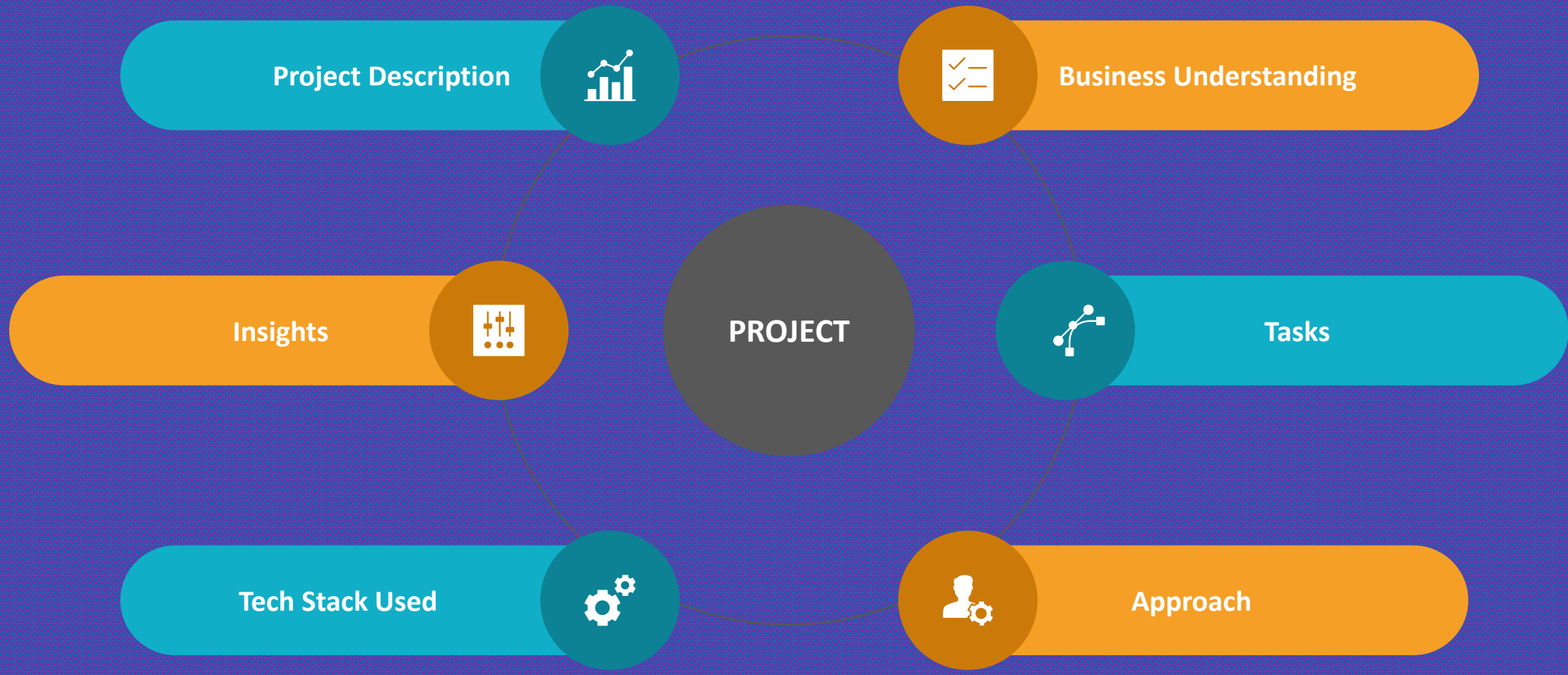
Project Flow



PROJECT DESCRIPTION

A CX team analyzes customer feedback and data, sharing insights with the organization They perform various roles, including CX programs, digital customer experience, design, internal communications, voice of the customer, user experiences, journey mapping, customer success, customer support, data handling, and learning about the customer journey.

AI-empowered customer experience tools, such as Interactive Voice Response (IVR), Robotic Process Automation (RPA), predictive analytics, and intelligent routing, can significantly impact customer service. The Customer Experience team offers numerous employment opportunities for customer service representatives, including email, inbound, outbound, and social media support. Inbound customer support involves handling incoming calls from existing or prospective customers, attracting, engaging, and delighting them to become loyal advocates By solving customer problems and helping them achieve success, businesses can delight customers and grow their business.

BUSINESS UNDERSTANDING

Advertising is a marketing strategy to increase sales and raise awareness of a business's products or services. It shapes the first impressions customers have before making a purchase. Businesses can target different audiences—local, regional, national, or international—using various methods, including internet directories, trade publications, radio, cinema, outdoor ads, national newspapers, magazines, and television. The advertising industry is highly competitive, with many companies vying for the same audience. To succeed, businesses must use analytical skills to effectively target these audiences across various media platforms while converting them into customers at a low cost.

APPROACH

- **Data Cleaning:** To ensure accurate and meaningful analysis, I performed data cleaning. This involved removing unnecessary columns that were not relevant to the tasks at hand. By cleaning the data, I obtained a clean dataset that served as the basis for my analysis.

- **Data Analysis:** Using Excel, I explored the data analysis part of the project. For each task, I utilized pivot tables and graphs to perform the required calculations and generate insights. This allowed me to extract valuable information and patterns from the data set.

TECH-STACK USED

Microsoft Excel: Used for data analysis, manipulation, and visualization. Excel provides various functionalities for working with data, including formulas, charts, and pivot tables.

Microsoft Excel

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 customers/users. The total number of days in a month is 30.

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

Data Analytics Tasks:

- **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?

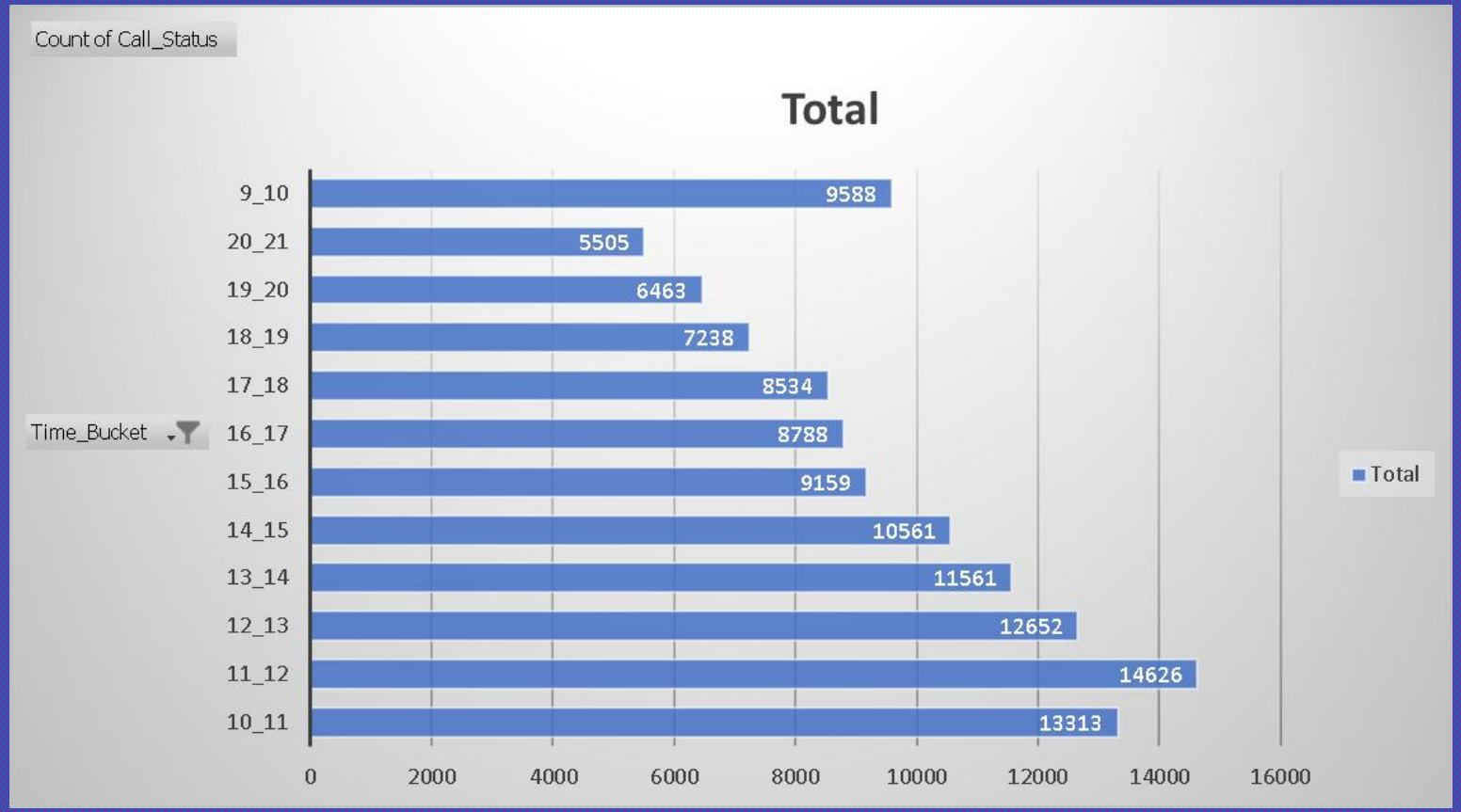
Row Labels	Average of Call_Seconds (s)
10_11	203.3310302
11_12	199.2550234
12_13	192.8887829
13_14	194.7401744
14_15	193.6770755
15_16	198.8889175
16_17	200.8681864
17_18	200.2487831
18_19	202.5509677
19_20	203.4060725
20_21	202.845993
9_10	199.0691057
Grand Total	**198.6227745**

INSIGHTS

- An Overall Increasing Trend from 9 am to 9 pm with an average duration of 198.62 seconds
- lowest during 12 pm to 1 pm slot followed by 2 pm to 3 pm then 1 pm to 2 pm
- Longest duration during 10 am to 11 am followed by 8 pm to 9 pm then 7 pm to 8 pm
- In morning hours from 9 am to 12 pm and from 6 pm to 9 pm the call duration is highest

- **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?

Row Labels	Count of Call_Status
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**



INSIGHTS

- The Call volume follows a left-skewed bell curve, with the 9588 at 9 am to 10 am peaking at 11 to 12 with 14626 then continuously declining to 5505 in 8 pm to 9 pm slot
- Overall decreasing trend is followed
- During the initial number of hours large number of calls are abandoned, and during the last hour large number of calls are abandoned in comparison to the call answered
- During the day more than 11 lakh calls are received

- **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%?

Count of Duration(hh:mm:ss)	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

AVERAGE NO.OF CALL STATUS	1496	3585	49	5130
CALL STATUS IN %	29	70	1	
AGENT'S WORKING HOUR	4.5			
AVERAGE OF CALL DURATION IN SEC	199			
HOURS NEEDED FOR 90%	255			
TOTAL NO. OF AGENTS REQUIRED IS	57			

- **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%.

AVERAGE NO.OF CALL STATUS	1496	3585	49	5130
CALL STATUS IN %	29	70	1	
AGENT'S WORKING HOUR	4.5			
AVERAGE OF CALL DURATION IN SEC	199			
AVERAGE NO OF CALLS AT NIGHT	1539			
FOR 90% CALL RATE AT NIGHT	76			
TOTAL NO. OF AGENTS NEEDED IN NIG	17			

RESULT

- The project helped in understanding how to analyze call center data and make effective insights
- Further strengthening of understanding of Charts and Pivot tables in Excel.
- The project helped in giving a glimpse of a high-stakes problem where customer satisfaction and profitability need to be kept in mind along with how the jobs of people are in balance. The Project helps in understanding how to handle this.

Dataset: https://docs.google.com/spreadsheets/d/1AeMYVz1y-s5hlCghoPaGncgOdWfS9bEA/edit?usp=drive_link&ouid=100865564169059724511&rtpof=true&sd=true

Thank You!