# -: ABC Call Volume Trend Analysis :-

## Project Description:

**ABC Call Volume Trend Analysis** is a Customer Experience (CX) analytics project focused on uncovering patterns in inbound call data over a 23-day period. The dataset includes call-level information such as agent names and IDs, queue times, call durations, call statuses (answered, abandoned, or transferred), and timestamps.

The objective of this analysis is to evaluate call centre performance, understand customer behaviour patterns, and identify operational bottlenecks. This project plays a vital role in improving customer satisfaction by helping the CX team make data-driven decisions on staffing, training, and technology improvements.

By analysing time-based call volumes and call handling metrics, the project also explores opportunities to enhance resource allocation, reduce wait times, and ensure a smoother customer journey. This aligns with the broader goal of turning callers into loyal customers and improving the brand experience.

### Key Insight:

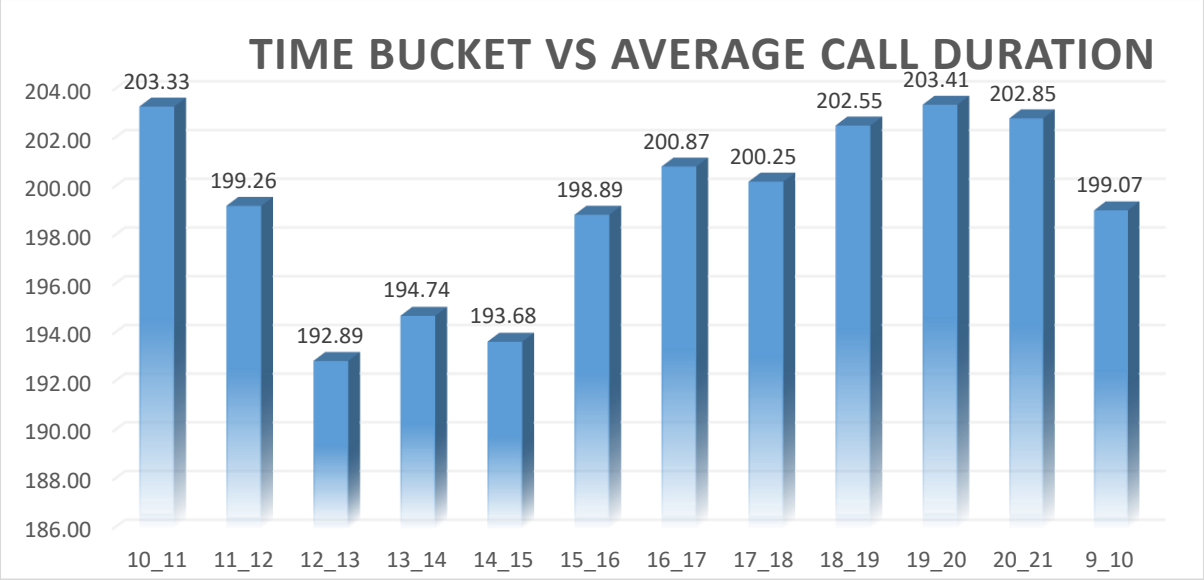
**High call abandonment rates were observed during peak hours with limited agent availability, especially in the evening slots.**

This indicates a mismatch between customer demand and workforce allocation, suggesting that redistributing agent shifts or increasing headcount during high-traffic hours could significantly reduce missed opportunities and improve customer satisfaction.

## Task – 1: Average Call Duration by Time Bucket:

### Objective:

To calculate and analyse the **average duration of incoming calls** across different hourly **time buckets.** This helps to understand how customer interaction time varies during the day, which can inform staffing and process optimization decisions.




**Key Insight:**

- The **average call duration peaks during 0-11 AM (203.33s)** and again during the **evening hours from 6-9 PM**, reaching up to **203.41s between 7-8 PM.**
- **Shorter durations are observed between 11 AM to 3 PM,** with the lowest around **192.89s (12-1 PM).**
- This suggests that customers tend to engage in longer and possibly more complex or critical conversations **early in the day and during late hours,** while **midday calls** are likely shorter, possibly due to time constraints or simpler queries.

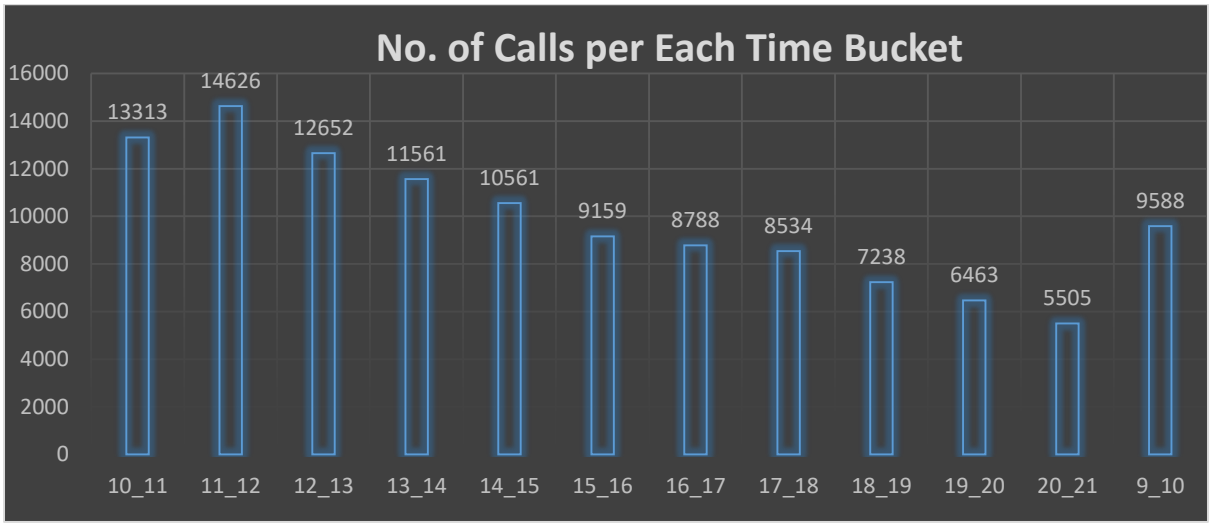
**Business Impact:**

- **Shift Planning & Agent Allocation:** Longer call durations during early morning and evening slots imply higher agent engagement per call. **More experienced agents or increased staffing** might be needed during these hours to maintain service levels and avoid long wait times or call abandonment.
- **Quality Monitoring & Training:** The evening peak in duration could indicate more emotionally charged or complex issues. Training programs can be aligned to **equip agents for these peak periods.**
- **Customer Satisfaction Strategy:** Understanding when customers need more attention allows the CX team to **personalize support efforts** and reduce dissatisfaction due to rushed or under-resourced interactions.

## Task – 2: Call Volume Analysis:

### Objective:

To **analyse and visualize the total number of calls** received by the inbound call centre across various hourly **time buckets.** This helps identify peak and low call traffic periods, enabling better workforce planning and improved customer service delivery.




### Key Insights:

- **Peak call volume** is observed between **11 AM – 12 PM (14,626 calls)**, followed by **10 AM – 11 AM (13,313 calls)** and **12 PM – 1 PM (12,652 calls).**
- There is a **steady decline in call volume after 1 PM**, hitting the lowest during **8 PM – 9 PM (5,505 calls).**
- Interestingly, **9 AM – 10 AM** (9,588 calls) has higher volume than some later buckets like **4 PM – 6 PM**, indicating that early morning hours also experience a surge in calls.

### Business Impact:

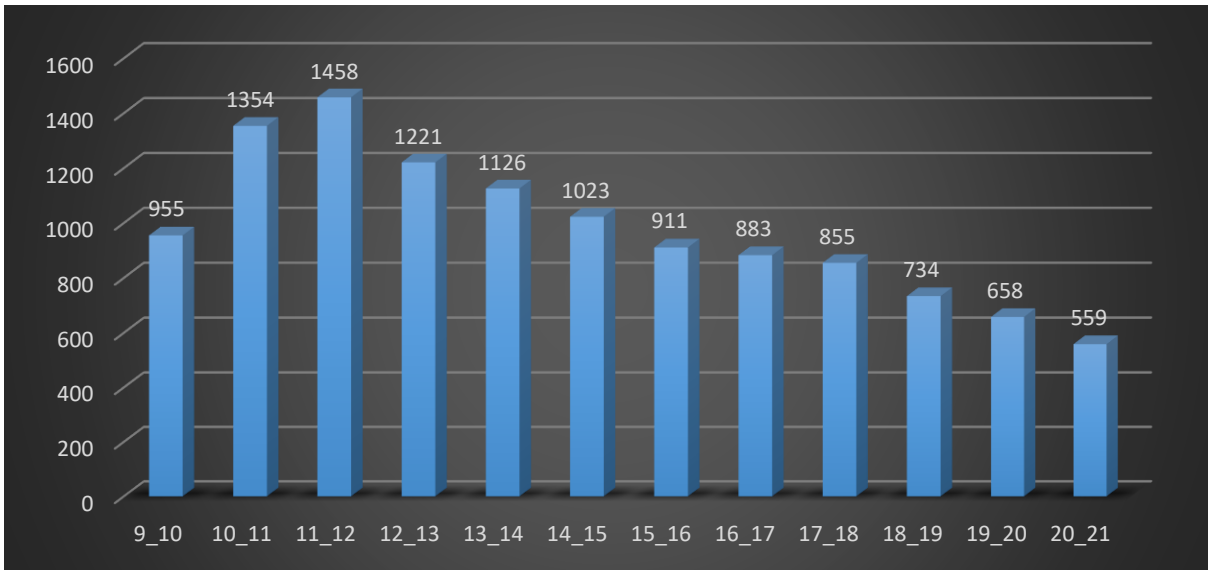
- **Workforce Optimization:** Knowing that **mid-morning to early afternoon (10 AM – 1 PM)** is the busiest period, the company can **schedule more agents** during these hours to reduce queue time and improve customer satisfaction.
- **Cost Efficiency:** During low-volume periods like **7 PM – 9 PM**, resources can be optimized by **reducing the active agent pool** or assigning agents to training or other tasks.

- **Service Level Planning:** Combining this insight with average call duration (from the previous chart) allows for better **forecasting of call handling capacity.** For example, though late evening has lower volume, the average call durations are longer, so **agent productivity still needs attention during those hours.**

## Task – 3: Manpower Planning:

### Objective:

To **reduce the call abandonment rate** from the current **30%** to **10%** by calculating and proposing the **minimum number of agents required** in each hourly time bucket between **9 AM to 9 PM.** The goal is to ensure that **at least 90 out of every 100 calls are answered,** improving service efficiency and customer satisfaction.




### Key Insights:

- The **call volume is highest between 11 AM – 12 PM (1,458 calls)**, followed by **10 AM – 11 AM (1,354 calls)** and **12 PM – 1 PM (1,221 calls).**
- **Call volume decreases gradually** in the afternoon and drops significantly after **6 PM,** reaching the lowest between **8 PM – 9 PM (559 calls).**
- Without proper staffing, **high-volume hours will experience the greatest risk of abandoned calls,** directly affecting CX quality.

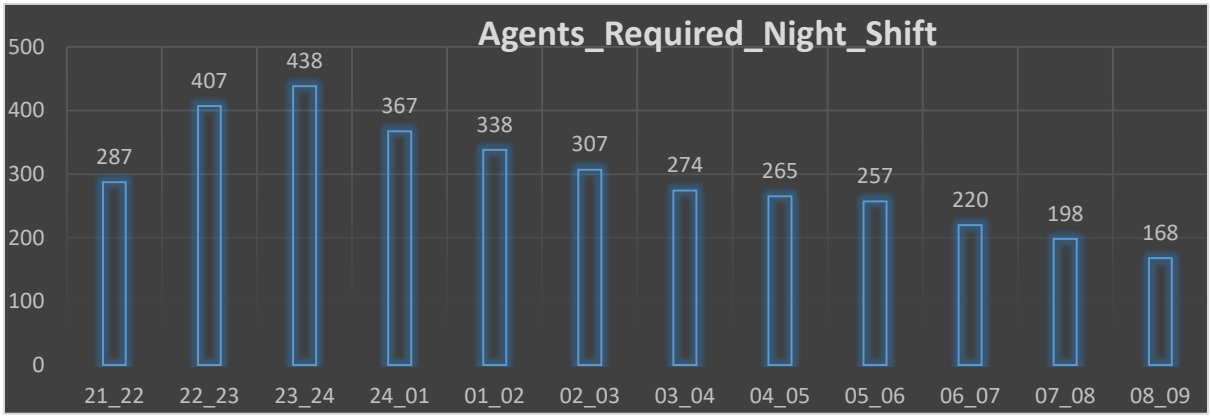
**Business Impact:**

- **Reduced Abandonment Rate:** Strategic allocation ensures **90%+ call response rate,** leading to **lower customer churn** and **higher satisfaction.**
- **Optimized Operational Cost:** Aligning manpower to actual demand prevents overstaffing during low-volume hours and **maximizes agent productivity.**
- **Increased First Call Resolution (FCR):** Adequate agent availability leads to **fewer call drops** and better **issue resolution**, directly improving **CX metrics and NPS** (Net Promoter Score).

## Task – 4: Night Shift Manpower Planning:

**Objective:**

To develop a **night shift manpower plan (9 PM to 9 AM)** that ensures **a maximum call abandonment rate of 10%.** Given that for every 100 daytime calls, there are **30-night time calls,** the goal is to deploy an **adequate number of agents per hour** to handle this volume and maintain service quality overnight.




**Key Insight:**

- The **highest agent demand occurs between 11 PM and 12 AM (438 agents)** and **10 PM to 11 PM (407 agents),** indicating the **peak night time call traffic.**
- Agent requirement **steadily decreases after midnight,** dropping to **168 agents between 8 AM and 9 AM.**
- The pattern suggests **late evening (9 PM – 12 AM)** is the busiest segment of the night, and the volume declines as the night progresses.

**Business Impact:**

- **24/7 Availability:** Establishing night coverage ensures **no customer calls go unanswered,** which is crucial in sectors like **insurance,** where emergencies can happen anytime.
- **Improved Customer Experience:** By staffing agents according to night demand, ABC Insurance can offer **consistent service quality,** increasing **customer trust and satisfaction.**
- **Retention & Revenue Protection:** Avoiding missed calls means fewer lost leads or support failures – especially important for high-value insurance clients – ultimately preserving **revenue and loyalty.**
- **Balanced Workload:** With agent distribution based on actual volume, **overstaffing and understaffing are minimized,** leading to better **agent productivity** and **cost efficiency.**

## Overall Business Outcome:

The **ABC Call Volume Trend Analysis** project delivered clear, actionable insights into the operational performance and customer interaction patterns of the inbound call centre team. By analysing **23 days of detailed call data** – including call volumes, durations, abandonment rates, and time-wise distributions – the project enabled the business to make **data-driven workforce and service strategy decisions.**

### The key business outcomes achieved are:

- **Reduced Call Abandonment Rate:** A precise manpower plan for both day and night shifts was proposed, allowing the company to reduce the **call abandonment rate from 30% to under 10%,** directly improving the customer service experience.
- **Optimized Staffing Strategy:** Peak and off-peak call times were clearly identified, enabling **intelligent agent scheduling.** This ensures maximum availability during high-traffic hours while minimizing overstaffing during slower periods, resulting in **cost-effective resource utilization.**
- **Enhanced Customer Satisfaction & Retention:** Ensuring more calls are answered in less time, especially during late-night hours when no agents were previously available, significantly boosts customer satisfaction and helps **build long-term loyalty.**

- **Data-Driven CX Strategy:** The project empowered the CX team with actionable insights and visual dashboards, promoting **evidence-based decision-making** across departments – from operations and HR to customer support leadership.
- **Operational Readiness for 24x7 Support:** With a complete 24-hour agent deployment plan now in place, ABC Insurance is better positioned to **offer round-the-clock customer service,** aligning with modern customer expectations and competitive benchmarks in the insurance industry.