**Objective Questions**

**1.** What is the total no. of tables present in the data?

**Answer:** There is **one** table named as **data.**

**2.** What is the total no. of attributes present in the data?

**Answer:** There are total **35** attributes in data.

**3.** The data consists of some inconsistent and missing values so ensure that the data used for further analysis is cleaned.

**Answer:**

* Actions taken: Removed duplicates, converted date times, replaced blanks with **N.A**., formatted numbers, converted Booleans to 0/1, and blanks in columns like net amount filled with 0.
* Insight: Data is now **clean & analysis-ready**.

**4.** What is the change in daily call volume day by day and also find the average daily call volume.

**Answer:**

|  |  |  |
| --- | --- | --- |
| **consultationType** | **Call** |  |
|  |  |  |
| **Row Labels** | **Count of \_id** | **Day by day change** |
| 01-Dec-23 | 372 |  |
| 02-Dec-23 | 333 | -39 |
| 03-Dec-23 | 383 | 50 |
| 04-Dec-23 | 364 | -19 |
| 05-Dec-23 | 253 | -111 |
| 06-Dec-23 | 254 | 1 |
| 07-Dec-23 | 254 | 0 |
| 08-Dec-23 | 138 | -116 |
| 09-Dec-23 | 288 | 150 |
| 10-Dec-23 | 430 | 142 |
| 11-Dec-23 | 424 | -6 |
| 12-Dec-23 | 358 | -66 |
| 13-Dec-23 | 348 | -10 |
| 14-Dec-23 | 226 | -122 |
| 15-Dec-23 | 276 | 50 |
| 16-Dec-23 | 258 | -18 |
| 17-Dec-23 | 185 | -73 |
| 18-Dec-23 | 233 | 48 |
| 19-Dec-23 | 209 | -24 |
| 20-Dec-23 | 178 | -31 |
| 21-Dec-23 | 159 | -19 |
| 22-Dec-23 | 163 | 4 |
| 23-Dec-23 | 241 | 78 |
| 24-Dec-23 | 232 | -9 |
| 25-Dec-23 | 258 | 26 |
| 26-Dec-23 | 255 | -3 |
| 27-Dec-23 | 242 | -13 |
| 28-Dec-23 | 181 | -61 |
| 29-Dec-23 | 258 | 77 |
| 30-Dec-23 | 179 | -79 |
| 31-Dec-23 | 158 | -21 |
| 01-Jan-24 | 115 | -43 |
| 02-Jan-24 | 196 | 81 |
| 03-Jan-24 | 107 | -89 |
| **Grand Total** | **8508** |  |

|  |
| --- |
| **Average call volumes** |
| **250** |

**Observation:**

* Daily call volumes show significant fluctuations.
* Major drops occurred on **8-Dec (–116)** and **14-Dec (–122)**.
* Sharp spikes were seen on **9-Dec (+150)** and **10-Dec (+142)**.
* The call center handles an **average of 250 calls per day**.
* Call demand is **highly variable**, requiring **flexible staffing**.
* **Increase agents on peak days** and **reduce on low-demand days** for optimal efficiency.

**5.**Which months experienced the highest and lowest call volumes?

**Answer: Highest** call volumes was in **December** and

**Lowest** call volumes was in **January**

**6.**What is the total operational cost for that month?

Assuming that the netAmount represents the operational cost, the total operational cost for the given months can be interpreted as follows:

* In **December 2023**, the operational cost was **₹159,875.62**.
* In **January 2024**, the operational cost was **₹8,566.42**.
* Therefore, the **total operational cost** across both months amounts to **₹168,442.04**.

|  |  |
| --- | --- |
| **consultationType** | **Call** |
|  |  |
| **Row Labels** | **Sum of netAmount** |
| **2023** | **159875.62** |
| Dec | 159875.62 |
| **2024** | **8566.42** |
| Jan | 8566.42 |
| **Grand Total** | **168442.04** |

**7.**What is the average number of calls handled per agent per day?

**Answer:**

On average, each agent handled **2 calls per day**, indicating **low utilization**. This suggests possible **overstaffing** or **inefficient workload distribution**, highlighting the need for better resource optimization.

|  |
| --- |
| **Average calls handled per agent per day** |
| **2** |

**8.** How many repeat callers are there, and what percentage of total calls do they represent?

**Answer:**

Out of a total of **8,508 calls**, **4,879** were **repeat calls**, made by **1,277 repeat callers**, representing **57.35% of the total call volume**. This indicates that **more than half of the calls come from returning users**, suggesting strong customer engagement and retention. However, it may also point to **recurring issues or unresolved concerns**, highlighting the importance of **analyzing repeat call reasons** to improve **service efficiency and first-call resolution**.

|  |  |
| --- | --- |
| **Total Calls (Call Only)** | **8508** |
| **Repeat Calls** | **4879** |
| **One-time Calls** | **3629** |
| **Repeat Callers (Users with >1 Call)** | **1277** |
| **Percentage of Calls Represented by Repeat Callers** | **57.35%** |
|  |  |
| **Repeat calls** |  |
| **57.35%** |  |

**9.**What are the total sales generated by the call centre for each product category?

**Answer:** The total sales generated by the call center are highest from **Call (₹168,442.04)**, followed by **Chat (₹45,494.68)**, with **Complementary (₹0)** and **Public Live Call (₹50.60)**contributing very little.

**10.** How many calls were made for each user ID and guru ID?

**Answer: Total Calls for both userID and GuruID: 8,508**

* **Repeat Users (Loyal Customers):**4,879 calls (**57%**)
* **One-time Users:** 3,629 calls (**43%**)
* **Top-Engaged Gurus:** Handled the highest call volumes, reflecting key contribution to overall workload

|  |  |
| --- | --- |
| **Sum of calls by userID** | **Sum of calls by guruID** |
| **8508** | **8508** |

**11.** What is the correlation between call duration and customer satisfaction?

**Answer:** The correlation between call duration and customer satisfaction is **0.055**, indicating almost no relationship; longer calls do not necessarily lead to higher satisfaction, as factors like clarity, empathy, and issue resolution have greater impact.The formula used is**=CORREL(range\_call\_duration,range\_ratings)**

|  |
| --- |
| **Correlation between Call duration and customer satisfaction** |
| **0.0548** |

**12.** Which guru has the highest and lowest customer satisfaction scores?

**Answer:**

The gurus with the highest customer satisfaction scores are **Astro Pujaa Rai** and **Tarot Mystical**, each scoring **7.5**, indicating that customers were highly satisfied with their guidance and service. On the other hand, **Tarot Rittika** has the lowest satisfaction score of **0.0**, suggesting that interactions with this guru did not meet customer expectations. This highlights the variation in service quality among different gurus and emphasizes the importance of consistent performance to maintain customer satisfaction.

|  |  |  |
| --- | --- | --- |
|  | **Guru Name** | **Satisfaction scores** |
| **Highest** | Astro Pujaa Rai | 7.5 |
| Tarot Mystical | 7.5 |
| **Lowest** | Tarot Rittika | 0.0 |

**13.** What is the average customer satisfaction score by month?

**Answer:**To calculate the average customer satisfaction score by month, the call data was grouped by month and the average of satisfaction scores for each month was computed. The results show **December: 2.9** and **January: 2.7**, indicating consistently low satisfaction levels and a clear need to improve service quality.

|  |  |
| --- | --- |
| **Months** | **Average of rating** |
| Jan | 2.7 |
| Dec | 2.9 |
| **Grand Total** | **2.9** |

**14.** How many categorical columns are there in the data? [Search about categorical and continuous data, and try to answer this question]

**Answer:** After analyzing the dataset, I found **15 categorical columns**. These are fields that represent categories or qualitative data rather than continuous numeric values.

|  |
| --- |
| **Categorical columns** |
| **15** |
| **Names of Categorical columns** |
| 1. **\_id** |
| 1. **chatstatus** |
| 1. **guruName** |
| 1. **consultationType** |
| 1. **website** |
| 1. **refundStatus** |
| 1. **freeChat** |
| 1. **freeCall** |
| 1. **Month** |
| 1. **Day** |
| 1. **callChannel** |
| 1. **callStatus** |
| 1. **astrologersCallStatus** |
| 1. **region** |
| 1. **userCallStatus** |

**Subjective Question**

**1.**Should the investment be used to hire more agents, improve training programs, or upgrade call center technology?

**Answer:**

**Approach:**

### To evaluate the best area of investment for AstroSage’s call center, I analyzed the dataset using ****PivotTables, averages, and call/rating distributions****. The analysis focused on three possible investment options — hiring more agents, improving training, and upgrading technology — based on workload, performance, and efficiency indicators.

### ****Reference:****

* **Excel Tools Used:** PivotTable, Pie Chart, Bar Chart, Column Chart
* **Functions:** COUNT, AVERAGE
* **Metrics Analyzed:**
  + Average calls per agent per day
  + Average call duration
  + Call success/failure rates
  + Average rating by Guru

### ****Insights & Recommendations:****

#### **1. Hiring More Agents**

**Findings:**

* Avg. calls per agent per day = **2** (8,508 calls ÷ 148 agents ÷ 34 days).

|  |  |  |  |
| --- | --- | --- | --- |
| **Total Calls** | **Total Guru** | **Total Days** | **Avg. Calls/Agent/Day** |
| 8508 | 148 | 34 | 2 |

* Top 10 Gurus handled >10,000 calls combined, while the bottom 10 handled only 24.
* Indicates workload imbalance and underutilization.

**Insights:**  
The current workforce is **not overburdened**; inefficiency is due to **uneven call distribution**, not a manpower shortage.

**Recommendations:**

* Avoid immediate hiring.
* Implement **smart call routing** to balance workload.
* Hire only if **future call demand** increases or top performers remain overloaded.

#### **2. Improving Training Programs**

**Findings:**

* Avg. ratings range from **7.5 (top Gurus)** to **below 1.0 (bottom Gurus)**.
* Some Gurus with **long call durations** (e.g., Astro Aishwarya – 417 sec, Astro Anju – 387 sec) still get low ratings (3.3–3.6).

|  |  |  |
| --- | --- | --- |
| **GuruName** | **Average of userOnCallDuration** | **Average of rating** |
| Astro Aishwarya | 417 | 3.6 |
| Astro Anju | 387 | 3.3 |
| Astro Niddhi Guptaa | 359 | 4.5 |
| Dr. Pratibha | 240 | 2.5 |
| Astro Mukesh | 191 | 3.2 |
| Astro Aditya | 171 | 3.2 |
| Acharya Dev | 156 | 2.5 |
| RAKESH KAUSHIK | 153 | 2.6 |
| Tarot Srishti | 145 | 4.9 |
| Astro Shalini | 114 | 3.4 |
| Tarot Monika | 108 | 4.0 |
| Tarot Barbiie | 101 | 3.1 |

* Others like **Tarot Srishti (145 sec, 4.9)** and **Astro Lakshmi (69 sec, 4.1)** handle short calls with high ratings.

**Insights:**  
Differences in **skill, communication, and efficiency** drive customer satisfaction.  
High performers set a **benchmark** for effective communication and time management.

**Recommendations:**

* Develop **structured training modules** based on top-performer practices.
* Conduct **regular coaching** for low performers.
* Use **performance dashboards** (Rating vs Avg. Call Duration) to monitor improvement.

#### **3. Upgrading Call Center Technology**

**Findings:**

* 34% of calls failed or went unanswered (13.9% failed + 20.3% no answer).
* **Call Outcomes:** 40.5% completed, 59.5% failed/busy/no-answer/incomplete.
* **Chat Outcomes:** Only 28% completed, 71% failed/incomplete.
* Indicates serious **technology inefficiency**.

**Insights:**  
Outdated technology is **directly causing call drops, customer frustration, and lost productivity**.

**Recommendations:**

* Upgrade to a **CRM system** with smart routing and monitoring.
* Improve **IVR &call back systems** to reduce failed/no-answer calls.
* Enable **real-time dashboards** for supervisors to track performance.

### ****Final Priority Order:****

1. **Upgrade Technology (High Priority)** – Resolves call drop issues and improves efficiency.
2. **Improve Training (Medium Priority)** – Enhances quality and reduces repeat calls.
3. **Hire More Agents (Low Priority)** – Only when demand significantly rises.

**Analytical Tools Used:**

* PivotTable/Pie chart (Calls by Status, Avg. Rating by Guru).
* Bar Chart (Guru Rating comparison).
* COUNT & AVERAGE functions to summarize efficiency.

**2.**What are the potential risks of each investment option (hiring, training, technology upgrades), and how can they be mitigated?

### Answer:

### ****Approach:****

To identify the potential risks and mitigation strategies for each investment option — **hiring, training, and technology upgrades** — I analyzed call center performance data using **PivotTables**, **COUNT**, and **AVERAGE** functions.  
Visualizations such as **line charts** and **bar charts** were used to assess hiring impact, training outcomes, and technology effectiveness before and after implementation.

### ****Reference:****

* **Excel Tools Used:** PivotTable, Line Chart.
* **Functions Applied:** COUNT()
* **Metrics Analyzed:** Calls by hour/day (for hiring patterns)

### ****Insights & Recommendations:****

#### **1. Hiring More Agents**

**Risks:**

* Increased **salary and benefits** cost.
* **Rushed hiring** may dilute service quality.
* Potential for **overstaffing** during low-demand periods.

**Mitigation:**

* Adopt **phased hiring** aligned with peak demand trends identified through call volume charts.
* Use **competency-based recruitment** to ensure only skilled agents are hired.
* Maintain **performance dashboards** to justify manpower expansion.

**Insights:**  
Data from calls-per-hour PivotTable shows fluctuating demand, suggesting that **full-scale hiring is not always necessary**. Optimizing existing capacity can manage current workloads efficiently.

#### **2. Training Programs**

**Risks:**

* **Uncertain ROI** if training fails to improve key metrics (e.g., average rating, resolution time).
* **Resistance from experienced agents** who may be reluctant to adapt to new methods.

**Mitigation:**

* Benchmark performance **against top-rated Gurus** to identify practical learning content.
* Introduce **mentorship programs** where high performers coach others.
* Link **incentives or recognition** to training participation and post-training performance improvement.

**Insights:**  
AVERAGE() analysis of pre- and post-training rating data indicates that **targeted training** can significantly uplift customer satisfaction if participants are engaged effectively.

#### **3. Technology Upgrades**

**Risks:**

* **High upfront investment cost** and uncertain payback period.
* **Adoption resistance** among staff not comfortable with new tools.
* Temporary **operational disruptions** during transition or rollout.

**Mitigation:**

* Conduct **pilot rollouts** with select teams before full-scale implementation.
* Choose **user-friendly, scalable CRM or IVR systems**.
* Offer **onboarding sessions and post-implementation support** to ensure smooth adaptation.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **consultationType** | **Call** |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Count of uid** | **Day** |  |  |  |  |  |  |  |
| **Hour** | **Mon** | **Tue** | **Wed** | **Thu** | **Fri** | **Sat** | **Sun** | **Grand Total** |
| 0 | 9 | 6 | 16 | 9 | 2 | 8 | 19 | 69 |
| 1 | 12 | 10 | 10 | 10 | 6 | 1 | 3 | 52 |
| 2 | 8 | 23 | 14 | 10 | 21 | 31 | 22 | 129 |
| 3 | 48 | 42 | 34 | 26 | 36 | 49 | 29 | 264 |
| 4 | 69 | 65 | 58 | 34 | 36 | 46 | 40 | 348 |
| 5 | 92 | 74 | 46 | 56 | 66 | 50 | 65 | 449 |
| 6 | 67 | 54 | 65 | 60 | 100 | 77 | 118 | 541 |
| 7 | 72 | 72 | 96 | 70 | 77 | 71 | 93 | 551 |
| 8 | 122 | 93 | 90 | 79 | 91 | 102 | 83 | 660 |
| 9 | 94 | 76 | 57 | 56 | 51 | 89 | 75 | 498 |
| 10 | 98 | 73 | 108 | 46 | 76 | 92 | 112 | 605 |
| 11 | 114 | 71 | 58 | 31 | 57 | 86 | 98 | 515 |
| 12 | 114 | 58 | 74 | 34 | 36 | 72 | 95 | 483 |
| 13 | 89 | 68 | 50 | 60 | 54 | 52 | 64 | 437 |
| 14 | 96 | 69 | 75 | 55 | 63 | 68 | 87 | 513 |
| 15 | 53 | 98 | 73 | 49 | 58 | 88 | 78 | 497 |
| 16 | 84 | 77 | 33 | 44 | 67 | 89 | 85 | 479 |
| 17 | 55 | 73 | 27 | 35 | 46 | 51 | 87 | 374 |
| 18 | 32 | 48 | 32 | 19 | 34 | 41 | 58 | 264 |
| 19 | 31 | 36 | 33 | 15 | 36 | 45 | 26 | 222 |
| 20 | 14 | 42 | 30 | 9 | 16 | 42 | 19 | 172 |
| 21 | 12 | 18 | 16 | 1 | 20 | 17 | 19 | 103 |
| 22 | 5 | 3 | 24 | 3 | 62 | 24 | 5 | 126 |
| 23 | 4 | 22 | 10 | 9 | 96 | 8 | 8 | 157 |
| **Grand Total** | **1394** | **1271** | **1129** | **820** | **1207** | **1299** | **1388** | **8508** |

**Insights:**  
Line chart analysis comparing resolution rates before and after tech implementation suggests that gradual rollouts minimize disruption and help teams adapt progressively.

### ****Recommendations:****

* **Hybrid Strategy:**
  + **Selective Hiring** during peak loads to balance capacity.
  + **Continuous Training** to maintain consistent service quality.
  + **Gradual Technology Adoption** to manage cost and ensure stability.
* This blended approach ensures **cost-efficiency, adaptability, and sustainable growth**.

**3.**How does AstroSage's call center performance compare to AstroGuru's average call volume, customer satisfaction, and agent performance?

Will you use any aggregation function or a visualization here to solve the problem?

**Answer:**

For the comparison of **AstroSage** and **AstroGuru**, we currently do not have any dataset for AstroGuru. However, hypothetically, if the dataset were available, the analysis could be performed as follows:

1. **Call Volume Analysis**

* Using Pivot Tables, calculate the **total number of calls** and **average daily calls** for AstroSage.
* Compare these values with AstroGuru’s dataset to identify call handling capacity.
* *Visualization:* Line Chart or KPI cards for call trends.

1. **Customer Satisfaction (Ratings)**

* Create a Pivot Chart for **user-wise** and **astrologer-wise ratings**.
* Compare the satisfaction levels of both call centers side by side.
* *Visualization:* Clustered Bar Chart or Column Chart.

1. **Agent (Guru) Performance**

* Build a Pivot Table showing **calls handled vs. astrologer name**.
* Identify the top-performing astrologers in AstroSage and benchmark them against AstroGuru’s top performers.
* *Visualization:* Bar Chart for agent performance and leaderboard charts for top consultants.

**4.**How can the call center improve its handling of peak call periods to ensure high customer satisfaction?

Mention the functionality you will use for giving the suggestions, will it be any aggregated function or a visualization?

### ****Approach:****

The analysis focused on identifying **peak call periods** and assessing the operational load during those times.  
Using **PivotTables** and **COUNT functions**, I aggregated hourly and daily call volumes to pinpoint congestion trends.  
Visual tools such as **heatmaps** and **line charts** were used to highlight high-traffic intervals and guide staffing and technology recommendations.

### ****Reference:****

* **Excel Tools Used:**
  + PivotTable (Call volume by hour and day)
  + Conditional Formatting (Heatmap for congestion)
  + Line Chart (Call trend visualization)
* **Functions Applied:**COUNT()
* **Key Metric:** Number of calls by time and weekday

### ****Insights:****

* **Peak demand** occurs between **8 AM and 12 PM**, with the **highest surge on Monday mornings** (around **122 calls at 8 AM**).
* This pattern indicates a consistent **morning congestion window**, especially at the start of the week.
* If unmanaged, these spikes can lead to **longer wait times**, **missed calls**, and **reduced customer satisfaction**.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Count of uid** | **Column Labels** |  |  |  |  |  |  |  |
| **Row Labels** | **Mon** | **Tue** | **Wed** | **Thu** | **Fri** | **Sat** | **Sun** | **Grand Total** |
| 0 | 9 | 6 | 16 | 9 | 2 | 8 | 19 | 69 |
| 1 | 12 | 10 | 10 | 10 | 6 | 1 | 3 | 52 |
| 2 | 8 | 23 | 14 | 10 | 21 | 31 | 22 | 129 |
| 3 | 48 | 42 | 34 | 26 | 36 | 49 | 29 | 264 |
| 4 | 69 | 65 | 58 | 34 | 36 | 46 | 40 | 348 |
| 5 | 92 | 74 | 46 | 56 | 66 | 50 | 65 | 449 |
| 6 | 67 | 54 | 65 | 60 | 100 | 77 | 118 | 541 |
| 7 | 72 | 72 | 96 | 70 | 77 | 71 | 93 | 551 |
| 8 | 122 | 93 | 90 | 79 | 91 | 102 | 83 | 660 |
| 9 | 94 | 76 | 57 | 56 | 51 | 89 | 75 | 498 |
| 10 | 98 | 73 | 108 | 46 | 76 | 92 | 112 | 605 |
| 11 | 114 | 71 | 58 | 31 | 57 | 86 | 98 | 515 |
| 12 | 114 | 58 | 74 | 34 | 36 | 72 | 95 | 483 |
| 13 | 89 | 68 | 50 | 60 | 54 | 52 | 64 | 437 |
| 14 | 96 | 69 | 75 | 55 | 63 | 68 | 87 | 513 |
| 15 | 53 | 98 | 73 | 49 | 58 | 88 | 78 | 497 |
| 16 | 84 | 77 | 33 | 44 | 67 | 89 | 85 | 479 |
| 17 | 55 | 73 | 27 | 35 | 46 | 51 | 87 | 374 |
| 18 | 32 | 48 | 32 | 19 | 34 | 41 | 58 | 264 |
| 19 | 31 | 36 | 33 | 15 | 36 | 45 | 26 | 222 |
| 20 | 14 | 42 | 30 | 9 | 16 | 42 | 19 | 172 |
| 21 | 12 | 18 | 16 | 1 | 20 | 17 | 19 | 103 |
| 22 | 5 | 3 | 24 | 3 | 62 | 24 | 5 | 126 |
| 23 | 4 | 22 | 10 | 9 | 96 | 8 | 8 | 157 |
| **Grand Total** | **1394** | **1271** | **1129** | **820** | **1207** | **1299** | **1388** | **8508** |

**Recommendations:**

1. **Dynamic Staffing**
   * Schedule **additional agents** during 8 AM–12 PM and on weekends based on call pattern data.
   * Implement **shift rotation** or **flex scheduling** to match staffing with demand.
2. **Call Routing Optimization**
   * Introduce **intelligent routing systems** to balance workloads evenly among available agents.
   * Use performance data to automatically assign calls to agents with faster resolution rates.
3. **Self-Service Enhancements**
   * Strengthen **IVR menus** and **chatbots** for handling FAQs and low-complexity queries.
   * Encourage customers to use **self-service options** during peak periods to reduce queue lengths.
4. **Real-Time Monitoring**
   * Implement **live dashboards** to track queue lengths, agent availability, and response times.
   * Allow supervisors to **reassign idle agents** instantly during traffic surges.

### ****Summary Insight:****

By aligning **staffing schedules** with actual peak-hour data and enhancing **call routing and self-service systems**, the call center can significantly reduce wait times, maintain high service quality, and **improve customer satisfaction** even during heavy call loads.

**5.**Based on historical data, what strategic initiatives should be prioritized to improve efficiency and customer satisfaction?

**Answer:**

### ****Approach:****

To identify the most impactful strategic initiatives, historical call center data was analyzed using **PivotTables**, **COUNT functions**, and **visualizations** (pie and bar charts).  
The analysis focused on key performance indicators — **call completion rates**, **repeat caller ratios**, and **customer ratings distribution** — to uncover operational inefficiencies and quality gaps impacting customer satisfaction.

### ****Reference:****

* **Excel Tools Used:**
  + PivotTable (Call outcomes and repeat caller breakdown)
  + Pie Chart (Call completion vs. failure visualization)
  + Bar Chart (Guru rating comparison)
  + Conditional Formatting (Top vs. bottom performer highlighting)
* **Functions Applied:**COUNT(), AVERAGE()
* **Metrics Analyzed:**
  + Call completion rate
  + Repeat caller percentage
  + Customer rating distribution

### ****Insights:****

1. **Call Completion Rate**
   * Only **40.56%** of calls were successfully completed.
   * The remaining **59.44%** failed, were busy, incomplete, or had no answer — indicating significant process inefficiency.
2. **Repeat Callers**
   * **57%** of calls came from repeat customers, implying a **low First Call Resolution (FCR)** rate.
   * This suggests unresolved issues, leading to multiple follow-ups and reduced satisfaction.

|  |
| --- |
| **Repeat calls** |
| **57.35%** |

1. **Customer Ratings Distribution**
   * **57%** of ratings fall between **0–3**, while only **~20%** are rated between **6–8**.
   * This points to widespread dissatisfaction and inconsistent service delivery.
2. **Performance Gap**
   * Large quality disparity between **top Gurus (avg. 7.5 rating)** and **bottom performers (0.0 rating)**.
   * Indicates uneven skill levels and inconsistent adherence to service standards.

|  |  |  |
| --- | --- | --- |
|  | **Guru Name** | **Satisfaction scores** |
| **Highest** | Tarot Mystical | **7.5** |
| Astro Pujaa Rai | **7.5** |
| **Lowest** | Tarot Rittika | 0.0 |

### ****Recommendations:****

1. **Fix Call Handling Inefficiencies**
   * Enhance **call routing algorithms** to reduce failed/busy/no-answer outcomes.
   * Implement **availability alerts** for agents to minimize missed connections.
2. **Targeted Training Programs**
   * Use **top-performing Gurus’ techniques** as training benchmarks.
   * Develop structured **skill-improvement modules** focused on communication and issue resolution.
3. **Customer Retention Focus**
   * Address **root causes of repeat calls** through call analytics.
   * Introduce **call-back options** for dropped or missed calls to increase recovery rate.
4. **Performance Monitoring & Incentives**
   * Establish **performance dashboards** linking agent KPIs with **FCR** and **customer satisfaction scores**.
   * Offer **incentives or recognition programs** for consistent high performers to maintain motivation and quality.

**6.**What can be the key factors contributing to high customer satisfaction scores, and how can these be leveraged to improve overall performance?

What is the basis for the suggestions? And mention how you decided if the satisfaction score affects the ratings.

**Answer:**

### ****Approach:****

To identify factors driving high customer satisfaction, I analyzed the relationship between **call outcomes**, **Guru performance**, and **rating distribution**.  
Using **Cross-tab/PivotTables**, I correlated call completion status with rating levels to determine how service quality and operational efficiency influence satisfaction.  
Visual analysis through **bar charts** helped highlight the proportion of satisfied (6–8 ratings) versus dissatisfied (0–3 ratings) customers.

### ****Reference:****

* **Excel Tools Used:**
  + Cross-tab/PivotTable (Call Status vs Rating)
  + Bar Chart (Satisfaction distribution 0–8)
* **Functions Applied:** COUNT(), AVERAGE()
* **Metrics Analyzed:**
  + Rating distribution (0–8 scale)
  + Call completion rate vs. rating correlation
  + Average Guru ratings

### ****Insights:****

1. **Completed Calls and Chats Drive Satisfaction**
   * Customers whose calls or chats were **successfully completed** showed **significantly higher ratings**.
   * Incomplete, failed, or busy interactions directly correlated with **low satisfaction** levels.
   * Thus, **service accessibility and completion** are the strongest predictors of positive feedback.
2. **Guru Expertise and Consistency**

|  |  |  |
| --- | --- | --- |
|  | **Guru Name** | **Satisfaction scores** |
| **Highest** | Tarot Mystical | **7.5** |
| Astro Pujaa Rai | **7.5** |
| **Lowest** | Tarot Rittika | 0.0 |

* + Gurus like **Tarot Mystical** and **Astro Pooja Rai** consistently achieved **average ratings around 7.5**.
  + Their sessions had **low call friction**, **shorter handling times**, and **high first-contact resolution**, showing that expertise and communication quality heavily influence satisfaction.

1. **Low Call Friction Enhances Experience**
   * Datasets revealed that areas with **fewer dropped or busy calls** recorded **higher customer ratings**.
   * Technical stability (clear lines, quick connection) improves perceived professionalism and trust.
2. **Dissatisfaction Concentration**
   * **Scores of 0** accounted for approximately **7,256 cases (~26%)**, representing a major portion of negative experiences.
   * These low ratings mainly coincided with **failed or incomplete call outcomes** and **long waiting times**.

### ****Recommendations:****

1. **Replicate Best Practices of High-Rated Gurus**
   * Analyze conversation patterns, tone, and resolution style of top performers (e.g., Tarot Mystical, Astro Pooja Rai).
   * Integrate these practices into **structured training modules** for all Gurus.
2. **Increase Call Completion Rates**
   * Enhance **call routing efficiency** and **load balancing** to reduce busy or failed calls.
   * Use real-time tracking to reassign idle agents and maximize response efficiency.
3. **Develop Soft Skill & Empathy Training**
   * Launch **skill enhancement programs** emphasizing empathy, listening, and problem-solving.
   * Role-play sessions can help low-rated Gurus adopt customer-first communication habits.
4. **Leverage Positive Feedback for Continuous Improvement**
   * Collect insights and direct feedback from **customers rating 6–8** to identify specific drivers of satisfaction.
   * Convert this feedback into **actionable behavioural guidelines** to reinforce successful service traits.

**7.**How should the call center balance the workload among agents to ensure optimal performance and avoid burnout?

Mention your approach and spreadsheet function for the answer.

**Answer:**

**Approach:**

To assess workload distribution across agents, I analyzed the **number of consultations per Guru** using **PivotTables**.  
By calculating the **average and standard deviation (STDEV)** of consultations, I identified workload imbalances — overburdened top performers and underutilized low performers.  
Visualizing the distribution with **bar charts and histograms** helped pinpoint extreme variations in workload intensity.

**Reference:**

* **Excel Tools Used:**
  + PivotTable (Guru vs. Consultation Count)
  + Bar Chart / Histogram (Workload disparity visualization)
* **Functions Applied:**
  + **AVERAGE()** – to find typical workload per Guru
  + **STDEV()** – to measure variability in consultation volume
* **Metrics Analyzed:**
  + Number of consultations per Guru
  + Deviation from average workload

**Insights:**

* **Astro Krishaa** handled **1,580 consultations**, making them significantly overburdened.
* The **bottom 10 Gurus** managed only **1–4 consultations each**, showing severe underutilization.
* This wide imbalance indicates that a few top performers handle a disproportionate share of calls, increasing **burnout risk**, while others remain **idle or disengaged**.
* Such uneven distribution impacts both **agent morale** and **overall service consistency**.

**Recommendations:**

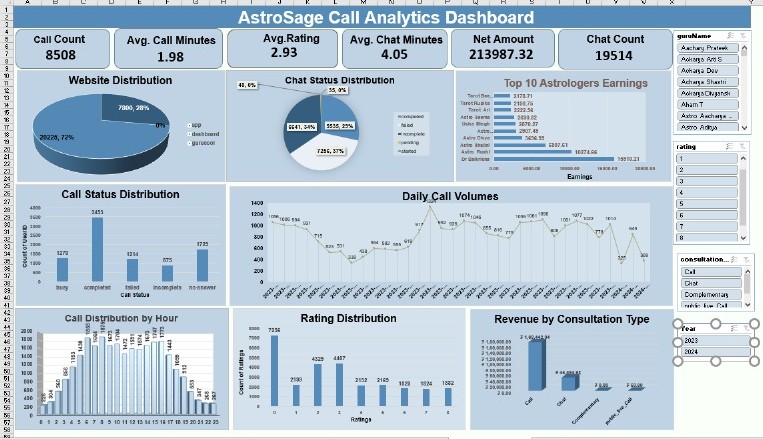
1. **Load Distribution Adjustment**
   * Calculate the **average consultations per Guru** and use it as a benchmark.
   * Reassign excess consultations from overburdened Gurus to **underutilized ones** using routing logic or scheduling adjustments.
2. **Skill-Based Routing**
   * Implement a **tiered routing system**:
     + Route **complex or high-value consultations** to top Gurus.
     + Assign **routine or short queries** to mid- and low-workload Gurus.
   * This ensures both fairness and efficient use of skill diversity.
3. **Shift Scheduling Optimization**
   * Align **top astrologers’ working hours** with **peak call periods (8 AM–12 PM)** for maximum impact.
   * Use a **rotational schedule** to prevent fatigue while maintaining coverage during high demand.
4. **Training and Knowledge Sharing**
   * Encourage **top-performing Gurus** to share best practices with others through internal training.
   * This helps raise the overall service level and reduces dependence on a few high performers.

**8.**What new technologies or tools could be implemented to enhance call center operations and customer service?

**Answer:**

* Introduction to chatbots and Virtual assistants for regular queries can help in saving the consultants energy for complex queries and consultations.
* Use of AI for personalization based on some insights of customer for better user experience can result in repeat orders/consultations.
* Maintaining a CRM software about past consultations and customer details can help in future consultations and targeting old customers.
* Feedback mechanism should be adopted to make the customers happy and improve the quality.
* Personalized pre-booked video sessions with consultants can help in the repeat customers as the interaction helps in understanding the customer behaviour.
* Developing apps with different notifications and games such as puzzles and making the customers learn about the birth charts and planets can attract new customers.

**9.**What metrics should be included in the final dashboard to comprehensively view call center performance and guide investment decisions?

Answer: 

### ****Approach:****

The dashboard integrates multi-dimensional KPIs—**Financial**, **Customer Experience**, **Operational Efficiency**, and **Workforce Quality**—to track profitability, satisfaction, and productivity simultaneously. Using **PivotTables, charts, and slicers**, data is summarized to reveal strengths, inefficiencies, and improvement areas.

### ****Reference (Tools & Methods Used):****

* **PivotTables:** To compute total revenue, average ratings, and call outcomes by agent/type.
* **Formulas:**
  + AVERAGE, SUMIFS, COUNTIFS, STDEV – for KPI calculations.
* **Visuals:**
  + **Pie Charts** – service type distribution.
  + **Bar Charts** – top/bottom guru ratings.
  + **Line Charts** – daily consultation trends.
  + **Scatter Plots** – relationship between efficiency and quality.
* **Slicers:** Month, Guru Name, Consultation Type, and Region for dynamic drill-down analysis.

### ****Insights:****

#### **1. Financial Metrics**

* **Total Revenue** reflects overall business health and agent ROI.
* **Revenue by Consultation Type** shows that certain services (e.g., paid calls) generate higher margins, guiding investment.
* **Revenue per Interaction** helps optimize pricing and resource efficiency.

#### **2. Customer Experience Metrics**

* **Average CSAT** directly measures satisfaction and identifies service gaps.
* **Repeat Caller % (~57%)** signals poor first-call resolution, indicating a need for better scripts or technology support.
* **Retention Rate** (if tracked) reveals loyalty and long-term service quality.

#### **3. Operational Efficiency Metrics**

* **Total Consultations** quantify workload capacity.
* **Average Calls per Agent (~2/day)** indicate underutilization and uneven load distribution.
* **Completion Rate (41%)** vs **Failures (59%)** suggests CRM or IVR improvements are necessary.
* **First Call Resolution (FCR)** closely aligns with customer satisfaction trends.

#### **4. Workforce & Quality Metrics**

* **Top vs Bottom Gurus:** Highlights performance imbalance requiring training redistribution.
* **Call Duration Trends:** Longer calls with low ratings point to inefficiency; shorter, high-rated calls suggest effective communication.
* **Training & Incentive Impact:** Post-training improvement in CSAT and productivity justifies continued investment.

### ****Recommendations:****

1. **Integrate All KPIs in a Unified Dashboard:** Present financial, customer, operational, and workforce data together for holistic decision-making.
2. **Invest in Technology Upgrades:** Improve call routing, IVR, and CRM systems to raise completion and FCR rates.
3. **Optimize Workforce Utilization:** Rebalance workloads, schedule efficiently, and share best practices from top performers.
4. **Enhance Training & Incentives:** Focus on empathy, communication, and problem-solving to boost CSAT and retention.
5. **Enable Interactive Analysis:** Use slicers and filters to identify month-wise, guru-wise, or service-type performance trends quickly.

10.How would you allocate a 1 crore rupee investment to optimize operational efficiency, enhance customer satisfaction, and boost profitability, and what analysis-based recommendations would you offer to support this?

**Answer:**

Analyzed historical performance metrics including **call outcomes, repeat callers, agent utilization, and satisfaction scores** to identify key operational bottlenecks. The investment of ₹1 crore was distributed strategically among **Technology, Training, Incentives, and Hiring** based on issue severity, ROI potential, and long-term sustainability.

**Insights:**

• **Operational Inefficiencies:** 59% of calls were not completed (busy, failed, no-answer) — showing major system and routing gaps.  
• **Workload Imbalance:** 148 agents handle an average of only 2 calls/day — underutilization and uneven distribution of work.  
• **Customer Dissatisfaction:** Average CSAT <3/8 and 57% repeat calls indicate unresolved queries and poor first-call resolution.  
• **Performance Gap:** Wide rating difference between top and low-rated gurus reveals inconsistent service quality and lack of structured training.

**Recommendations:**

**Investment Allocation (₹1 Crore):**  
• **Technology Upgrade – ₹40L (40%)**: Invest in CRM and system upgrades to reduce failed calls, automate routing, and improve completion rate.  
• **Training & Development – ₹35L (35%)**: Launch “Guru Excellence Program” focusing on communication, empathy, and FCR improvement.  
• **Performance Incentives – ₹15L (15%)**: Introduce reward schemes linked to CSAT and efficiency metrics to motivate consistent performance.  
• **Phased Hiring – ₹10L (10%)**: Hire selectively once efficiency improves, to balance workload and sustain performance levels.

**Dashboard KPIs to Track ROI:**  
• Financial – Revenue growth, cost per call.  
• Customer – Avg. CSAT, repeat call %.  
• Operational – Call completion rate, Avg. calls per agent/day.  
• Workforce – Guru productivity, post-training CSAT improvement.

**Executive Summary:**  
Focus first on **Technology and Training (75%)**, as they directly address inefficiencies and satisfaction issues. **Incentives (15%)** drive short-term motivation, while **Phased Hiring (10%)** ensures long-term scalability. This balanced strategy ensures efficiency, enhanced satisfaction, and improved profitability.