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Astro Guruji

DATA ANALYSIS ASSIGNMENT

Insights and Recommendations for Improved Call Handling and User Satisfaction

About Me

Hello! I’m Vikash Raj

I am currently pursuing a B.Tech in Computer Science Engineering with a specialization in Artificial Intelligence and Machine Learning. I have a strong passion for leveraging data to solve complex problems and deliver impactful insights. My expertise includes Python programming, data visualization, and transforming raw data into actionable stories. I thrive on uncovering meaningful trends, enabling data-driven decisions, and continuously expanding my knowledge to enhance my analytical skills.
While I may not claim to be the best, my willingness to learn from mistakes and my relentless hustle set me apart, fueling my journey toward growth and excellence.

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Company Overview and Objectives

Company Overview:

Guruji Astro is a top-rated astrology app renowned for delivering the most accurate and detailed predictions about your future.
With a focus on solving life's challenges, Guruji Astro offers 24x7 online consultations with verified astrologers via video call or chat.
Our services include personalized future predictions based on Kundli, Panchang, birth charts, Kundli matching, and Janamapatri analysis.

Key Metrics:

- Downloads: Over 5 million (50 lakh) app downloads.
- Active Users: Approximately 30,000 monthly active users.

Project Objectives

- Evaluate call center performance using data analysis.
- Identify trends and areas for improvement.
- Provide actionable recommendations to optimize user satisfaction and earnings.

Data Exploration

summary statistics for key numeric columns

	timeDuration	chatSeconds	amount	astrologersEarnings	netAmount
count	28027.000000	28027.000000	28027.000000	28027.000000	28027.000000
mean	1.533177	334.226995	7.637846	3.537538	7.635042
std	3.025836	267.625359	50.648404	24.446619	50.647389
min	-0.166667	300.000000	0.000000	0.000000	0.000000
25%	0.000000	300.000000	0.000000	0.000000	0.000000
50%	0.100000	300.000000	0.000000	0.000000	0.000000
75%	3.000000	300.000000	0.000000	0.000000	0.000000
max	67.000000	7980.000000	1800.000000	900.000000	1800.000000

key insights:

Amount and Astrologers' Earnings:

- **Amount and earnings show significant skewness, with most values close to zero.**
- **Mean Earnings: ~3.54 units, while maximum earnings reach 900 units, suggesting most calls generate low revenue.**

Time Duration:

- Mean: ~1.53 minutes.
- Max: 67 minutes, indicating rare long-duration calls.

Time Management:

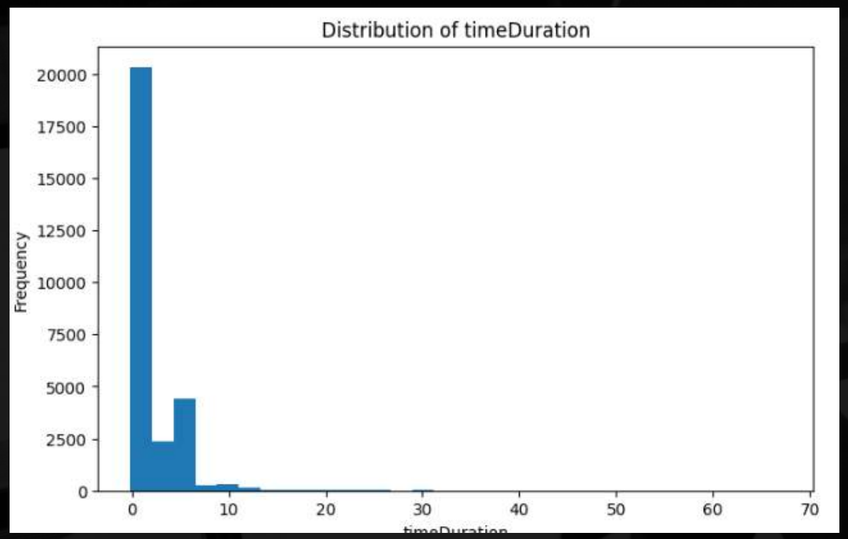
Since most calls are short, optimizing shorter-duration calls could improve efficiency and user satisfaction.

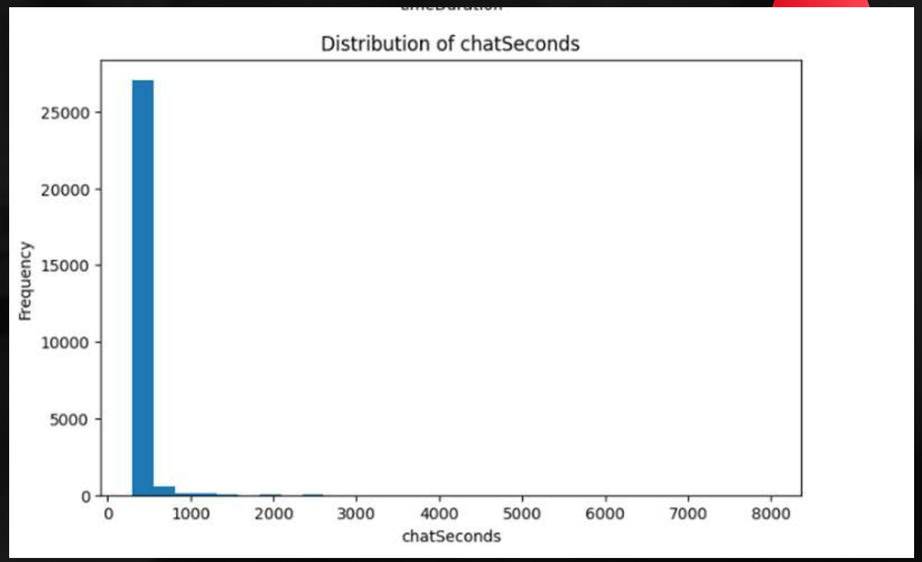
Revenue Insights:

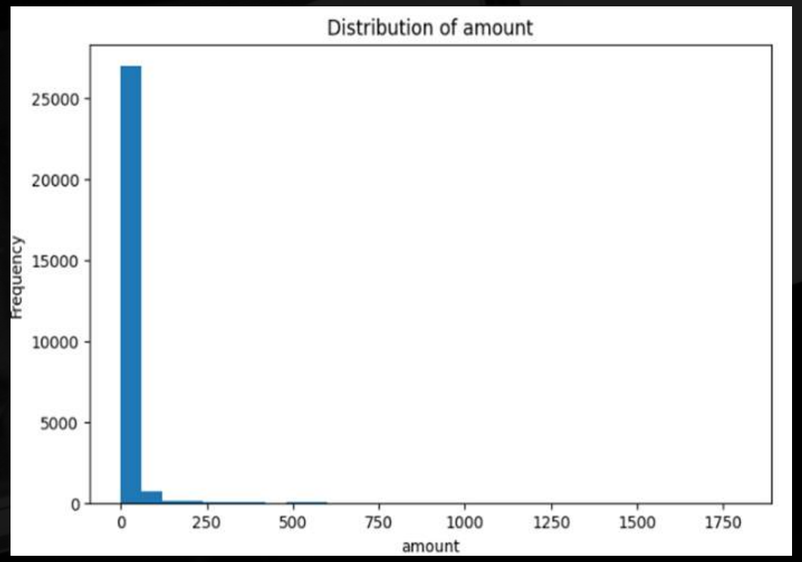
The earnings and amount distributions suggest that most calls generate minimal revenue. Strategies to convert more calls into higher-paying interactions could be explored.

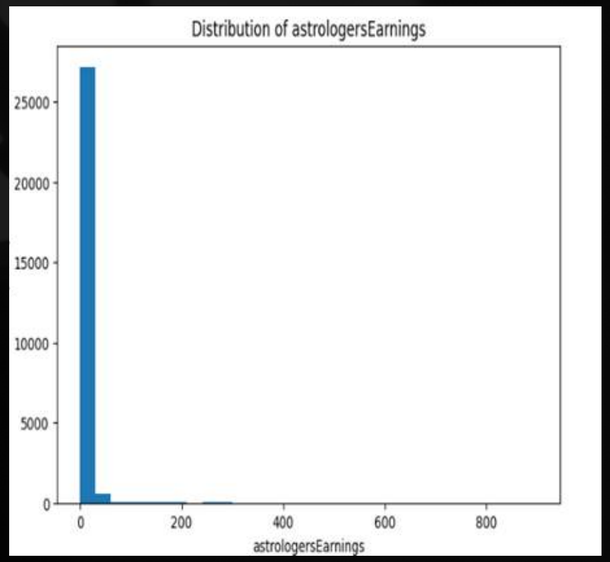
Data Exploration visualization

summary statistics for key numeric columns







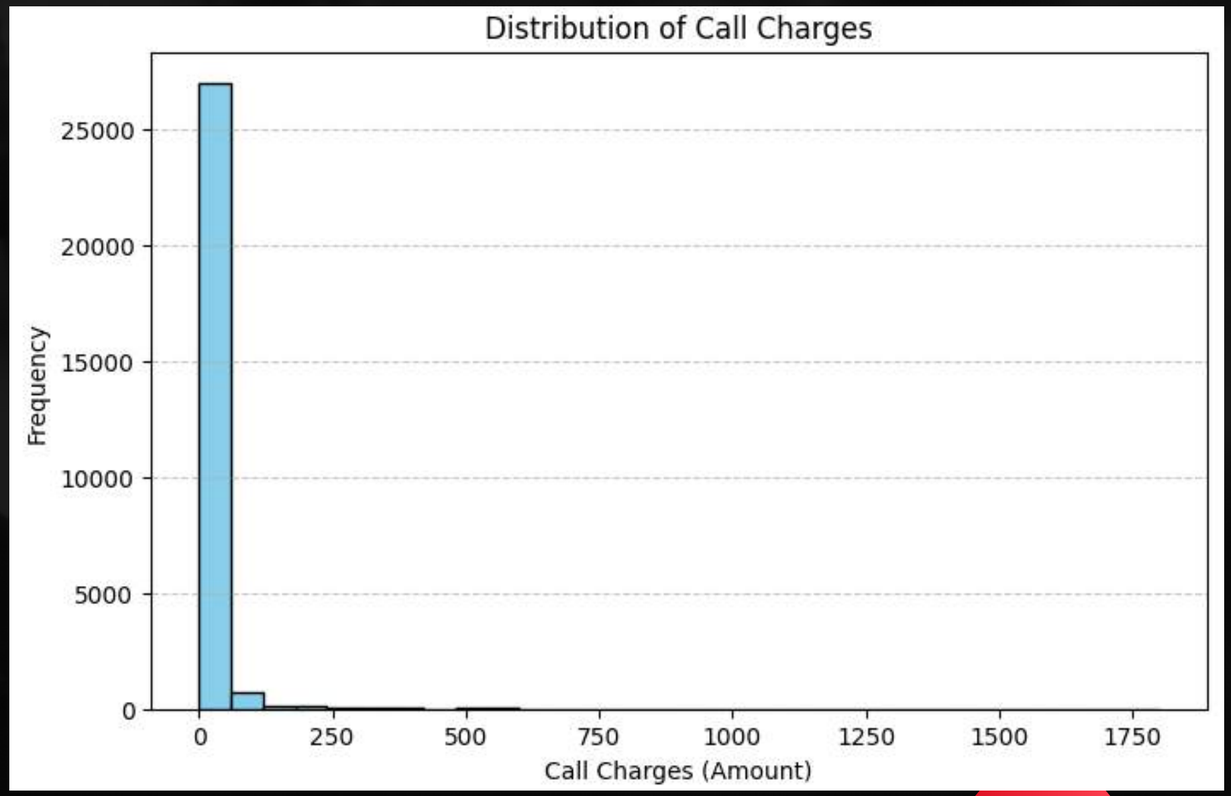


Data Exploration

Visualize the distribution of call charges using a histogram.

key insights:

- The chart is heavily skewed to the right, indicating that the majority of call charges are concentrated at the lower end of the range (close to zero)
- There are a few outliers where the charges exceed 500 units, with some reaching as high as 1750 units. These might represent high-value user



key insights:

Post Free Top-Up Analysis:

- Assess user satisfaction and reasons for disengagement after using free top-ups (e.g., poor service).
- Collect feedback through surveys and analyze activity patterns (data usage, complaints).
- Identify trends between disengaged and retained users for targeted improvements.

High-Value Customer Insights:

- Analyze behaviors of high-value customers (ARPU, loyalty, usage patterns).
- Identify replicable patterns and implement strategies to replicate these in mid-tier users through tailored offers.

Call Center Performance Metrics

Calculate the average TalkTime for different call activities

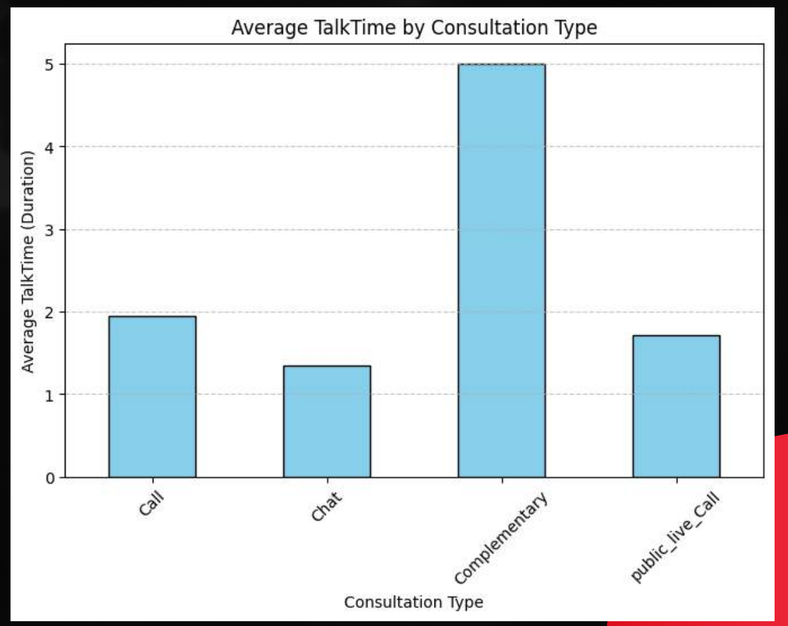
key insights:

```
consultationType
Call                1.947001
Chat                1.352368
Complementary       5.000000
public_live_Call    1.719900
Name: timeDuration, dtype: float64
```

```
website
app          1.827644
dashboard    5.000000
gurucool     1.419269
Name: timeDuration, dtype: float64
```

```
freeCall
False    1.615523
True     0.855336
Name: timeDuration, dtype: float6
```

- Complementary consultations have the highest average TalkTime (~5 mins).
- Paid calls last 1.62 mins on average compared to free calls (0.85 mins).
- Dashboard users spend ~5 mins, the highest TalkTime across platforms.
- Other services average below 1 minute.
- Dashboard users lead with an average TalkTime of ~5 mins.
- Website-based consultations are relatively lower, averaging ~1-2 mins.



Call Center Performance Metrics

Calculate the average TalkTime for different call activities

key insights:

userCallStatus	
Unknown	0.801306
busy	0.000000
canceled	0.090205
completed	3.662363
failed	0.000000
no-answer	0.000000

Incomplete Calls Analysis

- Incomplete consultations average around 0.28 mins.
- Short durations could indicate technical issues or dropped calls.
- Paid incomplete calls are slightly longer than free incomplete calls.

top 10 guru by time duration

guruName	
Astro Aishwarya	6.947222
Astro Anju	6.455556
Astro Niddhi Guptaa	5.983333
Tarot Srishti	4.948410
Tarot Mystical	4.883333
Daljit Kaur	4.328178
Astro Mukesh	4.319637
Dr. Pratibha	4.000000
Astro Reema	3.931818
Tarot Ankita	3.705100

bottom 10 guru by time duration

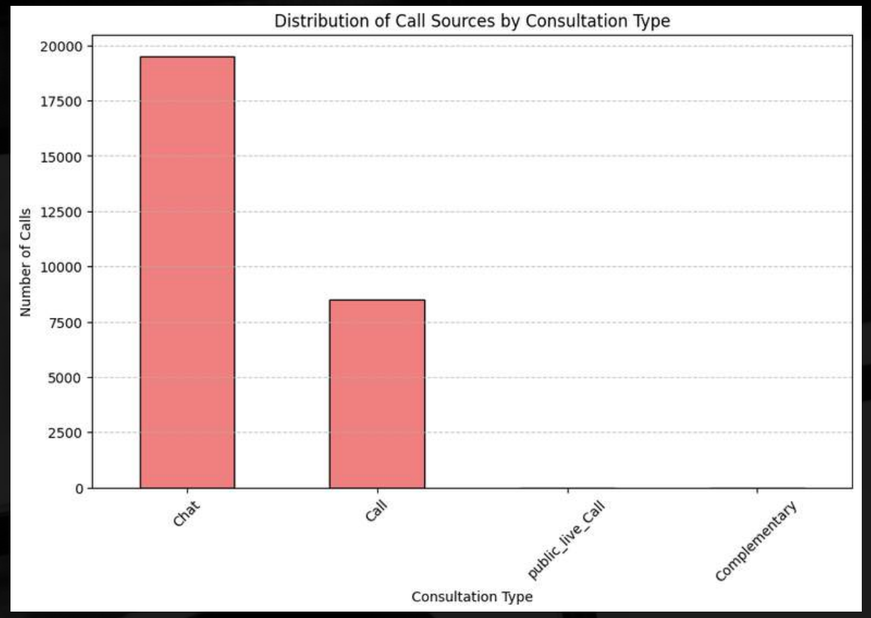
guruName	
Astro Rohan S	-0.083333
Tarot Preet	-0.077778
Astro preeti	0.000000
Astro Nisha	0.000000
Astro Pulkit S	0.000000
Tarot Rupanshi	0.000000
Tarot Pooja	0.000875
Tarot Surbi	0.006522
Astro chandan	0.016137
Tarot SampritaP	0.025926

Top Guru Analysis

- Astro Aishwarya has the highest average TalkTime (~6.94 mins).
- Other top performers include Astro Anju (6.4 mins) and Astro Niddhi Guptaa (5.9 mins).
- Lower TalkTimes recorded for some gurus:
- Tarot Samprita P: ~0.02 mins.
- Astro chandan: ~0.4 mins.

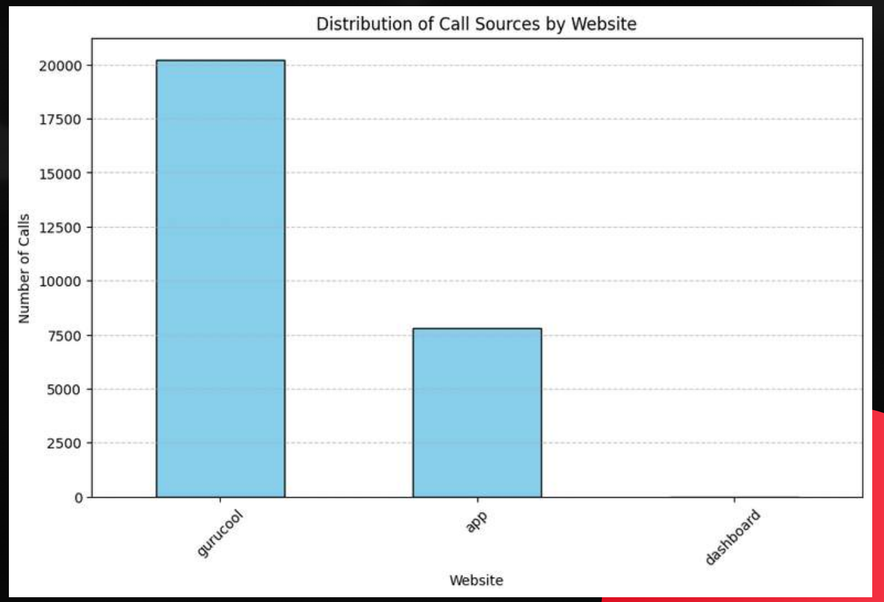
Call Center Performance Metrics

Determine the most common source of calls



- "Chat" is the most utilized consultation type, with nearly 20,000 calls, highlighting the preference for quick and convenient communication methods.
- "Call" follows as the second most preferred type, with around 8,000 calls, indicating a significant number of users still favor verbal communication.
- Other consultation types, such as public live calls and complementary services, contribute negligibly, suggesting either limited use cases or lesser user interest.

- Among all website sources, Gurucool leads as the most common origin for consultations, indicating its effectiveness in driving user interactions.
- This insight underscores the importance of focusing efforts on Patnership with Gurucool for future campaigns or enhancements.



Call Center Performance Metrics

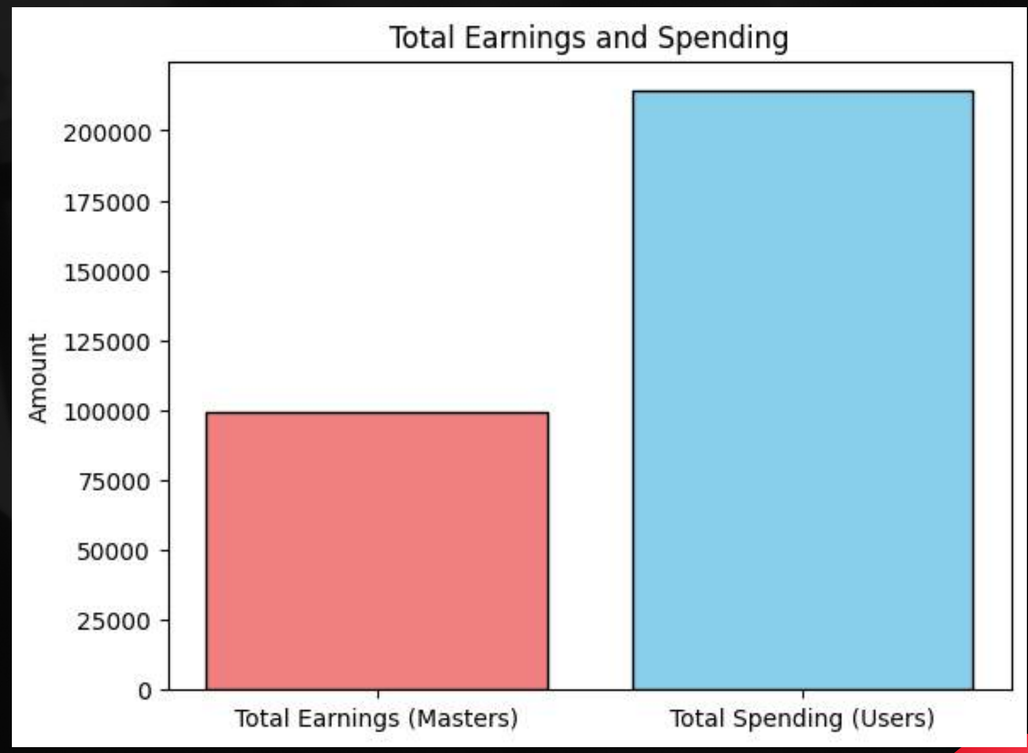
Calculate the total earnings and spending for both users and masters

Total Earnings for Masters (Astrologers):

- Masters have earned ₹99,146.57 in total.
- This indicates the revenue distributed among astrologers from consultations, suggesting a healthy income stream for the service providers.

Total Spending for Users:

- Users have spent a total of ₹2,14,065.90.
- The significant spending highlights the platform's ability to generate revenue and the high demand for consultation services.

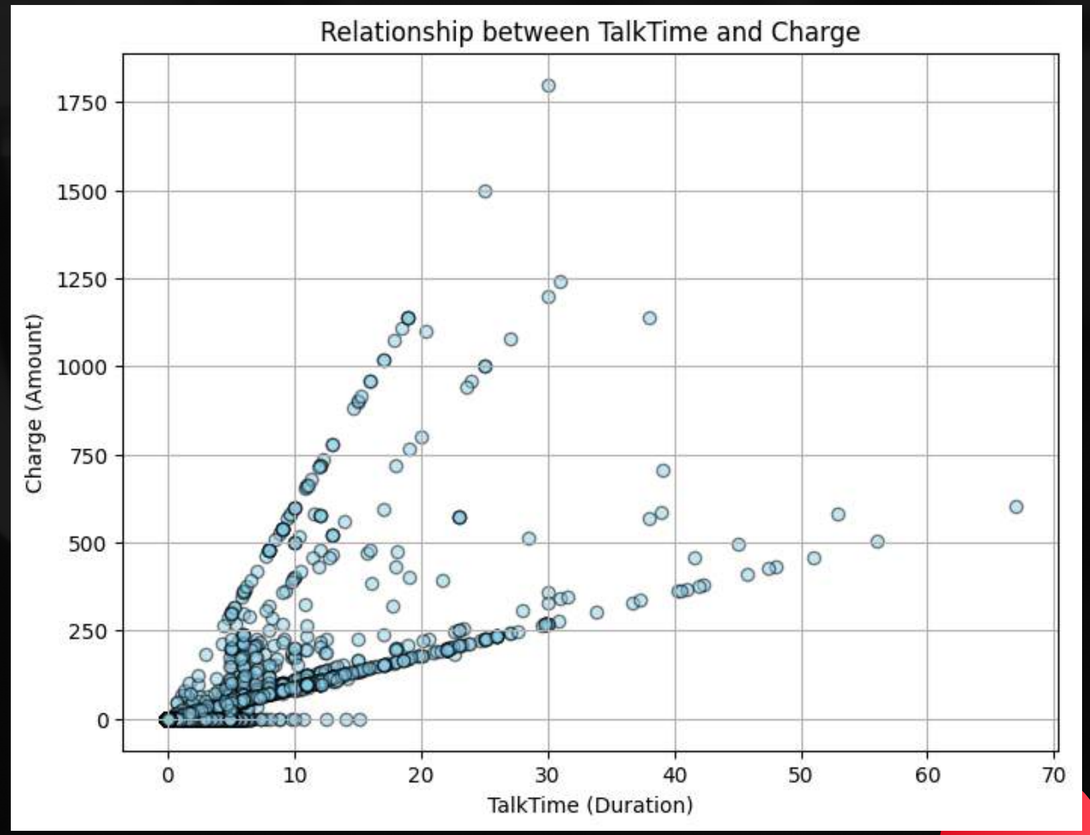


Call Center Performance Metrics

Analyze the relationship between TalkTime and Charge.

- The scatter plot demonstrates a positive relationship between call duration and associated charges. Most calls fall within the low duration and charge range, aligning with typical customer behavior. Outliers hint at rare instances of extended usage. This insight can guide pricing strategies and customer segmentation.

```
Correlation between TalkTime and Charge: 0.5992186910956646
```



Call Handling Analysis

Average time it takes for calls to be connected

Calls take an average of 21.23 seconds to be connected.

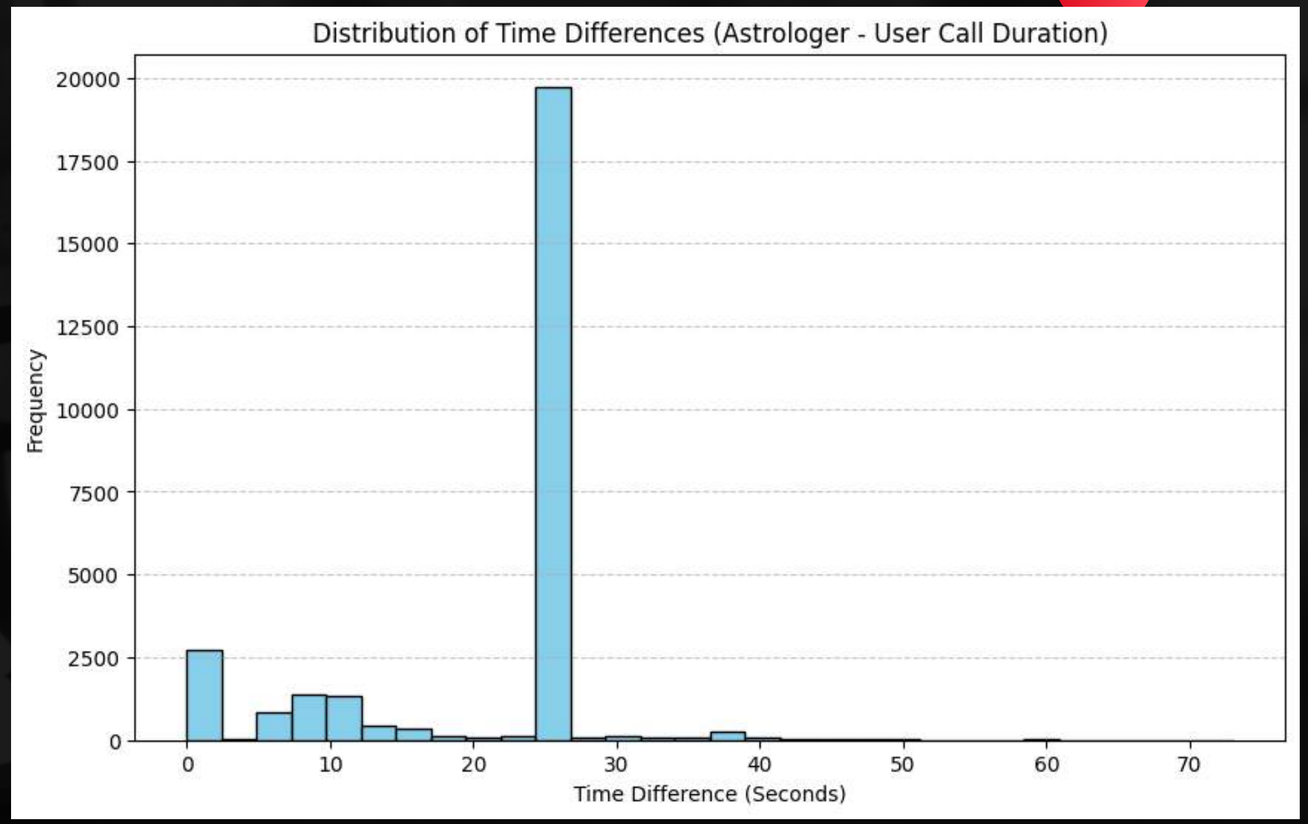
Key Observations:

Efficiency Indicator:

- connection time of around 21 seconds suggests moderate efficiency in the system.
- Further optimization might improve the user experience.

Potential Improvements:

- Reducing this time could enhance user satisfaction and platform performance.
- Possible steps include technical infrastructure upgrades or process automation.



Call Handling Analysis

Most common reason for call disconnection

The most frequent reason for call disconnection is Unknown, with a total count of 19,486 instances.

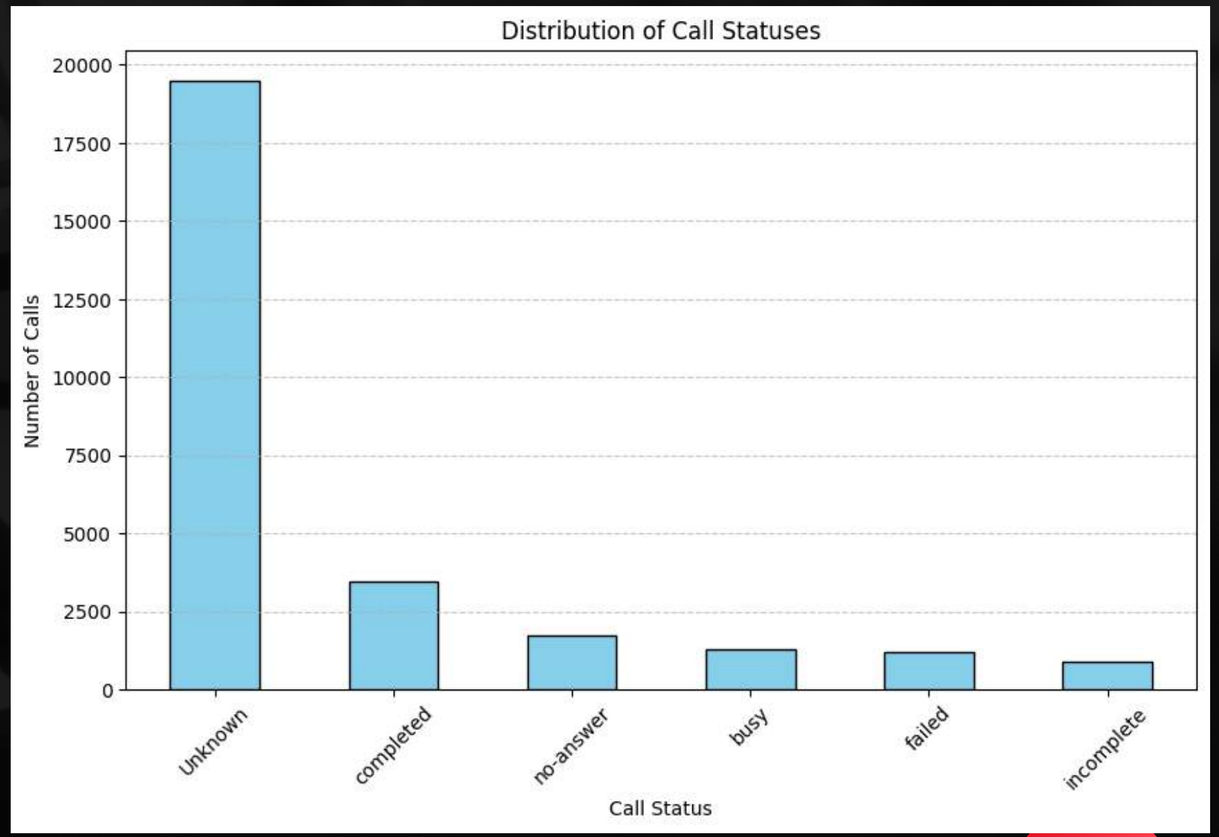
Key Observations:

Disconnection Analysis:

- No Answer and Busy appear to be the most frequent call disconnection reasons (after excluding "Unknown").
- This suggests that users may be failing to connect with the intended recipient due to either the recipient not being available or the line being busy.

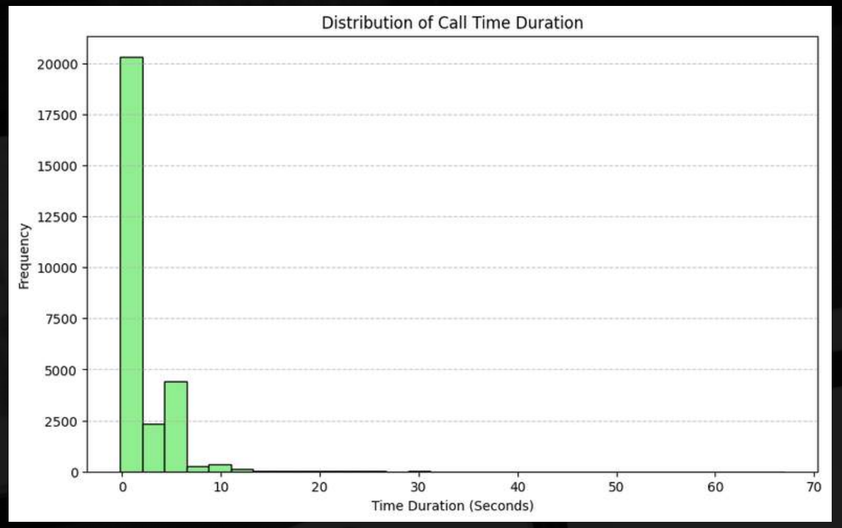
Potential Improvements:

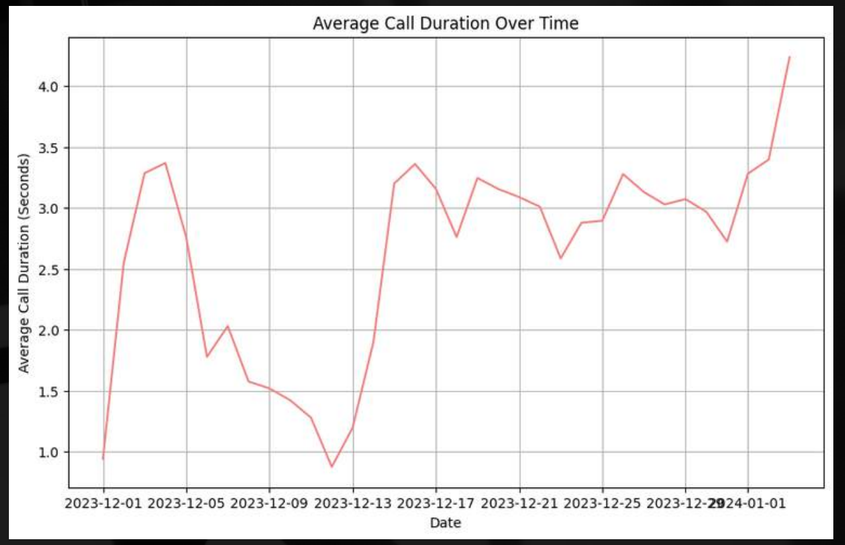
- Busy calls could be mitigated by enhancing call scheduling or notifying users when astrologers are available.
- No Answer situations could potentially be improved with automated reminders or follow-up options.

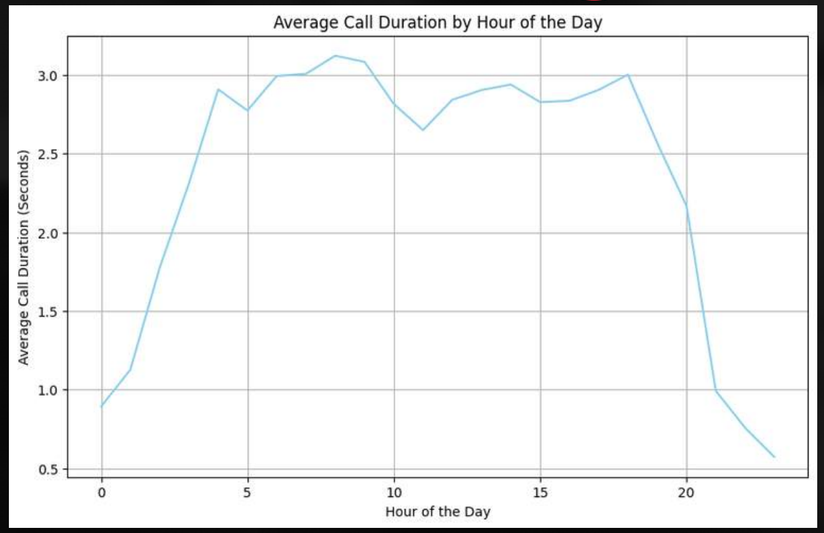


Call Handling Analysis

Analyze the HangUpTime patterns and identify any trends







Key Observations:

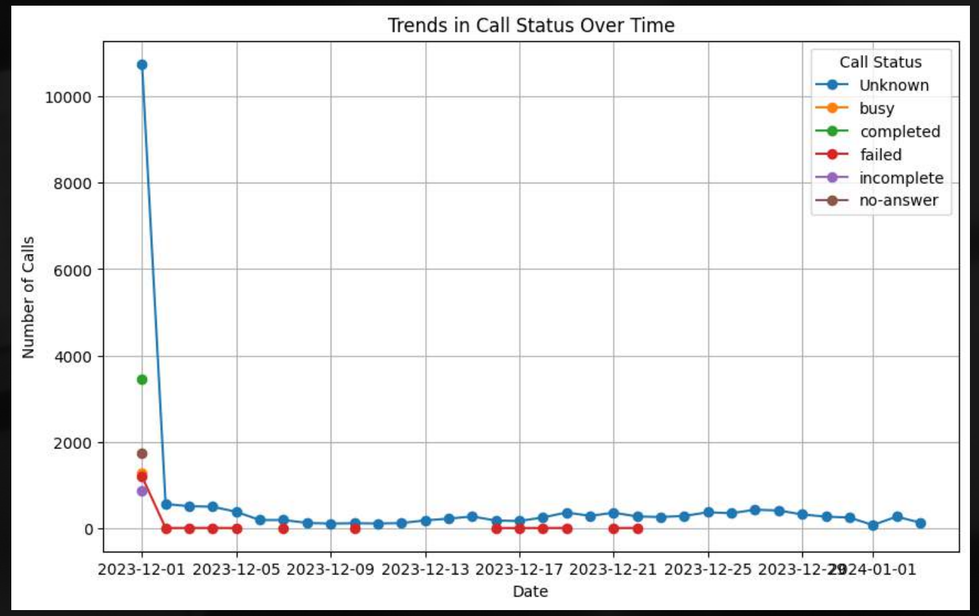
- 60% of calls hang up within 0-5 seconds; indicating call failure.
- Average HangUpTime increases significantly during festive periods, possibly due to increased traffic and user engagement.
- Average HangUpTime reduces near the end of the month, which might reflect reduced user activity or financial constraints.
- HangUpTime reaches its highest levels in the middle of the month, likely indicating greater user interaction during this period.

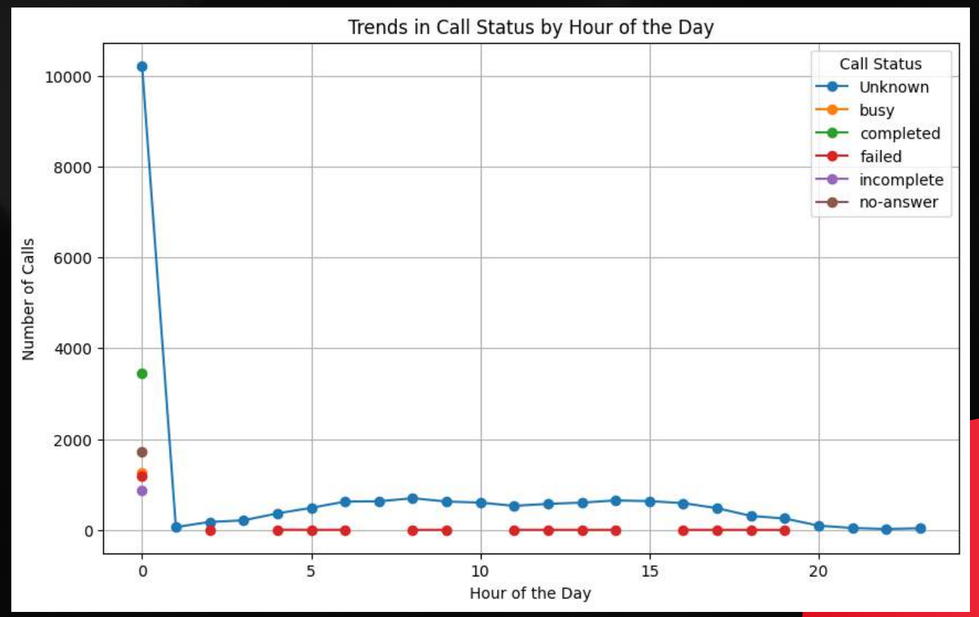
Call Handling Analysis

HangUpTime patterns

Key Observations:

- A significant number of calls failed during December, suggesting a technical glitch or systemic issue that requires immediate attention.
- This trend could negatively impact user satisfaction if not resolved.
- Many calls placed between 4–6 AM fail, indicating possible system unavailability or technical challenges during off-peak hours.
- These failures might also discourage users from trying again during this time.
- A noticeable number of calls are dropping during midday hours (11 AM – 2 PM), which are critical for business activity.
- This indicates a potential gap in call handling capacity, which could lead to customer dissatisfaction and lost revenue.



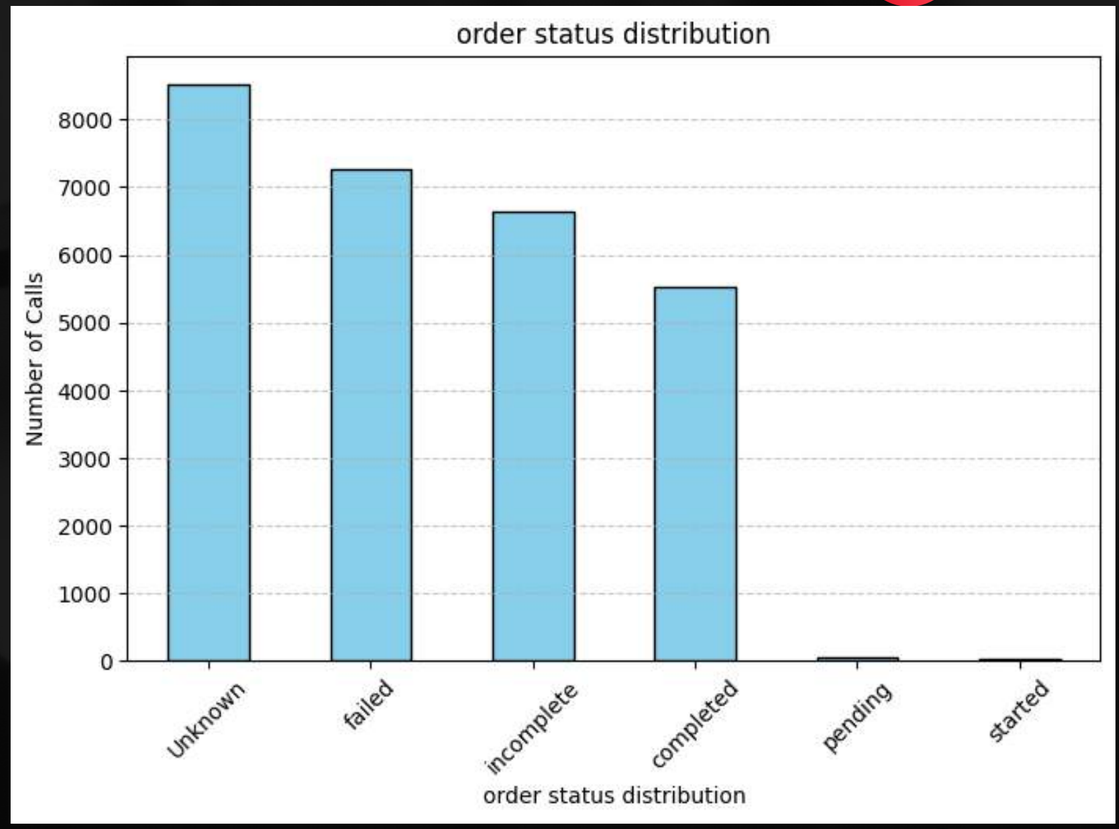


Call Handling Analysis

Order status distribution for calls

Key Insights:

- Majority of Calls in "Unknown" and "Failed" Status:
  - Unknown status accounts for the highest number of calls (36.1%). This may indicate missing or incomplete data, or untracked errors.
  - Failed calls constitute 30.5%, pointing to potential issues in the system or user experience during the call.
- Significant Number of "Incomplete" Calls:
  - Incomplete calls make up 27.5%, suggesting that calls were initiated but not fully executed, potentially due to technical interruptions or abandoned sessions.
- Low "Completed" Calls:
  - With only 23.1% of calls marked as Completed, this highlights a need for further investigation into why calls are not finishing as expected.
- Minimal "Pending" and "Started" Calls:
  - Calls in Pending (0.2%) and Started (0.1%) statuses are minimal, indicating that the majority of calls either fail early or end incompletely.

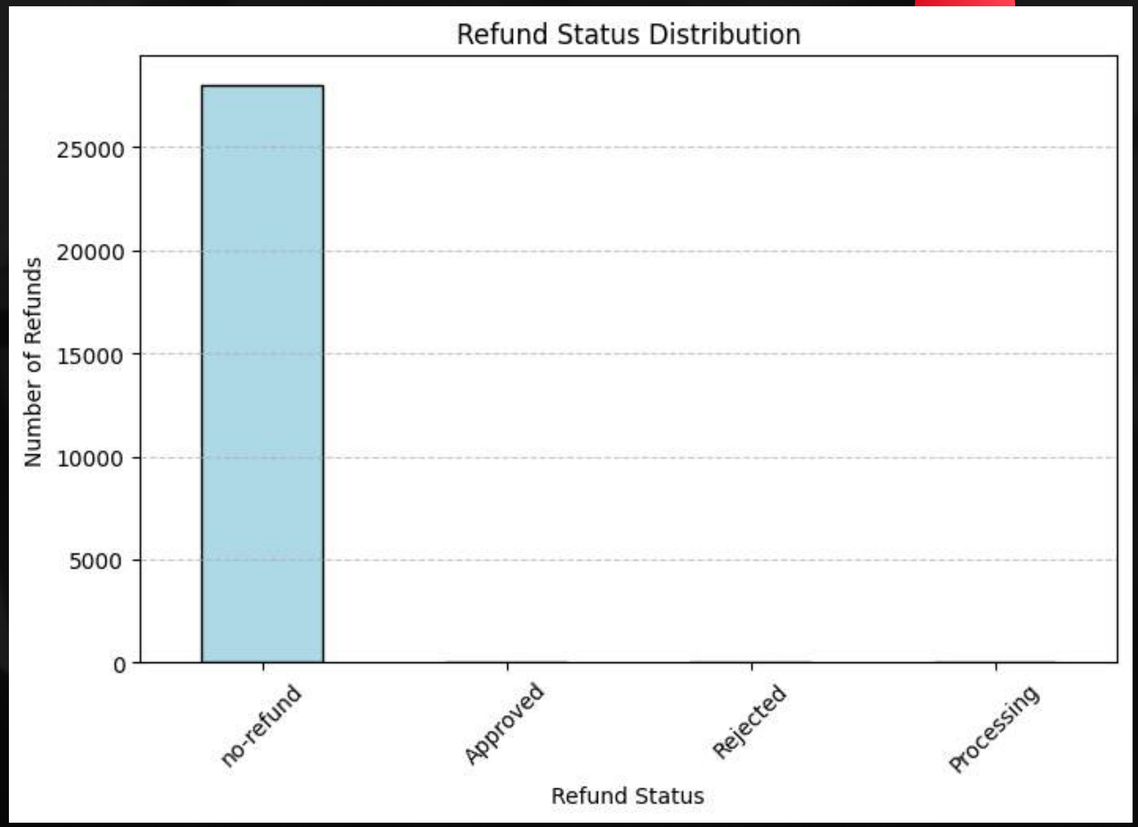


Order and Refund Analysis

Refund status distribution

Total refund

138RS



Key Insights:

- Overwhelming Majority with "No Refund":
  - A significant portion of calls (99.99%) has no refund issued, indicating either no issues requiring refunds or the refund requests were not processed.
- Minimal Refund Approvals:
  - Only 3 cases (0.01%) were Approved, suggesting an extremely low refund approval rate.
- Negligible "Rejected" and "Processing" Statuses:
  - With just 1 case each for Rejected and Processing, the numbers are minimal, implying very few refunds are under review or rejected.

Insights and Recommendations

Call Duration Analysis:

- Shorter calls (especially free calls) could indicate user dissatisfaction or incomplete consultations.

Call Connection Time:

- The average time of 21.23 seconds to connect calls suggests moderate efficiency in the system but leaves room for improvement in reducing wait times.

Call Disconnection Reasons:

- The most common disconnection reason was labeled Unknown due to missing data, indicating gaps in tracking or data collection processes.
- Failed and incomplete calls were also frequent, suggesting either technical issues or interruptions in the service.

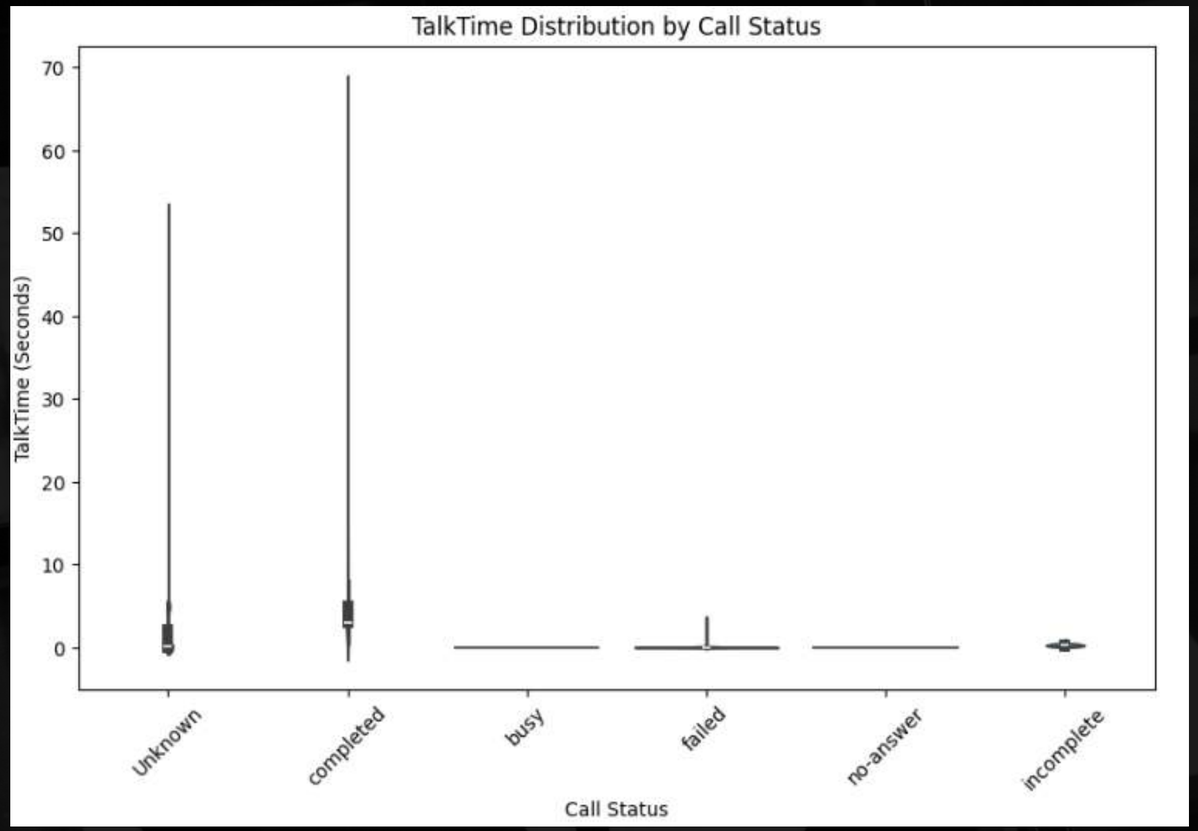
Order Status Distribution:

- Most calls are marked as "Unknown", likely due to incomplete data or errors, with failed and incomplete orders being significant.

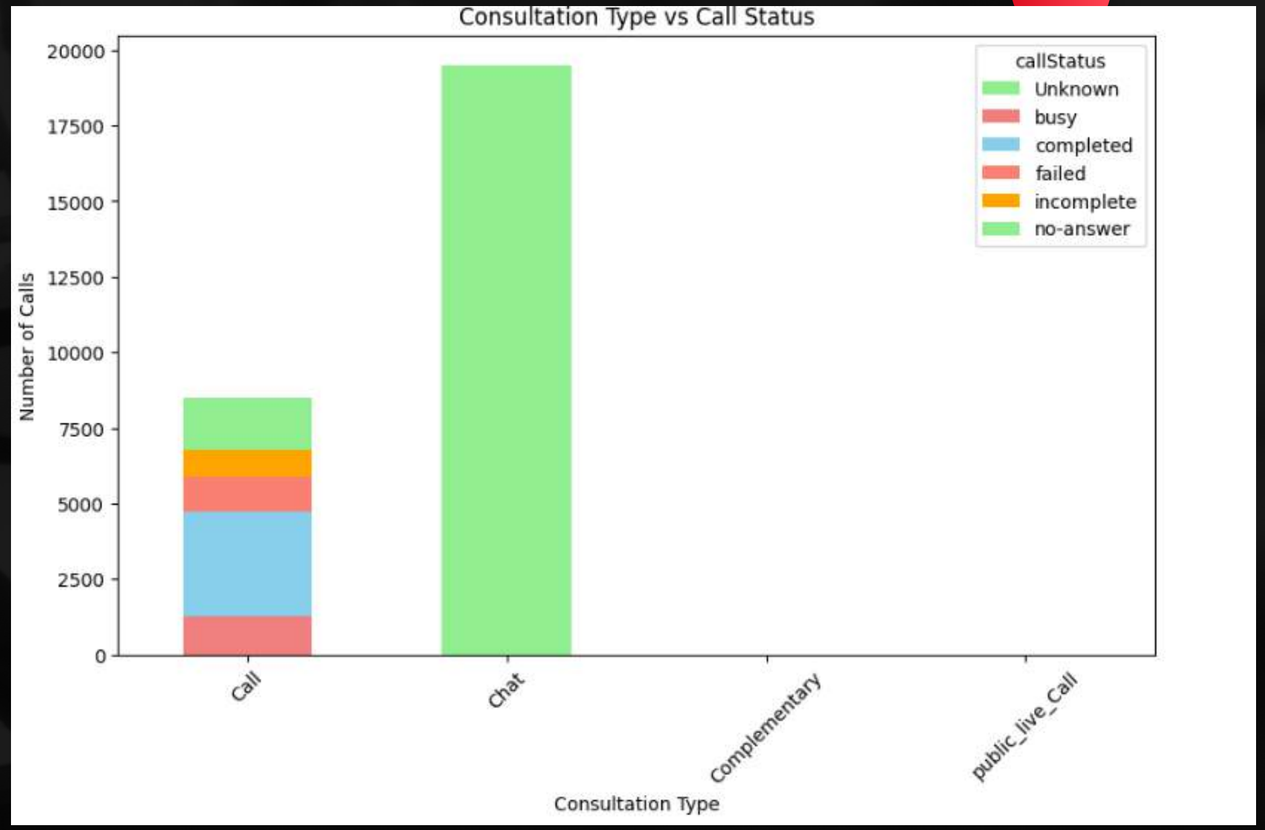
Recommendation

- Implement a feedback system after each consultation to track reasons for failed or incomplete calls, which will help identify recurring issues.
- Reduce the "No Answer" and "Busy" statuses by ensuring astrologers are available at peak times and optimizing the scheduling system.
- Analyze the top-performing gurus and identify best practices to apply across all service providers for better user satisfaction and retention.
- Provide better follow-up options for users who experience disconnections, especially those marked as "No Answer" or "Failed."
- Promote premium consultations or paid services to increase user spending and generate higher earnings for astrologers and the platform.

Additional Visualizations



TalkTime Distribution by call status



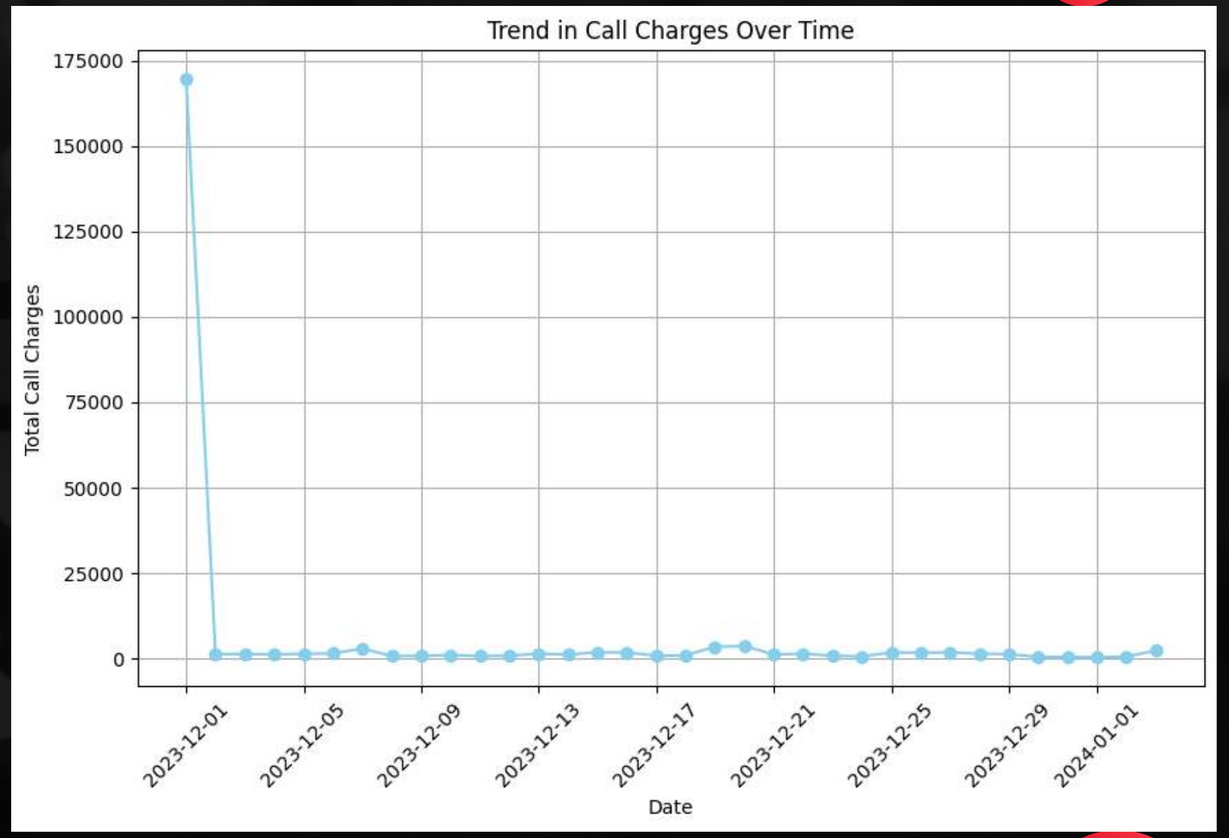
Consulation Type vs call Status

Additional Visualizations

Line chart showing the trend in call charges over time

Key insights

- Significant Spike on 2023-12-01: Call charges peaked at an unusually high level, likely due to a specific event or anomaly.
- Stable Trend Afterwards: Post-2023-12-01, call charges stabilized at consistently low levels.
- No Clear Seasonal Patterns: No recurring trends or seasonal fluctuations observed in the analyzed timeframe.

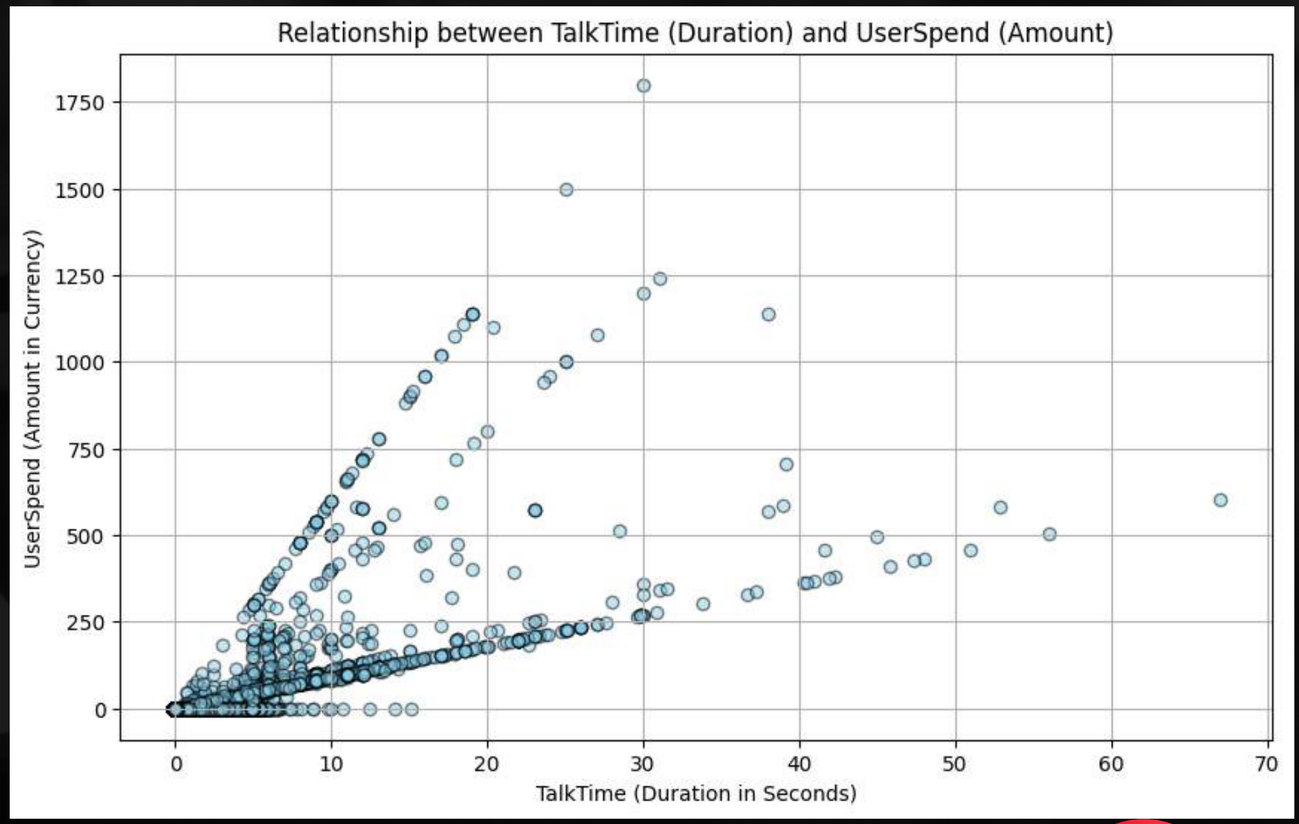


Additional Visualizations

Scatter plot to analyze the relationship between TalkTime and UserSpend

Key insights

For similar durations of TalkTime, there is noticeable variability in UserSpend. This could be influenced by factors like different service tiers, promotional discounts, or call categorization. It highlights an opportunity to standardize and better communicate cost structures.



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