

EXCEL PROJECT



Astrosage Dataset Analysis

Project by
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The AstroSage Dataset include(Schemas)

- **_id:** Unique identifier for each record.
- **user:** User ID associated with the record.
- **chatStatus:** Status of the chat (e.g., incomplete, failed, completed).
- **guru:** Unique identifier for the guru.
- **guruName:** Name of the guru.
- **gid:** Guru ID.
- **uid:** User ID.
- **consultation Type:** Type of consultation (e.g., Chat, Call).
- **website:** Source of the consultation (e.g., gurucool).
- **Refund Status:** Indicates if the session is refundable or not (e.g., no-refund).
- **is WhiteList User:** Boolean indicating if the user is whitelisted.
- **chat Seconds:** Duration of the chat in seconds.
- **queue:** Boolean indicating if the session was queued.
- **FreeCall:** Boolean indicating if the call was free.
- **Free Chat:** Boolean indicating if the chat was free.
- **CreatedAt:** Original creation date and time.
- **updatedAt:** Original update date and time.
- **__v:** Version key.
- **statementEntryId:** Identifier for the statement entry.
- **chatStartTime:** Start time of the chat.
- **chatEndTime:** End time of the chat.
- **timeDuration:** Duration of the session.
- **callChannel:** Channel used for the call.
- **callIvrType:** IVR type used during the call.
- **callStatus:** Status of the call.
- **CallSid:** Unique identifier for the call session.
- **amount:** Amount charged for the session.
- **astrologerCallStatus:** Status of the astrologer during the call.
- **astrologerOnCallDuration:** Duration of the astrologer's call.
- **astrologersEarnings:** Earnings of the astrologer from the session.
- **netAmount:** Net amount after deductions.
- **region:** Region of the user.
- **userCallStatus:** Status of the user's call.
- **userOnCallDuration:** Duration of the user's call.
- **rating:** Rating assigned based on the session's status

Objective Questions

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

Ans- Single Table given in the dataset.

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

Ans- There are a total 35 attributes present in the raw datasheet for analysis.

Calculated Using - =CountA()

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

Ans- Data has been cleaned and transformed before consuming for dashboarding.

- Renamed columns to more meaningful names.

GID -> Guru ID, UID -> User ID,

- Guru Master.

Guru IDs and names were not mapped properly, had one to many relationships for few Guru IDs, handled them by converting in 1:1 mapping, and maintaining the Guru master sheet.

- Removed whitespaces, Duplicates. By

Selecting whole Data and using TRIM WHITESPACE & REMOVE DUPLICATES option.

- Added new columns/attributes by transforming and aggregating

Amount(Null Handling of Net Amount),

Operational Cost(Net Amount - Astrologers Earnings),

Guru Name(Using Guru Master for one to one Mapping of GURU ID & Name),

WebSite(Proper Case on Website),

Created_Date(Extracting Date from Created_at),

Created_Hour(Extracting Hour From Created_at),

Created_MY(Formatting to created_at MY)

Status(Combining Chat Status & Call Status in one)

Duration (Sec)(Extracting Seconds from Chat Duration & Astrologer on call Duration)

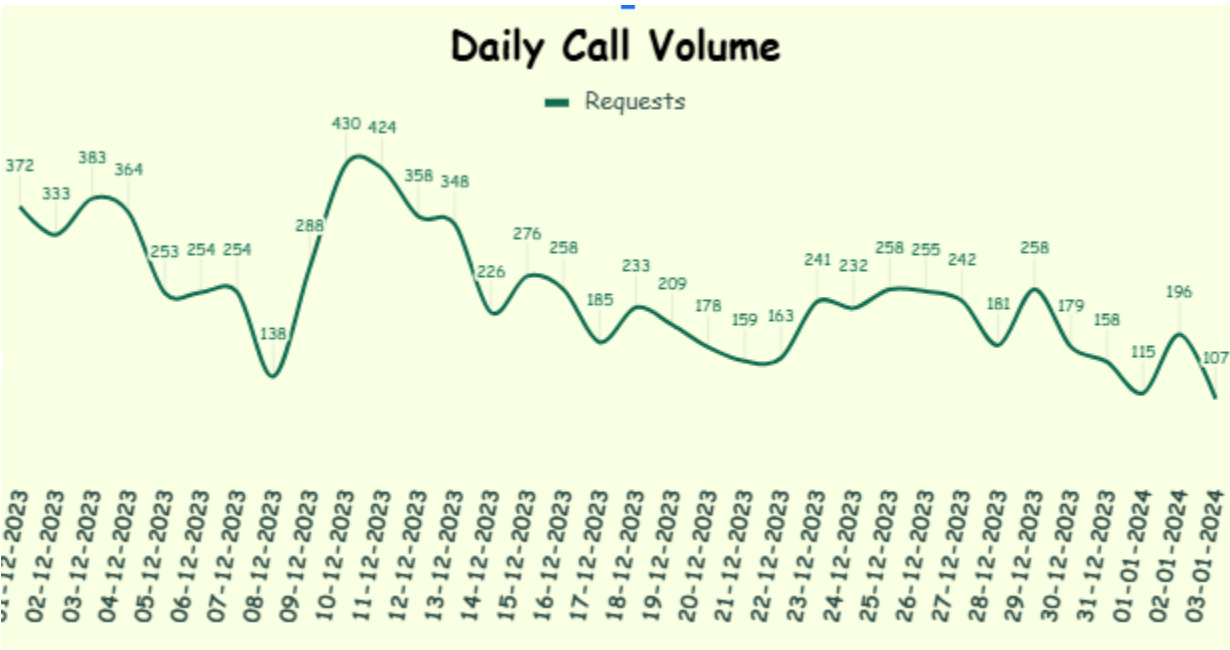
Duration (Min)(Extracting Minutes from Chat Duration & Astrologer on call Duration)

Astrologers Earning(Null Handling)

Request_Success(Boolean Values for Status Column)

4) What is the average daily call volume over the day by day and what's the change on it?

Ans- Total Calls = 8508, Total Days = 34
Hence Daily Average Calls = $(8508/34) = 250.2$
Attaching snapshot of Day by Day call volume graph to track volume change



5) Which months experienced the highest and lowest call volumes?

Ans- With the Help of Pivot Table and Chart, we determined

Day & Month with Highest & lowest call volume were -

- 10/12/23 witnessed the highest call volume = 430.
- 03/01/2024 witnessed the lowest call volume = 107.

Months with Highest & lowest call volume were -

- December witnessed the highest call volume = 8090.
- January witnessed the lowest call volume = 418.

Month	Requests
2023-Dec	8090
2024-Jan	418

6) What is the total operational cost for that month?

Ans- The operational cost = (Revenue – Astrologer Earnings)
Attaching Pivot tables that reflect MoM operation cost.

Month	Operational Cost
2023-Dec	108428
2024-Jan	6412

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

Ans- Total Calls = 8508, Total Days = 34, Total Gurus = 131

Calculated using = Total Calls(8508) / (Day(34)*Gurus(131))

I.e. $8508 / (34 * 131) = 1.9$

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

Ans- Created Pivot table for UserIDs and no. of Calls they made.

Using pivot tables to group them as Onetimer & Repeated users on the basis of count of calls they made. And summarising it , We have calculated -

Used COUNTIF, SUMIF function.

	Users	Requests	Revenue
Repeated	1277	6156	162670.2
One time	2352	2352	5771.8
Total	3629	8508	168442.0

Repeated Callers : 1277

% Call contribution by Repeated Callers = $(6156/8508) * 100 = 72\%$

9) What is the total sales generated by the call centre for each product category?

Ans- Calculated by aggregating the Net Amount column with respect to the Website column generates total sales per product category.

WebSite	Revenue	Requests	Average Rating
App	125267	7800	3.5
Dashboard	0	2	4.5
Gurucool	88720	20225	2.7

App has generated the highest revenue(125267) followed by Gurucool(88720).

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

Ans- We have a total of 131 Gurus and 10344 unique users.

So on average each UserID makes $(10344/131) = 79$ calls Per GuruID

Have created two separate Pivot tables to find Calls by Each userID,

And Calls for Each GuruID, have used the COUNT() function for Values.

And Since the Tables are Very Large, Can't Display Here.

User ID	Requests
33017	158
30542	140
28098	124
33832	115
28285	96
30539	89
11239	81
43128	80
11154	79
17696	75
25435	66
26447	65
22203	61
29021	57
30535	54
32142	52
21510	50
15903	50
7417	48
28532	47
30521	46
35687	45

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

Ans- The correlation between call duration and customer satisfaction is -0.06

Calculated Using – =CORREL('Data(Modified)'!\$AN:\$AN,'Data(Modified)'!\$AS:\$AS)

A correlation of (-0.06) indicates an extremely weak negative relationship between call duration and rating. However, the value is so close to 0 that it essentially suggests no meaningful linear relationship between the two variables.

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

Ans- Using MIN() & MAX() function on pivot table(Gurus vs Average Ratings)

We have identified the gurus that have the highest and lowest customer satisfaction scores.

<u>i) On Overall Level</u>		<u>ii) For Gurus with over 100 requests</u>	
Guru	Rating	Guru(>100)	Rating
Tarot Mystical	7.5	Astro Trisha	5.4
Tarot Rittika	0.0	Acharya Divyansh	0.4

13) What is the average customer satisfaction score by month?

Ans– Created pivot tables to calculate average customer satisfaction score by month.

By taking the average of rating with respect to month-year.

Month	Avg Rating
2023-Dec	2.9
2024-Jan	2.7

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

Ans - *Categorical Columns are variables that represent distinct categories or groups. The values are typically qualitative and can be divided into discrete, non-numeric groups or labels.*

There are total 21 Categorical columns :(From raw dataset)

- *_id*
- *CallSid*
- *user*
- *astrologerCallStatus*
- *chatStatus*
- *region*
- *guru*
- *userCallStatus*
- *guruName*
- *gid*
- *uid*
- *callStatus*
- *consultationType*
- *callIvrType*
- *website*
- *FreeChat*
- *RefundStatus*
- *callChannel*
- *isWhiteListUser*
- *FreeCall*
- *Queue*

They are categorical columns because they show characteristics like –

Qualitative: *They represent descriptive characteristics or labels.*

Discrete: *There is a limited or fixed number of values.*

Non-numeric: *Though some categorical variables can be numeric (like ID numbers), the numbers don't have mathematical meaning.*

Subjective Question

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

Ans- 1) Hire more agents.

There are 131 Gurus, who provide service to the users.

Total requests = 28027

Average number requests handled per day per guru = 6.3

And Average time spent is less than 30 min.

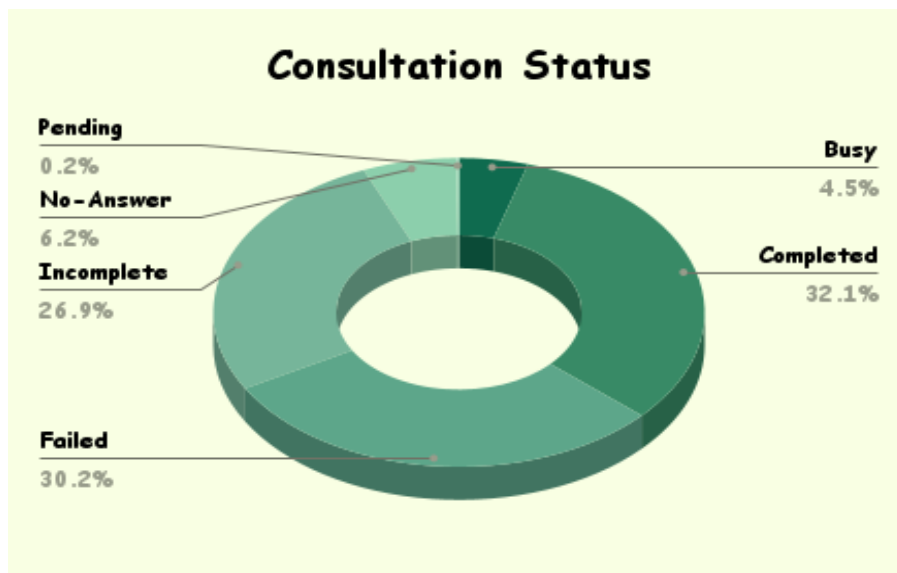
Hence, they have enough Gurus to handle the Request Traffic.

2) Upgrade Call centre technology.

WebSite	Revenue	Requests	Average Rating
App	125267	7800	3.5
Dashboard	0	2	4.5
Gurucool	88720	20225	2.7

There is a need for technology upgrades because 69.6% of total users use chat service. And Gurucool is only one platform which provides the service of the Chat to the users. But the average rating of the Gurucool is 2.7, which is the clear indicator of unsatisfied users. So it is very necessary to improve technology and provide satisfaction to the users . Investing in technology upgrades will help to improve the overall experience and will help to increase the retention rate of the users.

3) Training.



Only 32% of requests were completed that means 68% of users are not getting the service despite booking the call session.

and overall customer satisfaction rating is only 2.9 which is very underwhelming and a matter of concern.

The correlation between call duration and customer satisfaction is -0.06

A correlation of (-0.06) indicates an extremely weak negative relationship between call duration and rating.

Agents need proper training, technology and platform to boost customer satisfaction.

**2) What are the potential risks of each investment option (hiring, training, technology upgrades), and how can they be mitigated?
Name the chart/spreadsheet function you will use for solving the problem?**

Ans- 1} HIRING –

Potential risks –

- Onboarding cost – To onboard any employee the company have to bare the onboarding cost, which can be high as the company will pay a certain agency to recruit a perfect fit employee for them.
- Training cost - Investing time and money into training a new hire who turns out to be a poor fit can be a waste of resources.
- Damage to Reputation: If a new hire behaves inappropriately or unethically ,it can damage the company's reputation.

Mitigating these risks involves-

- Proper hiring process to be followed to examine candidates skill, background & reputation.
- Clear communication about job expectations.
- Ensuring a good cultural fit during the hiring process.

2} TECHNOLOGY UPGRADES-

There is a need for technology upgrades because 69.6% of total users use chat service. And Gurucool is only one platform which provides the service of the Chat to the users. But the average rating of the Gurucool is 2.7, which is the clear indicator of unsatisfied users. So it is very necessary to improve technology and provide satisfaction to the users . Investing in technology upgrades will help to improve the overall experience and will help to increase the retention rate of the users.

Potential risks –

- High Costs – Upgrades come with high costs. Includes hardware ,software, software licenses, equipment, training and maintenance.
- Training requirement- Employees require training to cope up with the new technology.
- Performance issue- The new technology may not deliver the expected performance or may require more resources.
- Loss of data – During the upgrade data might get corrupted or lost.

Mitigating these risks involves-

- Create a detailed budget for potential costs before upgrading.
- Provide training and support to employees.
- Backup all the data before upgrading.

3} TRAINING-

Only 32% requests are completed and average customer satisfaction score is only 2.9. To improve that, they must invest in training programs. Investing in training programs would be a strategic move to sustain and enhance that success.

Potential risks –

- High cost – Training programs involving external trainers and certifications can be expensive.
- Employees can resign- After gaining new skills, employees might seek better opportunities and can resign.

Mitigating these risks involves-

- Focus on in-house training and assess cost benefit ratio.
- Create a positive environment and growth opportunity. Also introduce contract agreements.

3) How does AstroSage call center performance compare to that of AstroGuru in terms of average call volume, customer satisfaction, and agent performance? Will you use any aggregation function or a visualization here to solve the Problem?

Ans – Total no. of Days = 34

The average requests per day = 824

The average call request per day = 250, handled by 111 Gurus

The average chat requests per day = 574, handled by 110 Gurus

There are a total of 131 gurus who receive requests from users.

Overall completion rate for request is 32%, with average rating of 2.9

For Call Requests it is 41%, with average rating of 3.5

For Chat Requests it is only 28%, with average rating of 2.7

consultation Type	Requests	Request Completed	Revenue	Astrologers Earnings	Average Rating
Call	8508	3450	168442	77799	3.5
Chat	19514	5535	45495	21339	2.7

- If the rating of the Astrologers increases then the company rating also increases.
- 78.7% of the total net income for the company comes from Call requests only.
- And 78.5% of the total income for the astrologer comes from Call requests .
- So if the call requests is a key revenue driver, investing in training programs would be a strategic move to sustain and enhance that success.

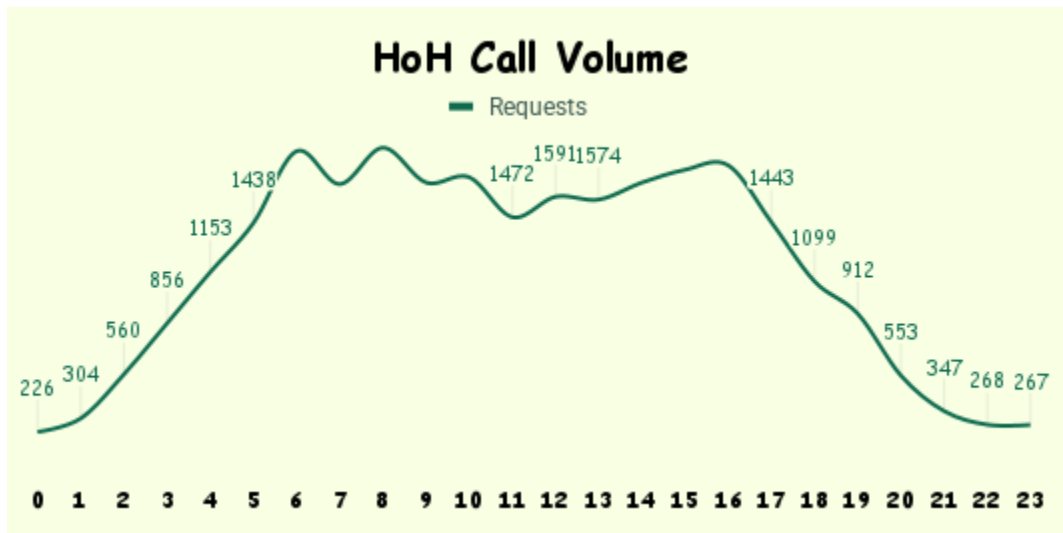
Correlation of Revenue & Earning	0.99
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- A correlation of 0.99 suggests a very strong positive linear relationship between two variables. This means that as one variable increases, the other variable almost always increases in a nearly predictable manner. The closer the correlation coefficient (r) is to 1, the stronger the relationship, with 1 representing a perfect positive correlation.
- The performance of Astrologers is crucial for the company as there is a strong correlation between Revenue & Astrologers Earning.

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

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

Ans –



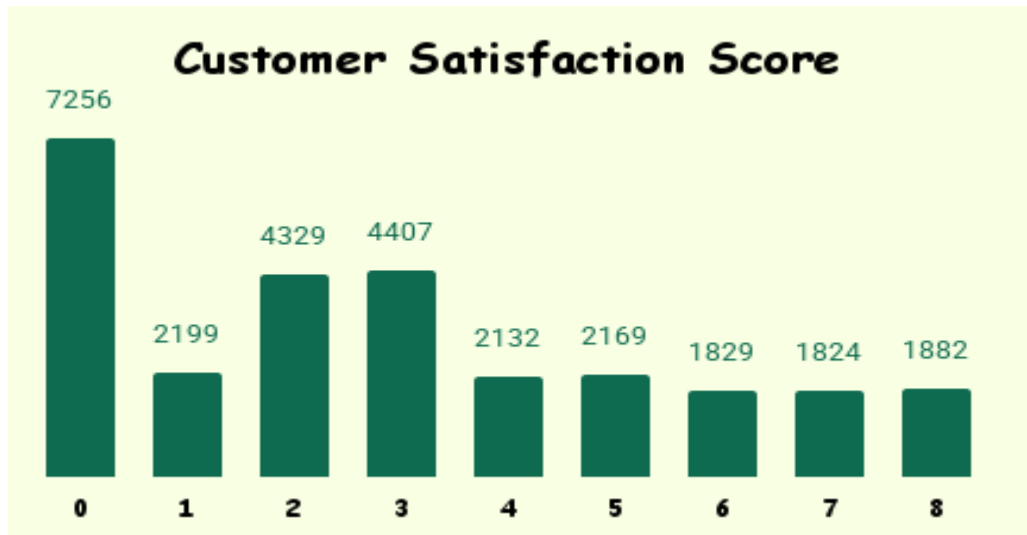
- Graph shows there is high traffic from 6AM to 4PM.
- An overall Call completion rate of 41% indicates poor traffic handling.
- And thus having a lower average rating of 3.5.

High Traffic hours can be managed by

- They can start the option of a live streaming model to engage users in live sessions and improve the handling of the crowd that comes in peak times. Live streaming will also bring revenue and more users to the company.
- Optimizing more agents shifts to peak periods accordingly. Ensure that more agents are scheduled during high – traffic time.
- Use part time or freelance agents , these reserve agents will balance the workload without increasing permanent cost.

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

Ans –



Graph shows -

- Considering rating ≥ 5 as satisfactory, we conclude
- Only 27.5% of users are satisfied with the service.
- And the majority of users are unsatisfied with the service provided i.e. 72.5
- That can be because calls are not getting completed 68% of the time.

Strategic Initiatives that can improve overall efficiency and customer satisfaction can be -

1 - Training programs

- Call Handling Techniques: Train the astrologer on more efficient call-handling techniques to reduce the duration of calls without compromising the quality of service.
- Enhancing Skills: Training can improve the skills of employees involved in the call service, leading to better customer interactions.
- Cross-Selling: Training programs can teach employees techniques to upsell or cross-sell other services or products during calls, maximizing revenue from each interaction.
- Adaptation to Growth: As the service grows, the company might need to scale up operations. Training helps employees adapt to new processes, tools, or technologies that support growth.

consultation Type	Revenue	Requests	Average Rating
Call	168442.0	8508	3.5
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WebSite	Revenue	Requests	Average Rating
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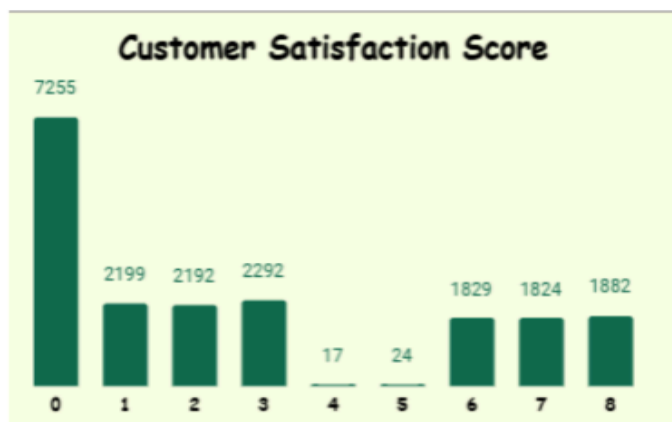
2 – Upgrade Technology.

- *There is a need for technology upgrades because 69.6% of total users use chat service. And Gurucool is only one platform which provides the service of the Chat to the users.*
- *But the average rating of the Gurucool is 2.7, and Chat completion rate is also only 28% which is the clear indicator of unsatisfied users. So it is very necessary to improve technology and provide satisfaction to the users .*
- *Investing in technology upgrades will help to improve the overall experience and will help to increase the retention rate of the users. But there are some risks in upgrading technology. Upgrading technology will help the smooth experience of providing service as well as user receiving service.*

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 did you decide if the satisfaction score affect the ratings?

Ans-

CHAT



CALL



Including Pivot Tables to Analyse

- Rating Distributions by Consultation Type & Website
- Requests rating Distribution
- Call Duration v Ratings
- Guru count by Ratings

consultation Type	Requests	Request Completed	Revenue	Astrologers Earnings	Average Rating
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WebSite	Revenue	Requests	Average Rating
App	125267	7800	3.5
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Rating Bucket	Requests	Avg Duration (Min)	No of Gurus
0.0 - 1.0	640	9.4	6
1.0 - 2.0	5104	6.1	21
2.0 - 3.0	8039	4.3	31
3.0 - 4.0	11033	3.5	41
4.0 - 5.0	2692	4.0	23
5.0 - 6.0	515	5.1	7
7.0 - 8.0	4	5.0	2

INSIGHT-

- *Considering Rating of 6,7 & 8 as a high satisfaction range,Graph shows Only chat services receive the rating of 6,7,8.*
- *Chat Request - 69%, Call Request - 31%*
- *Call Services have better ratings compared to Chat services.*
- *App is performing better while Gurucool is Lagging behind.*
- *Almost 86% of the users have given ratings between 2 to 4, which is underwhelming.*
- *Average rating for 90+ Gurus is between 2 to 5, only 2 having ratings of 7+, and 6 gurus are performing poorly scoring <1 overall ratings.*
- *There is no correlation between Avg Duration and Ratings.*

IMPROVEMENT-

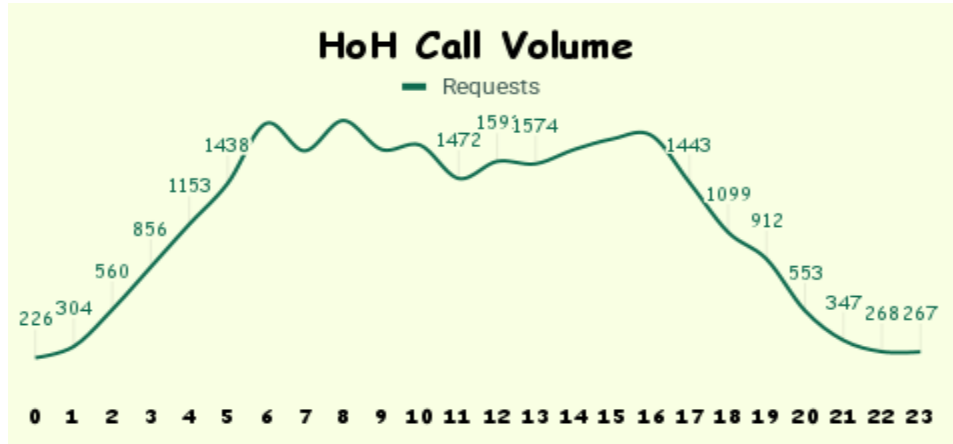
- *They can improve the user's experience by adding features like AI chatbots and training their employees to adapt to new processes, tools, or technologies that support growth. This will help the company to improve overall performance.*
- *Call services have better overall ratings, whereas Chats only have received high ratings. Both the services need improvement.*
- *By improving average duration time, we can enhance user experience and rating.*
- *App has better ratings, higher revenue but fewer customers. Hence, Scaling App services will increase overall ratings and revenue as well.*
- *Identifying backlogs and reasons for low Successful completion rates for Chat Services and Gurucool website and solving them will boost overall Satisfaction Score.*

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?

Ans –

<p><u>For Calls-</u></p> <ul style="list-style-type: none"> • Total Requests = 8508 • Average Requests per Day = 250 • Completion Rate = 41% 	<p><u>For Chats-</u></p> <ul style="list-style-type: none"> • Total Requests = 19514 • Average Requests per Day = 574 • Completion Rate = 28%
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(Formulas Used =AVERAGEIF() , =SUMIF(), HOUR())

Created Pivots table to Analysis Distribution of Requests Handled by Gurus,
And Average Duration wise Distribution of Gurus By Using Grouping Method.

No. Of Requests	No. Of Gurus	Duration (Avg Min)	No. Of Gurus
0 - 99	72	0.0 - 1.0	12
100 - 199	18	1.0 - 2.0	12
200 - 299	12	2.0 - 3.0	3
300 - 399	6	3.0 - 4.0	16
400 - 499	4	4.0 - 5.0	32
500 - 599	3	5.0 - 6.0	37
600 - 699	3	6.0 - 7.0	7
700 - 799	6	7.0 - 8.0	8
900 - 999	1	9.0 - 10.0	1
1000 - 1099	2	11.0 - 12.0	1
1300 - 1399	2	14.0 - 15.0	1
1400 - 1499	1	30.0 - 31.0	1
1500 - 1599	1		

Insight-

- Graph shows Peak Hours are between 6AM to 4PM.
- Most of the Gurus have handled <200 requests, whereas 6 gurus have handled 1000+ requests, it shows there is a clear workload imbalance.
- Also Average call duration is distributed over a large range, With 20+ Gurus having avg Duration < 2(it's a concern), and most of them have it between 4 to 6. It shows imbalance and inconsistency in call handling among Gurus.
- And low completion rates and high activity volume, indicates traffic handling is not up to the mark and needs Improvement to enhance user satisfaction and experience.
- This will help in boosting the company's overall rating and Revenue. Ultimately boosting its user base.

Suggestions-

- To balance workload, They can analyse the historical data. The hourly distribution of calls can help the company to balance workload accordingly among agents.
- To overcome this the company can start the option of live streaming model to engage users in live sessions and improve the handling of the crowd that comes in peak times. Live streaming will also bring revenue and more users to the company.
- Shift optimization- Optimizing more agents shifts to peak periods accordingly. Ensure that more agents are scheduled during high – traffic time.
- Employee Training and adding Guidelines and Instructions to be followed as standard for operations among Gurus to improve results and consistency.
- Use part time or freelance agents , these reserve agents will balance the workload without increasing permanent cost.
- Introduce AI chat bot feature for customer care.

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

Ans –

- AI chatbots for customer service.
- Live streaming by astrologers.
- The company uses Exotel as call IVR , which auto greets every time a user calls before connecting with an astrologer. They can add features of playing soothing music or slokas of Bhagavad Geeta If astrologer is busy, and they also should add features to choose what they want to listen to.
- Feature of E-puja through video call.
- E-commerce- They can sell Gemstones and other things related to puja.

This can improve the customer service and provide new experiences to users.
It will help to retain the users and increase the revenue of the company.

9) What metrics should be included in the final dashboard to provide a comprehensive view of call centre performance and guide investment Decisions?

Ans - The Key Performance Indicators that Summarizes this Dataset and Give Overview of their business Performance are -

Total Revenue - Calculates total Amount of business done.

Operational Cost - Tells us about the expenditure of running the Business.

Profits - Very essential parameter to Identify Business sustainability.

Total Request - Gives overall Number of Requests received.

Total Gurus - To find if no. of employees is Sufficient enough to handle the Request Volume.

Total Users - Tells about the Customer base acquisition. Higher the better.

Request Completion Rate - Tells if we are meeting the expectations of users and if we are able to provide them the required Solutions and answers to their queries..

Average Rating - Very important to conclude if Quality of Service offered to the Customers.

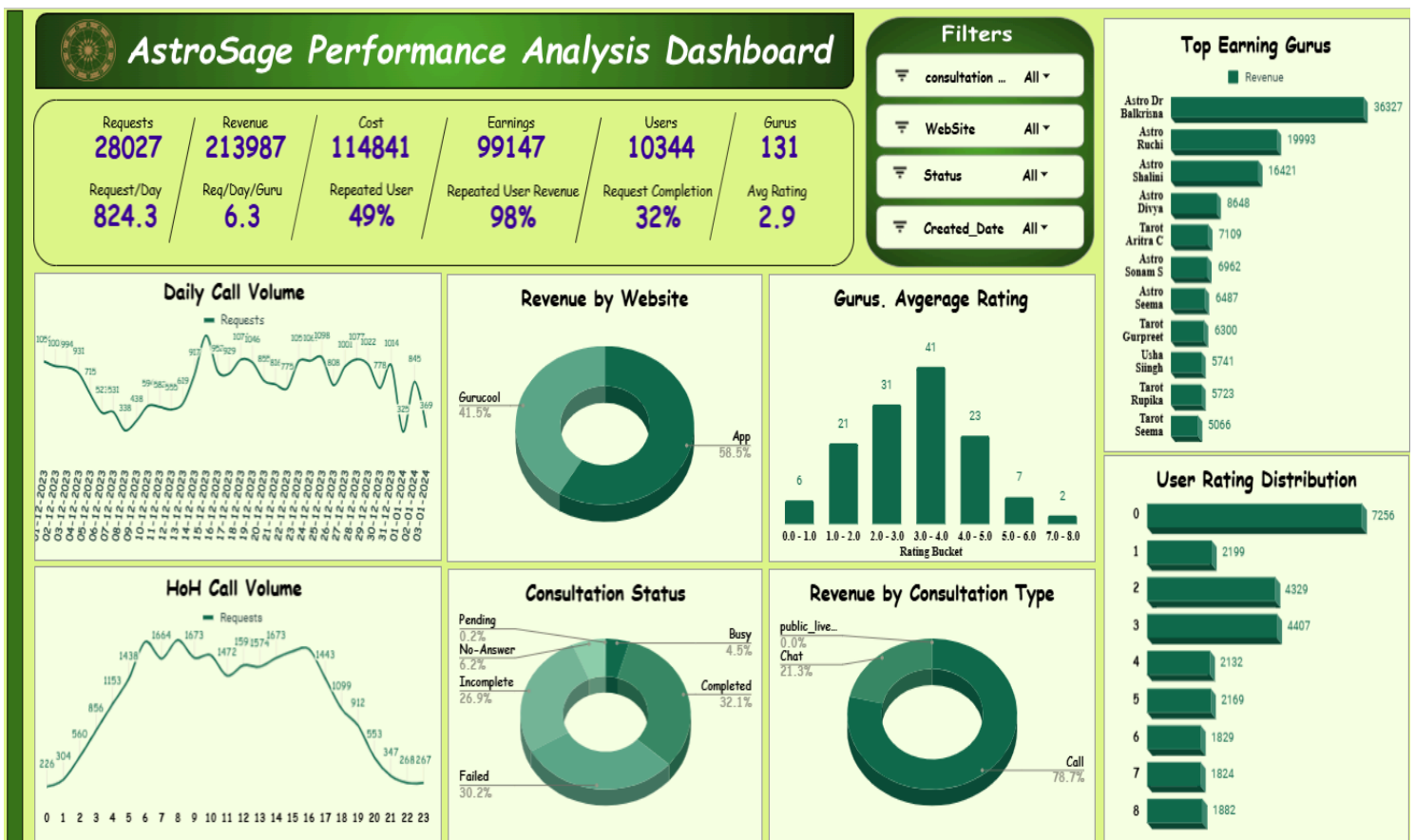
Including Graphs for showing trends, Identifying patterns more detailed+Broad Analysis will help Identify the root causes and lags in the System at granular Level. Helping Senior Management take needful Actions. Such as

- **Day to Day Request Volume Trends** - Time series Analysis to show daily Call Volume and How its Volume is changing with time.
- **Users Traffic Trend Throughout the Day** - It shows Call Volume wrt time of the Day. Helping us to find Peak hours and manage Traffic and provide the best possible Service.
- **Revenue breakup by Consultation Type & Website** - Gives us Insight about How there Different services and platforms and performing in terms of Cash, Generation.
- **Top Performing Gurus (Revenue)** - Were Important to Find Valuable Employees. As they are the main reason for their economic growth and reputation.
- **Requests distribution over Status.** - To find out What's the Success rate of Calls. Higher the better.
- **Rating Wise Gurus** - It shows the Number of Gurus With Higher and lower Ratings.

SLICERS (Filters) -- We can add Slicers filter data to Analyse the Subset of Dataset based on different Parameters like -

- Website
- Consultancy type
- Status
- Date

DASHBOARD



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?
[you have to give bullet pointers in order to answer this question]

**Ans– If 1 crore rupee is allocated, then I will use that money in three phases.
The following phases are-**

PHASE 1 – 40 Lakhs for Technology Upgrades.

- Create a detailed budget for potential costs before upgrading.
- Buy new high-tech equipment , software license, hardware and keep some money for their maintenance.
- Invest in providing features for satisfaction of users like AI chatbots for customer care, E-puja feature through video call, etc.
- As Exotel is the only cloud phone system with which the company works, funds should be invested in building another cloud phone system to manage the burden on single phone cloud systems during peak hour.

PHASE 2 – 20 Lakhs for Training Programs.

- Call Handling Techniques: Train the astrologer on more efficient call-handling techniques to reduce the duration of calls without compromising the quality of service.
- Enhancing Skills: Training can improve the skills of employees involved in the call service, leading to better customer interactions.
- Cross-Selling: Training programs can teach employees techniques to upsell or cross-sell other services or products during calls, maximizing revenue from each interaction.
- Adaptation to Growth: As the service grows, the company might need to scale up operations. Training helps employees adapt to new processes, tools, or technologies that support growth.

PHASE 3 – 40 lakhs for E-commerce business and Mental health category.

- Mental Health category: In today's time relationship and career uncertainty is at peak. And as in India therapy is very expensive and takes it as a taboo. So Astrosage can work as a pseudo therapy app for them, which provides a sense of certainty.
- E-commerce: Selling Gemstones and other things related to puja. This will help the company to generate extra revenue and also to attract new customers.

END