Refining Revenue and Engagement Growth Strategies through Service Usage Analysis in Online Astrology Service Company

A Final-Term report for the BDM capstone Project

Submitted by

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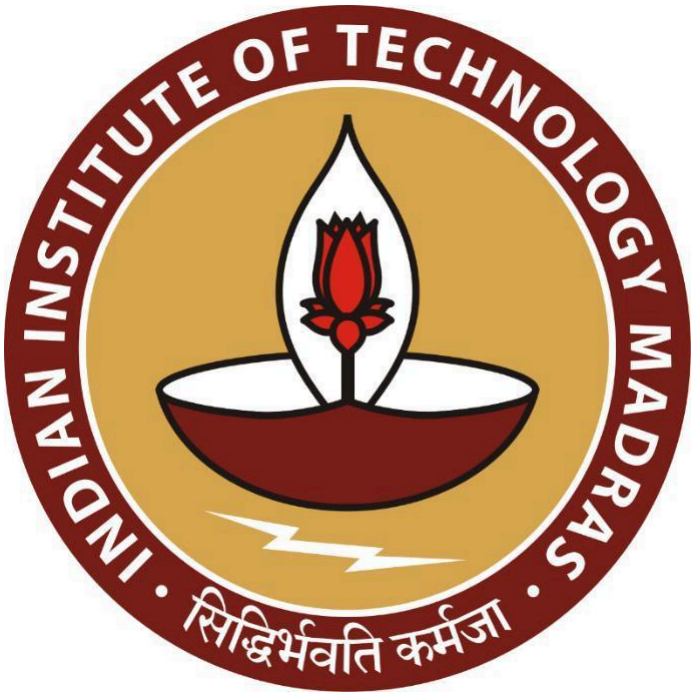

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1. Executive Summary

This project aims to improve revenue and engagement strategies for Hindu Panchang, an online astrology consultation platform facing challenges with **low revenue generation, poor user retention, and high acquisition costs.** By analyzing service usage, user demographics, retention rates, and marketing channel effectiveness, we developed actionable insights to address these issues.

Data was collected from Google Analytics reports and in-app transaction records over a period of 3.5 months. It was cleaned, merged, and analyzed using pivot tables, charts, and time-series visualizations to identify key performance drivers. The analysis revealed that while spiritual products like Stones and Beads Mala contribute significantly (30%) to total revenue, services such as Online Birth Charts, despite high user engagement, generate lower revenue per transaction.

Demographic insights showed that male users contribute more to total revenue, whereas female users have a higher average spend. Additionally, user retention data indicated a steep drop-off within the first week, highlighting gaps in onboarding that need improvement. Marketing analysis found that direct traffic channels are effective, while organic search and social channels underperform.

Based on these findings, we proposed strategies to boost revenue through targeted promotions, improve user retention with loyalty programs, and optimize marketing spend by focusing on high-performing acquisition channels. Expanding into under-represented regions (inside and outside of India) and enhancing service offerings are also recommended to drive sustainable growth.

2. Detailed Explanation of Analysis Process/Method

2.1. Data Collection, Cleaning, and Processing

2.1.1. Data Collection

The data was collected from multiple sources to track user engagement, demographics, and transaction details. Key data came from the Google Analytics Report (imported as a CSV file into Google Sheets), which provided insights on user retention and marketing channel performance, and the app's private dashboard, which supplied transactional records of successful in-app purchases (manually extracted into Google Sheets). The collected data can be found here: **Hindu Panchang Performance Metrics {Collected Data}**

The dataset includes the data recorded from June 1 to September 16, 2024 (a duration of 3.5 months). It includes 15 tables, 3,436 records, and 28 columns. Additionally, two overview cards from the Analytics reports summarize device usage (it showed 99.9% of users accessed the app via mobile phones) and the primary social media platforms used for app promotion. The complete dataset, along with relevant variables, definitions, and statistics, is detailed in the 'Metadata and Descriptive Statistics' section of the midterm report.

For our analysis, we focused on the following key tables:

A. **Table 4 from Sheet 2:** Cost of Ad Groups to analyze **High Cost per Acquisition problem**

B. **Table 5 from Sheet 1:** Country-wise Active Users to analyze options for **Targeted Marketing**

C. **Table 7 from Sheet 2:** First User Primary Channels to analyze **Marketing Channels Performance**

D. **Table 8 from Sheet 2:** Session Primary Channels to analyze **Marketing Channels Performance**

E. **Table 13 from Sheet 1:** Weekly User Retention to analyze **Low User Retention problem**

F. **Table 14 from Sheet 1:** Returning user rates (RUR%) compared to competitors to analyze **Market Competition**

G. **Table 15 from Sheet 4:** Merged Transaction Data to analyze revenue distribution for **Low Revenue Generation problem**

These tables capture the most relevant metrics for understanding user retention, marketing impact, and revenue generation.

2.1.2. Data Cleaning and Processing for Analysis

I started by cleaning the dataset to ensure reliability for analysis, focusing mainly on Table 15, which contained in-app transaction data. This table required more processing than the others due to its complexity and its essential revenue details. Other tables were fairly structured. Confidential information, like phone numbers and emails, was replaced with placeholders ("x" and "*") for privacy. Additionally, columns such as Age, Gender, Language, and Birth Date in the data tables of Sheets 3 and 4 had missing values marked as 'NA.' I merged the data (Table 1, 2 and 3) from Sheet 3 into Table 15 of Sheet 4, then cleaned and processed it to ensure accuracy and usability for further analysis:

A. **Removing Irrelevant Data:**
   To focus only on the necessary information, I removed columns that weren't relevant for the analysis, such as phone numbers and emails. This helped clean the data and avoid clutter.

B. **Consolidating Key Information:**
   I then brought together essential details into one table. For example, I made sure to include columns like:

   a. **Service Name** (the name of the service purchased),

   b. **Transaction Amount** (the payment made),

   c. **User Details - Transaction Time (Date and Time), Location (City and State), SEX, AGE, LANGUAGE, etc** (information like user demographics).

   This consolidation helped in creating a clear view of each transaction.

C. **Creating New Categories for Analysis:**
   To make the analysis more insightful:

   a. I created a **Category** column, which categorized the main services into their further subcategories (for example, Birth Charts into Summarized and Detailed Birth Charts). This allowed me to quickly understand which types of subcategories within the services were generating the most revenue.

   b. I also created an **Age Group** column by grouping users' birth dates into different age ranges (for example, 15-24 years, 25-34 years, etc.), which helps in analyzing how different age groups are spending.

D. **Handling Locations and Time:**

   a. I separated **cities** from **states** so I could track revenue trends by location more easily.

   b. I also **split transaction timestamps** into separate **date** and **time** components. This was helpful because analyzing revenue trends over different time periods (such as by day, week, or month) requires clear date formatting. By separating the time data from the date, it got easier to group transactions into specific time periods and analyze them.

E. **Addressing Missing Values:**
   Some data entries had missing values (e.g., 'NA' in age or gender columns). I handled these by:

   a. Replacing 'NA' with placeholders where needed, ensuring that the missing data didn't disrupt analysis.

   b. In some cases, I filled in missing values by making educated guesses (also known as **imputing**), based on available data (like the user's age or location).

2.2. Creating Charts and Visualizations

Note: Each chart is referenced by its number (e.g., Chart 15 or Chart 16) and can be found in Section 3 of this report - 'Results and Findings.'

2.2.1. Low Revenue Generation (Charts 1-11, made from Table 15)

A. Objective: Address revenue generation by identifying top-earning services, understanding user spending patterns by user demographics, and location and time periods, and targeting revenue optimization strategies.

B. Method:

a. **Using Pivot Tables:**

i. In Google Sheets, I used **pivot tables** extensively to organize revenue-related data for each service and sub-category. I set up rows to represent different services and columns to display metrics like total sales, average revenue per sale, and percentage contributions.

ii. **Example:** For Chart 1 (Revenue Distribution Service-wise), I created a pivot table that summarized total revenue per service and then used this as a data source for a **donut chart** in Google Sheets. This visualized each service's revenue percentage, highlighting top performers and underperformers.

iii. **Combo Charts:** For Chart 2 (Total Sales per Service vs. Average Revenue per Sale), I generated a pivot table comparing service wise sales volume and average revenue per sale. By creating a combo column chart in Google Sheets, I visualized which services generated high volumes but had low revenue per sale, allowing for targeted optimization. For Chart 7, I grouped the data by state to calculate the total sales count, aggregate revenue, and average revenue per user for each region. This breakdown enabled a detailed view of regional performance by showing not only where sales were high but also which states had the highest revenue per user.

b. **Pareto Analysis:**

i. To illustrate the "80/20 rule" in Chart 4, I used Excel's **Pareto chart feature**, which combines bar and line charts to highlight revenue contribution by sub-categories. The Pareto analysis helped identify the small number of subcategories that contribute the most to revenue, focusing future strategies on these critical areas.

c. **Additional Insights:**

i. Charts like **gender-based revenue contributions** (Chart 5) and **age-wise distribution** (Chart 6) allowed further breakdowns by demographic categories. Pivot tables filtered data by gender and age groups, visualized in column and stacked bar charts. This helped understand which demographics bring the highest revenue, aligning marketing efforts and service customization accordingly.

C. Key Excel/Google Sheets Tools Used: Pivot Tables, Combo Charts, Pareto Charts, Stacked Bar Charts, Geo Bubble Charts.

2.2.2. Low User Retention (Charts 12-13, made from Table 13, and 14)

A. Objective: Understand and improve user retention by analyzing trends over time, comparing cohorts, and tracking user return rates.

B. Method:

a. **Calculating User Retention Rates:**

i. For **Chart 12 (Weekly User Retention Across Different Timelines)**, I calculated the weekly user retention rates by dividing the number of users in each successive week by the number of users in Week 0 and multiplying by 100 to get a percentage.

ii. **Formula:** Retention Rate (%) = (Users in nth Week / Users in Week 0) * 100

iii. **Example:** In Google Sheets, I input the user count data for each week and used this formula to compute weekly retention rates. I then created a line chart to plot these retention rates across different weeks (from Week 0 onward) to visualize the changes in user retention over time. This helped track how retention fluctuated throughout the observation period.

b. **Cohort Analysis for Returning Users:**

i. For Chart 13, I plotted the **Returning User Rate (RUR%) of our app and other peer apps from Table 14** over time using a line chart, indicating where our app's retention strategies were successful and where improvements are needed.

ii. **Benchmark Comparison**: The line chart compared our RUR to the industry median, which illustrated that while our app performs well against peers, early-stage retention drops highlight areas to enhance onboarding and habit-forming features.

C. Key Google Sheets Tools Used: Line Charts, Calculated Fields for Retention Formulas, Benchmark Comparisons.

2.2.3. High Cost per Acquisition (Charts 14, 15, 16 & 18, made from Table 4, 5, 7, & 8)

A. Objective: Identify cost-effective acquisition channels and optimize spending by analyzing user acquisition patterns and cost/conversion data across channels and ad groups.

B. Method:

a. **Analyzing Acquisition Channels:**

i. For Charts 14 and 15, I created **Pie Chart and Bar Chart** respectively from **Table 7 and 8** on new users and session counts by primary acquisition channels (e.g., direct, organic search, social media), in order to visualize which channels brought in the most engaged users, offering insights into where to focus for cost-effective acquisition.

ii. **Example:** Chart 14 used a pie chart to display new user distribution by channel, showing which channels have the strongest direct traffic and brand recognition. Low performance in Search Engine Optimization (SEO) and social media channels revealed potential areas for improvement.

b. **Cost per Acquisition Analysis:**

i. In Chart 16, I used **combo charts** to examine the cost per conversion for various ad groups from **Table 4** that grouped data by ad group and cost/conversion. I identified the groups with lower costs per acquisition like Panchang Calendar, suggesting where budget reallocations could maximize cost efficiency.

ii. **Geographical User Analysis:** For Chart 18, I used **Geo-Charts** in Excel to map active users by region, highlighting user distribution on a global scale. The chart showed India as the primary user hub, and moderate user activity in other regions like Nepal and some parts of Europe indicated areas with potential for expansion.

C. Key Google Sheets Tools Used: Bar Charts, Pie Charts, Combo Charts, Geo-Charts, Channel Analysis, Ad Group Comparisons.

3. Results and Findings

In this section, I will describe the main patterns identified through analysis of various data sources collected from June to September 2024. This includes revenue distribution, temporal patterns, demographic analysis, geographic reach, service preferences, user retention trends, and marketing channel performance. These insights directly address the three primary business challenges of Hindu Panchang: **low revenue generation, low user retention, and high acquisition costs.** For detailed calculations, pivot tables and graphs, refer to the analysis sheet linked here: **Results and Findings. From now on, any charts and tables mentioned in this report will come from this analysis sheet.**

3.1. Low Revenue Generation

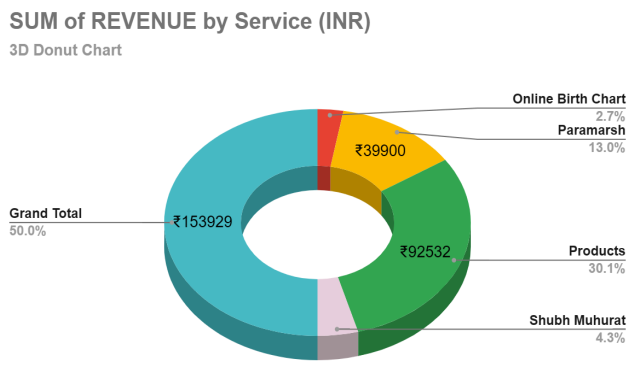
Understanding Challenges in Revenue Generation: Identifying Key Factors Impacting Earnings

This subsection aims to identify the key drivers of revenue by analyzing service categories and sub-categories, user groups (by region, gender, and age), and time periods (daily, weekly, and monthly revenue trends). These insights will guide strategic decisions on which services to expand and promote, as well as how to engage specific user segments to maximize overall revenue.

3.1.1. Breakdown of Revenue by Service

What Services Generate the Most Revenue? Analyzing Income Sources

3.1.1.1. Chart 1 (refer to Sheet 1): Revenue Distribution Service-wise (in %)

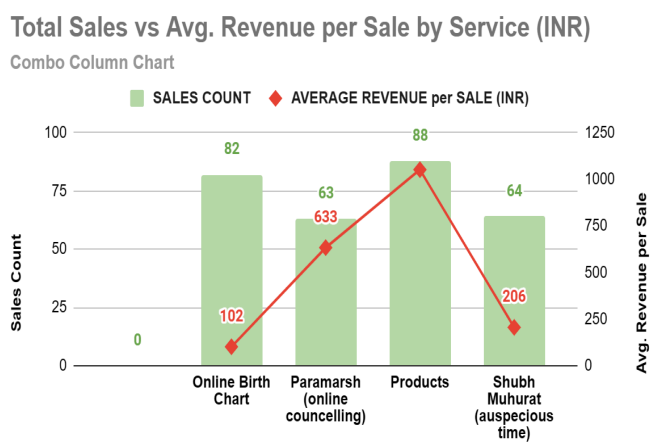


How Is Revenue Distributed Across Different Services? A Percentage Breakdown

***Description*:** This donut chart shows how much revenue each main service contributes, as a percentage of total revenue.

***Insights*:** Spiritual Products Sales brings in the largest share (around 30%) of total revenue, while Online Birth Charts(2.7%) and Shubh Muhurat Service(4.3%) bring in much less. This suggests that we should invest more on expanding Spiritual Products sales, as it's already popular, and think about how to improve or bundle the lower-performing services with popular ones at discount prices, making the overall package more appealing and increasing the average purchase size.

3.1.1.2. Chart 2 (refer to Sheet 2): Total Sales per Service vs. Average Revenue per Sale (INR)



How Do Total Sales and Average Revenue Compare Across Services?

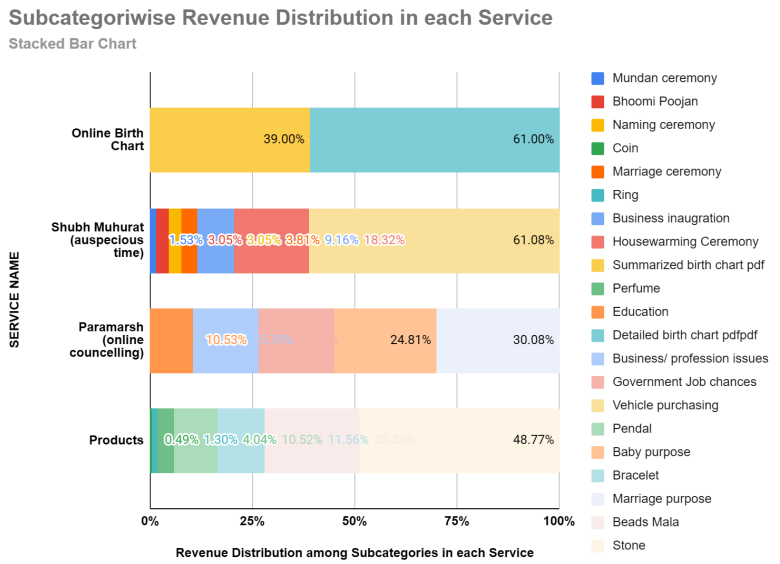
***Description*:** This combo column chart compares the total sales of each main service to the average revenue earned from each sale.

***Insights*:** Online Birth Charts have high sales but overall generate the lowest revenue per sale among all the services. We could slightly raise prices or add premium options to this service that can increase overall revenue, as people are already buying it frequently.

3.1.2. Revenue by Sub-category within Each Service

Which Sub-categories Are Driving Revenue Within Each Service?

3.1.2.1. Chart 3 (refer to Sheet 3): Sub-category Revenue Distribution in Each Service

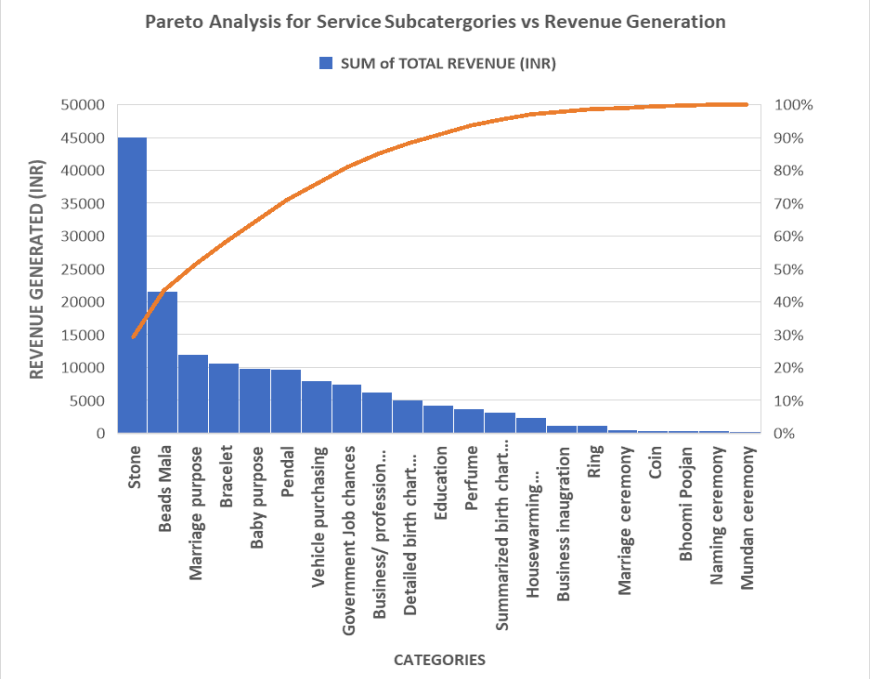


How Is Revenue Distributed Among Sub-categories in Each Service?

***Description*:** This 100% stacked bar chart shows the breakdown of revenue from each sub-category within each main service.

***Insights*:** The Online Birth Chart service shows a split with summarized charts at 39% and detailed charts at 61%, presenting a clear upsell opportunity from summarized to detailed charts. In the Shubh Muhurat category, the Vehicle Purchasing sub-category alone drives around 60% of revenue, while Stones account for nearly 50% of revenue in Product Sales, suggesting strong cross-selling potential between counseling and product categories. There's also room to expand evenly across Paramarsh subcategories such as marriage, baby, government job, education, and business counseling. Prioritizing promotional efforts for these revenue dense subcategories will enable more efficient resource allocation.

3.1.2.2. Chart 4 (refer to Sheet 4): Pareto Analysis for Service Sub-categories vs. Revenue Generation



Which Sub-categories Contribute Most to Revenue? A Pareto Analysis

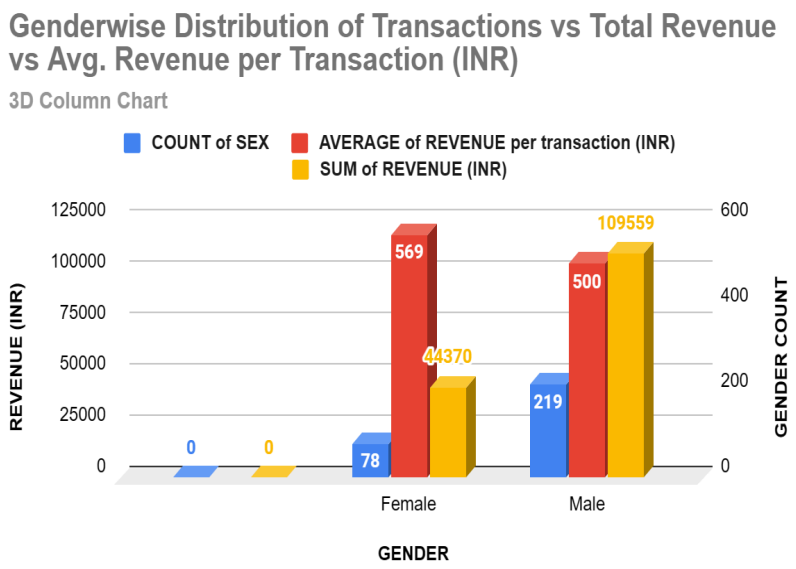
***Description*:** This Pareto chart displays revenue contribution from each sub-category, roughly following the "80/20 rule", showing that "Stone" and "Beads Mala" (about 20% of sub-categories as shown by secondary Y axis) brings in the majority (around 80%) of the revenue.

***Insights*:** By focusing on the top three subcategories i.e., Stones, Beads Mala, and Marriage Counseling we can significantly boost revenue without promoting every subcategory equally. We should also review underperforming services for improvement or discontinuation and consider bundling high-performing services with lower ones (like bracelets, pendals, perfumes and coins) to encourage their sales and enhance overall revenue.

3.1.3. Revenue by User Demographics

How Do User Demographics Influence Revenue Generation?

3.1.3.1. Chart 5 (refer to Sheet 5): Gender-wise Contribution in Revenue Generation

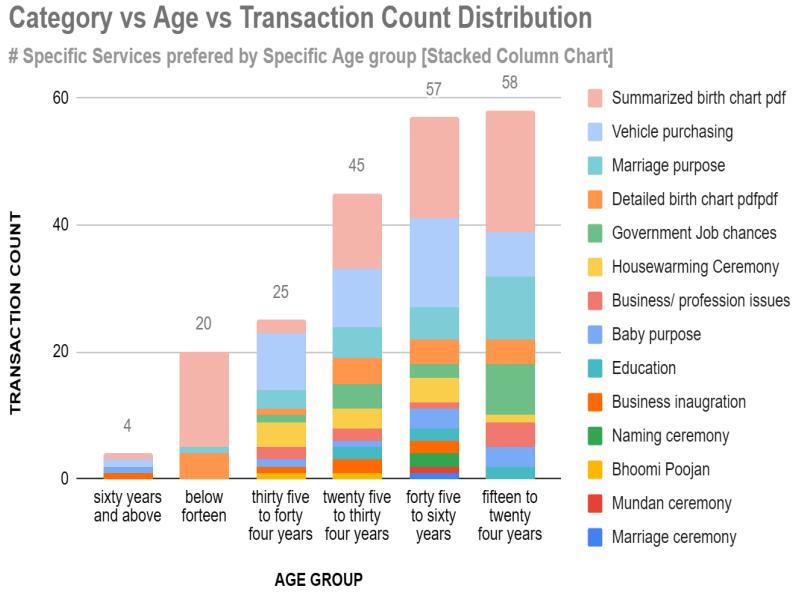


How Does Gender Impact Revenue Contributions?

Description: This column chart displays total revenue, average revenue per user and sales contributions from male and female users, allowing us to see the role of gender in revenue generation.

Insights: Male customers generated a total revenue of 109,559 INR from 219 customers, resulting in an average revenue per user of 500 INR. In contrast, female customers contributed 44,370 INR from a smaller base of 78 customers, with a higher average revenue per user of 569 INR. The insights show that male customers bring in more total revenue, but female customers spend more on average. While there are more male customers, female customers are more valuable individually. The business can use this information to create better marketing strategies to attract more female customers and increase overall revenue. We can also develop male-specific packages to increase revenue per user of male customers.

3.1.3.2. Chart 6 (refer to Sheet 6): Category vs. Age vs. Sales Count Distribution



What Are the Sales Patterns Across Categories and Age Groups?

Description: This stacked column chart presents the distribution of service usage across various age groups, providing insights into age-based preferences that can inform marketing and service strategies for revenue growth.

Insights: Age-Based Service Usage Distribution & Preferences

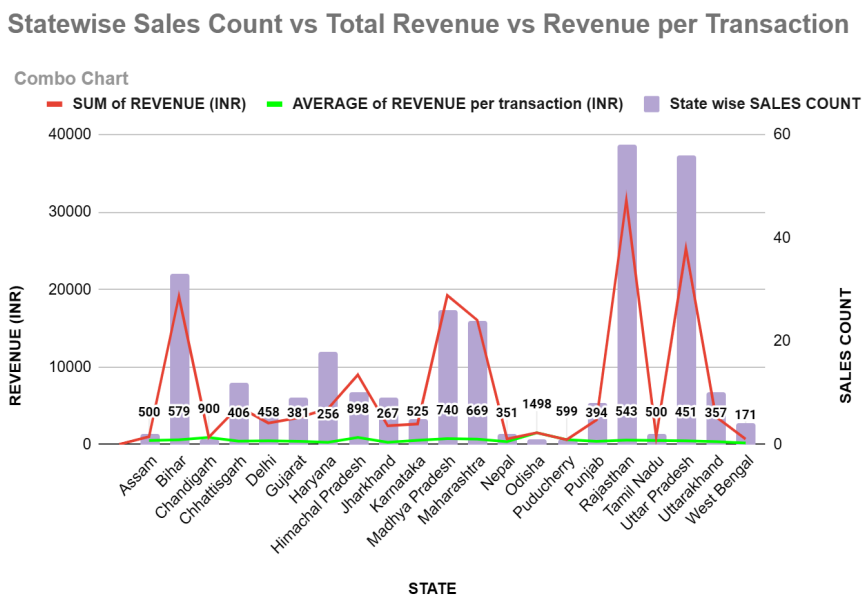
A. <u>Ages 15-24 Years</u>: This age group demonstrates the highest service uptake, with a particular interest in services such as Summarized Birth Charts, Marriage Purpose, and Government Job Chances. The high demand from this segment suggests a strong opportunity to boost revenue by highlighting lifestyle-focused services, which align with their life stage and interests.

B. Ages 45-60 Years: Users within this age range have the second highest uptake, with diverse preferences across categories. Their highest interest lies in Summarized Birth Charts, Vehicle Purchasing, and House Warming Ceremony services. Targeted messaging that emphasizes both lifestyle and professional benefits could help maintain and increase engagement from this group, supporting sustained revenue from repeat usage.

C. Ages 25-34 Years: This segment displays moderate service uptake, with balanced interest in both personal and professional services like Summarized Birth Charts, Vehicle Purchasing, and Marriage Advice, Government Job chances, Education, Business/Profession related advice. By promoting services that cater to both personal and career-related needs, we can maximize revenue potential from this age group's dual interests.

By tailoring service offerings and promotional strategies to specific age groups, we can enhance user engagement and optimize revenue generation by meeting users' unique needs at each life stage.

3.1.3.3. Chart 7 (refer to Sheet 7): State-wise Sales Count, Total Revenue, and Revenue per User



How Does Revenue Vary by State? Analyzing Sales Count and User Contributions

***Description*:** This combo chart shows distribution of sales count, total revenue, and revenue per user by state.

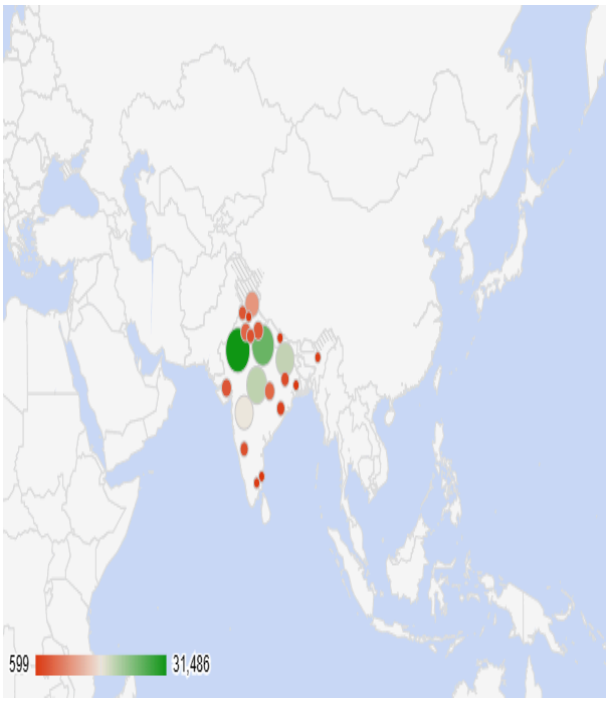
Insights: The chart reveals:

A. Top-Performing States: Rajasthan, Uttar Pradesh, Bihar, Madhya Pradesh and Maharashtra show high sales and revenue. Focusing on marketing and promotions here could drive further growth.

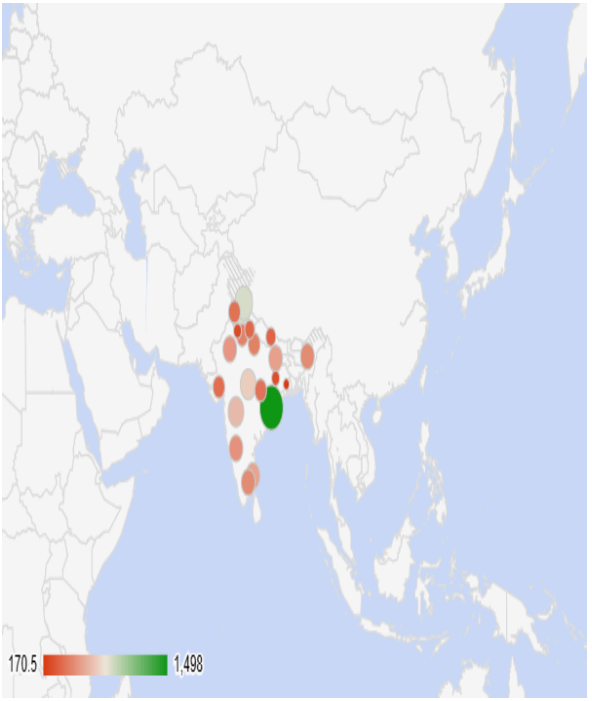
B. High Revenue per User in Smaller Markets: Odisha, Chandigarh, Puducherry and Assam have a high revenue per user but lower sales. Boosting user acquisition in these regions could yield good returns as new users are likely to spend more.

C. Underperforming States: West Bengal, Delhi, Karnataka and Tamil Nadu have low sales and revenue. Targeted campaigns, such as discounts or personalized offers, could help increase engagement and revenue here.

For further visualization, here are two Bubble Geo Charts to illustrate the Region-wise Total Revenue Distribution and Region-wise Average Revenue per Transaction Distribution across India.

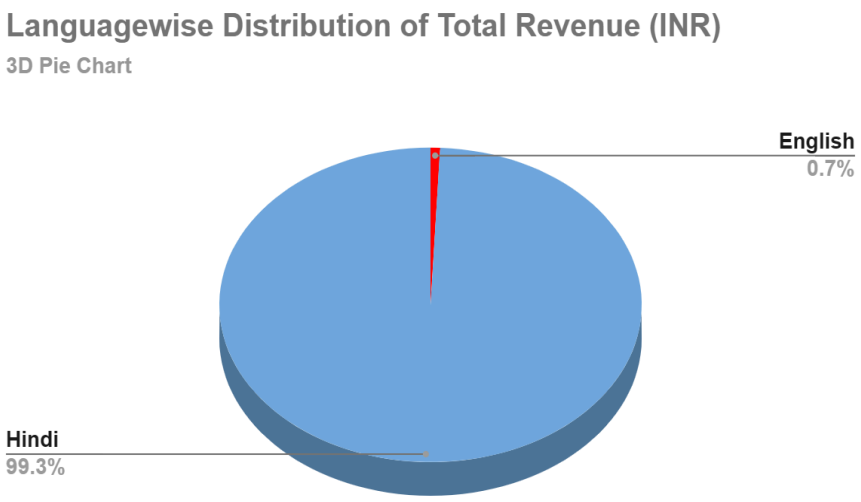


Map 1: Region Wise Total Revenue Generation



Map 2: Region Wise Average Revenue per Transaction

3.1.3.4. Chart 8 (refer to Sheet 8): Language-wise Distribution of Total Revenue



How Does Language Impact Revenue Distribution?

***Description*:** The pie chart presents a clear picture of revenue distribution based on users' preferred languages.

Insights:

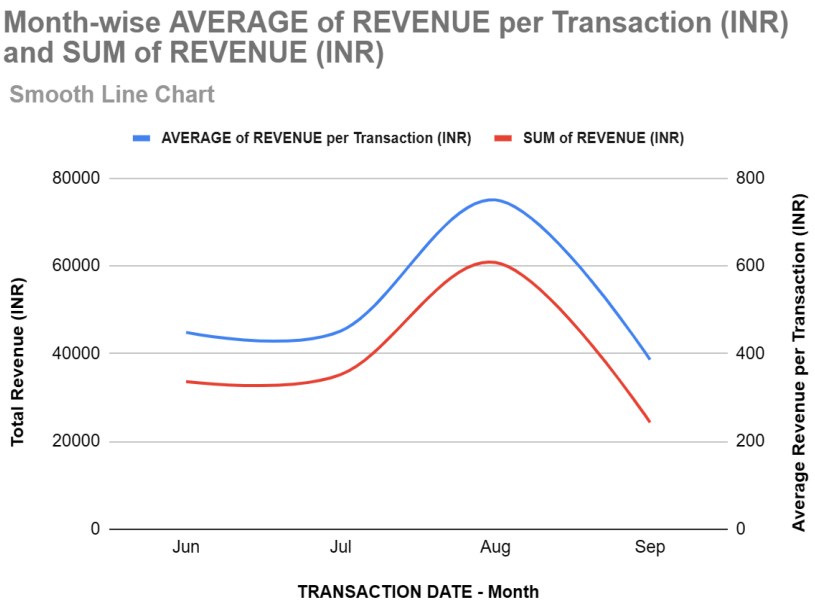
A. Hindi Dominance: A striking 99.3% of the revenue comes from Hindi-speaking users, indicating a strong market presence in this demographic. This dominance suggests that the majority of our customer base resonates well with Hindi content, making it crucial to maintain and enhance services in this language.

B. Minimal English Usage: Only 0.7% of revenue is generated from English-speaking users. This small percentage highlights a significant opportunity for growth if we consider expanding our offerings in English.

3.1.4. Temporal Revenue Patterns

When Does Revenue Peak? Analyzing Temporal Patterns

3.1.4.1. Chart 9 (refer to Sheet 9): Monthly Average and Total Revenue (INR)

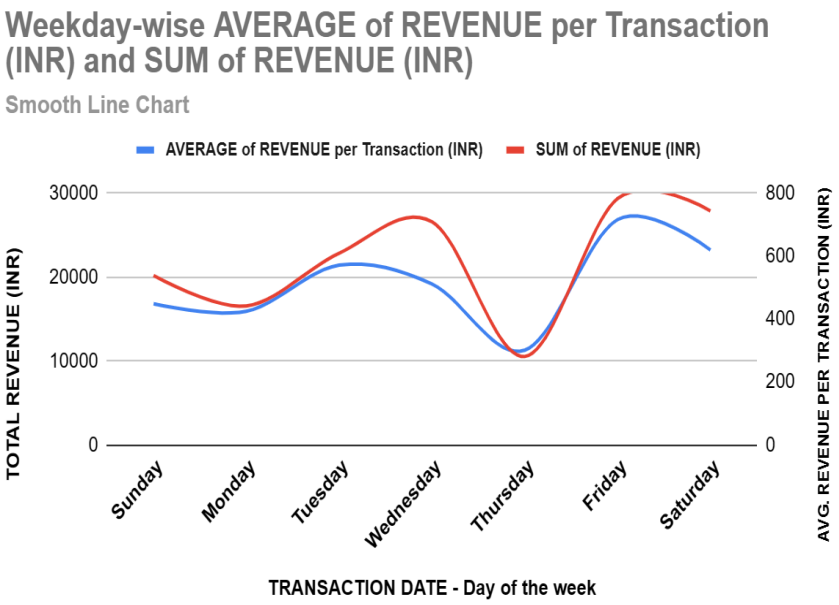


How Do Monthly Trends Reflect Average and Total Revenue?

Description: This smooth line displays both the average(blue line) and total revenue(red line) per month, highlighting trends over time.

Insights: The graph shows peak revenue periods, especially in Month August, suggesting seasonality may influence sales. By timing our promotions around these peak months, we can take advantage of high sales periods, potentially enhancing revenue generation.

3.1.4.2. Chart 10 (refer to Sheet 10): Day of the Week - Average Revenue and Total Revenue (INR)

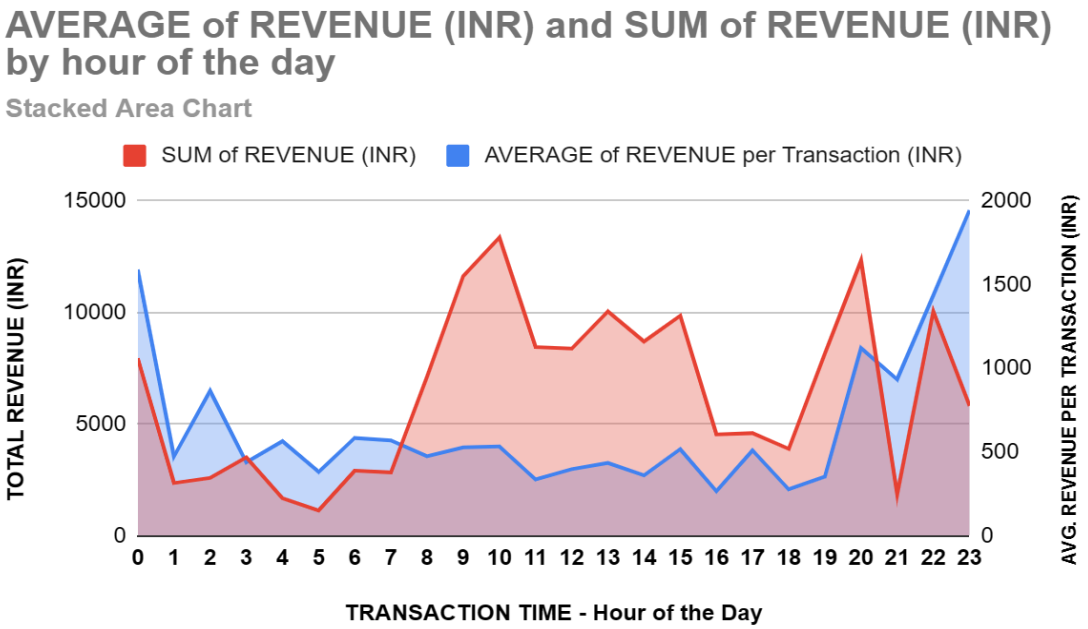


What Day of the Week Generates the Most Revenue?

Description: This smooth line chart breaks down total(red line) and average(blue line) revenue by weekday, revealing which days of the week performed best and worst. Understanding these trends helps in planning effective promotions and boosting revenue on specific days.

Insights: With Wednesdays and Fridays generating the most revenue, these days are ideal for focused promotions to make the most of high user activity. Thursday's lower revenue could be improved by adding mid-week deals to attract more users. Steady weekend revenue suggests that offering weekend-specific promotions could help maintain engagement and encourage consistent growth.

3.1.4.3. Chart 11 (refer to Sheet 11): Hourly Revenue Trends: Total Revenue vs. Average Revenue per Transaction



How Do Hourly Trends Affect Total and Average Revenue?

Description: This stacked area chart illustrates total revenue (sum of revenue) and average revenue per transaction throughout each hour of the day. The red area signifies total revenue in INR, while the blue area indicates average revenue per transaction in INR. The primary y-axis (left) measures total revenue, and the secondary y-axis (right) measures average revenue per transaction.

Insights:

A. Revenue Peaks: There are noticeable peaks in total revenue around early morning (7-9 AM) and evening (8 PM), suggesting higher customer activity and spending during these times.

B. Average Revenue per Transaction Variability: The average revenue per transaction fluctuates throughout the day, with higher averages occurring during off-peak hours, such as late at night (11 PM). This suggests that while there may be fewer transactions at these times, the ones that occur tend to be of higher value.

C. Low Revenue Periods: The midday hours (12 PM to 4 PM) show relatively lower revenue and average revenue per transaction, indicating a potential drop in transaction volume or lower-value transactions during this period.

These insights can boost revenue through targeted promotions during low hours, promoting premium services at peak times, and implementing dynamic pricing strategies (adjusting prices based on demand). Scheduling notifications and ads during peak engagement hours can drive higher transaction volumes, optimizing marketing efforts and enhancing revenue throughout the day.

3.2. User Retention Analysis

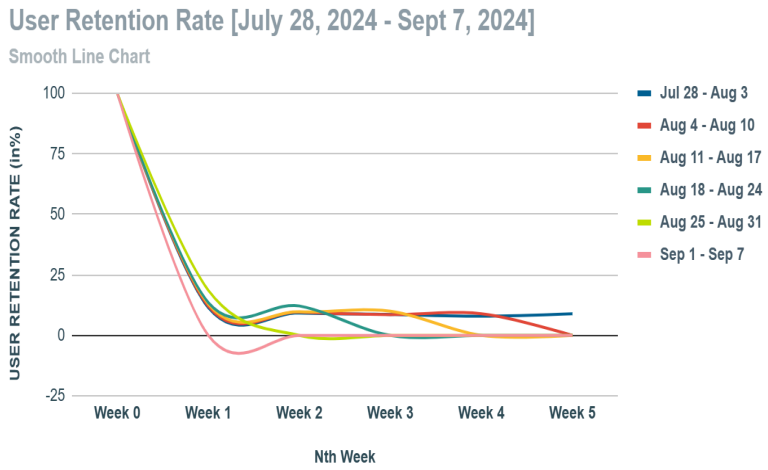
How Are We Retaining Users? Analyzing Retention Metrics

This subsection explores the factors that impact user retention. The goal is to understand when users tend to drop off and how this affects revenue, helping us create strategies to keep users engaged.

3.2.1. User Retention Rate Analysis

What Are Our User Retention Rates? Evaluating Retention Over Time

3.2.1.1. Chart 12 (refer to Table 13.1 from Sheet 15): User Retention Rate (July 28, 2024 - Sept 7, 2024)



What Does the Retention Rate Look Like Over This Period?

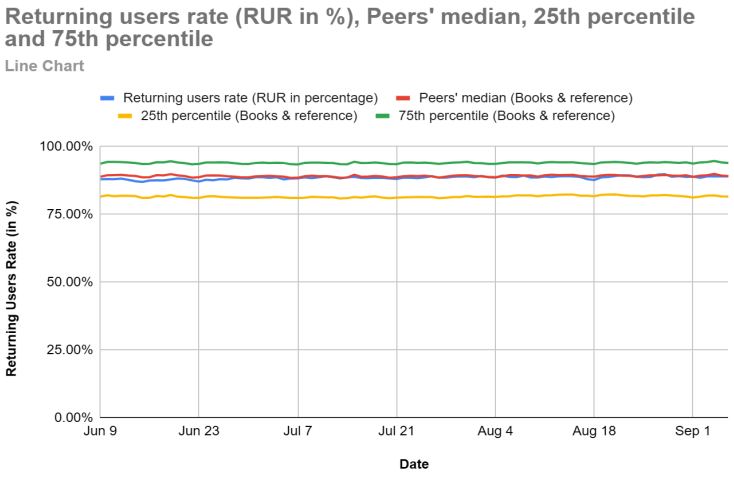
Description: This smooth line chart displays the user retention rate (on the y-axis) week-to-week (on the x-axis) for different cohorts starting from July 28, 2024, to September 7, 2024. Each line represents a weekly cohort, showing a sharp decline from Week 0 to Week 1.

Insights:
The analysis of temporal user retention trends reveals key areas for improvement:

A. Early Drop in Retention: The sharp decline in user retention by Week 1 (where it nearly reaches zero) across all cohorts suggests that users are not returning after their initial experience. This could be due to issues in the onboarding process or early friction points in the app. Enhancing the onboarding experience and adding follow-up touchpoints (such as reminders or prompts to re-engage users) within the first week could help mitigate this early drop-off.

B. Consistently Low Retention: From Weeks 2 to 5, the retention rate stabilizes but remains low. This indicates that once users leave, they are unlikely to return. To address this, retention incentives, such as loyalty rewards, personalized follow-ups, or fresh content, could be implemented to keep users engaged and encourage them to revisit the app.

3.2.1.3. Chart 13 (refer to Sheet 16): Returning Users Rate (June 9, 2024 - September 1, 2024)



How Well Are We Retaining Users Compared to Our Competitors?

Description: This line chart illustrates the "Returning Users Rate" (RUR) as a percentage over time, comparing the user's app performance to industry benchmarks in the "Books & Reference" category. The chart spans from early June to early September, plotting four main lines:

A. Returning Users Rate (RUR) (in blue) - Represents the app's returning users rate over time.

B. Peers' Median (in red) - Shows the median returning users rate of peer apps in the same category.

C. 25th Percentile (in yellow) - Represents the lower 25th percentile benchmark for peer apps.

D. 75th Percentile (in green) - Shows the upper 75th percentile benchmark for peer apps.

Insights:

A. Consistency in RUR: The returning users rate of the app (blue line) is consistently higher than the peer median (red line) and close to the 75th percentile (green line) throughout the period.

B. Above-average Performance: The app's returning user rate consistently performs above the 25th percentile and the median, indicating stronger user retention than the majority of peer apps.

C. Narrow Range: All lines stay within a relatively narrow range, around 70–80%, suggesting stable returning user rates across the period for both the app and its peers.

Although this comparative analysis doesn't directly help to increase user engagement or improve retention for the app, it highlights our position relative to industry standards. This insight into user loyalty, with the app's returning user rate close to the upper 75th percentile, demonstrates strong user retention and underscores the effectiveness of the app's current retention strategies compared to peers in the 'Books & Reference' category.

3.3. Cost Per Acquisition (CPA) Analysis and Marketing Efficiency

How Efficient Are Our Marketing Efforts? Analyzing Cost Per Acquisition

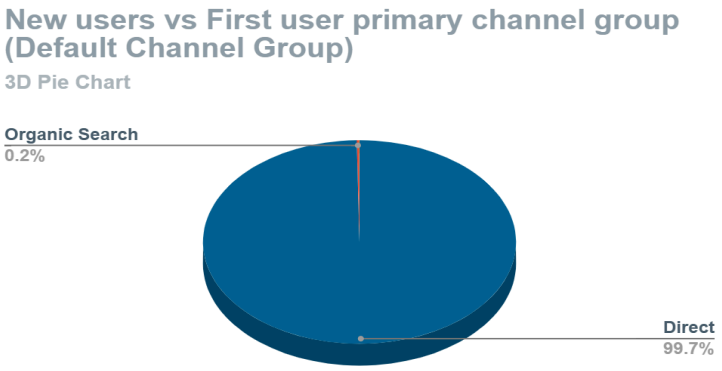
This subsection examines the cost-effectiveness of various channels, ad groups, and platforms to identify where acquisition efforts can be optimized. By analyzing user acquisition sources, session engagement, and ad performance and geographical insights for target marketing we aim to streamline budget allocation and reduce the overall CPA.

3.3.1. Acquisition Channel Performance Analysis

Which Channels Are Most Effective for User Acquisition?

3.3.1.1. Chart 14 (refer to Table 7 from Sheet 14): New Users vs. First User Primary Channel Group (Default Channel Group)

First user primary channel group (Default Channel Group)	New users
Direct	608624
Organic Search	1424
Referral	317
Organic Social	2

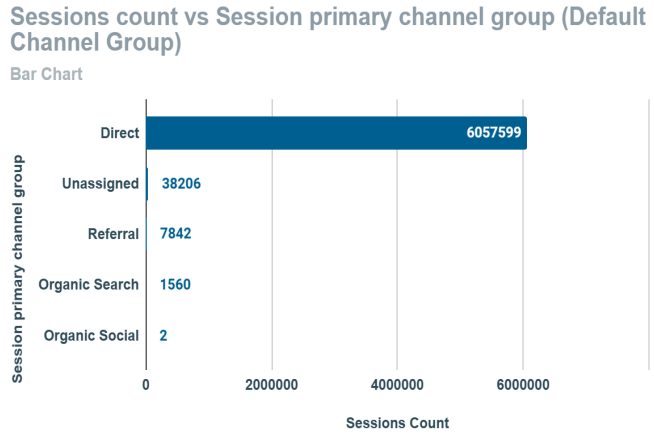


From Which Acquisition Channels Do New Users Arrive To The App?

Description: The pie chart shows how many new users originate from different channel groups, identifying which channels drive new acquisitions. Similarly, the table illustrates the same data, detailing the number of new users acquired through each channel group.

Insights: The high proportion of direct traffic suggests a strong brand recognition, which can help lower Cost Per Acquisition (CPA), as direct acquisitions are typically less expensive. However, the underwhelming numbers from organic search and social channels indicate opportunities for improvement in search engine optimization (SEO) and social media marketing strategies. By enhancing these channels, the platform can attract more new users at a lower cost. Additionally, focusing on strengthening referral partnerships could further diversify acquisition strategies and contribute to a more sustainable reduction in CPA.

3.3.1.2. Chart 15 (refer to Table 8 from Sheet 14): Sessions Count vs. Session Primary Channel Group



How Do Session Counts Vary Across Different Channels?

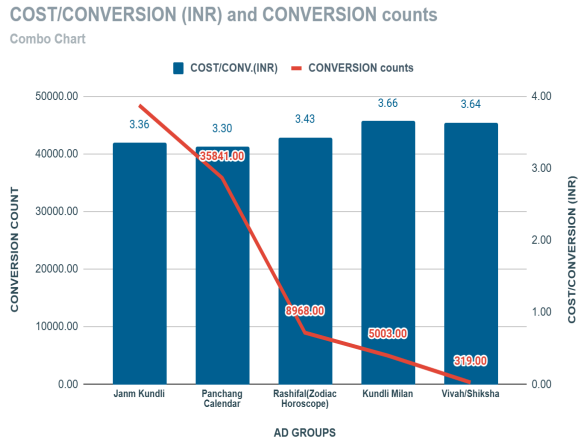
Description: This bar graph highlights session frequency by primary channel, showing which channels have the most engaged users and how users typically arrive at the app.

Insights: The strong performance of the Direct channel implies effective brand recognition and loyalty, meaning that enhancing engagement strategies here could boost user retention and reduce reliance on costly re-acquisition efforts, ultimately lowering Cost Per Acquisition (CPA). Conversely, the low engagement from Organic Search and Organic Social indicates missed opportunities for reaching new users, highlighting the importance of refining marketing efforts in these areas to expand the user base.

3.3.2. Ad Performance Analysis

How Are Our Ads Performing? Evaluating Ad Effectiveness

3.3.2.1. Chart 16 (refer to Table 4 from Sheet 14): Cost/Conversion (INR) vs. Ad Groups

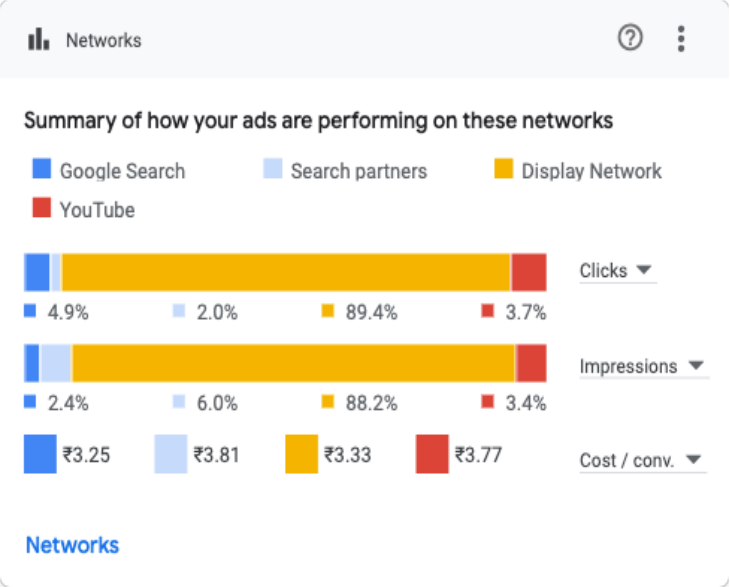


What Is the Cost Per Conversion Across Different Ad Groups?

Description: This bar chart illustrates the Cost Per Acquisition (CPA) for each ad group, including Janam Kundli, Panchang Calendar, Rashifal, Kundli Milan, and Vivah/Shiksha and identifies which groups are the most and least cost-effective in converting users.

Insights: The Panchang Calendar ad group has the lowest CPA at INR 3.30 with 35,841 conversions, while Kundli Milan shows the highest CPA at INR 3.66 and only 5,003 conversions. Reallocating budgets towards more cost-effective groups like Panchang Calendar can reduce overall acquisition costs. Optimizing underperforming groups such as Kundli Milan may also enhance marketing efficiency and improve return on investment.

3.3.2.2. Chart 17 (refer to Sheet 14): Number of Social Platforms vs. Ad Campaigns



How Many Social Platforms Are We Using for Our Ad Campaigns?

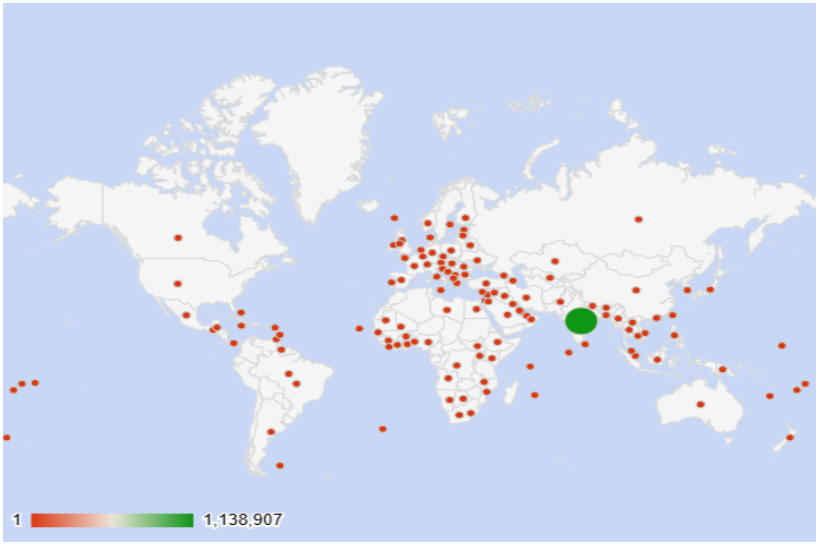
Description: Taken from app analytics report, this overview card compares the effectiveness of various social platforms used in ad campaigns. It shows the distribution of performance across Google's advertising networks. The Display Network (a collection of websites, apps, and videos where ads can be displayed, designed to reach users while they browse online) captures about 89% of clicks and impressions, while Google Search accounts for 4.9% of clicks and 2.4% of impressions. Cost per conversion varies, with Google Search being the most cost-effective at ₹3.25, followed by Display at ₹3.33, YouTube at ₹3.77, and Search partners at ₹3.81.

Insights: Google Search's low cost per conversion makes it ideal for expanding campaigns, which can help lower overall acquisition costs. The Display Network offers significant volume at reasonable costs, presenting opportunities for better audience targeting. Search partners may need cost-cutting adjustments, while YouTube can benefit from improved targeting and ad format testing. Regular budget reallocations to high-performing networks will support ongoing cost efficiency.

3.3.3. Geographical Insights for Targeted Marketing

Where Are Our Active Users Located? Understanding Geographical Trends

3.3.3.1. Chart 18 (refer to Sheet 13): Geographical Distribution of Active Users on World Map



What Does the World Map Reveal About Our Active User Distribution?

Description: This world map geochart visualizes the geographical distribution of active users, using markers to indicate user concentrations. The color gradient ranges from red (low activity, score of 1) to green (high activity, score of 1,138,907). The map reveals a high concentration of red markers in Europe, parts of Asia, and North America, while a significant green marker in the Middle East/South Asia indicates the highest user concentration.

Insights: The data highlights a significant disparity, with India (the large green marker) serving as a centralized hub of activity, accounting for 1,138,907 users, compared to smaller regions represented by red markers, such as Nepal (12,296), the US (1,761), the UAE (1,174), France (528), and Germany (524). To optimize user acquisition, marketing strategies should focus on expanding presence in underrepresented areas like South America and Africa, while leveraging the strength of India as the primary location. The clustering of users in Europe signifies a key market that could serve as a secondary hub for growth.

4. Interpretation of Results and Recommendation

Since the beginning of this project, we're trying to address the three primary challenges faced by the astrology consultation company, as identified by Hindu Panchang team:

A. **Low revenue generation.**

B. **Low user retention.**

C. **High cost per acquisition (CPA) and ineffective marketing efficiency.**

After analyzing the data on revenue, user retention, and advertising performance, we've identified specific patterns and areas for improvement. Let's recap and interpret them first:

4.1. Interpretation of Results

4.1.1. Revenue Distribution Analysis

A. **High-Performing Spiritual Products:** Items like Stones and Beads Mala account for about 30% of total revenue. In contrast, Online Birth Charts, despite their popularity, generate lower revenue per transaction.

B. **Low Revenue from Services:** Online Birth Charts attract many users but fail to translate into significant revenue compared to other services.

C. **Top Revenue Categories:** Following the 80/20 rule, products and services such as Stones, Beads Mala, and Marriage Counseling contribute substantially to overall revenue.

D. **Gender Spending Patterns:** Male users represent a larger share of total revenue, while female users tend to spend more per transaction.

E. **Age-Specific Interests:** Younger users show a preference for services related to life events (like marriage), while older users gravitate towards stability-oriented services (like guidance on housewarming or vehicle purchases).

F. **Geographical Revenue Sources:** Major contributors to revenue include states like Rajasthan, Uttar Pradesh, and Bihar, while regions such as West Bengal, Delhi, and Tamil Nadu underperform.

G. **Language Demographics:** Almost all revenue (99.3%) comes from Hindi speakers, with a minimal contribution (0.7%) from English speakers.

H. **Timing for Revenue Peaks:** Revenue spikes significantly in August, especially on Wednesdays and Fridays, during morning and evening hours.

4.1.2. User Retention Metrics Analysis

A. **Early Drop in Retention:** A notable decline in user retention occurs by Week 1, indicating issues with the onboarding process, leading to a lack of motivation among users to return to the app after initial use.

B. **Consistently Low Retention:** Retention rates from Weeks 2 to 5 remain low, suggesting that disengaged users are unlikely to return without targeted interventions.

C. **Returning Users Rate Compared to Peer apps:** The app demonstrates strong user retention, consistently performing above the industry median and close to the 75th percentile, indicating it retains users better than most of its peers in the "Books & Reference" category.

4.1.3. Cost Per Acquisition (CPA) of Ad Groups and Marketing Platforms Analysis

A. **Effective Brand Presence:** A high level of direct traffic indicates a strong brand presence, which helps to lower CPA. However, low organic search and social media traffic suggests missed opportunities for attracting new users.

B. **Engagement Disparities:** Direct traffic exhibits strong user engagement, while organic search and social channels perform poorly, highlighting the need for enhanced marketing efforts to broaden the user base.

C. **Ad Performance Insights:** The Panchang Calendar ad group is cost-effective, while others like Kundli Milan show underperformance, indicating a need for budget reallocation for improved marketing efficiency.

D. **Geographical Distribution:** India serves as the primary hub for user activity, with notable concentrations in Europe, Nepal, US, Canada and UAE. This presents opportunities for enhanced marketing efforts in these regions.

4.2. Recommendations

With these insights, we can now work on actionable recommendations to effectively tackle these challenges. Below are some creative yet practical strategies designed to boost the app's revenue, improve user retention, and stabilize CPA & marketing performance:

4.2.1. Enhancing Revenue Generation

A. Revenue Growth by Service

- **Expand Spiritual Products:** Spiritual products contribute 30% of total revenue. Focusing on expanding this category, along with bundling underperforming services (like Shubh Muhurat) with popular products, can increase average purchase size.

- **Enhance Online Birth Charts:** Despite high sales, this service generates low revenue per sale. Introducing premium options or slight price increases could maximize its revenue potential.

B. Revenue Growth by Sub-category within Each Service

- **Promote Detailed Birth Charts:** The Online Birth Chart service shows high potential for upselling from summarized to detailed charts (61% revenue share). We need to focus on marketing detailed charts to increase overall revenue.

- **Cross-sell Products:** In the Product Sales service, Stones contribute nearly 50% of revenue. We could develop cross-selling strategies between counseling and product categories, especially around high-performing sub-categories like Stones and Beads Mala.

- **Expand Paramarsh Sub-categories:** There is a need to prioritize marketing for high-revenue Paramarsh categories such as marriage, baby, and education counseling. This focused approach will optimize resource allocation and boost revenue.

C. Gender-Based Targeting

- **Target Female Users:** Female customers generate more revenue per user despite a smaller customer base. Developing targeted marketing campaigns to attract more female customers, could potentially increase revenue from this segment.

- **Create Male-Specific Packages:** Given that male customers generate more total revenue, creating tailored packages or upsells for male users could increase their average revenue per user.

D. Age-Based Targeting:

- **For Ages 15-24:** Focusing on services like Summarized Birth Charts and Marriage Counseling to cater to lifestyle interests can increase revenue generation from this age group.
- **For Ages 25-34:** We need to promote a balance of personal and professional services to appeal to their dual needs for this age range for the gain in earnings.
- **For Ages 45-60:** Emphasize services like Vehicle Purchasing and House Warming Ceremonies, catering to both lifestyle and professional needs.

E. Optimize Regional Marketing:

- **Top-Performing States:** Increasing marketing efforts in Rajasthan, Uttar Pradesh, Bihar, and Maharashtra would maintain growth.
- **High Revenue per User in Smaller Markets:** We have to focus on boosting acquisition in states like Odisha and Chandigarh, where the revenue per user is higher.
- **Underperforming States:** Deploying targeted promotions and personalized offers in underperforming states like West Bengal and Delhi will help to increase engagement.

F. Temporal Revenue Patterns

- **Seasonal Promotions:** With peak revenue in August, we need to plan marketing campaigns to coincide with these high-demand periods, maximizing revenue.
- **Mid-Week Deals:** We should leverage Wednesdays and Fridays for focused promotions, as these days show the highest revenue.
- **Promote During Off-Peak Hours:** Using targeted promotions during midday (12-4 PM) when sales drop, and focusing on premium services during high-revenue periods, such as early morning and evening hours, could maximize transaction values.
- **Dynamic Pricing Strategy:** Implementing dynamic pricing during high-demand periods (early morning, evening) and adjusting prices based on demand trends can optimize revenue.

4.2.2. Improving User Retention and Engagement

A. Enhance Onboarding Experience: The sharp drop in retention by Week 1 suggests that the onboarding process could be improved. Offering users a personalized introduction to the app, including an engaging tutorial or welcome package (such as discounts or free consultations), would encourage users to stay engaged beyond the initial use. A smooth and compelling onboarding experience can help users understand the app's value and increase the likelihood of them returning.

B. Implement a Loyalty Program: Introducing a loyalty program that rewards users with points for every consultation or product purchase would incentivize long-term engagement. Users could redeem these points for discounts, free consultations, or exclusive access to premium services. A loyalty program would create incentives for users to return regularly, improving retention rates by rewarding ongoing engagement.

C. Target Inactive Users: The company should actively target users who have not interacted with the app for a set period (e.g., two weeks) with personalized re-engagement campaigns. Offering special promotions or reminding users of the services they have previously enjoyed could help bring them back. This proactive approach would encourage inactive users to return, ultimately boosting retention.

D. Engage Users with Regular, Relevant Content: Providing users with regular, valuable content, such as astrology tips, weekly horoscopes, or user success stories and interactive webinars along with regular customer feedback surveys would keep them engaged long after their initial consultation. This kind of ongoing content engagement would make the app a part of their daily or weekly routine, increasing the chances of users returning for additional services.

4.2.3. Reducing CPA and Enhancing Marketing Performance

A. **Optimize Marketing Spend:** The company should allocate more budget to direct traffic channels, which already show strong user engagement. At the same time, funds should be reallocated from underperforming channels, like organic search and social media, to improve overall marketing efficiency. Enhancing social media and Search Engine Optimization (SEO) strategies is also crucial. By creating engaging astrology-related content, success stories, and educational posts, we can strengthen its online presence, attract more users, and lower CPA through improved organic reach and social engagement.

B. **Capitalize on Direct Traffic:** Direct traffic has proven to be an effective channel, and the company should focus on strengthening its already established brand awareness even more through email campaigns, word-of-mouth referrals, and influencer partnerships. A referral program would also help bring in new users without significant additional cost. Capitalizing on direct traffic helps maximize user acquisition efforts without relying heavily on expensive paid ads.

C. **Reallocate Budgets to Cost-Effective Ad Groups:** To improve marketing efficiency, it is essential to reallocate the budget towards high-performing ad groups like Panchang Calendar, which generate cost-effective conversions. At the same time, underperforming ad groups like Kundli Milan should be optimized by testing new creatives, adjusting targeting, and reallocating budgets to more successful services, as discussed in sections 3.1.1 and 3.1.2 (for e.g. products like different Gemstones Mala, Rudraksha Beads and services like Marriage related Counselling). Including such high-revenue-generating services in these ad groups can further enhance their performance, resulting in lower CPA and improved overall ad efficiency.

D. **Maximize High-Performance Social Networks:** We should expand Google Search campaigns for its low cost per conversion, while optimizing targeting on the Display Network for broader reach. There is also a scope to further test YouTube Ad formats and refine Search partner targeting to enhance cost-effectiveness and improve conversions.

E. **Target Key Geographical Markets:** To maximize return of investment, we should focus on geo-targeted advertising in regions with strong user engagement, particularly India and Europe. By tailoring campaigns to these areas, it can attract users more likely to engage, lowering CPA. Additionally, expanding into high-growth markets like Nepal, US, UAE, France and Germany will help grow the user base. In the long-term, marketing efforts can also target under-represented regions like South America and Africa for further expansion.

5. A Final Note

In a nutshell, to achieve sustained growth and user satisfaction, Hindu Panchang app should prioritize top-performing products and services to boost revenue, strengthen retention through early engagement tactics and loyalty programs, and reduce CPA by reallocating budgets to high-performing Ad campaigns and marketing channels. Regular data reviews and customer feedback surveys will keep these strategies aligned with user needs for long-term success. Beyond these current goals, Hindu Panchang can also redefine astrology as a wellness and self-discovery tool by clarifying what it is and isn't. Through educational content like articles, webinars, and success stories, the app can demystify astrology, flourishing trust, transparency, and a deeper connection with users in an ethical way.