

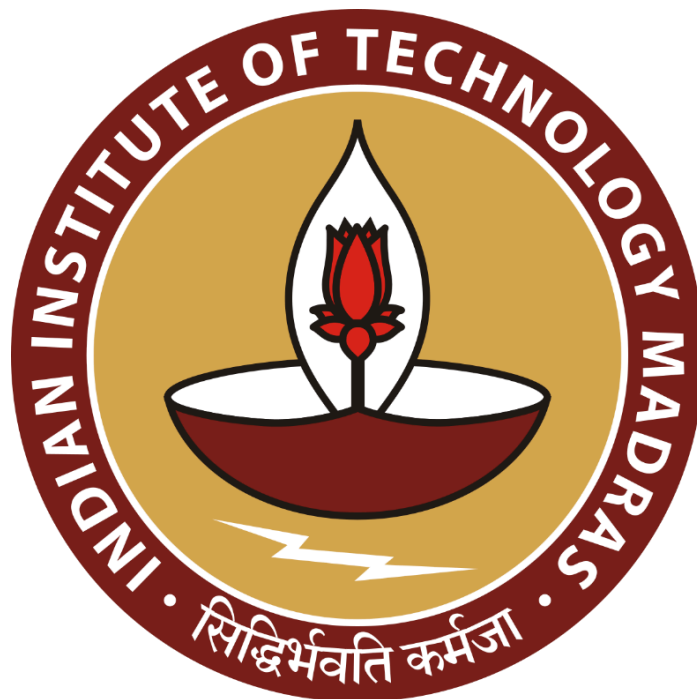
Driving Growth Through Enhanced Revenue, Reach, and Operational Efficiency

Final-term Submission for the BDM capstone Project

Submitted by

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1. Executive Summary

This report titled “**Driving Growth Through Enhanced Revenue, Reach, and Operational Efficiency**” presents a detailed analysis focused on data for Ink Over Matter, a tattoo studio located in Kodahalli, Bangalore since 2012. The investigation aims to solve issues like lack of presence online, operational constraints, and reliance on organic customer acquisition. The data in consideration is from 2018 to early 2024. Important trends were derived in terms of time, demographics, tattoo types, and geography.

For data preprocessing, cleaning, analysis and visualisation I used the help of Python and its libraries like pandas, matplotlib, and seaborn. Results show that revenue is highest from intricate, full-body tattoos (e.g., Sleeve, Back) and the 26–30 years category, which spends the most. Interestingly, repeat customers generate more than 80% of revenue, with a high repeat visit rate of 82.6%, reflecting high customer loyalty. Interestingly, initial customers also indicate high average expenditure per session. Temporal trends reveal intense seasonal spikes in early spring and persistent post-pandemic expansion, with 2023 representing the most appointments ever. Region-wise, South Indian states account for both client numbers and income. Gender-specific observations reveal male clients favor large tattoos, while small tattoos are popular across the board. "Other" gender group representation is thin, implying avenues for inclusive outreach.

Recommendations include high-revenue tattoo type promotion through online channels, implementing loyalty and referral programs, streamlining operations through chatbot automation and intern assistance, and extending targeted marketing into South Indian states. Inclusive branding and feedback mechanisms are also recommended to facilitate wider client involvement.

2. Explanation of Analysis Procedure

To do this analysis, a variety of sophisticated techniques was used, all designed to assist Ink Over Matter in solving its specific business issues. The overall objective is to uncover significant insights into tattoo book patterns, tattoo styles, studio performance, and behaviors of clients. Preparatory data cleansing was necessary prior to the elaboration of these analytical procedures to guarantee accuracy and prevent deceptive results. Extensive data cleaning and preprocessing were performed before starting with the analysis. The data being now prepared, the following section explains the particular analysis techniques employed for this study.

i) Monthly Appointment Count per Year (2018–2024)

Objective:

To recognize seasonal and yearly trends in the appointment bookings such that shifts in demand might be more readily understood and factored in.

Analysis Process:

- The "Date of Appointments" column was initially transformed into a uniform datetime format to enable uniform extraction of year and month components.
- Two new columns, "Appointment_Year" and "Appointment_Month", were created from the original date data.
- The appointment records were then grouped into years and months, and the number of appointments in each group was determined.
- The years were made rows and the months columns, with missing month values filled with zeros to preserve consistency.
- A bar chart was employed to illustrate graphically the breakdown of monthly appointments by year, with a line chart also being under consideration to note overall trends. The correct titles, legends, and labels were used for clarity.

ii) Revisit Percentage

Aim:

To ascertain the percentage of clients who revisited the studio, hence giving a measure of client retention.

Procedure for Analysis:

- Binary values in the data were coded: "1" was designated for clients who were revisited and "0" for non-returning clients.
- The number of entries for each category was calculated and transformed into percentage form.
- These percentages were then analyzed to understand the studio's revisit rate and client retention pattern and also to create a pie chart for the same.

iii) Revisit Rate Over Time (Year-wise)

Aim:

To analyze how client revisit behavior changed over various years, and to find out whether there were any external influences.

Procedure:

- Yearly revisit rates were plotted on a line chart and discussed.
- The pattern was seen by reviewing the form of the line and looking for spikes or troughs over years.
- Anomalies, like the elevated revisit rate in 2021, were placed in context with business facts (e.g., pandemic interruptions in 2020).
- These trends were understood against the backdrop of operational realities and context.

iv) Average Revenue per Appointment by Age Group**Aim:**

To determine which age segments of clients produced the highest average revenue per appointment, thereby aiding in targeted service and pricing strategies

Analysis Procedure:

- Appointment data was grouped by client age group.
- Total revenue and number of appointments were aggregated for each group.
- Average revenue per appointment was calculated by dividing total revenue by appointment count.
- A bar chart was generated with age groups on the X-axis and average revenue on the Y-axis, using a uniform color scheme and labeled axes.

v) Average Revenue per Tattoo Type**Aim:**

To identify which type of tattoos generated greater average revenue for the studio.

Procedure for Analysis:

- Appointment data was grouped by tattoo type, and average revenue was calculated for each category.
- A bar chart was generated with tattoo types on the X-axis and average revenue on the Y-axis.
- Bar heights were visually compared to determine the revenue ranking of each tattoo type.
- Axis labels and a clear title were added to enhance readability of the chart.

vi) Tattoo Type Preference by Gender

Aim:

To analyze how tattoo preferences varied across different gender groups, enabling personalized marketing and inventory decisions.

Analysis Procedure:

- A cross-tabulation between "Type of Tattoo" and "Gender" was performed.
- A heatmap was generated to visually represent the frequency of each combination.
- Purple color range of density was utilized to represent density of which darker colors corresponded to higher frequency.
- Patterns and anomalies were next recognized to determine gender-specific trends.

vii) Conversion Rate of First-Time vs Repeat Customers**Objective:**

To contrast the appointment quantity of first-time clients with returning clients and corresponding revenue impact.

Analysis Process:

- Summary table was generated by group-wise aggregating appointments by the "Is Revisit" flag.
- Total appointments, total revenue, and average revenue per appointment were computed for each group.
- The two client groups were compared on these parameters to make meaningful observations.
- Basic comparisons were conducted to evaluate differences between first-time and repeat clients.

viii) State-wise Revenue Contribution**Aim:**

To recognize the geographic spread of clients and revenue, particularly concerning the physical location of the studio.

Procedure for analysis:

- Appointment data was grouped by state to calculate total appointments and total revenue for each region.

- A bar chart was created to display the number of appointments by state, and a pie chart was generated to represent each state's share of total revenue.
- Chart elements such as titles, labels, and color schemes were applied to enhance clarity and comparison.
- The two charts were then compared to evaluate the alignment between appointment volume and revenue contribution across different states.

ix) Average Revenue by Body Part

Aim:

To determine where areas of highest average revenue were found, and therefore which areas to focus on in terms of pricing and design.

Analysis Procedure:

- The data was grouped by body part, and the average total cost of appointments was calculated for each group.
- A bar chart was created with body parts on the X-axis and average total cost (in INR) on the Y-axis.
- Bar heights were compared to assess which tattoo placements generated higher average spending.
- Appropriate labels and chart titles were applied to ensure clarity in presentation and interpretation.

3. Results and Findings

The analytical methods outlined above were applied to Ink Over Matter's pre-prepared dataset utilizing Python as the primary programming language. Essential libraries utilized involved Pandas and Numpy to perform different data processes and analysis. In presenting the results, visualizations were created primarily by using Matplotlib, Seaborn, and Tableau. These utilities played a central role in identifying and presenting important patterns and trends related to Inkover Matter's activities, in assisting with answering key business questions and decision-making.

i) Monthly Appointment Count by Year (2018-2024)

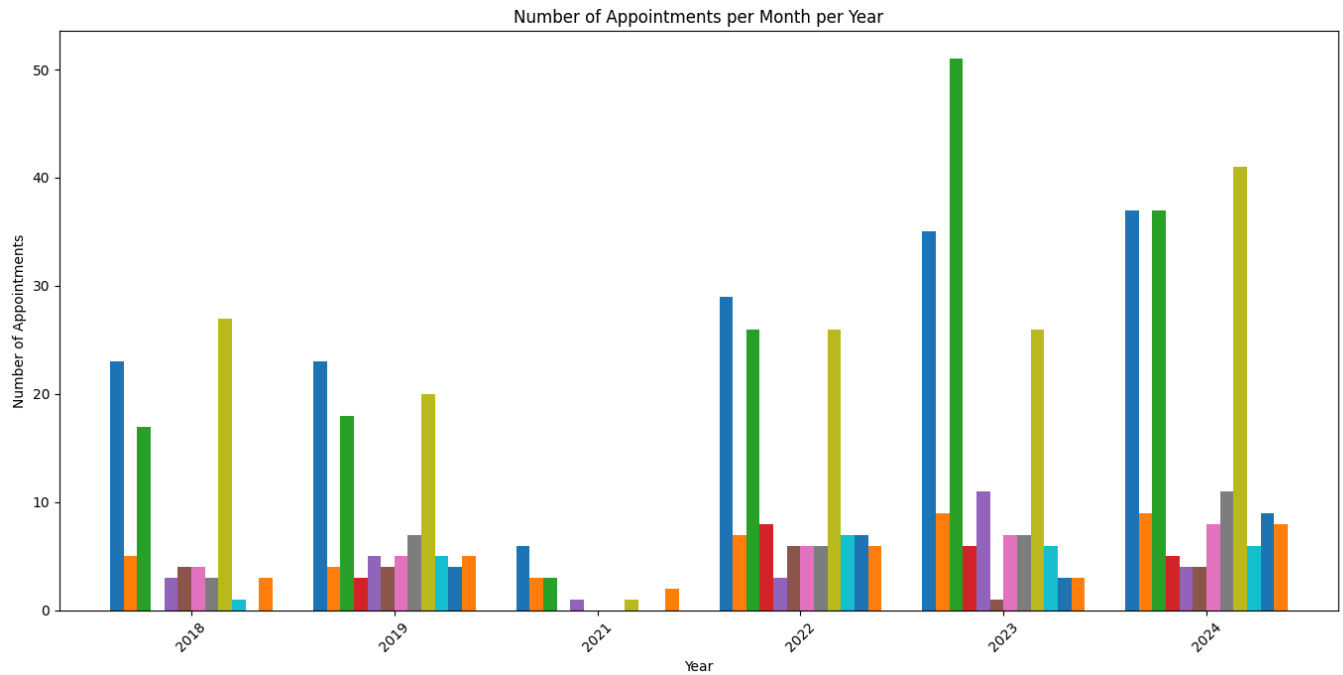


Figure 3.1 Number of Appointments per Month

The examination of the tattoo parlor's appointment records shows clear periods of operation and a strong recovery pattern. Before the advent of the COVID-19 pandemic, from 2018 through 2019, the parlor exhibited a healthy and consistent number of appointments. Figures for each month were normally around, setting a solid foundation for the business's operational capability and customer demand within a predictable market. The years displayed consistent activity every month, showing a strong stream of clients.

The extent of the COVID-19 pandemic's impact is starkly apparent in the statistics. The utter lack of appointment data for 2020 visually depicts a time of extreme disruption, conceivably precipitated by enforced closure and broad restrictions. In its wake, 2021 turned out to be a crucial year of recovery, although appointment figures were remarkably low for all months. This period clearly indicates the studio's slow and deliberate reopening, wherein the company was reopening but very far from the pre-pandemic levels of activity.

But the years between 2022 and 2024 reflect an incredible comeback and growth thereafter. In 2022, volumes for appointments considerably bounced back, reflecting a speedy return to normal operations and the regain of client interest. This upward trend grew exponentially in 2023, the most prosperous year in the dataset. 2023 monthly appointment numbers not only exceeded pre-pandemic levels but set all-time highs, especially for months such as March. The partial results of 2024 further affirm this positive trend and indicate that the studio is continuing its high

level of performance and may be growing its client base further.

There was also a consistent pattern of the seasons over the years as the studio functioned at greater capacities. The late winter and early spring season, especially January, March, April, and May, had the consistent highest appointments. This regular pattern indicates the possibility of seasonal demand or customer behavior based on some factors such as post-holiday planning or pre-summer preparations. Recognizing these peak times is vital to the studio's operational scheduling, such as staffing and marketing efforts, in order to gain maximum revenue and client satisfaction.

ii) Revisit Percentage

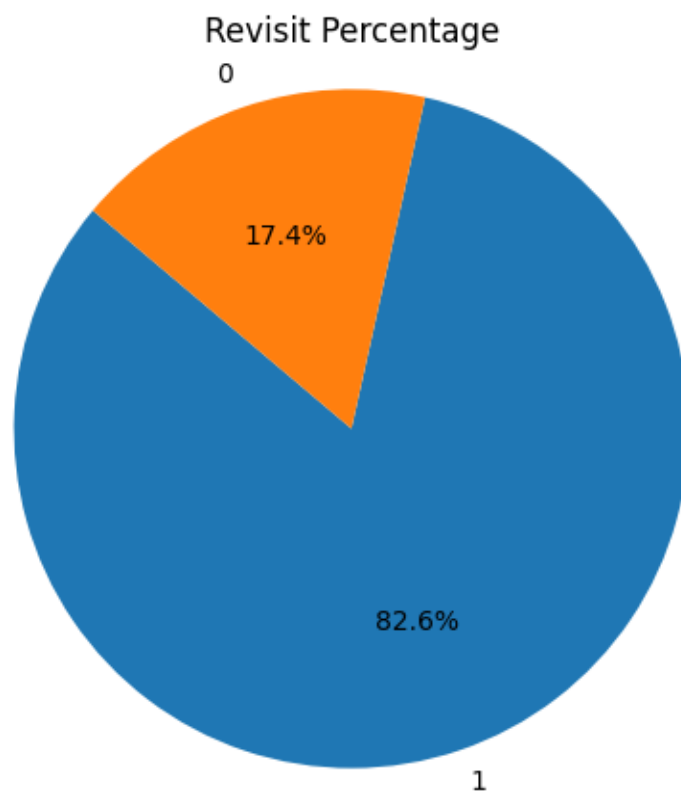


Figure 3.2 Revisit Percentage Pie Chart

Taking into account the pie chart as the revisit percentage of the tattoo shop, all the results are highly positive. The most striking figure is that an incredible 82.6% of customers are repeat visitors, implying that there is an extremely high revisit percentage. Conversely, only 17.4% of customers are initial visitors who did not return to the shop for subsequent appointments. This significant disparity signifies a strong preference for clients to return to the studio on several occasions.

iii) Revisit Rate Over Time (Year-wise)

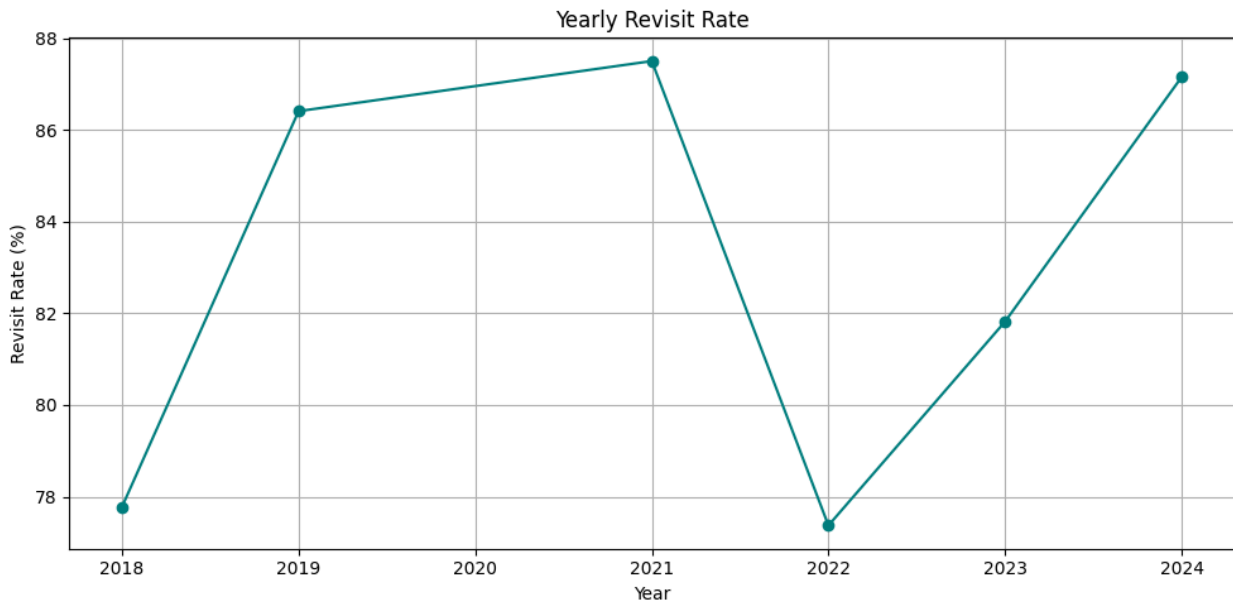


Figure 3.3 Revisit Rate over Time

The "Yearly Revisit Rate" graph speaks loudly of customer retention for the tattoo parlor, heavily influenced by the COVID-19 pandemic. Before the pandemic, the parlor evidenced strong client retention, with revisit rates increasing from roughly 77.8% in 2018 to a robust 86.4% in 2019, evidencing high levels of customer satisfaction and a growing list of repeat business customers. The impact of COVID-19 is evident with no 2020 figures, and then a false spike of about 87.6% in 2021. This is explained by the owner's understanding that customers in 2021 were mainly repeat revisitors, thereby creating an artificial rate since new client acquisition was minimal. The rate then declined to the normal levels, decreasing to approximately 77.4% in 2022 when the studio was back in full operation and began servicing an even diverse customer base, including fresh clients.

A dip expected, the studio soon established itself in winning clients back. The revisit rate consistently recovered, outpacing 81.8% in 2023 and to an impressive 87.2% in 2024. The trend indicates a strong post-pandemic recovery in the loyalty of clients, where the current rate of revisits not only surpasses its pre-pandemic highs but also indicates resilience and perhaps even enhanced ability to foster repeat business. In summary, the consistently high revisit frequencies across the observed period, generally above 77%, indicate the high quality in service and great customer relations of the tattoo studio, earning it a very loyal and contented customer base.

iv) Average Revenue per Appointment by Age Group

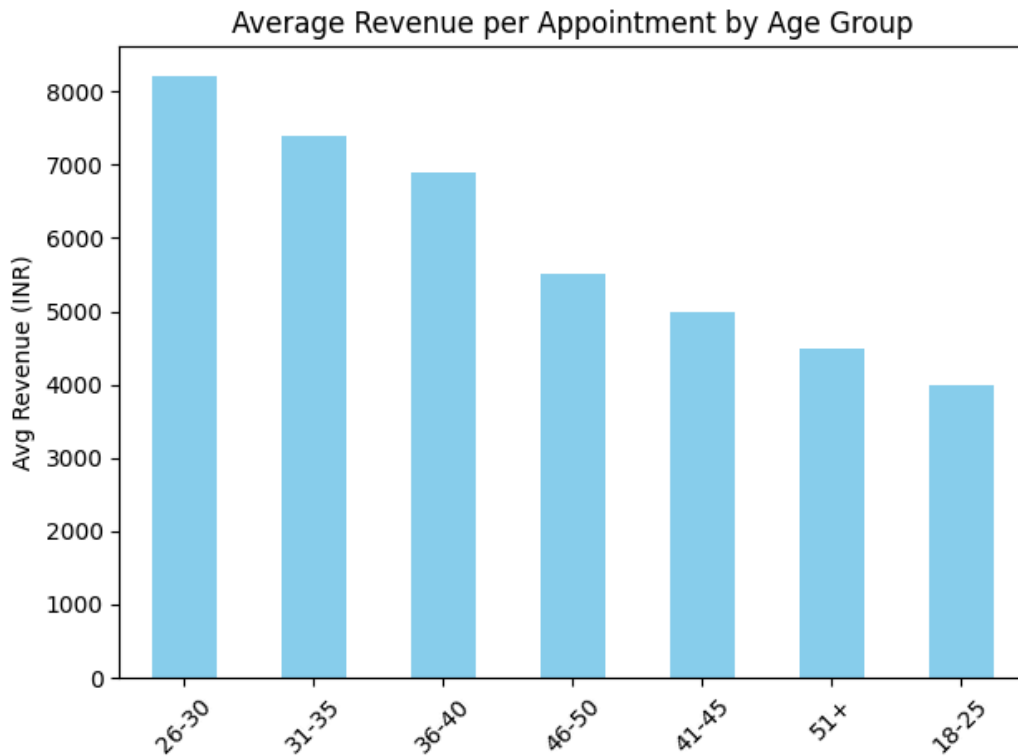


Figure 3.4 Average Revenue per Appointment by Age Group Bar Chart

The "Average Revenue per Appointment by Age Group" bar chart is a clear indicator of a substantial difference in the client spending pattern among various age groups. The information categorically indicates that the 18-25 age group has the lowest average revenue per appointment, which comes to around INR 4,000. This result is readily accounted for by the owner's observation that clients in this youngest age group tend to be having their first tattoo and therefore it is smaller in scale, and generally work on a tighter budget.

To the contrary, it is in the 26-30 age group where the average expenditure per appointment is the highest, with average revenue per appointment being over INR 8,000. This significant financial input from this segment is attributed by the owner to their affinity for "bigger sized tattoos" that are "more intense and time taking," obviously resulting in higher per-hour expenses. While average expenditure typically falls off somewhat for later older age ranges (e.g., 31-35, 36-40, 46-50, 41-45, 51+), the prevailing pattern emphasizes that mature age ranges, and especially those in their late twenties and early thirties, are the most profitable segment for the studio. This implies that as customers become more experienced with tattoos and may have greater disposable income, they will be more likely to spend money on larger and more intricate designs, straight away increasing the revenue per appointment for the studio.

v) Average Revenue per Tattoo Type

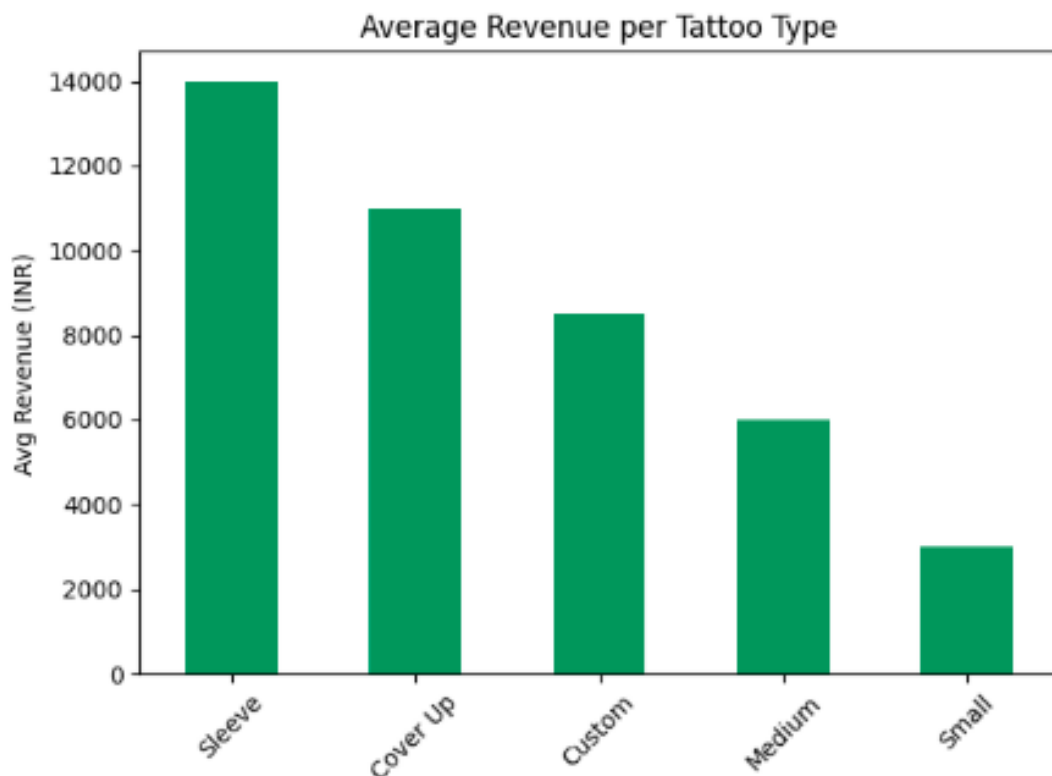


Figure 3.5 Average Revenue per Tattoo Type Bar Chart

The findings indicate that "Sleeve" tattoos are the highest revenue earner with an average revenue of more than INR 14,000 per sitting. In close contention are "Cover Up" tattoos that also earn a high average revenue of about INR 11,000. "Custom" tattoos are the next level, earning an average of about INR 8,500. Not surprisingly, "Medium" and "Small" tattoos earn much less money, with averages of approximately INR 6,000 and INR 3,000 respectively, and "Small" tattoos earning least per session since the starting price is INR 3000.

These statistics show that the studio's earnings are skewed most in favor of more extensive, more involved, and frequently more specialist tattooing. "Sleeve" and "Cover Up" tattoos, by definition, are large and involved, taking considerable time, effort, and resources, which makes them worth the higher price and thus, higher average revenue. "Custom" tattoos, though diverse in size, tend to feature specialty designs and lengthy consultation, adding value to their high average. On the other hand, "Medium" and particularly "Small" tattoos, taking less time and complexity, understandably generate less revenue per visit. This comparison points out that concentrating on servicing clients who are interested in greater-scale jobs such as sleeves and cover-ups would be a major approach to maximizing the average revenue per appointment for the studio.

vi) Tattoo Type Preference by Gender

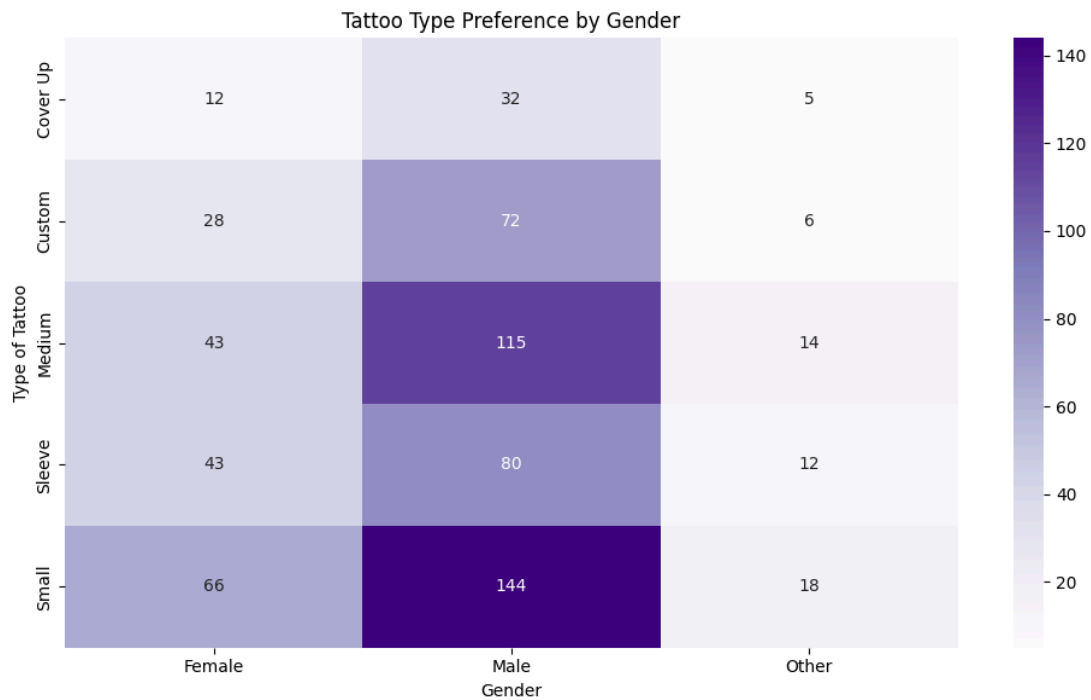


Figure 3.3 Tattoo Type Preference by Gender

Small tattoos are the most popular among both men and women, with 144 men, 66 women, and 18 other-gendered clients having them done. This attests to their cross-gender appeal and possible low-barrier first-time client entry. Medium-sized tattoos rank as the next most sought-after, particularly among males (115 appointments) in contrast to women (43) and others (14). This reflects increased interest from men in mid-sized or more intricate designs. Sleeve and Custom tattoos exhibit average popularity, yet more so for male customers (80 and 72 appointments, respectively). Cover Up tattoos are the least scheduled overall, with 32 males, 12 females, and only 5 other customers. Perhaps this is due to a niche application or price restriction.

vii) Conversion Rate of First-Time vs Repeat Customers

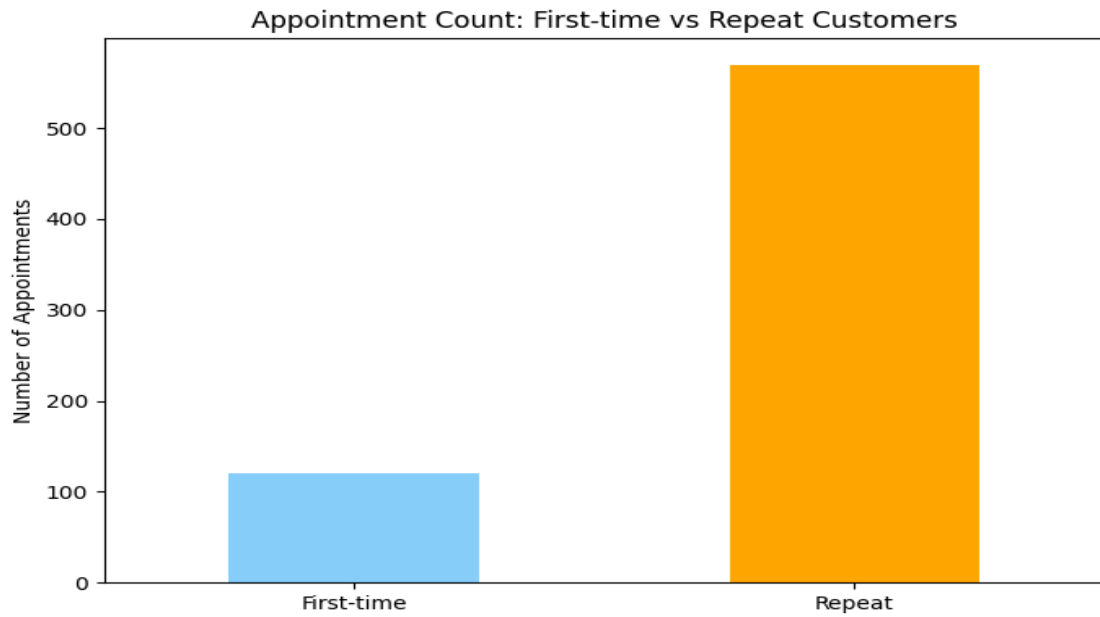


Figure 3.6.1 Conversion Rate of First Time vs Repeat Customers

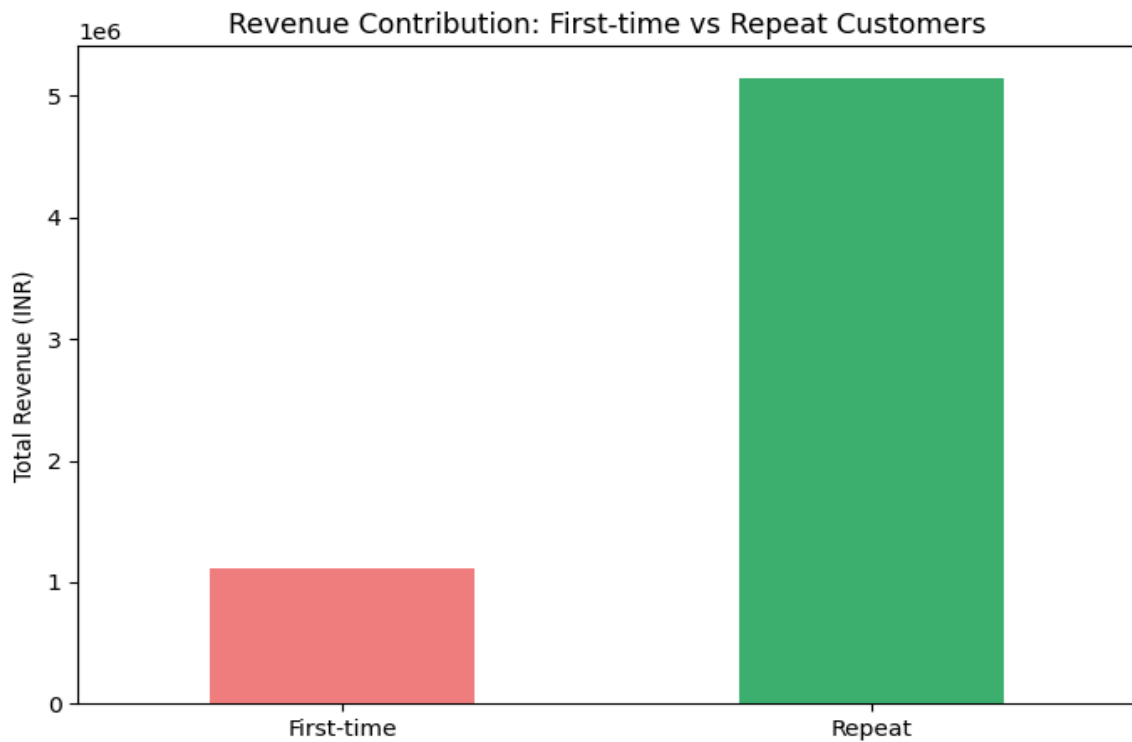


Figure 3.6.2 Revenue Contribution: First time vs Repeat Customers

The **Figure 3.6.1** provides insightful commentary on the tattoo studio's repeat clientele and income generation. It is evident that repeat clients constitute the great majority of the studio's volume of operation and financial support. Repeat clients represent a high 570 appointments, far outpacing the 120 appointments provided by first-time visitors. This volume dominance carries through directly into total income, with repeat customers yielding a staggering INR 5,151,864 against INR 1,109,384 for first-time clients, highlighting their pivotal status in the studio's

financial well-being overall.

A curious result occurs when looking at average revenue per appointment in **Figure 3.6.2**, where the two client types display remarkable equipoise with one another. First-time customers have a per-visit average spend of around INR 9,244.87, just marginally above the INR 9,038.36 spent by repeat customers. This indicates that although repeat customers are needed for steady revenue volume and aggregate revenue, first-time customers come ready to spend a high amount on their first tattoo. This average spending parity on each visit is a testament that the studio is good at getting quality early projects, and that repeat customers keep spending the same amounts on later visits, affirming the studio's total value proposition to its whole customer base.

viii) State-wise Revenue Contribution

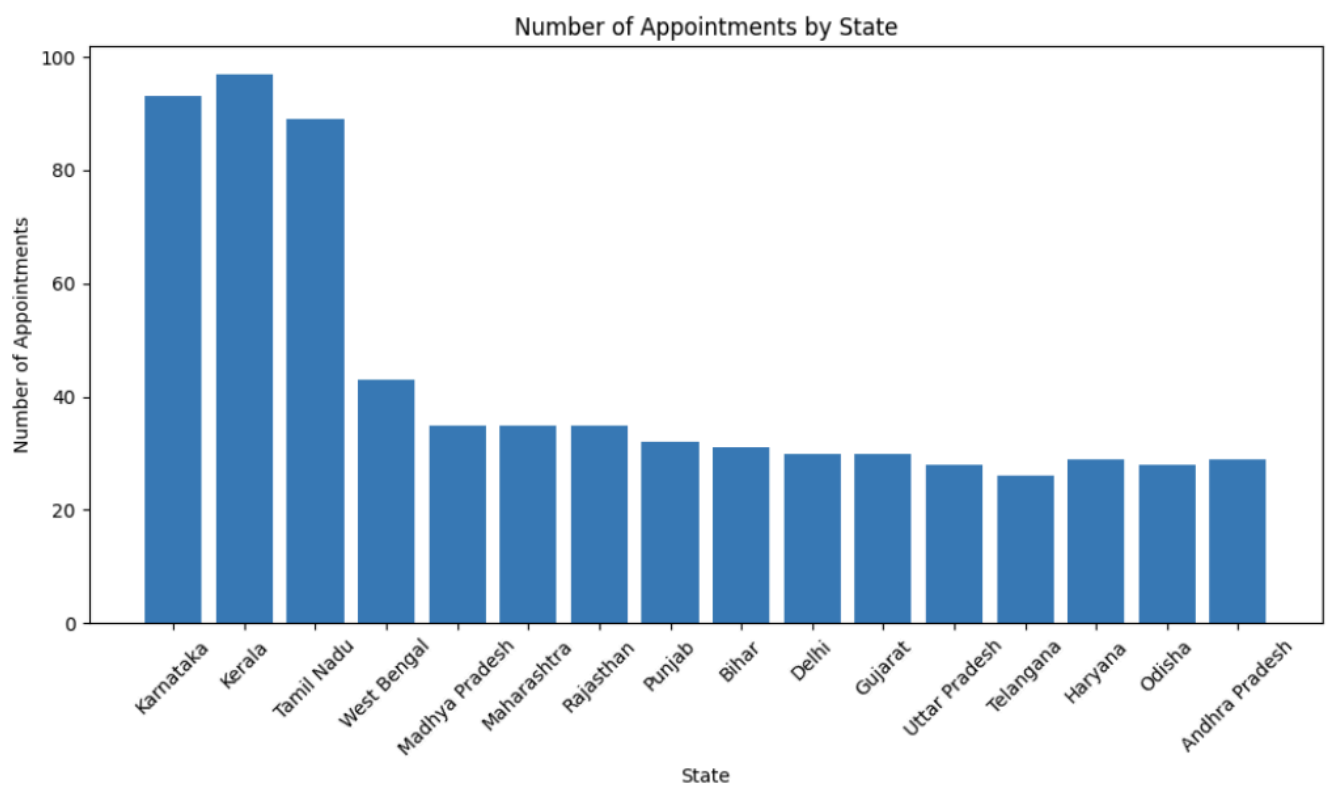


Figure 3.7.1 No. of Appointments by State Bar Graph

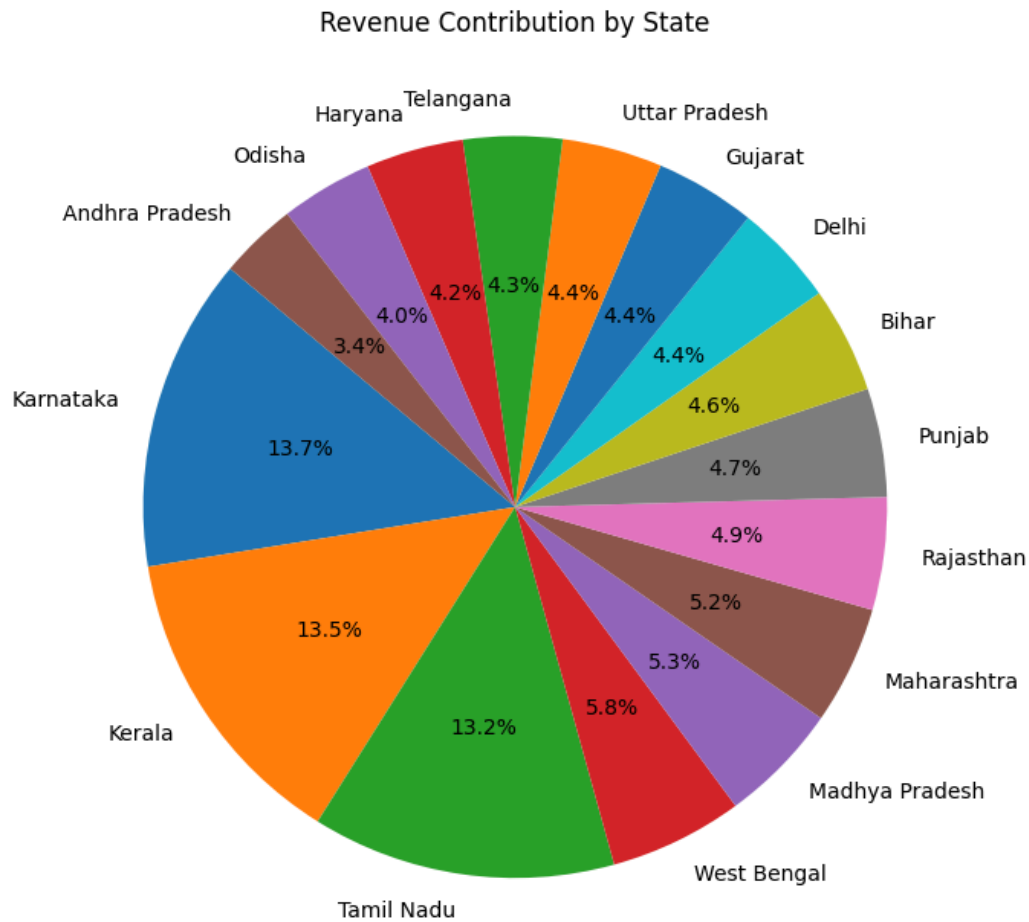


Figure 3.7.2 Revenue Contribution by State Piechart

The graph in **Figure 3.7.1** very clearly indicates the dominance of the local market of the studio by the home state of Karnataka with the most appointments, getting close to 100. Kerala and Tamil Nadu stand as the other top contributors with both having approximately 90 appointments. This implies that while the studio relies heavily on its domestic client base in Karnataka, it also extends its influence widely into surrounding South Indian states. The other states of West Bengal, Madhya Pradesh, and Maharashtra constitute a lower tier with significantly fewer appointments, indicating a focused client base for the South Indian market.

This same geographic pattern of appointments is also evident in the pie chart **Figure 3.7.2** again indicating the studio's base market. Karnataka is dominant in revenue contribution at 13.7%, as to be expected through its sheer number of appointments and proximity. Kerala (13.5%) and Tamil Nadu (13.2%) are nearly tied in importance, again affirming their statuses as irreplaceable sources of revenue for the studio, despite out-of-state clients. All three of the South Indian states together contribute more than 40% of the total business of the studio, which speaks of their

weightage. Strong correlation between strong appointment volume and strong revenue contribution from Karnataka, Kerala, and Tamil Nadu suggests homogeneity of client value in these markets. This study sustains the studio's strong performance in its home market (Bangalore/Karnataka) and efficient servicing of neighboring states to emerge as the prime mover of South India for both client acquisition and top-line growth.

ix) Average Revenue by Body Part

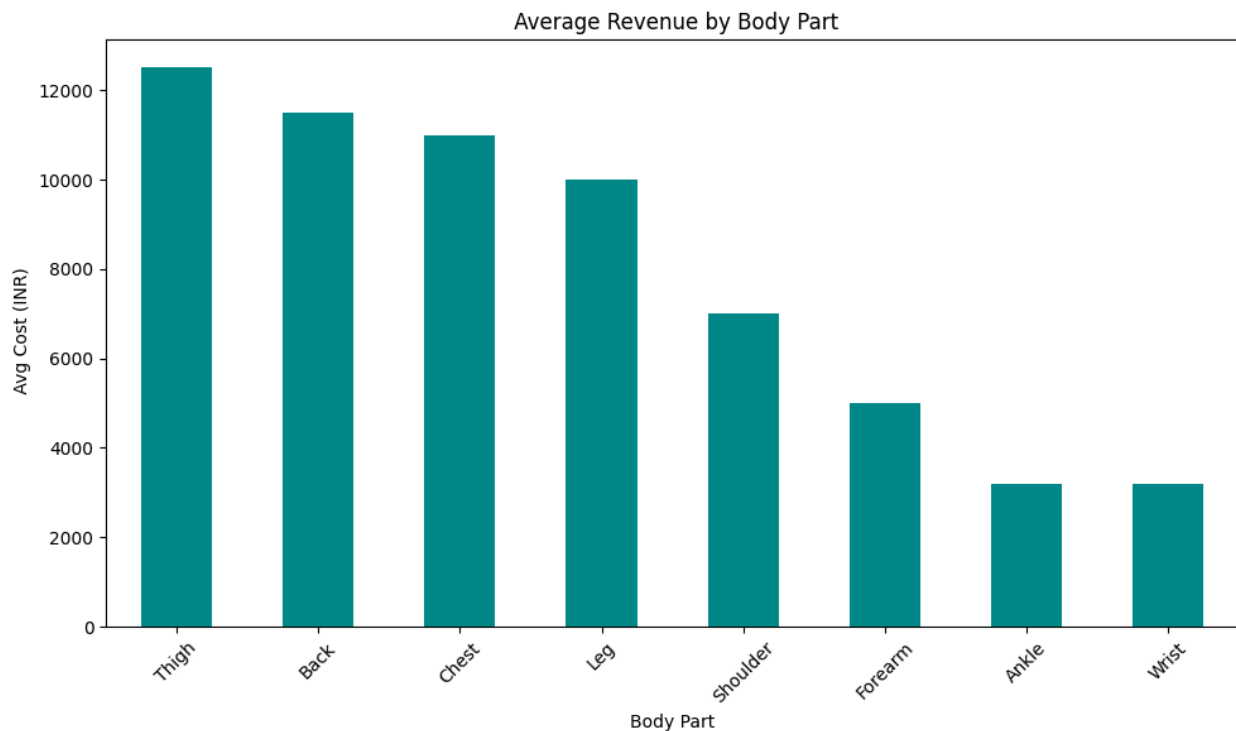


Figure 3.8 Average Revenue per Body Part

The bar chart in **Figure 3.8** easily shows a vast difference in average revenue generated regarding the body part where a tattoo is done. This shows significant information regarding the profitability of different tattoo locations.

The results show a clear rank order in average revenue:

- **Highest Revenue Body Parts:** The thigh tattoo holds the highest average revenue of more than INR 12,000. Close behind are Back tattoos (approximately INR 11,500) and Chest tattoos (approximately INR 11,000). Leg tattoos also command a decent average of around INR 10,000. These four body parts are the highest paying placements for the studio.

- **Mid-Range Revenue Body Parts:** Shoulder tattoos are in the mid-range with an average revenue of approximately INR 7,000.
- **Lower Revenue Body Parts:** Forearm tattoos command approximately INR 5,000 on average. Ankle and Wrist tattoos command the lowest average revenues at approximately INR 3,000.

The above quite clearly shows that body parts that tend to have longer, more elaborate, or longer-duration tattoo projects are much higher in their average revenue. Thigh, Back, Chest, and Leg areas are suitable for big and complex designs like complete pieces or large motif designs, which by their nature are more time-consuming, elaborate, and hence costly. However, areas like the Ankle and Wrist are often chosen for small, simpler, or short-session tattoos, leading to lower average revenue per appointment. This contrast highlights that directing promotional efforts or expert artist ability toward consumers in search of tattoos on larger body areas could be a primary way of realizing the studio's highest average revenue per visit.

4. Interpretations and Recommendations

i. Maximization of Revenue

Interpretation:

Much more revenue has been found to be generated from more complex and larger tattoos like Cover Up, Sleeve, Back, Thigh, and Chest patterns. Clients between the ages of 26-30 have been found to be the most profitable segment. While repeat customers account for the lion's share of revenue, initial customers have also been found to spend relatively high, pointing to intense initial interest.

Recommendations:

- More expensive body regions and tattoo styles ought to be featured foremost in marketing materials distributed through the website, social media, and in-studio presentations.
- Upscale package deals for large or multi-session tattoos can be emphasized to increase the average revenue per client.
- In consultations, recommendations for add-ons or design enhancements should be made to new clients, especially considering they are more willing to spend more on their initial visit.

ii. Client Retention and Building Loyalty

An average revisit rate of more than 80% has been posted, reflecting high client satisfaction and long-term loyalty. Repeat clients have been found to not only be holding a significant portion of the appointments but are also generating over 80% of total revenue for the studio.

Recommendations:

- A loyalty program can be implemented to reward return clients with benefits like discounts, advance bookings, or free touch-ups after a certain number of visits.
- A referral mechanism must be instituted to motivate current customers to refer to new business, in exchange for future service benefits.
- Basic CRM tools — possibly linked with the studio's website — are advised for processing prior appointments, client preferences, and follow-ups.

iii. Digital Presence and Customer Experience Translation

A previously non-existent digital presence now has a website and chatbot established which I developed while I was writing this report, offering the ability to enhance customer interaction and extend reach. The website can be viewed at [Ink Over Matter](#).

Recommendations:

- The chatbot currently only manages FAQs but in the future it would be recommended to also handle appointment bookings, and user navigation, hence freeing up direct workload for the founder.
- Online consultation and booking processes should be enabled to allow clients to choose time slots, add design reference uploads, and get initial cost/time quotes.
- Google Business listing and search engine optimization (SEO) must be attempted for enhanced visibility, particularly among local customers in Karnataka and surrounding areas.
- Instagram content regarding finished tattoos, behind-the-scenes operations, and customer testimonies must be posted on a regular basis to naturally build up the studio's following, especially among younger clients.

iv. Seasonal and Geographic Targeting

Seasonal highs have been observed in January, March to May, and the clientele has been

identified as being clustered in Karnataka, Kerala, and Tamil Nadu, pointing to both seasonal and regional clustering in South India.

Recommendations:

- Time-based promotions should be rolled out during peak periods, and targeted online campaigns should be executed to leverage higher demand.
- Localized advertising campaigns in Malayalam and Tamil (where local) should be undertaken, citing client testimonials from the respective states.
- Partnerships with local travel outlets or tattoo artists can be explored to promote tattoo-tourism from neighboring states.

v. Operational Effectiveness for a Founder-Operated Studio

Interpretation:

Since all studio functions are presently managed by the founder including consultation, tattooing, and follow-up, constraints have been imposed upon the scalability and responsiveness of operations.

Recommendations:

- Recurring tasks like responding to FAQs and walking customers through pre/post-care processes should be delegated to the chatbot to lower operational burden.
- There should be a consultation form on the website to gather necessary information from new customers (e.g., design type, size, budget, placement) so that the studio can filter and prioritize efficiently.
- The hiring of a part-time intern or assistant should be an option to alleviate pressure and allow the founder to concentrate on higher-value clients and tasks.

vi. Growing Inclusively and Data-Driven

Interpretation:

There has been minimal representation for customers who report under the "Other" gender group, potentially due to underreporting, constrained outreach, or societal stigma.

Recommendations:

- Inclusive imagery and gender-neutral tattoo stories ought to be front and center on the studio's digital and offline channels.

- Anonymous surveys or feedback sheets should be released every so often to clients so that they may gain insight into challenges and preferences within underrepresented groups.
- Appointment statistics, chatbot reports, and site analytics must always be tracked to identify new trends and guide future decisions.