MIS PROJECT

Restaurants – Advances Regression Techniques

PREDICT SALES PRICES AND PRACTICE FEATURE
ENGINEERING, RFS, AND GRADIENT BOOSTING

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Project Introduction and Overview:

Extracted data consist of various restaurants at different locations of about 79 variables of particular restaurants. The dataset encompasses various aspects of the restaurant's operations, including its name, location, contact details, menu offerings, customer reviews, business systems, employee management, financial performance, and marketing strategies. The report leverages this dataset to analyze and extract valuable insights that can assist restaurant owners, managers, and stakeholders in making informed decisions and optimizing their operations.

DATA SOURCE:

The data utilized for this report is derived from a rich and extensive dataset specifically designed for a restaurant. The dataset comprises 80 columns, each containing valuable information pertaining to different facets of the restaurant's functioning. These columns include information about the restaurant's name, distinctive identification, address, contact information, business hours, cuisine type, pricing, client reviews, available amenities, payment options, dietary options, event and catering services, loyalty programs, technological systems used, staff training initiatives, financial performance indicators, and results from customer satisfaction surveys.

This extensive dataset will be used by the report to investigate and analyze several important indicators and dimensions that affect the overall performance of the restaurant. The information gained from this research will aid in identifying the restaurant's operations, customer experience, financial management, and marketing initiatives' strengths, shortcomings, opportunities, and prospective areas for improvement.

RESTAURANT'S PERFORMANCE

Key metrics such as revenue, customer satisfaction, and average rating highlight the restaurant's performance:

- **Revenue**: The annual revenue generated by the restaurant reflects its financial success and overall popularity among patrons.
- **Customer Satisfaction**: The restaurant's commitment to delivering exceptional service and memorable experiences is reflected in the customer satisfaction metric, which gauges the level of contentment and positive feedback from diners.
- **Average Rating**: The average rating assigned by customers reflects their overall perception of the restaurant, taking into account factors such as food quality, service, ambiance, and value for money. This metric serves as an important indicator of the restaurant's reputation and customer sentiment.

Background:

INTRODUCTION AND OVERVIEW:

In the first page of Power BI "Introduction and overview" It contains "Monthly Sales Performance In (%) Marketing Budget Allocation of revenue" in the donut chart form. Second graph is of Annual Revenue according to the Monthly Sales Performance In % in column chart. Third graph shows sum of Awards and Accolades Customer Satisfaction Survey Results. Last pie chart shows sum if annual revenue by city along with slicer of city and restaurant name, and cards produce the results according to the selected data.

MARKET ANALYSIS:

The analysis of marketing budget allocation of revenue and the sum of average rating helps evaluate the effectiveness of marketing spending and assess customer satisfaction. It provides insights into how well the allocated budget aligns with customer preferences and perception. Analyzing customer satisfaction survey results alongside marketing budget allocation of revenue allows businesses to understand the impact of their marketing efforts on customer satisfaction. It helps identify areas where marketing spending can be optimized to improve customer satisfaction and loyalty. The analysis of marketing budget allocation of revenue in relation to marketing increasing sales helps determine the effectiveness of marketing investments in driving sales growth. It allows businesses to evaluate the return on investment and make data-driven decisions about optimizing marketing budgets to maximize sales impact.

OPERATIONAL EFFICIENCY:

Operational efficiency refers to how effectively an organization utilizes resources to achieve goals by streamlining processes and optimizing productivity while minimizing costs. Analyzing monthly sales performance provides insights into sales growth, aiding in evaluating strategies and making informed decisions. Inventory turnover rate assesses efficiency in managing inventory, supply chain, and sales, with a high rate indicating effective control. Counting CRM systems by customer satisfaction measures system effectiveness in managing relationships and improving service. Summing employees by staff turnover rate helps evaluate retention and engagement. Summing seating capacity by reservation system assesses efficiency and utilization.

CUSTOMER EXPERIENCE AND SATISFACTION:

Customer Experience & Satisfaction refers to the overall perception and satisfaction of customers with a company's products, services, and interactions. It encompasses various

points and interactions throughout the customer journey and plays a crucial role in building customer loyalty and driving business growth. Analyzing the count of names by customer satisfaction survey results provides insights into the number of customers who participated in the survey and their satisfaction levels. It helps assess overall customer sentiment and identify areas of improvement or strengths in the business. Counting customer feedback management by CRM management system evaluates the effectiveness of the CRM system in capturing and managing customer feedback. It indicates the level of engagement and responsiveness in addressing customer concerns and suggestions, contributing to a better customer experience. Assessing the count of Customer Feedback Management Customer Satisfaction Survey Results and CRM management provides a comprehensive view of customer feedback management and satisfaction levels within the CRM system. It helps identify correlations between customer feedback and satisfaction, highlighting opportunities for improvement and enhancing customer experience. By focusing on these metrics, businesses can gain valuable insights into customer perceptions, address pain points, and proactively improve their products and services to enhance overall customer experience and satisfaction.

FINANCIAL PERFORMANCE & FUTURE OUTLOOK:

Financial Performance & Future Outlook refers to evaluating a company's financial health and projected performance. It involves analyzing key indicators like revenue, expenses, profitability, and market trends to assess financial strength and growth potential. Analyzing total reviews by staff turnover rate reveals the impact of employee turnover on customer satisfaction and business reputation. Summing annual revenue by monthly sales performance % evaluates revenue growth relative to sales trends, aiding sales strategy, seasonal patterns, and resource allocation decisions. Counting 5-star reviews assesses overall customer satisfaction, indicating the percentage of highly satisfied customers and reflecting business reputation and quality. Summing annual revenue by expenses provides a comprehensive view of financial performance, highlighting cost management effectiveness, areas of high expenditure, and overall financial sustainability. Summing annual revenue by city enables regional revenue analysis, identifying key revenue-contributing cities/regions for strategic decision-making on market expansion and resource allocation.

Analysis through power Bi

INTRODUCTION AND OVERVIEW

0.12 accounted for 12.31% of Sum of Annual Revenue.

Sukkur accounted for 8.02% of Sum of Annual Revenue.
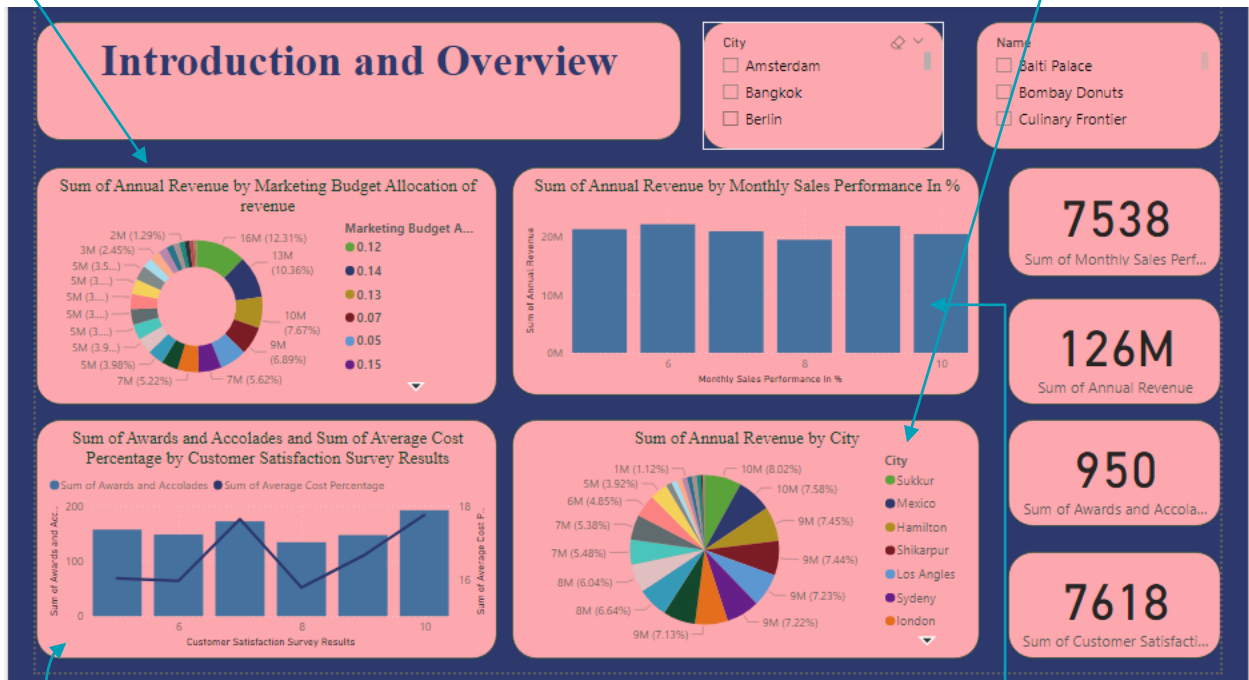
At 192, 10 had the highest Sum of Awards and Accolades and was 43.28% higher than 8, which had the lowest Sum of Awards and Accolades at 134.

0 accounted for 20.21% of Sum of Awards and Accolade

Sum of Awards and Accolades and Sum of Average Cost Percentage diverged the most when the Customer Satisfaction Survey Results was 10, when Sum of Awards and Accolades were 174 higher than Sum of Average Cost Percentage.

At 22197374, 6 had the highest Sum of Annual Revenue and was 13.72% higher than 8, which had the lowest Sum of Annual Revenue at 19518674.

6 accounted for 17.56% of Sum of Annual Revenue. Across all 6 Monthly Sales Performance In %, Sum of Annual Revenue ranged from 19518674 to 22197374.

Sum of Awards and Accolades and total Sum of Average Cost Percentage are positively correlated with each other.

MARKET ANALYSIS

Sum of Average Rating was highest for 0.12 at 929, followed by 0.14 and 0.13. 0.12 accounted for 12.33% of Sum of Average Rating. Across all 27 Marketing Budget Allocation of revenue, Sum of Average Rating ranged from 7 to 929.]

0.12 had the highest Sum of Customer Satisfaction Survey Results at 939, followed by 0.14 and 0.13. 0.22 had the lowest Sum of Customer Satisfaction Survey Results at 5. 0.12 accounted for 12.33% of Sum of Customer Satisfaction Survey Results.
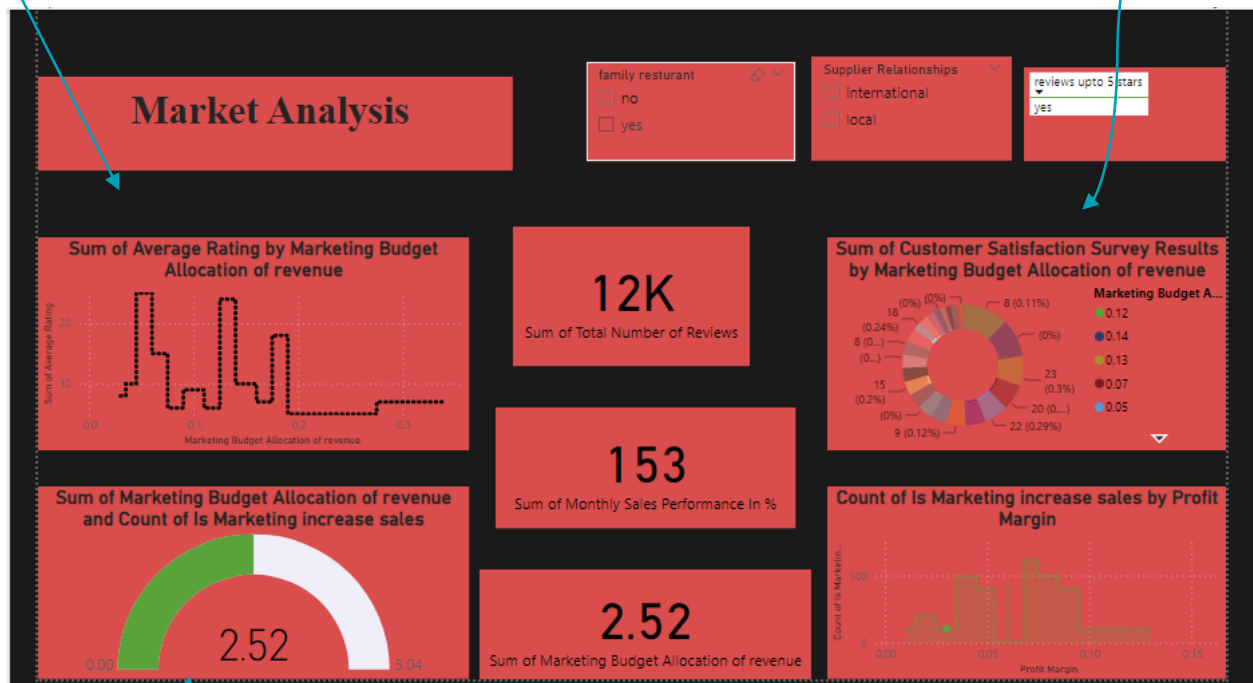
At 119.96, Sum of Marketing Budget Allocation of revenue is currently 88.10% away from the target goal of 1008.

Count of Is Marketing increase sales was highest for 0.07 at 124, followed by 0.08 and 0.04. 0.07 accounted for 12.30% of Count of Is Marketing increase sales. Across all 289 Profit Margin, Count of Is Marketing increase sales ranged from 1 to 124.

OPERATIONAL EFFICIENCY

At 976, 4 Days had the highest Sum of Monthly Sales Performance In % and was 9.17% higher than 1Day, which had the lowest Sum of Monthly Sales Performance In % at 894. [] 4 Days accounted for 12.95% of Sum of Monthly Sales Performance In %. Across all 8 Inventory Turnover Rate, Sum of Monthly Sales Performance In % ranged from 894 to 976.

9 accounted for 18.06% of Count of CRM (Customer Relationship Management) System.


At 3223, 0.09 had the highest Sum of Number of Employees and was 329.73% higher than 0.17, which had the lowest Sum of Number of Employees at 750. [] 0.09 accounted for 10.51% of Sum of Number of Employees. Across all 20 Staff Turnover Rate, Sum of Number of Employees ranged from 750 to 3223.

Open table accounted for 23.17% of Sum of Seating Capacity.

CUSTOMER EXPERIENCE AND SATISFACTION

10 had the highest Count of Name at 80. 8 had the lowest Count of Name at 58. 10 accounted for 19.14% of Count of Name.
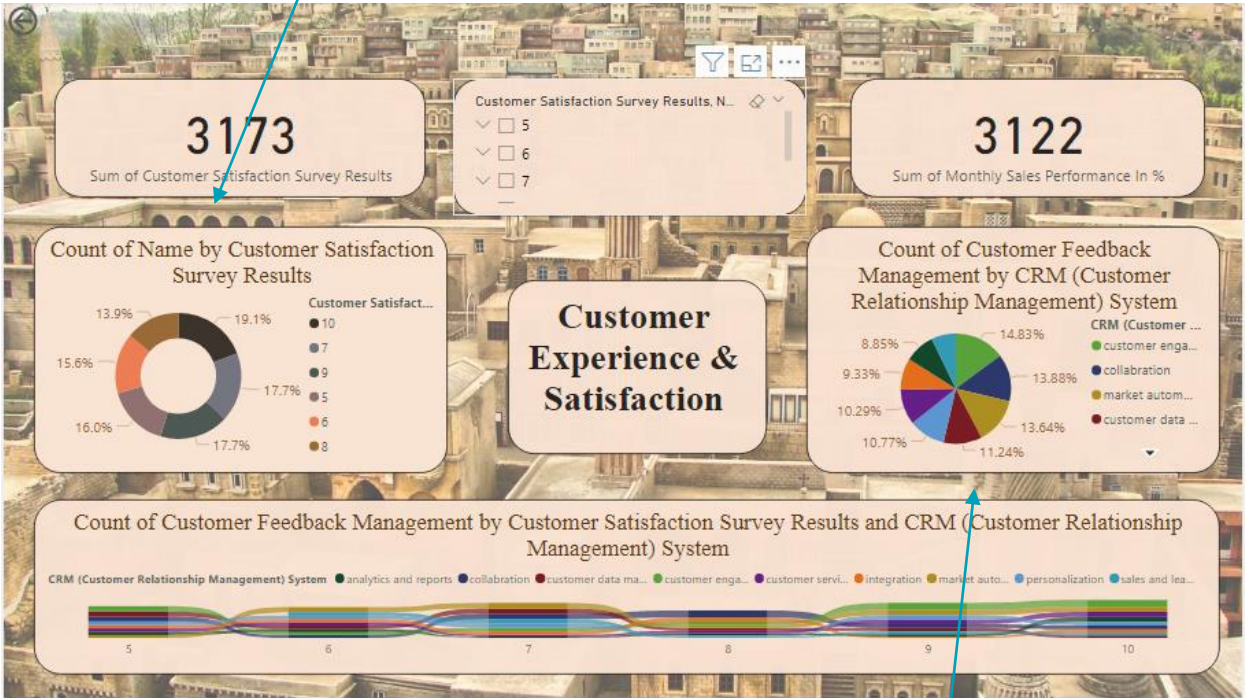
Customer engagement accounted for 14.83% of Count of Customer Feedback Management.

FINANCIAL PERFORMANCE AND FUTURE OUTLOOK

Count of reviews up to 5 stars for yes (81) was higher than no (28). Yes accounted for 74.31% of Count of reviews up to 5 stars. Yes had 81 Count of reviews up to 5 stars and no had 28?

0.93 accounted for 12.89% of Sum of Annual Revenue.
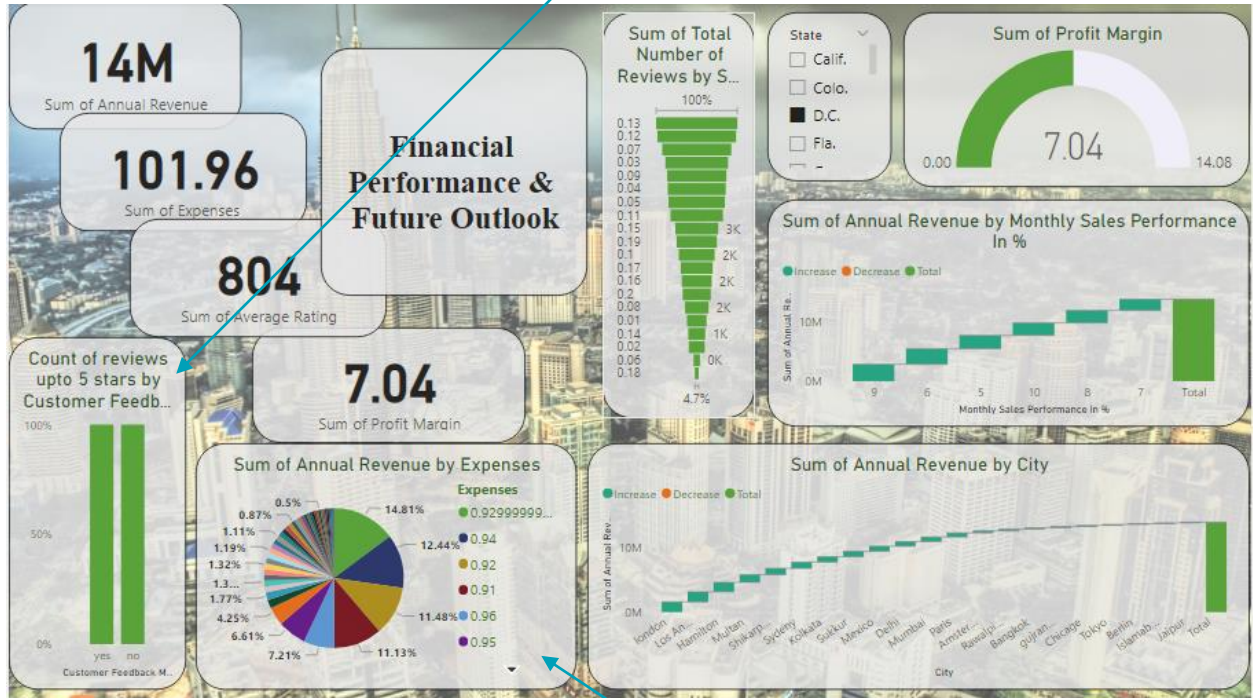
Detail Analysis:

INTRODUCTION AND OVERVIEW:

The overview page of power BI demonstrates specific city and respected restaurant name which can be changed by the slicer, and on the right side of the particular page are Cards which shows results of accumulated data in single notation.

The first graph shows the outcome of monthly Sales Performance In (%) with respected market budget allocation of revenue, with lowest being the Al Sajjad with monthly sales revenue of 5% on market allocation budget of 2% while highest being the forest 10% monthly sales revenue attained through 14% of market budget allocation of revenue. Moreover the first graph of monthly Sales Performance In (%) with respected market budget allocation of revenue, which is pie chart of corresponding vales.

Stacked column chart consist of X-axis monthly sales performance in % while sum of annual revenue be the Y-axis. Sum of annual revenue is top at 22197374 at monthly sales performance of 6% yet, lowest at 19518674 sum of annual revenue with monthly sales performance of 8%.

Line and column chart is having Customer Satisfaction Survey Results at X-axis and sum of Awards and Accolades on Y-axis with line graph represents sum of cost graph. Highest sum of average cost graph 17.64 with Customer Satisfaction Survey Results of 7. However, lowest highest sum of average cost graph 15.78 with Customer Satisfaction Survey Results of 8.

Pie chart in this page shows sum of Annual Revenue by city highest being the Sukkar with PKR 10138650 of around 8.02% while the lowest being the Lahore with PKR 151625 of sum of annual revenue of about 0.12%

MARKET ANALYSIS:

The Market Analysis page of power BI demonstrates specific family restaurant, Supplier Relationship and restaurants with reviews up to 5 star which can be changed by the slicer, and on the center of the particular page are Cards which shows results of accumulated data in single notation.

Scatter graph shows the confident of the people such as sum of average rating by marketing budget allocation of revenue highest average rating of 929 at 34%. On the other hand, average rating falls down at lowest to 1%

Donut chart demonstrates Customer Satisfaction Survey Results by Marketing Budget Allocation of revenue. Customer Satisfaction Survey Results is highest is highest at 10 and lowest at 5 Marketing Budget Allocation of revenue ranges from 34% to 1%.

Gauge indicates the Marketing Budget Allocation of revenue and count of Is Marketing increase sales. Sum of Marketing Budget Allocation of revenue is 119.96 with count of Is Marketing increase sales 1008.

Area chart consist of count of Is Marketing increase sales by profit margin. Profit margin lies at X-axis and count of Is Marketing increase sales at Y-axis. Highest count of is Marketing increase sales is at 124 with 7% profit margin while, lowest count of is Marketing increase sales is 1 on 6 % of Profit margin

OPERATIONAL EFFICIENCY

The Operational Efficiency page of power BI demonstrates specific family restaurant, and its ambience which can be changed by the slicer, and on the center of the particular page are Cards which shows results of accumulated data in single notation.

100% stacked column chart has X-axis of Inventory Turnover Rate and on Y-axis Monthly Sales Performance In %. Highest Monthly Sales Performance In % has 100% on Inventory Turnover Rate of 4 days and lowest Monthly Sales Performance In 100% with inventory turnover rate of 1 day.

Pie chart shows CRM (Customer Relationship Management) System by Customer Satisfaction Survey Results. Highest count is 182 CRM (Customer Relationship Management) System of 18.06% with 9 Customer Satisfaction Survey Results. Lowest result of 150 CRM (Customer Relationship Management) System of about 14.88% with 5 Customer Satisfaction Survey Results.

Line graph shows Staff Turnover Rate at X-axis and sum of Number of Employees. Highest Number of Employees 3223 with Staff Turnover Rate of about 6% but lowest sum of Number of Employees 755 at 20% of Staff Turnover Rate.

Donut graph shows Seating Capacity by Reservation System with sum of highest seating capacity 21060 with open table but with lowest sum of seating capacity of 103 requires 1 before reservation.

CUSTOMER EXPERIENCE & SATISFACTION:

The Customer Experience & Satisfaction page of power BI demonstrates sum of Customer Satisfaction Survey Results which can be changed by the slicer, and on the top right and left side of the particular page are Cards which shows results of accumulated data in single notation.

Donut chart shows count of customer name by Customer Satisfaction Survey Results of 10 with 80 name. With lowest being the Customer Satisfaction Survey Results of 8 with 58 customer name.

Pie chart shows combination of Customer Feedback Management by CRM (Customer Relationship Management) System. Highest has Customer Feedback Management 62 that is about 14.83% meanwhile, lowest is about 30 Customer has Feedback Management of 7.18%.

Ribbon chart indicates Customer Satisfaction Survey Results, Customer Feedback Management by CRM (Customer Relationship Management) System. Top one indicates 14 Customer Feedback Management has 10 Customer Satisfaction Survey Results. On the contrary, 7 Customer Feedback Management has 5 Customer Satisfaction Survey Results.

FINANCIAL PERFORMANCE & FUTURE OUTLOOK

The Customer Experience & Satisfaction page of power BI demonstrates state which can be changed by the slicer, and on the top left side of the particular page are Cards which shows results of sum of Expenses, sum of Annual Revenue, sum of average rating, sum of Profit margin in single notation.

Gauge meter shows 65.15% accumulated profit margin

Funnel graph indicates sum of total number of reviews by staff turnover rate, its highest sum of total number of reviews are 54026 at 9% staff turnover rate. Lowest sum of total number of reviews 12498 with 18% staff turnover rate.

Waterfall chart demonstrates sum of annual revenue by monthly sales performance in % that lies on X-axis and sum of annual revenue in Y-axis.

100% stacked column chart shows count of reviews up to 5 star with Customer Feedback Management. Restaurant with Customer Feedback Management has 756 number of reviews but no Customer Feedback Management has 252 number of reviews.

Pie chart shows sum of annual revenue by expenses, the largest share has sum of annual revenue of 16289795 of about 12.89% with expenses of 0.93. However, lowest share has 56079 sum of annual revenue of around 4% with expenses of 0.93.

Last but not the least, waterfall graph shows sum of annual revenue by city on top of all stands Multan with 199945 while Delhi has secured sum of annual revenue of 50001.

Marketing and Branding Strategies:

Assess branding strategy and unique selling proposition. Analyze the marketing campaigns and channels utilized to reach and engage the target audience. Evaluate the effectiveness of the restaurant's online presence and social media strategy. Highlight any partnerships or collaborations that have contributed to the restaurant's success. Discuss customer loyalty programs and initiatives to foster customer engagement and repeat business.

Financial Performance and Analysis:

Present an analysis of Restaurants financial performance, including revenue growth, profitability, and financial ratios. Analyze the cost structure and expense management strategies employed by the restaurant. Identify key financial indicators and KPIs that are crucial for monitoring the business's financial health and performance.

Growth Opportunities and Recommendations:

Identify potential growth opportunities based on the market analysis and competitive landscape. Discuss strategies for market expansion, menu development, and diversification. Explore options for franchising or licensing to expand the brand's reach. Provide recommendations on innovation and differentiation strategies to sustain growth and competitive advantage.

Conclusion:

Summarize the key findings of the report, highlighting the success factors that have contributed to achievements. Provide an outlook on the future growth prospects and potential challenges. Conclude with actionable recommendations for sustaining and expanding the business's success.

References:

Include a list of sources and references used throughout the report to support the analysis and findings.

This report template provides a structured framework for conducting an in-depth analysis of your restaurant business. You can expand on each section, include relevant data and metrics, and provide real-life examples and case studies to support your analysis. Remember to customize the report to fit your specific restaurant and its unique characteristics.