Maximizing Restaurant's Online Success

Mid-term Submission for the BDM capstone Project
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Executive summary

This project focuses on a Pune-based restaurant operating in the B2C food serving industry, facing challenges in achieving nominal profits from its online business. The primary issues include low online ratings, inefficient marketing investments, and numerous customer complaints.

To address these challenges, we will employ various analytical approaches, including sentiment analysis on customer reviews and descriptive analytics on past orders. These methods will provide valuable insights into customer satisfaction, spending patterns, and marketing effectiveness. I collected data of around 4 months and use Power BI to analyze the data

The expected outcomes are:

1. **Increased Customer Satisfaction:** By identifying common issues from customer reviews, we aim to enhance online ratings and attract more customers.
2. **Finding Consistency in deductions across all the outlets and across all the month.** Comparison of average deduction of each outlet over each month help us finding weather there is consistency among outlets or month.
3. **Reduced Customer Complaints:** Understanding the root causes of complaints will allow the restaurant to implement targeted improvements.

This project will enable the restaurant to identify bottlenecks and provide solutions to tackle some of the issues, ultimately increasing profitability through enhanced customer satisfaction, better marketing strategies, and reduced inefficiencies.

Proof of originality of the data.

- **Details**
  Name: Bhaj Govindam
  Owner: Mr Mayank Kaushik
  Address: Shop No 1, commercial complex, GAGAN ELA, NIBM Rd, opposite Sanskruti School, Palace Orchard, Mohammed Wadi, Pune, Maharashtra 411048
  About
  The company I am currently employed with is Bhaj Govindam Restaurant, a renowned establishment founded by Mr. Mayank Kaushik in January 2021. Initially, it began as a dining restaurant named Bhaj

Govindam on NIBM Road, Pune. With a seating capacity of 50 tables, it has been running successfully for the last three years. As part of his culinary ventures, Mayank Kaushik introduced another restaurant called "Veg Tables." They expanded their presence with several outlets on restaurant delivery apps. Some of the virtual outlets are as follows: Bhaj Govindam Kharadi, Bhaj Govindam NIBM Road, Pind Paratha and Chaaps, Veg Mandarin Co, and Veg Tables.

average order value of restaurant is 150 rupee.

- **Video**
  While discussing about the problem statement I have recorded the video, link is given below for showing authenticity of project.

  video1253556295.mp4

  Folder link of recording.
  2024-06-09 20.37.08 Mahi Mudgal's Zoom Meeting

- **Images**

  To show the originality of my project further I am attaching images of the restaurant ,my image with restaurant owner and menu card images.

  Link of images is given below.

  Images

- **Letter of authorization.**

  Link :-
  This letter is for showing that Restaurant owner Mayank Kaushik has given me data.
  Letter

<u>Metadata</u>

I have received the data provided by the restaurant owner, which encompasses the period from June 2023 to June 2024. The restaurant owner has sent me the monthly online business settlement reports. Additionally, details of customer complaints and reviews have also been provided by the owner.

For the sales data, I have conducted an analysis for the past four months. As for the customer complaints and reviews, I have analyzed the information from June 2023 to May 2024.

1)Customer meta data   2) Sales meta data   3) Complaints meta data

Column made after refining Complaints data

Refund given or requested	This column tells weather refund was given to the customer or not and how much refund is given.
Complaints	This column tell what is the category of complaints
Item	This column tells what person order
Date	This column tells what is the order date .
ID	ID of the order

Column made after refining customer data.

Name	Name of the customer
Rating	Rating given by the customer
Item	Item that is ordered
Review	Reviews of the customer
Date	Order date
Rating	Rating by customer

Sales data column after refining

Net Order level Payable	Net sales in online business
Net deduction	Net deduction
Order ID	Order id

Date	Date of order
Category wise deduction distribution	Deduction category and payable category.
Restaurant ID	Different outlet ID

Descriptive Statistics.

Deduction analysis-Owner of the restaurant want to know is the deduction which are happening by Zomato is consistent throughout the outlets and throughout the month for each outlet or is there any variation as sometimes Zomato did some variations on deduction due to the locality, performance etc. of each restaurant this analysis I have taken 4 months sales data.

So we find deduction distribution monthly and outlet wise .This finding will help in find which outlet restaurant should focus and where not.

3,738.41
deduction variance

99.49
MeanDeduction

Deduction distribution across each month and across each outlets

Res. name	April	February	January	March	May	Total
Bhaj Govindam	0.47	0.48	0.48	0.48	0.48	0.48
Govindam Pure Veg	0.48	0.48		0.49	0.47	0.48
Pind Paratha And Chaaps	0.47	0.48	0.48	0.48	0.48	0.48
Veg Mandarin Co.	0.49	0.48	0.48	0.48	0.48	0.48
Veg Tables	0.47	0.48	0.48	0.48	0.48	0.48
Total	**0.47**	**0.48**	**0.48**	**0.48**	**0.48**	**0.48**

Category wise deduction across each month

month	service fees	Payment fees	GST fees	GST CUSTOMER fees	TAX
April	0.65	0.06	0.15	0.15	0.13
February	0.64	0.06	0.14	0.15	0.13
January	0.64	0.06	0.14	0.15	0.13
March	0.64	0.06	0.14	0.15	0.13
May	0.64	0.06	0.15	0.15	0.13

Distribution of offers deduction across each month and across each outlet

Res. name	April	February	January	March	May	Total
Bhaj Govindam	0.07	0.11	0.13	0.07	0.14	0.10
Govindam Pure Veg	0.25	0.34		0.18	0.22	0.23
Pind Paratha And Chaaps	0.09	0.12	0.14	0.09	0.10	0.10
Veg Mandarin Co.	0.13	0.14	0.15	0.17	0.14	0.14
Veg Tables	0.18	0.22	0.23	0.16	0.16	0.18
Total	**0.12**	**0.15**	**0.16**	**0.11**	**0.14**	**0.14**

Distribution of category wise deduction across each outlet

Res. name	service fees	Payment fees	GST fees	GST CUSTOMER fees	TAX
Bhaj Govindam	0.64	0.06	0.15	0.15	0.13
Govindam Pure Veg	0.64	0.06	0.15	0.15	0.13
Pind Paratha And Chaaps	0.64	0.06	0.14	0.15	0.13
Veg Mandarin Co.	0.64	0.06	0.15	0.15	0.13
Veg Tables	0.65	0.06	0.14	0.15	0.13

Deductions analysis.

Average deduction-Average of deduction ratio is 0.48 which is calculated by Deduction value/Net payable.
Variation - Variation in deduction value is 3.0k .
Net service fees - 0.64
Net Payment Machine fees - 0.06
Net GST - 0.15
Net Tax - 0.13

Insights -
There are only slight changes in deduction across the outlets and across the month.

Descriptive Sales analysis

2,612.08	207.39	165.58	0.00	16,007.87	126.52	0.00
MaxSales	MeanSales	MedianSales	MinSales	VarianceSales	StdevSales	SkewnessSales

-3.00
KurtosisSales

Res. name	MaxSales	MeanSales	MedianSales	MinSales	VarianceSales	StdevSales	SkewnessSales	KurtosisSales
								-3.00
Bhaj Govindam	2,612.08	217.95	172.66	0.00	16,254.84	127.49	0.00	-3.00
Govindam Pure Veg	527.17	168.31	141.53	35.38	7,076.95	84.12	0.00	-3.00
Pind Paratha And Chaaps	2,325.17	218.18	183.98	42.45	16,030.73	126.61	0.00	-3.00
Veg Mandarin Co.	573.15	197.14	162.75	46.70	9,385.49	96.88	0.00	-3.00
Veg Tables	2,550.74	194.47	158.86	14.56	16,093.57	126.86	0.00	-3.00
Total	2,612.08	207.39	165.58	0.00	16,007.87	126.52	0.00	-3.00

- **Median:** The median sales value is ₹165.58, signifying the central point of the sales distribution.
- **Maximum and Minimum Sales Value:** The highest sales figure recorded is ₹2612.08, suggesting that the distribution is slightly left-tailed.
- **Variance:** The variance indicates that the data has a spread of approximately 16,000 units.
- **Skewness:** The skewness measure is 0.00, indicating a symmetrical distribution.
- **Kurtosis:** Kurtosis is negative, which implies that the distribution has lighter tails compared to a normal distribution.
- **Count:** The dataset contains a total of 13,000 entries.
- **Mean:** The average sales value is ₹207.39, whic

Outlet wise distribution

Res. name	Sales
Bhaj Govindam	12,90,892.35
Govindam Pure Veg	66,820.57
Pind Paratha And Chaaps	4,42,903.51
Veg Mandarin Co.	23,853.93
Veg Tables	10,17,846.53
Total	28,42,316.89

Month wise distribution

month	Sales	Minimum sales	Maximum Sales
May	7,56,758.42	6,838.28	3,24,810.32
April	6,65,397.64	8,036.62	2,95,687.00
March	5,42,487.00	3,452.53	2,34,978.72
January	4,43,050.39	2,662.57	2,24,707.85
February	4,34,623.44	2,863.93	2,10,708.46

Month and Outlet wise distribution

month	Bhaj Govindam	Govindam Pure Veg	Pind Paratha And Chaaps	Veg Mandarin Co.	Veg Tables	Total
April	2,95,687.00	20,510.11	1,03,813.75	8,036.62	2,37,350.16	6,65,397.64
February	2,10,708.46	3,001.49	64,976.29	2,863.93	1,53,073.27	4,34,623.44
January	2,24,707.85		66,374.99	2,662.57	1,49,304.98	4,43,050.39
March	2,34,978.72	15,658.15	82,255.84	3,452.53	2,06,141.76	5,42,487.00
May	3,24,810.32	27,650.82	1,25,482.64	6,838.28	2,71,976.36	7,56,758.42
Total	12,90,892.35	66,820.57	4,42,903.51	23,853.93	10,17,846.53	28,42,316.89

h represents a robust
amount.

The images above display the distribution of sales by outlet name and month. The distribution also indicates the maximum and minimum sales figures for the outlets across each month. For instance, in the month of May, the maximum sale was ₹3,24,810, achieved by the Bhaj Govindam outlet.

Descriptive complaints and review analysis.

Item(s) missing or not delivered
2156 **2208**
Given Requested

Poor taste or quality
1792 **3973**
Given Requested

Wrong item(s) delivered
1191 **648**
Given Requested

Poor packaging or spillage
142 **571**
Given Requested

230
Number of complaints since June 2023

- **Average Complaints in Relation to Orders:** The average rate of complaints in proportion to orders is 0.085%.
- **Distribution of Compensation Amounts:** The figure illustrates the distribution of the compensation amounts allocated for each category of complaint.
- **Requested Amount in Complaints:** The requested amounts in the complaints are generally those that the restaurant has declined due to their lack of authenticity or invalidity.
- **Count of Complaints:** There have been 230 complaints lodged across all outlets since June 2023.

Review analysis

Average rated orders are 10.1% across all the outlets.
Average rating across all outlets is 3.6. Where Bhaj govindam NIBM road plays a crucial role by maintaining 4.2 rating.

Detailed Explanation of analysis process.

I have collected online sales data for a restaurant over the past four months. To gain insights into complaints and reviews, I have gathered data since June 2023, as the ratio of ratings and reviews given by customers is generally low.

Data Cleaning:

The data I received from the restaurant was organized by month and by outlet, meaning that each Excel sheet contained data for only one month from a specific outlet. I first combined the data for four months and then aggregated all the data across all outlets. Following this, I cleaned the data by removing blanks and outliers.

In the complaints and review data cleaning process, I implemented multiple steps such as transposing data and applying various splitting methods. After all this, I removed all null values and errors from the data.

Descriptive statistical analysis

I have applied various descriptive statistical measures such as mean, median, mode, variance, standard deviation, count, etc. These measures help in understanding the data better as they reveal the average number of ratings restaurants are receiving, average sales, and so on.

In addition, I have also calculated the average deduction per category, per month, and across each outlet. This analysis aids in determining the consistency of deductions over the months and across different outlets.

Data Visualizations

1)**Bar Charts** -For knowing distribution of sales across the months I used bar charts here bar charts are useful because they give clear comparison between outlets and months.

2)**Line Chart** - For seeing the trends of sales and rating over a period of time to show how it is changing for each outlet, I used Line chart.
Deduction consistency across months ,category and outlet wise also found by line chart.

3)**Stacked bar chart** - To analyze complaints dismissed and resolved, I used a stacked bar chart. I chose a stacked bar chart because it helps categorize complaints based on different categories. This provides a clear visualization of the amount given to customers for settling complaints and the amount requested by customers that was not granted over a period of time. The complaint counts for each item are also shown by the stacked bar chart.

4)**Pie chart** - For finding the deduction category distribution and sales distribution among outlet. I have used this because of its capability of showing proportion

5)**Comparative column chart** - Comparing dismissed and resolved complaints over a period of time across category of complaints, Review distribution among good or bad for detailed review over long period of time.

6)**Word cloud visualization (Text analysis**)-Review data was first cleaned by removing stopping words and helping verbs, after this I used word cloud visualization on extracted keyword .This visualization helps in finding most used word across all visuals .I have used filter as well for this visualization which means user can filter item and based on this filter major words will appear.

7)**Heat Map -** This Visualization is used for showing distribution of complaints across each month and area of each month divided among each complaints category.

8)**Pareto analysis** - Pareto analysis is used to show that 80% of the results come from 20% of the products. We use Pareto analysis to identify and focus on the most significant factors in our data.

Results and finding

Sales distribution across outlets
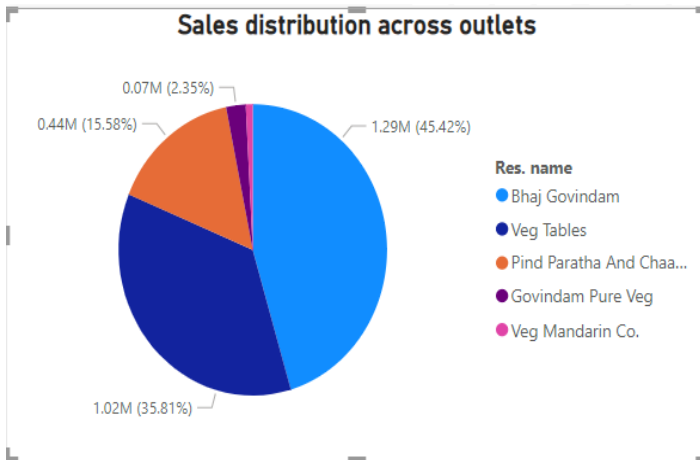
1)Pie chart- show distribution of sales across each outlet . Visulisation shows that Bhaj givindam plays major role in sales follower by veg tables etc.

2)Bar Chart Shows that there is a variation of sales along month May generates highest sales .

Sales(in Rs)


Monthly complaints distribution
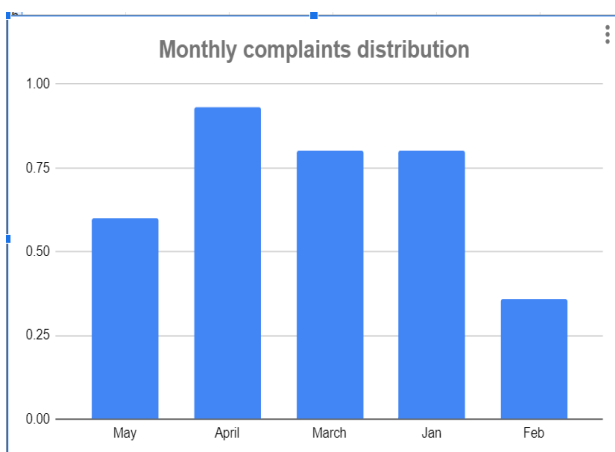
3) Complaints distribution across months shows that April month has highest complaints. Y axis calculated by dividing complaints count by order count. This gives a rough idea about average complaints across months.

4)This graph shows that maximum offers are given in Govindam Pure Veg followed by Veg Tables This findings can help in optimizing offers investment for future like we can find best performing outlet and then will decide weather its ok to spend that much amount on offers for each outlet.

Offers deduction distribution

Category wise distribution
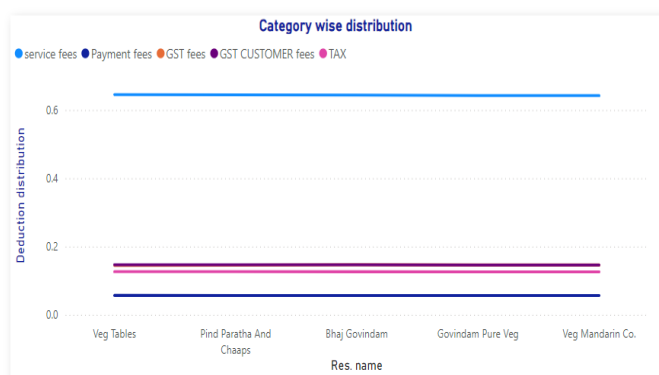
5) For deciding which outlet needs more attention this is crucial for owner to know is Zomato is taking equal deduction charges across each category consistently. The graph shows consistency of deductions across category.

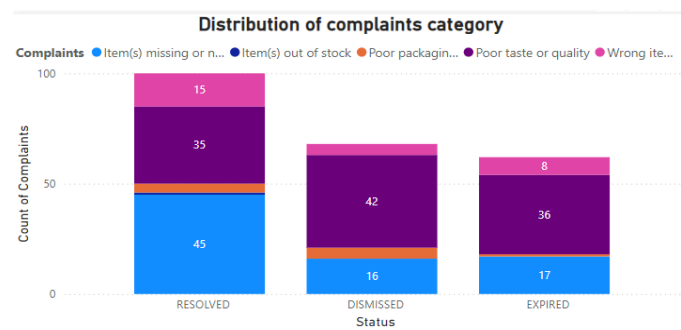Deduction ratio by Res. name

Deduction ratio by month
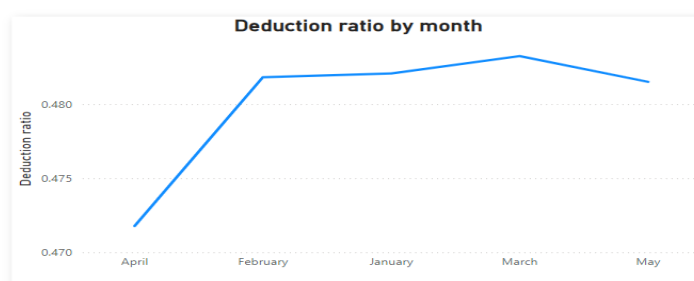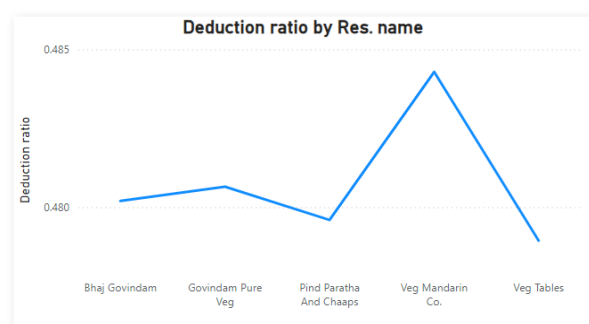
6&7) There is very slight variation for deduction 0.01 % only .Still it's important to analyze even small deduction changes. The graph shows highest deduction variation in April month
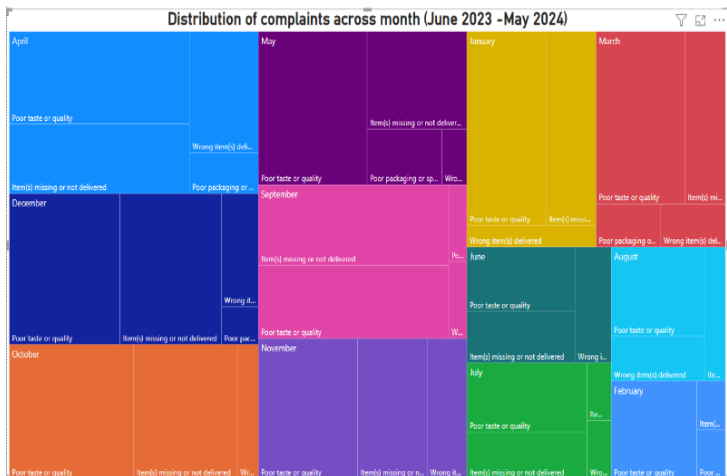
In **Power BI** using drill down feature by clicking on any month you can drill down and can see the distribution of each outlet for that month.

Stacked bar chart

The graph shows the distribution of complaint categories across three statuses: resolved, dismissed, and expired.

- **Resolved complaints** (often involving given refunds) are most common for missing items.
- **Dismissed complaints** are dominated by poor taste or quality issues. These might be false complaints, possibly from people who haven't placed an order.
- **Wrong item delivered** complaints are less frequent, but Zomato usually issues refunds in these cases.

Distribution of complaints category

Above graph the display distribution of dismissed complaints over a period of time average amount of requested complaint is 1000 per month for each month distribution of complaints are shown above.

2nd Graph display similar analysis for Resolved amount, average given amount per month is 500.

Complaints item distribution shows that even though masala poori has most of the complaints but most of them are under items missing or not delivered which likely not restaurant mistake .

1)Where as in afghani soya chap most of the complaints are belongs to poor taste and quality so its taste should be checked .

We can apply filters as well in power BI

Large difference between given and requested amount of money is visible for poor taste or quality category

Heatmap

This Visulisation show distribution of complaints across each month and each month is futher divided into multiple category.Findings- As we can visulize from the visulaisation April month has largest complaints ,and Poor taste or quality is the major complaints category across most of the month except september.

Word cloud

This help in analyzing review word and we can filter item as well to see particular review.