SkilloVilla

SKILLOVILLA EXCEL CAPSTONE

ON

Freshco
Hypermarket LLP

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ABSTRACT

This capstone project is the culmination of the comprehensive "Data Analysis with Python" course offered by SkilloVilla, providing a hands-on opportunity to apply acquired skills and knowledge in real-world scenarios. The focus of this project revolves around Freshco Hypermarket, a prominent supermarket in HSR, Bangalore that has embraced the era of digital transformation by implementing a home delivery service.

The project is designed to showcase proficiency in Excel-based data analysis, leveraging use of essential features such as charts, Pivot Tables etc. The dataset encompasses transactional and source data, offering a rich repository of information at the order level. The key business metrics explored include Completion Rate, Customer Lifetime Value (LTV), Acquisition Month, Delivery Area, Slot Definition, Customer Acquisition Source, and Overall Delivery Time.

The capstone project unfolds across four major analyses: Order Level Analysis, Completion Rate Analysis, Customer Level Analysis, and Delivery Analysis. Each analysis is meticulously crafted to address specific business questions, exploring patterns, insights, and opportunities within the operational framework of Freshco's home delivery service.

Harnessing the versatile capabilities of Microsoft Excel, this project aims to unravel meaningful insights, craft visual representations, and provide actionable recommendations. The final deliverables will be presented in an Excel workbook, comprising various sheets that meticulously detail the analytical processes, incorporate visually impactful charts and tables, and offer interpretations to gain a holistic understanding of the home delivery service. This project underscores proficiency in Excel, showcasing the ability to derive valuable business insights and make data-driven decisions through meticulous data analysis.

By successfully completing this capstone project, I can now showcase my competence in employing Excel for real-world data analysis, thereby validating the skills and readiness for professional applications in the dynamic field of data analytics.

ABOUT THE PROJECT

Freshco Hypermarket Capstone Project Introduction:

Freshco Hypermarket, located in the vibrant HSR neighborhood of Bangalore, has been a cornerstone in the local retail landscape. Recognizing the evolving needs of its diverse customer base, Freshco embarked on a journey to enhance convenience by introducing a home delivery service in 2021. To ensure seamless operations and optimize customer satisfaction, the store diligently maintained a comprehensive transaction data sheet capturing detailed information at the order level.

This capstone project, an integral part of the Skillovilla course, focuses on leveraging the transactional and source data sets to derive valuable insights across various dimensions of Freshco's home delivery service. The project aims to provide actionable recommendations to further enhance operational efficiency, customer satisfaction, and overall business performance.

Business Metrics Overview:

1. Completion Rate: Measure of order fulfilment success, calculated as (Orders successfully delivered / Total orders placed).

2. Customer Lifetime Value (LTV): Total revenue generated per customer, offering insights into customer loyalty and spending patterns.

3. Acquisition Month: The month when a customer was first acquired by Freshco, analogous to a birthdate that remains constant for each user.

4. Delivery Area: Designated drop-off locations for product delivery, capturing geographical distribution.

5. Slot Definition: Categorization of orders into specific time intervals such as Morning, Afternoon, Evening, Night, and Late Night.

6. Customer Acquisition Source: The channel or platform through which a customer was acquired, providing insights into marketing effectiveness.

7. Overall Delivery Time: Comprehensive measure capturing the entire elapsed time from order placement to completion.

Objective:

This capstone project comprises four key analyses – Order Level Analysis, Completion Rate Analysis, Customer Level Analysis, and Delivery Analysis. Each analysis involves a set of specific questions aimed at uncovering insights, patterns, and opportunities within Freshco's home delivery service.

Methodology:

The project utilizes Excel as the primary analytical tool, creating distinct sheets for each analysis to maintain clarity and organization. The data is analyzed, visualized, and interpreted to derive actionable insights, with the goal of presenting a comprehensive overview of Freshco's delivery operations.

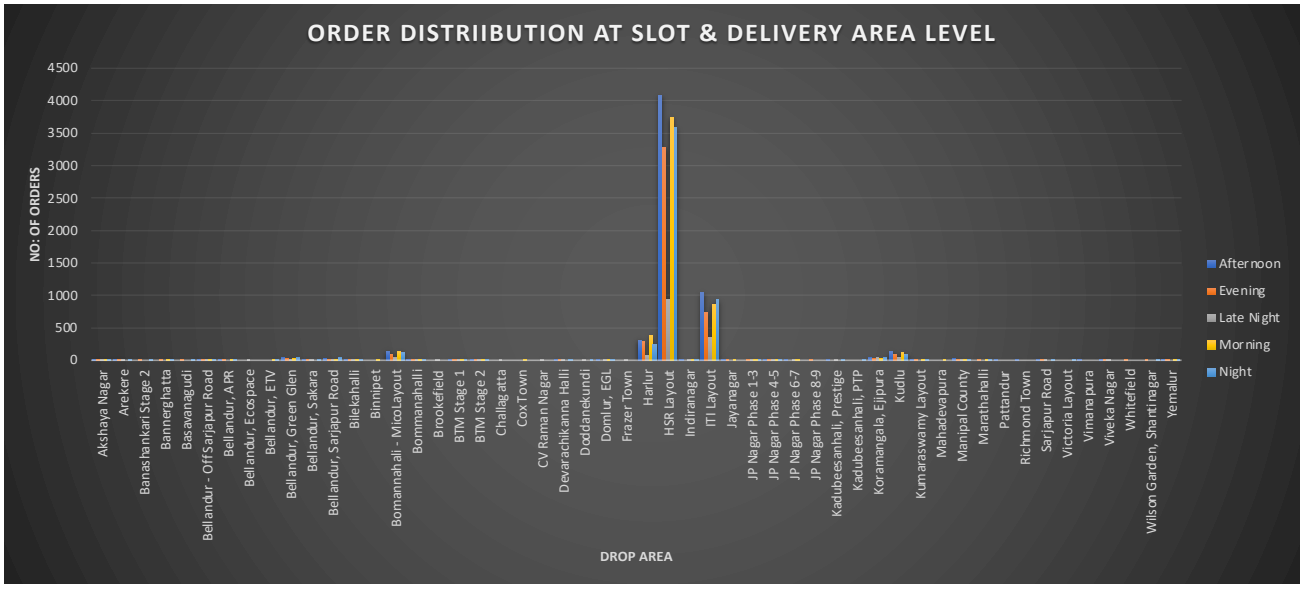
The following pages will detail each analysis, including data views, calculations, charts, and brief summary inferences for every question posed. The ultimate aim is to equip Freshco Hypermarket with strategic recommendations for continuous improvement and sustained success in the competitive retail landscape.

INSIGHTS & ANALYSIS

I. ORDER LEVEL ANALYSIS

Q1) Identify order distribution at slot and delivery area level.

Count of Order ID	SLOT					
DROP AREA GEO	Afternoon	Evening	Late Night	Morning	Night	Grand Total
Akshaya Nagar	3	4	4	6	4	21
Arekere	1	1	2		2	6
Banashankari Stage 2		1			1	2
Bannerghatta		2		1	2	5
Basavanagudi		2			1	3
Bellandur - Off Sarjapur Road	9	11	2	7	15	44
Bellandur, APR	8	14		6	1	29
Bellandur, Ecospace			1			1
Bellandur, ETV				1	1	2
Bellandur, Green Glen	32	27	12	27	36	134
Bellandur, Sakara	7	2	1		1	11
Bellandur, Sarjapur Road	20	13	15	11	39	98
Bilekahalli	2	5	1	2	1	11
Binnipet				1		1
Bomannahali - MicoLayout	151	107	36	132	125	551
Bommanahalli	13	13	6	10	10	52
Brookefield			1			1
BTM Stage 1	11	3	7	3	11	35
BTM Stage 2	6	6	5	7	8	32
Challagatta			1			1
Cox Town				1		1
CV Raman Nagar			1			1
Devarachikanna Halli	1	3	1		3	8
Doddanekundi			1		1	2
Domlur, EGL	3		1	3	1	8
Frazer Town			1			1
Harlur	324	280	73	382	250	1309
HSR Layout	4085	3288	953	3749	3582	15657
Indiranagar	3		2	1	2	8
ITI Layout	1039	757	346	868	936	3946
Jayanagar	1	1		1		3
JP Nagar Phase 1-3		2	1	1	1	5
JP Nagar Phase 4-5	2	1	1	2	1	7
JP Nagar Phase 6-7	3		1	2		6
JP Nagar Phase 8-9		1				1
Kadubeesanhali, Prestige	1		6		2	9
Kadubeesanhali, PTP					1	1
Koramangala, Ejipura	33	30	35	25	37	160
Kudlu	130	108	57	118	105	518
Kumaraswamy Layout	1	1		1	1	4
Mahadevapura				1		1
Manipal County	20	16	13	18	13	80
Marathahalli		1		1	1	3
Pattandur	1					1
Richmond Town	2					2
Sarjapur Road	6	3	1		10	20
Victoria Layout					1	1
Vimanapura	1					1
Viveka Nagar	4	2	1			7
Whitefield		1				1
Wilson Garden, Shantinagar		2			2	4
Yemalur	1	4		1	1	7
Grand Total	**5924**	**4712**	**1589**	**5389**	**5209**	**22823**



Grand total column : In the pivot table the grand total column is visually enhanced with conditional formatting, using red to signify the lowest order counts, yellow to represent moderate order counts, and green to highlight the highest order counts. This color-coded presentation facilitates a quick and intuitive analysis of overall order distribution across different drop areas and time slots.

ANALYSIS:

Top Performing Areas:

- HSR Layout stands out as the leading location with the highest total order count of 15,657, showcasing a substantial demand for services in that area.
- ITI Layout follows with a significant order count of 3,946, emphasizing its noteworthy contribution to the overall service demand.
- Harlur maintains a strong presence, securing the third position with an order count of 1,309, indicating substantial popularity in that location.
- Kudlu contributed significantly with order counts of 518 highlighting the importance in the service demand landscape. Bomannahali – MicoLayout while still noteworthy, have order counts of 551
- Bellandur, Green Glen, having order count of 134, Koramangala, Ejipura has an order count of 160, placing them lower in the hierarchy but indicating their substantial contributions.

Slot Analysis:

- Morning, Afternoon & Night slots seem to be the busiest overall, with high order counts in HSR Layout and ITI layout during these times.
- The descending order for the slots is: Afternoon(5924)>Morning(5389)>Night(5209)>Evening(4712)>Late Night(1589).
- The afternoon, Morning and Night slots have the highest order count in comparison with Evening which has moderate order count overall for all areas.
- Late Night slots have relatively lower order counts across all areas.

Grand Total Analysis:

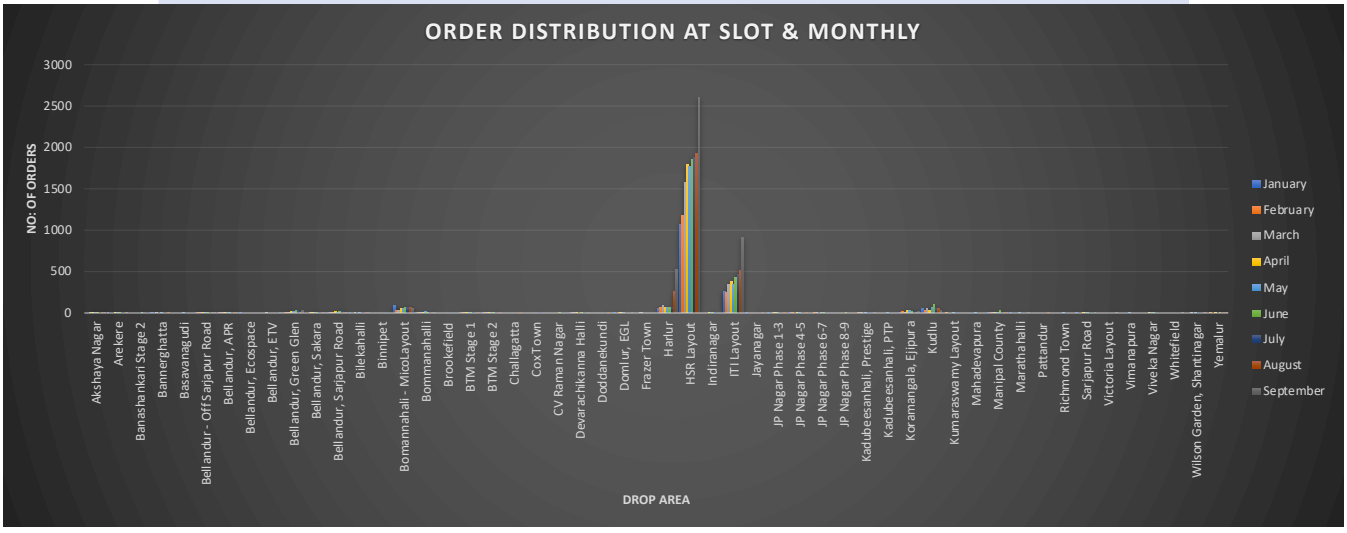
- The grand total of 22,823 orders indicates a substantial volume of delivery requests.
- The distribution across areas and time slots can provide insights for optimizing delivery operations.

Areas with Potential for Improvement:

- Identifying areas with lower order counts allows for targeted marketing and promotions to stimulate demand.
- Analyzing order distribution across time slots optimizes resource allocation, aiding strategic decisions like marketing campaigns and service enhancements based on observed demand patterns.

Q2)Identify the areas having the highest increase in monthly orders (from Jan to Sep) in absolute orders.

Count of Order ID	ORDER MONTH									
DROP AREA GEO	January	February	March	April	May	June	July	August	September	Grand Total
Akshaya Nagar			3	5	4	6		1	2	21
Arekere	2			1	1	1			1	6
Banashankari Stage 2						1	1			2
Bannerghatta	2		1		1			1		5
Basavanagudi					3					3
Bellandur - Off Sarjapur Road	4	1	4	9	8	6	2	7	3	44
Bellandur, APR	3	9	6	2	1	2	1	4	1	29
Bellandur, Ecospace	1									1
Bellandur, ETV			1						1	2
Bellandur, Green Glen	8	8	10	16	16	22	22	10	22	134
Bellandur, Sakara			1	1	3	1	1	2	2	11
Bellandur, Sarjapur Road	11	5	8	15	9	19	14	6	11	98
Bilekahalli	2		1		2		2	1	3	11
Binnipet							1			1
Bomannahali - MicoLayout	90	45	49	58	50	65	65	79	50	551
Bommanahalli	7	7	5	5	13	6	3	4	2	52
Brookefield							1			1
BTM Stage 1	3	4	6	4	9	2	1	3	3	35
BTM Stage 2	4	4	3	3	6	1	3	3	5	32
Challagatta								1		1
Cox Town							1			1
CV Raman Nagar						1				1
Devarachikanna Halli	1	2	1	2		1			1	8
Doddanekundi							1	1		2
Domlur, EGL	2		1	2	2				1	8
Frazer Town			1							1
Harlur	53	70	88	86	68	67	84	254	539	1309
HSR Layout	1072	1186	1573	1794	1768	1855	1882	1921	2606	15657
Indiranagar				3	2	1	2			8
ITI Layout	264	253	351	374	354	438	467	528	917	3946
Jayanagar	1						1	1		3
JP Nagar Phase 1-3	1		1	1	1			1		5
JP Nagar Phase 4-5	1	1		1	3			1		7
JP Nagar Phase 6-7		1	1		3	1				6
JP Nagar Phase 8-9						1				1
Kadubeesanhali, Prestige		1	2		2		3		1	9
Kadubeesanhali, PTP					1					1
Koramangala, Ejipura	5	15	11	35	33	21	15	8	17	160
Kudlu	55	46	51	49	78	100	57	54	28	518
Kumaraswamy Layout		1			2		1			4
Mahadevapura					1					1
Manipal County	12	3	5	8	7	23	7	10	5	80
Marathahalli	1				1				1	3
Pattandur								1		1
Richmond Town					2					2
Sarjapur Road	1			1	6	4	4		4	20
Victoria Layout									1	1
Vimanapura					1					1
Viveka Nagar				1	3	1	2			7
Whitefield									1	1
Wilson Garden, Shantinagar			1		1				2	4
Yemalur		1		1		1	1	2	1	7
Grand Total	**1606**	**1663**	**2185**	**2477**	**2465**	**2647**	**2645**	**2904**	**4231**	**22823**



In the pivot table, each row is subjected to colour scale conditional formatting to visually highlight an increasing trend in monthly orders. The colour scale utilized ranges from white to green, with white indicating the lowest values and green denoting the highest values.

This formatting strategy is designed to help users easily discern patterns and trends in monthly order quantities across different categories or dimensions. As values increase within a row, the colour transitions from white to increasingly darker shades of green. This visualization approach facilitates the identification of areas or items experiencing growth or changes in order frequency, allowing for a quick and intuitive understanding of the data.

ANALYSIS:

Areas with Highest Increase in Monthly Orders:

- **HSR Layout:** HSR Layout consistently maintains a high monthly order count, with a significant increase from 1072 orders in January, peaking at 2,606 orders in September. This demonstrates sustained and substantial demand in this area.
- **ITI Layout:** ITI Layout exhibits a notable growth trend, with monthly order counts increasing from 264 in January to 917 in September. This suggests a substantial rise in demand for services in ITI Layout over the analyzed period.
- **Bellandur, Green Glen:** Bellandur, Green Glen shows consistent growth, reaching a monthly order count of 22 in September. This highlights a steady increase in demand over the months.
- **Harlur:** While Harlur has the highest cumulative order count, the monthly growth pattern is relatively stable, maintaining a consistently high demand throughout the analyzed period.

Other Areas:

Several other areas, such as Kudlu, Bellandur - Off Sarjapur Road, Manipal County and JP Nagar Phase 6-7, Kadubeesanahalli-Prestige, Koramangala, Ejipura, also exhibit varying degrees of growth in monthly orders. The table exhibits a conditional formatting for every row using the color scales depicting the descending order from green to white.

Key Observations:

- HSR Layout, ITI Layout, Harlur and Bellandur, Green Glen are notable for their substantial monthly order count increases.
- Growth trends can be indicative of factors such as increased customer awareness, marketing efforts, or improved service quality in these areas.

Overall Trend:

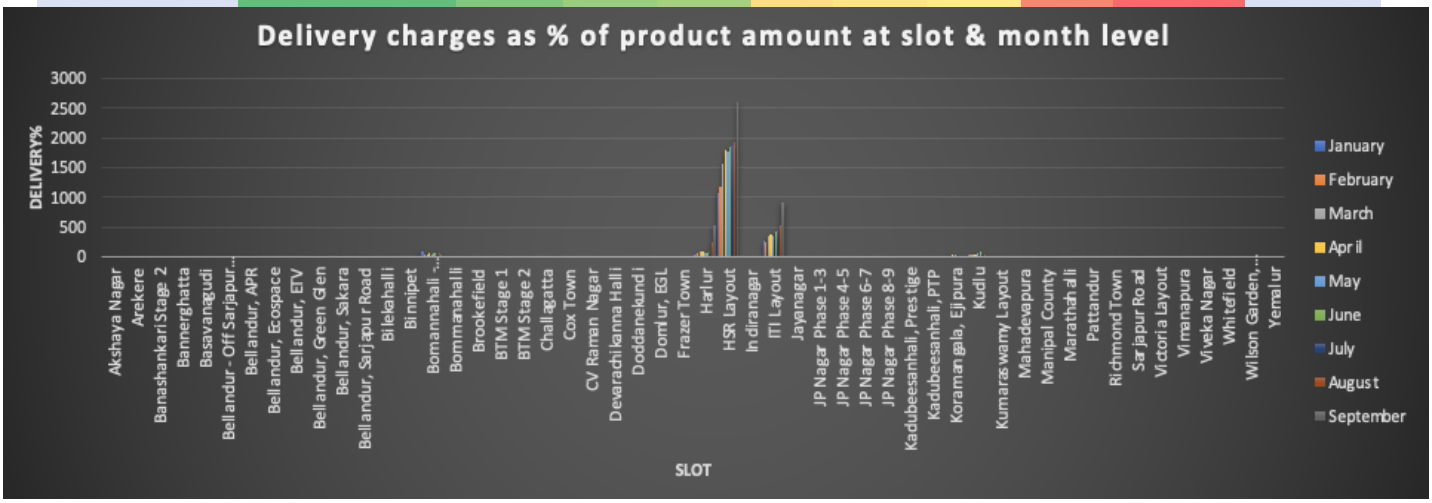
The overall trend suggests a substantial increase in orders across various areas, with some locations experiencing significant growth, possibly due to increased demand or marketing efforts.

Recommendations:

- For areas with a consistent increase, it might be beneficial to invest further in marketing and service optimization to meet growing demand.
- Understanding the factors contributing to the growth in specific areas can help in strategic decision-making and resource allocation.
- This analysis provides insights into the areas that have witnessed the highest increase in monthly orders, allowing for targeted strategies to capitalize on the growing demand in those locations.

Q3) Calculate delivery charges as a percentage of product amount at slot and month level.

Sum of Delivery %	ORDER MONTH									
SLOT	January	February	March	April	May	June	July	August	September	Grand Total
Afternoon	9.33%	7.77%	7.53%	7.81%	4.89%	5.16%	4.33%	2.59%	1.73%	5.09%
Evening	10.22%	8.69%	8.35%	7.99%	5.64%	5.38%	5.14%	2.22%	1.71%	5.38%
Late Night	15.91%	16.95%	15.92%	15.61%	4.42%	12.68%	12.92%	7.73%	5.59%	12.26%
Morning	10.82%	10.10%	8.51%	7.91%	4.92%	4.73%	5.06%	2.78%	1.89%	5.29%
Night	10.82%	10.04%	8.89%	9.44%	6.50%	6.37%	6.69%	2.83%	2.17%	6.43%
Grand Total	**10.72%**	**9.74%**	**8.99%**	**8.60%**	**5.34%**	**5.50%**	**5.69%**	**2.90%**	**2.08%**	**5.86%**



The calculation for delivery charges as a percentage is implemented in the pivot table by introducing a new field. The formula applied to this field is (Delivery Charge / Product Amount) * 100. This mathematical expression computes the percentage of the delivery charge concerning the total product amount. By multiplying the ratio by 100, the result is expressed as a percentage, providing a clear indication of the proportion of the product amount that constitutes the delivery charge. This method enables users to analyze and understand the impact of delivery charges on the overall cost of products

In the pivot table, colour scale conditional formatting has been applied, where green signifies the highest delivery charge%, yellow represents a moderate charge, and red indicates the lowest delivery charge. This formatting technique is employed to visually highlight the variation in delivery charges across different categories or dimensions.

As the values increase within a row or column the colour transitions from red to yellow and finally to green. This colour scale allows users to quickly identify the range and distribution of delivery charges, making it easier to spot areas with higher or lower charges. It serves as a visual aid to analyze and compare delivery charges, providing a quick and intuitive understanding of the data.

ANALYSIS:

1. **Late Night Slot**: This slot records the highest delivery percentage, indicating relatively higher delivery charges, possibly due to increased operational costs during late-night hours.
2. **Slot Ranking:** Night delivery charges surpass those of morning, afternoon, and evening, with the afternoon slot having the lowest delivery charge. Order of charges: Night(6.43%) > Evening(5.38%) > Morning(5.29%) > Afternoon(5.09%).
3. **Monthly Trends:**
   - Across all slots, delivery charges percentage decreases in August & September, suggesting a potential decrease in costs or an increase in order volume compared to previous months.

- In the month of January to May there has been a significant decrease in the delivery percentage i.e. from 10.72% to 5.34%. The months of June and July have a moderate percentage in delivery (5.40% & 5.69% respectively), while August and September have the lowest across all slots (2.90% & 2.08% respectively)
- January(10.72%) is noted to have greatest delivery%

Recommendations:

- Understanding delivery charges as a percentage aids in pricing strategies and optimizing delivery operations.
- Regular monitoring is crucial for adjusting pricing or operational practices in response to changing dynamics.
- Consider implementing targeted promotions or discounts during periods of lower delivery charges to further incentivize customer orders.

Grand Total:

Overall delivery charges as a percentage average at 5.86% across all slots and months.

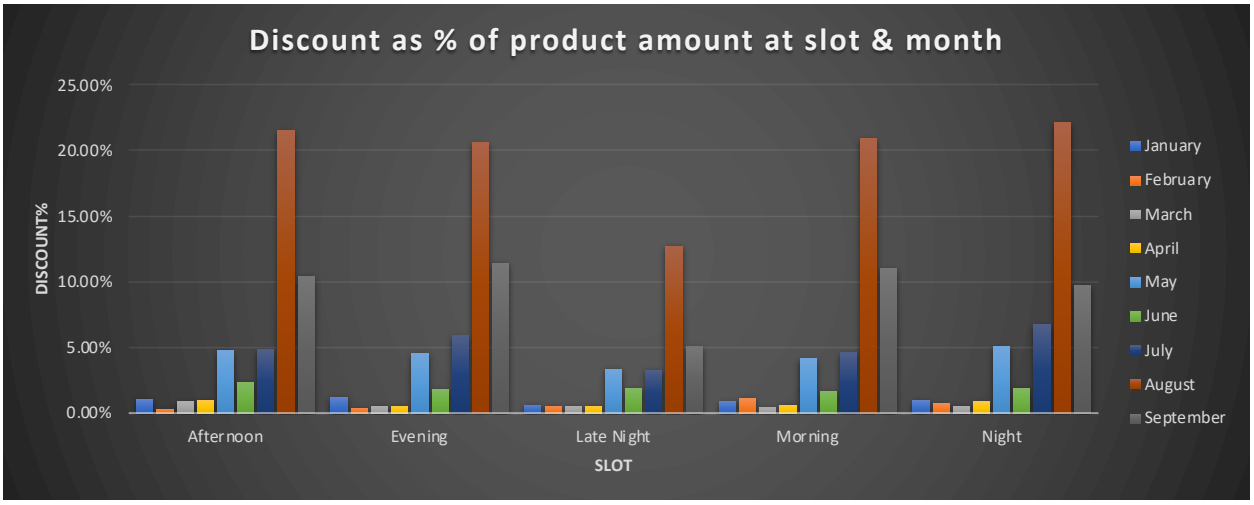
Additional Insights:

- Slot-level analysis unveils customer preferences for delivery times.
- Assessing charge impact on satisfaction guides decisions on pricing and services.
- Understanding charges' relationship with product amount aids strategic decisions for customer satisfaction and operational efficiency.
- Exploring regional variations in delivery charge percentages could provide insights for localized pricing strategies.

Q4) Calculate discount as a percentage of product amount at slot and month level.

Discount percentage is calculated in the pivot table by creating a field where the formula applied is (Discount / Product Amount) * 100. This formula computes the percentage of the discount in relation to the total product amount, expressing it as a percentage value. The result provides insights into the proportional discount applied to the overall product cost, facilitating analysis and decision-making based on discounting patterns.

Sum of Discount%	ORDER MONTH									
SLOT	January	February	March	April	May	June	July	August	September	Grand Total
Afternoon	1.04%	0.37%	0.89%	1.02%	4.78%	2.35%	4.84%	21.50%	10.46%	6.37%
Evening	1.23%	0.43%	0.60%	0.61%	4.54%	1.86%	5.90%	20.60%	11.46%	6.49%
Late Night	0.72%	0.59%	0.63%	0.59%	3.39%	1.93%	3.29%	12.77%	5.10%	3.73%
Morning	0.93%	1.13%	0.56%	0.68%	4.15%	1.70%	4.64%	20.86%	10.96%	6.45%
Night	1.00%	0.80%	0.59%	0.90%	5.07%	1.89%	6.74%	22.11%	9.76%	6.82%
Grand Total	**1.02%**	**0.65%**	**0.67%**	**0.81%**	**4.59%**	**1.96%**	**5.34%**	**20.82%**	**10.36%**	**6.37%**



In the pivot table, colour scale conditional formatting has been applied, where green signifies the highest discount%, yellow represents a moderate charge, and red indicates the lowest delivery charge. This formatting technique is employed to visually highlight the variation in delivery charges across different categories or dimensions.

As the values increase within a row or column the colour transitions from red to yellow and finally to green. This colour scale allows users to quickly identify the range and distribution of delivery charges, making it easier to spot areas with higher or lower charges. It serves as a visual aid to analyze and compare delivery charges, providing a quick and intuitive understanding of the data.

ANALYSIS:

1. Slot:

- **Evening, Afternoon, Morning & Night Slots:** These slots have higher discount percentages, indicating that the discount as a percentage of the product amount is relatively higher during these time slots. This could be a strategic move to attract more customers during these periods.
  The order is as follows: Night(6.82%)>Evening(6.49%)>Morning(6.45%)>Afternoon(6.37%)
- **Late Night Slot:** The discount percentage is relatively lower in the Late Night slot compared to other slots, suggesting that customers ordering during late-night hours might not benefit as much from discounts.

2. Month:

- **August:** Across all slots, the discount as a percentage of the product amount peaks in August(20.82%). This could be a result of promotional activities or special campaigns during that month.

- **September:**
    - This month has the second highest discounted percentage across all slots i.e. 10.36%
    - The lowest is recorded in the month of **February**(0.65%)
    - The rest of the months have a moderate percentage compared to the above mentioned months.

Recommendations:

- Understanding the discount as a percentage of the product amount can help in pricing strategies and marketing efforts to attract and retain customers.
- Analyzing the effectiveness of discounts in different time slots can guide decision-making in terms of promotional activities.

Grand Total:

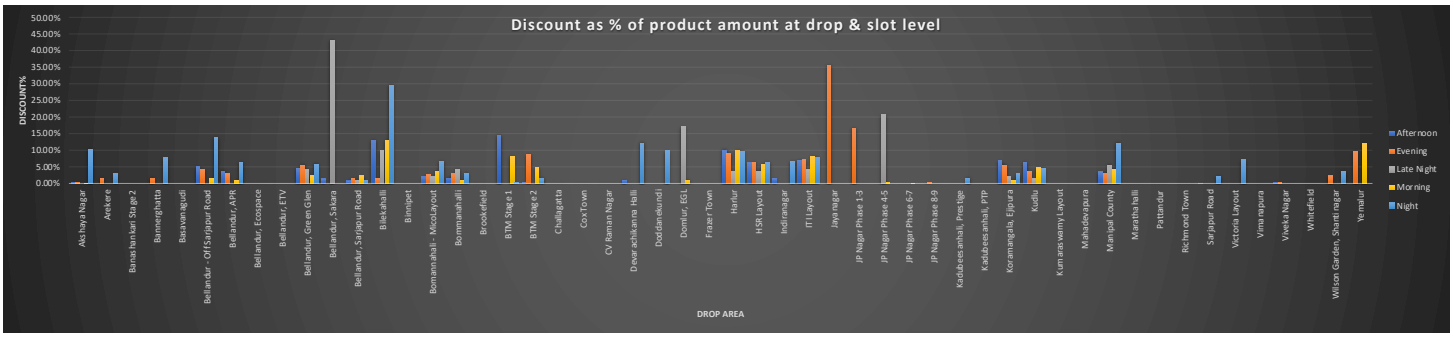
- The overall discount as a percentage of the product amount is 6.37%, indicating the average discount percentage across all slots and months.

Additional Insights:

- Analyzing customer responses to various discounts and time slots reveals insights into preferences and behaviour. Tracking the impact on sales volume and loyalty refines discount strategies.
- Understanding the discount-product amount relationship at the slot and month level informs strategic decisions for customer satisfaction and revenue optimization.

Q5) Calculate discount as a percentage of product amount at drop area and slot level

Sum of Discount%!	SLOT					
DROP AREA GEO	Afternoon	Evening	Late Night	Morning	Night	Grand Total
Akshaya Nagar	0.29%	0.25%	0.00%	0.18%	10.48%	1.49%
Arekere	0.00%	1.69%	0.00%	0.00%	3.06%	0.82%
Banashankari Stage 2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bannerghatta	0.00%	1.95%	0.00%	0.00%	7.72%	2.57%
Basavanagudi	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bellandur - Off Sarjapur Road	5.01%	4.18%	0.00%	1.80%	14.23%	7.46%
Bellandur, APR	4.09%	2.96%	0.00%	1.09%	6.67%	2.94%
Bellandur, Ecospace	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bellandur, ETV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bellandur, Green Glen	4.67%	5.83%	4.22%	2.23%	6.14%	4.65%
Bellandur, Sakara	1.49%	0.00%	43.23%	0.00%	0.00%	3.13%
Bellandur, Sarjapur Road	0.71%	1.74%	1.25%	2.28%	0.99%	1.14%
Bilekahalli	13.25%	1.66%	10.00%	13.15%	29.73%	7.77%
Binnipet	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bomannahali - MicoLayout	2.15%	2.67%	2.11%	3.73%	6.82%	3.51%
Bommanahalli	1.90%	2.86%	4.43%	1.22%	3.33%	2.31%
Brookefield	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BTM Stage 1	14.69%	0.00%	0.00%	8.21%	0.68%	6.52%
BTM Stage 2	0.53%	8.83%	0.00%	4.88%	1.84%	4.13%
Challagatta	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cox Town	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CV Raman Nagar	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Devarachikanna Halli	1.16%	0.00%	0.00%	0.00%	12.42%	6.19%
Doddanekundi	0.00%	0.00%	0.00%	0.00%	10.00%	3.33%
Domlur, EGL	0.00%	0.00%	17.09%	1.31%	0.00%	3.35%
Frazer Town	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Harlur	10.31%	9.24%	3.70%	10.17%	9.90%	9.70%
HSR Layout	6.21%	6.53%	3.96%	6.01%	6.52%	6.20%
Indiranagar	1.58%	0.00%	0.00%	0.00%	6.76%	2.84%
ITI Layout	7.21%	7.09%	4.11%	8.21%	7.97%	7.36%
Jayanagar	0.00%	35.61%	0.00%	0.00%	0.00%	5.56%
JP Nagar Phase 1-3	0.00%	16.69%	0.00%	0.00%	0.00%	6.35%
JP Nagar Phase 4-5	0.00%	0.00%	20.67%	0.27%	0.00%	1.81%
JP Nagar Phase 6-7	0.00%	0.00%	0.00%	0.20%	0.00%	0.14%
JP Nagar Phase 8-9	0.00%	0.41%	0.00%	0.00%	0.00%	0.41%
Kadubeesanhali, Prestige	0.00%	0.00%	0.00%	0.00%	1.93%	0.25%
Kadubeesanhali, PTP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Koramangala, Ejipura	6.88%	5.74%	2.05%	1.31%	3.01%	4.18%
Kudlu	6.36%	3.66%	1.44%	4.87%	4.69%	4.76%
Kumaraswamy Layout	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mahadevapura	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Manipal County	3.53%	3.32%	5.86%	4.57%	12.42%	4.88%
Marathahalli	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pattandur	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Richmond Town	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Sarjapur Road	0.13%	0.00%	0.00%	0.00%	2.35%	1.09%
Victoria Layout	0.00%	0.00%	0.00%	0.00%	7.07%	7.07%
Vimanapura	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Viveka Nagar	0.58%	0.30%	0.00%	0.00%	0.00%	0.46%
Whitefield	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Wilson Garden, Shantinagar	0.00%	2.25%	0.00%	0.00%	3.81%	3.09%
Yemalur	0.00%	9.88%	0.00%	12.18%	0.00%	6.91%
Grand Total	**6.37%**	**6.49%**	**3.73%**	**6.45%**	**6.82%**	**6.37%**



In the pivot table, colour scale conditional formatting is applied, where the colour transitions from white to green. This scale represents the range from the lowest to the highest discount percentages. Specifically, white indicates the lowest discount percentage, while green signifies the highest discount percentage. This visual representation helps easily identify and analyze the varying discount levels across different data points.

Analysis of Discount as a Percentage of Product Amount at Drop Area and Slot Level:

1. Drop Area Geo Overview:

The Grand Total discount percentage across all drop areas and slots is 6.37%, indicating a moderate overall discount level.

2. Slot-Level Analysis:

- **Afternoon Slot:**
  - Varied discount percentages range from 0.00% (Banashankari Stage 2, Basavanagudi) to 14.69% (BTM Stage 1).
  - Notable discounts include 5.01% (Bellandur - Off Sarjapur Road), 6.88% (Koramangala, Ejipura), 10.31% (Harlur)

- **Evening Slot:**
  - Discounts range from 0.00% (Banashankari Stage 2, Basavanagudi) to 35.61% (Jayanagar).
  - Notable discounts include JP Nagar Phase 1-3(16.69%)

- **Late Night Slot:**
  - Diverse discount percentages span from 0.00% (Banashankari Stage 2, Basavanagudi) to 43.23% (Bellandur, Sakara).
  - Notable discounts include 20.67%(JP Nagar Phase 4-5), 17.09%(Domlur, EGL), 10.00%(Bilekahalli)

- **Morning Slot:**
  - Discounts vary between 0.00% (Banashankari Stage 2, Basavanagudi) and 13.15% (Bilekahalli).
  - Harlur and Yemalur have noteworthy discounts of 10.17% and 12.18%, respectively.

- **Night Slot:**
  - Discounts range from 10.48% (Akshaya Nagar), varying at 0%(Banashankari Stage 2, Basavanagudi) to 29.73% (Bilekahalli).
  - Bellandur-Off Sarjapur Road(14.23%), Devarachikhanna Halli(12.42%) and Manipal County(12.42%) continue to stand out with significant discounts.
- The other slots have a moderate range of discounts as compared to the night slot, late night being the lowest at 3.73%

General Observations:

1. **Varied Discount Patterns:** The discount percentages exhibit a wide range across different drop areas and slots, from 0.00% to as high as 43.23%. This variability suggests diverse pricing strategies and customer behaviours in different locations and time slots.

2. **Slot-Specific Trends:** The Night slot consistently features the highest average discounts, indicating a potential trend in customer behaviour or market dynamics during night-time. Late Night and Morning slots show more variability, with Late Night having the lowest average discounts.

3. **Area-Specific Trends:** Certain areas, such as Bellandur - Off Sarjapur Road and Bilekahalli, consistently offer higher-than-average discounts, suggesting possible competitive dynamics or promotional strategies in these regions.

Recommendations:

1. **Strategic Pricing Adjustments:** Evaluate the effectiveness of high discount areas like Bellandur - Off Sarjapur Road and consider whether these discounts align with business objectives. Adjust pricing strategies to optimize profitability while remaining competitive.

2. **Promotional Opportunities:** Identify areas with consistently low or zero discounts, such as Banashankari Stage 2 and Basavanagudi. Explore opportunities for targeted promotions or loyalty programs to attract and retain customers in these regions.

3. **Night Slot Optimization:** Given the consistently high discounts in the Night slot, assess whether these discounts align with customer preferences or if there are opportunities to optimize pricing without compromising customer satisfaction.

Conclusion:

The analysis reveals a complex landscape of discount percentages across different drop areas and time slots. Strategic adjustments in pricing and promotions can be made based on the observed patterns to align with customer expectations, enhance competitiveness, and improve overall business performance. Regular monitoring and adaptation to changing market dynamics are essential for sustained success in the highly competitive delivery industry.
The averaged highest discount across the areas is for Harlur at 9.70% and across slots it is for the Night slot at 6.82%

Additional Considerations:

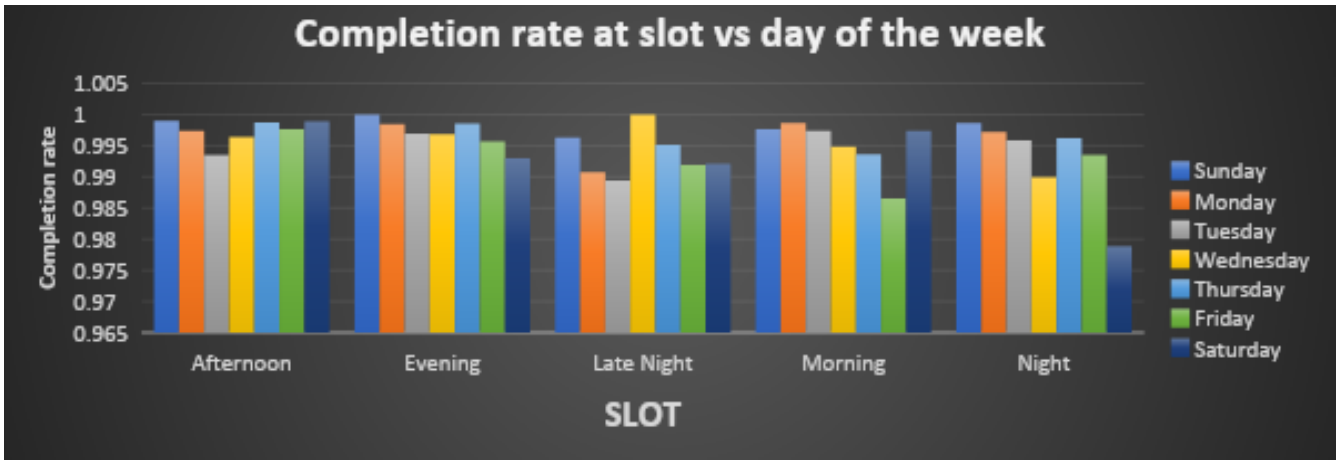
Investigating high discounts in specific areas or time slots refines promotional strategies. Monitoring discount impact on customer behavior and overall sales informs decisions. Addressing division by zero errors is crucial for accurate and comprehensive analysis.

II. COMPLETION RATE ANALYSIS

Completion Rate: The completion flag data, originally denoted as "yes" and "no," has been transformed into numerical values, with "1" representing completed orders and "0" indicating orders that were not completed. The completion rate is calculated using the formula: Number of completed orders / Total orders. By applying this formula, we obtain a numeric representation of the completion rate, where the average is calculated to provide a comprehensive understanding of the completion performance. This transformation allows for easier analysis and comparison of completion rates across different categories or time periods.

Q6)Identify Completion rate at slot vs day of the week (Sunday to Saturday) level. Can you spot some pattern in the data?

Average of Completion Rate	Dau of the week							
Slot	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Grand Total
Afternoon	0.998965874	0.997416021	0.993498049	0.996420048	0.998759305	0.997690531	0.998893805	0.997467927
Evening	1	0.998459168	0.996946565	0.99687011	0.998505232	0.995720399	0.992977528	0.997028862
Late Night	0.996323529	0.990740741	0.989417989	1	0.995145631	0.991902834	0.992094862	0.993706734
Morning	0.997649824	0.99859353	0.997368421	0.994825356	0.993581515	0.986522911	0.997412678	0.995175357
Night	0.998657718	0.997245179	0.9958159	0.989971347	0.996226415	0.993514916	0.978863937	0.992896909
Grand Total	**0.998580352**	**0.99739922**	**0.995469256**	**0.994927077**	**0.996620584**	**0.993387436**	**0.992350691**	**0.995530824**



In the pivot table, colour scale conditional formatting has been applied where green signifies a highest completion rate, yellow represents a moderate completion rate, and red denotes the least completion rate. This colour scale is used to visually represent the variation in completion rates across different categories or dimensions.

As the completion rates increase within a row or column the colour transitions from red to yellow and finally to green. This colour scale aids in quickly identifying and comparing completion rates, allowing for a visual assessment of the performance of different elements in the dataset. It serves as an intuitive visual guide, facilitating the identification of areas with higher or lower completion rates.

Analysis of Completion Rate Patterns

1. Slot

- **Afternoon Slot:** Consistently high completion rates prevail throughout the week, with notable peaks on Thursday and Sunday.
- **Evening Slot:** A robust trend of high completion rates is observed across all weekdays, experiencing a subtle dip on Saturday.

- **Late Night Slot:** Moderate to high completion rates are evident daily, reaching the highest on Wednesday and Sunday.
- **Morning Slot:** Generally high completion rates characterize the weekdays, with a noticeable decline on Friday.
- **Night Slot:** Unwaveringly high completion rates are maintained throughout the week, except for a slight dip on Saturday.

2. Day of the week:

- Sunday has the highest completion rate across all slots(0.998580352 or 99.85%)
- Saturday being lowest (0.992350691 or 99.23%)
- Monday(99.73%)>Thursday(99.66%)>Tuesday(99.54%)>Wednesday(99.49%)>Friday(99.33%)

General Observations:

- Sundays emerge as a consistent high-performing day across all slots.
- Late Night, Morning, and Night slots exhibit more variability in completion rates compared to other time slots.
- Friday and Saturday display minor dips in completion rates for specific slots.

Recommendations:

- Leverage the consistently high completion rates on Sundays for targeted marketing or promotional activities.
- Investigate and address challenges contributing to the Friday dip in completion rates for the Morning slot.
- Monitor and analyze factors influencing the noteworthy Wednesday performance, particularly in Late Night and Night slots.

Additional Considerations:

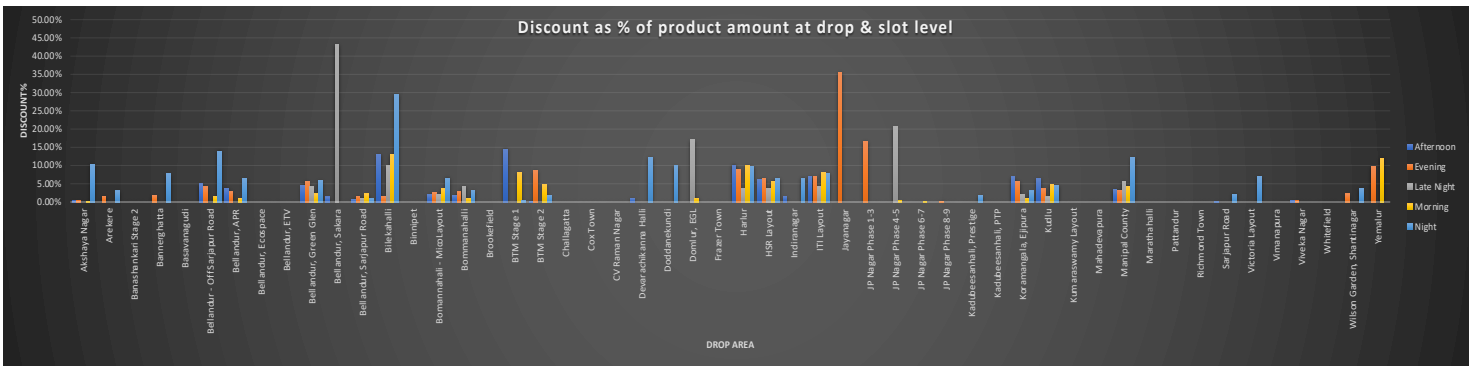
- Understanding the drivers behind completion rate patterns, encompassing customer behavior and operational efficiency, is critical.
- Periodic reviews and adaptive strategies are key to optimizing completion rates, enhancing service quality, and ensuring customer satisfaction.

Overall Trend:

- The grand total completion rate consistently maintains a high standard across all days of the week, reflecting commendable overall performance.
- Analyzing completion rate patterns at the intersection of time slots and weekdays enables precise optimizations for operational efficiency and heightened customer satisfaction.

Q7)Calculate completion rate at drop area level.

Order Drop Geo	Average of Completion Rate
Akshaya Nagar	1
Arekere	1
Banashankari Stage 2	1
Bannerghatta	1
Basavanagudi	1
Bellandur - Off Sarjapur Road	1
Bellandur, APR	1
Bellandur, Ecospace	1
Bellandur, ETV	0.5
Bellandur, Green Glen	0.992537313
Bellandur, Sakara	1
Bellandur, Sarjapur Road	1
Bilekahalli	1
Binnipet	1
Bomannahali - MicoLayout	0.992740472
Bommanahalli	0.980769231
Brookefield	1
BTM Stage 1	0.971428571
BTM Stage 2	1
Challagatta	1
Cox Town	0
CV Raman Nagar	1
Devarachikanna Halli	1
Doddanekundi	1
Domlur, EGL	0.75
Frazer Town	1
Harlur	0.996944232
HSR Layout	0.99604011
Indiranagar	0.875
ITI Layout	0.995945261
Jayanagar	1
JP Nagar Phase 1-3	1
JP Nagar Phase 4-5	1
JP Nagar Phase 6-7	1
JP Nagar Phase 8-9	1
Kadubeesanhali, Prestige	1
Kadubeesanhali, PTP	1
Koramangala, Ejipura	0.99375
Kudlu	0.994208494
Kumaraswamy Layout	1
Mahadevapura	1
Manipal County	0.9875
Marathahalli	0.666666667
Pattandur	1
Richmond Town	1
Sarjapur Road	1
Victoria Layout	1
Vimanapura	1
Viveka Nagar	0.857142857
Whitefield	0
Wilson Garden, Shantinagar	1
Yemalur	1
Grand Total	**0.995530824**



In the Pivot table, we've utilized conditional formatting with a colour scale. The colour scale ranges from green, indicating a 100% completion rate, to yellow, representing a moderate completion rate, and finally red, signifying the least completion rate. This approach allows for a visual representation of completion rates, making it easier to identify and interpret varying levels of order fulfilment performance.

ANALYSIS:

1. High Completion Rate Areas:

These areas have a completion rate of 1, indicating a high level of order completion.

Akshaya Nagar, Arekere,Banashankari Stage 2, Bannerghatta, Basavanagudi, Bellandur - Off Sarjapur Road, Bellandur, APR, Bellandur, Ecospace, Bellandur, Sakara, Bellandur, Sarjapur Road, Bilekahalli, Binnipet, Brookefield, BTM Stage 2, Challagatta, CV Raman Nagar, Devarachikanna Halli, Doddanekundi, Frazer Town, Jayanagar, JP Nagar Phase 1-3, JP Nagar Phase 4-5, JP Nagar Phase 6-7, JP Nagar Phase 8-9, Kadubeesanhali, Prestige, Kadubeesanhali, PTP, Kudlu, Kumaraswamy Layout, Pattandur, Richmond Town, Sarjapur Road, Victoria Layout, Vimanapura, Wilson Garden,Shantinagar,Yemalur

2. Moderate Completion Rate Areas:

These areas have completion rates slightly below 1, suggesting a good overall performance with some room for improvement:

Bellandur, Green Glen, Bomannahali - MicoLayout, Bommanahalli, BTM Stage 1, Harlur, HSR Layout, ITI Layout, Koramangala, Ejipura, Kudlu, Manipal County,

3. Areas with Variation in Completion Rate:

- **Bellandur, ETV**: This area has a completion rate of 0.5, indicating a lower completion rate compared to other areas
- **Marathahali:** This area has a completion rate of 0.6, indicating a lower completion rate
- **Domlur, EGL:** This area has a completion rate of 0.75, suggesting a relatively lower completion rate. It could be an area for improvement.
- **Vivek Nagar:** This area has a completion rate of 0.85, suggesting a relative less completion rate
- **Indiranagar**: While generally high, Indiranagar has a completion rate of 0.875, indicating a slight dip compared to other high-completion areas.

Recommendations:

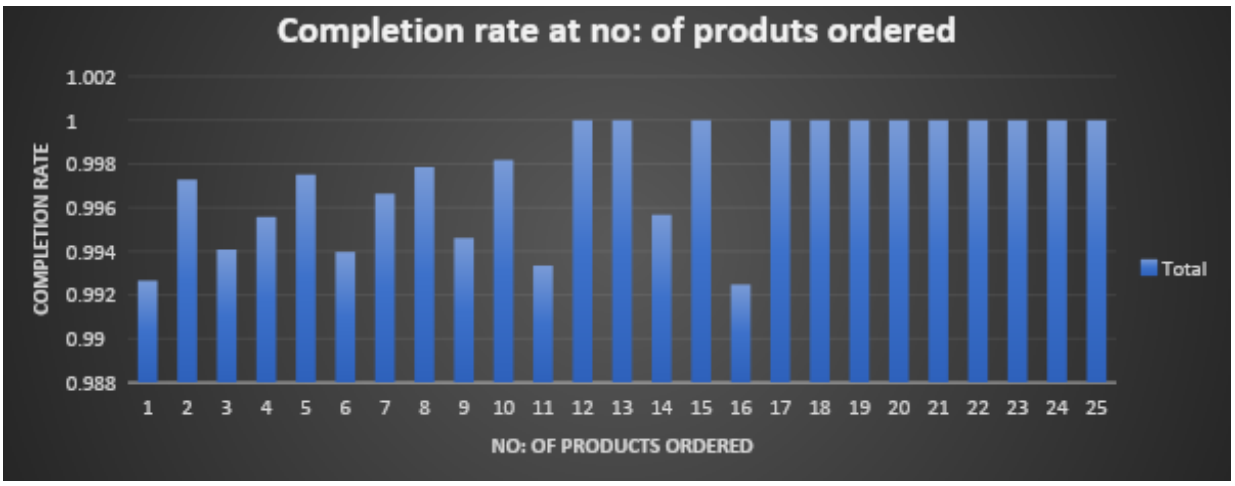
- Areas with completion rates below 1 may benefit from further investigation to identify and address any operational challenges affecting order completion.
- High-completion areas can serve as benchmarks for best practices and may offer insights that can be applied to other areas for improvement.

Overall Trend:

- The overall completion rate for all drop areas is 0.9955, indicating a high average completion rate across all areas.
- Understanding completion rates at the drop area level allows for targeted improvements in operational efficiency and customer satisfaction in specific geographic locations.

Q8) Completion rate at number of products ordered level. For this first you need to create a column having a number of product against every order.

No: of products ordered	Average of Completion Rate
1	0.992659247
2	0.997275204
3	0.994079152
4	0.995571659
5	0.997519841
6	0.993971869
7	0.996624473
8	0.997854077
9	0.994609164
10	0.998171846
11	0.993348115
12	1
13	1
14	0.995670996
15	1
16	0.992481203
17	1
18	1
19	1
20	1
21	1
22	1
23	1
24	1
25	1
Grand Total	**0.995530824**



In the pivot table, colour scale conditional formatting has been applied where green signifies a 100% completion rate, yellow represents a moderate completion rate, and red denotes the least completion rate. This colour scale is used to visually represent the variation in completion rates across different categories or dimensions.

As the completion rates increase within a row or column the colour transitions from red to yellow and finally to green. This colour scale aids in quickly identifying and comparing completion rates, allowing for a visual assessment of the performance of different elements in the dataset. It serves as an intuitive visual guide, facilitating the identification of areas with higher or lower completion rates.

Analysis:

Analysis of Completion Rate vs. Number of Products Ordered:

- **Completion Rate Trends:**
  The completion rates vary based on the number of products ordered.
  Orders with a higher number of products tend to have higher completion rates.
- **High Completion Rates:**
  Orders with 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 24, and 25 products have a completion rate of 1 (100%).
- **Lowest Completion Rate:**
  Orders with 1 product have a completion rate of 0.9927, which is the lowest among the observed completion rates.

Observations:

- There is a general trend of increasing completion rates as the number of products in an order increases.
- Orders with less number of products (11 and below) have less completion rate
- Orders with a very high number of products (12 and above) consistently achieve a completion rate of 1.

Grand Total Average:

- The overall grand total average completion rate is 0.9955.

Recommendations:

- **Efficiency with Larger Orders:**
  The data suggests that the team handles larger orders (12 products and above) very efficiently, achieving a 100% completion rate.
- **Enhancing Single Product Orders:**
  Consider investigating factors contributing to the slightly lower completion rate for single-product orders and implement strategies to improve efficiency.

Operational Insights:

- Monitor and analyse completion rates regularly, especially for different order sizes, to identify patterns and areas for potential operational enhancements.
- This analysis provides insights into the relationship between the number of products in an order and the corresponding average completion rates, helping identify trends and areas for potential operational improvements in order fulfilment processes.

Overall Trend

- The grand total completion rate is 99.55%, indicating a high average completion rate across all orders.
- Understanding completion rates at different levels of order details helps identify patterns and areas for improvement in the fulfilment process, leading to enhanced customer satisfaction and operational efficiency.

Q9) Give an analysis on any pattern you observe in the completion rate.

Brief Summary of Completion Rate Analysis:

Slot vs. Day of the Week:

- Afternoon Slot consistently high completion rates, peaking on Thursday and Sunday.
- Evening Slot maintains robust completion rates across weekdays, with a subtle dip on Saturday.
- Late Night Slot sees moderate to high completion rates daily, peaking on Wednesday and Sunday.
- Morning Slot generally high on weekdays, declines noticeably on Friday.
- Night Slot maintains unwaveringly high completion rates, with a slight dip on Saturday.
- Sunday consistently has the highest completion rate across all slots.

Completion Rate at Drop Area Level:

- Identified high completion rate areas with a rate of 1.
- Some areas show moderate completion rates, suggesting good overall performance with room for improvement.
- Identified specific areas with lower completion rates that may need attention and improvement.
- Overall completion rate for all drop areas is 99.55%, indicating a high average completion rate across all areas.

Completion Rate at Number of Products Ordered Level:

- Completion rates tend to increase with a higher number of products in an order.
- Orders with a very high number of products consistently achieve a completion rate of 1.
- General trend of increasing completion rates as the number of products increases.
- Orders with fewer products (11 and below) have lower completion rates, and orders with one product have the lowest completion rate.

General Observations Across Analyses:

- Sundays consistently perform well across slots.
- Late Night, Morning, and Night slots exhibit more variability in completion rates.
- Friday and Saturday display minor dips in completion rates for specific slots.
- Drop areas show variation, with some areas needing improvement.
- Higher completion rates observed for orders with a greater number of products.

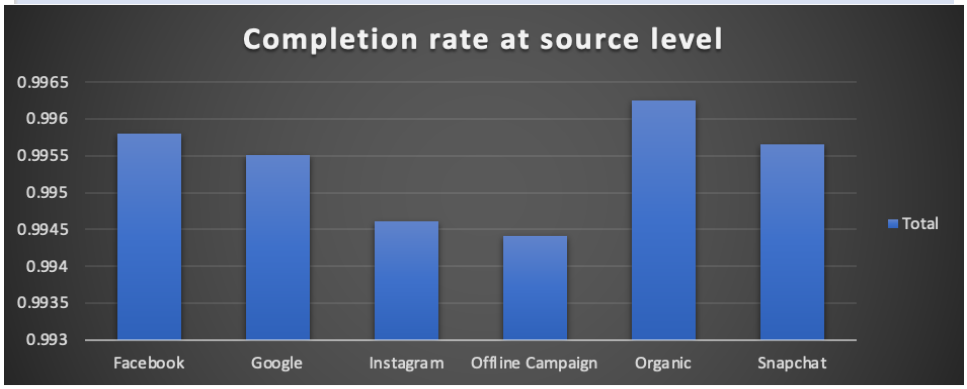
Overall Trend:

- The grand total completion rate maintains a consistently high standard across all days of the week and dimensions.
- Understanding completion rates at different levels enables targeted improvements for operational efficiency and customer satisfaction.
- The overall completion rate is 99.55%, indicating commendable performance in order fulfilment .

III. CUSTOMER ANALYSIS

Q10) Identify Completion rate at source level.

SOURCE	Average of Completion Rate
Facebook	0.995798319
Google	0.995512341
Instagram	0.994612069
Offline Campaign	0.994409504
Organic	0.996257485
Snapchat	0.995653892
Grand Total	**0.995530824**



In the pivot table, colour scale conditional formatting is applied, where the colour transitions from white to green. This scale represents the range from the lowest to the highest Completion rate. Specifically, white indicates the lowest discount percentage, while green signifies the highest discount percentage. This visual representation helps easily identify and analyze the varying discount levels across different data points.

Analysis of Completion Rates at Source Level:

1. Facebook:

- Completion Rate: 99.58%
- Observation: Facebook exhibits a high completion rate, suggesting that users sourced from Facebook tend to complete their transactions effectively.

2. Google:

- Completion Rate: 99.55%
- Observation: Google also showcases a high completion rate, indicating that users acquired through Google sources have a high likelihood of completing their transactions.

3. Instagram:

- Completion Rate: 99.46%
- Observation: Instagram maintains a commendable completion rate, indicating that users from Instagram sources are generally successful in completing their transactions.

4. Offline Campaign:

- Completion Rate: 99.44%
- Observation: Users acquired through offline campaigns demonstrate a good completion rate, suggesting effective engagement from this source.

5. Organic:

- Completion Rate: 99.63%
- Observation: Organic sources display the highest completion rate among all sources, implying that users who discover the platform organically have a very high likelihood of completing transactions.

6. Snapchat:

- Completion Rate: 99.57%
- Observation: Snapchat maintains a robust completion rate, indicating that users sourced from Snapchat are effective in completing their transactions.

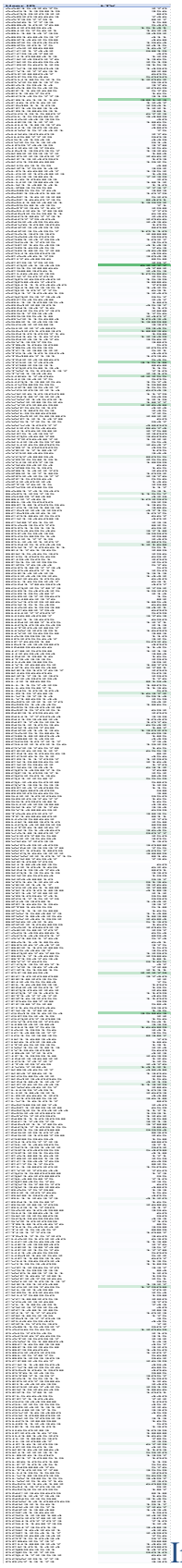
Grand Total Completion Rate:

- Grand Total Completion Rate: 99.55%
- Observation: The overall completion rate across all sources is high, reflecting a strong performance in transaction completion on the platform.

Overall Analysis:

- Consistent Performance: All sources exhibit completion rates above 99%, indicating a consistent and effective user experience across various acquisition channels.
- Organic Excellence: Organic sources stand out with the highest completion rate, suggesting that users discovering the platform naturally tend to complete transactions at an exceptionally high rate.
- Strategic Insights: Understanding completion rates at the source level can guide strategic decisions, helping allocate resources and focus on sources with high user engagement and transaction completion.

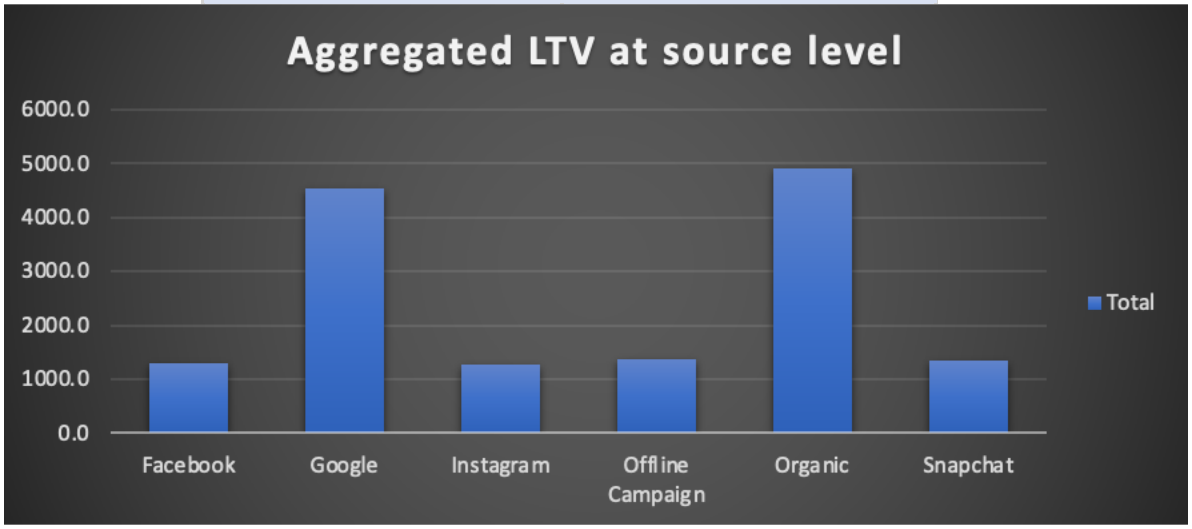
Q11) Calculate LTV for every customer.



In the pivot table, colour scale conditional formatting is applied, where the colour transitions from white to green. This scale represents the range from the lowest to the highestLTV. Specifically, white indicates the lowest discount percentage, while green signifies the highest discount percentage. This visual representation helps easily identify and analyze the varying discount levels across different data points.

Q12) Calculate aggregated LTV at customer acquisition source level. Refer to aggregated LTV example.

Source	Aggregated TV
Facebook	1296.6
Google	4530.4
Instagram	1278.2
Offline Campaign	1366.4
Organic	4898.1
Snapchat	1351.8
Grand Total	**2134.6**



In the pivot table, colour scale conditional formatting is applied, where the colour transitions from white to green. This scale represents the range from the lowest to the aggregated LTV. Specifically, white indicates the lowest discount percentage, while green signifies the highest discount percentage. This visual representation helps easily identify and analyze the varying discount levels across different data points.

Analysis of Aggregated LTV at Customer Acquisition Source Level:

1. Facebook:

- Aggregated LTV: $1,296.6
- Observation: Facebook contributes a significant but moderate amount to the overall aggregated LTV.

2. Google:

- Aggregated LTV: $4,530.4
- Observation: Google stands out with the highest aggregated LTV, indicating that customers acquired through Google have a substantial impact on the overall customer lifetime value.

3. Instagram:

- Aggregated LTV: $1,278.2
- Observation: Instagram contributes a moderate amount to the overall aggregated LTV, showing a steady impact on customer lifetime value.

4. Offline Campaign:

- Aggregated LTV: $1,366.4
- Observation: The Offline Campaign source contributes a moderate amount to the aggregated LTV, indicating that customers acquired through offline campaigns have a notable impact.

5. Organic:

- Aggregated LTV: $4,898.1
- Observation: Organic sources demonstrate a high aggregated LTV, suggesting that customers acquired organically significantly contribute to the overall customer lifetime value.

6. Snapchat:

- Aggregated LTV: $1,351.8
- Observation: Snapchat contributes a moderate amount to the overall aggregated LTV, indicating a reasonable impact on customer lifetime value.

Grand Total:

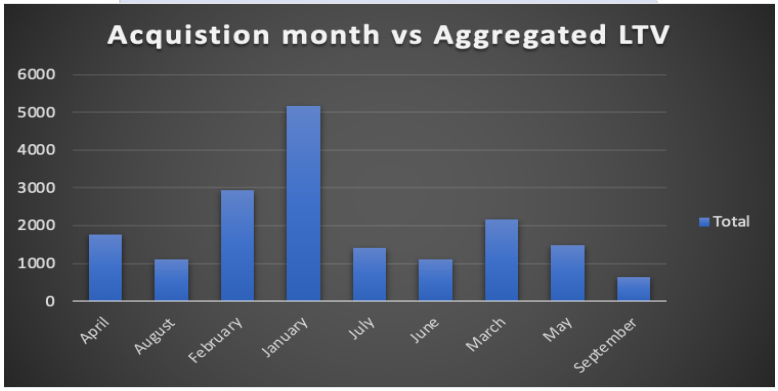
- Aggregated LTV: $21,344.6
- Observation: The grand total represents the sum of aggregated LTV across all customer acquisition sources, providing an overview of the overall customer lifetime value.

Overall Analysis:

- Diversity in Impact: There is a notable diversity in the impact of different customer acquisition sources on aggregated LTV.
- Key Contributors: Google and Organic sources stand out as key contributors to the overall customer lifetime value, with significantly higher aggregated LTV values.
- Moderate Contributors: Facebook, Instagram, Offline Campaign, and Snapchat contribute moderately to the overall aggregated LTV.
- Strategic Insights: Understanding the LTV at the customer acquisition source level provides strategic insights for optimizing marketing efforts, focusing on high-impact sources, and allocating resources effectively.

Q13) Calculate aggregated LTV at acquisition month level. Refer to aggregated LTV example.

Row Labels	Aggregated TV
April	1779.139241
August	1121.540166
February	2942.478528
January	5161.732026
July	1415.6917
June	1104.494681
March	2157.667665
May	1475.770017
September	651.1358314
Grand Total	**2134.6264**



In the pivot table, colour scale conditional formatting is applied, where the colour transitions from white to green. This scale represents the range from the lowest to highest aggregated LTV. Specifically, white indicates the lowest discount percentage, while green signifies the highest discount percentage. This visual representation helps easily identify and analyze the varying discount levels across different data points.

Analysis: Aggregated LTV at Acquisition Month Level

1. Highest Aggregated LTV:

- Month: January has the highest aggregated LTV at $5161.73.
- Observation: Customers acquired in January contribute the most to the overall lifetime value, indicating that they generate higher revenue over time.

2. Moderate Aggregated LTV:

- Months: February, March, and April have moderate aggregated LTV values, ranging from $1779.14 to $2942.48.
- Observation: Customers acquired during these months contribute moderately to the overall lifetime value, showing a consistent revenue stream.

3. Lowest Aggregated LTV:

- Month: September has the lowest aggregated LTV at $651.14.
- Observation: Customers acquired in September contribute the least to the overall lifetime value, indicating a lower revenue generation compared to other months.

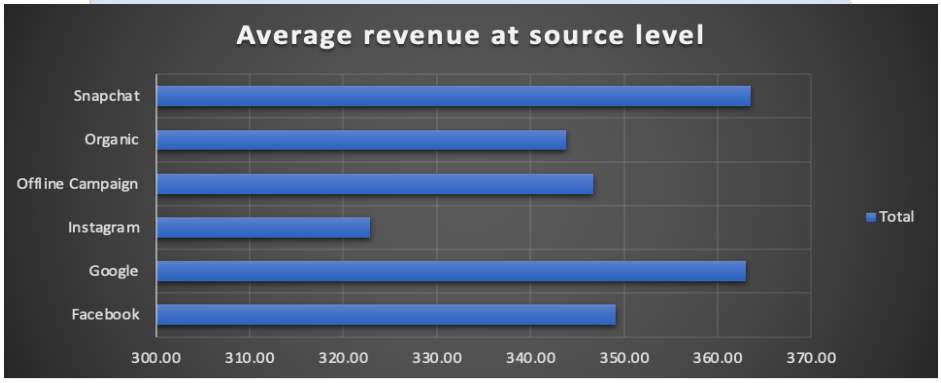
Variability in LTV: There is variability in the aggregated LTV across different acquisition months, suggesting that customer spending and retention patterns vary based on when they were acquired.

Grand Total:

- ***Total Aggregated LTV:*** The grand total aggregated LTV across all acquisition months is $2134.63.
- **Observation:** This represents the cumulative lifetime value generated by customers across all acquisition months.

Q14) What is the average Revenue(Product amount after discount) per order at different customer acquisition source level?

Source	Average of Revenue
Facebook	349.06
Google	363.05
Instagram	322.85
Offline Campaign	346.72
Organic	343.86
Snapchat	363.52
Grand Total	**348.93**



In the pivot table, colour scale conditional formatting is applied, where the colour transitions from white to green. This scale represents the range from the lowest to highest average revenue. Specifically, white indicates the lowest discount percentage, while green signifies the highest discount percentage. This visual representation helps easily identify and analyze the varying discount levels across different data points.

Analysis of Average Revenue per Order by Customer Acquisition Source:

1. Highest Average Revenue:

- Snapchat: With an average revenue of $363.52, Snapchat has the highest average revenue per order among all customer acquisition sources.
- Google: Google follows closely with an average revenue of $363.05, making it one of the sources with the highest revenue per order.

2. Moderate Average Revenue:

- Facebook: Facebook has a moderate average revenue of $349.06 per order, indicating a solid performance in terms of revenue generation.
- Offline Campaign: The Offline Campaign source has a moderate average revenue of $346.72 per order, contributing steadily to overall revenue.

3. Lowest Average Revenue:

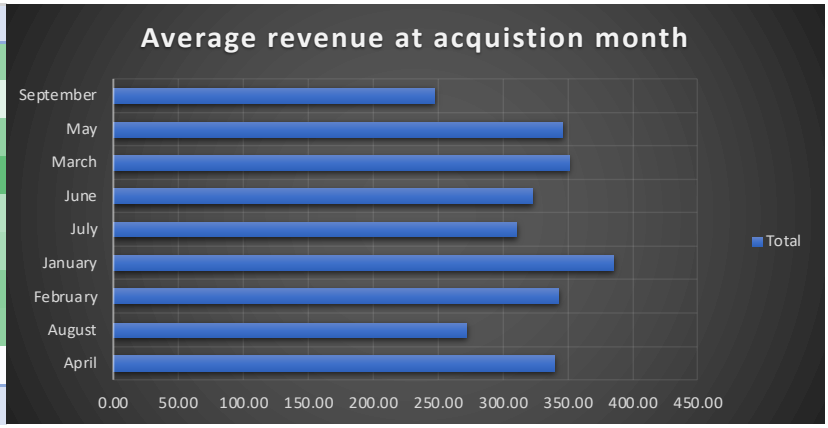
- Instagram: Among the sources analyzed, Instagram has the lowest average revenue per order at $322.85. It is essential to assess strategies for potential improvement in revenue generation from Instagram.
- Organic: The Organic source also falls into the lowest average revenue category, with an average of $343.86 per order. Evaluating ways to enhance organic customer spending could be explored.

Overall Pattern:

- Variability in Performance: The analysis indicates a variability in performance across different customer acquisition sources, with Snapchat and Google standing out for their higher revenue generation. Consideration for Improvement: Instagram and Organic sources have room for improvement in increasing the average revenue per order. Exploring strategies to enhance customer engagement and spending from these sources may be beneficial.

Q15) What is the average Revenue(Product amount after discount) per order at acquisition month level?

Acquistion month	Average of Revenue
April	340.11
August	271.72
February	342.73
January	385.52
July	310.86
June	322.60
March	351.36
May	346.05
September	247.49
Grand Total	**348.93**



In the pivot table, colour scale conditional formatting is applied, where the colour transitions from white to green. This scale represents the range from the lowest to highest average revenue. Specifically, white indicates the lowest discount percentage, while green signifies the highest discount percentage. This visual representation helps easily identify and analyze the varying discount levels across different data points.

Analysis of Average Revenue per Order at Acquisition Month Level:

1. Highest:

- January: $385.52
  January stands out as the month with the highest average revenue per order, indicating a strong performance in terms of revenue generation. This could be attributed to various factors such as seasonal trends, marketing initiatives, or customer behaviour.
- March: $351.36
  March follows closely with a high average revenue per order, suggesting sustained strong performance in terms of product amounts after discount. Consider exploring specific events or promotions that might have contributed to this peak.

2. Moderate:

- April: $340.11
  April falls into the moderate category with a solid average revenue per order. While not the highest, it indicates a consistent performance. Exploring potential contributing factors and comparing them to higher-performing months can provide insights.

- June: $322.60
  June also falls into the moderate range, showcasing a respectable average revenue per order. Analyzing customer behavior and market conditions during this month might reveal contributing factors.

- May: $346.05
  May falls within the moderate range, maintaining a solid average revenue per order. Investigating any specific promotions or external factors during this period could help understand its performance.

3. Lowest:

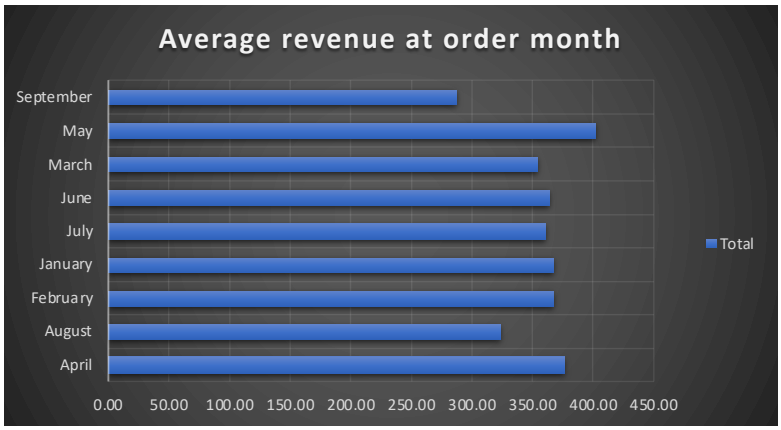
- September: $247.49
  September is identified as having the lowest average revenue per order. Exploring the reasons behind this lower performance, such as potential seasonal trends or specific challenges during this month, can provide insights for improvement.

- August: $271.72
  August is also in the lowest category. Understanding the contributing factors, such as potential external market conditions or internal operational challenges, can help in devising strategies for improvement.

Overall Observation:

- The analysis reveals variations in average revenue per order across different acquisition months, suggesting the influence of external factors, marketing strategies, or customer behavior.
- Months like January and March stand out with the highest average revenue per order, while September and August exhibit lower performance.
- Exploring the reasons behind these variations can guide strategic decisions to enhance revenue and optimize performance across all months.

Order month	Average of Revenue
April	376.09
August	323.25
February	367.27
January	367.17
July	360.47
June	364.00
March	353.53
May	401.83
September	286.69
Grand Total	**348.93**



Analysis of Average Revenue per Order at Acquisition Month Level:

1. Highest Average Revenue (Acquisition Month):

- May: The highest average revenue per order is observed in May with a value of $401.83.
- April: Following closely, April has the second-highest average revenue at $376.09.
- February: February also shows a high average revenue at $367.27.

2. Moderate Average Revenue (Acquisition Month):

- June: June falls into the moderate category with an average revenue of $364.00.
- January: January is also considered moderate, having an average revenue of $367.17.
- March: March has a moderate average revenue at $353.53.

3. Lowest Average Revenue (Acquisition Month):

- September: The lowest average revenue per order is observed in September with a value of $286.69.
- August: August follows as the second lowest with an average revenue of $323.25.
- July: July is also in the lowest category, showing an average revenue of $360.47.

General Observations:

- Variability: There is variability in average revenue across different acquisition months, with May being the highest and September the lowest.
- Consistency: Some months, like June and March, fall consistently in the moderate range.

- Potential Insights: May might represent a peak in sales or higher-value orders, while September may have lower-value orders on average.

Q16) Is there any pattern in order rating across slots, number of items placed, delivery charges, discount.

A. Order Rating Across Slots:

Count of Order ID	Column Labels						
Row Labels	1	2	3	4	5	(blank)	Grand Total
Afternoon	35	19	74	284	4073	1439	5924
Evening	39	13	49	233	3227	1151	4712
Late Night	15	7	19	56	995	497	1589
Morning	37	17	51	290	3715	1279	5389
Night	45	17	55	264	3474	1354	5209
Grand Total	**171**	**73**	**248**	**1127**	**15484**	**5720**	**22823**

Analysis of Orders Placed Across Slots:

1. Afternoon Slot:

- Highest: Order Rating 5 (4073 orders).
- Moderate: Order Rating 4 (284 orders).
- Lowest: Order Rating 2 (19 orders).
- *Observation:* Afternoon slot sees the highest number of orders with the highest order rating (5).

2. Evening Slot:

- Highest: Order Rating 5 (3227 orders).
- Moderate: Order Rating 4 (233 orders).

- Lowest: Order Rating 2 (13 orders).
- *Observation:* Evening slot experiences the highest number of orders with order rating 5.

3. Late Night Slot:

- Highest: Order Rating 5 (995 orders).
- Moderate: Order Rating 4 (56 orders).
- Lowest: Order Rating 2 (7 orders).
- *Observation:* Late Night slot has a lower total order count but maintains a relatively high number of orders with the highest rating (5).

4. Morning Slot:

- Highest: Order Rating 5 (3715 orders).
- Moderate: Order Rating 4 (290 orders).
- Lowest: Order Rating 2 (17 orders).
- *Observation:* Morning slot sees a substantial number of orders, primarily with the highest order rating (5).

5. Night Slot:

- Highest: Order Rating 5 (3474 orders).
- Moderate: Order Rating 4 (264 orders).
- Lowest: Order Rating 2 (17 orders).
- *Observation:* Night slot has a significant number of orders with the highest order rating (5).

Overall Pattern:

- The Grand Total reflects a comprehensive view of order distribution across slots.
- Evening and Night slots have the highest total orders, indicating peak activity during these time periods.
- Late Night slot has the lowest total orders among the slots.
- The highest count of orders is consistently associated with order rating 5 across all slots, indicating a general trend of customers providing the highest rating for their orders.
- Order rating 4 also has a substantial count across all slots, suggesting a moderate level of satisfaction.
- Order rating 3 has the lowest count across all slots, indicating fewer instances of orders receiving a lower rating.

Insights:

- Orders placed during the evening and night slots tend to have higher counts compared to other slots.
- Late Night orders, although fewer in number, still have a substantial count with a high rating.
- Overall, customers seem to be generally satisfied, as reflected by the high counts of order rating 5.

Overall Observations:

- High Activity Slots: Evening and Night slots consistently have the highest total orders.
- Moderate Activity Slots: Afternoon, Morning, and Late Night slots show moderate to high order counts.
- Low Activity Slot: Late Night slot has the lowest total orders.
- Order Rating 5 Dominance: Across all slots, the highest order rating (5) has the highest count, suggesting a generally positive customer experience.

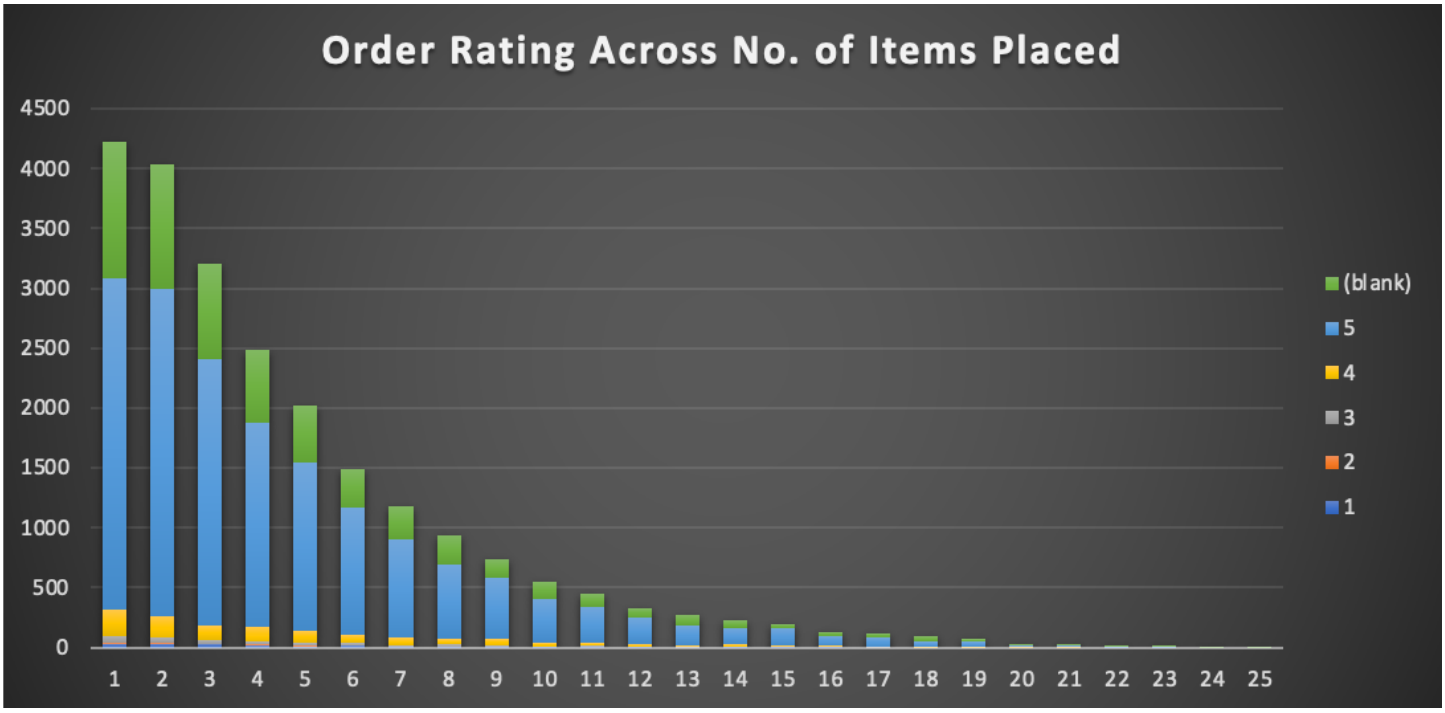
Conclusion:

- Overall, there is a clear pattern of peak order activity during Evening and Night slots.
- Morning and Afternoon slots also contribute significantly to order volume.
- Late Night slot, while having the lowest total orders, maintains a notable number of high-rated orders.

- Understanding these patterns allows for optimized resource allocation and improved operational efficiency.

B. Order Rating Across No. of Items Placed:

Count of Order ID	Column Labels						
Row Labels	1	2	3	4	5	(blank)	Grand Total
1	33	11	51	221	2769	1138	4223
2	33	9	40	181	2735	1039	4037
3	27	6	27	125	2220	804	3209
4	19	7	22	123	1705	608	2484
5	11	6	28	95	1401	475	2016
6	13	10	15	71	1056	328	1493
7	4	6	12	62	822	279	1185
8	5	6	15	46	624	236	932
9	4	6	7	52	508	165	742
10	4		6	27	365	145	547
11	4	3	6	28	297	113	451
12	4		4	19	225	75	327
13			2	19	168	80	269
14	2		3	21	141	64	231
15	2	3	3	9	147	30	194
16	4		1	8	83	37	133
17	1		4	4	73	35	117
18				5	49	37	91
19			1	6	49	14	70
20			1	3	19	10	33
21	1			2	13	4	20
22					10	1	11
23					4	1	5
24					1	1	2
25						1	1
Grand Total	**171**	**73**	**248**	**1127**	**15484**	**5720**	**22823**



Analysis of Orders Placed Across Number of Items:

Overall Pattern:

- The table displays the count of orders for different order ratings across various numbers of items placed.
- The overall pattern indicates that as the number of items placed increases, the total count of orders tends to decrease.

Specific Analysis by Grouping Number of Items:

1. Group 1 (1-5 items):
   - Highest: Orders with 5 items (2769 orders).
   - Moderate: Orders with 4 items (221 orders).
   - Lowest: Orders with 1 item (33 orders).
   - Observation: The majority of orders fall within this group, with the highest count for orders with 5 items.
2. Group 2 (6-10 items):
   - Highest: Orders with 6 items (1056 orders).
   - Moderate: Orders with 10 items (365 orders).
   - Lowest: Orders with 8 items (624 orders).
   - Observation: This group shows a moderate count of orders, with the highest for orders with 6 items.
3. Group 3 (11-15 items):
   - Highest: Orders with 15 items (147 orders).
   - Moderate: Orders with 14 items (141 orders).
   - Lowest: Orders with 11 items (113 orders).
   - Observation: A decrease in the count of orders is observed in this group, with the highest for orders with 15 items.
4. Group 4 (16-20 items):

- Highest: Orders with 19 items (49 orders).
- Moderate: Orders with 20 items (37 orders).
- Lowest: Orders with 16 items (83 orders).
- Observation: The count continues to decrease in this group, with the highest for orders with 19 items.

5. Group 5 (21 and above items):
   - Highest: Orders with 21 items (13 orders).
   - Moderate: Orders with 23 items (10 orders).
   - Lowest: Orders with 22 items (4 orders).
   - Observation: This group has the lowest count of orders, with a decline in the number of items.

General Observations:

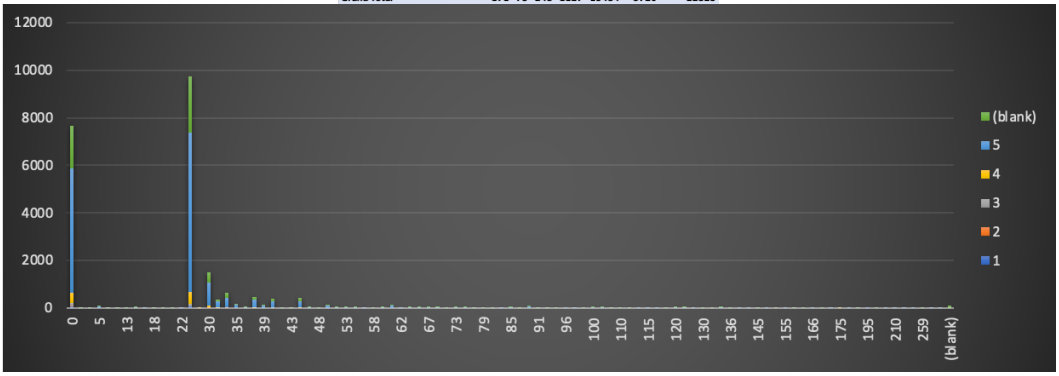
- The overall trend indicates that as the number of items placed increases, the count of orders decreases.
- Most orders fall within the 1-5 items group.
- Orders with a higher number of items (21 and above) have the lowest count.

Conclusion:

- Understanding the distribution of orders across different numbers of items helps identify patterns in customer preferences.
- Strategies can be tailored based on these patterns to optimize inventory management and enhance customer satisfaction.

C. Order Rating Across Delivery Charges:

Count of Order ID	Column Labels						
Row Labels	1	2	3	4	5	(blank)	Grand Total
0	75	37	84	426	5263	1781	7666
2						1	1
3					5	1	6
5	1		1	5	59	25	91
10					9	7	16
12					4	3	7
13						2	2
15				1	13	7	21
17					1		1
18					4	2	6
19						2	2
20					7	2	9
22					1		1
25	59	21	107	475	6706	2357	9725
28				1			1
30	8	3	14	66	988	402	1481
32	2	1	3	20	239	84	349
33	7	4	8	19	400	192	630
35		1	2	5	131	42	181
36				1	31	10	42
37	2	1	2	16	344	107	472
39	3	1	3	3	81	41	132
40	5	2	8	21	245	89	370
42					6	3	9
43						1	1
45	1	1	3	16	270	120	411
46					14	6	20
48					9	4	13
50				1	94	53	148
52				2	27	4	33
53					28	13	41
55	1			9	33	18	61
56					1		1
58				1	5	4	10
59					19	6	25
60			2	7	90	48	147
62					1		1
65		1	1	4	22	15	43
66				1	11	6	18
67	1				19	8	28
70				1	29	12	42
71					2	1	3
73					11	8	19
75	1		2	7	26	25	61
78					4	3	7
79	1		1		5	6	13
80					10	7	17
82				1	1		2
85			1	2	9	3	15
86					5	1	6
90			1		48	21	70
91					2	2	4
93						1	1
95			1	2	6	4	13
96					2		2
97				1	3		4
99					5	7	12
100				3	19	4	26
105				2	15	5	22
106					1	1	2
110			1		7	3	11
112	1				3	3	7
113					2		2
115					1		1
117				1	1		2
119					2	5	7
120			1	1	22	11	35
125					12	3	15
126				1	1		2
130	1				2	1	4
133					2	3	5
135	1		1	2	10	1	15
136						1	1
139					4		4
140					1		1
145				1	4	1	6
146					2		2
150			1		2	3	6
155					1		1
157					2	2	4
165					1	1	2
166					3		3
170						1	1
172				1	1		2
175				1			1
179					1		1
180					7	1	8
195	1						1
199						1	1
202					1		1
210					1		1
212					1		1
232					1		1
259						1	1
287					1		1
332					1		1
(blank)					1	101	102
Grand Total	171	73	248	1127	15484	5720	22823



Analysis of Orders Placed Across Delivery Charges:

Analysis by Grouping Delivery Charges:

1. Group 1 (0-25 delivery charges):

- Highest: The highest-rated orders (rating 5) are predominant, particularly at 25 delivery charges, closely followed by 0 delivery charges.
- Moderate: There is a moderate count of orders with no ratings across various delivery charges.
- Lowest: Orders with ratings 1 to 4 have a minimal count across all delivery charges.
- Observation: This group holds the majority of ratings, with the highest order count at 0 and 25 delivery charges.

2. Group 2 (28-50 delivery charges):

- Highest: The highest count of orders is observed for rating 5, specifically at 30 delivery charges.
- Moderate: A moderate count of orders with no ratings is consistent across different delivery charges.
- Lowest: Orders with ratings 1 to 4 have the lowest count across all delivery charges.
- Observation: This group shows a decrease in order count compared to Group 1 but maintains a moderate count across all ratings and delivery charges.

3. Group 3 (50 and above delivery charges):

- Highest: Rating 5 still dominates, with the highest order count at 101 delivery charges and no rating.
- Moderate: Similar patterns of a moderate count for no ratings persist.
- Lowest: Orders with ratings 1 to 4 have the lowest count across all delivery charges.
- Observation: The order count continues to decrease in this group, with the highest count at 101 delivery charges and no rating.

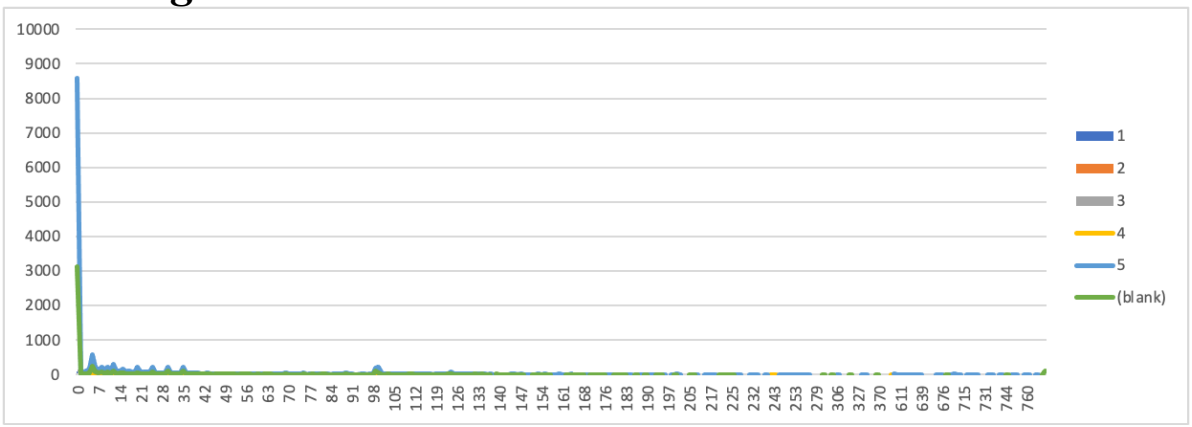
Overall Pattern:

- The overall trend indicates a general decrease in order count as delivery charges increase.
- Highest-rated orders (5) are prevalent across all delivery charges.
- Moderate order counts exist for orders with no ratings, while the lowest counts are observed for ratings 1 to 4.
- Most orders fall within the 0-25 delivery charges group.

Conclusion:

- Analysing the distribution of orders across different delivery charges provides valuable insights into customer preferences.
- Tailoring strategies based on these patterns can optimize pricing structures and enhance overall customer satisfaction.

D. Order Rating Across Discount:



Analysis of Orders Across Discounts and Ratings:

1. 0 to 35 Discounts:

- Highest Count: The highest count of orders is observed for rating 5, particularly within the 0 to 35 discount range.
- Moderate Count: There is a moderate count of orders with no ratings across this discount range.
- Lowest Count: Orders with ratings 1 to 4 have the lowest count.
- Observation: The 0 to 35 discount range exhibits the highest order count for rating 5, with moderate counts for no ratings and the lowest for ratings 1 to 4.

2. 36 to 125 Discounts:

- Highest Count: The highest count of orders for rating 5 is recorded at discounts 99 and 100.
- Moderate Count (Rating 5): Moderate counts for rating 5 are observed at discounts 36 to 38.
- Moderate Count (No Ratings): Orders with no ratings have a moderate count, higher than ratings 1 to 4.
- Lowest Count (1 to 4 Ratings): Ratings 1 to 4 have the lowest counts.
- Observation: The 36 to 125 discount range shows a balanced distribution, with the highest order counts for rating 5 at specific discounts. Overall, there is a moderate count of orders in this discount range.

3. 126 and Above Discounts:

- Lowest Count: The lowest count of orders for all ratings is observed across all discounts in this range.
- Highest Count (Rating 5): The highest count for rating 5 is at discount 124, but orders with no ratings and no discount have slightly higher counts.
- Observation: The 126 and above discount range has the lowest overall order counts, with the highest count for rating 5 at a specific discount.

Overall Pattern:

- Discount Impact: A lower discount correlates with a higher count of orders, especially for rating 5.
- Moderate Trends: Moderate trends are observed in the 36 to 125 discount range, with specific discounts showing higher counts for rating 5.
- Lowest Counts: The 126 and above discount range consistently has the lowest order counts for all ratings.

Conclusion:

- Understanding the relationship between discounts and order counts for different ratings can inform pricing strategies.
- Lower discounts seem to attract more orders, particularly those with rating 5.
- Specific discounts in the mid-range (36 to 125) show variations in order counts for different ratings.
- The 126 and above discount range has the lowest overall order counts.

IV. DELIVERY ANALYSIS

The expression "(Order time – completed delivery time)" represents the calculation of the time taken to fulfil an order, specifically the duration between the time the order was placed and the time it was successfully delivered. This calculation is often used to measure the efficiency and timeliness of the delivery process.

Here's a breakdown of the formula:

"Order time": This is the timestamp when the customer places an order.

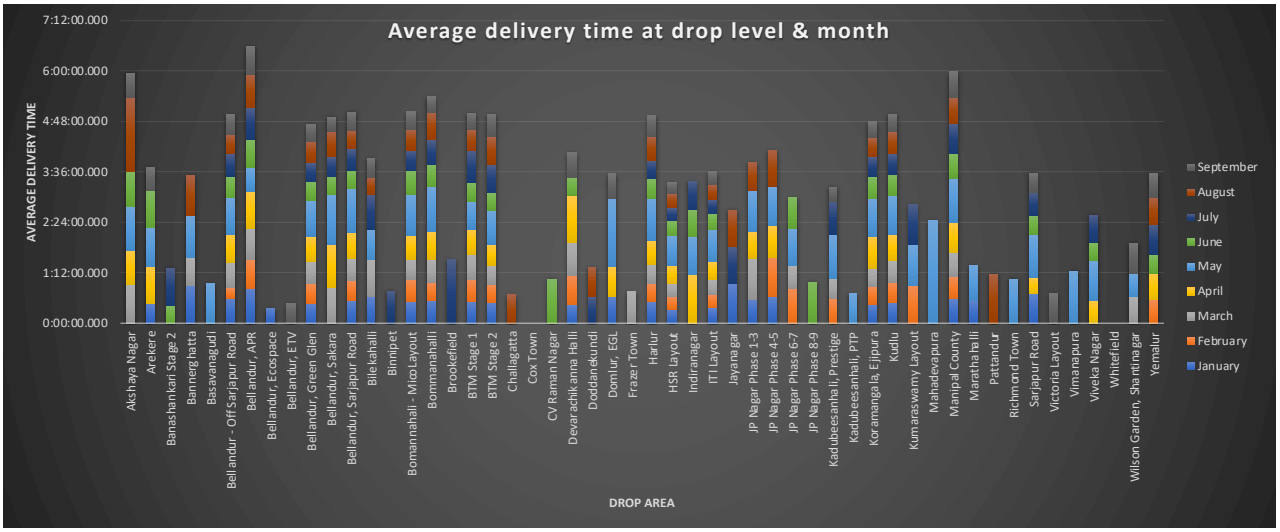
"Completed delivery time": This is the timestamp when the delivery is marked as completed.

The result of subtracting "Completed delivery time" from "Order time" provides the time duration it took to fulfil the order. The result is typically expressed in hours, minutes, seconds, & & Millisecond's providing insights into how quickly or slowly orders are being processed and delivered.

Q17) Calculate average overall delivery time at month and delivery area level.

Average of Total time	Month									
Drop Area	January	February	March	April	May	June	July	August	September	Grand Total
Akshaya Nagar			0:54:55.667	0:49:12.200	1:02:11.500	0:50:19.333		1:44:37.000	0:36:38.500	0:54:15.429
Arekere	0:28:17.000			0:51:59.000	0:56:02.000	0:53:11.000			0:33:48.000	0:41:55.667
Banashankari Stage 2						0:24:57.000	0:54:22.000			0:39:39.500
Bannerghatta	0:52:50.500		0:40:12.000		1:00:39.000			0:57:08.000		0:52:44.000
Basavanagudi					0:57:49.000					0:57:49.000
Bellandur - Off Sarjapur Road	0:35:17.500	0:15:16.000	0:35:56.750	0:40:55.556	0:51:37.125	0:29:58.667	0:32:10.000	0:28:04.857	0:30:28.667	0:36:40.500
Bellandur, APR	0:49:30.667	0:42:05.000	0:43:33.833	0:52:44.000	0:34:27.000	0:40:20.500	0:45:41.000	0:46:37.500	0:41:31.000	0:44:14.414
Bellandur, Ecospace	0:21:19.000									0:21:19.000
Bellandur, ETV			#DIV/0!						0:29:36.000	0:29:36.000
Bellandur, Green Glen	0:28:25.375	0:27:50.571	0:32:10.700	0:35:45.250	0:50:54.937	0:27:07.818	0:26:37.045	0:31:04.400	0:25:12.318	0:31:25.030
Bellandur, Sakara			0:49:48.000	1:02:27.000	1:11:17.000	0:25:53.000	0:28:12.000	0:36:05.500	0:21:10.500	0:44:58.455
Bellandur, Sarjapur Road	0:31:47.909	0:28:27.800	0:32:16.500	0:35:58.133	1:03:46.000	0:26:36.105	0:30:06.714	0:26:01.333	0:27:07.818	0:33:06.918
Bilekahalli	0:37:03.500		0:53:34.000		0:43:59.500		0:49:19.500	0:24:13.000	0:28:03.667	0:38:25.727
Binnipet							0:46:29.000			0:46:29.000
Bomannahali - MicoLayout	0:30:10.831	0:31:53.209	0:29:35.750	0:33:18.448	0:59:16.820	0:33:59.631	0:28:14.585	0:29:48.089	0:24:47.520	0:32:55.828
Bommanahalli	0:32:03.714	0:24:57.857	0:33:45.000	0:40:48.000	1:04:09.769	0:29:40.167	0:35:55.000	0:39:18.750	0:23:17.000	0:40:38.059
Brookefield							1:31:13.000			1:31:13.000
BTM Stage 1	0:30:02.333	0:31:18.000	0:36:41.167	0:36:10.750	0:39:55.667	0:25:59.500	0:45:26.000	0:31:10.667	0:23:27.333	0:34:23.853
BTM Stage 2	0:28:55.500	0:26:04.000	0:27:42.333	0:29:33.667	0:48:31.500	0:25:24.000	0:40:49.333	0:38:39.000	0:33:40.600	0:34:50.844
Challagatta								0:41:08.000		0:41:08.000
Cox Town							#DIV/0!			#DIV/0!
CV Raman Nagar						1:03:57.000				1:03:57.000
Devarachikanna Halli	0:25:32.000	0:42:55.500	0:47:03.000	1:05:45.000		0:26:51.000			0:36:55.000	0:44:12.750
Doddanekundi							0:38:37.000	0:42:09.000		0:40:23.000
Domlur, EGL	0:37:24.000		#DIV/0!	0:43:35.500	1:37:15.500				0:35:10.000	0:59:02.667
Frazer Town			0:44:49.000							0:44:49.000
Harlur	0:30:25.151	0:26:29.710	0:27:07.046	0:33:50.407	1:00:07.176	0:27:42.597	0:26:36.595	0:34:54.091	0:29:31.706	0:31:52.927
HSR Layout	0:19:51.103	0:17:42.878	0:18:39.459	0:26:29.676	0:42:04.084	0:21:17.422	0:18:14.404	0:20:23.173	0:17:23.698	0:22:28.587
Indiranagar				1:08:56.333	0:54:35.000	0:37:52.000	0:42:35.000			0:56:38.000
ITI Layout	0:22:12.688	0:18:37.079	0:20:28.693	0:26:55.902	0:44:32.150	0:23:17.416	0:20:00.790	0:21:34.008	0:19:00.489	0:23:18.289
Jayanagar	0:56:05.000						0:53:02.000	0:53:58.000		0:54:21.667
JP Nagar Phase 1-3	0:32:49.000		0:59:38.000	0:38:39.000	0:57:25.000			0:41:19.000		0:45:58.000
JP Nagar Phase 4-5	0:37:46.000	0:56:11.000		0:45:29.000	0:55:56.333			0:52:42.000		0:51:25.286
JP Nagar Phase 6-7		0:49:07.000	0:32:23.000		0:53:47.333	0:44:58.000				0:47:58.333
JP Nagar Phase 8-9						0:59:29.000				0:59:29.000
Kadubeesanhali, Prestige		0:35:49.000	0:27:31.500		1:03:32.000		0:47:08.000		0:21:00.000	0:42:15.556
Kadubeesanhali, PTP					0:42:35.000					0:42:35.000
Koramangala, Ejipura	0:26:45.200	0:25:36.333	0:26:14.727	0:44:43.912	0:54:25.030	0:30:54.476	0:28:15.133	0:27:42.750	0:22:48.412	0:36:30.742
Kudlu	0:29:22.109	0:29:01.933	0:30:47.431	0:37:44.128	0:55:15.603	0:29:59.460	0:29:13.947	0:32:09.722	0:25:22.500	0:34:20.794
Kumaraswamy Layout		0:53:38.000			0:58:25.500		0:57:33.000			0:57:00.500
Mahadevapura					2:26:40.000					2:26:40.000
Manipal County	0:34:47.083	0:30:45.667	0:35:09.000	0:43:15.750	1:02:24.571	0:34:55.391	0:43:08.429	0:37:11.000	0:37:58.000	0:39:13.000
Marathahalli	0:32:37.000				0:49:48.000				#DIV/0!	0:41:12.500
Pattandur								1:11:11.000		1:11:11.000
Richmond Town					1:03:23.500					1:03:23.500
Sarjapur Road	0:41:13.000			0:23:52.000	1:01:24.167	0:28:03.500	0:32:50.250		0:27:57.500	0:39:26.750
Victoria Layout									0:42:19.000	0:42:19.000
Vimanapura					1:15:29.000					1:15:29.000
Viveka Nagar				0:32:26.000	0:56:07.667	0:26:26.000	0:40:25.000			0:44:36.667
Whitefield									#DIV/0!	#DIV/0!
Wilson Garden, Shantinagar			0:37:37.000		0:33:39.000				0:43:36.500	0:39:37.250
Yemalur		0:33:43.000		0:37:21.000		0:27:17.000	0:42:23.000	0:39:00.000	0:34:41.000	0:36:12.143
Grand Total	**0:22:05.899**	**0:19:23.233**	**0:20:21.915**	**0:27:55.970**	**0:44:33.818**	**0:22:54.466**	**0:19:49.991**	**0:22:42.302**	**0:19:39.362**	**0:24:15.331**

In the pivot table, a colour scale has been implemented to visually represent the total time data. In this scale, green is used to highlight the fastest total times, while red is employed to emphasize the lowest total times. This color-coded approach aids in quickly identifying areas of high and low performance, facilitating a more intuitive understanding of the data.



TIME FORMAT:

hh:mm:ss.000

ANALYSIS:

1. Month:

- **February, March, July,& September:** These months have the lowest average total time approximate 19-20 mins.
  Feb<Sep<July<March
- **January, April, June& August**: Have moderate average total time.
  Jan<Aug<June<April
- **May:** Highest average total time

2. Drop Area:

- **Bellandur, Ecospace , HSR layout, ITI layout**: These areas have the lowest or fastest average total time.
  Bellandur, Ecospace< HSR layout< ITI layout
- **Mahadevapura:** Has the highest average total time

Variability in Delivery Times:

There is variability in delivery times across different drop areas and months.
Some areas and months have shorter delivery times, while others have longer delivery times.

Shortest and Longest Delivery Times:

"HSR Layout" and "February" have the shortest average delivery time, approximately 19 minutes.
"Mahadevapura" has the longest average delivery time, approximately 2 hours and 26 minutes.

Consistency Across Months:

Periodic analysis of delivery times can help identify trends and areas for improvement in the overall delivery process. Some areas show consistent delivery times across months, while others exhibit variations.

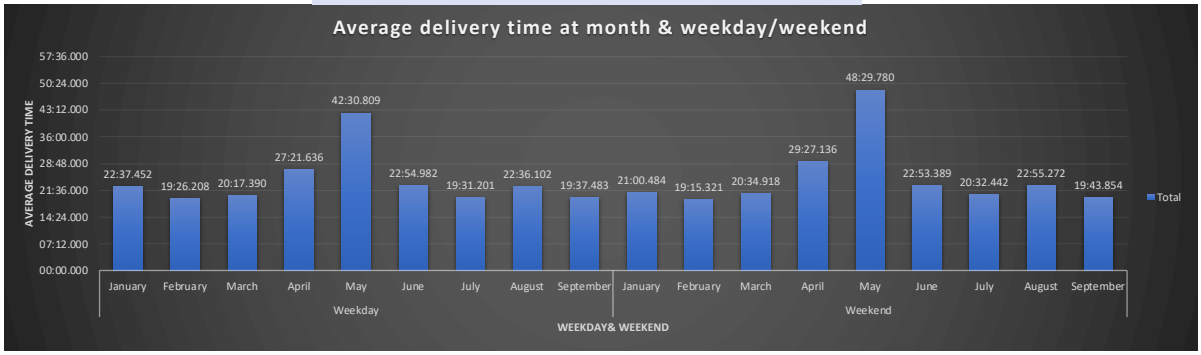
Recommendations: Areas with consistently short delivery times may have efficient logistics and transportation systems. Understanding their practices can help improve delivery times in other areas.
Areas with longer delivery times might benefit from optimizing delivery routes, increasing delivery personnel, or addressing other logistical challenges.

Overall Trend:

- The grand total average delivery time is approximately 24 minutes, indicating an efficient overall delivery process.
- Variations in delivery times may be influenced by factors such as traffic, order volume, and geographic location.
- Understanding average delivery times at different levels provides insights into the efficiency of the delivery process, allowing businesses to make data-driven decisions for improvement.

Q18)Calculate average overall delivery time at month and weekday/weekend level. You might need to create a column which will tag every date to either weekday or weekend.

weekday/weekend	Average of Total time
Weekday	**23:49.208**
January	22:37.452
February	19:26.208
March	20:17.390
April	27:21.636
May	42:30.809
June	22:54.982
July	19:31.201
August	22:36.102
September	19:37.483
Weekend	**25:15.355**
January	21:00.484
February	19:15.321
March	20:34.918
April	29:27.136
May	48:29.780
June	22:53.389
July	20:32.442
August	22:55.272
September	19:43.854
Grand Total	**24:15.331**



Time FORMAT
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In the pivot table, a colour scale has been implemented to visually represent the total time data. In this scale, green is used to highlight the fastest total times, while red is employed to emphasize the lowest total times. This color-coded approach aids in quickly identifying areas of high and low performance, facilitating a more intuitive understanding of the data.

ANALYSIS:

1. Weekday vs. Weekend Delivery Times:

- On weekdays, the average delivery time is approximately 23 minutes and 49 seconds.
- On weekends, the average delivery time is slightly higher at approximately 25 minutes and 15 seconds.
- We can conclude that average delivery time at Weekend > Weekday

2. Month-wise Variations:

- **Shortest Delivery Times:**
  February & September has the shortest average delivery time on both weekdays and weekends, indicating efficient operations during this month.
- **Moderate Delivery time:**
  January, March , April , June , July , August have moderate delivery time
- **Longest Delivery Times:**
  May(48:30.809 weekday, 48:29.780 weekend)has the longest average delivery time on both weekdays and weekends, suggesting potential challenges or increased demand during this month.

3. Weekday vs weekend

- **January & February:** In comparison to weekday & weekend January & February weekday average delivery is less as compared to weekend
- **March, April, May, July, August, September:** relatively average weekend time is greater than weekday average total time
- **June:** Almost same delivery time is noticed at weekday & weekend

Recommendations:

- **Efficiency Improvement:**
  Investigate the practices during February that contribute to the shorter delivery times and consider implementing them in other months.
- **Managing Peak Times:**
  Analyze the factors contributing to longer delivery times in May and explore strategies to manage peak demand effectively.
- **Operational Adjustments:**
  Evaluate whether operational adjustments, such as increased staffing or optimized delivery routes, could contribute to more consistent delivery times.

Overall Trend:

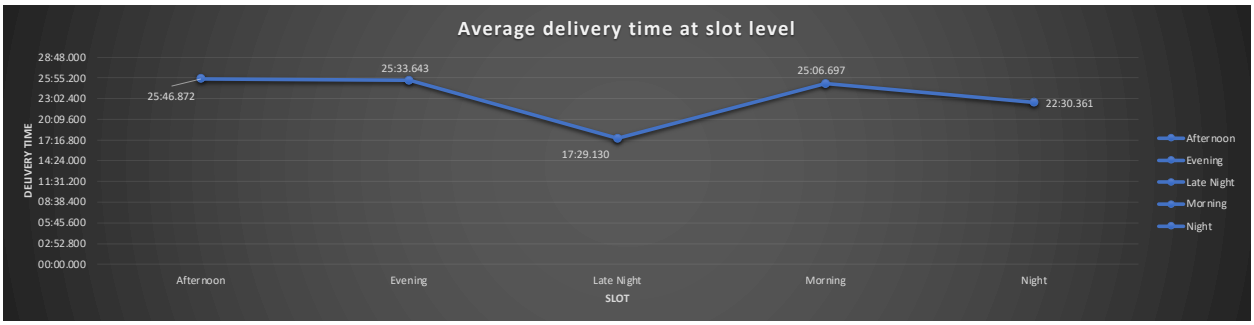
- The grand total average delivery time is approximately 24 minutes and 15 seconds.
- Understanding variations in delivery times across months and weekdays/weekends provides valuable insights for optimizing the overall delivery process.

Seasonal Considerations:

- If there are seasonal patterns affecting delivery times (e.g., holidays, special events), businesses can prepare and allocate resources accordingly.
- Analyzing average delivery times at different levels helps identify trends, areas for improvement, and factors influencing the efficiency of the delivery process. It enables businesses to make informed decisions to enhance customer satisfaction and operational effectiveness.

Q19) Calculate average overall delivery time at slot level. Refer to the definition of slot.

Slot	Average of Total time
Afternoon	25:46.872
Evening	25:33.643
Late Night	17:29.130
Morning	25:06.697
Night	22:30.361
Grand Total	**24:15.331**



Time FORMAT
mm:ss.000

In the pivot table, a colour scale has been implemented to visually represent the total time data. In this scale, green is used to highlight the fastest total times, while red is employed to emphasize the lowest total times. This color-coded approach aids in quickly identifying areas of high and low performance, facilitating a more intuitive understanding of the data.

ANALYSIS:

1. Slot-wise Delivery Times:

- Late Night has the shortest average delivery time at approximately 17 minutes and 29 seconds, indicating efficient operations during this slot.
- Night has the second-shortest average delivery time at approximately 22 minutes and 30 seconds.
- Afternoon, Evening, and Morning have longer average delivery times, with Afternoon having the longest.

2. Efficiency Insights:

- The data suggests that late-night deliveries are more efficient, potentially due to less traffic or lower demand during this slot.
- Afternoon deliveries may face challenges or higher demand, contributing to the longer average delivery time.

Operational Considerations:

- **Optimizing Afternoon Deliveries:**
  Investigate factors contributing to longer delivery times in the Afternoon slot and explore operational adjustments to enhance efficiency.
- **Consistency in Late Night and Night:**
  Acknowledge the efficiency in Late Night and Night slots and identify practices that contribute to their shorter delivery times.

Customer Experience:

- **Meeting Customer Expectations:** Understanding delivery times by slot helps manage customer expectations, especially during peak hours.

Grand Total:

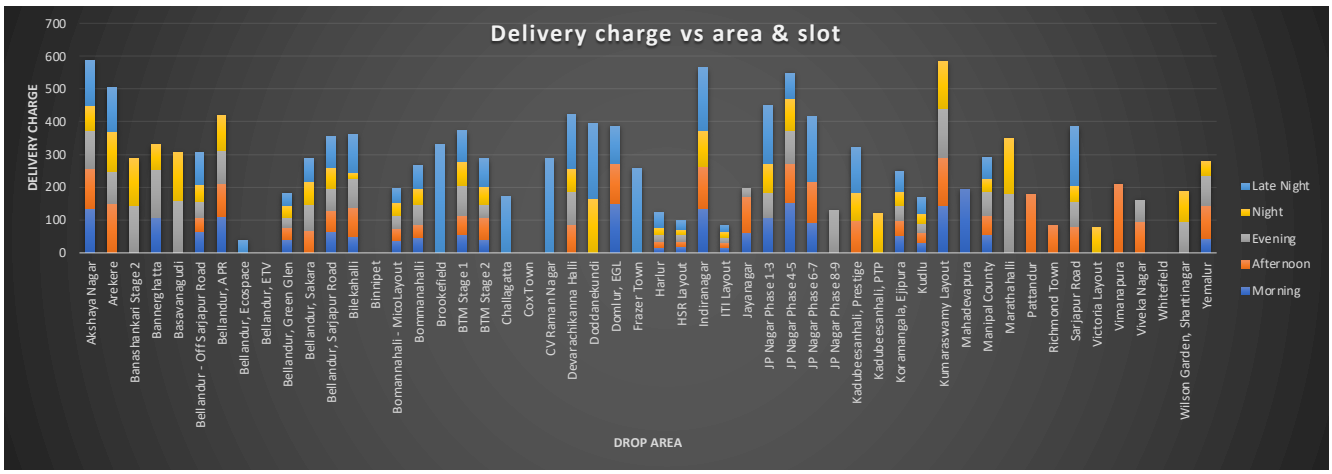
- The grand total average delivery time across all slots is approximately 24 minutes and 15 seconds.

Continuous Improvement:

- Regularly monitor slot-wise delivery times and implement continuous improvement strategies to enhance overall delivery efficiency.
- Understanding average delivery times at the slot level provides valuable insights for optimizing resource allocation, improving customer satisfaction, and ensuring a smooth delivery process. It allows businesses to make informed decisions to address specific challenges associated with different time slots.

Q20) Do you see any pattern in delivery charges with slot or delivery area.

Average of Delivery Charges	Slot					
Delivery Area	Morning	Afternoon	Evening	Night	Late Night	Grand Total
Akshaya Nagar	133.6666667	123.3333333	116.25	76.25	140.75	119.2857143
Arekere		150	100	120	136	127
Banashankari Stage 2			145	145		145
Bannerghatta	105		147.5	77.5		111
Basavanagudi			157.5	150		155
Bellandur - Off Sarjapur Road	65.42857143	40	50.18181818	52.33333333	99	53.47727273
Bellandur, APR	111.6666667	98.125	100.3571429	110		102.4137931
Bellandur, Ecospace					39	39
Bellandur, ETV				0		0
Bellandur, Green Glen	40.44444444	37.8125	30.14814815	34.6	40.5	36.18796992
Bellandur, Sakara		67.14285714	80	70	73	70.27272727
Bellandur, Sarjapur Road	62.72727273	66.25	67.30769231	64.94871795	92.86666667	69.55102041
Bilekahalli	50	87.5	87	20	119	77.18181818
Binnipet	0					0
Bomannahali - MicoLayout	36.14503817	36.28476821	40.84761905	41.03225806	44.75	38.76051188
Bommanahalli	45.5	38.84615385	62.91666667	48.5	73.66666667	51.80392157
Brookefield					332	332
BTM Stage 1	55	59.09090909	90	72.7	96.14285714	73.08823529
BTM Stage 2	39.28571429	65.83333333	41.66666667	55.625	84.6	55.875
Challagatta					172	172
Cox Town						
CV Raman Nagar					287	287
Devarachikanna Halli		85	101.6666667	70	166	95.75
Doddanekundi				165	232	198.5
Domlur, EGL	148.3333333	125			117	135.3333333
Frazer Town					259	259
Harlur	15.74015748	20.03095975	18.35842294	22.86746988	46.67123288	20.45210728
HSR Layout	17.66559399	17.14646712	17.78926502	18.61240528	24.76793249	18.20397563
Indiranagar	135	127.5		110	192	142
ITI Layout	14.98732719	15.21022179	15.40422721	17.90820734	24.64619883	16.65521628
Jayanagar	60	110	30			66.66666667
JP Nagar Phase 1-3	105		77.5	90	179	105.8
JP Nagar Phase 4-5	152.5	120	100	100	78	117.5714286
JP Nagar Phase 6-7	92.5	125			199	126.5
JP Nagar Phase 8-9			130			130
Kadubeesanhali, Prestige		100		82.5	139	122.1111111
Kadubeesanhali, PTP				120		120
Koramangala, Ejipura	51.08	48.03030303	45.16666667	42.36111111	64.37142857	50.28301887
Kudlu	30.6440678	30.3875969	29.02777778	31.19417476	49.26315789	32.41165049
Kumaraswamy Layout	145	145	150	145		146.25
Mahadevapura	195					195
Manipal County	54.82352941	57.4	75.5625	36.15384615	69	58.93670886
Marathahalli			180	170		175
Pattandur		180				180
Richmond Town		82.5				82.5
Sarjapur Road		80	75.33333333	49.5	180	69.05
Victoria Layout				75		75
Vimanapura		210				210
Viveka Nagar		95	67.5			85.83333333
Whitefield						
Wilson Garden, Shantinagar			95	95		95
Yemalur	45	100	88.75	45		77.85714286
Grand Total	**18.99552489**	**19.24758842**	**19.98595147**	**20.97061098**	**32.28942369**	**20.63932045**



In the pivot table, colour scale conditional formatting has been applied to visualize the variation in delivery charges. The colour scale uses green to highlight the areas with the lowest delivery charges, yellow for moderate charges, and red to draw attention to the highest charges. This visual representation offers a quick and intuitive way to assess the distribution of delivery charges across different areas, enabling easier identification of patterns and outliers.

ANALYSIS:

1. Slot-wise Insights:

- **Late Night Premium:**
  Delivery charges are notably higher during the Late Night slot.
  Suggests the possibility of a premium or convenience fee due to the operational challenges and increased costs associated with late-night deliveries.
- **Morning Affordability:**
  Morning slots exhibit relatively lower average charges.
  Indicates a potentially more cost-effective or standard pricing strategy during these peak hours.
- **Moderate Charges in Afternoon, Evening and Night:**
  Afternoon, Evening and Night slots fall in between, with moderate average delivery charges.
  Suggests a balanced approach, considering factors like demand and operational efficiency.

  The order is as follows:
  Afternoon<Evening<Night

2. Delivery Area-wise Insights:

- **Harlur, HSR layout, ITI layout:** These areas have the lowest delivery charge
  ITI layout<, HSR layout< Harlur
- **Brookfield:** Has the highest delivery charge followed by CV raman nagar, Frazer town
- **Diverse Pricing Landscape:**
  Significant variation in delivery charges across different areas.
  Suggests a dynamic pricing model, possibly influenced by factors such as distance, demand patterns, or local market dynamics.

Overall Observations:

- **Strategic Pricing Dynamics:**
  Consistent pricing across slots suggests a strategic approach to maintaining fairness and transparency in charges throughout the day.
- **Adaptability and Market Sensitivity:**
  Varied charges across areas indicate adaptability to local market conditions and the sensitivity of pricing to specific operational challenges in different regions.
- **Premium for Specialized Areas:**
  Some areas, like ITI Layout and Manipal County, show relatively higher charges.
  Suggests a potential premium for specialized or challenging delivery zones.

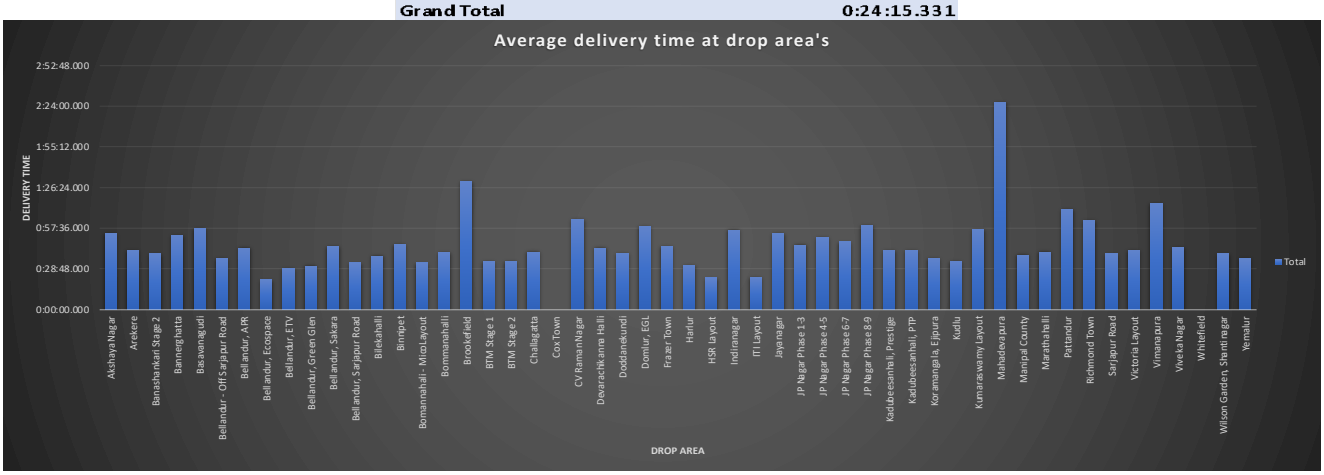
Recommendations:

- **Continuous Monitoring:**
  Regularly monitor delivery charges to stay responsive to market changes and operational realities.
- **Addressing Outliers:**
  Investigate areas with exceptionally high or missing charges to ensure alignment with business goals and customer expectations.

- **Customer Communication:** Communicate transparently with customers about factors influencing delivery charges, especially during premium slots or in specific areas.
- **Competitor Benchmarking:**
  Periodically benchmark delivery charges against competitors to ensure competitiveness and adjust strategies accordingly.
- **Operational Efficiency:**
  Optimize operations to maintain a balance between service quality and cost-effectiveness, influencing overall delivery charge structures.
  By combining slot-wise and delivery area-wise insights, businesses can fine-tune their delivery charge strategies, providing a nuanced and customer-centric approach to pricing while ensuring operational sustainability.

Q21) Do you see any pattern in delivery time and delivery area. If yes then find out logical reason.

ORDER DROP GEO	Average of Total time
Akshaya Nagar	0:54:15.429
Arekere	0:41:55.667
Banashankari Stage 2	0:39:39.500
Bannerghatta	0:52:44.000
Basavanagudi	0:57:49.000
Bellandur - Off Sarjapur Road	0:36:40.500
Bellandur, APR	0:44:14.414
Bellandur, Ecospace	0:21:19.000
Bellandur, ETV	0:29:36.000
Bellandur, Green Glen	0:31:25.030
Bellandur, Sakara	0:44:58.455
Bellandur, Sarjapur Road	0:33:06.918
Bilekahalli	0:38:25.727
Binnipet	0:46:29.000
Bomannahali - MicoLayout	0:32:55.828
Bommanahalli	0:40:38.059
Brookefield	1:31:13.000
BTM Stage 1	0:34:23.853
BTM Stage 2	0:34:50.844
Challagatta	0:41:08.000
Cox Town	#DIV/0!
CV Raman Nagar	1:03:57.000
Devarachikanna Halli	0:44:12.750
Doddanekundi	0:40:23.000
Domlur, EGL	0:59:02.667
Frazer Town	0:44:49.000
Harlur	0:31:52.927
HSR Layout	0:22:28.587
Indiranagar	0:56:38.000
ITI Layout	0:23:18.289
Jayanagar	0:54:21.667
JP Nagar Phase 1-3	0:45:58.000
JP Nagar Phase 4-5	0:51:25.286
JP Nagar Phase 6-7	0:47:58.333
JP Nagar Phase 8-9	0:59:29.000
Kadubeesanhali, Prestige	0:42:15.556
Kadubeesanhali, PTP	0:42:35.000
Koramangala, Ejipura	0:36:30.742
Kudlu	0:34:20.794
Kumaraswamy Layout	0:57:00.500
Mahadevapura	2:26:40.000
Manipal County	0:39:13.000
Marathahalli	0:41:12.500
Pattandur	1:11:11.000
Richmond Town	1:03:23.500
Sarjapur Road	0:39:26.750
Victoria Layout	0:42:19.000
Vimanapura	1:15:29.000
Viveka Nagar	0:44:36.667
Whitefield	#DIV/0!
Wilson Garden, Shantinagar	0:39:37.250
Yemalur	0:36:12.143
Grand Total	**0:24:15.331**



Time FORMAT
hh:mm:ss.000

In the pivot table, colour scale conditional formatting has been applied to represent different delivery times using a spectrum of colours. The colour green is assigned to the fastest delivery times, yellow is used for moderate delivery times, and red is employed to highlight areas with late delivery times. This visual approach helps quickly identify trends and variations in delivery times across different regions, making it easier to assess the overall efficiency of the delivery service.

The Pivot table and chart above represent the average time to complete an order for different delivery areas. Notably, Bellandur, Ecospace(21:19.000), HSR Layout(22:28.587), and ITI Layout(23:18.289) show the least average delivery times. On the other hand, Mahadevapura(2:26:40.000) is observed to have the highest average delivery time.

This information provides insights into the efficiency of order completion across various delivery areas. It suggests that customers in Bellandur, Ecospace, HSR Layout, and ITI Layout experience relatively faster order completion times compared to Mahadevapura, where the delivery process tends to take more time on average.

Logical Reasons:

- **Traffic and Geographic Factors:**
  Areas with consistently shorter delivery times may benefit from better traffic conditions, strategic location, or optimized delivery routes.
- **Operational Optimization:**
  Consistent performers may have well-optimized operations, effective management, and logistical strategies.
- **Local Demand Dynamics:**
  Diverse patterns may be influenced by local demand dynamics, business hours, and customer behaviors.

Recommendations:

- **Optimization Strategies:**
  Areas with longer delivery times (Brookefield, Mahadevapura, Vimanapura, Whitefield) may benefit from targeted optimization strategies to improve efficiency and customer satisfaction.
- **Local Adaptations:**
  Diverse patterns in certain areas suggest a need for localized strategies, considering unique characteristics and challenges of each drop location.