**Patterns Identified and below are the observations**

**9.Give you analysis on the any pattern you observe in the completion rate.**

**Below are the observations on the completion rate at no.of products:**

**Products numbered 12 and higher consistently achieve a perfect completion rate of 100.00%. This suggests effective processes or special attention for these products.**

**Products numbered 1 to 11 show more variability in completion rates, ranging from 99.27% to 99.82%. This indicates potential areas for improving consistency in completion.**

**The average completion rate across all products is 99.55%, indicating generally high performance with some products consistently achieving perfection.**

**16.Below is the pattern observed from order rating and Discounts**

 Discounts at the lower end (0% to 5%) have varied ratings. For example, Discount 0 has an average rating of 3.62, while Discount 5 is lower at 3.56.

 This variability indicates that low discounts do not consistently result in higher ratings, implying differing customer expectations or experiences.

 Discounts in the range of 20% to 30% consistently show average ratings above 4.00 (e.g., Discount 16 with 4.03 and Discount 17 with 4.09).

 This suggests customers perceive greater value for money with higher discounts, leading to higher satisfaction.

**20.Below are the observations from Delivery charges with slot:**

**There is noticeable variation in average delivery charges depending on the time of day. LateNight has the highest average charge (32.09), while Morning has the lowest ($18.90).**

**LateNight deliveries are significantly more expensive on average compared to other times of day.**

**During the daytime (Morning and Afternoon), average charges are relatively close together (18.90 and 19.20 respectively)**

**21. Below are the observations for the average delivery time at Delivery locations :**

**· Areas like Bellandur (Off Sarjapur Road, Ecospace, Green Glen) and Koramangala (Ejipura) show relatively lower delivery times (ranging from 0:09:17 to 0:22:38) as these areas are close to major business districts or IT parks (such as Sarjapur Road, ITPL in Whitefield, or Koramangala's startup hub), which likely have a higher concentration of delivery orders. This allows delivery to quickly access multiple destinations within short distances, thereby reducing average delivery times.**

**· Areas like HSR Layout (0:08:03) and Bommanahalli (0:18:18) exhibit shorter delivery times as HSR Layout is well-planned with wide roads, and Bommanahalli also benefits from proximity to major arterial roads like Hosur Road. Good road infrastructure and less traffic conditions in these areas contribute to faster deliveries**

**· Areas further away from central hubs, such as JP Nagar Phase 6-7 (0:31:13) and Jayanagar (0:37:39), tend to have longer delivery times as these areas are relatively farther from central logistics hubs or main delivery centers. Longer distances to travel increase delivery times due to transportation logistics, traffic, and the need for more time-efficient routing strategies.**

**Order level Analysis**

**Order distribution at slot and delivery area level:**

**1.Order Distribution by Location**:

* **HSR Layout** stands out with the highest number of orders (15,657), indicating it is a busy and popular area for orders.
* **ITI Layout** follows with 3,946 orders, also indicating significant demand.
* Several areas have relatively low order counts, indicating varying levels of popularity or customer base across different parts of Bangalore.

**2.Order Distribution by Slots:**

* **Afternoon and Morning** slots stand out with the highest total orders, indicating peak times for food delivery services.
* **Late Night** has the lowest total orders, reflecting a smaller but consistent late-night customer base.
* Areas like Bellandur, Koramangala, and ITI Layout show consistently high order volumes, suggesting strong local demand and possibly a dense mix of residential and commercial establishments.
* Some areas like **Bomannahali - MicoLayout** and **ITI Layout** show consistent order volumes across all slots, indicating a steady demand throughout the day.

**Areas having highest increase in monthly orders**

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There is significant variation in the number of orders across different areas. HSR Layout and ITI Layout have high order counts throughout the months, while many other areas have relatively lower order counts.

Areas like HSR Layout, ITI Layout, and Harlur show noticeable increases in order counts from January to September. This suggests potential growth or increased activity in these areas over the months.

Specific areas like Bomannahali - MicoLayout, Kudlu, and Koramangala, Ejipura have relatively lower order counts compared to others, indicating potentially lower demand or smaller operational scope in those locations.

**Delivery charges as a percentage of product amount at slot and month level.**

**Observations at Slot Level:**

* **LateNight Slot Charges: Across almost all months, the Late Night slot consistently shows the highest delivery charges as a percentage of the product amount. This suggests that deliveries during late hours are generally more costly for consumers.**
* **Morning and Afternoon Slots: These slots tend to have lower delivery charges compared to evening and late night slots. This could indicate lower demand during these times or more efficient logistics during daylight hours.**
* **Evening Slot Variation: While generally higher than morning and afternoon slots, the evening slot shows variability across months. For instance, it peaks in January and February but decreases in the following months, showing potential seasonal or demand-driven fluctuations.**

**Observations at Month Level:**

* **Lowest Charges Months: September consistently shows the lowest average delivery charges across all slots. This could be attributed to reduced demand post-summer or potentially more competitive pricing strategies during this period.**
* **High Charges Months: Months like January and February tend to have higher average delivery charges, especially in late night and evening slots. This could coincide with peak shopping seasons or weather-related factors that impact logistics.**

**Discount as a percentage of product amount at slot and month level.**

* **Night and Evening Slots**: Generally, the highest average discount percentages are observed in the Night and Evening slots across the months. This could indicate that these time slots are targeted for larger promotions or discounts to attract customers during off-peak hours.
* **Morning and Late Night Slots**: On the other hand, Morning and Late Night slots generally have lower average discount percentages compared to other slots. This might imply that these time slots are less competitive or less targeted for discounts.
* **Month-to-Month :** Some months show spikes in discounts compared to others. For example, May and July have notably higher average discount percentages across all slots compared to other months. This could be due to seasonal factors, holidays, or special sales events during those months.

**Completion Rate Analysis**

**Completion rate at slot vs day of the week**

 **Consistency across Days**: Generally, the completion rates are quite consistent across different days of the week for each time slot. For example, in the Afternoon slot, the rates range closely from 99.35% (Tuesday) to 99.90% (Sunday), indicating stable performance throughout the week.

 **Weekend Variations**: There are slight variations observed on weekends (Saturday and Sunday) compared to weekdays (Monday to Friday) in some time slots. For instance, Saturday shows lower rates in the LateNight and Night slots compared to weekdays, suggesting potential differences in user behavior or operational factors.

 **Overall High Performance**: Across all days and time slots, the completion rates are consistently high, with most slots averaging above 99%, indicating robust operational performance and efficiency in completing tasks within specified time frames.

 **Day-specific Insights**: Specific days like Wednesday show a perfect 100% completion rate in the LateNight slot, which might indicate a particular pattern or event affecting completion rates on that day.

 **Wednesday** has the highest average completion rate (99.49%), while **Friday** has the lowest (99.34%).

 **Sunday** and **Saturday** have consistently high completion rates overall.

**Completion rate at drop area level.**

 **Consistency in High Completion Rates**: Many drop area locations consistently show high completion rates across all time slots. Examples include Akshaya Nagar, Arekere, Bellandur - Off Sarjapur Road, Bellandur, Sakara, Bellandur, Sarjapur Road, Bilekahalli, BTM Stage 1 and 2, Harlur, JP Nagar Phase 1-3 and 4-5, Kadubeesanhali, Prestige, Kudlu, Kumaraswamy Layout, Manipal County, Sarjapur Road, and Yemalur. These locations consistently achieve 100% completion rates or close to it across various time slots.

Some locations show variability in their completion rates across different time slots. For example:

* Domlur, EGL has lower completion rates during Morning and Night time slots compared to Afternoon and LateNight.
* Bellandur, ETV has significant variations, with 0% completion in Night and varying rates in other time slots.
* Marathahalli shows 0% completion in LateNight but 100% in other slots except Evening where it's 0%.

 **Low Completion Rates or No Data**: Several locations either have low completion rates or missing data points:

* Some locations like Bellandur, ETV, Domlur, EGL, and Marathahalli exhibit specific challenges during certain times of the day.

**Completion rate at number of products ordered level**

 Completion rates generally increase with the number of products ordered.

 Rates start at 99.27% for single product orders and rise steadily, reaching a peak of 100.00% for orders of 12 products and above.

 Orders with 12 products or more consistently show perfect completion rates (100%). This could indicate that there might be special handling or dedicated processes for larger orders, ensuring they are completed without issues.

 The overall grand total completion rate across all orders is 99.55%, indicating a high level of consistency in order fulfillment across different quantities.

Completion rates increase with the number of products ordered, showcasing a positive correlation between order size and fulfillment reliability. Larger orders (12 products or more) consistently achieve perfect completion rates (100%), suggesting dedicated handling or optimized processes for bulk orders.

**Completion rate at source level.**

 Most sources show very high completion rates, with all but one exceeding 99.4%. This indicates that the majority of users or actions initiated on these platforms are successfully completed.

 The "Organic" source stands out with the highest completion rate of 99.63%. This suggests that users who come through organic channels (such as direct visits or search engine results) are highly engaged and likely to complete the desired actions.

 The "Offline Campaign" source has a slightly lower completion rate of 99.44% compared to others. This might indicate that while offline campaigns are effective, there could be some challenges in maintaining as high a completion rate as online sources.

 **Minor Variations**: The completion rates among Facebook, Google, Instagram, and Snapchat are very close to each other (ranging from 99.46% to 99.58%), suggesting that these platforms perform similarly in terms of user engagement and completion of actions.

 The "Grand Total" completion rate is 99.55%, which reflects the average completion rate across all sources. This indicates a strong overall performance in converting user actions across various platforms and campaigns.

**Customer Level Analysis**

**Aggregated LTV at customer acquisition source level**

Based on the aggregated Customer Lifetime Values (LTV) provided for different customer acquisition sources or campaigns, here are some observations:

* + Snapchat has the highest aggregated LTV at 389.48, indicating that customers acquired through Snapchat tend to generate the highest long-term value compared to other sources listed.
  + Google follows closely with an LTV of 383.07, suggesting strong long-term value from customers acquired through Google channels.
  + Instagram has the lowest aggregated LTV among the listed sources at 349.11, indicating that customers acquired through Instagram may have a lower long-term value compared to other sources in this dataset.
  + Facebook, Offline Campaigns, and Organic sources have similar aggregated LTV values around the mid-370s (373.08, 373.05, and 362.73 respectively). This suggests that customers acquired through these channels may have comparable long-term values.
  + The Grand Total LTV across all sources is 371.28, which serves as a benchmark or average for comparison.

**Strategic Insights**:

* + Companies can use these LTV insights to optimize their customer acquisition strategies. For example, focusing more on channels like Snapchat and Google, which show higher LTV, could potentially lead to greater overall profitability.
  + Channels with lower LTV, such as Instagram, might require different strategies or deeper analysis to improve customer retention and lifetime value.
  + Overall, analyzing LTV at the customer acquisition source level provides valuable insights into where marketing efforts are most effective in generating long-term value, helping businesses allocate resources more efficiently and strategically.

**Aggregated LTV at acquisition month level**

 There is noticeable variability in the aggregated LTV from month to month. For example, May has the highest LTV at 420.14, while September has the lowest at 319.06. This suggests that there may be seasonal or cyclical factors affecting customer behavior and spending patterns.

 Higher values in certain months (like May and August) could indicate successful marketing campaigns or seasonal spikes in customer acquisition or spending. Lower values (like September) might suggest challenges in retention or lower customer spending during certain periods.

 The peak in May (420.14) might be influenced by seasonal factors such as holidays or special events. Understanding these seasonal trends can help in planning marketing strategies and resource allocation.

 Months with lower LTV values (such as March and September) could highlight opportunities for improving customer retention strategies or enhancing the customer experience to increase lifetime value.

**Average Revenue per order at different acquisition source level**

* Google and Snapchat have notably higher average revenues compared to others, with Snapchat having the highest at $363.52 and Google close behind at $363.05.
* Instagram, on the other hand, has a lower average revenue per order at $322.85.
* Snapchat stands out with the highest average revenue, indicating potentially higher value per order from users acquired through this platform.
* Instagram's lower average revenue per order suggests either lower value transactions or a different user behavior compared to other platforms like Google and Snapchat.

**Aggregated LTV at acquisition month level**

* May has the highest average revenue per order at $401.83, indicating it might be a particularly strong month for sales or higher-value transactions.
* April follows with $376.09, also showing strong performance.
* September has the lowest average revenue per order at $286.69, suggesting a potential seasonal or performance dip.
*  **Seasonal Patterns:** There is a clear seasonal pattern in the average revenue figures. From January to May, there is a generally increasing trend in average revenue, peaking in May at $401.83. This could be attributed to various factors such as seasonal promotions, holidays, or increased consumer spending during certain months.
*  **Mid-Year Fluctuations:** Following the peak in May, there is a decline in average revenue from June onwards. This suggests a fluctuation in consumer behavior or market conditions that affect revenue generation in the mid-year months (June to August).
*  **Lowest Point in September:** September records the lowest average revenue at $286.69. This significant drop from the earlier months indicates a notable decrease in sales or revenue generation towards the end of the observed period.
*  **Monthly Variability:** Each month's average revenue reflects unique market conditions, consumer trends, and possibly varying promotional activities or economic factors influencing spending behavior.
*  **Overall Trend:** Despite fluctuations, the grand total average revenue for the entire period remains relatively stable at $348.93, indicating that while there are monthly variations, the average revenue over the year averages out to this consistent figure.

**Order rating across slots, number of items placed, delivery charges, discount.**

There is slight variability in ratings across different slots, but the differences are relatively minor. Morning slots tend to have slightly higher ratings compared to LateNight, which has the lowest average rating. However, the differences are not substantial.

There is a general trend of increasing order ratings with an increase in the number of items placed. However, ratings become more variable as the number of items increases. Orders with 15 to 24 products tend to have higher average ratings, ranging from 3.37 to 4.55.

* Some delivery charges have average ratings of 0.00, indicating that for those specific charges, the average rating was lower.
* Higher delivery charges (e.g., 287, 332) tend to have average ratings of 5.00, but this is not consistent across all high charges.

**Order rating across Discounts**

Orders with discounts around 15% to 21% (specifically 15, 16, 17, 18, 19, 20, 21) generally have higher average ratings, ranging from 3.84 to 4.09.

Orders with low to moderate discounts show a diverse range of ratings, from as low as 3.00 to as high as 4.00. This variability suggests that while discounts are appreciated by customers, they alone do not guarantee higher ratings.

Orders with high discounts generally receive more consistent and higher ratings, typically ranging from 3.50 to 4.50. This indicates that customers perceive higher value when they receive substantial discounts, which positively influences their satisfaction levels.

**Delivery Analysis**

**Average overall delivery time at month and delivery area level**.

**Month Level:**

The average delivery times show consistency across months, generally ranging between 8 to 11 minutes, with June and July being the quickest months on average.

January and September have slightly higher average times compared to other months

**Delivery Area Level:**

Some areas consistently show longer average delivery times (e.g., Bilekahalli, Bommanahalli), which could indicate logistical challenges or higher demand

Conversely, areas like Bellandur and Koramangala generally have shorter average delivery times, suggesting efficient logistics or proximity to service hubs.

**Average overall delivery time at month and weekday/weekend level**

* **January** has the longest average delivery time at 10 minutes and 43 seconds. This is driven by slightly longer times on both weekdays (10 minutes and 59 seconds) and weekends (10 minutes and 11 seconds).
* **June and July** show the shortest average delivery times, both at 8 minutes and 52 seconds and 8 minutes and 44 seconds respectively. This suggests higher efficiency in delivery during these summer months.
* Across all months, there is parity in average delivery times between weekdays and weekends, both averaging 9 minutes and 45 seconds. This suggests consistent operational efficiency regardless of the day of the week.

**Average overall delivery time at slot level**

 Average delivery time in the evening is 10 minutes and 15 seconds, which is slightly longer compared to other periods like Morning (9 minutes 37 seconds) and Afternoon (9 minutes 56 seconds).

 Deliveries in the Night period have the shortest average time of 9 minutes and 20 seconds, indicating potentially quicker service during this time.

**Delivery charges with slot**

|  |
| --- |
| There is noticeable variation in average delivery charges depending on the time of day. LateNight has the highest average charge (32.09), while Morning has the lowest ($18.90). |
| During the daytime (Morning and Afternoon), average charges are relatively close together (18.90 and 19.20 respectively)  **Delivery time with delivery area** |

 Areas like Bellandur (Off Sarjapur Road, Ecospace, Green Glen) and Koramangala (Ejipura) show relatively lower delivery times (ranging from 0:09:17 to 0:22:38) as these areas are close to major business districts or IT parks (such as Sarjapur Road, ITPL in Whitefield, or Koramangala's startup hub), which likely have a higher concentration of delivery orders. This allows delivery to quickly access multiple destinations within short distances, thereby reducing average delivery times.

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 Areas further away from central hubs, such as JP Nagar Phase 6-7 (0:31:13) and Jayanagar (0:37:39), tend to have longer delivery times as these areas are relatively farther from central logistics hubs or main delivery centers. Longer distances to travel increase delivery times due to transportation logistics, traffic, and the need for more time-efficient routing strategies.