

Instacart Market Analysis

Understanding Consumer Behavior

Agenda

Based on data publicly released by Instacart, a US-based online grocery provider, this project uncovers shopping patterns and preferences that define the modern grocery consumer.

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- **Introduction to Instacart and the Dataset:** brief overview to Instacart's service model and the specifics of the dataset
- **Most Popular Aisles:** Identifying which aisles attract the most customers, providing insights into consumer priorities.
- **Popularity of Departments:** analysis to department-level distinctions.
- **Top Most Reordered Products:** Highlighting customer preferences to specific products,
- **Order Frequency by Hour of the Day:** Analyzing peak order times.
- **Order Frequency by Day of the Week:** Understanding weekly patterns to better predict demand fluctuations.
- **Time Period Between Orders:** Look into the time difference in days since the last order.
- **Business Insights and Conclusion:** Based on the findings, presenting necessary considerations for business decisions.

Source: "The Instacart Online Grocery Shopping Dataset 2017", Accessed from Kaggle:

<https://www.kaggle.com/datasets/pspark/instacart-market-basket-analysis/>

Instacart's Dataset

Instacart operates on a service model that provides a convenient grocery delivery and pick-up service through an in-app platform. It partners with various local, regional, and national chain stores to deliver groceries and other consumer goods to customers within hours of placing an order. The service model is designed to cater to individuals who either cannot go to stores due to time constraints, mobility issues, or prefer the convenience of online shopping.

The publicly released dataset by Instacart in 2017 contains over 3 million grocery orders from more than 200,000 users. For each user, it includes a history of 4 to 100 of their orders, the timing of the orders, and the intervals between them.



Photo by "Kindel Media" from Pexels:

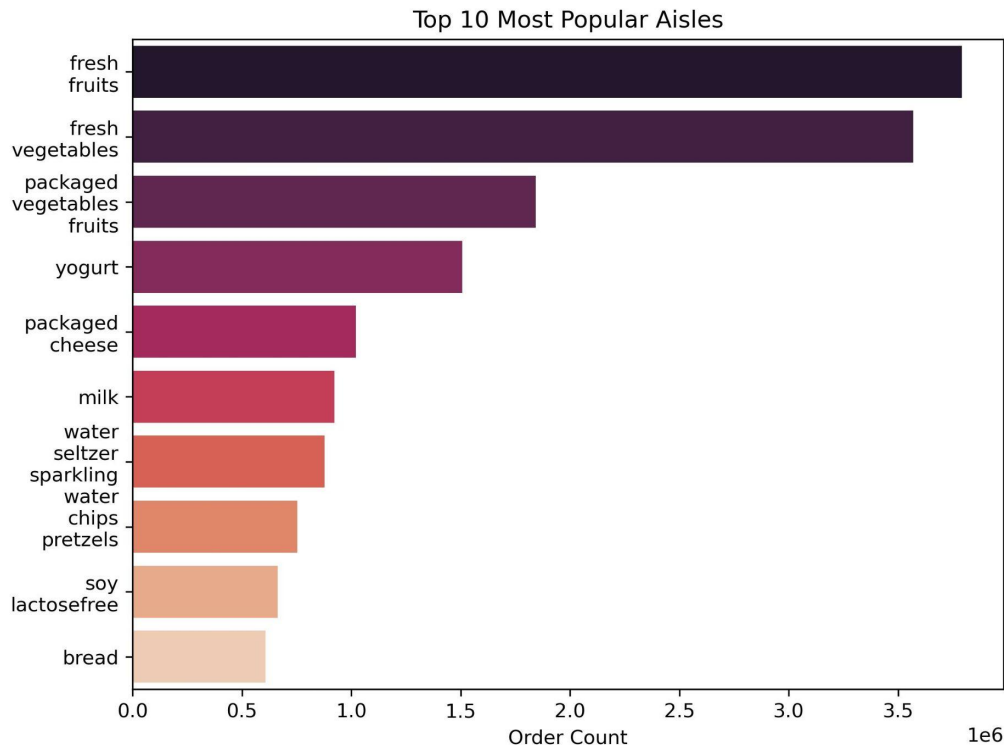
<https://www.pexels.com/photo/a-man-holding-a-plastic-crate-full-of-vegetables-and-fruits-6868789/>

Most Popular:

Aisle

This bar graph represents the "Most Popular Aisles" based on Instacart's order data. It shows a ranking of aisles from most to least frequented by shoppers. At the top, 'fresh fruits' and 'fresh vegetables' clearly lead, indicating a strong preference for produce.

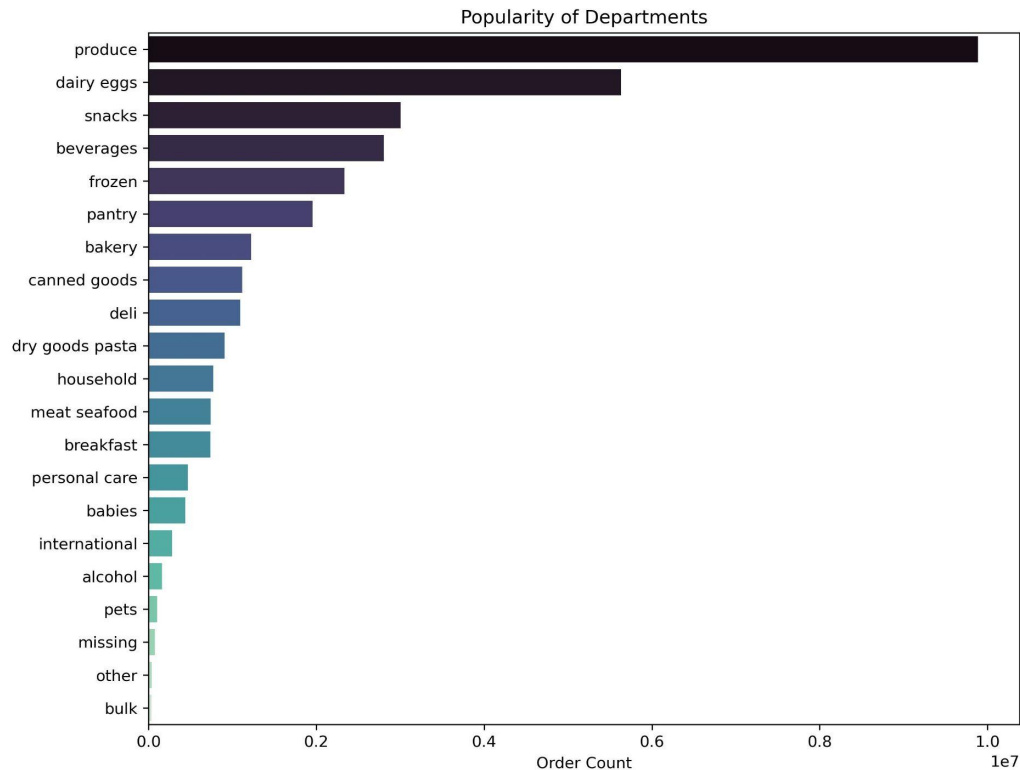
The data provides insights into consumer shopping patterns, which can be crucial for inventory management and marketing strategies.



Most Popular:

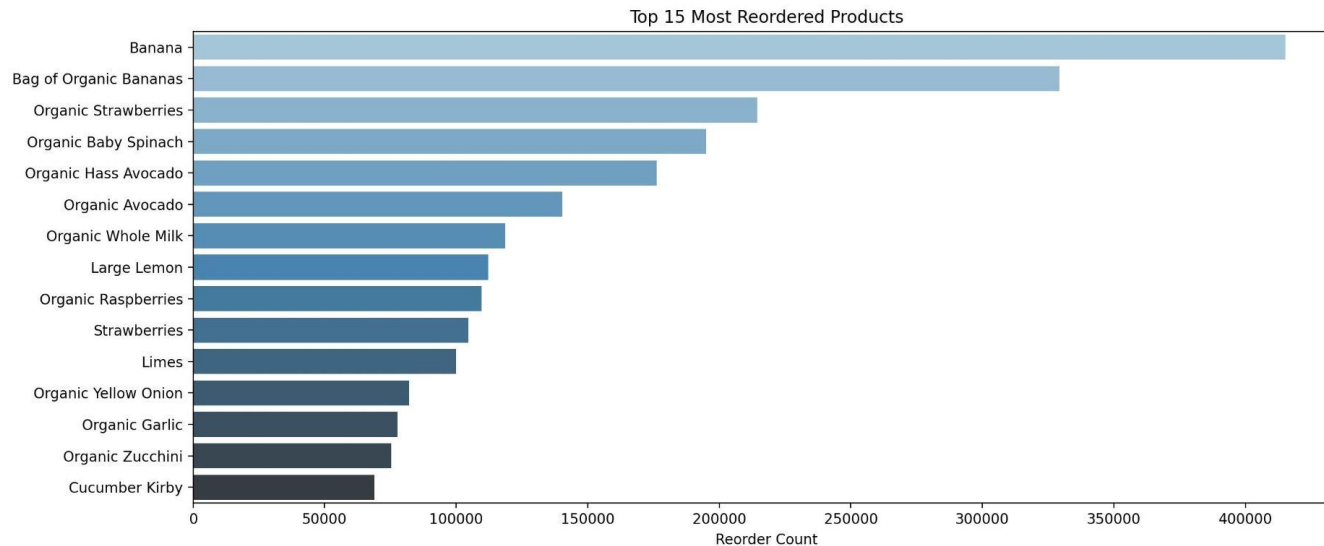
Department

This graph showcases the categories from which types of product are most frequently ordered, providing a clear depiction of consumer purchasing preferences. It highlights that the 'produce' department is the most popular. This coincide with the aisles analysis as 'fresh fruits' and 'fresh vegetables' are produce. Following closely are the 'dairy/eggs' and 'snacks' departments. These top departments highlight key areas of customer focus, informing store supply optimization and promotional efforts.

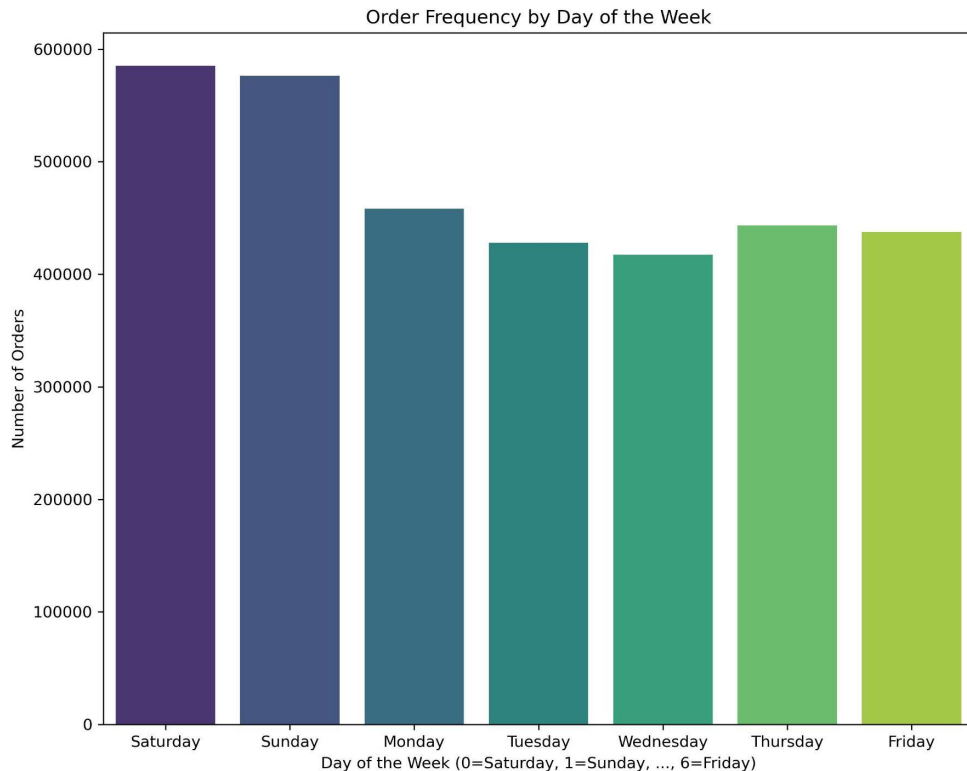


Most popular:

The A-peeling Champion



This bar chart vividly illustrates Instacart's most reordered products, with bananas claiming the top spot, showcasing their undeniable popularity. Corresponding with the charts about the most popular aisles and departments, the top products are predominantly fruits and vegetables, with the exception of organic whole milk from the second-ranked department.

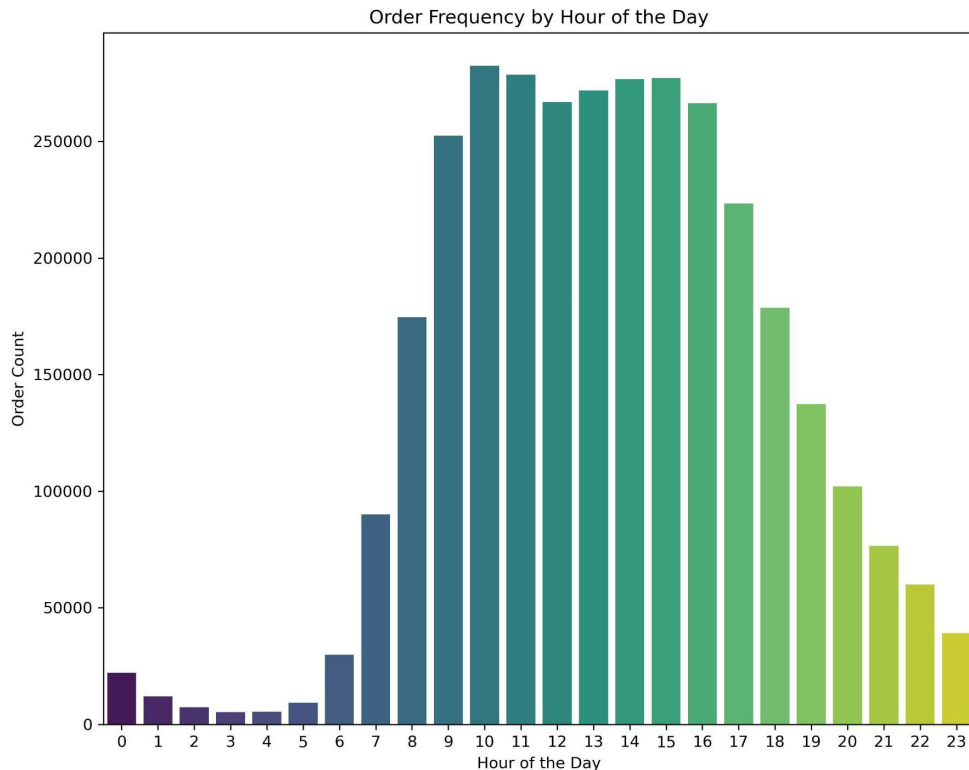


Order Frequency

The Weekly Whirl

The bar chart displays the order frequency by day of the week from Instacart, revealing Saturdays and Sundays as peak shopping days with a notable drop midweek. This trend suggests that shopping habits peak around the weekend.

- Peak order day: Sunday sees the highest number of orders, making it the busiest day for Instacart shopping.
- Midweek dip: Order frequency is the lowest on Wednesday.



Order Frequency

Hourly Shop Pulse

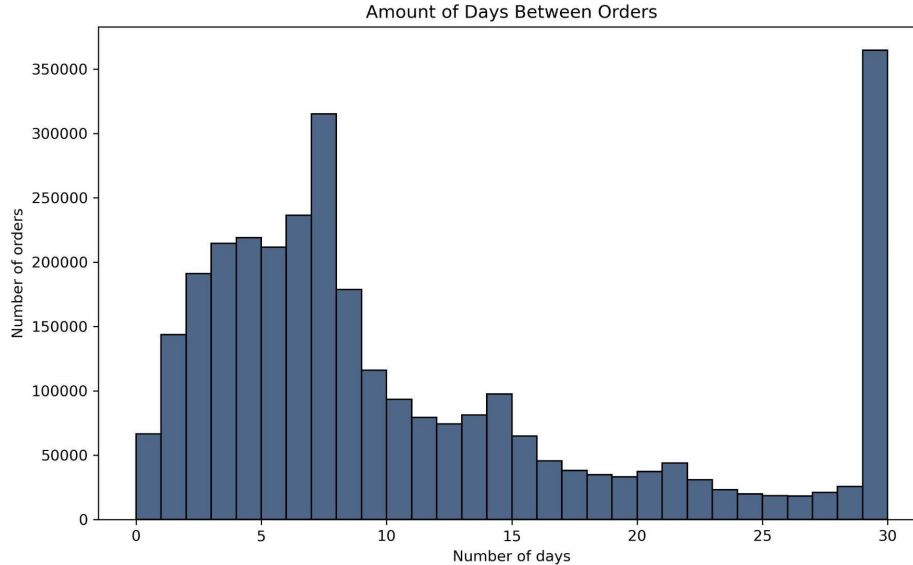
This bar chart illustrates Instacart orders peaking in the late morning and maintaining strength through the afternoon, suggesting that users prefer to shop during traditional working hours. The steady decline in the evening hours aligns with typical winding down of daily activities.

- Morning Momentum: A rapid increase in orders is observed from 6 a.m. to 10 a.m.
- Evening Wind Down: There's a gradual decline in orders after 4 p.m.

Order Frequency

Rhythms of Reorders

This histogram captures the number of days between subsequent orders placed on Instacart, revealing prominent weekly and monthly shopping cycles among consumers.



- **Weekly Shopping Trend:** A significant number of orders occur with a week's gap, highlighting a weekly shopping pattern among Instacart users.
- **Monthly Restocking:** The largest spike at 30 days suggests a monthly restocking behavior, with customers likely placing larger, less frequent orders.

Conclusion

Take Away

Instacart's dataset tells a story of habitual shopping rhythms and preferred times, where customers show clear patterns in their online grocery orders. Weekends, especially Sundays, emerge as the most popular days for restocking pantries, while the daily ebb and flow of orders peak in the late morning hours.

Produce, particularly fresh fruits and vegetables, reigns as the most sought-after category, underscoring a preference for fresh, healthy food. From the unwavering popularity of bananas to the strategic timing of orders, these insights reflect the pulse of consumer behavior.