

Instacart Basket Analysis



Outline



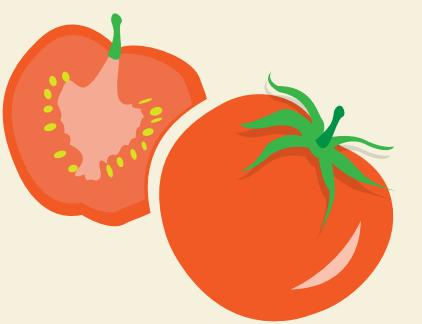
A demo project to clean, merge, analyze and finally visualize publicly available data from Instacart with a fictitious customer data from CareerFoundry.



Language: Python



Software: Jupyter Notebooks, Excel, Canva

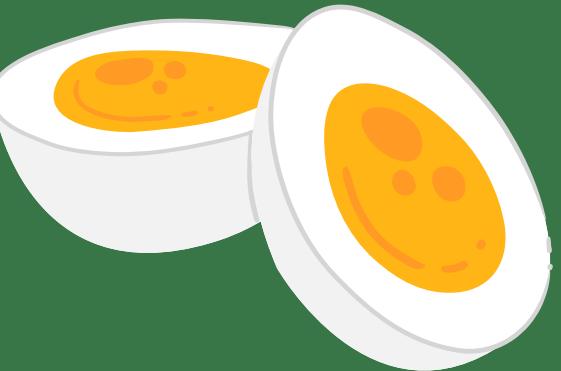




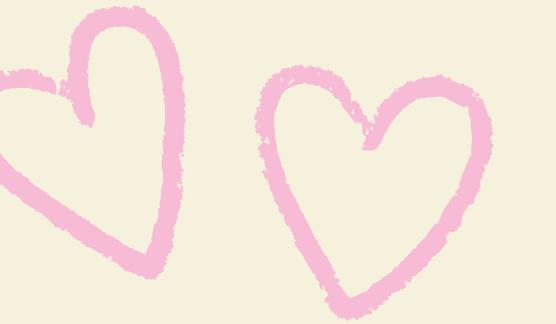
Data



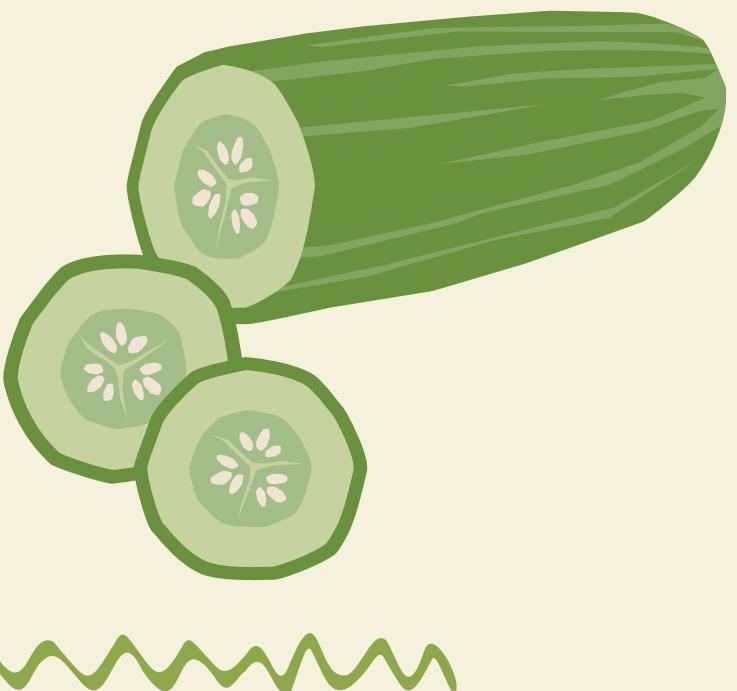
- Data Set: 'The Instacart Online Grocery Shopping Dataset 2017.' Accessed from [Kaggle](#)
- [Data Dictionary](#)
- [CareerFoundry Customer Data Set](#)
 - **Further details:** This data set is with fictitious prices and products, both fabricated for the learning purposes of the CareerFoundry Data Analytics course



Company



Instacart is an online grocery store accessed through a mobile app. Although they have a strong sales track record, they are eager to delve deeper into their sales patterns and uncover more insights.



Objective

- Conduct an initial data and exploratory analysis of some of the data to derive insights and suggest strategies for better segmentation based on the provided criteria



Context

Instacart stakeholders aim to grasp customer diversity and purchasing behaviours.

Acknowledging the drawbacks of a generic approach, they consider a targeted marketing strategy, tailoring campaigns for specific segments.

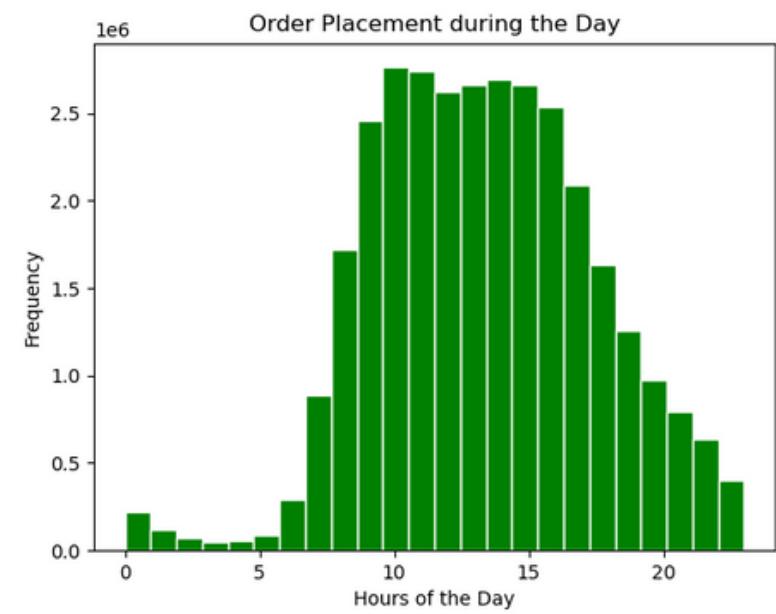
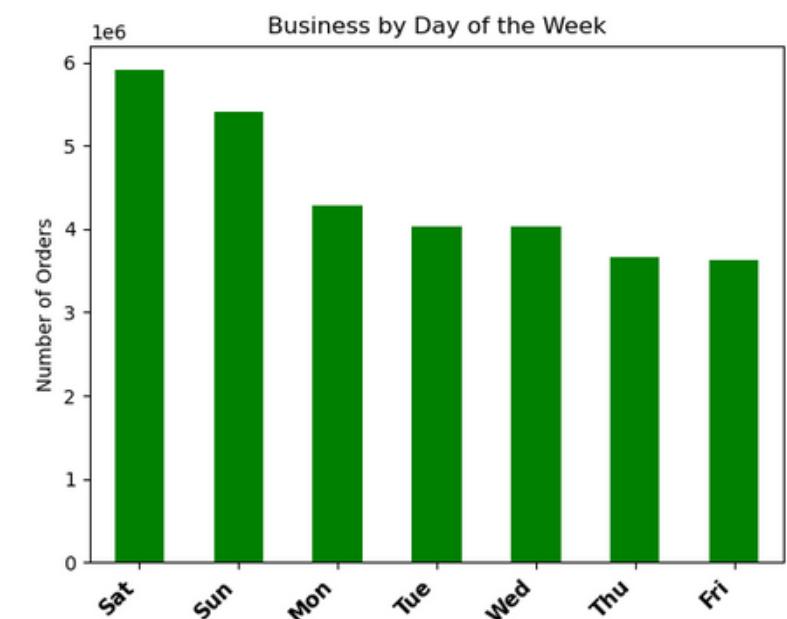
The analysis guides strategy formulation, ensuring precise targeting of customer profiles with suitable products.

Key Question 1

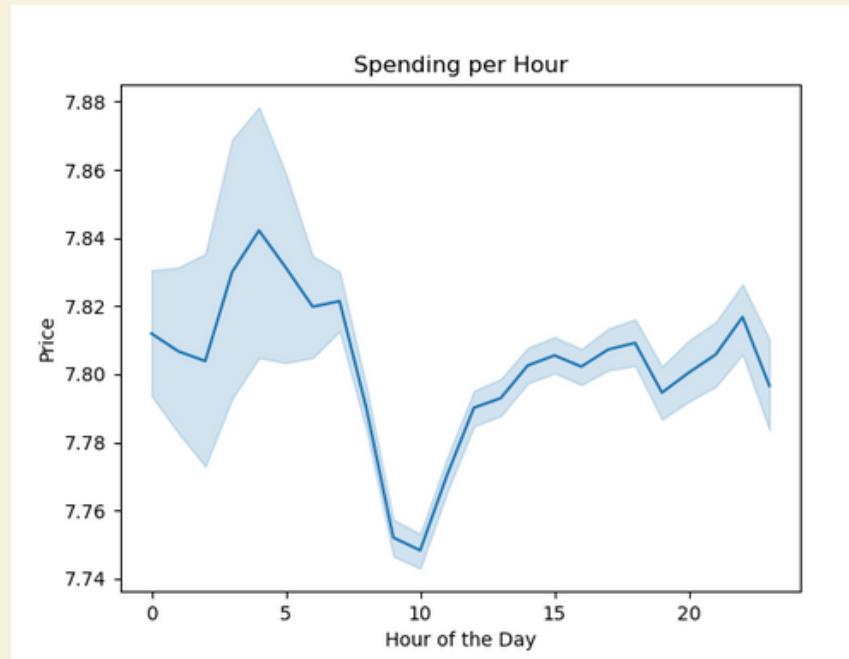
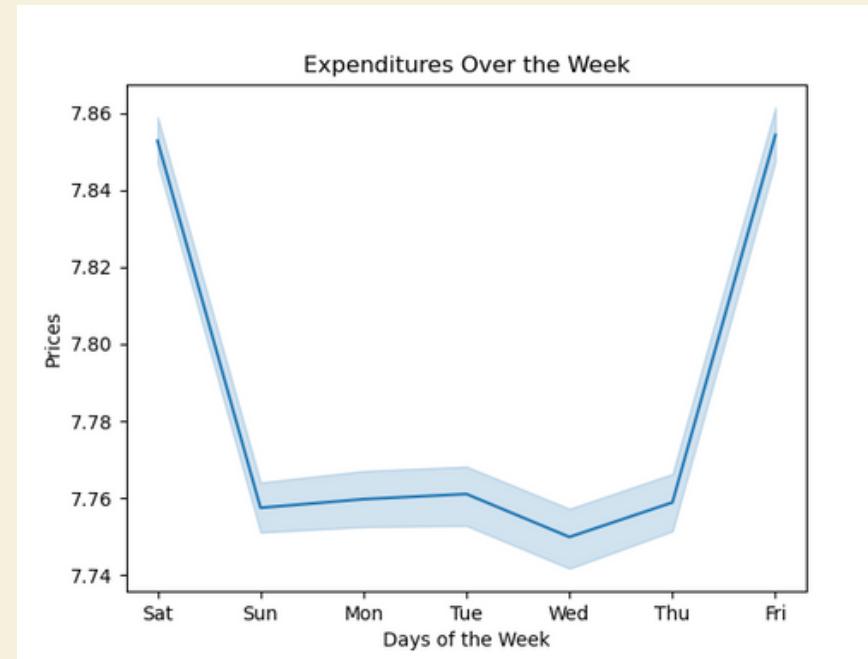
The sales team needs to know what the busiest days of the week and hours of the day are (i.e., the days and times with the most orders) to schedule ads at times when there are fewer orders.

- Highest activity on Saturdays and Sundays
- Peak hours for order placements between 10 am and 3 pm
- Least busy days are Tuesday and Wednesday between midnight and 6 am

Recommendation: Advertisement to promote weekday shopping to stimulate higher orders during the early morning hours, specifically between midnight and 6 am. This approach is suggested to leverage the potential for increased sales during these time frames.



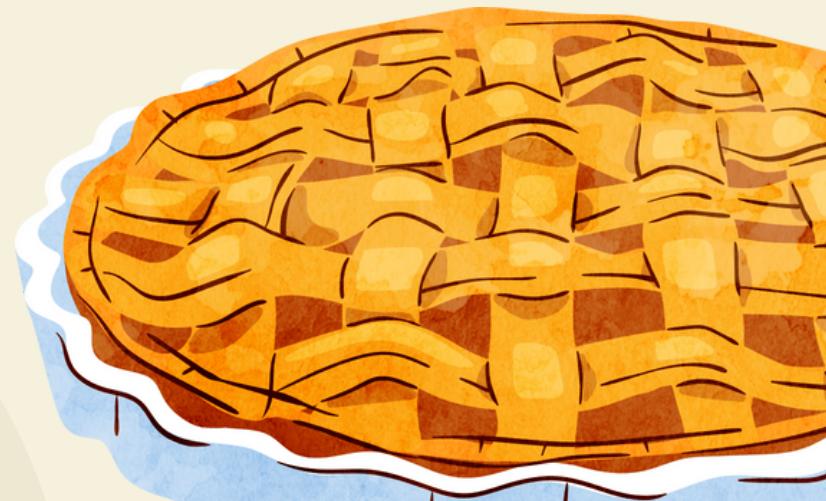
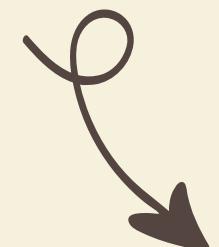
Key Question 2



What are the times of day when customers spend the most money?
This information will be used for product advertistments.

- Weekend purchasing patterns with a noticeable decline in mid-week purchases
- Average spending exhibits variability throughout the day
- Early morning hour purchases have relatively higher average sales compared to mid-day sales

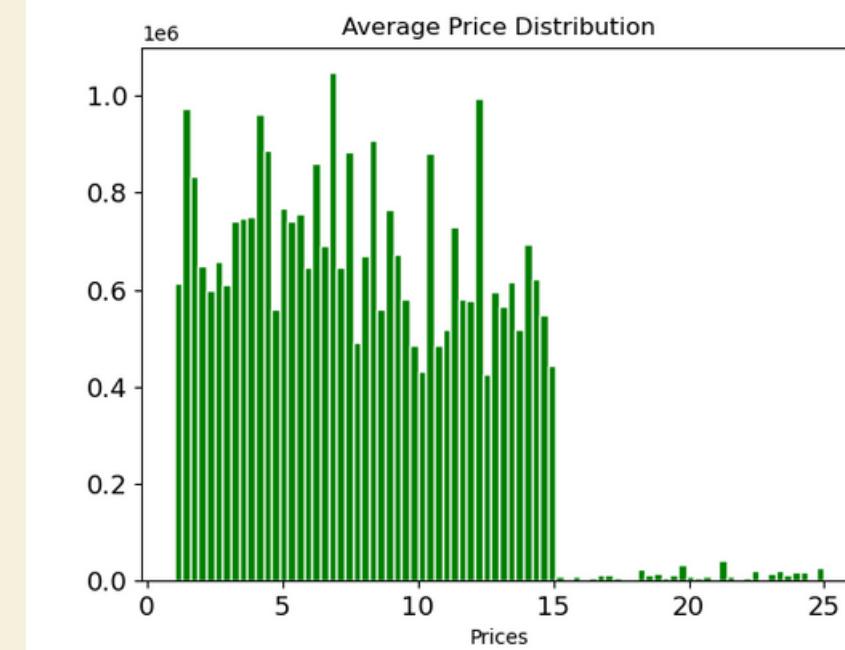
Recommendation: Focus on targeted ads encouraging consumers to place orders during the early morning hours.



Key Question 3

Instacart has a lot of products with different price tags.

Marketing and sales want to use simpler price range groupings to help direct their efforts.



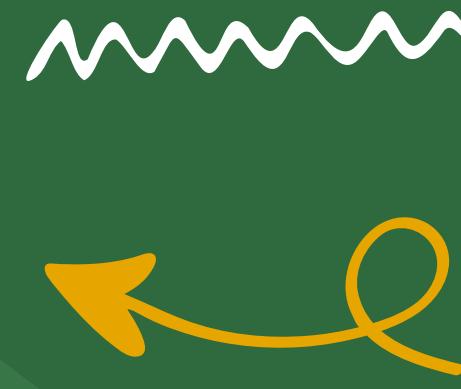
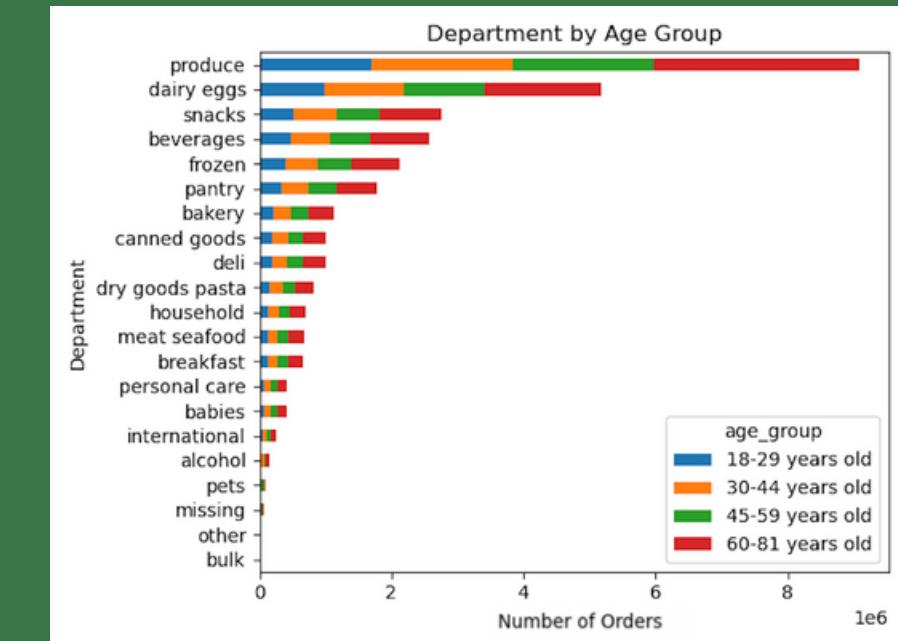
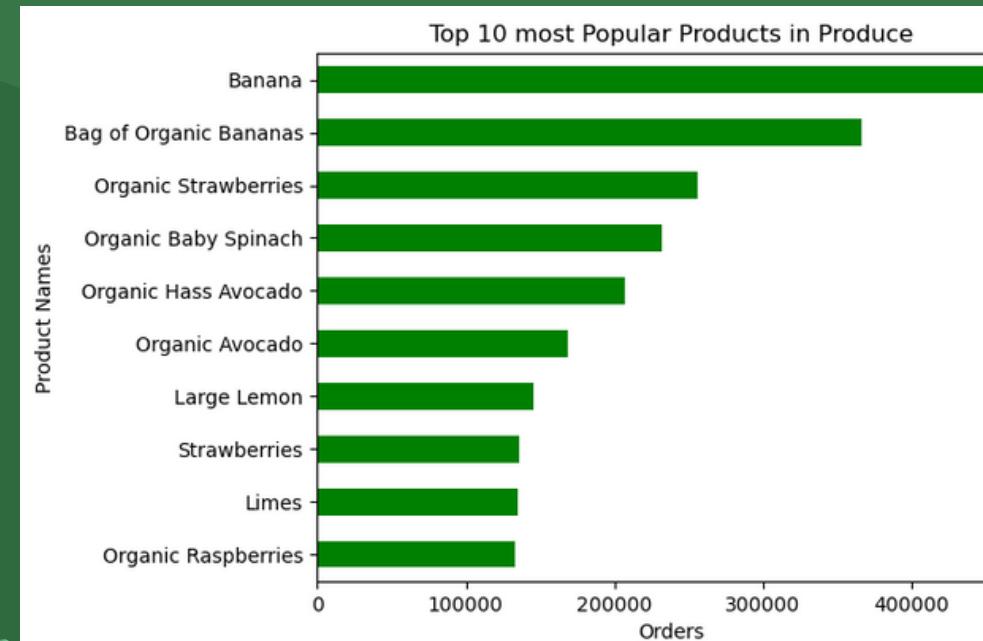
Recommendations:

- A simplified pricing range could be implemented using \$5 increments, such as [\$1-5, \$6-10, \$11-15, >\$15] to enhance consumer comprehension
- Create a separate category for items priced above \$16, as they have a lower purchase frequency

Key Question 4

Are there certain types of products that are more popular than others?

The marketing and sales teams want to know which departments have the highest frequency of product orders.



- Top 2 departments
 - Produce
 - Dairy eggs
- Consistent trends across different age groups (with or w/o dependants)
- Top 10 products from 'Produce':
 - Top 1 > **Bananas**
 - Top 2 > **Bags of organic bananas**



Key Question 5

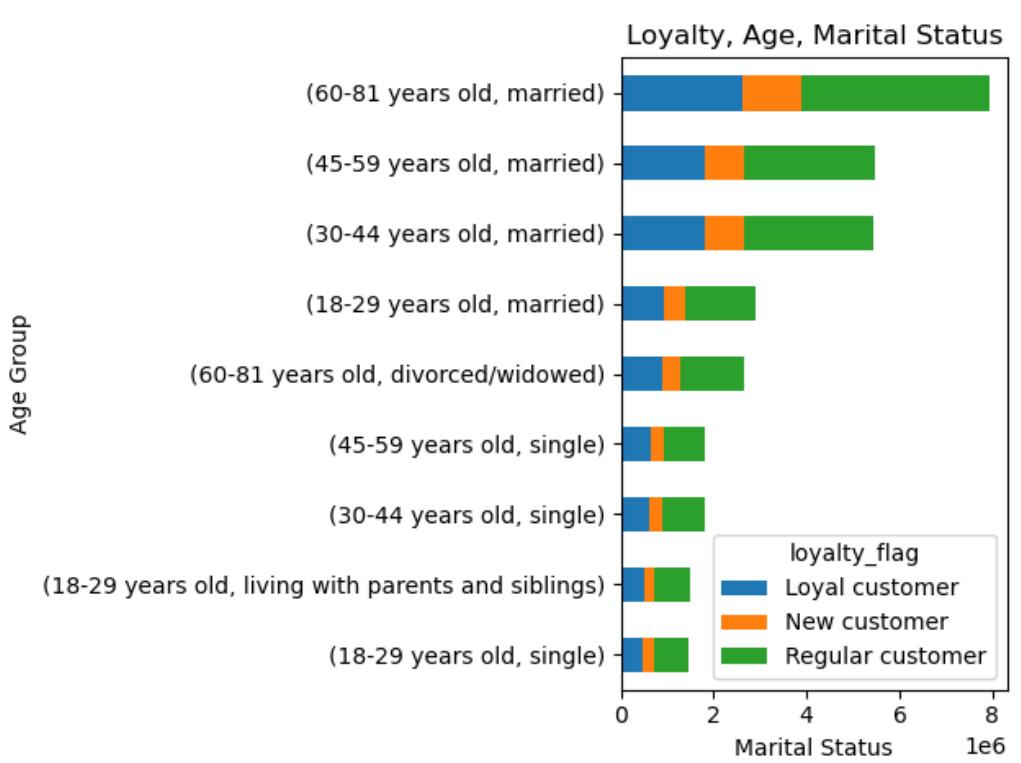
- What's the distribution among users in regards to their brand loyalty (i.e., how often do they return to Instacart)?
- Are there differences in ordering habits based on a customer's loyalty status?
- Are there differences in ordering habits based on a customer's region?
- Is there a connection between age and family status in terms of ordering habits?

- Loyal customers > 40+ orders
- Regular customers > more than 10 but less than 40 orders
- New customers > less than 10 orders



• **Recommendation:** Targeting consumers who are new to Instacart with the goal of turning them into regular customers, to increase sales during low sales periods throughout the week and/or specific times of the day.

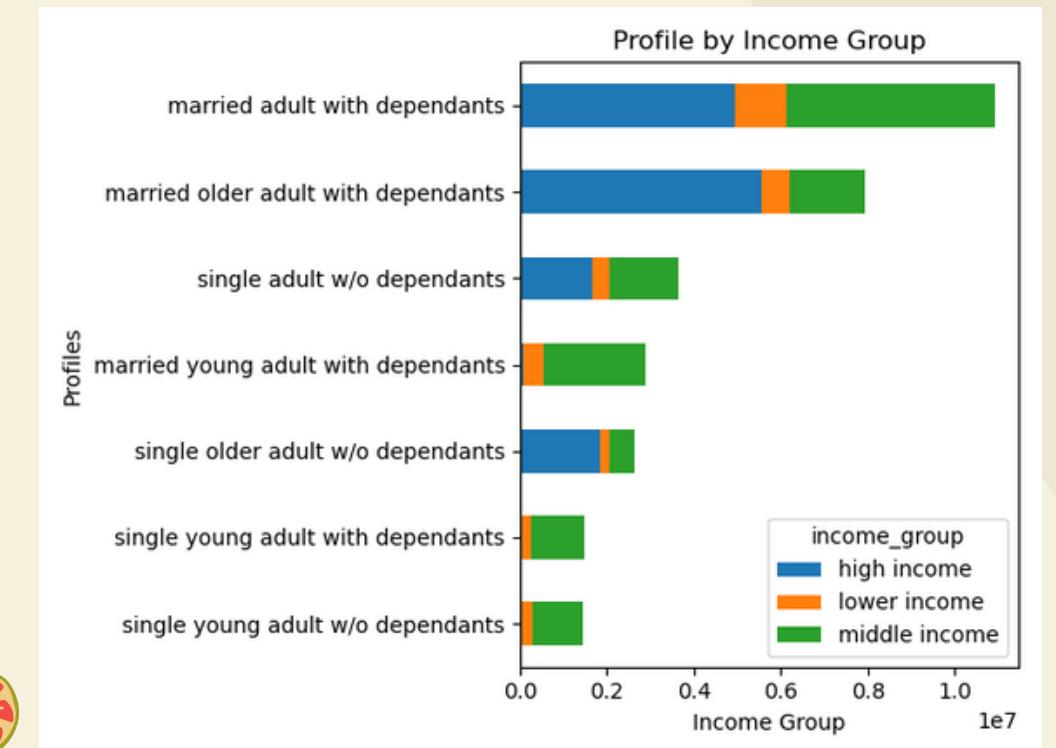
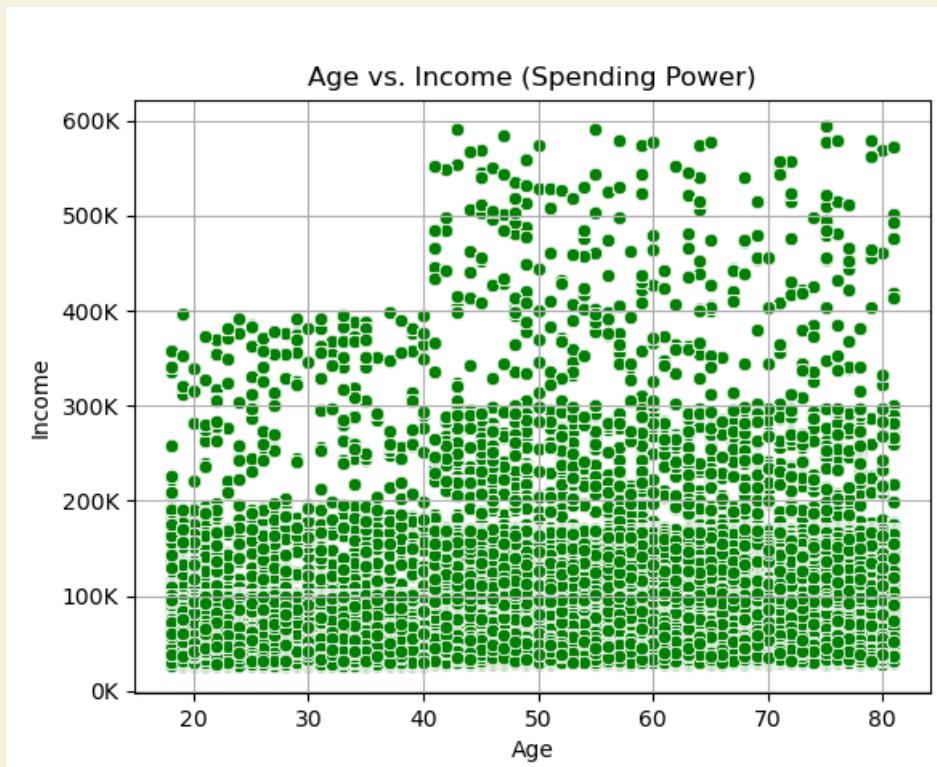
- Higher frequency of sales during the mid-week, during the morning hours
- Number 1 Region: The South



Key Question 6

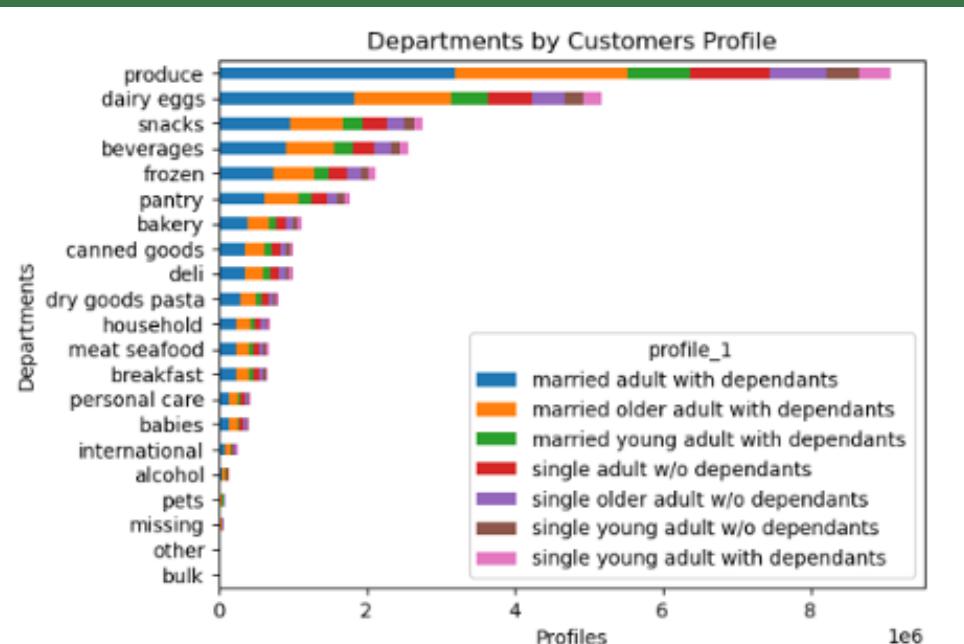
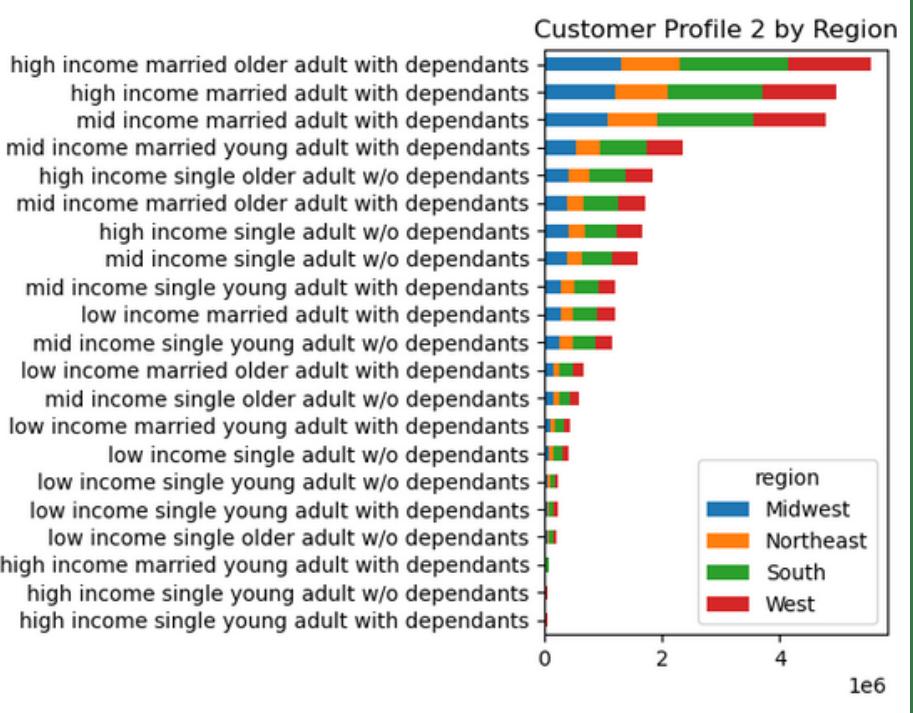
- The marketing and business strategy units at Instacart want to create more relevant marketing strategies for different products and are, thus, curious about customer profiling in their database, for different products and are, thus, curious about customer profiling in their database.
- User Profile Information:
 - An analysis of consumer income, age groups, and family status

- An uptick in income after the age of 40 years old
- Top products: Produce, dairy eggs, Snacks, and beverages
- Middle-income customers with the highest order frequency:
 - A preference for items in the produce, dairy eggs, and snacks departments
- Higher-income customers:
 - Variability in the early morning
 - Peaking at 4 am
- Lower-income customers place fewer orders on average:
 - A dip in orders at 3 pm
 - A peak around 4 pm, and a decline around 10 am



Key Question 7

- Regional Area and Department Profile:
 - An analysis across user profiles in various U.S. regions and departments is good for both purchasing frequency and average purchasing metrics.



- South and West regions with the highest rates of orders and expenditures across all user profiles
- Lower sales in the Midwest and Northeast regions
- **Recommendations:**
 - Focus on targeting the highest sales regions for customer base expansion
 - Tailor ads to specific age groups in different regions
 - Lower-income customers with a higher frequency of beverage and snack orders > Create a targeted marketing campaign to increase lower-income customers

THANK YOU