INSTACART GROCERY BASKET ANALYSIS

Consumer Behavior Analysis

INTRODUCTION

OBJECTIVE

Instacart is an online grocery store that operates through an app. They already have good sales, but they want to uncover more information about their sales pattern and customers.

GOAL

As an Analyst for Instacart, my job is to perform an initial data and exploratory analysis of some of the company's data in order to derive insights and suggest strategies for better segmentation based on the provided criteria.

📊 DATA

- Open-sourced from Instacart (Customer Data Set)
- The Instacart Online Grocery Shopping Dataset 2017
- Some of the datasets contain over 32M observations

🛠 TOOLS

- Python and Jupyter
- Libraries: Pandas, Numpy, Matplotlib, Seaborn, Scipy

⚙ SKILLS USED

- Cleaning data
- Merging datasets
- Deriving new variables
- Grouping & aggregating data
- Creating visualizations

THE PROCESS

INITIAL ANALYSIS

- Create data dictionary
- Wrangle and subset data
- Conduct consistency check to address missing and duplicate values

EXPLORATORY ANALYSIS

- Merge dataframes
- Creates new variables to identify important customer attributes
- Create new columns to inform customer profiling

After the initial analysis and exploratory analysis steps above, we can have a better understanding of the population flow, and column derivations.
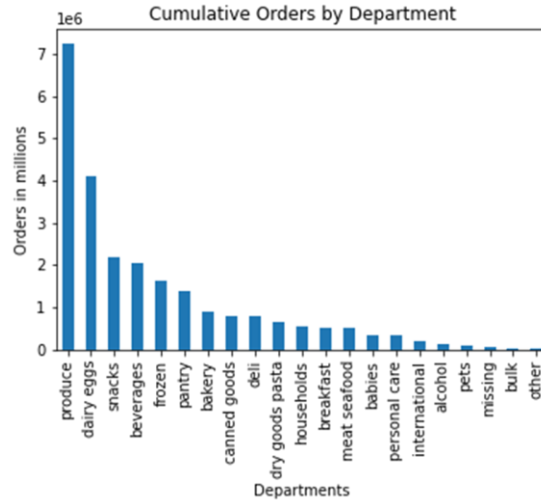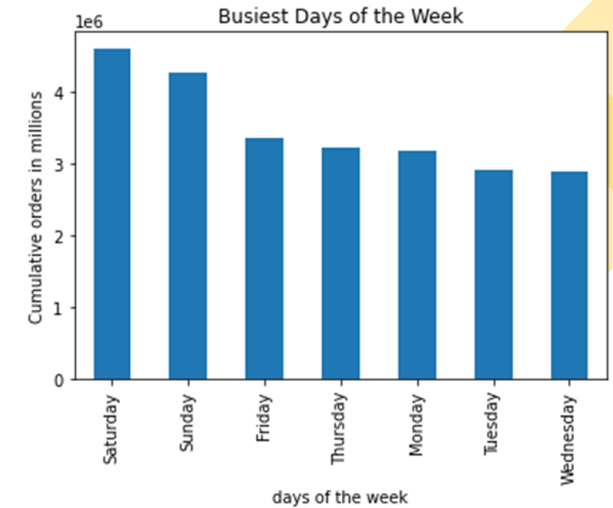

Population flow
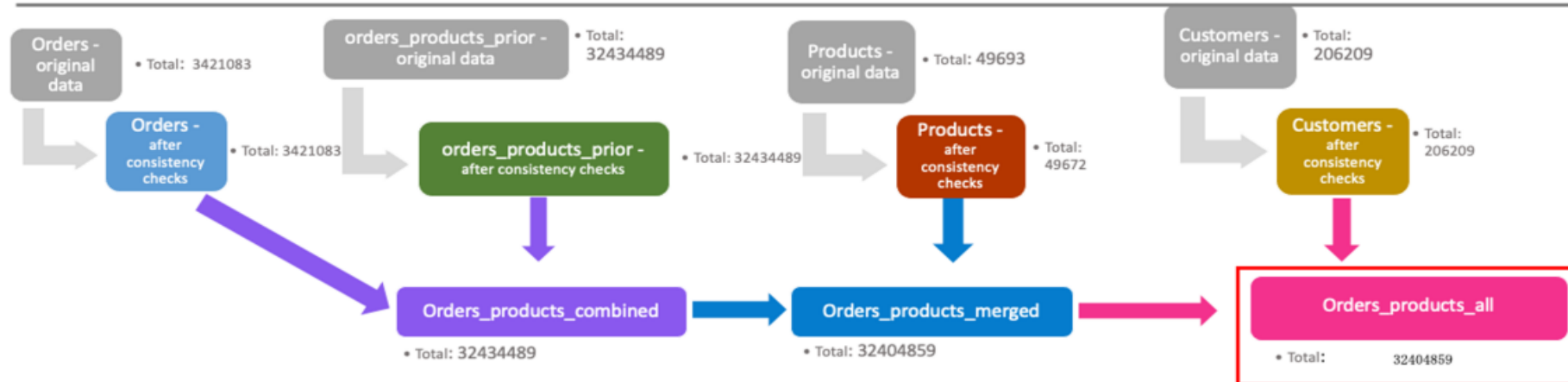
CONSUMER INSIGHT

A closer look at transaction patterns, customer shopping data, and regional shopping habits gives us a better understanding of Instacart customer habits and demographics
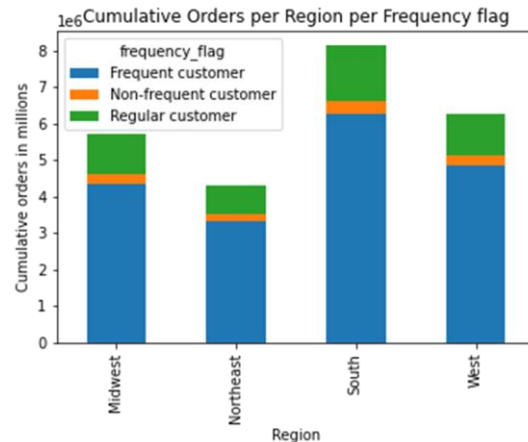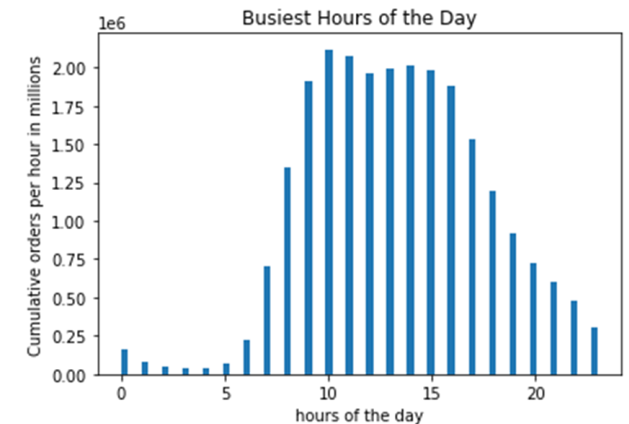
Produce is the most popular department

Weekend are the busiest days for orders

Most customers are from **South Region** and are **Frequent Customers**

The busiest hours of the day are **between 10 am and 4 pm**

CONCLUSIONS & RECOMMENDATIONS

- Married customers are by far the biggest customer category. The majority of customers are married and have at least 1 dependent (one child) which shows that the babies department has great potential. Instacart should target this category through special discounts, and personalized offers.

- Increase workforce during busy days (Saturdays, Sundays, and Fridays) and hours (10 am to 4 pm for faster service.

- Based on the data, the best time to schedule ads would be on Tuesdays and Wednesdays after 8 pm and before 9 am to increase sales during these periods.

- Instacart has more regular customers than loyal or new customers, they could consider a loyalty scheme to increase customer loyalty and retention rate.

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