

INSTACART

Project Overview:

Objective:

To perform an exploratory data analysis of Instacart's datasets to uncover key customer insights and recommend strategies for improved segmentation and targeted marketing campaigns.

Project Components:

- Business Overview
- Data Sources & Documentation
- Reference: Data Dictionary

Data Limitations:

- The dataset is limited to transaction data from 2017 only.
- Demographic details are limited to income level, age, and marital status

Tools & Techniques Applied:

- Data Cleaning and Structuring
- Merging and Exporting DataFrames
- Creating New Analytical Variables
- Aggregation and Grouping for Trend Analysis
- Excel-Based Reporting for Presentation



TOOLS USED



Analytical WORKFLOW

- **Data Preparation & Cleaning**

Verified data for accuracy and consistency. Addressed nulls, duplicates, and outliers, and explored summary stats to understand the structure

- **Generating Custom Variables**

Created new columns and analytical flags using logical conditions, loops, and custom functions to uncover patterns and refine segmentation.

- **Data Visualization & Reporting**

Used Matplotlib and Seaborn to design meaningful visualizations. Results were compiled and presented in Excel for stakeholder reporting.

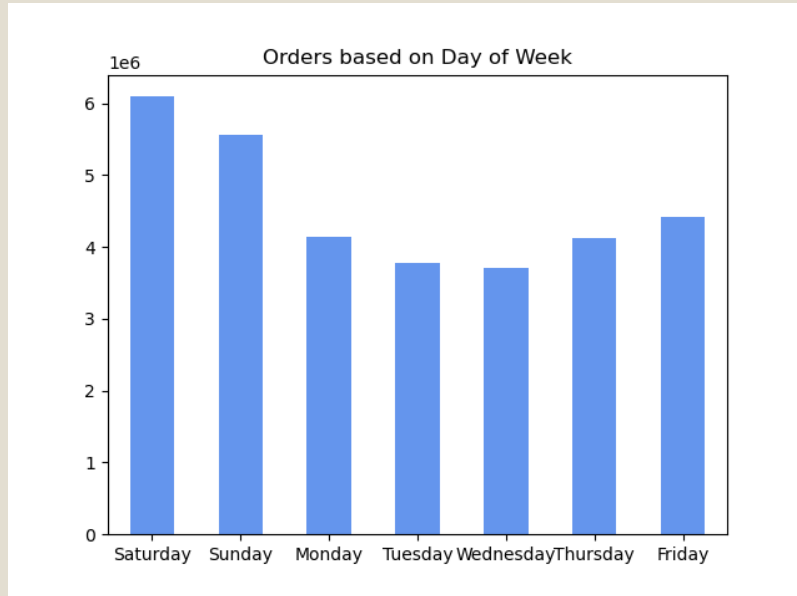
- **Grouping & Aggregation**

Applied grouping techniques to summarize behaviors by customer type, frequency, and spending. Used these insights for customer profiling.

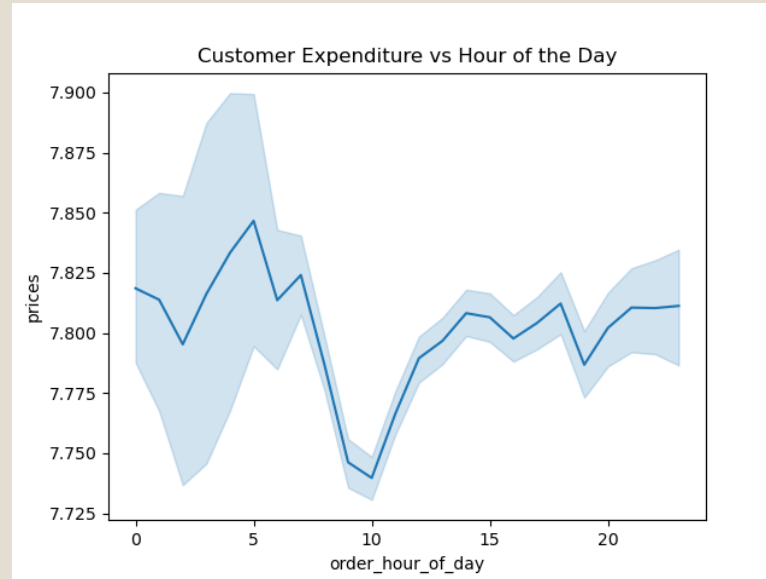


Sales analysis

When do customers order the most and spend the most?



The highest order volume occurs on Sundays and Mondays, followed by Saturday. The lowest activity is seen on Tuesdays and Wednesdays.

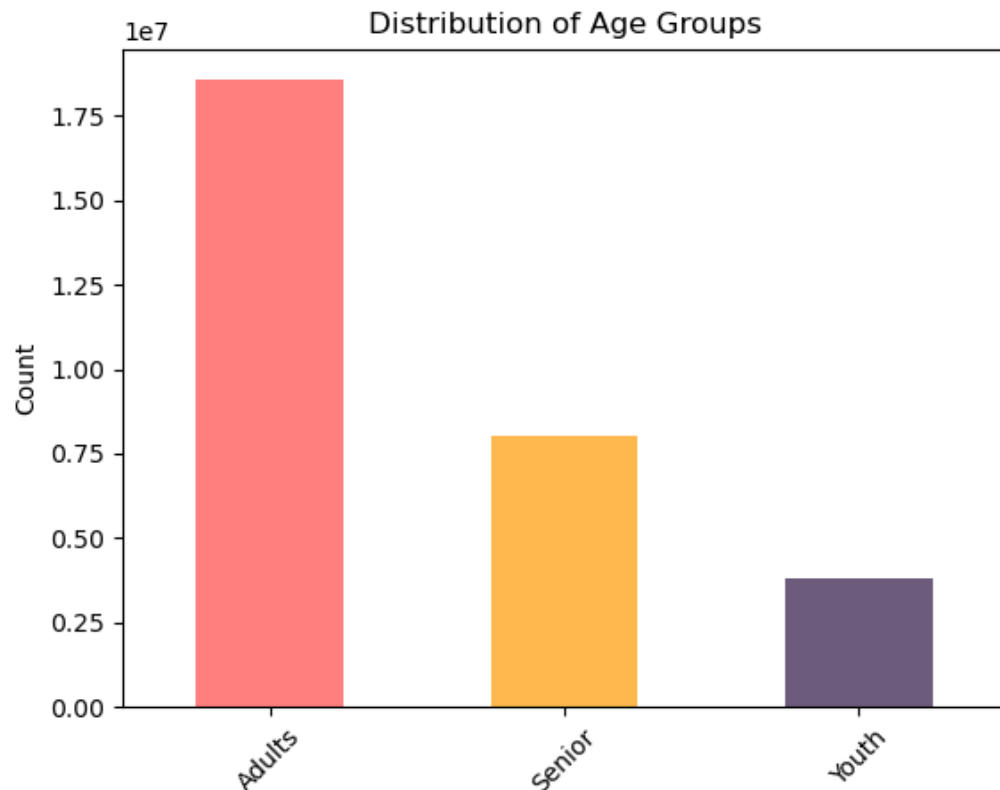


Majority of orders is made during the day between 9am and 5pm, i.e., during working hours for most people. Very few orders are made at night, between midnight and 5am.

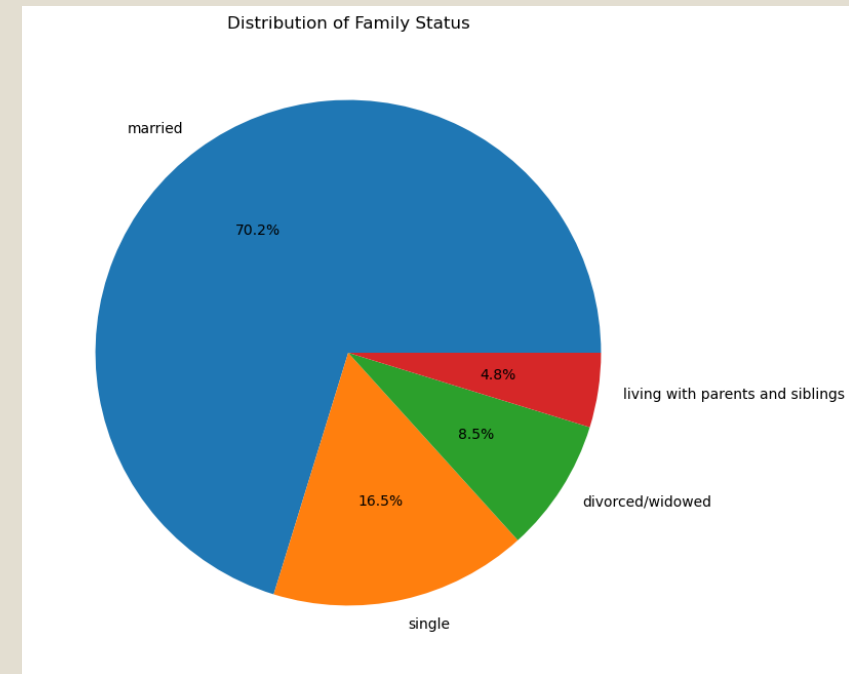


Customer Demographics Overview

Most Instacart users fall into the adult age group, with fewer senior and youth users.. This insight helps tailor marketing strategies and product recommendations based on age-based preferences.



A large portion of users are *married* (70.2%), followed by *single* individuals and those who are *divorced/widowed*. Knowing family structure supports targeted communication and personalized offers—such as bulk promotions for families or convenience-focused items for singles.



Recommendations Based on Insights

Launch Weekend Campaigns

Since order volume is highest on **Saturdays and Sundays**, Instacart should introduce weekend-only promotions, discounts, or loyalty perks to drive repeat purchases.

Target Married Adults with Family Bundles

With **70% of users being married** and a majority in the **adult age group**, Instacart can offer family-focused bundles, meal kits, or multi-buy discounts to align with their household needs.

Optimize Daytime Promotions

Most orders are placed between **9 AM and 5 PM**. Ads, push notifications, and email campaigns should be scheduled during these hours for better engagement.

Personalize Offers for Single or Elderly Customers

Introduce convenient or smaller-pack deals for **single users** and **seniors**, such as quick meals, lower-quantity items, or curated healthy bundles.



Deliverables

[Final Final Report.xlsx](#)