

Market Basket Analysis

GreenGrocer



Background

- B.S in Aquatic Ecology
- 6 years in IT Recruitment & Sales
- Flatiron School - Data Science

[LinkedIn](#) / [GitHub](#)





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Bluf!

The global Organic food market is estimated to be worth \$553 billion by the end of 2033.



01 Business Overview



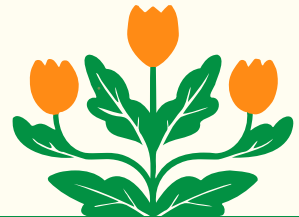


Overview



The organic grocery market is experiencing rapid growth, driven by increasing consumer awareness of health and sustainability.

With the demand for organic products and online shopping on the rise, GreenGrocer wants to strategically position itself to tap into this expanding market by introducing an Organic Grocery Delivery Service.



02 Data Overview





Data Overview . ●

The dataset used comes from 3 million grocery orders from more than 200,000 Instacart users. The data was filtered down to only focus on Organic Products. The dataset includes information on the following:

- 190,000 users
- 2.3 million orders
- 5000 Organic products



03 Data Analysis



Organic Power!

32%



**Organic
Products**



69%



**Organic
Reorders**



Predictive Insights



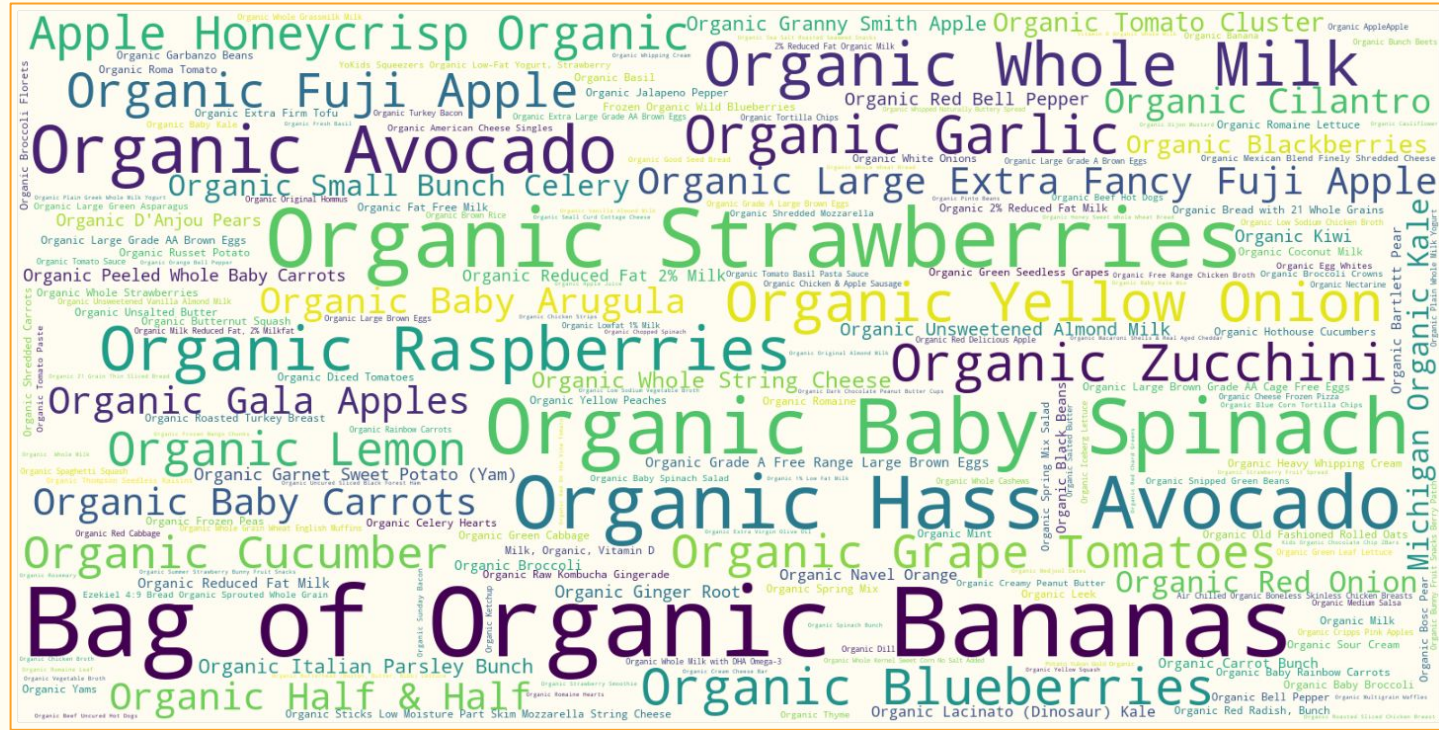
Organic Produce



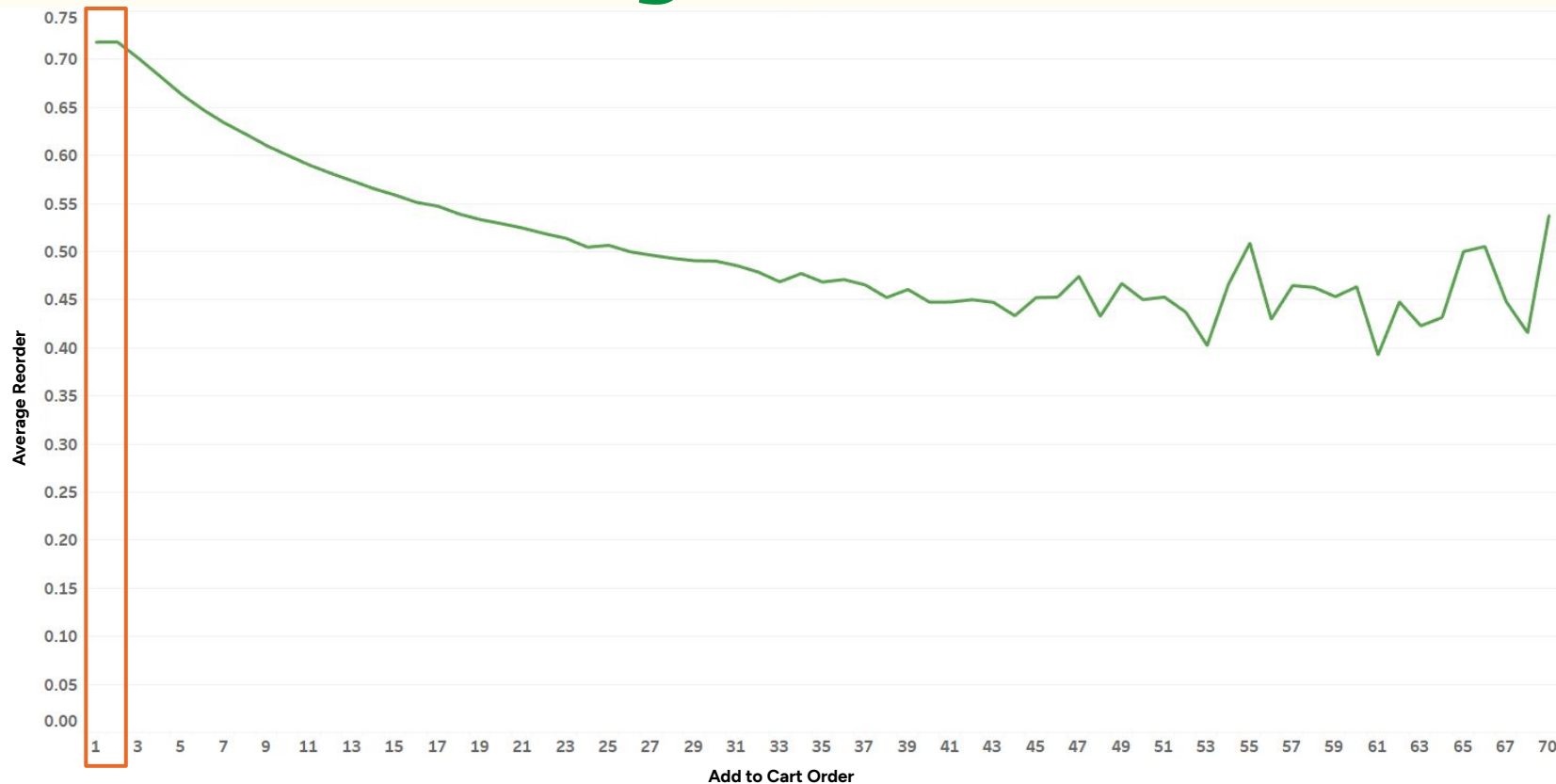
Product Placement



Produce, Produce, Produce!



You Only Get One Shot



04 Modeling





Results

75%



Decision Tree

Baseline

84%



**XGBoost
Classifier**

82%



Logistic Regression

Feature
Importance



Apriori & Association Rules

A	B	Support	Lift
Organic Bag of Bananas	Organic Hass Avocado	0.02	1.8
Organic Hass Avocado	Organic Strawberries	0.02	1.7
Organic Strawberries	Organic Baby Spinach	0.02	1.4
Organic Baby Spinach	Organic Avocado	0.01	1.7

Cart Optimization

Bag of Organic Bananas



Organic Baby Spinach
Organic Hass Avocado
Organic Lemon
Organic Strawberries
Organic Yellow Onion

Organic Strawberries



Organic Raspberries
Organic Hass Avocado
Bag of Organic Bananas
Organic Baby Spinach



05

Recommendations



Recommendations

01 Promotions & Marketing

- Targeted marketing campaigns on Organic produce



02 Encourage Frequent Purchases

- Personalize recommendations based on purchase history, frequent purchases, and similar products purchased by other customers

03 Customer Retention

- Offer Subscription and/or Loyalty Rewards programs

04 Enhance Product Placement

- Implement "quick add" or one-click reordering features for faster checkout
- 
- 



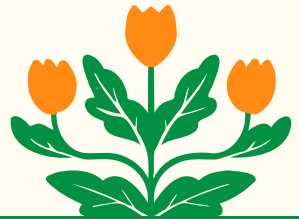
06 Future Steps



Future Steps



- Use Apriori and Association rule results to build a recommendation system.
- Explore alternative ways to handle class imbalance and engineer more features.
- Apply Deep Learning models to extract better insights from the data.



Thanks!



Do you have any questions?

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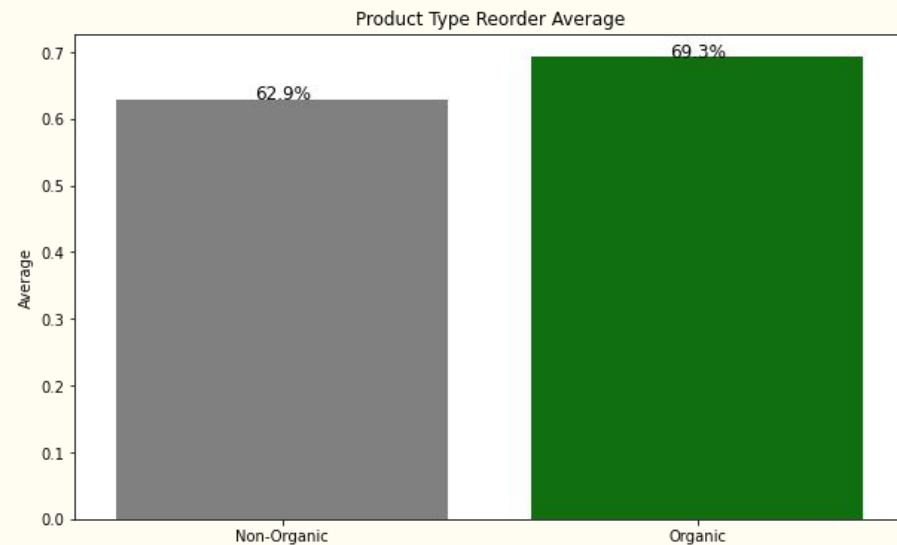
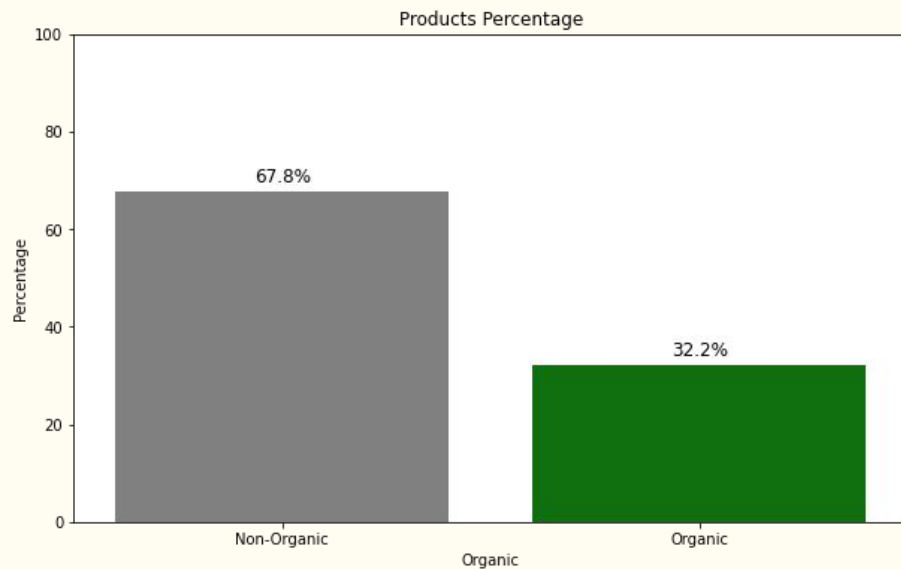
Website: <https://github.com/sclarkHOU>

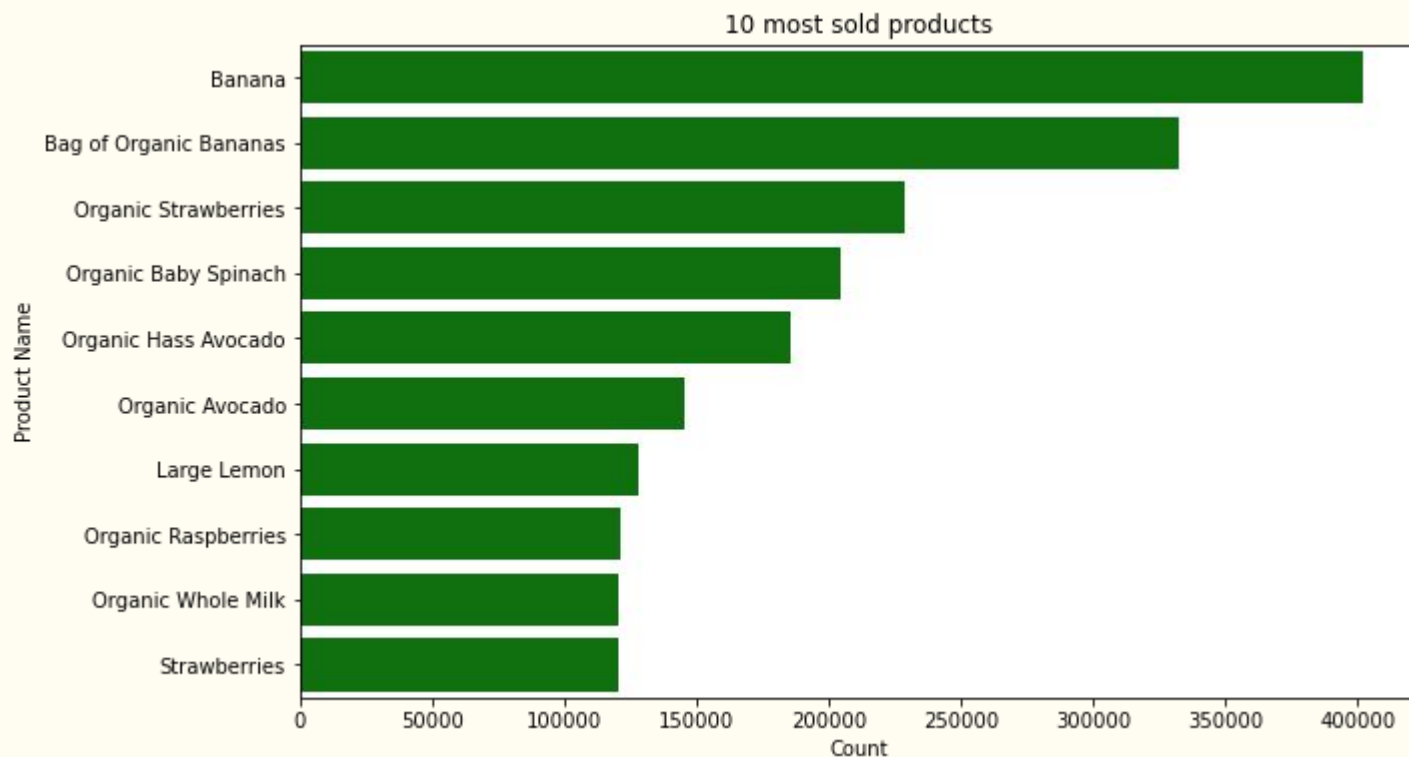


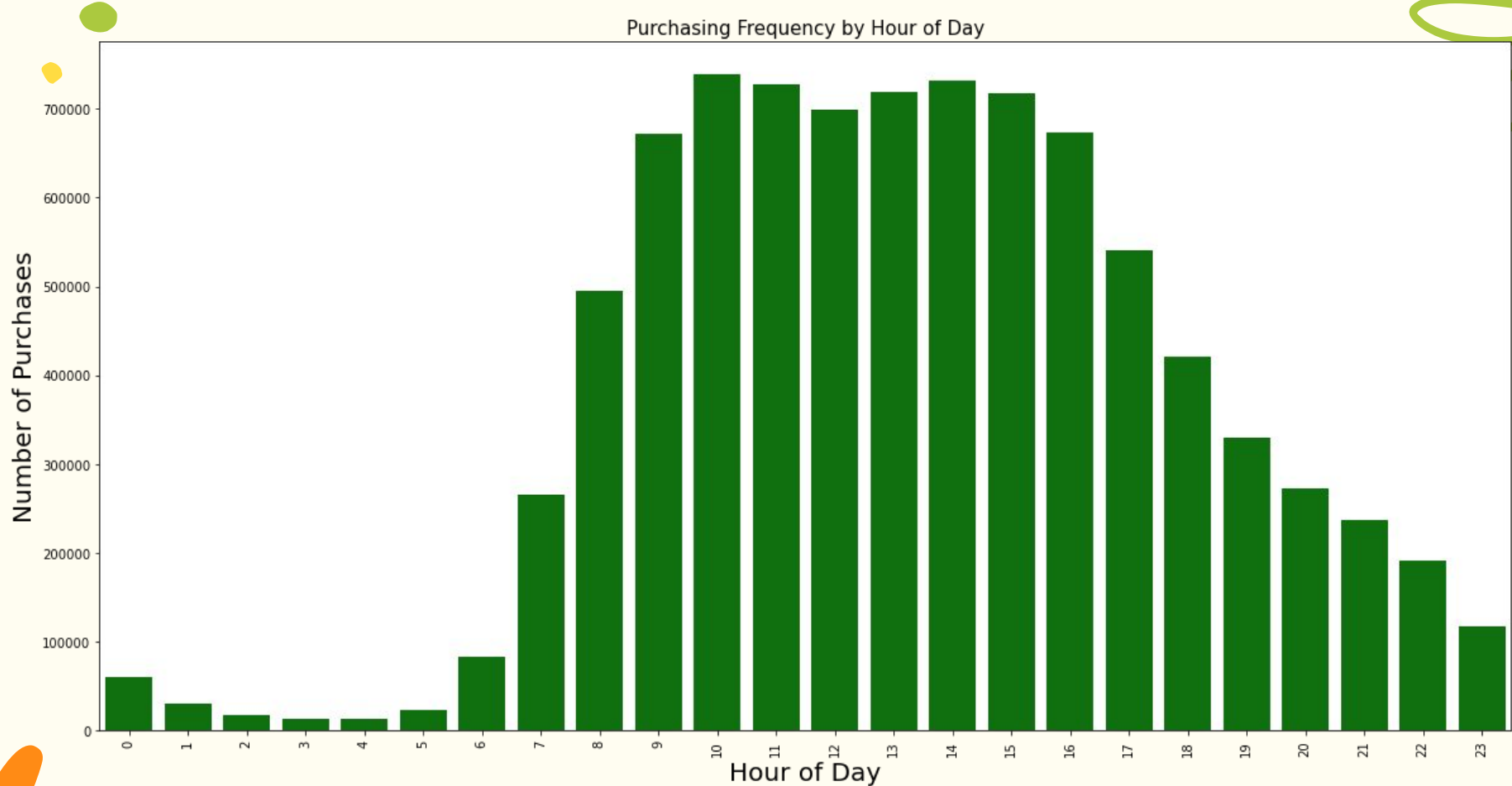


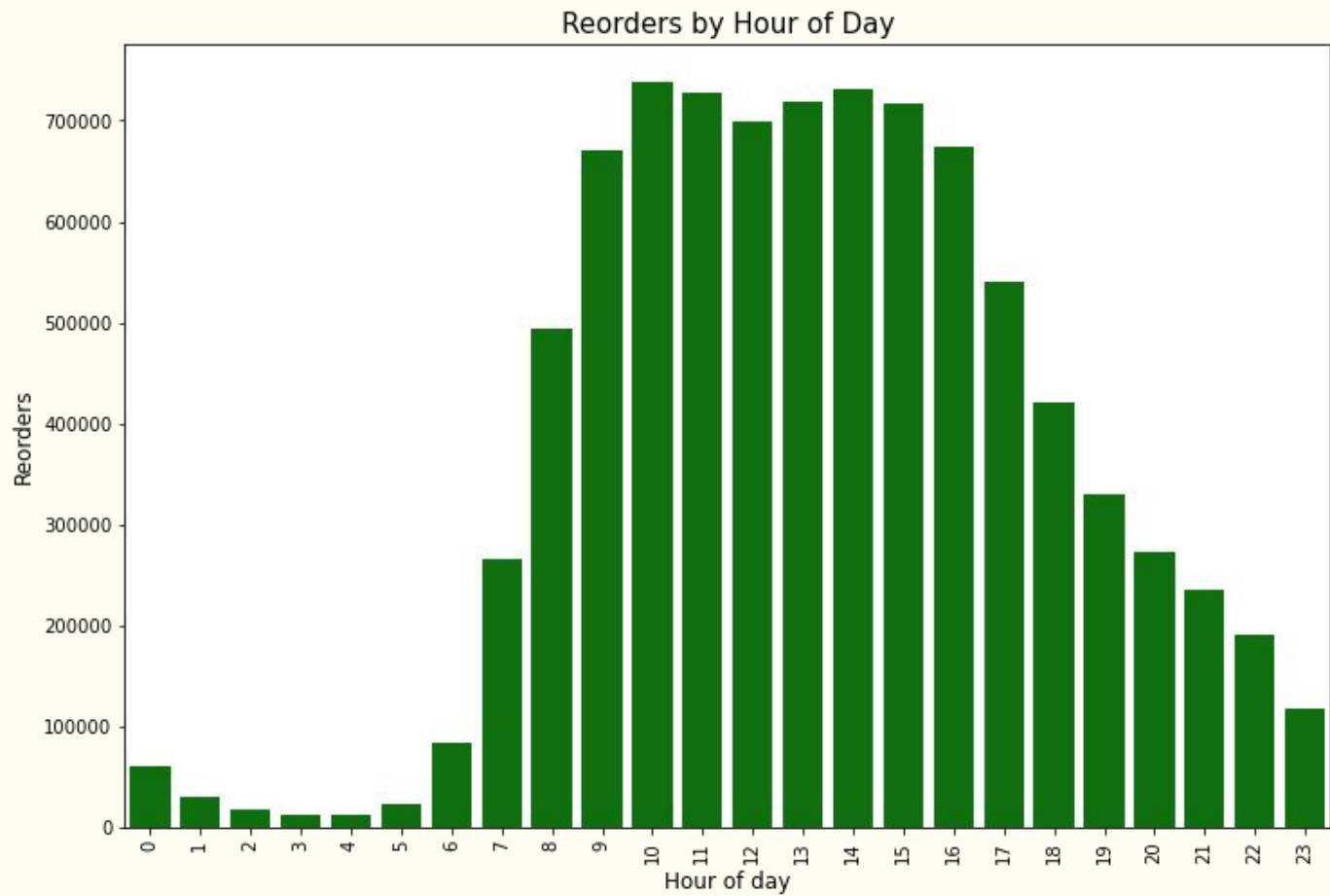
Appendix



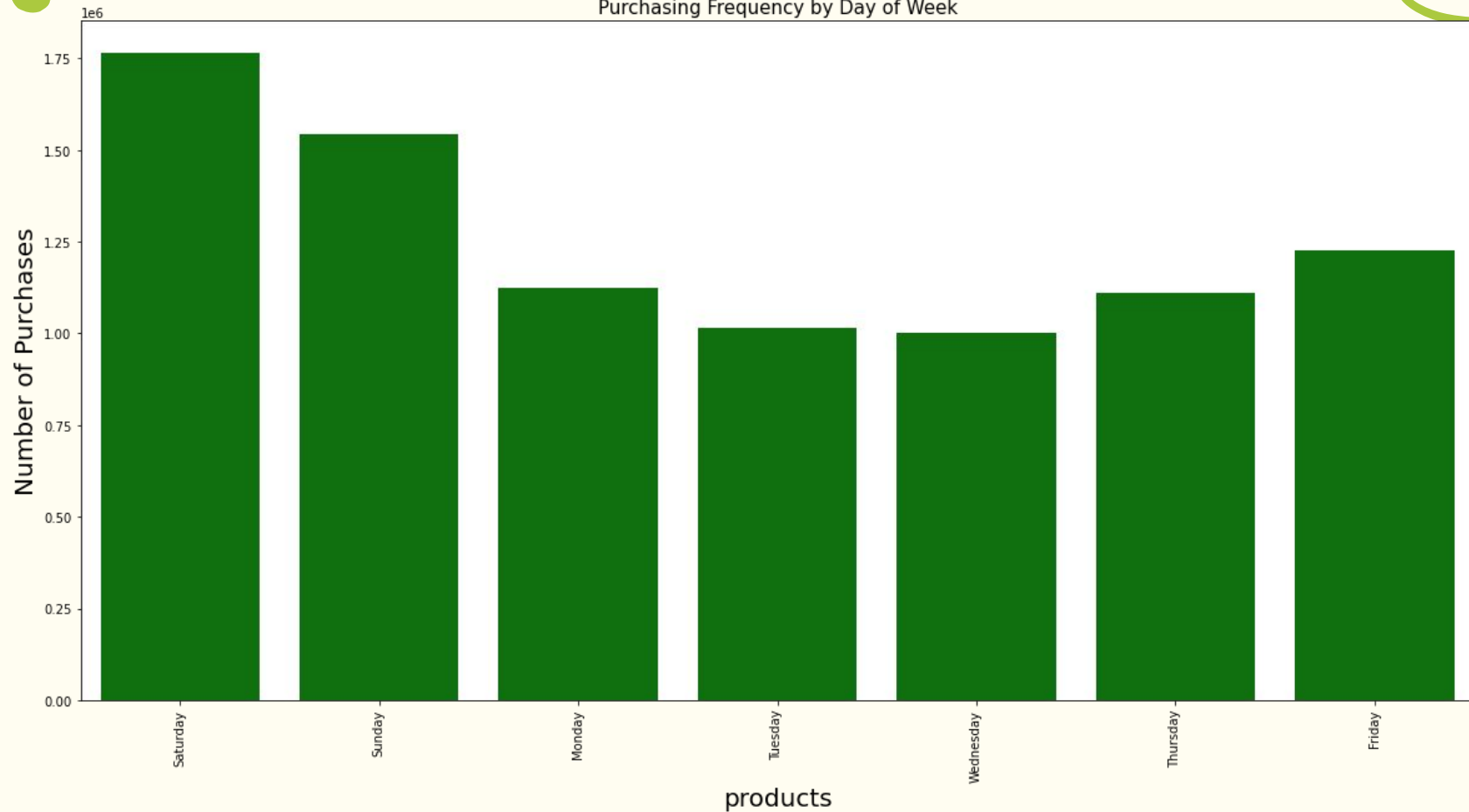




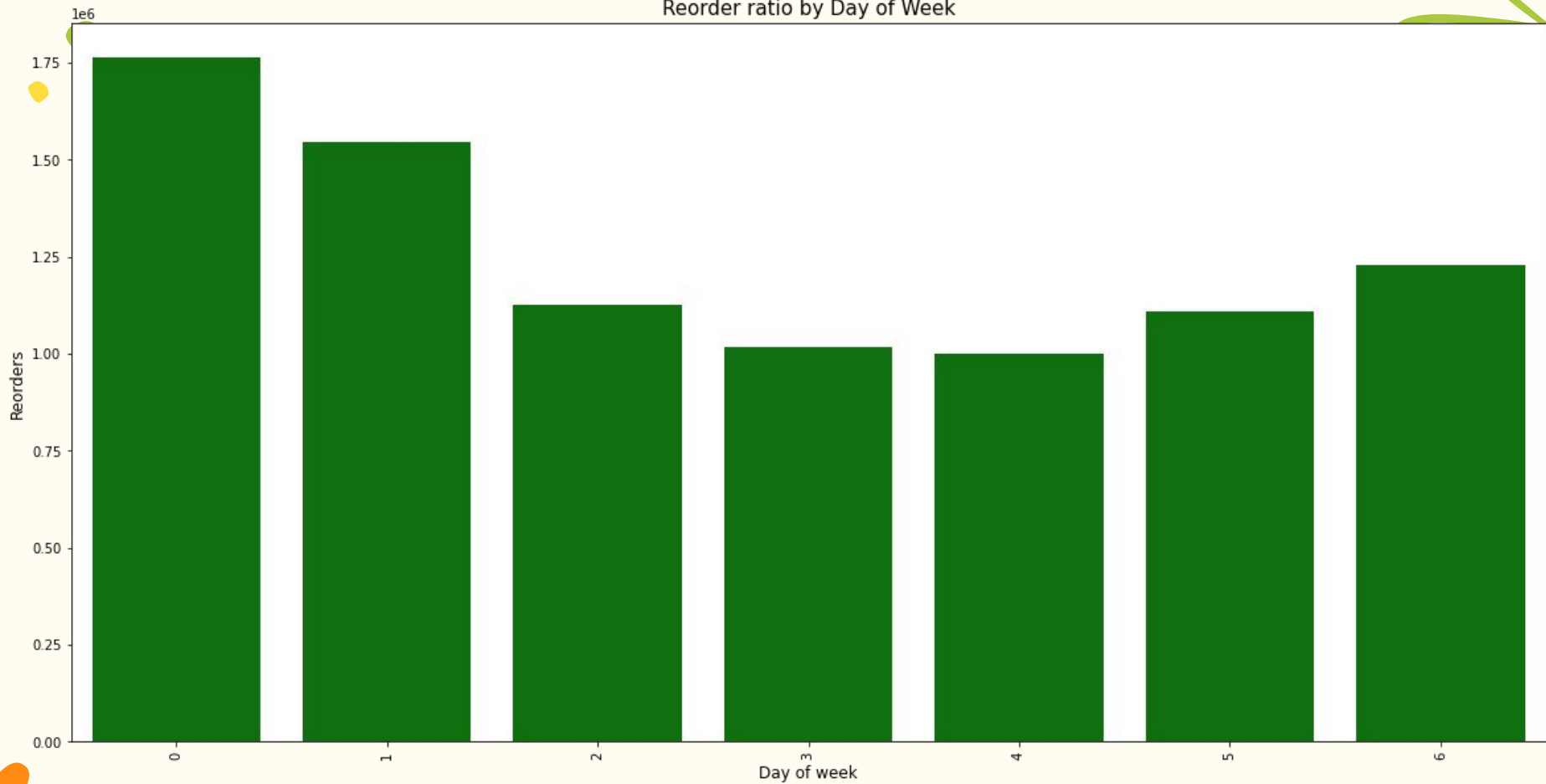


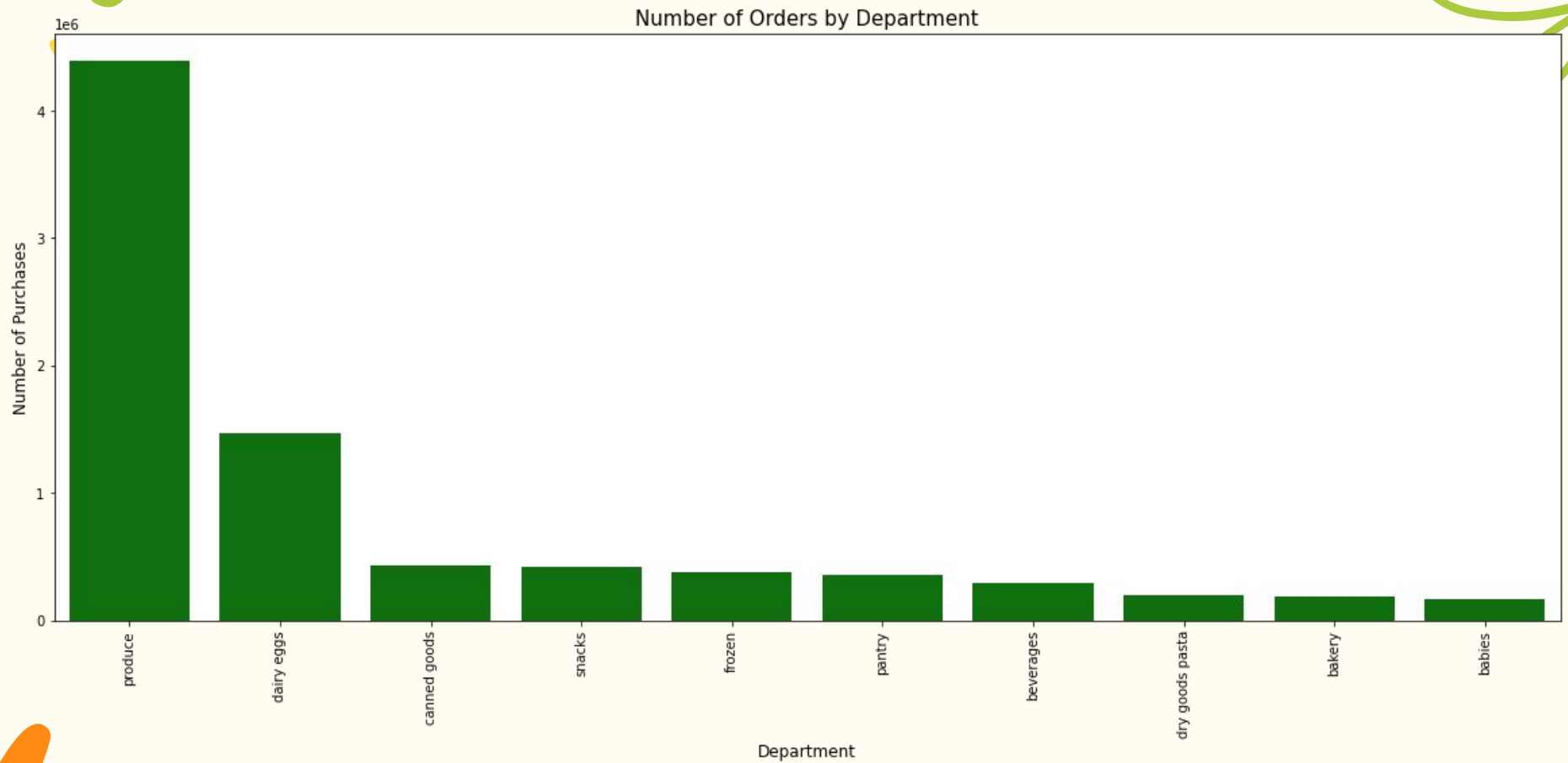


Purchasing Frequency by Day of Week

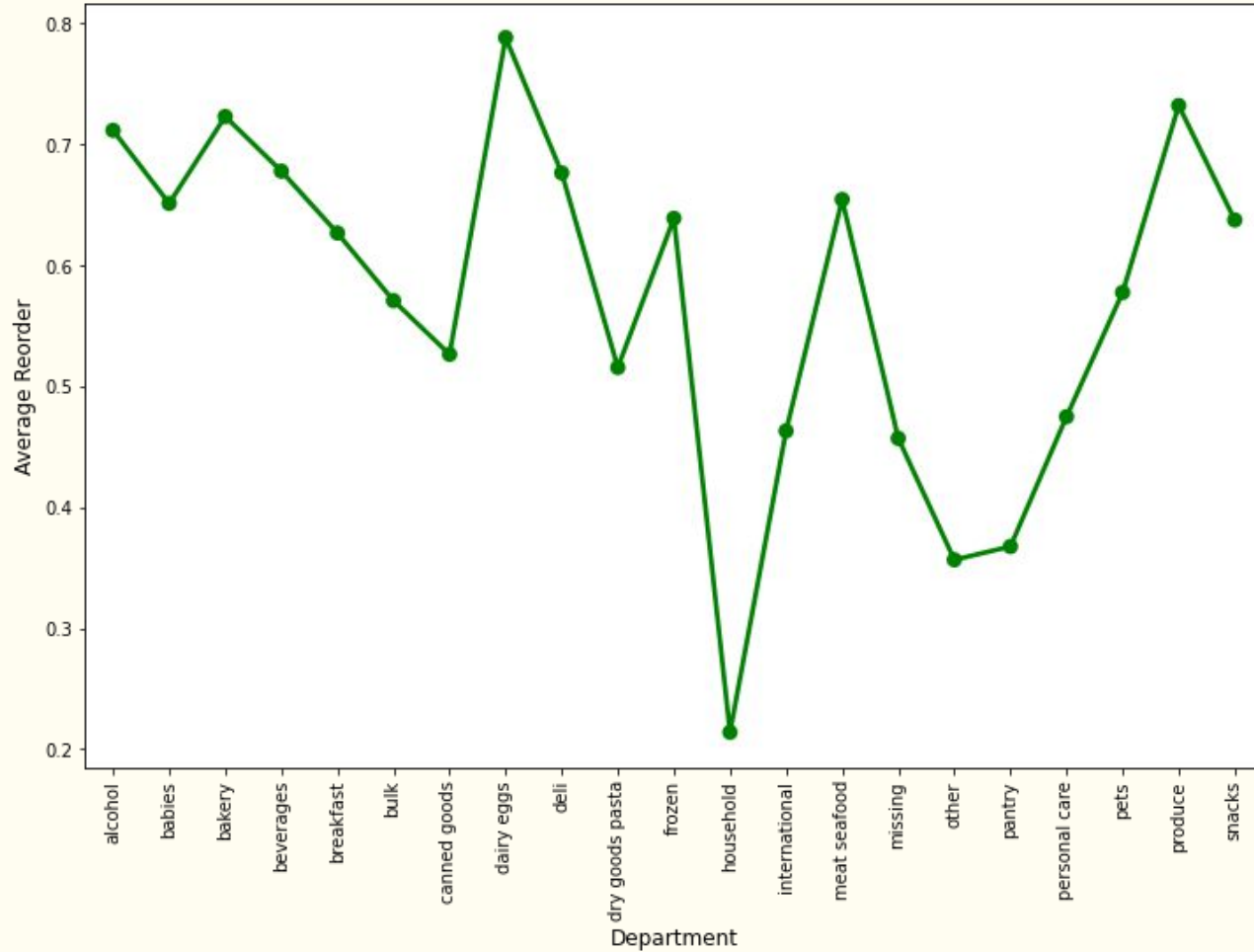


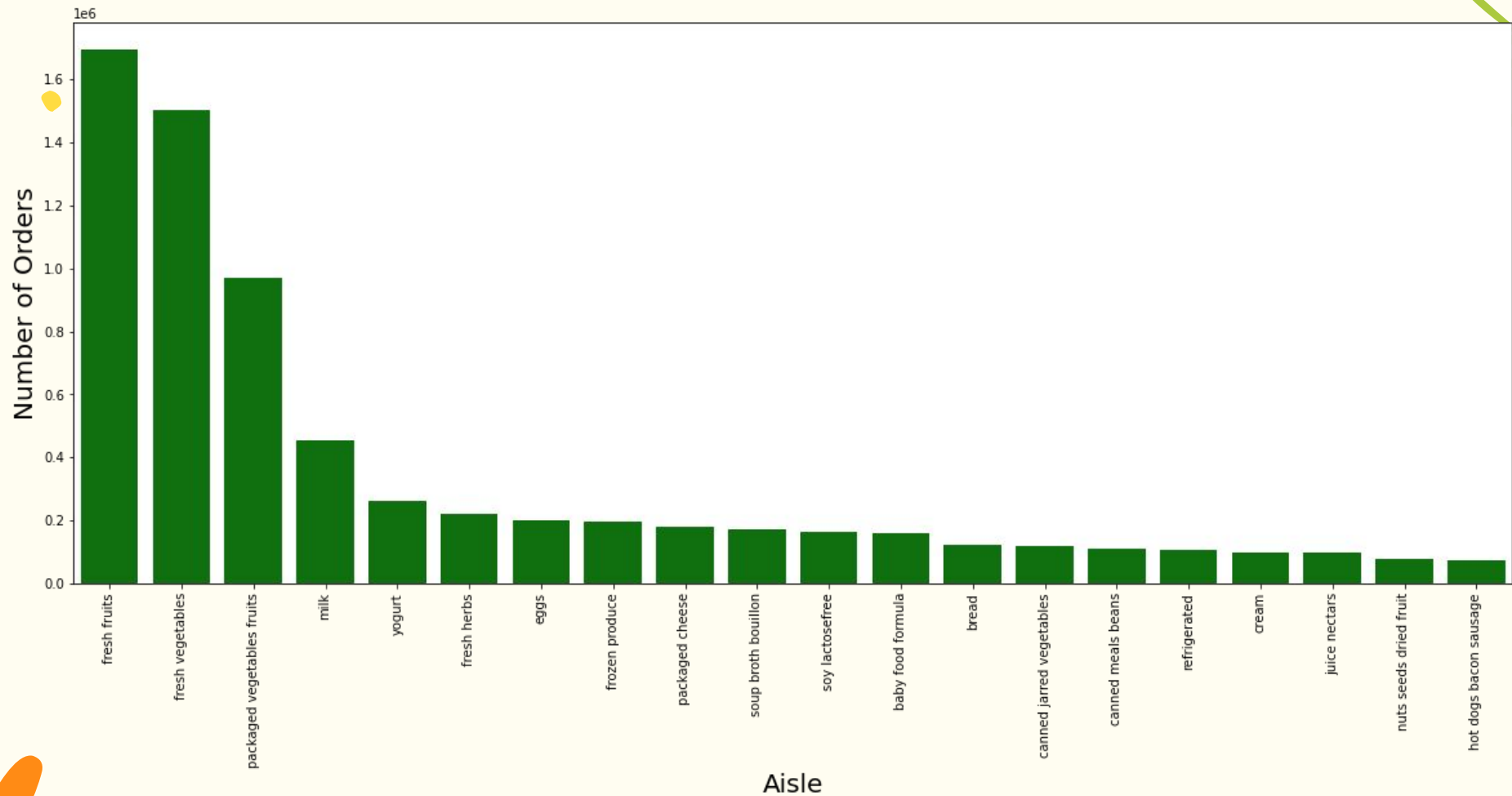
Reorder ratio by Day of Week





Average Reorder by Department





Average Reorder by Aisle

