# Marketing Analytics

ALI RIAHI SAMANI

Summary

- **Customer Segmentation**

- **Customer Profile**

- **Product Analysis**

- **Buying Behavior Analysis**

- **Geographical Analysis**

- **Market Concentration**

- **Switching Customers**

- **Enterprise Machine Learning**

- **Recommendations**

Customer Segmentation

o Segmentation of Customers Using Recency Frequency Monetary (**RFM**) Method:

- o **Loyal Customers**: Spend good money with us often. Responsive to promotions.

- o **Customers Needing Attention**: Above average recency, frequency and monetary values. May not have bought very recently though.

- o **Hibernating Customers**: Last purchase was long back. Low spenders and low number of orders.


Our Customers Segmentation 3 Clusters

Cluster Group
- 1
- 2
- 3

Hibernating Customers 67%

Loyal Customers 7%

Customers Needing Attention 26%
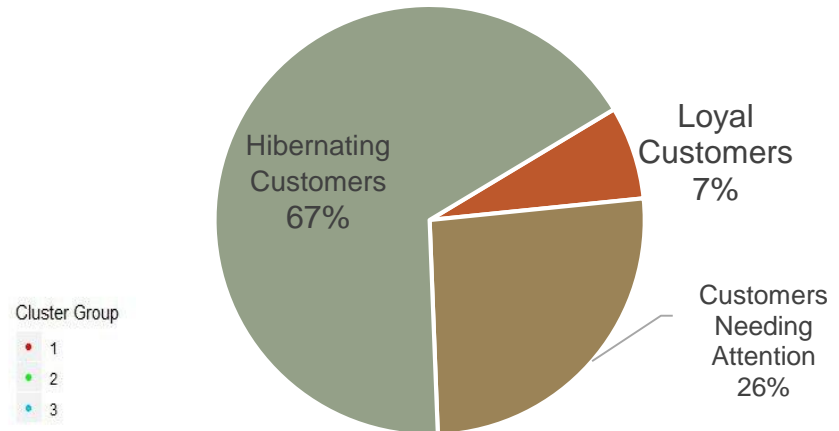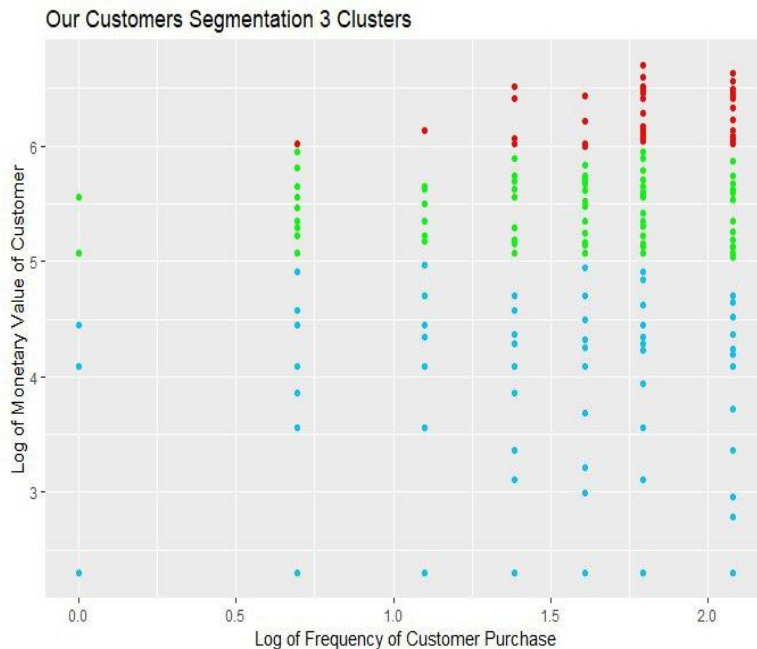
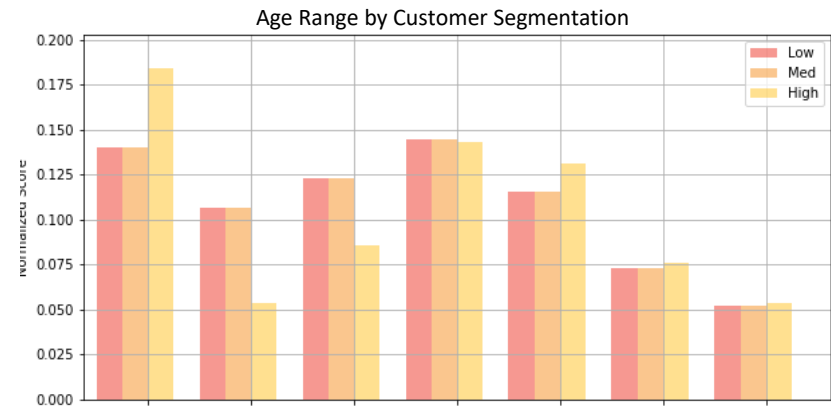| #	Type of Customers	Avg Purchase Amount
1	Loyal Customers (**High**)	$2637
2	Needing Attention (**Medium**)	$1030
3	Hibernating Customers (**Low**)	$254

Demographic Customer Profile

Household Income by Customer Segmentation
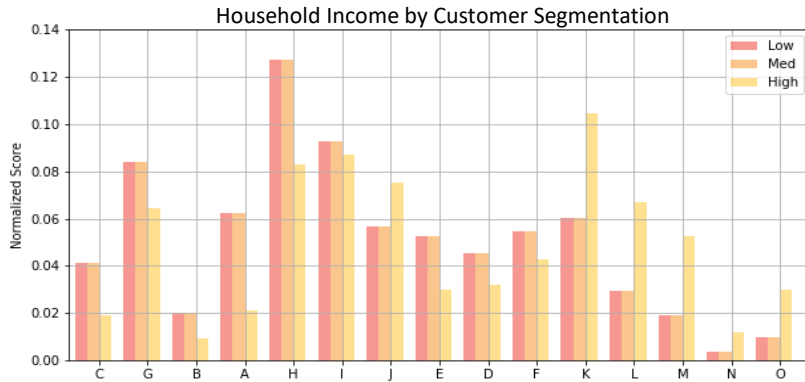
More high customers in high incomes, less in low incomes, compared to low and medium customers.

Homeowner by Customer Segmentation
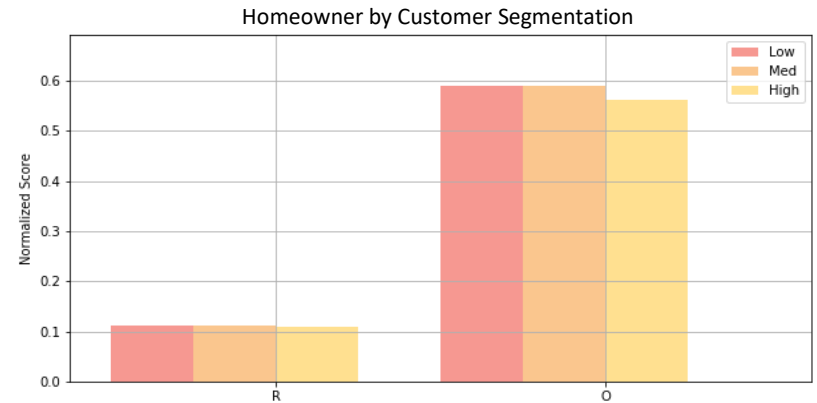
60% of customers are home owner

Family Position by Customer Segmentation
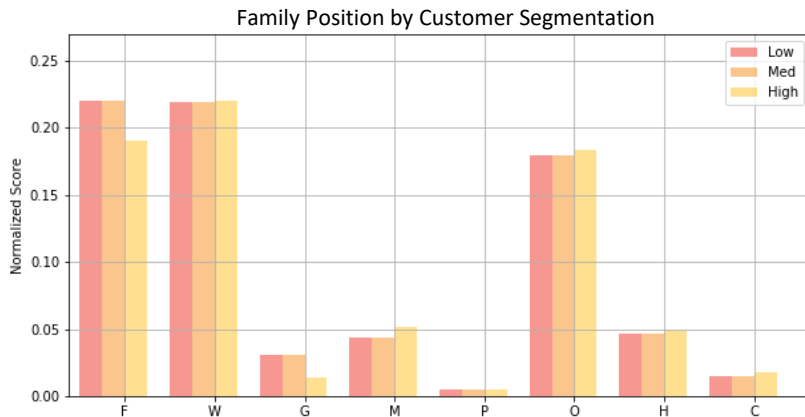
Half of our customers are Female HOH and wife.
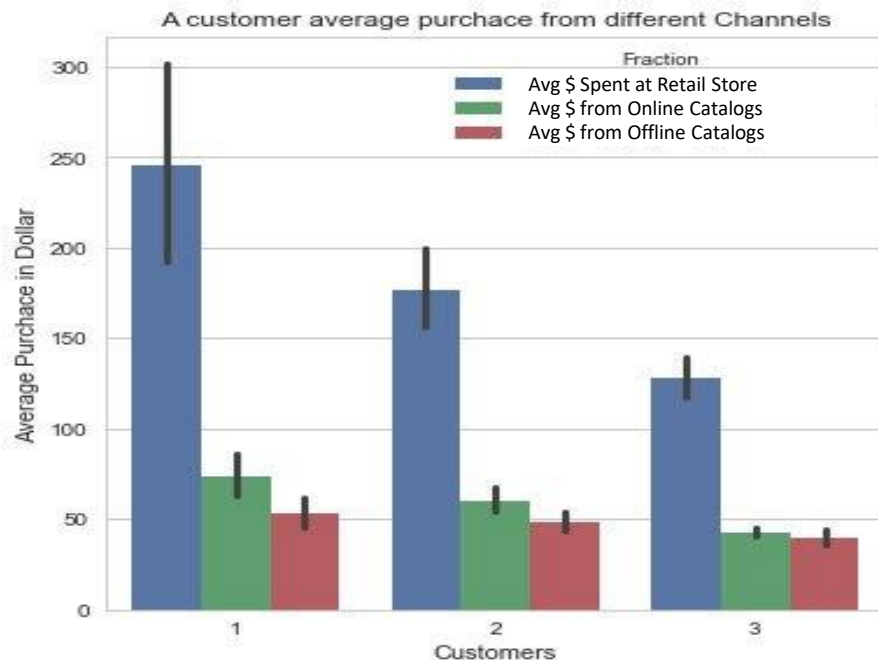

Age Range by Customer Segmentation

more high customers in age range of 35-55, less in age +65, compared to low and medium customers.

Demographic Customer Profile

Customers Buying Behavior
Customers are more willing to buy
from retailers

A customer average purchase from different Channels

Fraction
- Avg $ Spent at Retail Store
- Avg $ from Online Catalogs
- Avg $ from Offline Catalogs

Distribution of
Customers on US map

Historical Customer Profile

In monetary against frequency we see a higher slope for High customers.

Customers by their Purchase factors(RFM)
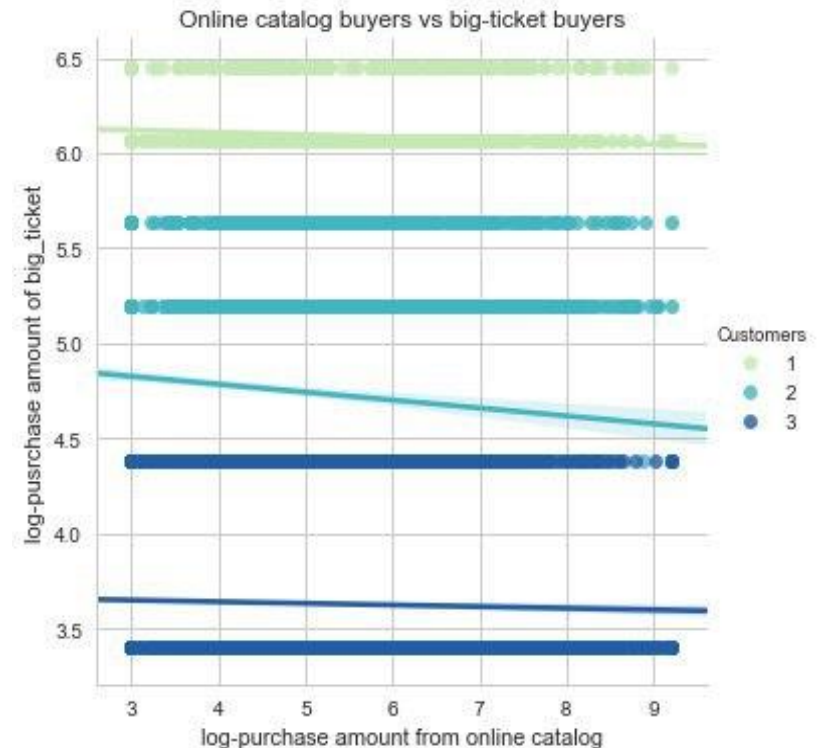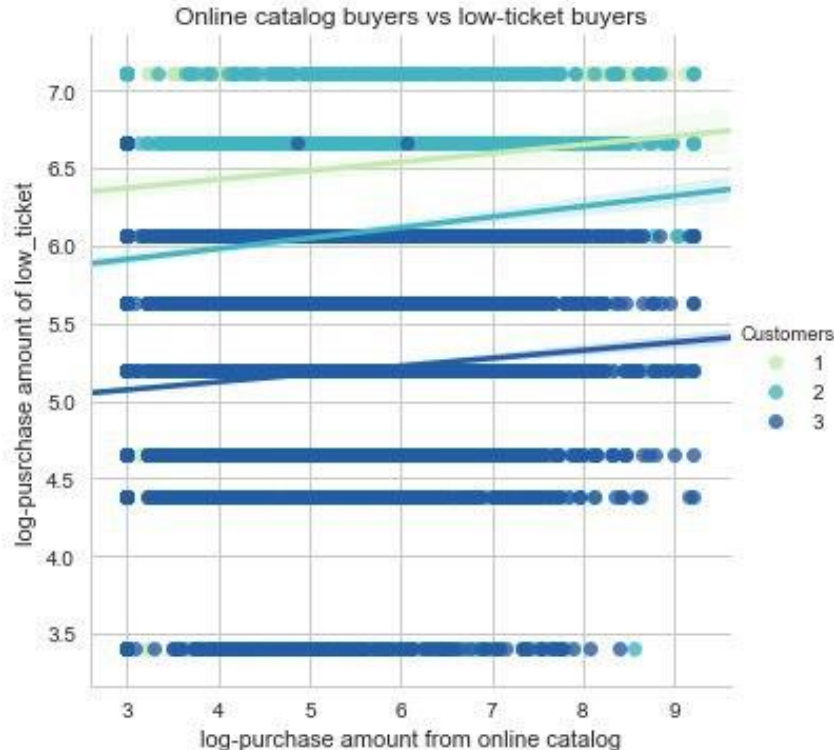

Monetary vs Frequeency of Purchase
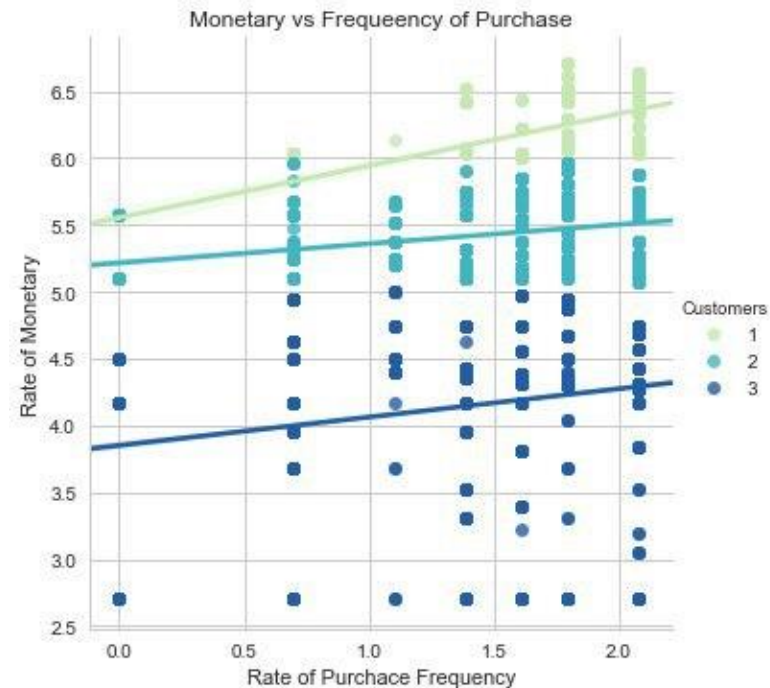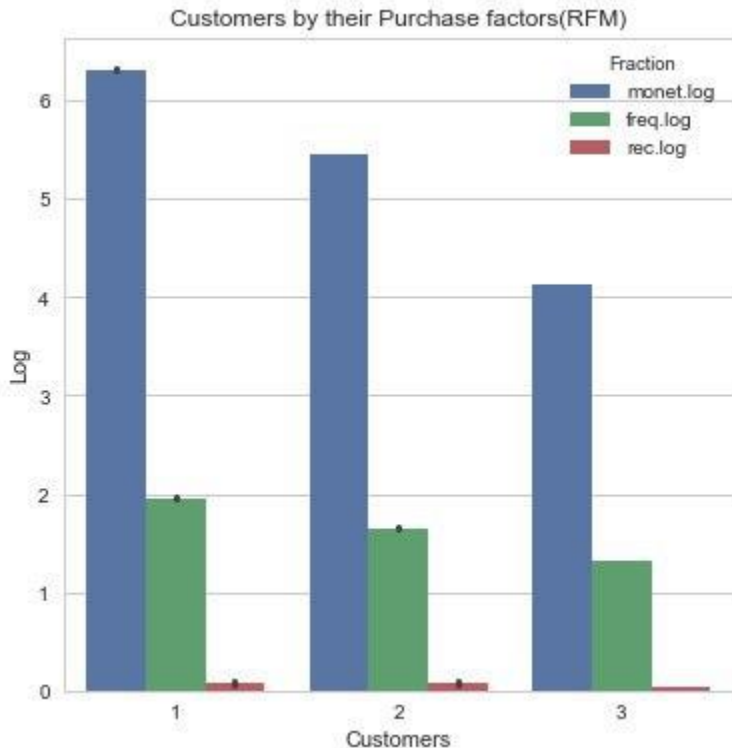
Monetary is increased much more by frequency in High customers compared to Low, and Medium customers.

Product Analysis
Buying from online catalogs

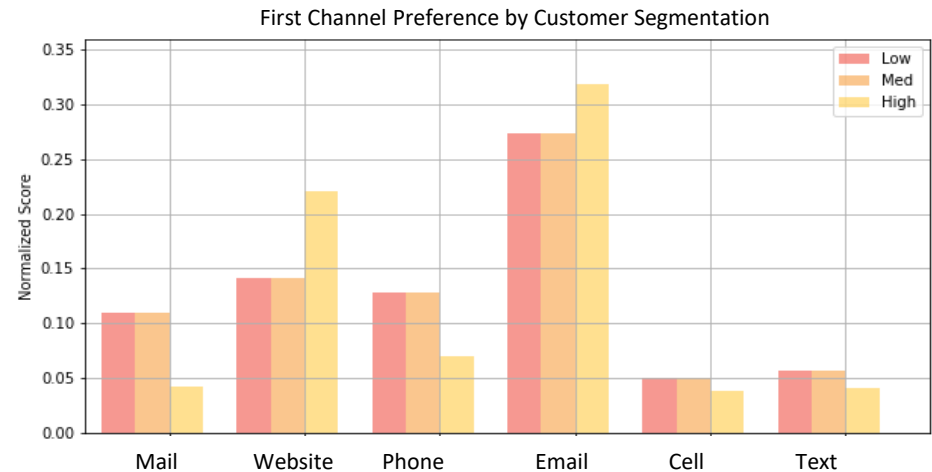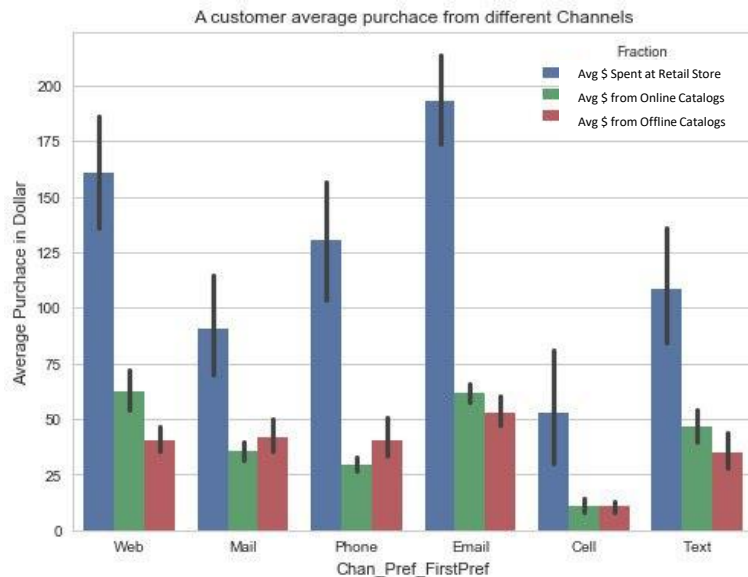When customers spend more buying from online catalogs, they purchase more from low_ticket products.

When customers buy more from online catalogs, they purchase even less from our big_ticket products.

Buying Behavior Analysis
Channel Preferences

o Email and Website are channel preferences of 40% of customers.

o Email and website are much more commonly used among High customers.

o However, Phone, Text, Cell and Mail are less common among High customers compared to other customers.

o Customers who use Email and Website more, buy more from Retailers.

o Low Customers who use Mail and Phone, are more willing to buy from offline Catalog rather that Online catalog.

A customer average purchase from different Channels

First Channel Preference by Customer Segmentation
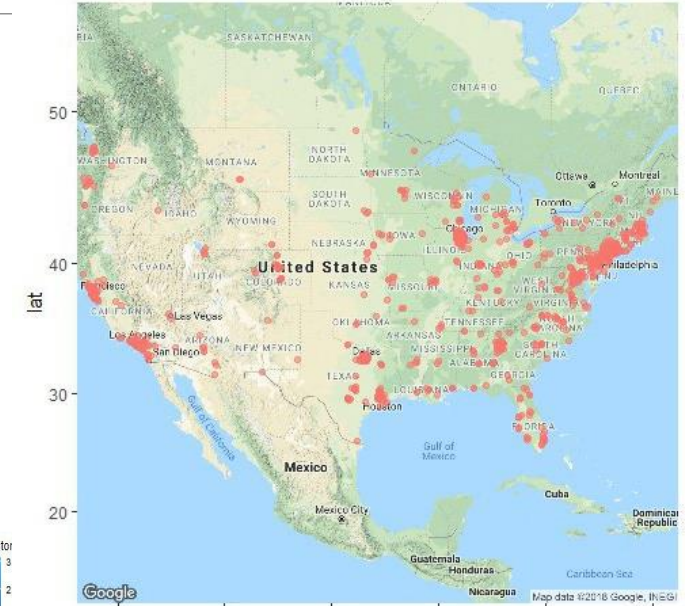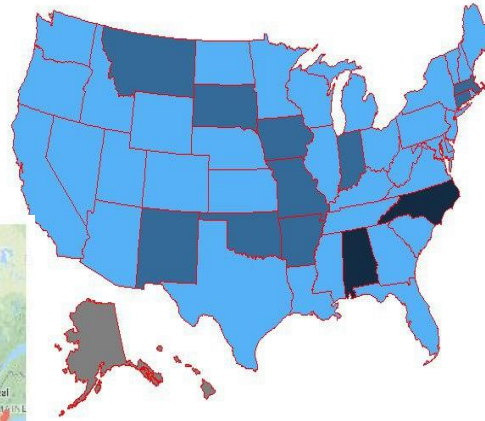
Product Vs. Income Analysis

As we go to higher income customers, they become more willing to buy more low_ticket products, However surprisingly not to buy more big_ticket products and even less.
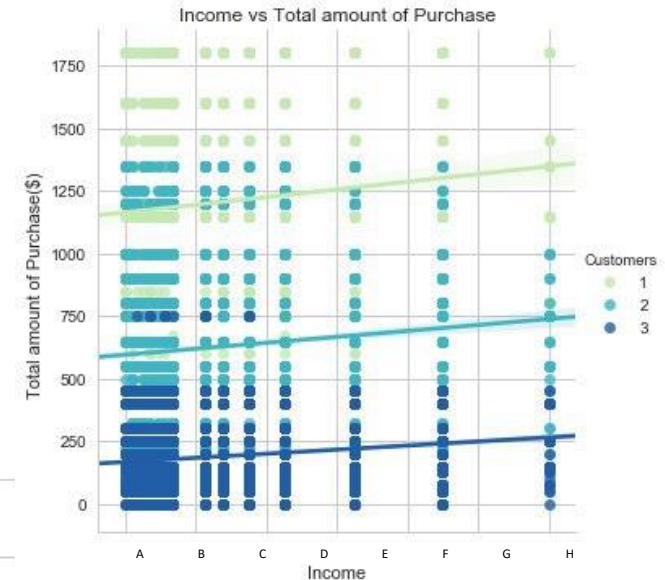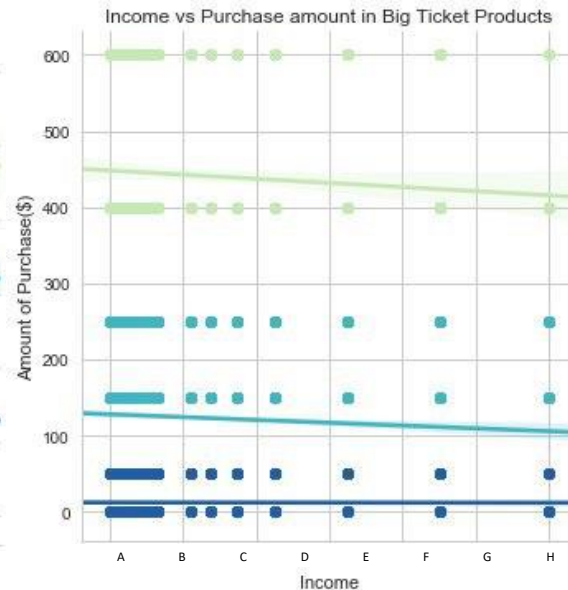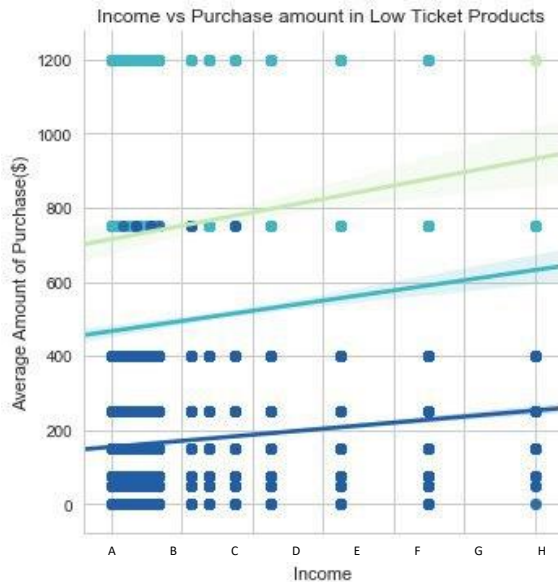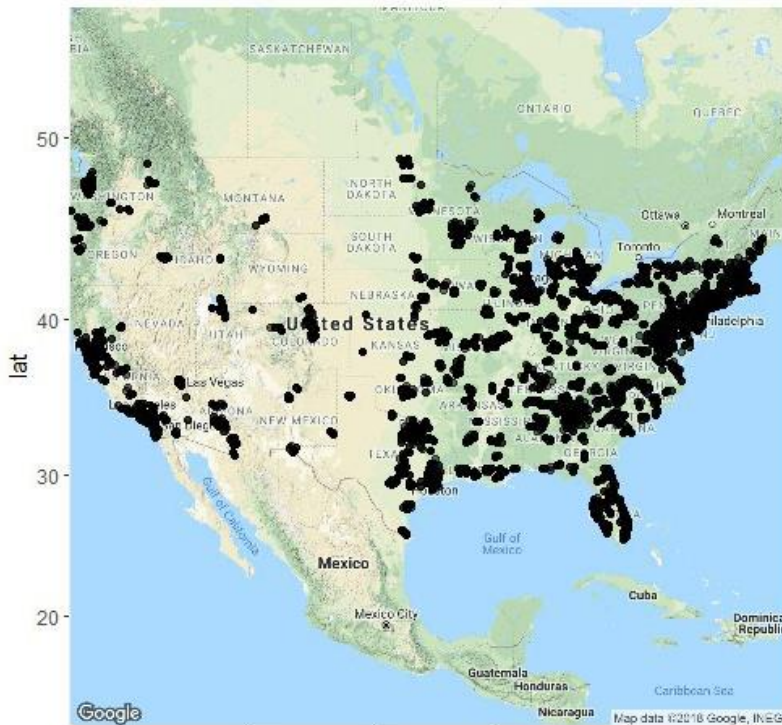

Totally high income customers are more willing to buy from our brand.

Geographical Analysis

Low Customers

High Customers

Customers	Top 5 States
All	CA, TX, NY, IL, NU
High	NY, CA, IL, TX,NU
Medium	CA, NY, TX, IL, NU
Low	CA, TX, IL, NY, FL

Top 25% Total Purchase Amount	MT, KS, SD, NV, MS
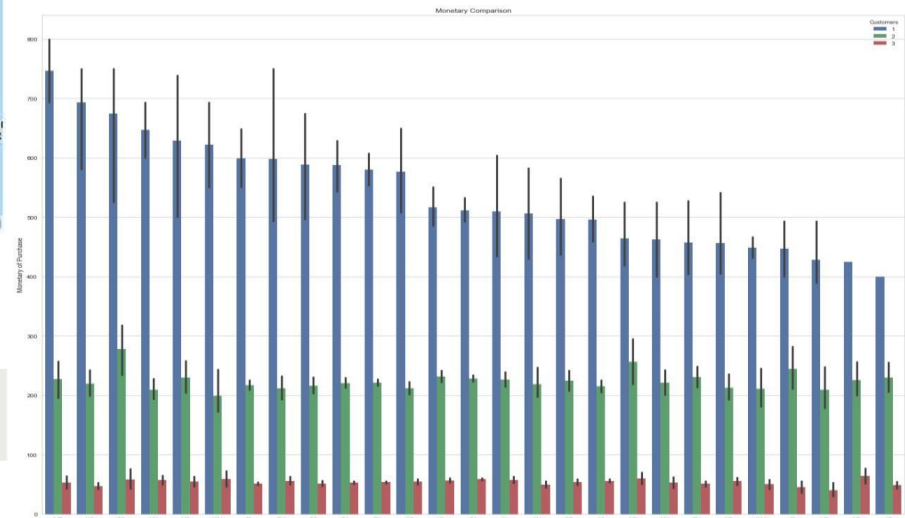
Market Concentration

o **Switching Customers**: According to HHI (Herfindahl-Hirschman Index) Analysis, those customers in the whole market that have lower HHI value are less likely to be loyal to any brand at all.

Market Concentration
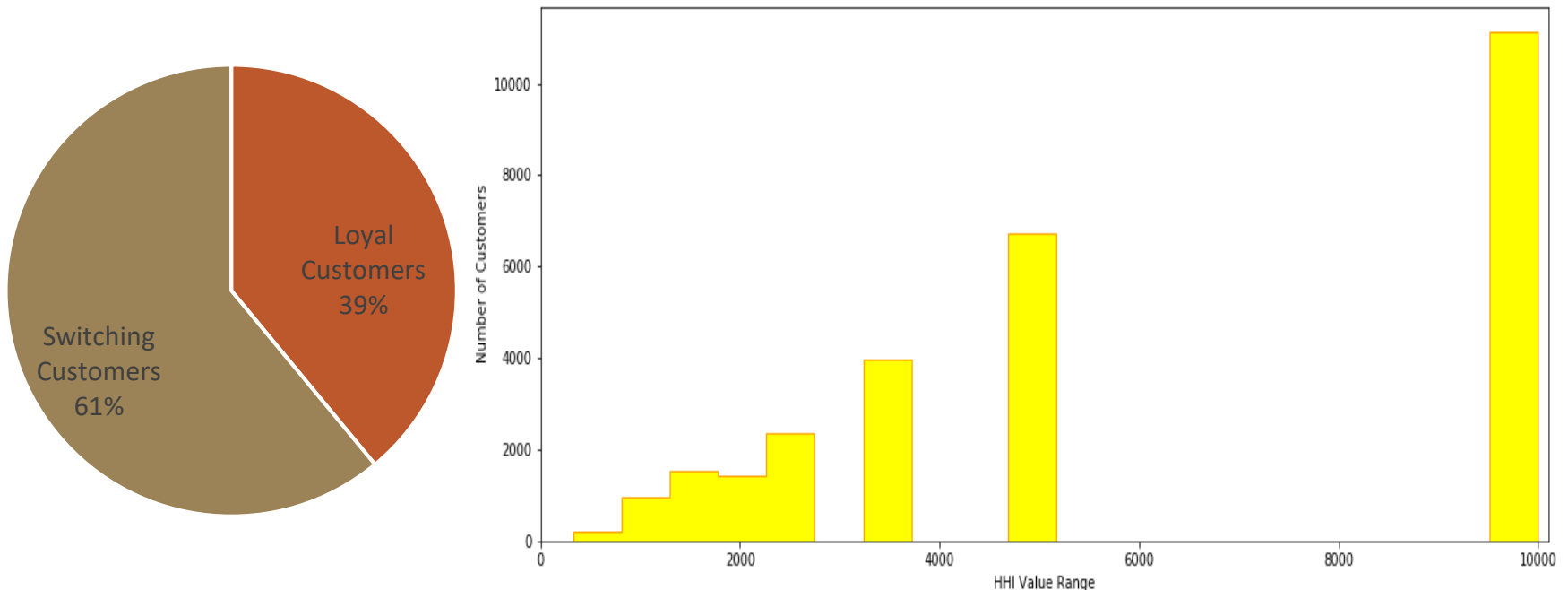
Switching Customers

o Email, Web and Phone are more common among Switching Customers and they buy more from Retailers than from Catalogs.

o Those Switching Customers who use Mail and Phone more, buy more from Offline_Catalog rather than Online_Catalogs.

A customer average purchace from different Channels
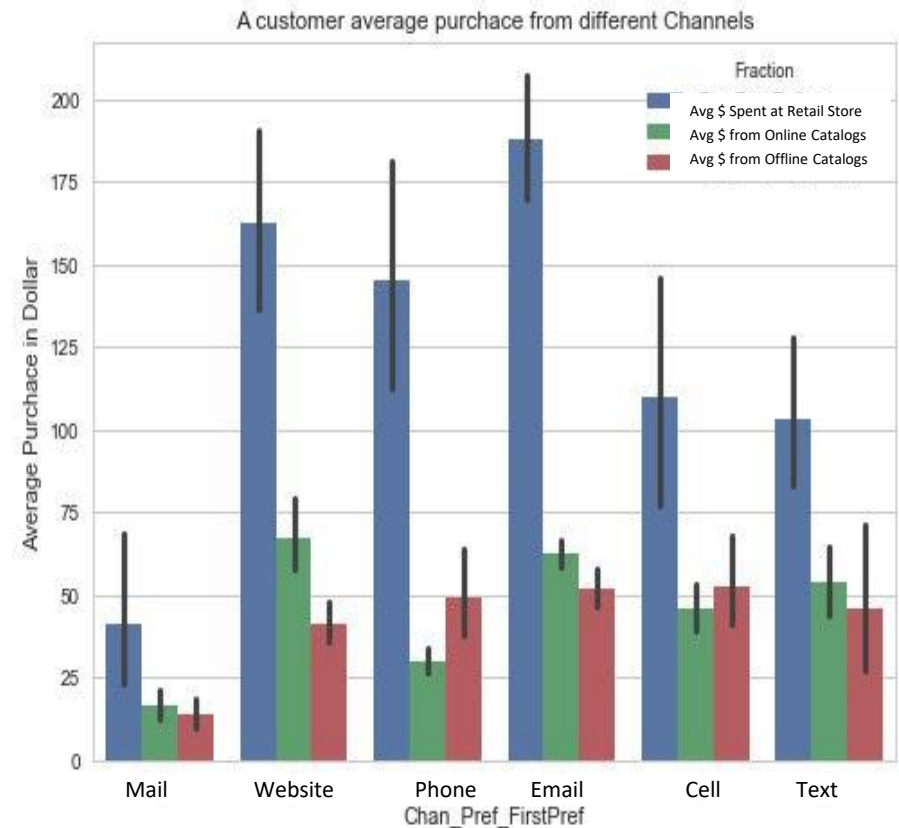
Enterprise Machine Learning

o Machine learning techniques investigation in order to predict whether a given customer, without any purchase records, can be classified correctly or not.

o Support Vector Machines (SVM) algorithm has shown very promising results in various classification tasks. We utilized a linear-kernel SVM for classification of customers to one of the 'High', 'Medium' or 'Low' Customers. Because of the sparseness of data, we picked 5 most useful demographic attributes in our model, including:

  o Customers' Age Range, Customers' Income, Customers' First Channel Preference,

  Customers' Homeowner, Family Position

o Our concern during the tuning process was to minimize false negative score of 'High' Customer.

Evaluation	Value(%)
Accuracy for All Customers	41.72
Accuracy over High Customers	**59.49**
Precision(AV Macro)	40.52
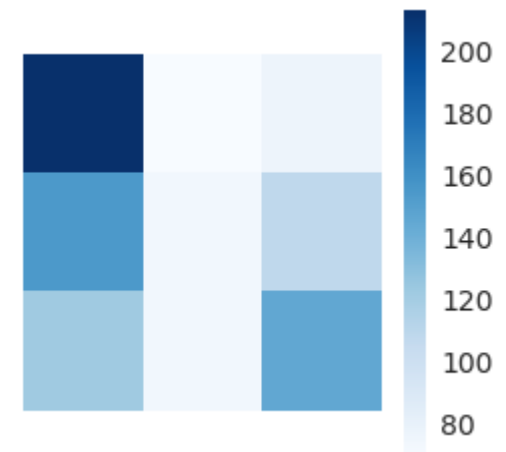
Recommendations

o We can offer membership / loyalty program, recommend other products to low income customers to attract them and upgrade them to Medium and High customers.

o We should focus more on wives from 35 to 55 years old and home owners.

o We also should send more Mail offers to our customers.

o Since more amount of purchase is caused by more frequency in High Customers, we should attract Low Customers by promoting our low_ticket products to them and try to introduce big_ticket products to High Customers.

o It would be a good idea to advertise low_ticket products through Online_Catalog and big_ticket products through Offline_Catalog.

o It is better to communicate with our customers specially High Customers by Email and Website. These channels would be more efficient for sending any advertisements or promotions.

o As we go to higher income customers, we see a slight decrease in their big_ticket purchases. It is a good idea to focus on our low_ticket products for them in order not to lose them.

o Send personalized emails in order to reconnect to Switch customers. Provide recommendations to them based on past purchases to reactivate them and ask them to see our catalogs in the website, as well as offer renewals.