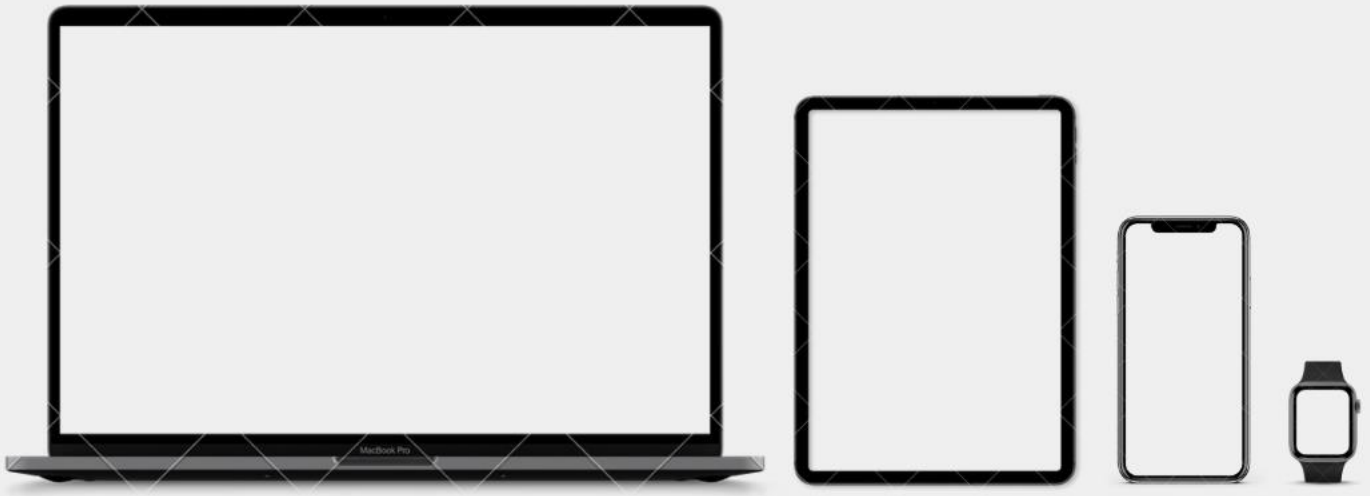
Bringing Science to the Art of Marketing

Team Parliament



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Company Overview

iFood Prominent online food delivery startup in Latin America

Serving  Brazil  Mexico  Colombia

Founded **2011**

fulfills millions of orders per month

THOUSANDS

of restaurants registered in database

Executive Summary

Our goal is to provide a solution through a cost-effective and targeted marketing campaign to drive up sales and maximize the profits.

Problem & Objective

Current State

- Inefficient marketing strategy
- Low success rate
- Negative Profits

Future State

- Data driven targeted marketing campaign
- Generate value by maximizing ROI
- Quantify marketing campaign performance

Data Description

- Contains socio/demographic features of nearly 2,240 customers
- Category of Products
  - Wine
  - Meat
  - Fruits
  - Sweet Products
  - Fish
  - Gold
- Marketing Channels
  - Catalog
  - Online
  - Physical Stores
- Information on past marketing campaigns, whether successful or not.

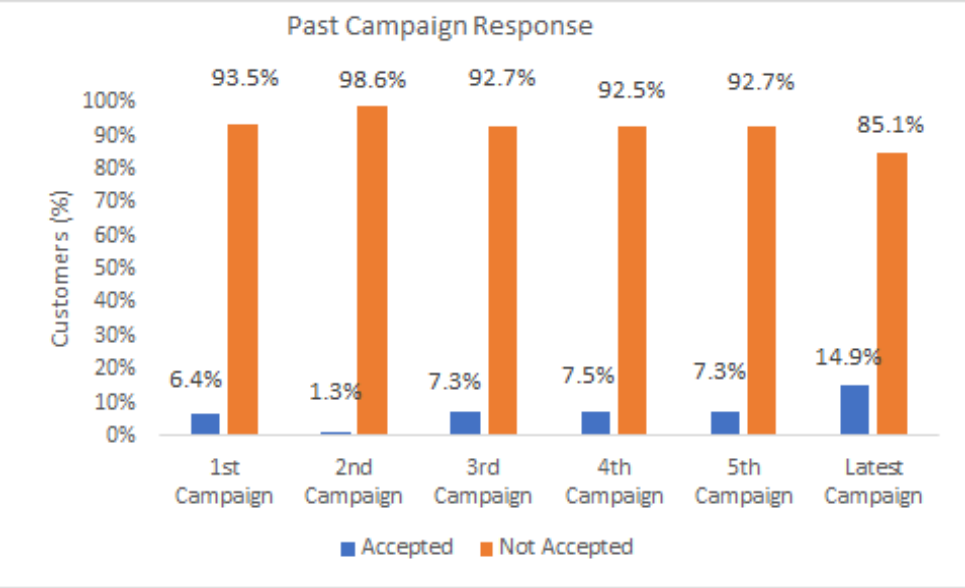
Initial Story from The Data

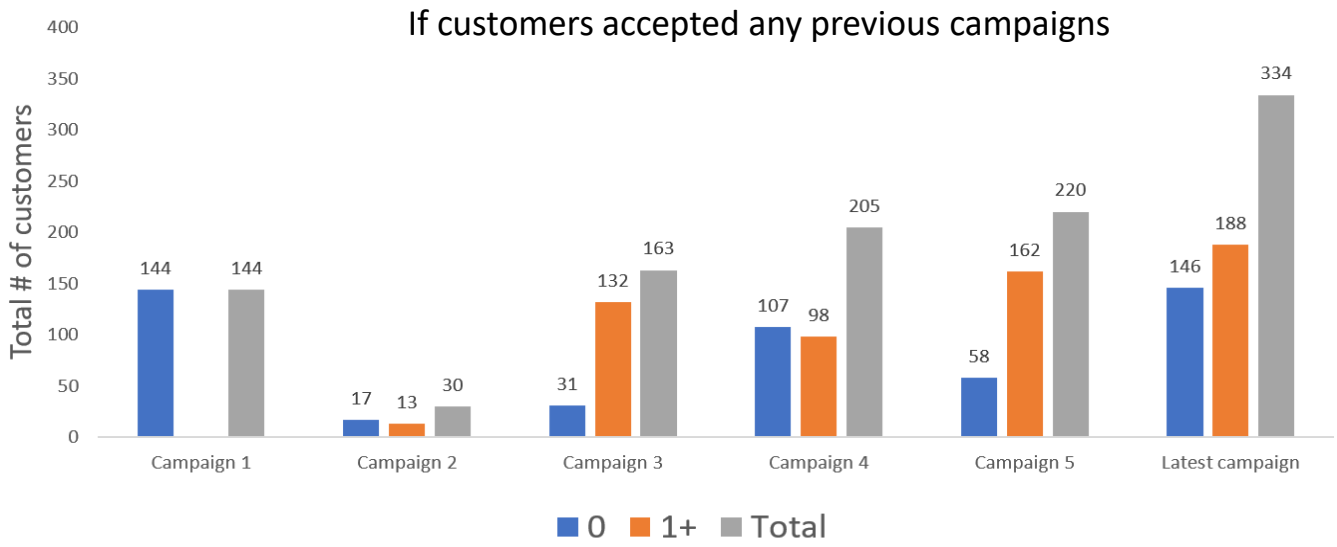
1. **High-Income** People
— tend to spend more and purchase more
— tend to visit the company's website less frequently than others
— tend to have few number of purchases made with a discount

2. People with **kids at home**
— tend to spend less and purchase less
— tend to have a high number of purchases made with a discount

3. People who purchased with a **high average order volume**
— tend to buy more wines and meat products
— tend to make a high number of purchases using a catalog
— tend not to visit the company's website

Past Campaign Analysis

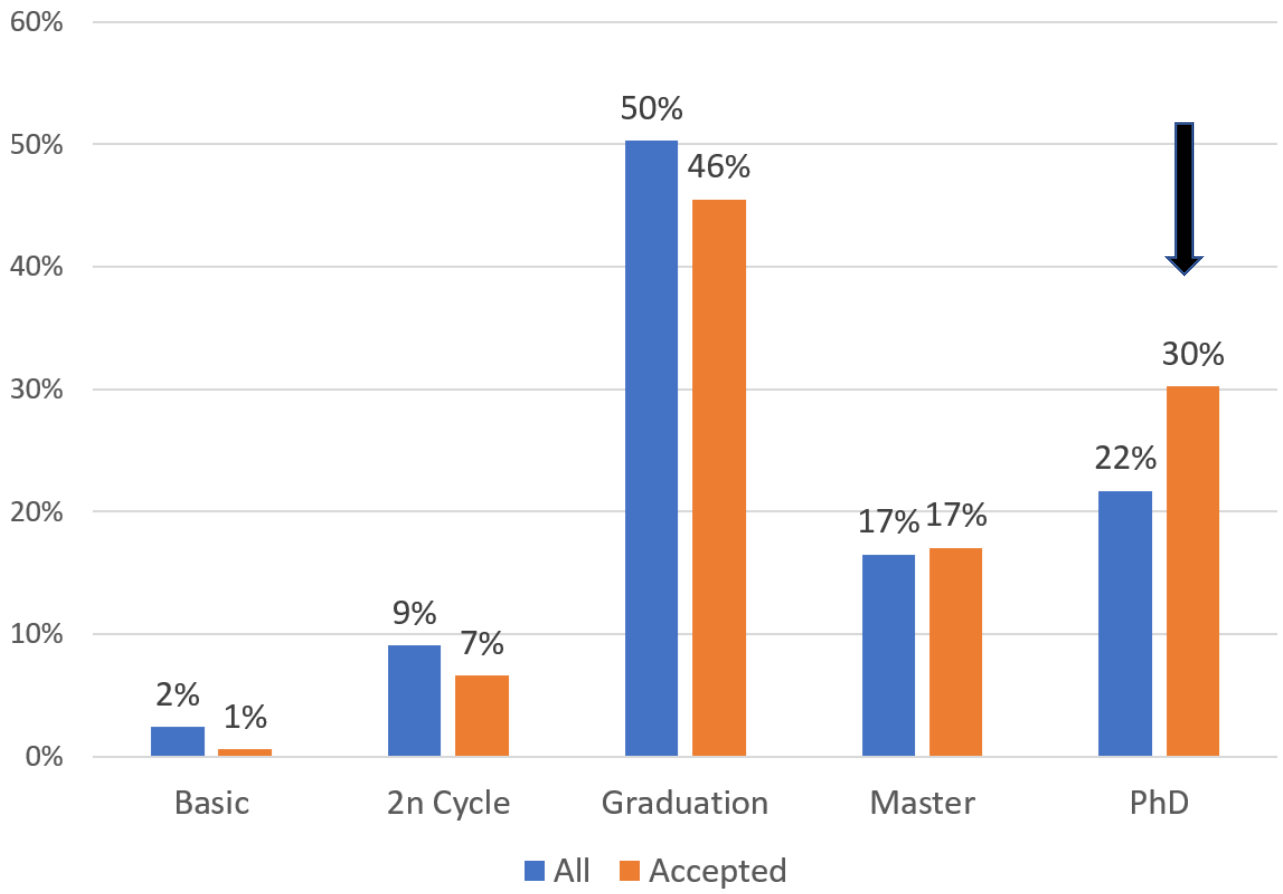




- The last marketing campaign, was the most successful one
- Performed nearly twice as well as the previous campaigns, except campaign 2

- 144 customers accepted the offer in the 1st campaign
- High conversion rate on the latest campaign

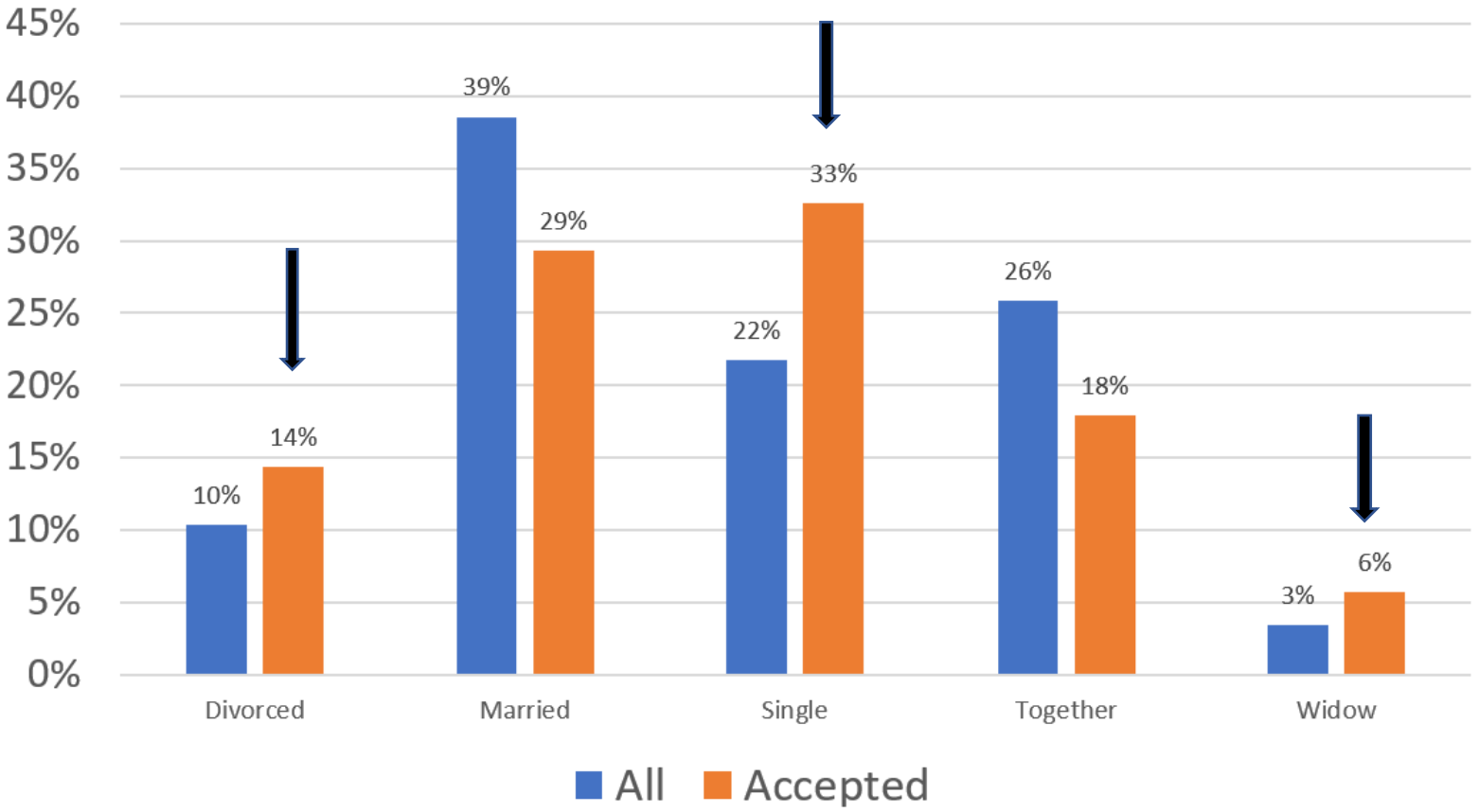
Latest Campaign - Education Segment



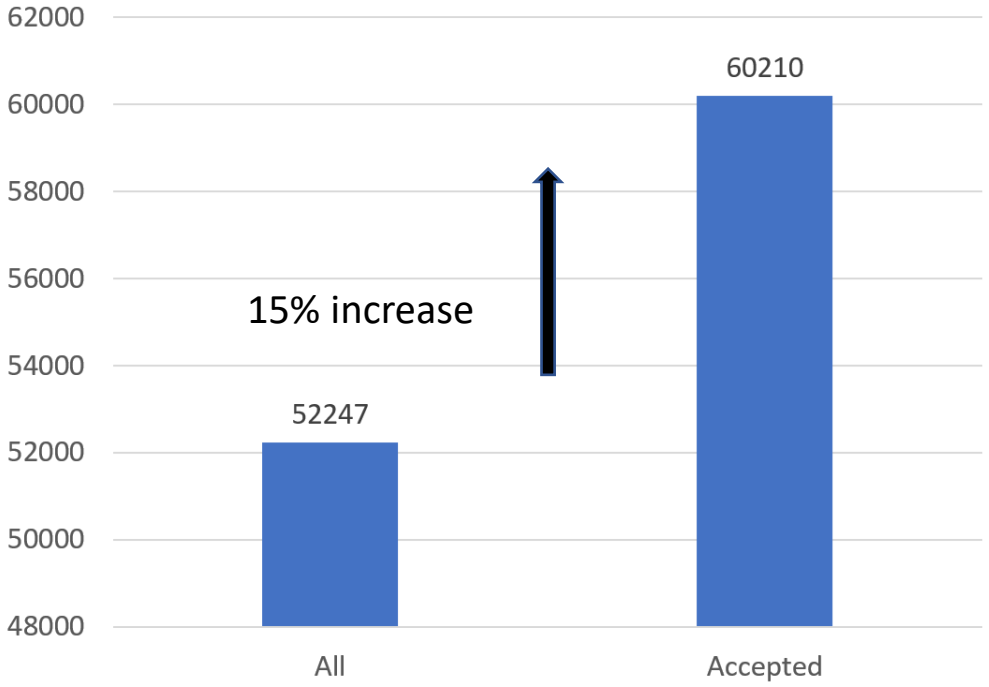
- 334 customers accepted
- Two customers from Basic education accepted the campaign
- PhD portion increased from 22% of whole customer profile

Marital Status Segment

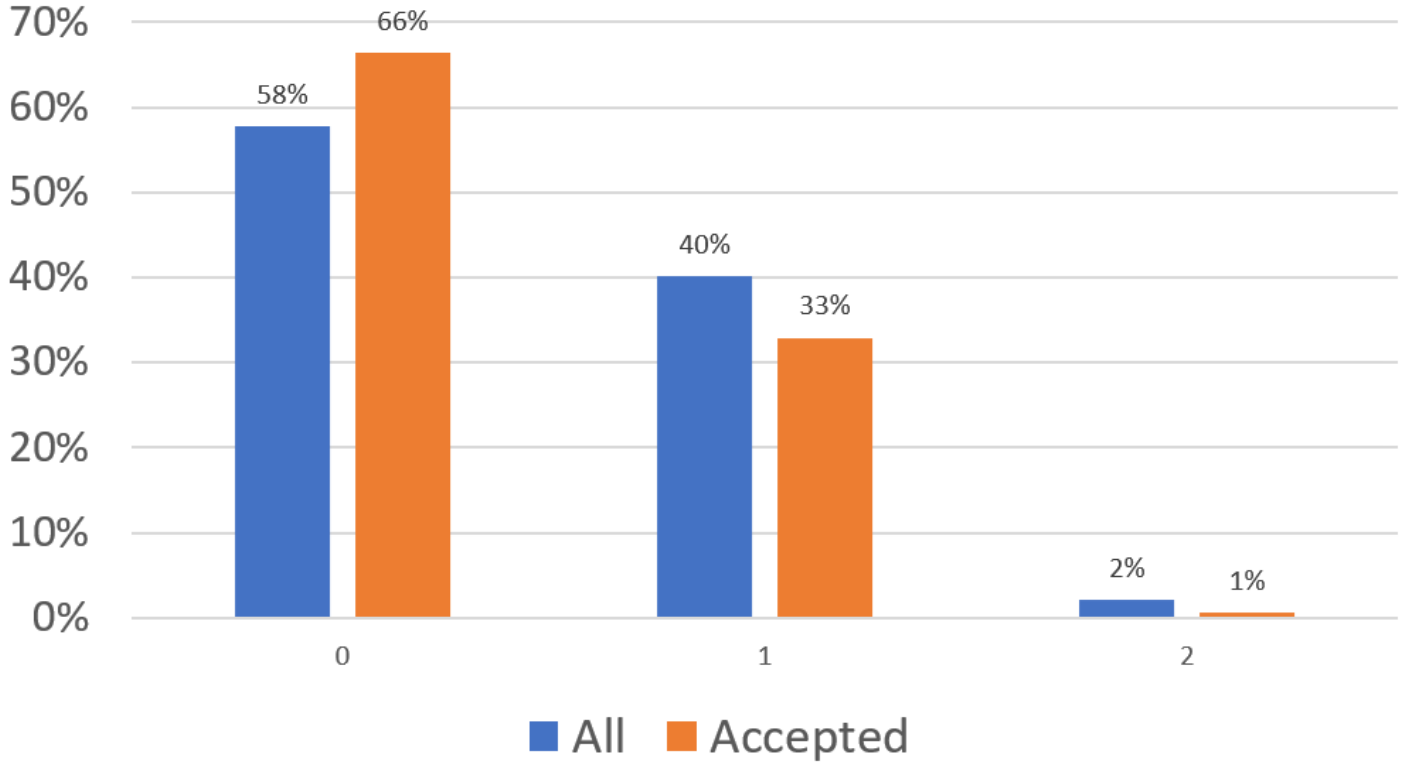
More single customers accepted our latest campaign



Income and Kids at Home



Average Income



Number of Kids at Home

Campaign Response Prediction

Supervised Learning

80/20

Train/test split

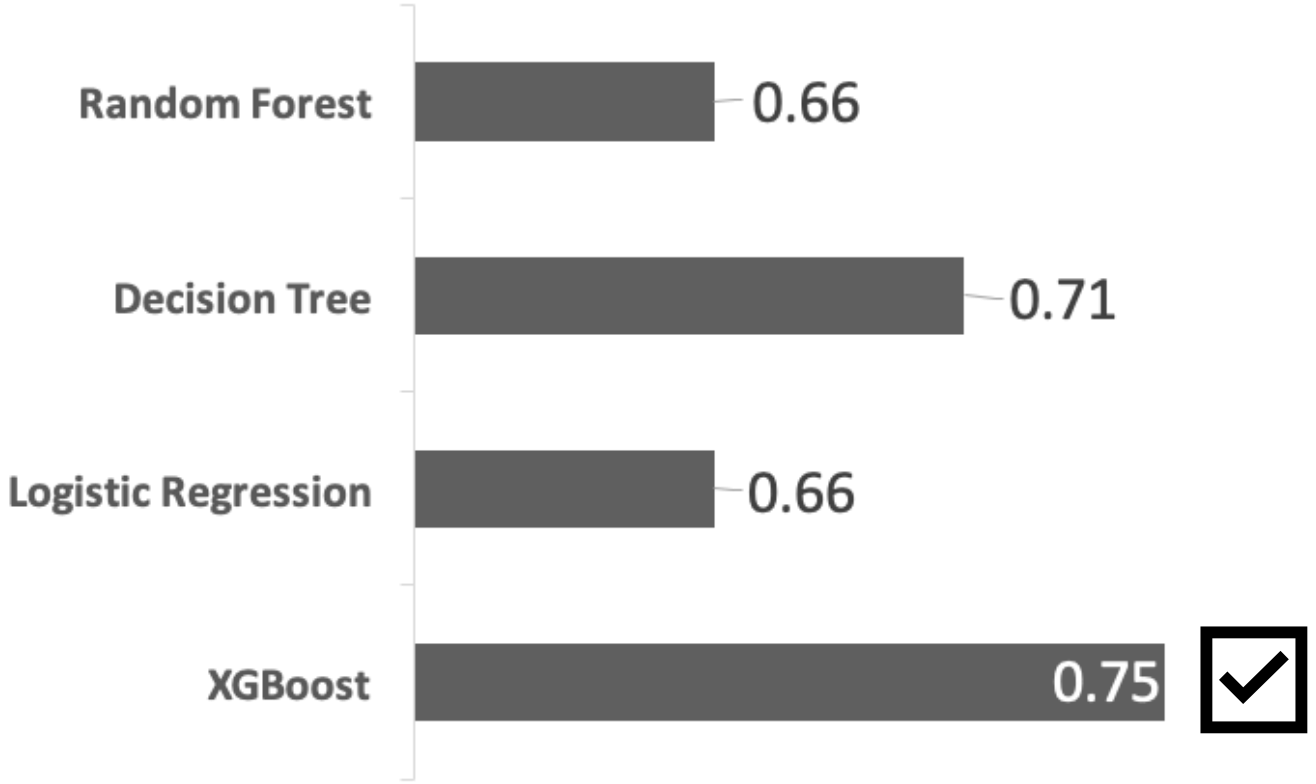
15/85

Class imbalance restoration

5

Fold cross-validation
+ parameter tuning

Model AUC – Testing Data



Confusion matrix

		Predicted Response	
		Accept	**Not Accept**
Actual Response	**Accept**	25	44
	Not Accept	15	359

High specificity	**96%**	of ignores were predicted correctly
Low sensitivity	**36%**	of acceptances were predicted correctly
Improved returns	**$1.25**	ROI vs $(0.5) without model

Customer Segmentation – Clustering

Unsupervised Learning Using K-Means

CLUSTER ONE

- Low-to-moderate affluence

Avg income of $30,000

- Youthful

Avg age of 45, minimum of 26

- Not interested in catalogs
- Most frequent online browser

High web visits per web purchases ratio

CLUSTER TWO

- Moderate-to-high affluence

Avg income of $80,000

- Middle-Aged

Over 50

- Low online presence, but won't shy away from online shopping
- Prefers in-store shopping and loves a good catalog purchase

CLUSTER THREE

- Moderate-to-high affluence

Avg income of $74,000

- Middle-Aged

Over 50, minimum of 33

- Lowest online presence

Only 3 web visits/month

- Focuses on catalog and in-store shopping

CLUSTER FOUR

- Moderate affluence

Avg income of $57,000

- Middle-Aged

Over 55 on average

- Deal seeker
- Online friendly

1st in web purchases, 2nd in website visits

CLUSTER FIVE

- Low-to-moderate affluence

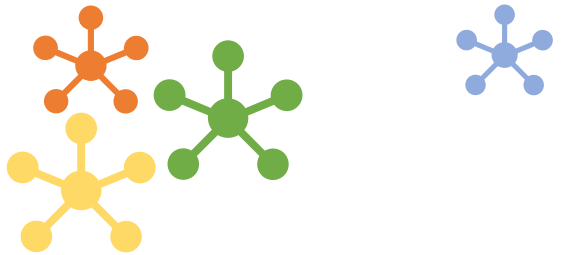
Avg income of $44,000

- Old-Aged

Over 60 on average

- Infrequent purchaser, but will capitalize on deals
- Online friendly, with few online purchases

Cluster Results



- Cluster 2 and 3 both provide similar accuracy and responsiveness.
  - Marketing to these groups as one may be more effective.
- Cluster 5 is the most responsive and the most predictable.

	Response Rate	Testing AUC
Cluster 1	15%	0.66
Cluster 2	9%	0.75
Cluster 3	14%	0.72
Cluster 4	11%	0.69
Cluster 5	38%	0.78

Targeted Marketing Campaign Refresh

Baseline Campaign Performance
15% fulfillment rate

	# of Offers	# of Acceptance
All Customers	2240 (100%)	334 (15%)
Top Customers	541 (24.5%)	851 (38%)

Increase incremental sales by efficient use of marketing spending on new campaign. Top customers are 30% more likely to respond to promotional offering.

	# of Offers	# of Accepted	Cost of Campaign	Revenue	Profit	ROI
All Customers	2240	334	$6,624	$3,641	-$2,983	-$0.55
Top Customers	2240	851	$6,624	$9,361	$2,737	**+$1.41**

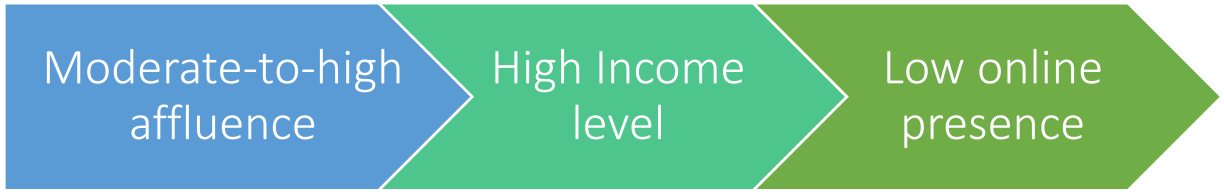
New strategy and tactics will increase global profitability by identifying and targeting valuable customers.

Insights for future Campaigns

Using unsupervised learning:

- PATTERNS and SPENDING HABITS can be monitored of the top clients

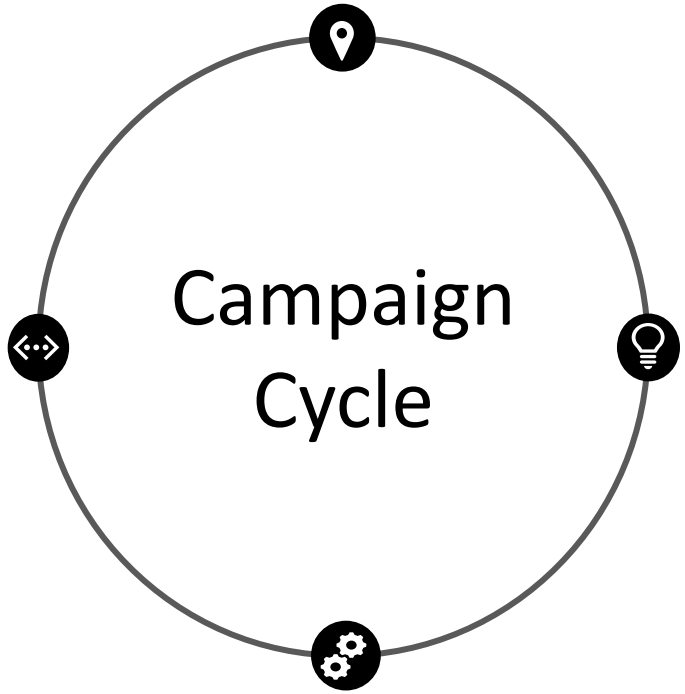
1. Current model provides the best prediction for Cluster 5
   - Resources should be focused on this segment who look out for deals
2. Marketing insights for Cluster 2 and 3:



3. 95% accuracy for unacceptance of the marketing campaign:
   - iFood will know to not focus resources for customer segments who will not respond regardless of the marketing campaign

Conclusion – Reinvent Campaign Cycle

We have what it takes to make things different and better



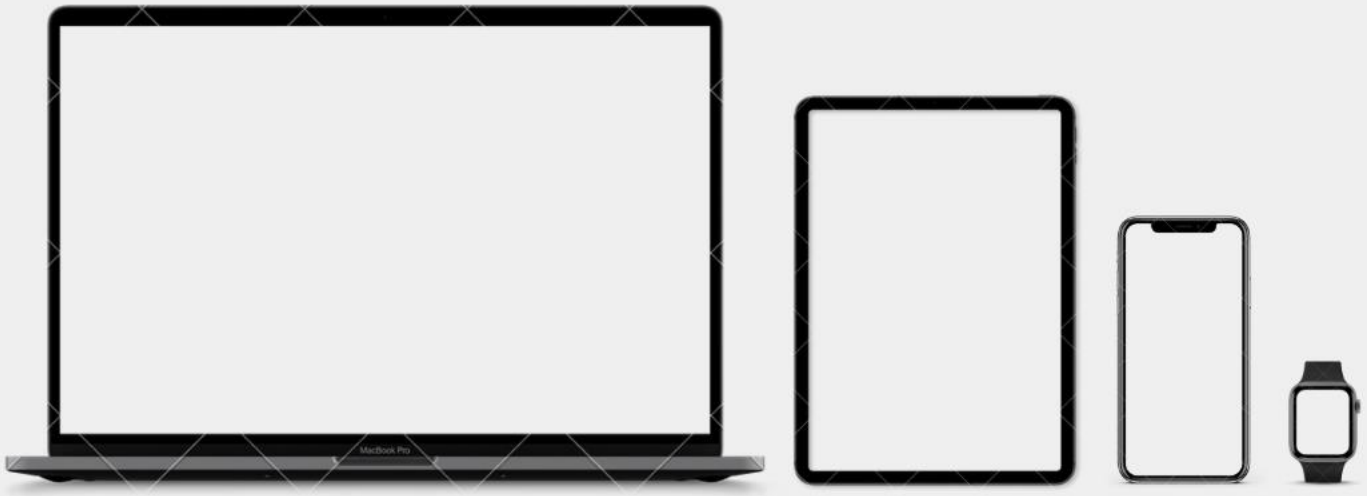
Identify high value customers

Improve customer-to-campaign alignment

Enhance cost-effectiveness

Proliferate conversion rates

THANK YOU



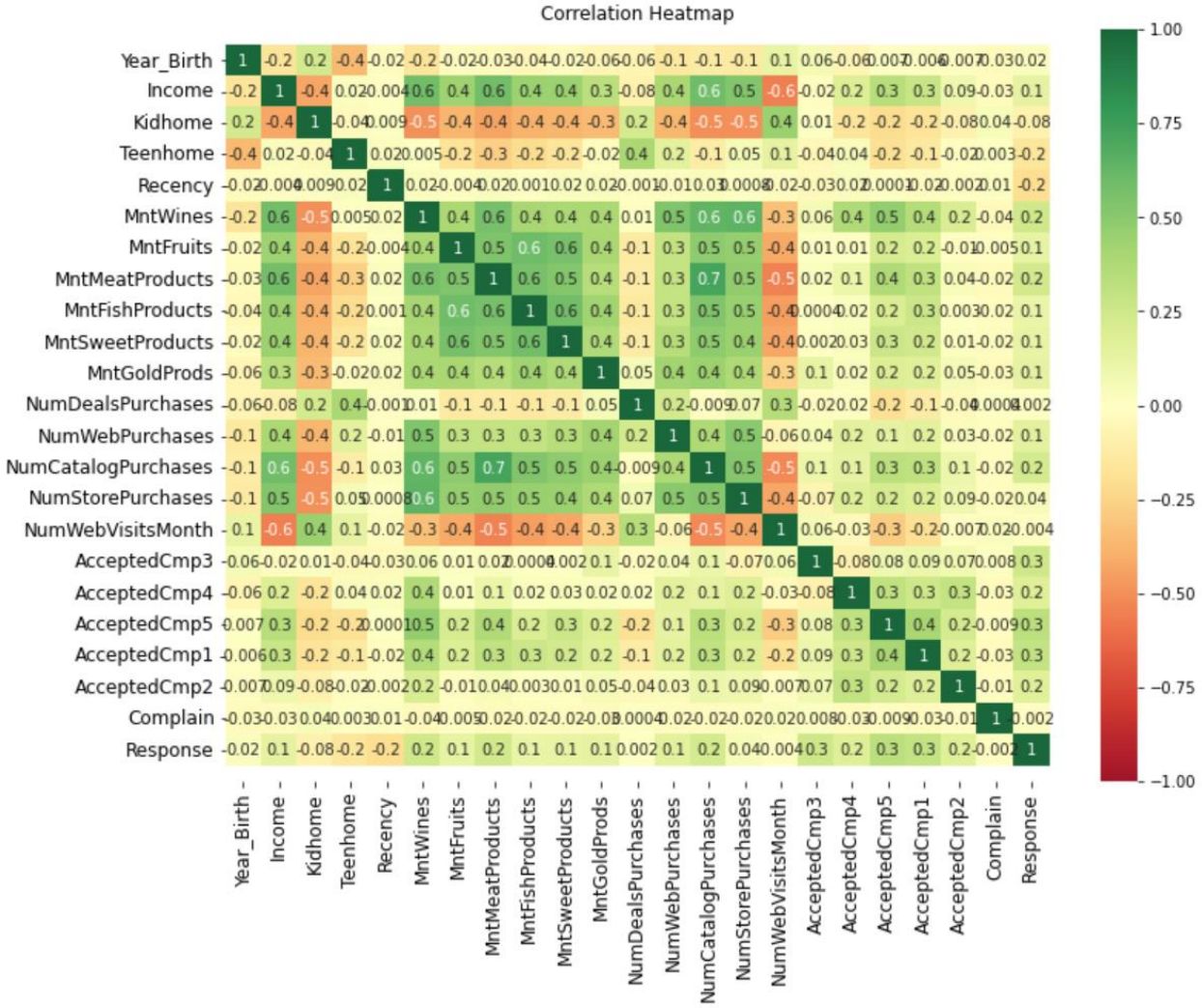
Appendix

Data Source

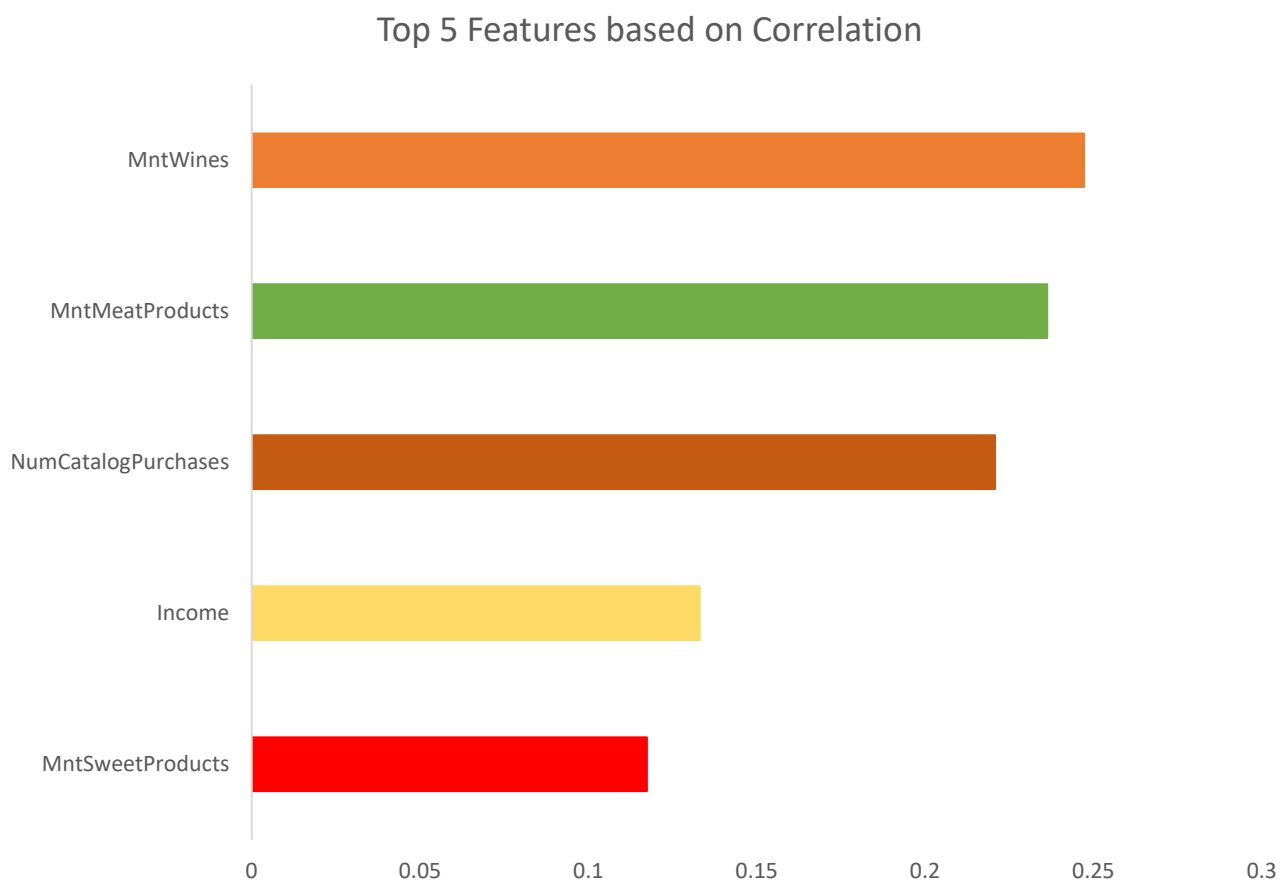
https://www.kaggle.com/datasets/jackdaoud/marketing-data

Appendix

Feature Correlation Heat map



Appendix


Top 5 Features based on Correlation
MntWines
MntMeatProducts
NumCatalogPurchases
Income
MntSweetProducts
0
0.05
0.1
0.15
0.2
0.25
0.3

Appendix

Cluster reference - mean, max, min

cluster	Age	Income	NumWebVisitsMonth	NumCatalogPurchases	NumDealsPurchases	NumWebPurchases	NumStorePurchases	Customer_Days
0	45.137255	30176.009804	6.813725	0.568627	1.715686	2.382353	3.245098	3363.490196
1	53.365854	80266.121951	3.268293	5.780488	1.195122	6.024390	8.341463	3383.146341
2	53.204819	74153.710843	2.746988	5.506024	1.216867	4.963855	8.686747	3374.277108
3	56.924370	57053.865546	6.058824	3.067227	4.058824	6.672269	7.647059	3421.705882
4	59.204082	44238.520408	6.030612	0.704082	2.591837	2.489796	3.622449	3317.642857

cluster	Age	Income	NumWebVisitsMonth	NumCatalogPurchases	NumDealsPurchases	NumWebPurchases	NumStorePurchases	Customer_Days
0	76	73395.0	14	5	6	7	7	3711
1	78	102160.0	8	10	5	11	13	3714
2	76	98777.0	8	11	3	11	13	3708
3	78	79761.0	9	9	15	11	13	3714
4	129	162397.0	9	3	8	6	8	3693

Appendix

cluster	Age	Income	NumWebVisitsMonth	NumCatalogPurchases	NumDealsPurchases	NumWebPurchases	NumStorePurchases	Customer_Days
0	26	4861.0	2	0	0	0	0	3024
1	31	49118.0	1	2	0	2	4	3054
2	33	52513.0	1	2	0	2	4	3020
3	31	27421.0	2	1	1	2	4	3028
4	41	17144.0	1	0	0	0	1	3036

Appendix

Feature	Description
AcceptedCmp1	1 if costumer accepted the offer in the 1st campaign, 0 otherwise
AcceptedCmp2	1 if costumer accepted the offer in the 2nd campaign, 0 otherwise
AcceptedCmp3	1 if costumer accepted the offer in the 3rd campaign, 0 otherwise
AcceptedCmp4	1 if costumer accepted the offer in the 4th campaign, 0 otherwise
AcceptedCmp5	1 if costumer accepted the offer in the 5th campaign, 0 otherwise
Response (target)	1 if costumer accepted the offer in the last campaign, 0 otherwise
Complain	1 if costumer complained in the last 2 years
DtCustomer	date of customer's enrollment with the company
Education	customer's level of education
Marital	customer's marital status
Kidhome	number of small children in customer's household
Teenhome	number of teenagers in customer's household
Income	customer's yearly household income
MntFishProducts	amount spent on fish products in the last 2 years
MntMeatProducts	amount spent on meat products in the last 2 years
MntFruits	amount spent on fruits in the last 2 years
MntSweetProducts	amount spent on sweet products in the last 2 years
MntWines	amount spent on wines in the last 2 years
MntGoldProds	amount spent on *gold* products in the last 2 years
NumDealsPurchases	number of purchases made with discount
NumCatalogPurchases	number of purchases made using catalogue
NumStorePurchases	number of purchases made directly in stores
NumWebPurchases	number of purchases made through company's web site
NumWebVisitsMonth	number of visits to company's web site in the last month
Recency	number of days since the last purchase

Feature Engineering

- Calculate age based on birthdate
- Number of customers as a customer
- Marital_Status, Education categorical column converted
- Sum their total monthly spending
- RegularProds Spending amount included
- Indicator - if customers have accepted any previous campaign
- Total dependents at home
- Find out total number of purchases