Predicting Churn for Teleco

Group #1

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Executive Summary

Not all subscribers are engaging with our suite of products the same. Due to their different usage of our products we can label a user as one of four potential segments. With this established segment information, we can implement different marketing tactics to improve customer engagement and reduce churn.

Four Segments:

Creatures of Habit: Low Risk, Cross Selling through Bundling and Trial Promo

Proceed With Caution: Moderate Risk, Retention, Long Term Promotion

New Customer Will Spend: High Risk, Retention, Long Duration Bundling

Loyalty is Royalty: Low Risk, Cross Selling, Rewards Programs

Research Objective

Develop a methodology that will identify the most important factors of customer churn; and thus allow us to predict which customers are at risk to cancel service.

- Identify the proper requirements to segment users into segments based on anticipated tenure and spend.
- Based off the customers assigned categories can we develop a strategy to increase retention and customer lifetime value?

Research Plan and Methodology

Data:

    7043 individual customers data

    21 categories of data

    Churn, Monthly Charges, Payment Method, Contract, Tenure, 9 Services provided, Partner, Dependents, Gender,

    https://www.kaggle.com/blastchar/telco-customer-churn/home

Analysis Tool: Logistic Regression, Cluster Analysis, Customer Lifetime Value Modeling

Program Tools: Excel, R, Tableau, Python, Knime

Methodology:

    Phase I: Identify Key Variables that predict customer churn

    Phase II: Segment customers based on the segments churn risk level
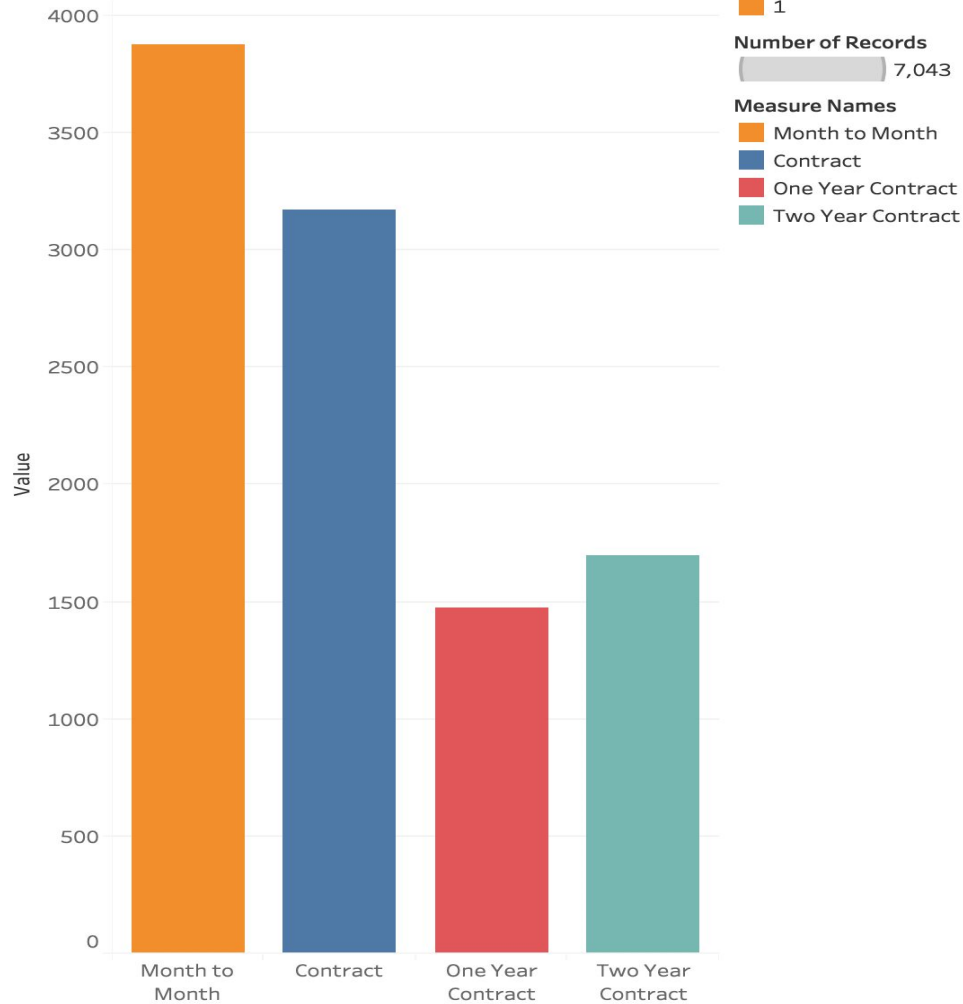
    Phase III: Develop strategies to increase retention and customer lifetime value by segment
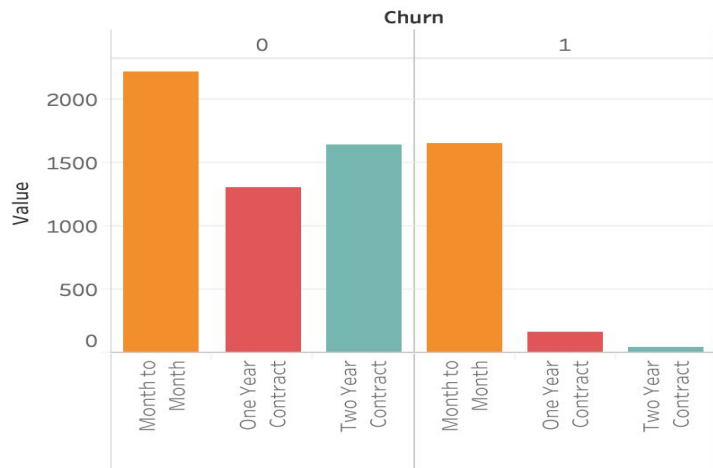
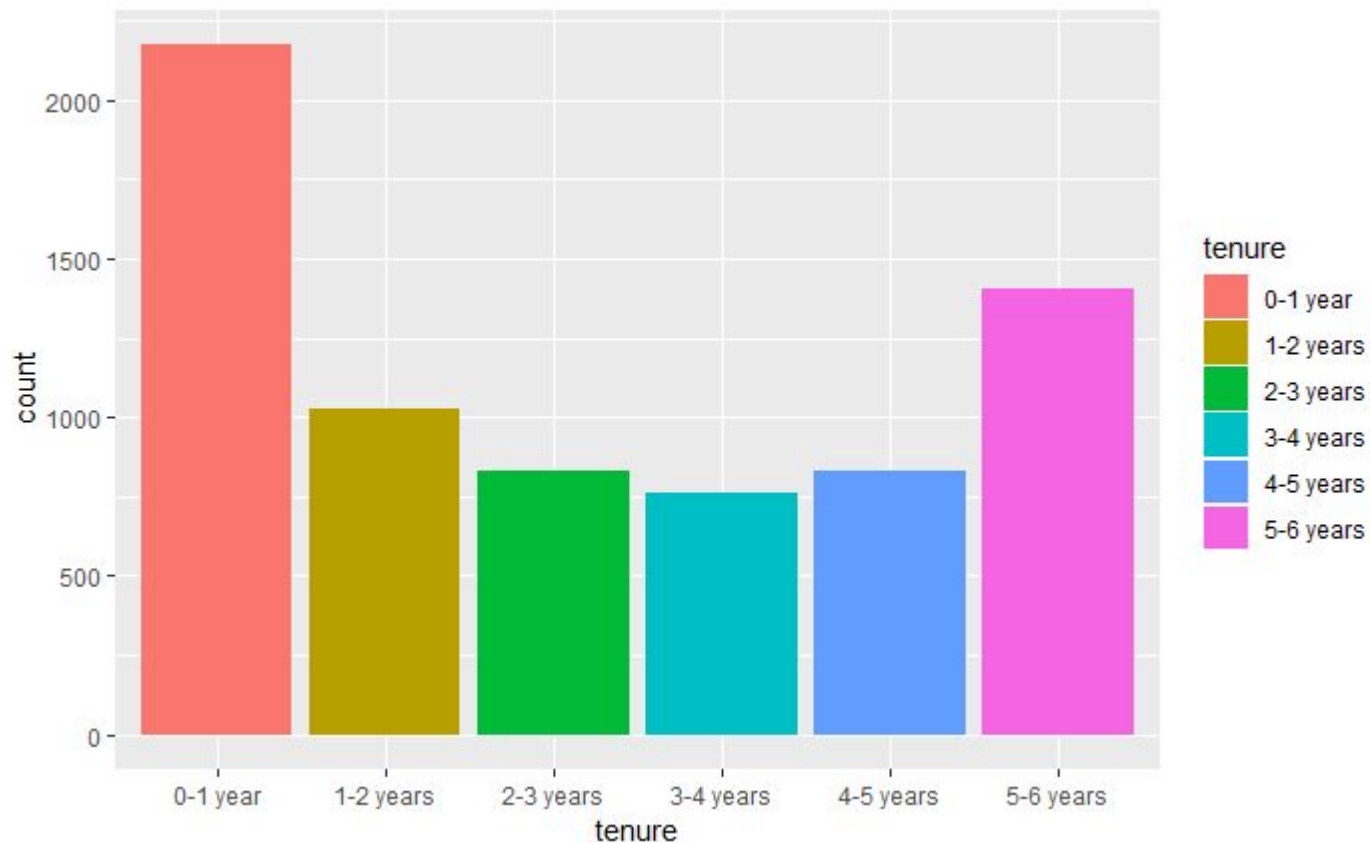   Phase IV: Packaging and Refinement
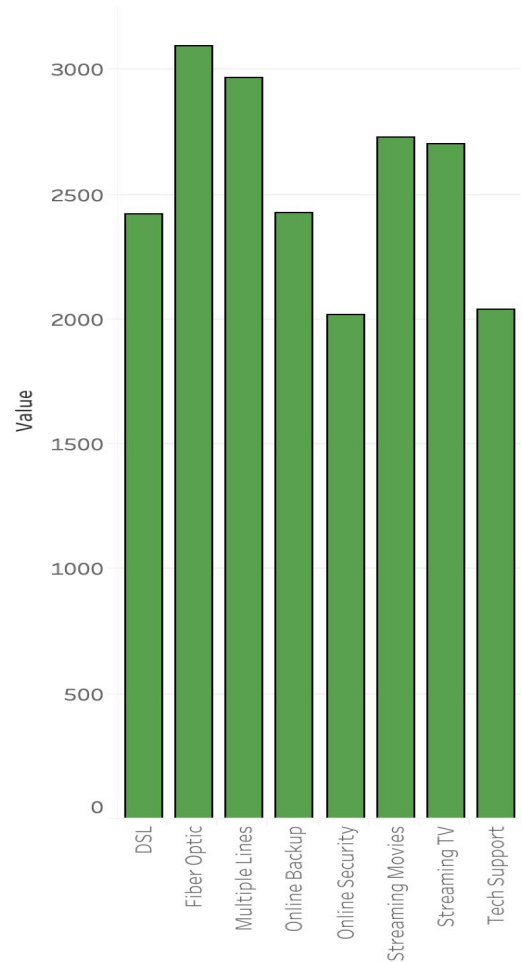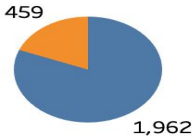
Retention vs Loss

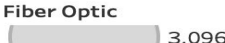## Contracts

Contractual Churn

Tenure in Years

Service Usage

DSL

459
1,962

FIber Optic

1,297
1,799

Multiple Lines

850
2,121

Online Backup

523
1,906

Online Sec

295
1,725

Streaming

818
1,914

Tech Support

310
1,734

Churn
- 0
- 1

DSL
2,421

Fiber Optic
3,096

Multiple Lines
2,971

Online Security
2,020

Online Backup
2,429
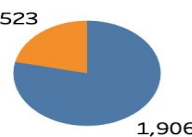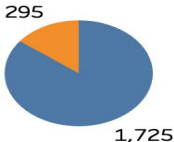
Tech Support
2,044

Streaming TV
2,707
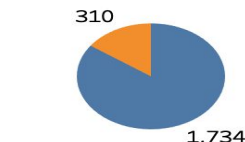
Billing Cost Analysis in $
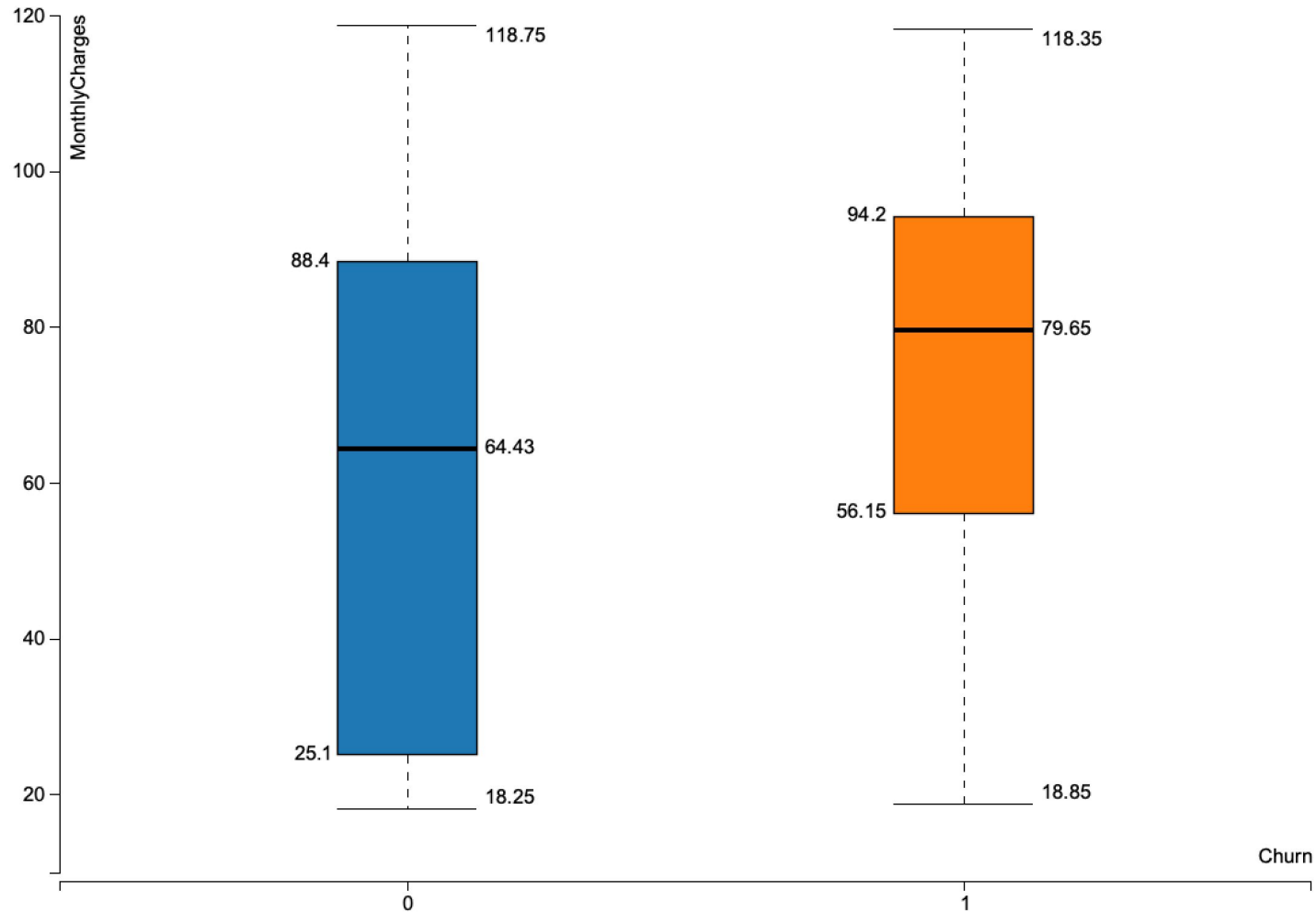
Phone Billing

Internet Billing

Payment

Measure Names
- Bank Trans Auto
- Credit Card Auto
- Electronic Check
- Mail
- Paperless Billing
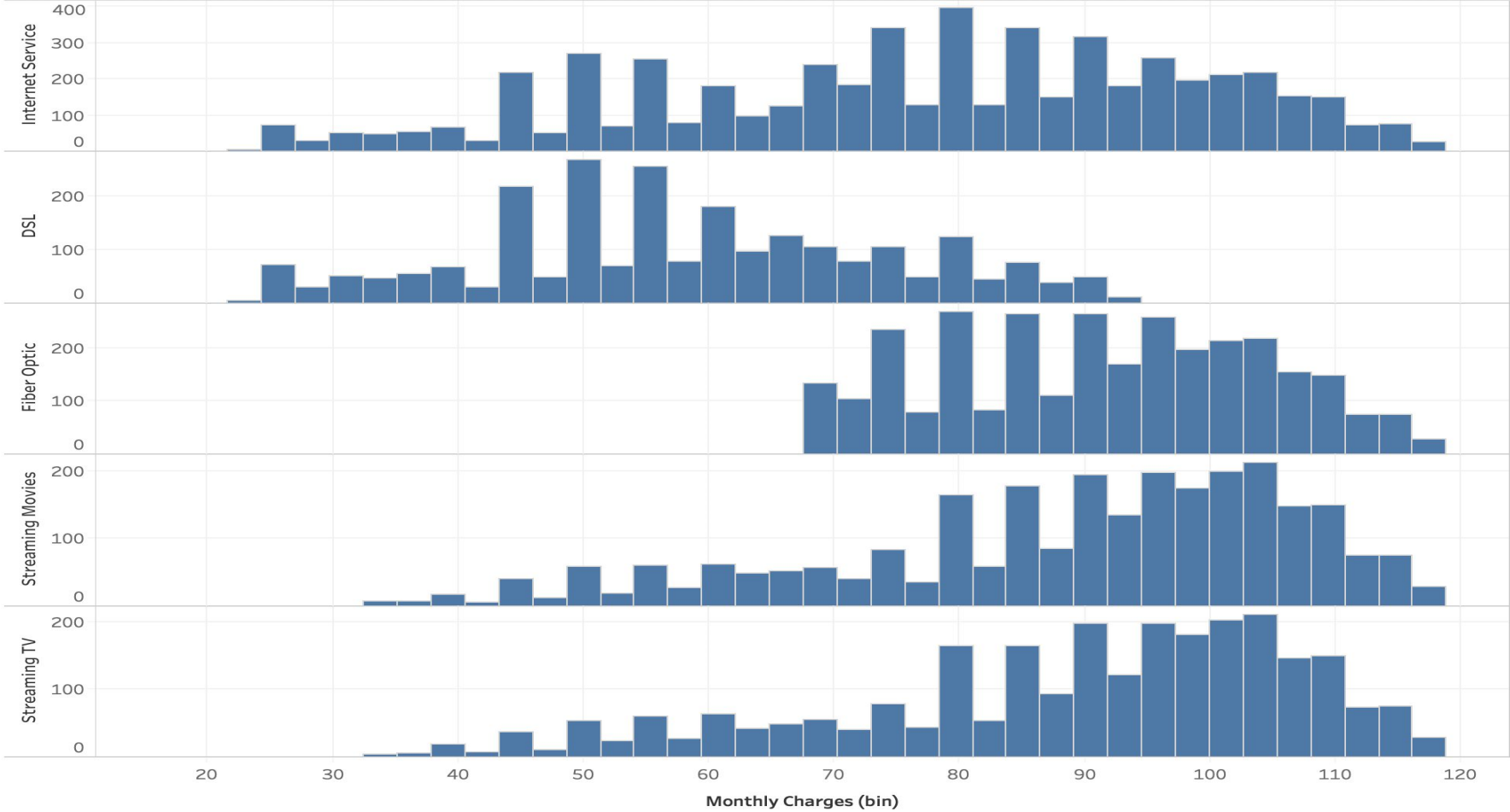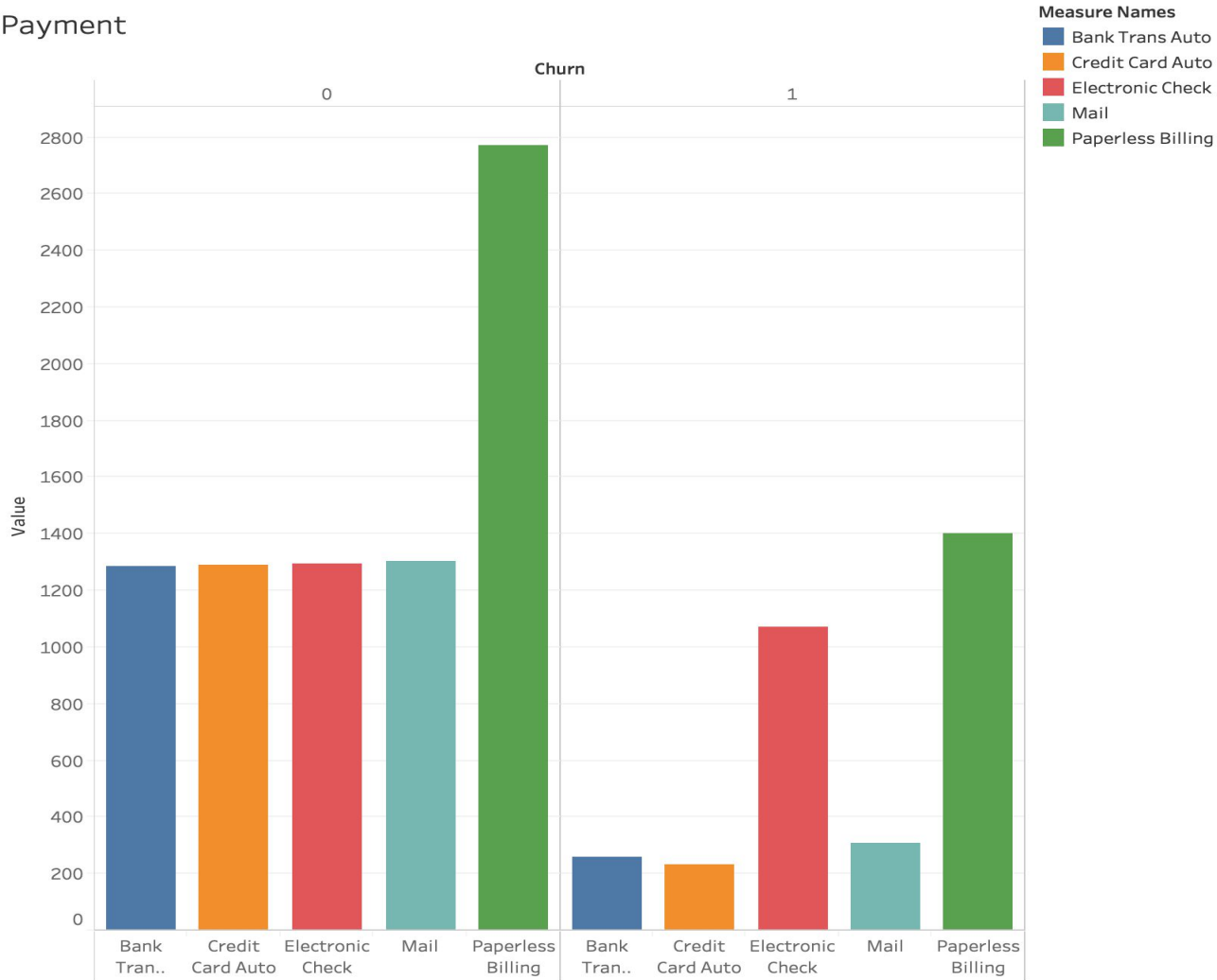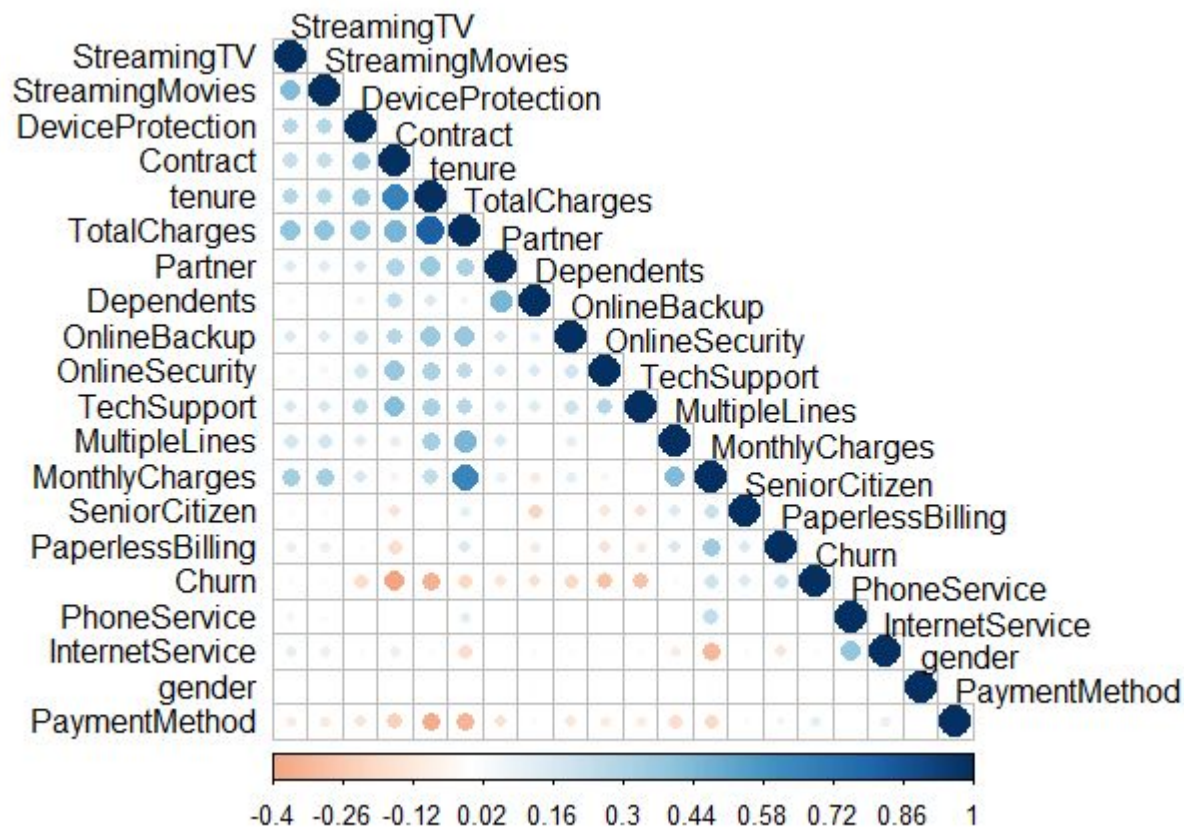
Model		
Logistic Regression Model Accuracy (Knime)		
Prediction	No	Yes
No	938	171
Yes	203	97

Accuracy: 80.9%

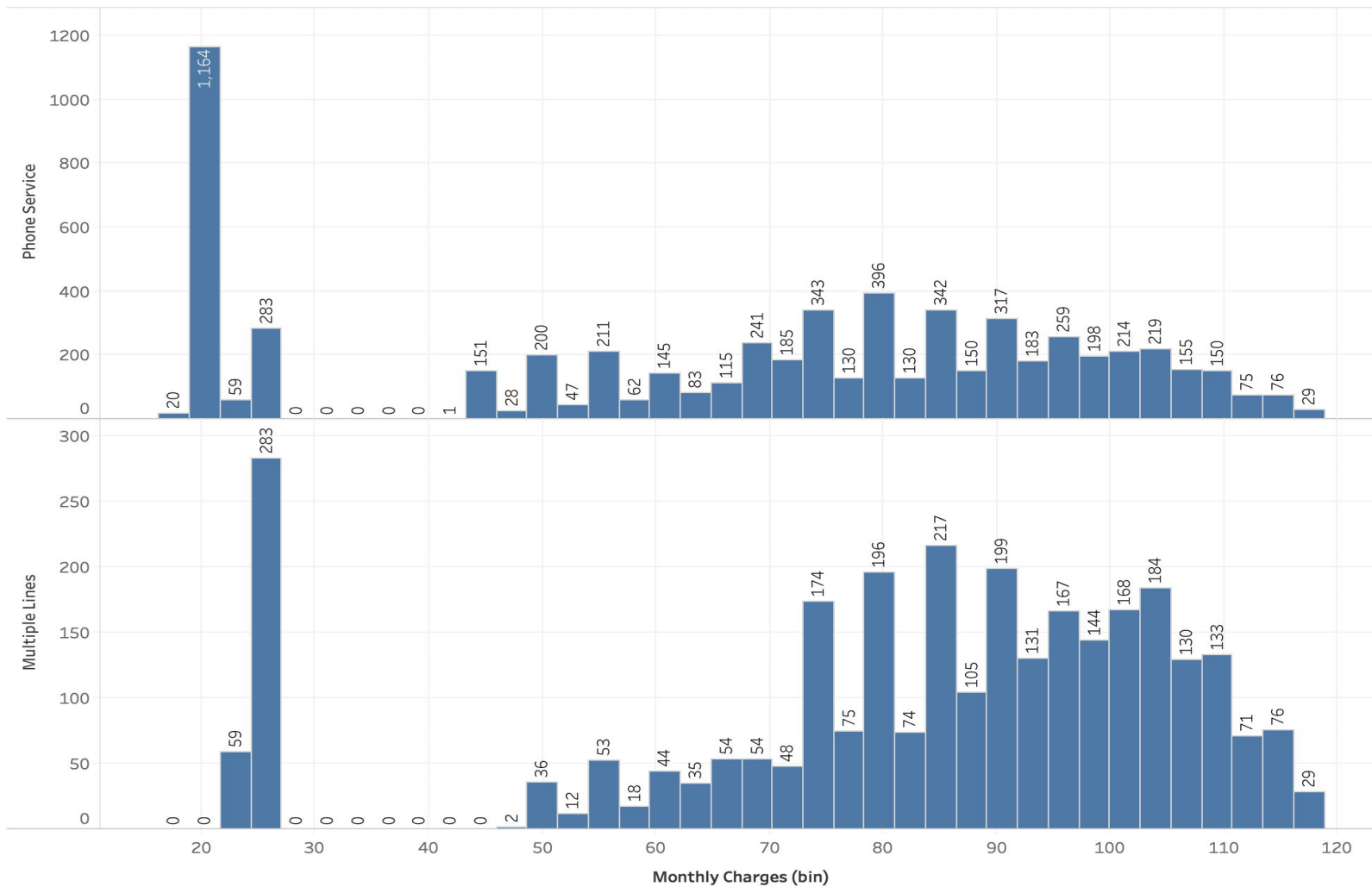| Model		
Decision Tree (Knime)		
Prediction	No	Yes
No	885	174
Yes	200	150

Accuracy: 77%

Model		
Gradient Boosting Model (GBM) (R)		
Prediction	No	Yes
No	1413	264
Yes	135	296

Accuracy: 81%

Model		
CART Model (R)		
Prediction	No	Yes
No	1407	320
Yes	141	240

Accuracy: 78%

Segmenting Customers
Methodology

- Segmentation via K-Means Algorithm

- Customers segmented on two metrics:
  - Monthly Charges
  - Tenure

  - Facts about the customer base
    - Total Number: 7,043
    - Number of Clusters: 4
    - Total Number of Churners: 1,869

Segmenting Customers

Segments

New Customer, Will Spend, 31%

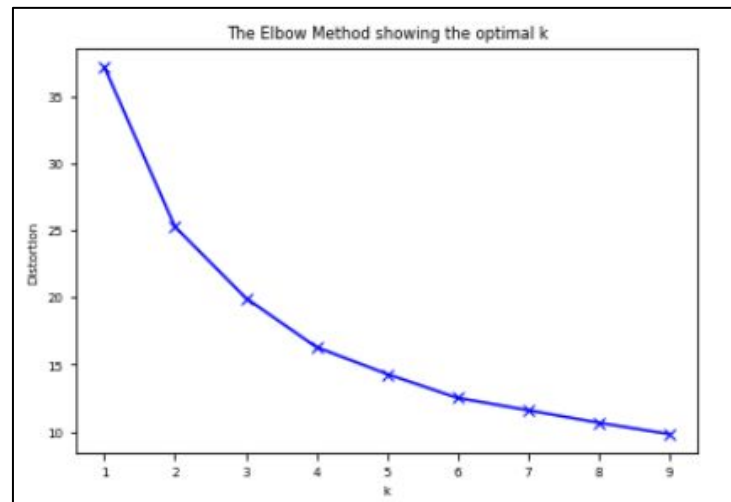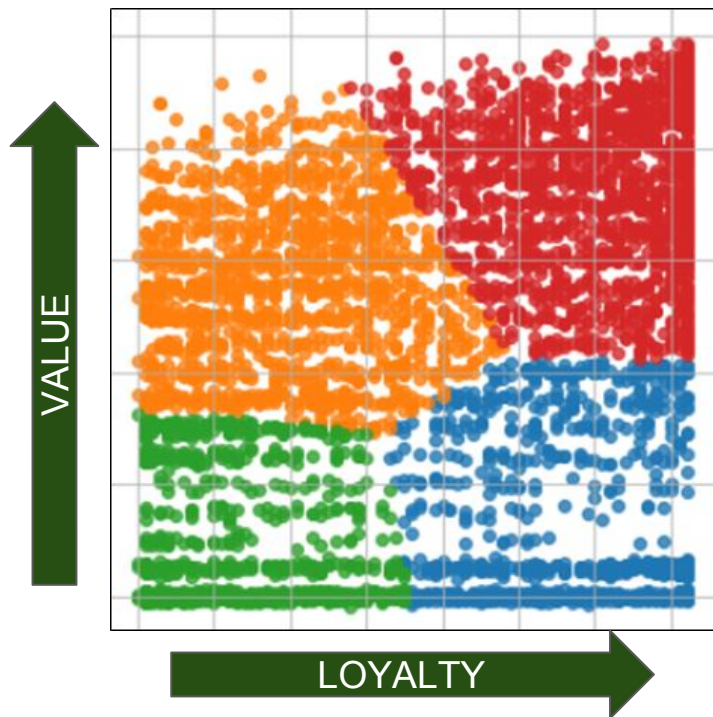- Spend 25% more on average on monthly bill
- Enjoy short term flexibility of month-to month contracts
- Likely not to have dependents
- Skews older
- Will purchase an internet package
- Opt-into paperless billing
- High Risk Churn - 85% more likely than typical customer to leave the service

Proceed with Caution, 25%

- Spend 50% less on monthly bill than average subscriber
- Typically only subscribe to one service, phone
- Prefer mailed check as payment method
- Tends to skew toward younger, single individuals
- Prefer shorter term contracts
- Medium Risk Churn

Loyalty is Royalty, 28%

- Spend 44% more on monthly bill
- More likely than any other segment to include a partner in plan
- Have multiple lines as part of plan
- Most likely to subscribe to any of the product offerings
- Likely to Opt-into Auto Pay
- High Speed Internet or bust - Love their streaming services
- Low Risk Churn

Creatures of Habit (Budget), 16%

- On average have been a customer for nearly 5 years
- Spend 48% less on monthly bill
- Likely to be a part of a family (Partner + Dependents)
- Typically do not have a multi-line plan
- Phone Service or bust
- Low Risk Churn - They like what they like - least likely of all segments to leave the service
- Lock into long term contracts for savings

Segmenting Customers
Timing

CHURN BY SEGMENT
WHEN DO CUSTOMERS LEAVE

Creatures of Habit (Budget) — New Customer, Will Spend — Proceed with Caution — Loyalty is Royalty
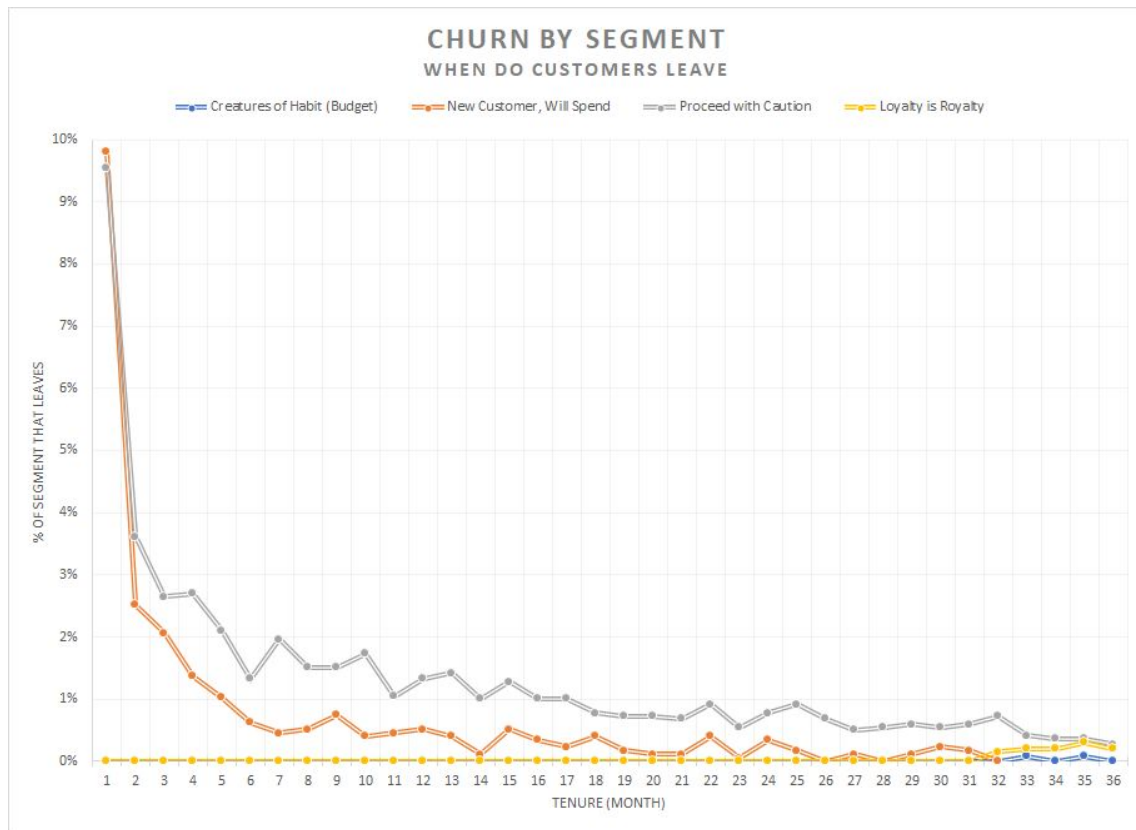
By the Numbers

- 55% of Churners leave within first year
- Nearly 33% leave within first 90 days of being a customer
- 80% of churners come from two segments (New Customer, will Spend and Proceed with Caution)

Segmenting Customers
Churners

Index - Churners by Segment vs Typical Customer

Segment	Monthly Charges Index	Senior Citizen Index	Partner Index	Dependents Index	Phone Service Index	Multiple Lines Index	Online Security Index	Online Backup Index	Device Protection Index	TechSupport Index	Streaming TV Index	Streaming Movies Index	Paperless Billing Index	DSL (Internet)	Fiber optic (Internet)	No (Internet)	Bank transfer (automatic)	Credit card (automatic)	Electronic check	Mailed check	Month-to-month (Contract)	One year (Contract)	Two year (Contract)
Creatures of Habit (Budget) n=55	70	146	113	73	44	30	101	158	116	75	109	108	104	249	0	67	91	109	125	64	96	148	68
Proceed with Caution n=428	58	86	49	64	76	18	45	35	35	38	30	34	96	220	0	113	46	51	119	170	175	18	1
New Customer, Will Spend n=1074	129	172	67	51	111	121	40	69	76	47	118	118	136	19	212	0	54	46	199	50	176	16	0
Loyalty is Royalty n=312	151	204	127	74	111	200	112	173	179	116	211	204	138	17	214	0	111	96	154	14	103	150	51

n = number of churners

Conclusion and Recommendations

- Target specific cohorts with promotions to stay and spend more
  - Creatures of Habit (Budget)
    - Focus on additional products: Cross-sell, bundling, and trial promo to engage in additional services
  - Proceed with Caution
    - Focus on Retention: Longer term promotions geared toward their cohort
  - New Customer, Will Spend
    - Focus on Retention: Longer duration bundle plans to get them to stay longer
    - Willing to invest more in promotions due to customers willingness to spend 25% more on their bill
  - Loyalty is Royalty
    - Focus on additional products: Rewards programs to get them to continue use all products
    - Users spend 44% more on their monthly bill so we are willing to invest in promotions that will move users into this segment.