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ABC Supply Hackathon

An Investigation of Customer Behavior and Branch Performance

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Questions

1. What are the predicted balances by Agings buckets over the next year for customers? How does this relate to the customer's sales (purchases)?
2. **How can we characterize different kinds of branches in terms of how they use credit? Is there a relationship between branch performance (sales) and Credit?**
3. **How can we characterize different kinds of customers or accounts in terms of how they use credit? Are there customers who have never not paid on time?**
4. Is the current risk score a valid signal for Agings movements?
5. How might we prioritize collections activities?
6. How do credit lines relate to customer spending? If you were going to set a credit limit for an account, what might you consider?
7. **Which customers are most likely to go into bad debt?**

Background

- Large and diverse customer base
  - [redacted] customers under [redacted] accounts
  - Over [redacted] branches nationwide
- Nature of business necessitates credit
- Huge cash flows = high risk

Goals

- Understand state of branches
- Identify our most trustworthy customers
- Characterize those customers who default often
- Develop framework for presenting information to business

Questions - Customers

- How many accounts?
- How long a customer?
- How often do payments go overdue?
- How often are payments delinquent?
- % of Credit Line used?
- Avg ang weighted risk scores?

Methodology

- Analysis at Customer, Account, and Customer-x-Account level
- Various Clustering/Profiling Methods
  - K-Means
  - GMM
  - DBScan
  - Archetype Analysis
- Random forest to predict likelihood of delinquent payments

Goals / Methods - Branches

- Revenue vs Credit
- Affected by Size
- By Risk-profile of the branch owner

- Missed opportunities?

Branch Clusters

Dimensions (Averaged across snapshots):

Credit_Per_Account, %_Accounts_NotBadAccure, RISK_SCORE, CREDIT_ACCOUNT_AGE

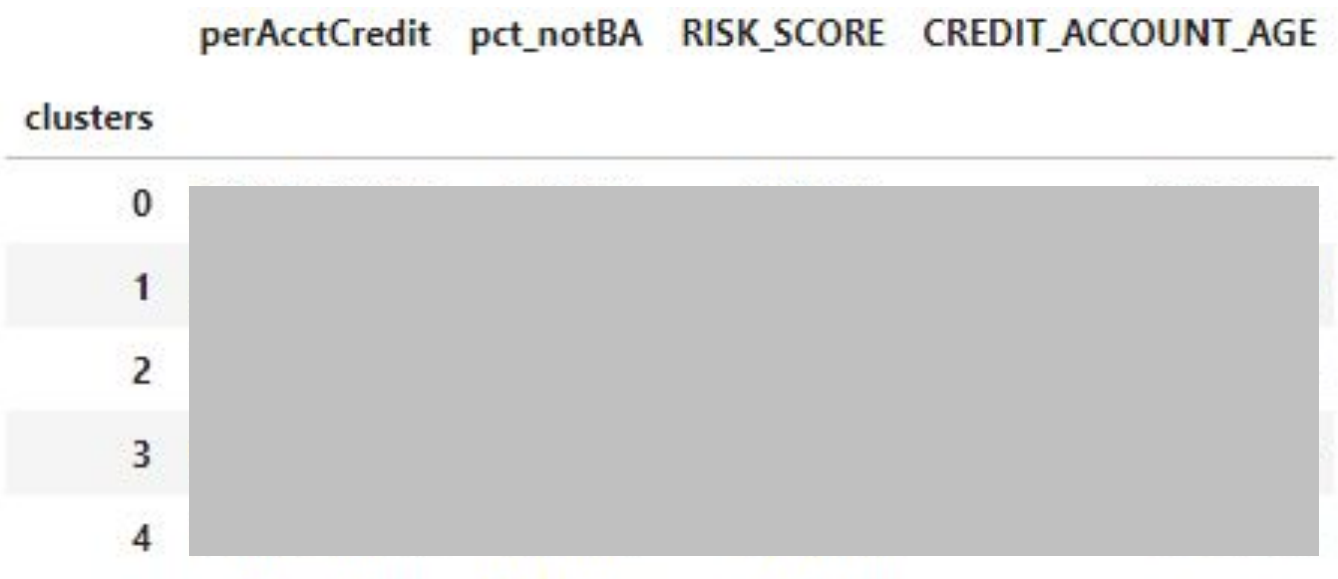
0: the Mainstream (191)

1: the Willing (78)

2: the Cautious (97)

3: the Shark (50)

4: the Risky (54)



Branch Clusters Details

0: the Mainstream (191)

1: the Willing (78)

2: the Cautious (97)

3: the Shark (50)

4: the Risky (54)

clusters	CREDIT_LINE	DelinqToCredit	TOTAL_REVENUE
0			
1			
2			
3			
4			

Customer Clusters

Label	N_ACCOUNTS	AGE	ROWS	N_OVERDUE	N_DELINQUENT	P_CREDIT	RISK_MEAN	WEIGHTED_RISK_MEAN
1								

Trustworthy Customers

Label	N_ACCOUNTS	AGE	ROWS	N_OVERDUE	N_DELINQUENT	P_CREDIT	RISK_MEAN	WEIGHTED_RISK_MEAN

Next Steps

- Investigate our least trustworthy customers
- Continue temporal analysis
  - DEDICOM model will allow this
- Build frontend for insight consumption

Sneak Peek at What's in Store!