Team #2

Credit Card Customer Segmentation Research

CONSTRUCTOR
LEARNING

Contributors:
Nefeli Dellepiane
Christian Kühner
Adriano Persegani

Table of Content

1. Business Understanding
2. Data Processing
3. Visualization
4. Description of Segments
5. Recommendations

[Data Source](#)

Business Understanding

- Define marketing strategy.
- Last 6 months timeline
- The Dataset -> behavior of 8500 active credit cardholders during the.
- 18 behavioral variables.
- **Segmentation** -> integral part of marketing objectives and strategies.
- **Identification** of new segments as targets for existing products or the development of new products is critical for companies with limited resources.

# Cleaning and pre-processing the Data

- Dropped:
    - rows with missing min_payments values
    - rows with missing credit_limit values
    - column of customer_id (categorical)

- Before Scaling

balance account	purchases amount	paid advance	full purchases
9.30	107.60	0.00	0.00
52.67	150.30	0.00	0.00
1,360.80	0.00	462.86	0.00

After Standard Scaler ($z = (x - \mu) / s$)

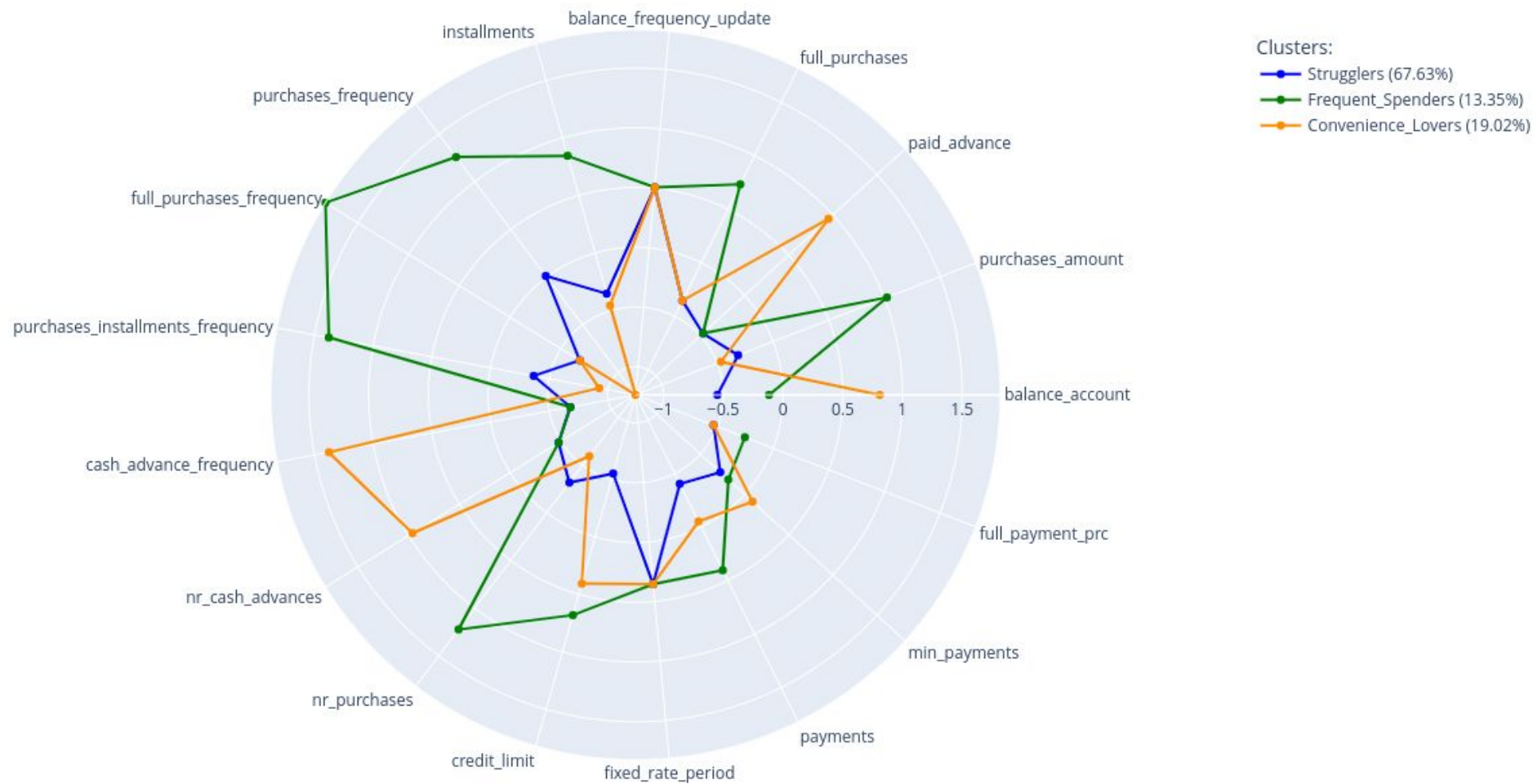| balance account	purchases amount	paid advance	full purchases
-0.76	-0.42	-0.47	-0.35
-0.74	-0.40	-0.47	-0.35
-0.11	-0.47	-0.25	-0.35

- Correlation Matrix between features:
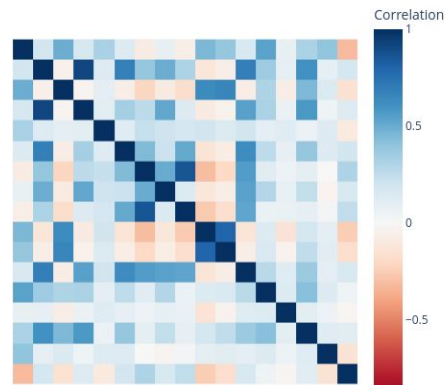
Dimension reduction and Clustering

PCA
&
K-means
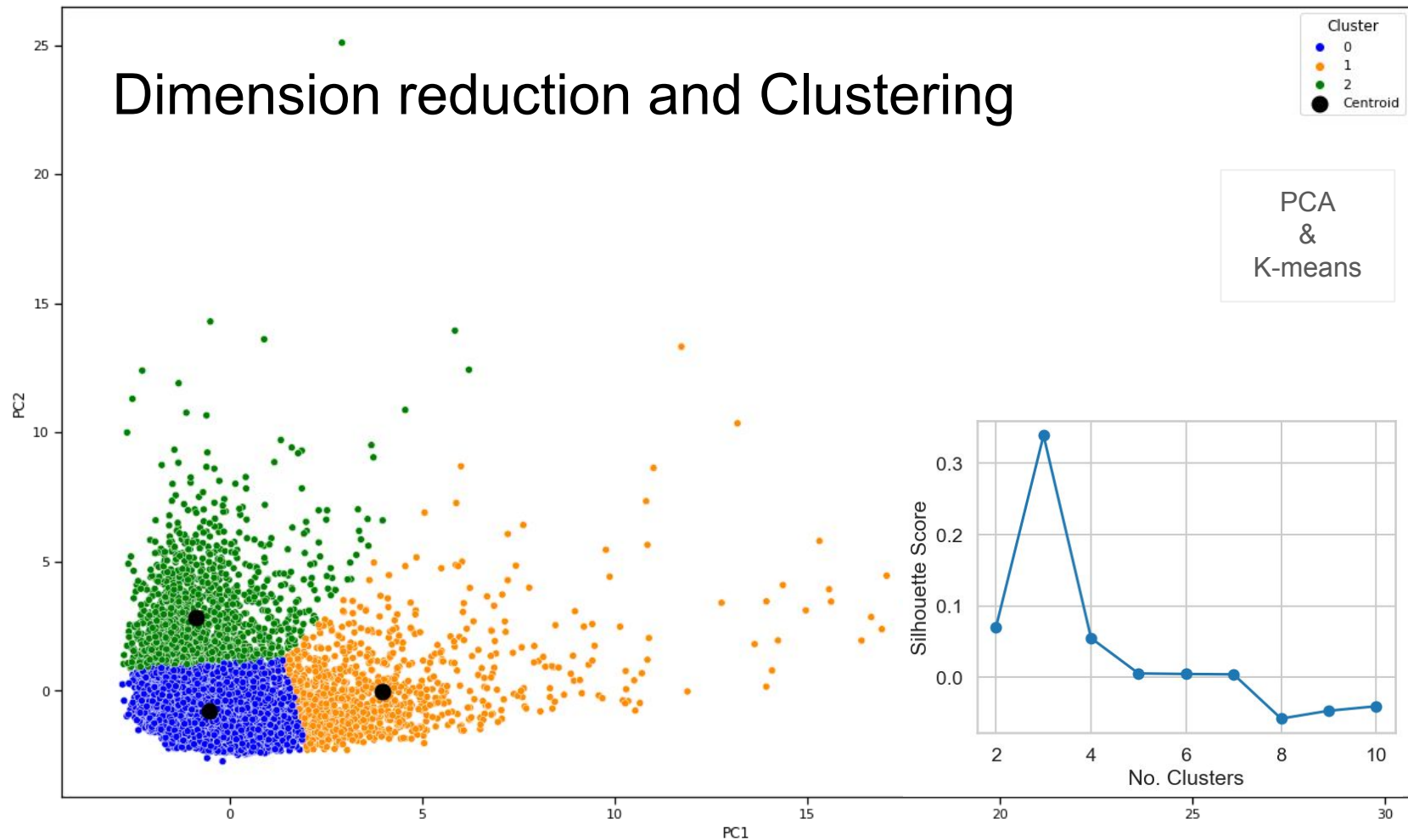
Radar plot, overview of the data (Feature median comparison)

Clusters:
- Strugglers (67.63%)
- Frequent_Spenders (13.35%)
- Convenience_Lovers (19.02%)

Who are them?

Strugglers

Convenience Lovers

Frequent Spenders

Description of the Consumer Segment

- Class 2 (highest purchases): Prosperous, frequent Spenders

  - use credit card for most of their daily transactions.
  - highest credit limit, highest payments + full payment pct
  - rational and responsible (using installments to manage large purchases)

- Class 1 (highest cash in advance): Convenience Lovers
  - hardly do any purchases or installments
  - use their card mainly for the cash in advance option
  - high credit limit paired with by far the largest balance account.
  - picture a tourist using his card only on vacation abroad

Description of the Consumer Segment

- Class 0 (lowest account balance): Strugglers

    - lowest credit limit paired with lowest balance, payments, full payment pct
    - regularly use their credit card for purchases, but can not afford much
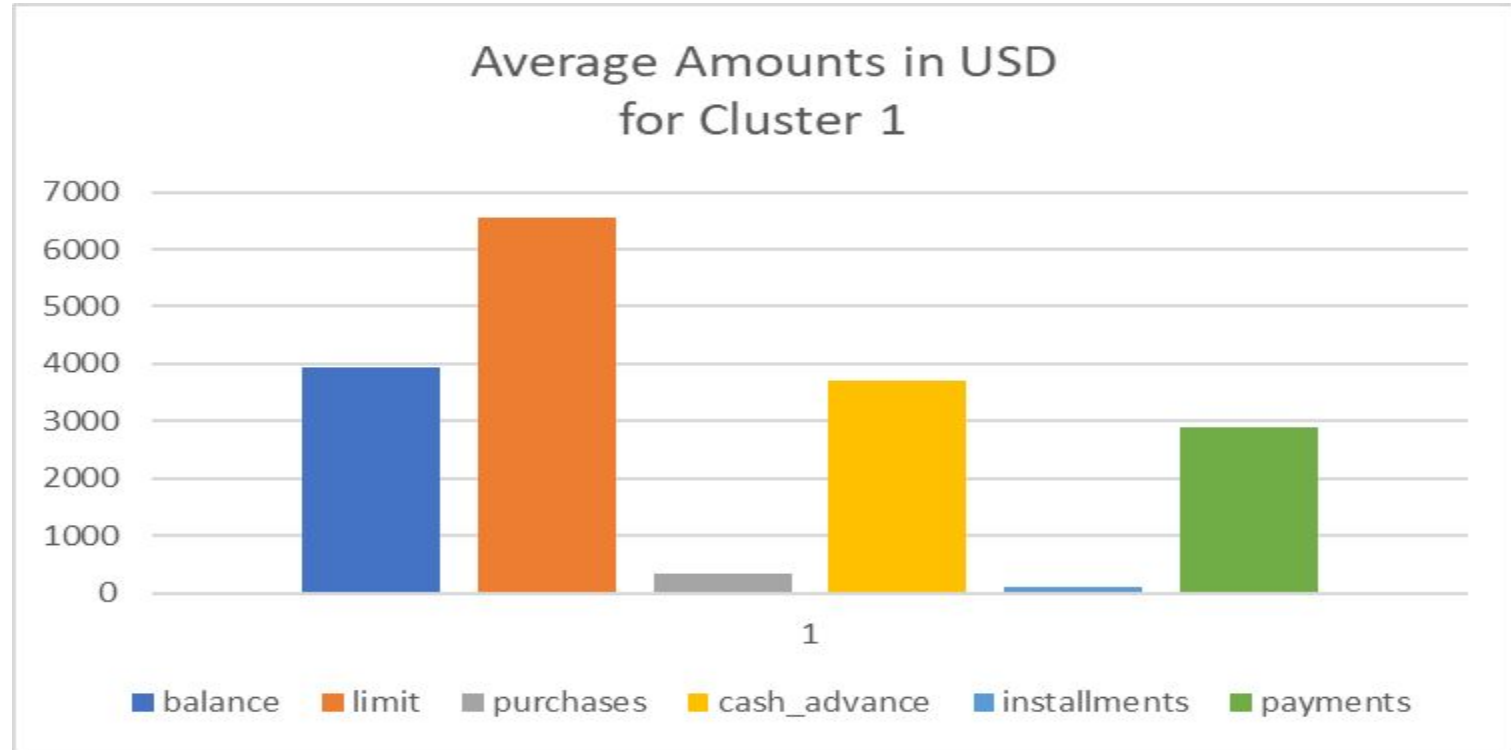   - Not efficiently managing their debt. Rarely use installments.

Distribution of Customers among the Segments

Prosperous:	**1117**
Convenient:	**1591**
Subprime:	**5791**

Overview Chart for the 'Strugglers'

Average Amounts in USD for Cluster 0
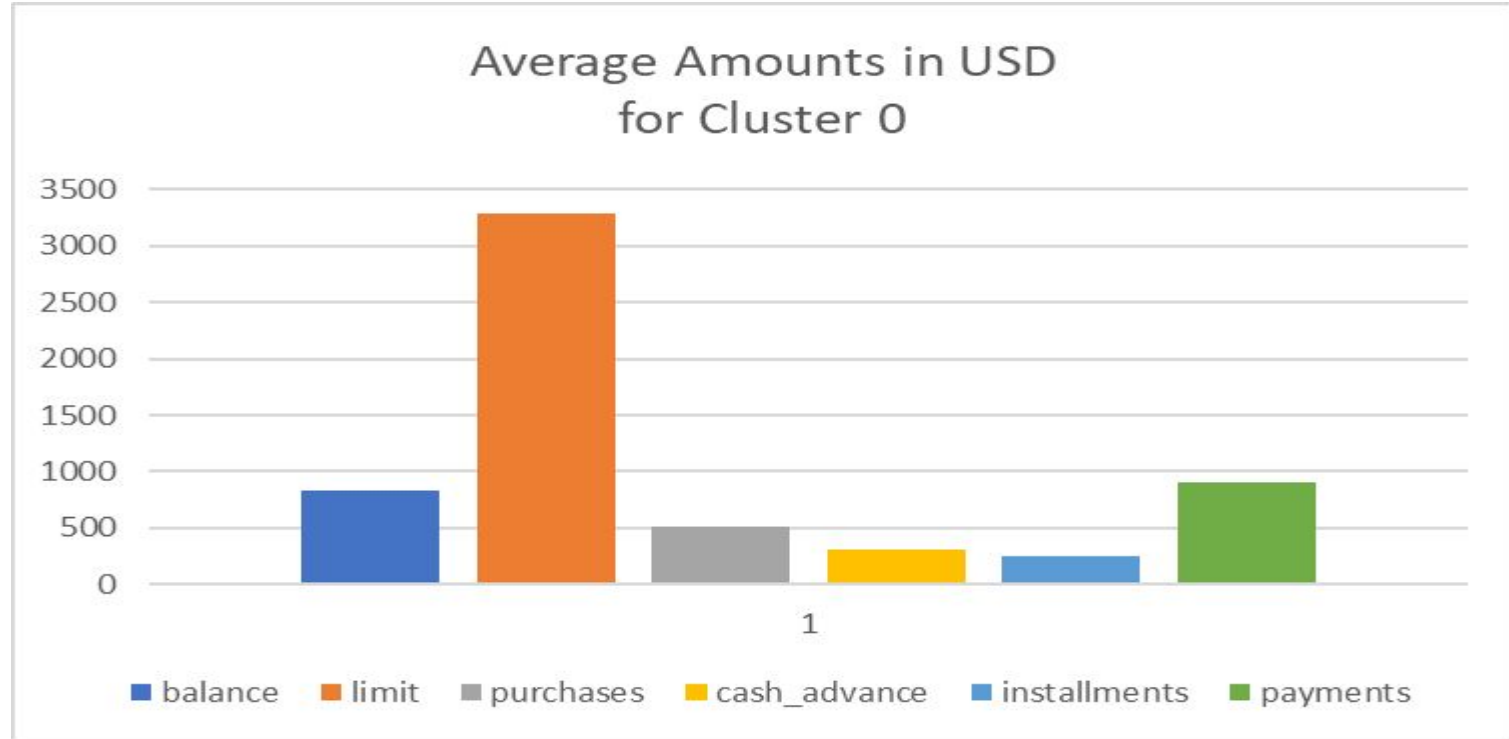
Overview Chart for 'Cash Lovers'

Average Amounts in USD for Cluster 1
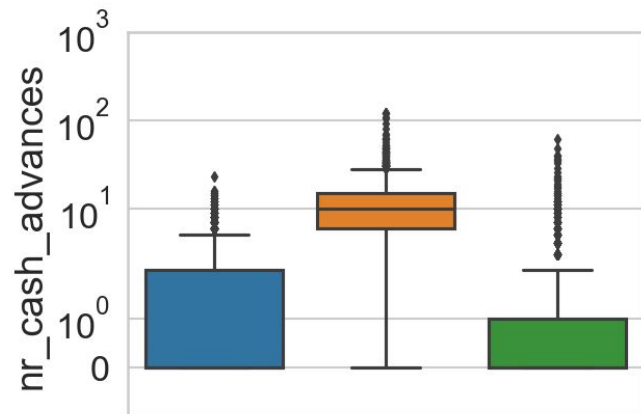
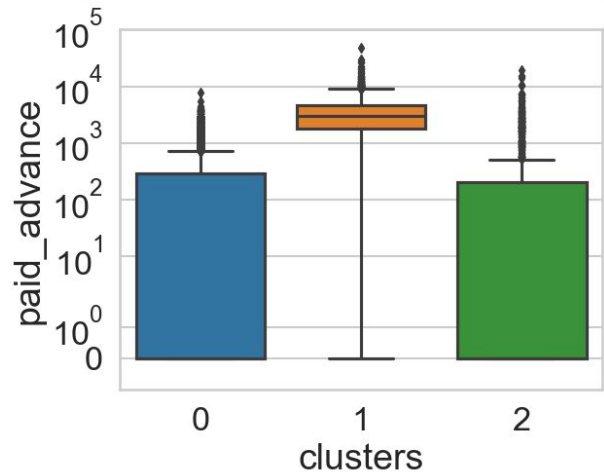# Overview Chart for the 'Frequent Spenders'
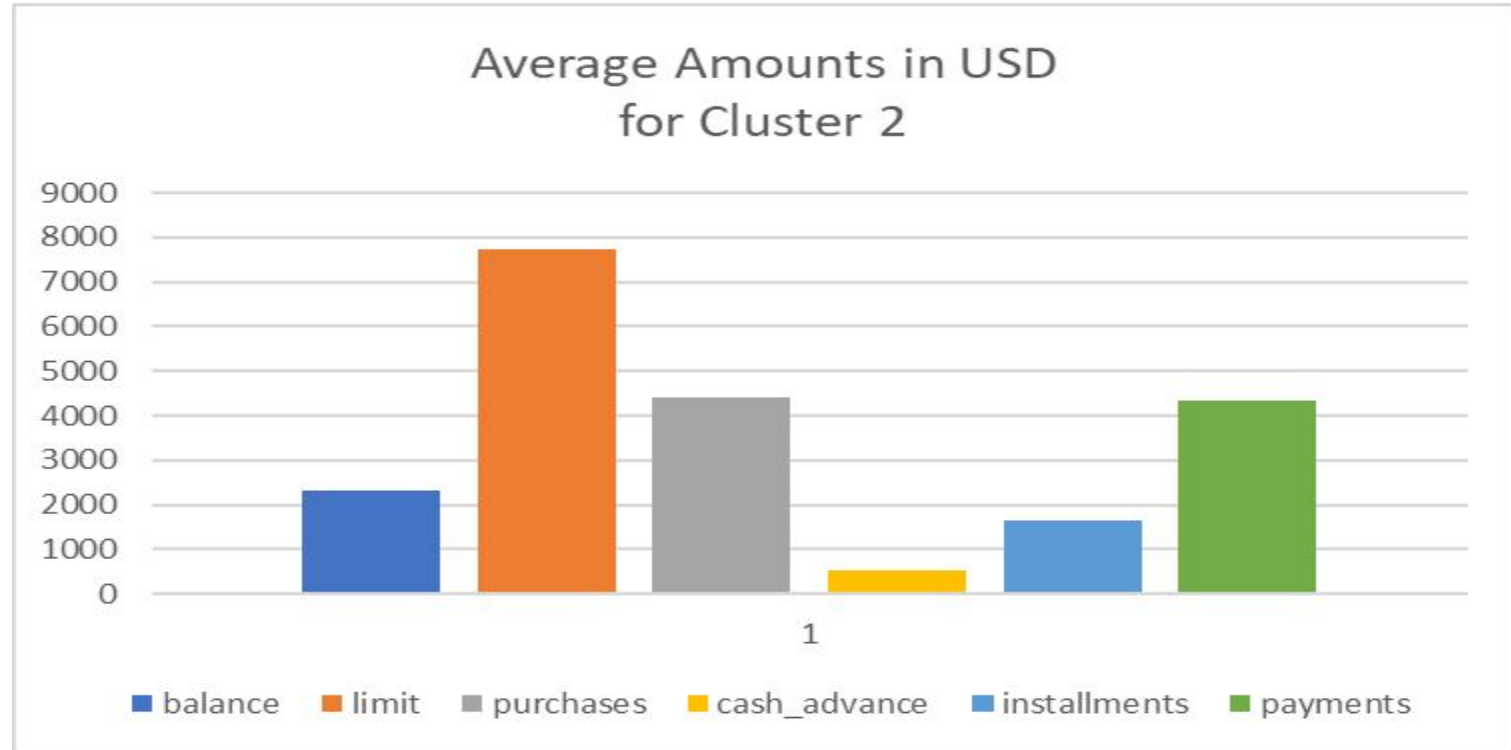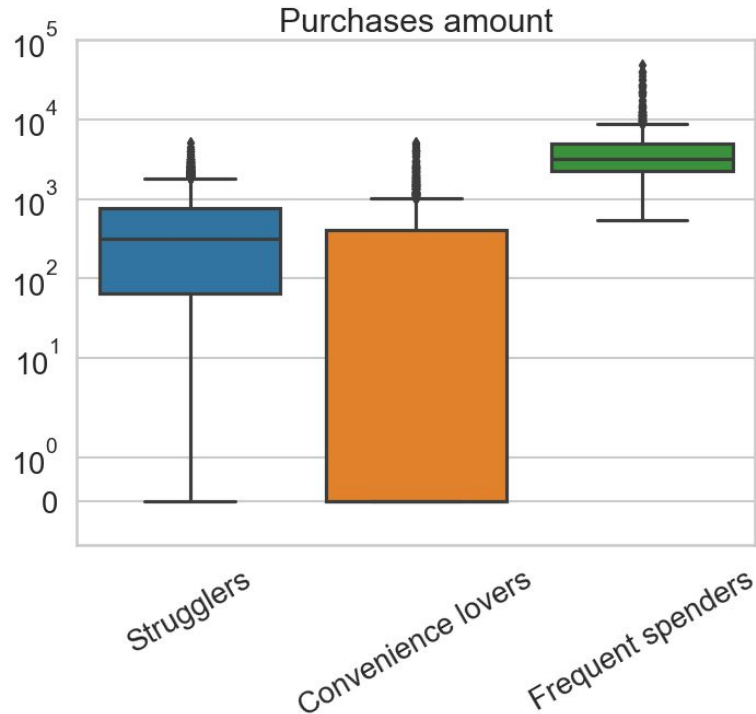
Class 1: The convenience lovers

Number of cash advances : cash in advance given by the user

Paid in advance: number of transactions made with "Cash in Advance" method

Class 2: The frequent spenders

Purchase amount: amount of purchases made from client's account

Clients in the 'Frequent spenders' class make much more purchases than clients in the other 2 classes

	Cluster 0	Cluster 1	Cluster 2
min	0	0	534.26
max	5,080.85	5,197.22	49,039.57
median	319.98	0	3,220.09

'Frequent spenders' frequently buy and often pay in full amount, while 'strugglers are rarely able to pay back in full
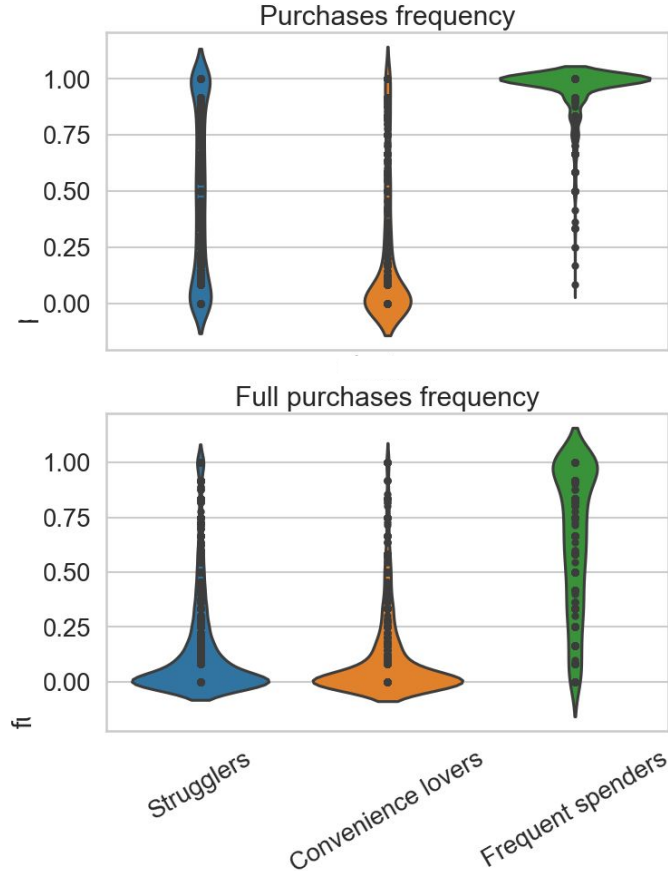
Purchases frequency: how frequently the purchases are being made
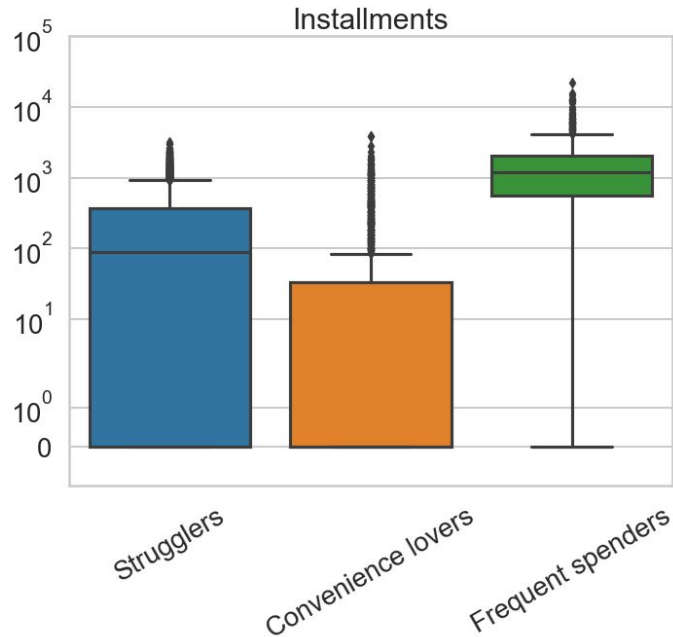
Full purchases frequency: how frequently purchases are happening in <u>full payment</u>

Both scores between 0 and 1:

- 0 = not frequently purchased
- 1 = frequently purchased

'Frequent spenders' prefer payments in installments

Installments : amount of purchases done in installments

Installments

Frequent spenders class:

- Financially comfortable
- High credit limit

Recommendations on marketing campaign strategy

Target "Struggles" with more installments (less expensive than credit)

Target "Convenience lovers" with cash in advance product

Target "Frequent spenders" with premium, luxury products, payback