

Bank customers clustering based on transaction categories

Data and Results



Objective

Explore how clustering bank customers based on

- **transaction categories**
- **transaction amount**
- **balance**
- **other demographics**

can lead to increased profitability and improved marketing strategies.



Benefits

By understanding customer

- **interests**
 - **habits**
 - **desires**
- we can offer
- **personalized services**
 - **how to attract new customers**
 - **how to promote specific products**



Solution

Gather relevant *data* from various sources, such as

- **transaction database**
- **CRM database**

1. Partnerships and Collaborations:

Based on the most popular transaction categories, the bank could establish partnerships with businesses in these categories. For instance, if the "restaurant" tag is very popular among a bank's credit card users, the bank could partner with a range of restaurants to offer special discounts, cash-back, or bonus points for transactions made at these establishments with the bank's credit card. This not only encourages more spending (thus increasing transaction fee revenue for the bank) but also makes the bank's credit card more attractive to potential new customers who frequent these establishments.

2. Tailored Rewards Programs:

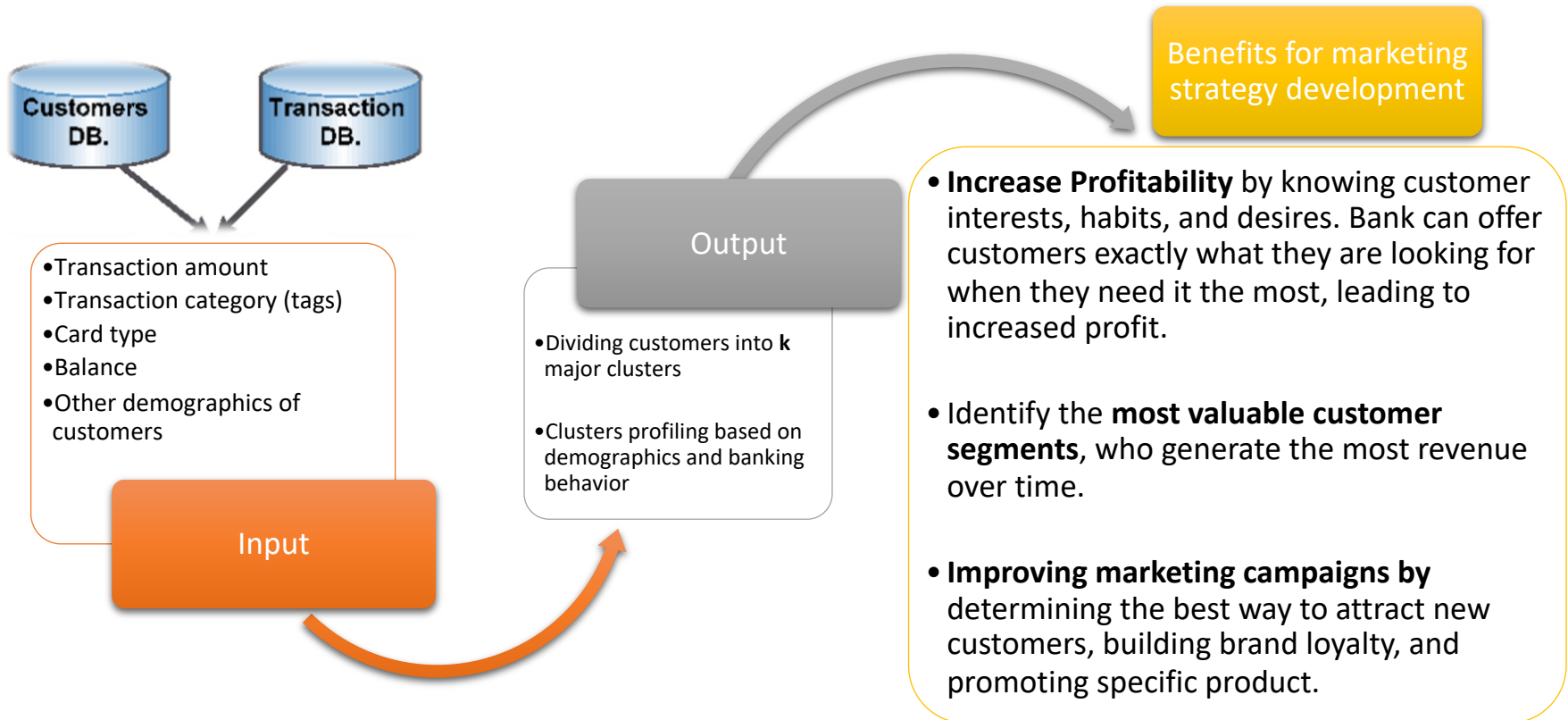
Bank could also design credit card rewards programs around the most popular transaction tags. For example, if the "travel" tag is popular, they could offer more travel-related rewards like airline miles or hotel points. If "groceries" is a common tag, they could offer higher cash back on grocery purchases. This kind of tailored rewards program encourages more card usage, and by making the credit card more valuable to customers, the bank can potentially increase card adoption rates and decrease churn.

3. Targeted Marketing Campaigns:

Transaction tags can also inform the bank's marketing strategies. By understanding what customers spend their money on, the bank can create personalized marketing campaigns that resonate better with individual customers. For example, customers who frequently use the "shopping" tag might receive promotions about retail partnerships or shopping-related rewards. More targeted marketing can lead to higher engagement rates and, ultimately, more transactions.

4. Introduction of New Financial Products:

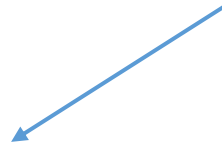
Analysis of transaction tags can also help the bank identify gaps in its product offering. For instance, if there's a significant amount of spending in the "home improvement" category, the bank might decide to introduce a new credit card product with special benefits for home improvement stores or a home improvement loan product.



Initial Data Structure

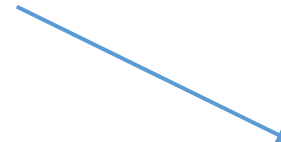
user_id	date	account_number	balance	tag	amount	payment
2123	7/22/2021	*****123	26.80432	lounge & bar	8.69	Sent
2123	7/25/2021	*****123	73.32325	transfer	5.52365	Sent
2123	7/25/2021	*****123	78.8469	airtime	0.1122	Sent
2123	7/25/2021	*****123	78.9591	transfer	17.6	Received
2123	7/25/2021	*****123	61.3591	fuel	6.6	Sent
2123	7/25/2021	*****123	67.9591	supermarket & store	6.1369	Sent
2123	7/25/2021	*****123	74.096	supermarket & store	18.194	Sent
2184	11/14/2019	*****077	50.38781	cash	88	Sent
2184	11/14/2019	*****077	138.3878	cash	88	Sent

Number of transactions



	airfare	airline	baby items	transportation	beauty
99	0	45	97	0	0
2123	0	223	0	0	0
2184	0	566	0	0	24
2186	0	0	0	65	0
2202	0	438	0	74	0

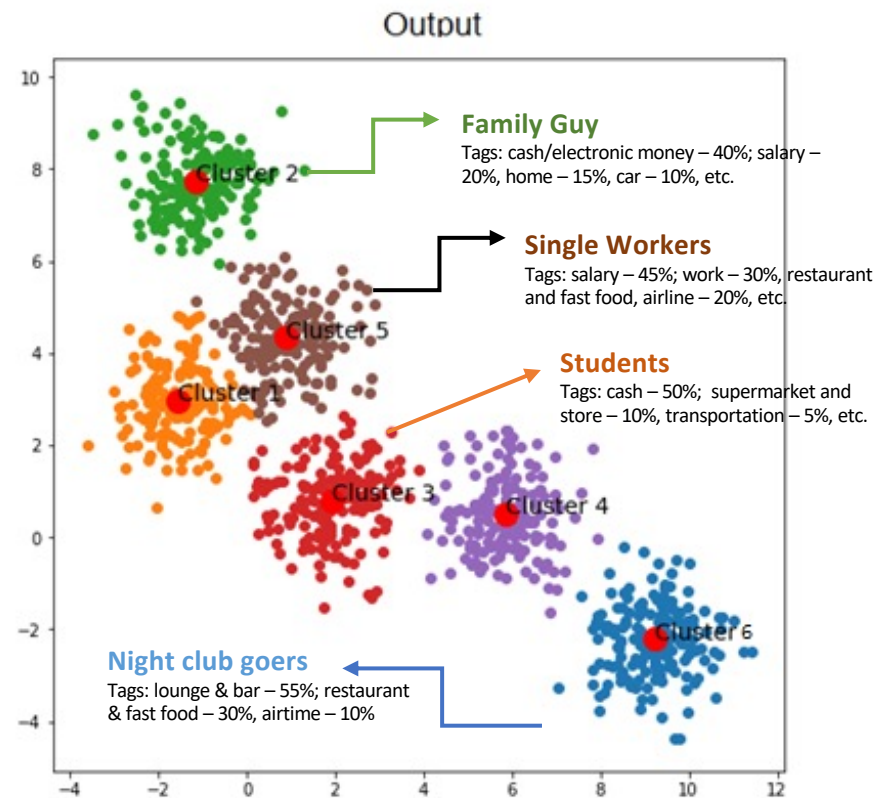
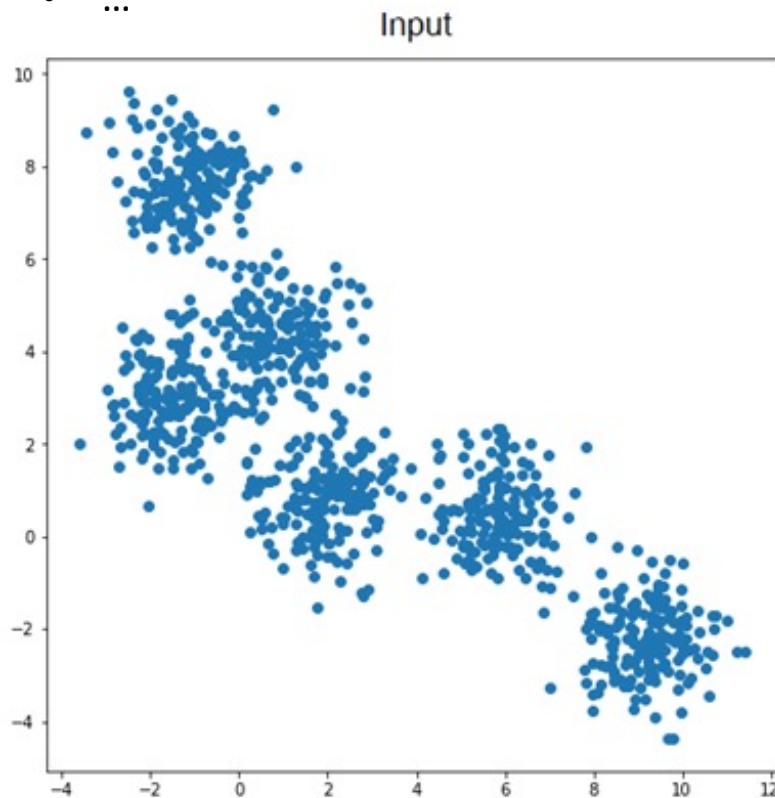
Amount spent



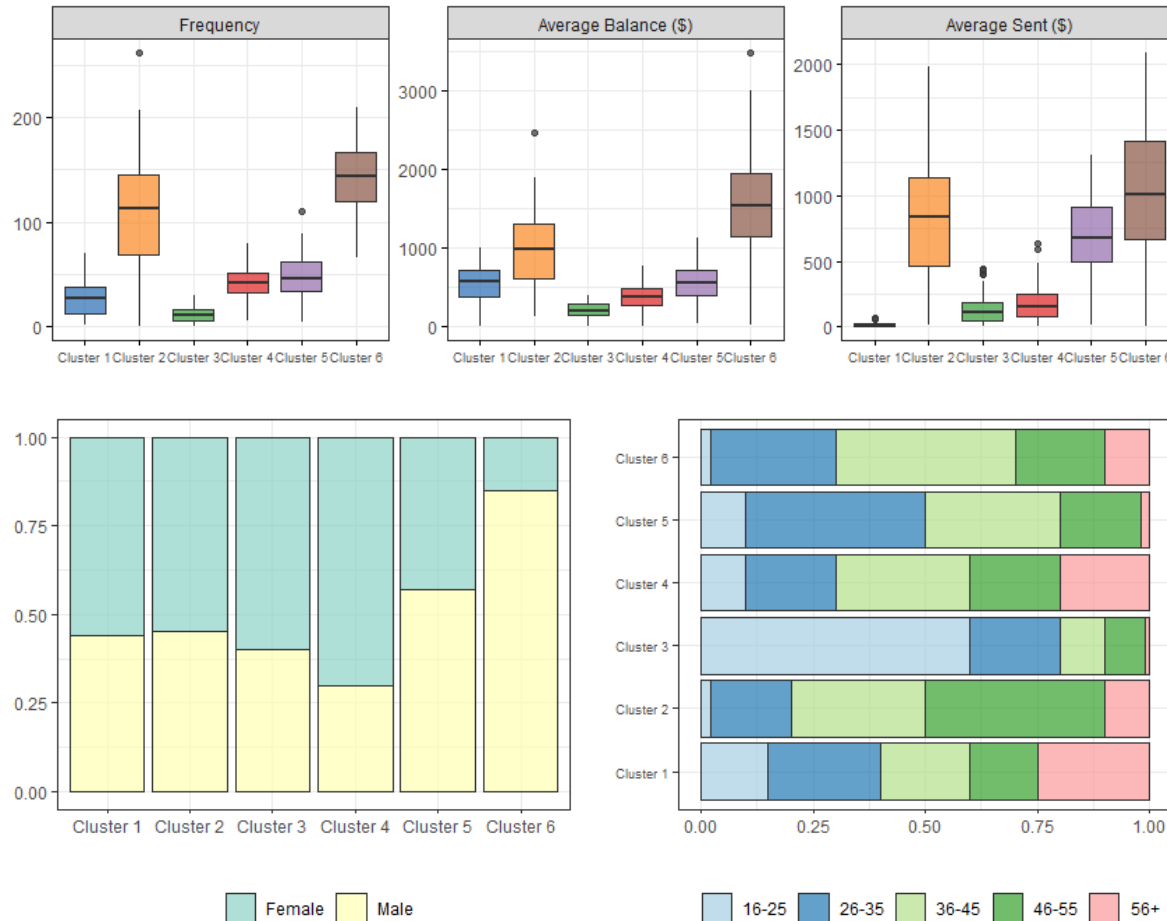
	airfare	airline	baby items	transportation	beauty
99	0	26.62	490.27	0	0
2123	0	250.22	0	0	0
2184	0	1173.88	0	0	11.44
2186	0	0	0	56.74	0
2202	0	978.42	0	93.65	0

Based on the cluster analysis the following segments are created:

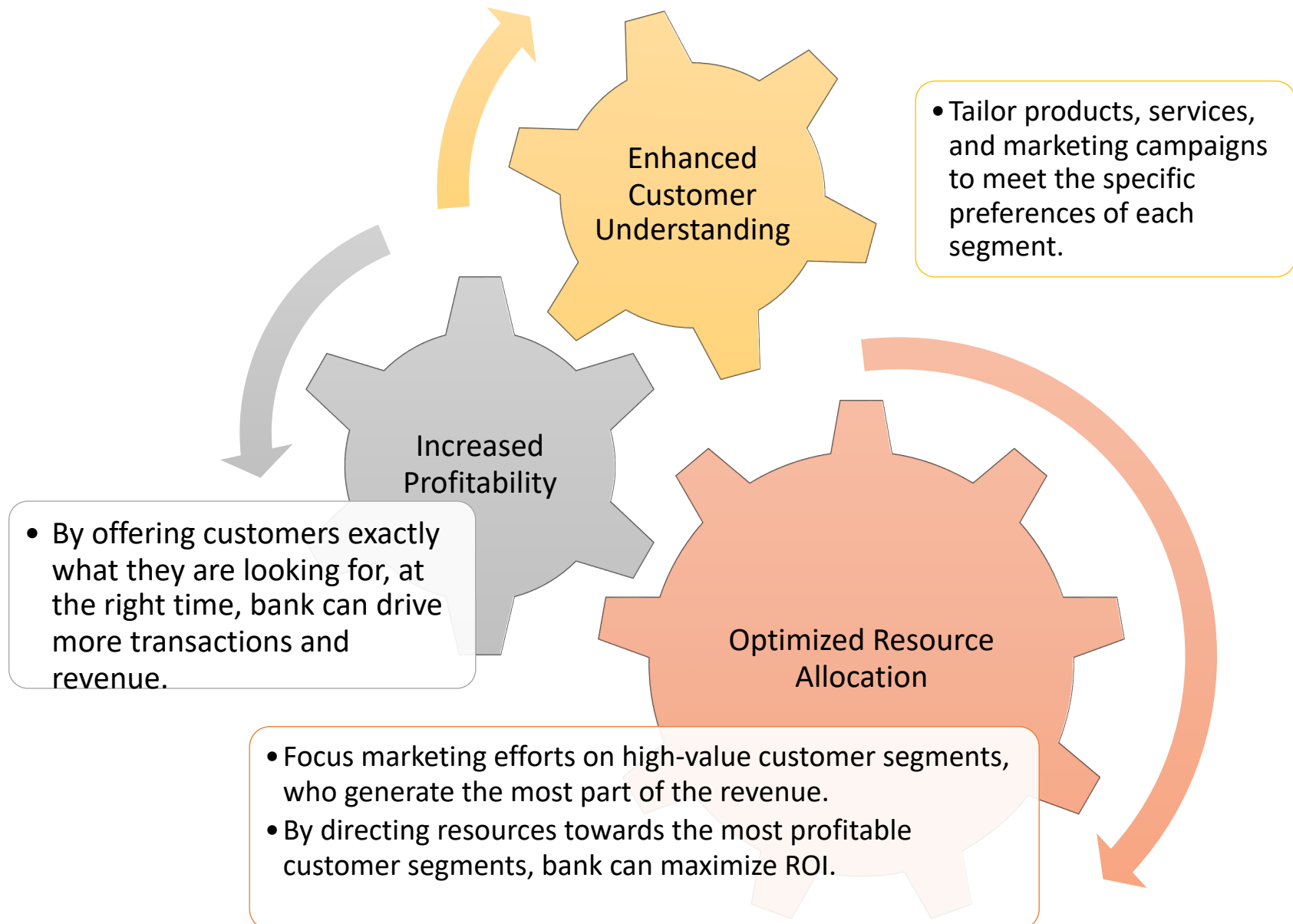
- **Family Guy** – Spends mostly on grocery and family entertainment events
- **Single worker** – Dines out a lot, single source of income
- **Night club goer** – Spends mostly on entertainment, restaurants, clubs, usually active on weekend nights
- ...



Describing the clusters based on demographic and spending behavior



- **Family members (cluster #2)**– have relatively high transaction frequency, balance and sent amount. The cluster consists of mostly 25-55 year people.
- **Night club goers (cluster #6)** consist of young men doing their activity mostly via bank and saving the money in the bank



Leveraging Transaction Tag Analysis for each segment

Customer Segment	Typical Spending Categories	Potential Partnerships	Rewards Programs	Marketing Campaigns
Family Guy	Groceries, Household, Education, Travel	Grocery stores, education service providers, home improvement stores, family-friendly travel agencies	Extra points or higher cash-back for spending in these categories	Promotions on family-related benefits (e.g., back-to-school shopping, family vacations)
Single Worker	Restaurant, Travel, Entertainment	Popular restaurants, travel agencies, entertainment platforms (like streaming services)	Travel rewards or dining points for free flights or meals	Promotions highlighting work-life balance (e.g., discounts on weekend getaways or dining out)
Student	Education, Books, Food & Drink	Bookstores, online learning platforms, fast food chains popular among students	Points or cash backs on book purchases or study-related expenses	Special student promotions (e.g., discounted rates for online courses or study materials)
Party Goers	Entertainment, Nightlife, Travel	Music event organizers, clubs, travel agencies organizing party-themed trips	VIP experiences or discounts on event tickets or trips	Promotions highlighting party-related benefits (e.g., early access to event tickets or exclusive deals at popular nightlife spots)

Project Focus: The project is centered on statistical evaluations to assess the feasibility of using clustering techniques on categorized transaction data.

Primary Objective: The aim is to deliver comprehensive cluster analysis results that group customers with similar transactions together.

Outcome Benefits: The analysis will reveal patterns and trends that can serve as a foundation for future decision-making, strategic planning, and customer segmentation.

Future Steps: Integration with the existing CRM system will be considered in later phases, after confirming the effectiveness and applicability of the clustering approach.

If you require assistance in marketing analytics, data science, or ML, feel free to reach out to us at info@datamotus.com. Together, we'll work towards achieving success for your business.

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