

transcation frequency based on different parameters (Demographic cluster)

	AgeGroup	TransactionFrequency
0	Mid-Aged (25-40)	523787
1	Older Adult (40-60)	267547
2	Senior (60+)	77401
3	Young Adult (<25)	871

	CustGender	TransactionFrequency
0	F	234994
1	M	634612

transaction_frequency_by_location

	CustLocation	TransactionFrequency
4967	MUMBAI	85618
5457	NEW DELHI	70444
730	BANGALORE	68407
2906	GURGAON	61521
1941	DELHI	58537
...
1640	CHUVACHANPUR	1
6006	PASHCHIM CHAMPARAN	1
6008	PASSPORT OFFICE PUNE	1
6009	PASWADA GHAZIABAD	1
8820	ZUNHEBOTO	1

: transaction_frequency_by_gender_location

	CustGender	CustLocation	TransactionFrequency
7117	M	MUMBAI	58591
7535	M	NEW DELHI	49999
3519	M	BANGALORE	48173
5362	M	GURGAON	40445
4548	M	DELHI	40351
...
5446	M	HARSOLI	1
8708	M	SADARAMANGALA BANGALORE	1
5445	M	HARSAN	1
1449	F	MADHYA PRADESH	1
6542	M	LAYOUT 2ND SECTOR BANGALORE	1

Balance grouping

	CustAccountBalance_group	TransactionFrequency
0	Active	217703
1	Mid-Active	217874
2	Super Active	216800
3	inactive	217229

balance_frequency_by_location

	CustLocation	CustAccountBalance_group	AccountFrequency
0	(154) BHASKOLA FARIDABAD	Active	8
1	(BEFORE YMCA BLDG) CHENNAI	inactive	1
2	(BENAKA MDTs) BANGALORE	inactive	21
3	(BRINDA BAN) KOLKATA	Mid-Active	4
4	(DT) HOSUR	Mid-Active	8
...
13061	ZONE WHITEFIELD BANGALORE	Active	37
13062	ZOPADPATTI TEHSIL KURLA MUMBAI	Active	1
13063	ZUARINAGAR	Active	6
13064	ZUMARI TILAIYA	Super Active	8
13065	ZUNHEBOTO	Active	1

Time based analysis (means low time spent in transaction)

	TransactionTime_group	TransactionFrequency
0	Low	217218
1	Super high	217664
2	Very Low	217247
3	high	217477

Super high transaction time (good news)

trans_frequency_by_location			
	CustLocation	TransactionTime_group	AccountFrequency
12530	MUMBAI	Super high	24701
12529	MUMBAI	Low	21137
12531	MUMBAI	Very Low	19919
12532	MUMBAI	high	19861
13773	NEW DELHI	Very Low	18324
...
14915	PAPUMPARE	high	1
14916	PAPUMPARE NAHARLAGUN	high	1
14917	PARA KOLKATA	Low	1
14919	PARADEEP	Very Low	1
22274	ZUNHEBOTO	high	1

----- have low , high and super high transaction time

Forming clusters

	CustomerID	CustomerSegment	CustomerSegmentLabel
0	C5841053	1	Inactive Customers
1	C2142763	1	Inactive Customers
2	C4417068	1	Inactive Customers
3	C5342380	3	Super Active Customers
4	C9031234	2	Mid-Value Customers
...
875569	C3711315	1	Inactive Customers
875570	C2131177	1	Inactive Customers
875571	C1019311	2	Mid-Value Customers
875572	C4413592	2	Mid-Value Customers
875573	C4813976	2	Mid-Value Customers

Clusters count as per segment

	CustomerSegment	CustomerCount
0	1	356881
1	3	253889
2	2	211447
3	0	47389

Interpretation

Mid aged have highest truncation frequency but company lacks young adults engagement

Males are most frequent to transact than females

Mega cities are most frequent to transact , transaction frequency needs to be frequent for tier 3 locations as well

In mega cities , transaction are done by males rather than females, even though females are earner in this region

Mostly accounts are mid active, good news is that inactive accounts are much lower

Most megacities have mid active to active accounts rather than super active accounts , major locations like Bangalore are inactive which is critical to banks.

Time based analysis (means low time spent in transaction), Super high transaction time (good news)

Customer Segmentation Model

- **Dependent Variable:** CustomerSegment (can be manually assigned: e.g., “High-Value”, “Inactive”, etc.)
- **Independent Variables:**
 - Age

- CustAccountBalance_group
- TransactionTime_group
- TransactionAmount (INR)

You could segment customers into different groups like “High-Value” (those with high transaction amounts), “Inactive” (those with low or no transactions), etc. This segmentation would allow you to target specific groups for promotions or retention strategies.

In totality, less active customers are there in bank , then super active customer are there

GPT language

Insights Derived from the Clustering:

1. Demographic Observations:

- **Age Group:**
 - Mid-aged customers have the highest transaction frequency.
 - Young adults show lower engagement, indicating a need to enhance banking services tailored to their preferences.
- **Gender:**
 - Males dominate transactions overall, particularly in mega cities.
 - In mega cities, despite females being earners, their transaction frequency lags.

2. Location-Based Activity:

- Mega cities exhibit higher transaction frequencies but predominantly by males.

- Tier 3 locations show less activity, presenting an opportunity to drive engagement through local initiatives.
- Cities like Bangalore, though major hubs, have a higher proportion of inactive accounts, signaling a critical area for improvement.

3. Account Activity Levels:

- Majority of accounts fall under the mid-active category, which is a positive sign.
- Super active accounts are comparatively lower, presenting an opportunity to incentivize mid-active users.
- The low count of inactive accounts is reassuring but needs continual monitoring.

Actionable Recommendations:

1. Targeting Young Adults:

- Launch youth-centric campaigns like gamified savings plans, student loan schemes, or loyalty programs to attract and retain young customers.

2. Gender-Specific Engagement:

- Develop female-focused financial products in mega cities (e.g., investment plans, business loans).
- Use personalized marketing campaigns for male customers to maintain their engagement levels.

3. Tier 3 Expansion:

- Enhance digital infrastructure and financial literacy campaigns in Tier 3 cities.
- Partner with local businesses to encourage transaction activity.

4. Reviving Inactive Accounts:

- In critical locations like Bangalore, roll out reactivation campaigns offering perks such as fee waivers or cashback incentives for account usage.

5. Encouraging Super Active Status:

- Provide loyalty rewards or tiered benefits (e.g., higher interest rates or exclusive services) to incentivize mid-active users to become super active.

6. Customer Segmentation Model (Action-Driven Strategy):

- **High-Value Customers:** Offer premium benefits like personalized investment advice or concierge banking services.
- **Mid-Active Customers:** Regular nudges via email or app notifications with tailored product suggestions.
- **Inactive Customers:** Reactivation drives through rewards for first transactions post-inactivity.

