Exploratory Data Analysis (EDA) Report

1. Cluster Analysis

Cluster Labels and Counts:

* Moderate or Low Engagement and Banking Behavior: 5,632 customers
* High Banking Behavior, Low or Moderate Engagement: 626 customers
* High Engagement, Low or Moderate Banking Behavior: 572 customers
* Low Engagement, Low Banking Behavior: 175 customers
* Highly Engaged, High Banking Behavior: 76 customers

Findings:

* Most customers (5,632) fall into the Moderate or Low Engagement and Banking Behavior cluster, indicating a significant portion of the customer base is neither highly engaged nor exhibiting strong banking behaviors.
* Only 76 customers are in the Highly Engaged, High Banking Behavior cluster, suggesting a small segment of highly valuable customers.
* Opportunities exist to move customers from lower engagement clusters to higher ones through targeted strategies.

2. Correlation Analysis

Correlation Matrix:

|  | Duration\_of\_Contact | Num\_of\_Contacts\_Made | Outcome |
| --- | --- | --- | --- |
| Duration\_of\_Contact | 1.000000 | 0.133918 | 0.069756 |
| Num\_of\_Contacts\_Made | 0.133918 | 1.000000 | 0.100823 |
| Outcome | 0.069756 | 0.100823 | 1.000000 |

Findings:

* Duration of Contact and Num of Contacts Made have a weak positive correlation (0.133918), suggesting that longer contact durations slightly increase the number of contacts made.
* Both Duration of Contact and Num of Contacts Made have a weak positive correlation with Outcome (0.069756 and 0.100823 respectively), indicating minimal impact on the outcome.
* The low correlation values suggest that other factors may be more influential on the outcome.

3. Outcome Analysis

Success and Failure Rates:

* Success Rate: 12.22%
* Failure Rate: 87.78%

Findings:

* The high failure rate indicates that a significant majority of attempts do not result in a successful outcome.
* The low success rate emphasizes the need for strategies to improve overall performance and effectiveness.

4. Feature Importance

Feature Importance Rankings:

1. Customer Age: 0.138810
2. Credit Score: 0.122942
3. Outstanding Loans: 0.121674
4. Balance: 0.119264
5. Total Transaction Amount: 0.116844
6. Savings: 0.106882
7. Total Transaction Count: 0.101489
8. Num of Contacts Made: 0.056821
9. Education Level: 0.044938
10. Months Inactive (12 months): 0.037715
11. Last Contacted: 0.032620

Findings:

* Customer Age is the most significant predictor of the outcome, suggesting age-related factors heavily influence customer behavior.
* Financial variables like Credit Score, Outstanding Loans, Balance, and Total Transaction Amount are also key predictors, showing the importance of financial health in outcomes.
* Num of Contacts Made and Last Contacted have lower importance, indicating that frequency and recency of contact may be less influential.

5. Key Performance Metrics

* Engagement Rate: 4.69%
* Conversion Rate: 0.00%
* Customer Lifetime Value (CLV): -0.00
* Return on Marketing Investment (ROMI): -2.88

Findings:

* The low Engagement Rate suggests limited customer interaction with marketing efforts.
* A Conversion Rate of zero indicates that current strategies are not effectively turning prospects into customers.
* Negative CLV and ROMI values point to unprofitable customer relationships and inefficient marketing spend.

6. Customer Risk Summary

Risk Categories:

* High Risk of Churn - Follow Up Needed: 3,782 customers
* Low Risk: 3,299 customers

Findings:

* A larger number of customers are at high risk of churn, showing the need for retention initiatives.
* Proactive engagement with high-risk customers could improve retention rates.

Recommendations

* 1. Develop personalized marketing campaigns targeting the largest cluster to increase engagement levels.
* 2. We should focus on financial health indicators. Since financial variables are significant predictors, tailor financial products or advice to meet customer needs.
* 3. Improve Conversion Strategies by analyzing and revamping the sales funnel to identify and address bottlenecks affecting conversion rates.
* 4. To increase customer retention, implement loyalty programs and offer incentives to high-risk customers to reduce churn.
* 5. Reassess marketing channels and strategies to improve ROMI and ensure funds are allocated effectively.

Conclusion

The analysis reveals areas for improvement in customer engagement, conversion, and retention. By focusing on the most influential factors and implementing targeted strategies, the organization can enhance customer satisfaction, increase profitability, and achieve better overall performance.