Smarten
Augmented Analytics

Case Study

Business Intelligence & Augmented Analytics

Smarten Case Study: Customer Churn Prediction for India-Based Pharmacy and Wellness Business

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Case Study

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The Client

The Client owns a leading specialty chain of pharmacy and wellness stores in Ahmedabad, India, providing pharmaceuticals, medications, and wellness products to the community and consumers. As a component of its business, it sponsors a popular customer loyalty program.

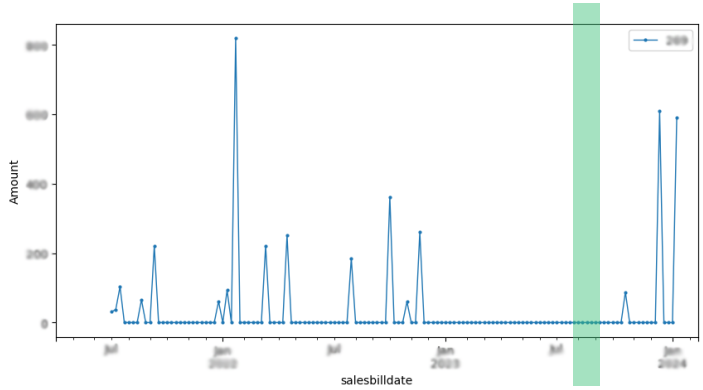
The Objective

As part of its strategy to grow its business and retain its customers, the Client wishes to identify and address potential customer attrition. The company wishes to deploy the Smarten data analytics and machine learning solution to analyze customer behavior, purchase patterns, and engagement metrics to analyze customer data, and identify those at risk of canceling a membership or moving to another provider. As part of its strategy to reduce customer churn, the Client wishes to create targeted strategies, personalized campaigns, and enhanced services to boost loyalty, retention, and long-term profitability.

Challenges

To support the Client objective, the Smarten team had to define customer churn. The Client business model is not suitable for a “single” threshold value, i.e., *“those who haven’t appeared in the last 100 days; are churned”* because each customer has their own purchasing cycle and behavior.

Analytics revealed that customers make infrequent purchases, with some displaying long-term engagement despite low transaction frequency, while many seemingly regular customers disengaged unexpectedly, without any discernible trend to predict their departure.



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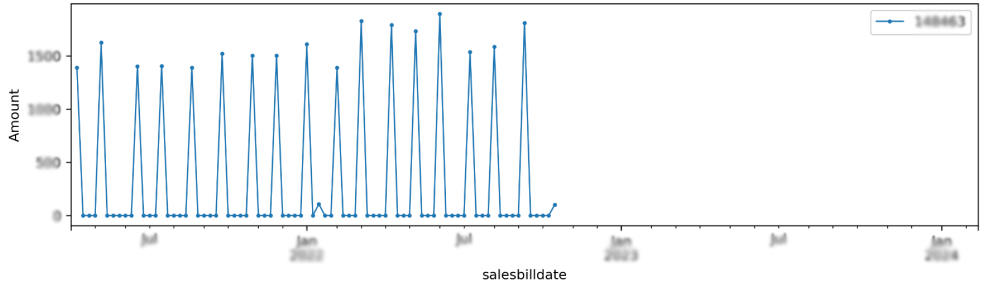
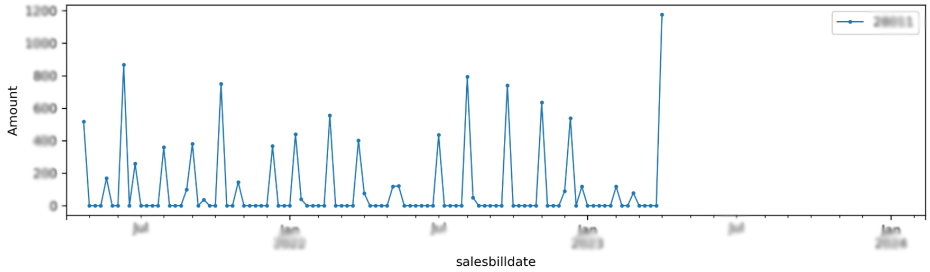
To address this challenge, the Smarten team analyzed segments and categorized these segments based on transaction frequency (High, Mid, Low). The churn definition was refined by capturing individual purchasing behavior for each customer, employing varying levels of churn sensitivity that were derived from empirical probability statistics. By using this method, the Smarten team was able to address the churn dynamics within the context of Client business model.

The Smarten team then conducted Recency, Frequency, Monetary (RFM) analysis. This process involved calculating the RFM for the transactions of each customer to gain insight into the measurable value of each customer to the business.





Following the definition of customer churn, the Smarten team engineered additional features to enhance predictive modeling accuracy.

Primary features included:

- 3, 6, 12 months total transection history for each customer
- Customer purchasing trend for most recent 3, 6, 12 months (up, down, no change)
- Customer RFM score and segment
- Length of customer relationship from loyalty program application to current date
- Card type

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- Average purchase cycle in days
- Deviation purchase cycle in days
- Days since last purchase

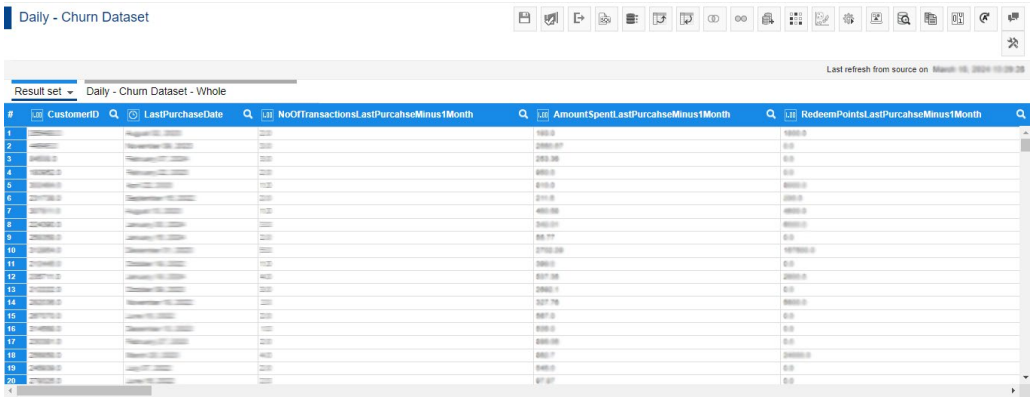

Figure 3 - Smarten SSDP interface after the Data Preparation

The Solution

Data Transformation

The data was collected from the Point of Sale (POS) in its existing format and restructured to align with the model requirements, using the Smarten Self-Serve Data Preparation (SSDP) module, to efficiently transform the data to align with the desired format.

Training, Model Tuning and Validation

Following data preparation, the dataset was ready for model training. To ensure the reliability of the model, the Smarten team partitioned the data into training and testing sets, allocating 70% for training and reserving 30% for testing, thereby ensuring unseen data for validation.

The Smarten solution automatically chooses the features (predictors) that are best to predict the target – in this case, the “Churn.” The Smarten team refined the model by adding and removing certain features, and validated the model performance, using the test dataset.

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Results

The Smarten Augmented Analytics solution provides seamless integration within operational processes. The trained model was deployed to automatically generate predictions on the transactional data of the Client. These predictions serve as actionable insights, empowering proactive measures to mitigate customer churn.

The Smarten dashboard and reporting capabilities play a crucial role in operationalizing insights. Utilizing intuitive dashboards and reports, the Client achieves real-time visibility into key metrics and trends related to customer behavior, and churn prediction. These visualizations enable stakeholders to make informed decisions and implement targeted strategies for customer retention and satisfaction.

Data manipulation and preparation within the Smarten solution suite significantly streamlined Client processes. By leveraging Smarten tools, the Client can seamlessly gather comprehensive transactional data for each customer, thereby ensuring suitability for model training. Once the data is prepared, the solution assures predictive model creation, automated selection of the best model, and data pre-processing steps – all automatically applied to best suit the data.

The data is fed into the model representing each customer as a single row, with the target outcome indicating churned or non-churned status.

Figure 4 - Dashboard in Smarten showing important information for the potential churners

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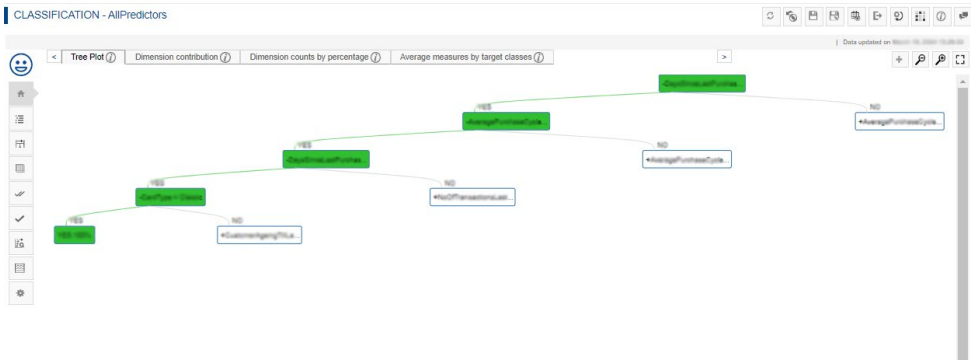

Figure 5 - Classification model home screen in Smarten

The Client dataset is partitioned into 70% for training and 30% for testing model accuracy.

Conclusion

The Smarten model demonstrated remarkable performance, achieving 98% accuracy in predicting customer churn on the testing dataset.

After a period of four months the Client reviewed the outcomes and provided valuable feedback on the performance of the Smarten solution and its alignment with Client strategies. The model predicted that 943 customers were at risk of churning. To avoid attrition, the Client reached out to customers with a significant prediction of churn, and successfully influenced 572 to make purchases. Only 371 customers did not return. This customer retention improvement resulted in an average Customer Lifetime Value (CLV) of ₹6,12,832.56 for each customer. The Smarten analytical model resulted in a very accurate churn prediction, and successfully identified at-risk customers, and the Client continues to run and use this model every quarter to manage customer churn.

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