

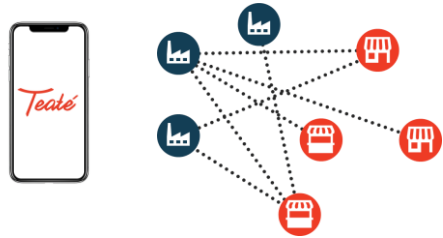
Recommender System for supplying neighborhood grocery stores



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Background

Teaté is a digital community founded in Cali, whose purpose is to connect suppliers of goods and services with micro businesses, allowing business to stock their stores through the mobile app. However, Teaté's application does not have any tool to help users decide which products to buy. Such a tool could help shopkeepers make better inventory choices in less time, widen their portfolio, meet their customers' needs, and increase revenue.



Data

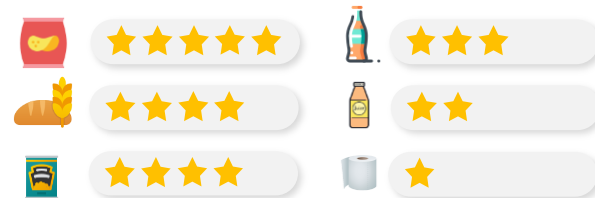
The available data consist of the stores orders made through the platform from January 2019 to August 2020.



Recommender System Background

Through the analysis of the historical data of the orders made in the application, the purchasing behavior of each store was estimated and a hybrid recommendation system was developed based on two approaches:

- **Popularity Based:** Which are the most popular products in the user's region, among its neighboring stores, and among the group of shops that exhibit a similar purchasing behavior?

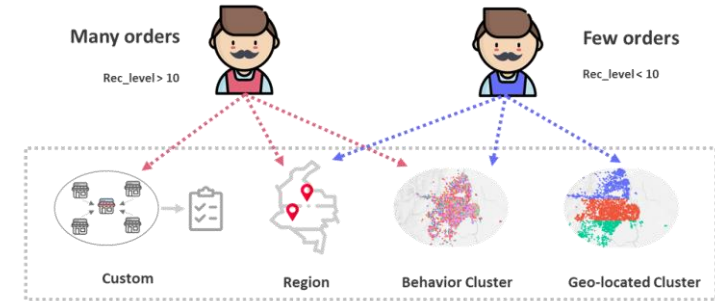


- **Collaborative Filtering:** What products should the user buy according to the user's and other similar stores' shopping behavior?

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	✓✓	✓✓	✓✓✓	✓✓✓
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	✓✓✓			✓

Results

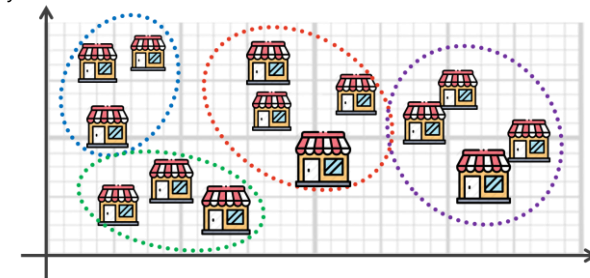
The user base is divided into two groups; the stores that have bought less than 10 different products and those that have not. The system adapts to both kinds of users, applying different algorithms to determine the ideal recommendation



The result of the custom method is a list composed of the products preferred by the shopkeeper, similar products to the ones most commonly requested by the shopkeeper and other popular products that the shopkeeper has yet to purchase on the app. For the user with an extensive order history, the frequency at which they buy each product, the time that has passed since it was last bought and the average time between the product's purchases were taken into account to provide the recommendation.

Highlights

- The stores were divided into 6 groups based on the frequency of purchase of each category of products, the overall purchase frequency, the monthly average expense and the average gross merchandise value. These groups can be easily characterized, and can also be used for market analysis.



- The recommender engine also improves the navigability of the app, as the user can find the products they are more likely to buy, effectively acting as a smart assistant.
- If the recommender system increases the numbers of items sold in each order, not only will it help shopkeepers expand their portfolio with products that will sell, it will also increase Teaté's profits.